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Regional Human Poverty Index
Poverty in the regions of the European

Dorota Weziak-Bialowolska

Lewis Dijkstra

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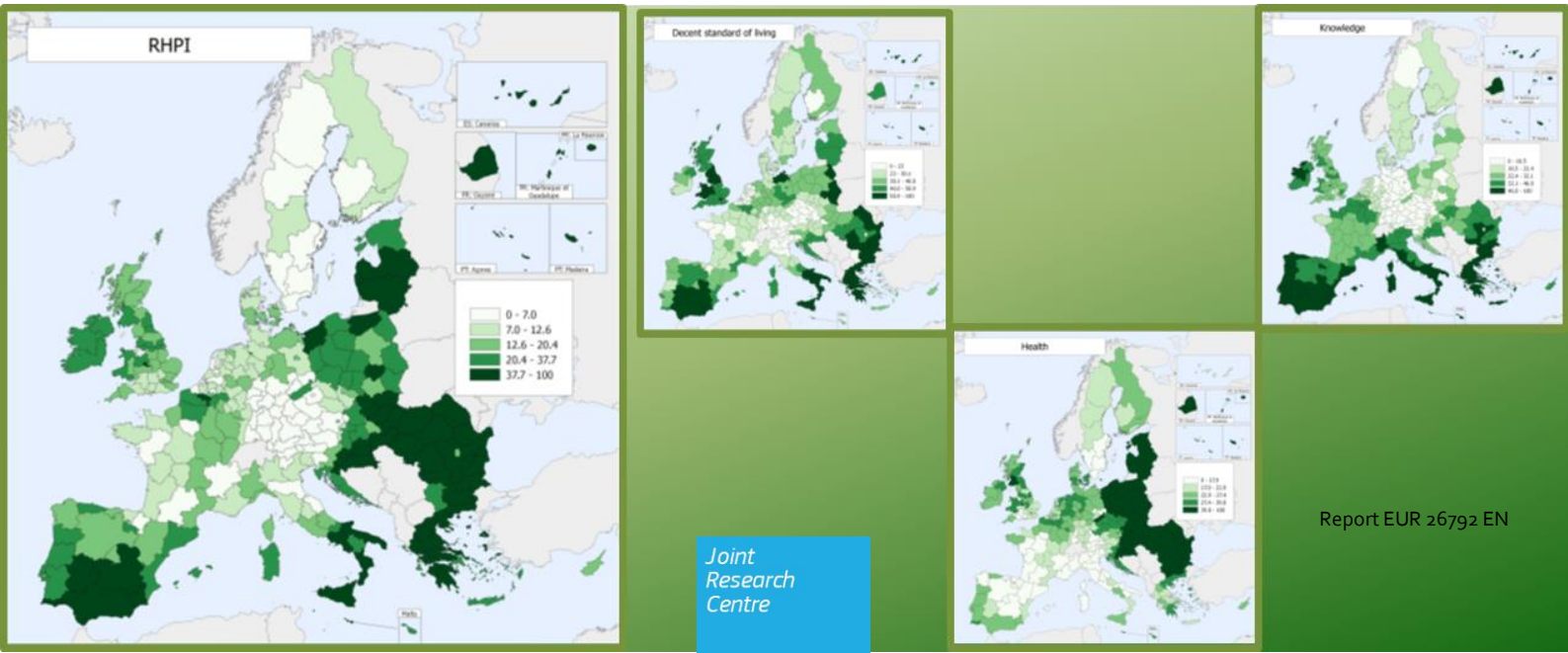

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Abstract

We measure area-specific poverty in the European Union (EU) at the second level of the nomenclature of territorial units for statistics (NUTS 2). We construct the regional human poverty index (RHPI), which comprises four dimensions: social exclusion, knowledge, a decent standard of living, and a long and healthy life. The RHPI provides information regarding the relative standing of a given country with respect to the level of poverty but also shows the variability of poverty within a country with respect to NUTS 2.

The RHPI is computed for all NUTS 2 regions in 28 EU countries. Our results show that the scale of poverty differs considerably within the EU countries, with RHPI scores ranging between 9.23 for Prague and more than 65 for Bulgarian Yugoiztochen and Severozapaden. We also find that substantial differences in levels of poverty between regions are present in all of the EU countries. The only exceptions to this finding are small EU countries where neither NUTS 1 nor NUTS 2 regions exist.

Our results also show that, in general, in NUTS 2 regions comprising a capital, the poverty level is lower than the country average. The only exceptions are Vienna, Brussels, and Berlin, where poverty measured by the RHPI is higher than the country average. By contrast, Bucharest, Sofia, Bratislava, Prague, Budapest, and Madrid exhibit decisively lower levels of poverty than their country averages.

Executive summary

We measure area-specific poverty in the European Union (EU) at the second level of the nomenclature of territorial units for statistics (NUTS 2). We construct the regional human poverty index (RHPI), which comprises four dimensions: social exclusion, knowledge, a decent standard of living, and a long and healthy life. The RHPI provides information regarding the relative standing of a given country with respect to the level of poverty but also shows the variability of poverty within a country with respect to NUTS 2.

The approach we propose has four properties. (1) Because the RHPI comprises only six indicators it is relatively simple to be replicated in subsequent years. (2) The RHPI provides information about the absolute magnitude of poverty experienced by Europeans in a given country and provides information about the relative standing of the country. (3) The RHPI shows the variability of poverty within a country with respect to NUTS 2. (4) The RHPI shows satisfactory statistical coherence confirmed by the results of correlation analysis and principal component analysis. As confirmed by uncertainty analysis, the RHPI also shows satisfactory robustness to the normative assumptions made during the construction process.

The RHPI also has some limitations. First, the conceptual model of the RHPI relies mostly on the conceptualisation of the poverty index proposed by the United Nations (UN) and data availability. Second, although research on poverty has developed rapidly in recent years, it has failed to establish the relative importance of poverty dimensions and thus guide us in establishing aggregation weights. This failure has resulted in a necessity to formulate certain a priori assumptions. Third, all indicators we proposed are of objective nature, which may influence the results and final conclusions. However, this is intentional and reflects the best approach that is achievable (due to lack of disaggregated at the NUTS 2 level subjective indicators) in order to measure poverty in the NUTS 2 regions. Fourth, in our computations percentage of population below the income poverty line in NUTS 2 regions are calculated using national poverty lines and without taking into account social transfers in kind. Regarding the social transfer in kind, without this type of adjustment household income is generally underestimated in countries with extensive public services, like in the Nordic member states, and overestimated in those where households have to pay for most of these services (Annoni et al., 2012; EC, 2010). However, disaggregated at the NUTS 2 level data with this respect are not available, therefore our approach is the best achievable. Then, the national, instead of the

regional, poverty lines are applied to highlight the differences between regions within the same country, as suggested by Betti at al. (2012).

The RHPI is computed for all NUTS 2 regions in 28 EU countries. Our results show that the scale of poverty differs considerably within the EU countries, with RHPI scores ranging between 9.23 for Prague and more than 65 for Bulgarian Yugoiztochen and Severozapaden. We also find that substantial differences in levels of poverty between regions are present in all of the EU countries. The only exceptions to this finding are small EU countries where neither NUTS 1 nor NUTS 2 regions exist.

Our results also show that, in general, in NUTS 2 regions comprising a capital, the poverty level is lower than the country average. The only exceptions are Vienna, Brussels, and Berlin, where poverty measured by the RHPI is higher than the country average. By contrast, Bucharest, Sofia, Bratislava, Prague, Budapest, and Madrid exhibit decisively lower levels of poverty than their country averages.

Contents

1. Introduction

In 2012, 124.5 million people, or 24.8 % of the European Union (EU) population, were at risk of poverty or social exclusion, compared with 24.3 % in 2011. These numbers change considerably when poverty is analysed between countries, age groups, and genders and especially when the sub-national dimension is taken into account. However, information about the distribution of poverty at the sub-national level is still limited, which seems surprising because the EU regions, not countries, are the key focus of the European Union's regional policy (Becker, Egger, & von Ehrlich, 2010). Local differences in poverty are essential to adequately targeting policies, alleviating the causes of poverty, and mitigating the consequences of poverty.

The measure of poverty officially used in the EU, the 'at risk of poverty or social exclusion' (AROPE) rate, combines both income and non-income indicators. It is reported not only at the country level but also for different levels of the nomenclature of territorial units for statistics (NUTS) and for areas differently defined with respect to population density. Nevertheless, the AROPE rate is not reported consistently for all countries. Namely, sub-national estimates of the AROPE rate are not available for several large countries, including Germany and the United Kingdom. With this knowledge, it seems reasonable to provide a composite measure of poverty that, next to the AROPE rate, will enable better identification of NUTS 2 regions where aid is most needed.

This study comprises six sections. First, we present the concept of poverty with a focus on the multidimensional measurement. Second, we shortly describe the Human Poverty Index proposed by the United Nations. Third, the conceptualisation of our approach to poverty measurement is discussed. Fourth, the methods used to construct a composite indicator of poverty are presented. The results section follows, and the final section concludes the paper.

2. Concept of poverty

The standard of people's lives both in relative terms, compared to other people in society, and in absolute terms, whether they enjoy life's basic necessities, is a reflection of whether people live in poverty (Callander, Schofield, & Shrestha, 2012). However, the notion of poverty is understood differently in different contexts. According to Wagle (2008) and Saunders (2005), there are three

main approaches in the conceptualisation and operationalisation of poverty: (1) economic well-being, (2) capability and (3) social inclusion.

The concept of economic well-being links poverty to economic deprivation, which, in turn, relates to material aspects and physical quality of life or welfare (Boulanger, Lefin, Bauler, & Prignot, 2009; Wagle, 2008). The capability approach proposed by Sen (1993) expands the notion of poverty from welfare, consumption and income to broader concepts such as freedom and well-being. Poverty is understood as the deprivation of capabilities and functionings. Capabilities are the things that a person is able to do or enable her to lead the life she currently has. Functionings represent achievements that a person is capable of realising. The third approach, which is based on social inclusion, is described as the opposite of social exclusion. Social exclusion relates to a state or situation and stems from the process of systematic isolation, rejection, humiliation, lack of social support, and denial of participation (Wagle, 2008). It focuses on deficiencies, whereas the capability approach focuses on possibilities and abilities. The last two approaches expand the notion of poverty from a purely economic perspective to a more sociological one.

Hagenaars and de Vos (1988) report that three types of poverty can be distinguished:

- absolute – meaning that poverty entails having less than an objectively defined, absolute minimum,
- relative – meaning that poverty entails having less than others in society, and
- self-assessed – meaning that poverty is a feeling that you do not have enough to get along.

Depending on the type of definition, different indicators are chosen. They can be classified generally as income and non-income related. Because the choice of definition and thus indicators affect the results, the multidimensional approach to poverty conceptualisation and operationalisation seems to be reasonable. There are numerous proponents of such an approach, including Alkire and Foster(2011a, 2011b), Alkire and Santos (2013), Antony and Visweswara Rao (2007), Bellani (2012), Betti, Gagliardi, Lemmi, and Verma (2012), Ravallion (2011) and Wagle (2008). In their studies, not only does the concept of poverty have numerous dimensions but its measurement instrument comprises monetary and non-monetary indices. Nevertheless, it must be noted that most analyses of poverty focusing on its subnational differentiation are often limited to a single country. For example, McNamara et al. (2006), Miranti et al. (2011), and Tanton et al. (2010) conducted analyses of Australia. Hutto et al. (2011), Jolliffe (2006), and Ziliak (2010) analysed poverty among the US states.

Pittau at al. (2011) were interested in poverty distribution between Italian regions, and Kemeny and Storper (2012) investigated poverty within American cities. Therefore, the aim of our study is to address this gap by investigating the sub-national variability of poverty in the EU.

In this study, we focus on poverty understood as economic well-being or economic deprivation. We provide a multi-dimensional measure of poverty at the sub-national level, namely the Regional Human Poverty Index (RHPI). The RHPI comprises four dimensions: a long and healthy life, standard of living, knowledge, and social exclusion. To be consistent with the variety of poverty definitions, we use both monetary and non-monetary indicators to assess poverty. Not only do we provide an aggregated measure of multidimensional poverty but we also check its quality by performing uncertainty analysis with respect to the scores and ranks of the RHPI.

The approach we propose has three useful properties. First, the RHPI comprises only six indicators, which makes it relatively simple to replicate in subsequent years. Second, the RHPI provides information about the absolute magnitude of poverty experienced by Europeans in a given country and provides information about the relative standing of the country. Third, the RHPI shows the variability of poverty within a country with respect to NUTS 2.

The RHPI also has some limitations. First, the conceptual model of the RHPI relies mostly on the conceptualisation of the poverty index proposed by the United Nations (UN) and data availability. Second, although research on poverty has developed rapidly in recent years, it has failed to establish the relative importance of poverty dimensions and thus guide us in establishing aggregation weights. This failure has resulted in a necessity to formulate certain a priori assumptions. We applied a particular weighting scheme, which, if biased, could have led us to incorrect results. To minimise this risk, not only did we formulate our conceptual model on the basis of a literature review, which was both comprehensive and inclusive of the most recent studies, but we also performed uncertainty analysis to show the possible volatility of RHPI scores and ranks. Third, all indicators we proposed are of objective nature. We recognise that there is a disjuncture between the approach we propose and what is advocated by other authors (Annoni, Weziak-Bialowolska, & Dijkstra, 2012; Bialowolski & Weziak-Bialowolska, 2013; Keese, 2012) and that our choice may influence the results and final conclusions. However, this is intentional and reflects the best approach that is achievable (due to lack of disaggregated at the NUTS 2 level subjective indicators) in order to measure poverty in the NUTS 2 regions. Fourth, in our computations percentage of population below the income poverty line in NUTS 2 regions are calculated using national poverty lines and without taking into account

social transfers in kind[1]. Regarding the social transfer in kind, without this type of adjustment household income is generally underestimated in countries with extensive public services, like in the Nordic member states, and overestimated in those where households have to pay for most of these services (Annoni et al., 2012; EC, 2010). However, disaggregated at the NUTS 2 level data with this respect are not available, therefore our approach is the best achievable. Then, the national, instead of the regional, poverty lines are applied to highlight the differences between regions within the same country, as suggested by Betti at al. (2012).

3. Human Poverty Index by the United Nations

The Human Poverty Index (HPI) was developed by the UN to complement the Human Development Index and was first reported as part of the Human Development Report in 1997. It served as an additional measure of the standard of living in a country. It must be noted, however, that in 2010, the HPI was substituted by the UN's Multidimensional Poverty Index (UNDP, 2013). Nevertheless, before 2010, the HPI was computed separately for developing countries (HPI-1) and developed countries (HPI-2) (United Nations, 2008).

The HPI-1 is defined as "a composite index measuring deprivations in the three basic dimensions captured in the human development index — a long and healthy life, knowledge and a decent standard of living" (United Nations, 2008). The formula for calculating HPI-1 is as follows:

$$HPI - 1 = \left[\frac{1}{3}(P_1^3 + P_2^3 + P_3^3)\right]^{\frac{1}{3}},$$

where

P_1 - Probability at birth of not surviving to age 40,

P_2 - Adult illiteracy rate,

P_3 - Unweighted average of population without sustainable access to an improved water source and children who are underweight for their age.

The HPI-2 is defined as "a composite index measuring deprivations in the four basic dimensions captured in the human development index — a long and healthy life, knowledge and a decent

[1] Social transfers in kind are goods and services such as education, health care and other public services that are provided by the government for free or below provision cost. They include income from economic activity (wages and salaries; profits of self-employed business owners), property income (dividends, interests, and rents), social benefits in cash (retirement pensions, unemployment benefits, family allowances, basic income support, etc.), and social transfers in kind (goods and services, such as health care, education and housing, received either free of charge or at reduced prices).

standard of living — and also capturing social exclusion" (United Nations, 2008). The formula for calculating the HPI-2 is as follows:

$$HPI - 2 = \left[\frac{1}{4}(P_1^3 + P_2^3 + P_3^3 + P_4^3)\right]^{\frac{1}{3}},$$

where

P_1 - Probability at birth of not surviving to age 60,

P_2 - Adults lacking functional literacy skills,

P_3 - Population below the income poverty line (50% of median adjusted household disposable income),

P_4 - Rate of long-term unemployment (lasting 12 months or more).

4. Conceptualisation of the Regional Human Poverty Index

In this study, we measure area-specific poverty in the EU. To this end, we propose measuring poverty at the sub-national level defined by NUTS 2. The measurement of poverty is carried out with the use of the UN approach, namely the Human Poverty Index for developed countries (HPI-2). Although the index is currently not computed, we decided to adopt this approach following Bubbico and Dijkstra's (2011) study to measure poverty in the EU at the NUTS 2 level in 2007/2008. The changes that we introduced are in the set of indicators. Those used in the approach of the UN are neither appropriate nor available at the NUTS 2 level for the EU. At this point, it must also be noted that our objective was to keep the index simple, i.e., with a limited number of indicators, but also statistically sound.

In our approach, the composite measure of poverty is assumed to have the following dimensions: a long and healthy life, knowledge, a decent standard of living, and social exclusion. These dimensions are believed to be non-compensatory in nature, which implies that an improvement in one dimension cannot fully compensate for equal deterioration in another dimension. The dimensions of poverty are summarised and fitted into a composite indicator, namely, the Regional Human Poverty Index (RHPI). The final set of indicators is presented in Table 1. The spatial distribution of poverty with respect to each of the poverty dimension at NUTS 2 in the EU is presented in Figures A1-A4 in the Appendix.

Table 1. Comparison of indicators used in the UN's approach and in the RHPI

	Dimension	Indicators of HPI-2 by the UN	Indicators of RHPI
Poverty	Long and healthy life	P_1 - Probability at birth of not surviving to age 60	I_1 – Life expectancy at birth I_2 – Infant mortality rate
	Knowledge	P_2 - Adults lacking functional literacy skills	I_3 – Percentage of population aged 25-64 with low educational attainment I_4 – Percentage of population aged 18-24 neither employed nor in education or training (NEET)
	Decent standard of living	P_4 - Rate of long-term unemployment (lasting 12 months or more)	I_5 – Long-term unemployment rate
	Social exclusion	P_2 - Population below the income poverty line (50% of median adjusted household disposable income)	I_6 – Percentage of population below the income poverty line (60% of median adjusted household disposable income)

All indicators are from the Eurostat database. To eliminate the risk of unexpected transitions or outliers in the data series, we calculated the moving average of the last three available data points in the series. Therefore, the data mostly cover the period of 2010-2012 or 2011-2013.

5. Methods

Our index was based on data with satisfactory coverage, namely 98.5% of data were available. Missing values were spotted in three out of six indicators, namely in the percentage of the population aged 18-24 neither employed nor in education or training (I_4), the long-term unemployment rate (I_5), and the percentage of the population below the income poverty line (I_6). The missing data present in our dataset were imputed using an expected maximisation algorithm (Rubin, 1987; Schafer, 1997). The imputations were based on the indicators of the RHPI (see Table 1) and one additional variable, namely early leavers from education and training, which is expressed as a percentage of the population aged 18-24. In total, 24 out of 1620 values were imputed.

The following steps comprised the outlier detection. We applied a combination of two criteria. For each indicator, we checked if the distribution of an indicator is characterised by skewness>2 and

kurtosis>3.5 (Dybczyński, 1980; Velasco & Verma, 1998), indicating the lack of a normal distribution and the presence of outliers. Using this criterion, the possible presence of outliers was found only with respect to one indicator, infant mortality (I_2). However, an analysis of the histogram revealed that not a single observation stands out. Therefore, no outlier treatment was conducted.
The data were then normalised to the range of 1 to 100 using the min-max method. The normalised indicators belonging to the same dimension were averaged using the arithmetic mean. In this way, dimension scores for "long and healthy life" and "knowledge" were obtained.

In the next step, we verified the underlying structure of the RHPI data. Because we assume that the RHPI is more formative than reflective in nature, principal component analysis (PCA) was employed. Our criteria for component extraction were based on the Keiser-Mayer-Olkin statistic (KMO), which was expected to be above 0.5; the Keiser criterion (i.e., only one eigenvalue above 1); the amount of variance explained and the pattern of principal component loadings. The results of the PCA confirm the one dimensionality of the RHPI. Namely, the KMO amounted to 0.658, the first eigenvalue amounted to 2.342, the first principal component explained 58.54% of the variance observed in the four indicators and all loadings related to the first principal component were positive (detailed results are presented in Table A1 in the Appendix).

In the following step, we aggregated variables into the RHPI. To this end, we employed a generalised mean with power 0.5, which ensures that the compensation of low results in one dimension with high results in others is only partial (Decancq & Lugo, 2013; Ruiz, 2011). Using this approach also means that a rise in the lower tail of the distribution of any variable will improve the composite indicator more than a similar increase in the upper tail. Such an approach is consistent with recent developments in the field – it has been used to compute the Human Development Index (HDI) beginning in 2010 (Klugman, Rodríguez, & Choi, 2011) and the Material Condition Index proposed by Ruiz (2011) for the OECD.

The generalised mean with power 0.5 is in between the arithmetic mean (i.e., the generalised mean with power 1) and the geometric mean (the generalised mean with power 0). The former allows for full compensation of the results. Although the latter is not fully compensatory, we acknowledged that the penalisation on compensability it imposes and the extent to which it rewards improvements in low scores are too high. The influence of this strong assumption on the results was verified through uncertainty analysis (Saisana, Saltelli, & Tarantola, 2005).

We also aimed for the RHPI to be statistically well balanced, implying that the importance of dimensions in an index is relatively equal. To this end, in the aggregation process, we applied the weighting scheme resulting from the analysis of the 'main effect', also known as the correlation ratio or first order sensitivity measure (Saltelli et al., 2008). This measure, as argued by Paruolo et al. (2013), (1) offers a precise definition of importance, 'the expected reduction in variance of the composite indicator that would be obtained if a variable could be fixed'; (2) can be used regardless of the degree of correlation between variables; (3) is model free, in that it can be applied in non-linear aggregations as well; and, finally, (4) is not invasive, in that no changes are made to the composite indicator or to the correlation structure of the indicators. The final weights applied are presented in Table 2, and the correlation coefficients measuring the relationship between dimensions and between dimensions and the RHPI are presented in Tables A2 in the Appendix.

Table 2. Importance measures and weights for the RHPI

RHPI dimension	Importance measures	Weights
Long and healthy life	0.4463	0.45
Knowledge	0.3046	0.30
Decent standard of living	0.1535	0.15
Social exclusion	0.0956	0.10

Notes: The importance measures are the kernel estimates of the Pearson correlation ratio, as in Paruolo et al. (2013)

Finally, to assess the robustness of the RHPI with regard to the normative assumption related to the compensability, which was made during the conceptualisation step, we performed uncertainty analysis. The aim of this analysis was to measure the overall variation in RHPI scores and ranks resulting from the uncertainty linked to the assumption made. To verify the assumption on compensability, we modified the power of the generalised mean, which was allowed to range between 0 and 1. In particular, in the uncertainty analysis, its values were sampled from the uniform distribution U[0; 1]. As a result of this process, the final scores of the RHPI were presented with uncertainty expressed by the error terms.

6. Spatial distribution of the RHPI

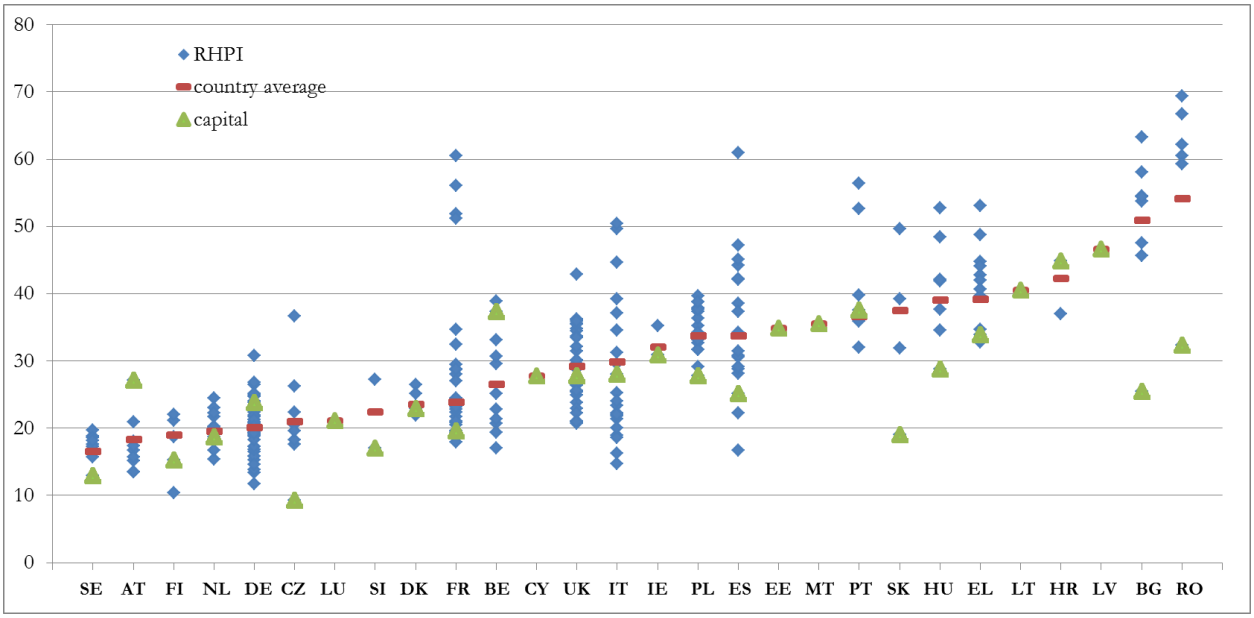
While taking into consideration country-level estimates of the RHPI (see Figure 1 and Table A3 in the Appendix), we can observe that the best scoring country (with the lowest poverty level expressed as the lowest RHPI score) is definitely Sweden (RHPI of 16.6). Sweden is followed by Austria,

Finland, and the Netherlands, which all have RHPI scores below 20. Germany, the Czech Republic, Luxembourg, Slovenia, Denmark, and France follow with RHPI scores ranging between 20 and 25. A moderate situation is observed in Belgium, Cyprus, the United Kingdom, and Italy, where the RHPI scores range from 25 to 30, and in Ireland, Poland, Spain, and Estonia, with RHPI scores between 30 and 35. Worse situations with respect to poverty measured by the RHPI at the country level exist in three Southern European countries, namely, Malta, Portugal, and Greece, and in Central and some Eastern European countries, such as Slovakia and Hungary. The worst situations are recorded in Lithuania, Croatia, Latvia, Romania, and Bulgaria, with RHPI scores exceeding 40.

With regards to NUTS 2 (see Figures 2 and 3 and Table A4 in the Appendix), even larger dissimilarities are observed. Namely, Prague, the Finish island Aland, the German Oberbayern and Freiburg, and Stockholm are the best scoring NUTS 2 according to the RHPI. By contrast, among ten worst scoring NUTS 2 (apart from most Bulgarian and Romanian regions), there are two overseas French regions (Reunion and Guyana), one autonomous Portuguese region (Acores) and one autonomous Spanish region (Ceuta). An analysis of the spatial distribution of poverty in the EU (see Figure 2) showed that the best situations with respect to poverty exist in most German, Swedish, and Austrian regions. The worst situations exist in most regions of the Central and Eastern European countries and in the most of the southern regions of the Southern European countries.

It was expected that especially large countries with many NUTS 2 regions would demonstrate higher dissimilarities with respect to poverty. Our results confirm this assumption. The differences in RHPI scores between the lowest and highest scoring NUTS regions amounted to more than 40 points in Spain and France and slightly below 40 points in Italy. It must be noted, however, that in smaller countries, differences in terms of poverty are also present. Namely, differences of 40 points between the best and the worst scoring NUTS 2 exist for Bulgaria and Romania. In the case of the Czech Republic, Portugal, Slovakia, and Hungary, the difference is almost 30 points, and, in the case of Germany, Belgium, the United Kingdom, and Greece, it amounts to approximately 20 points. Surprisingly, a small difference in RHPI scores was observed for Poland, which amounted to approximately 12 points. Nevertheless, our results imply that considerable differences in poverty levels are observed in all countries that are sufficiently large to comprise NUTS 2 regions.

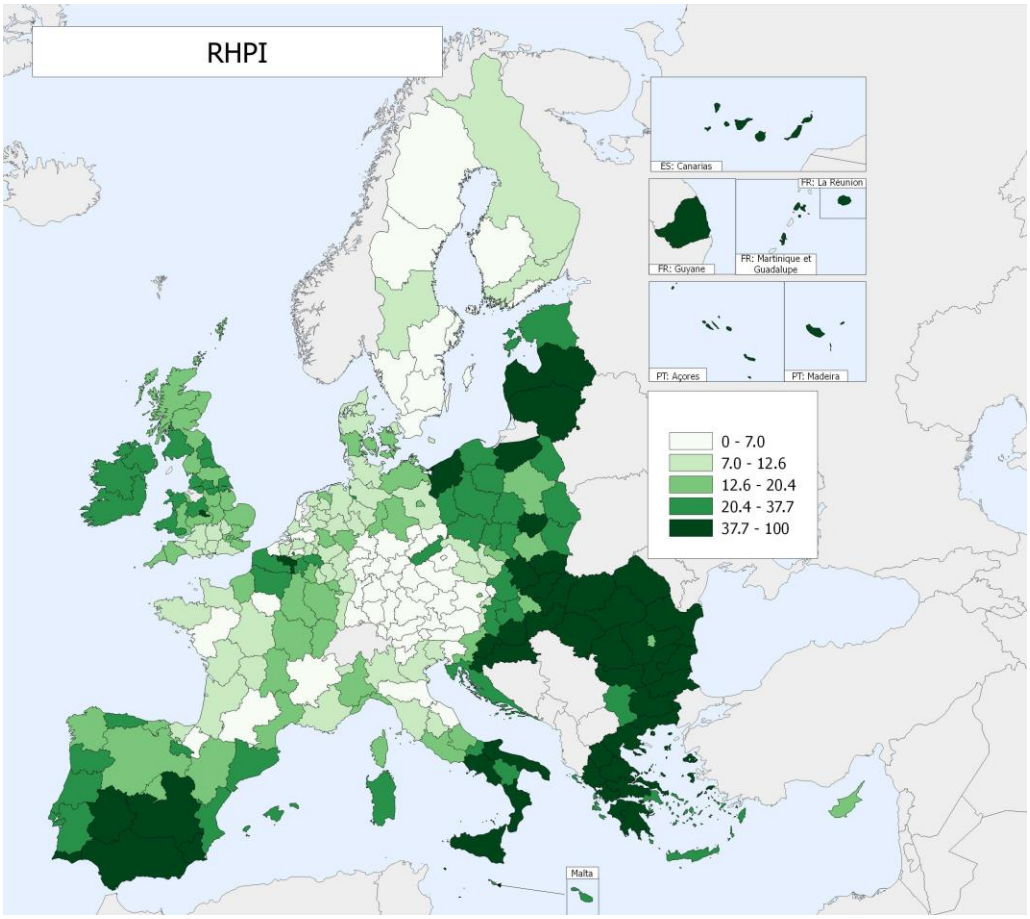
Figure 1. Poverty in the European Union – scores of the RHPI at NUTS 2, and country level



Our results also show that, in general, in NUTS 2 regions comprising a capital, the poverty level is lower than the country average. The only exceptions are Vienna, Brussels, and Berlin, where poverty measured by the RHPI is higher than the country average. By contrast, Bucharest, Sofia, Bratislava, Prague, Budapest, and Madrid exhibit decisively lower levels of poverty than their country averages. Such results may be related to the issue of immigration. It is known that well-developed countries, especially those with open labour market and relatively healthy economies, are attractive for immigrants, who most often settle in large cities. Such behaviour seems natural because in large cities, there are more opportunities for better quality of life. Nevertheless, immigrants are often poor and comprise small and closed local communities, bringing about an increase in social and material inequality.

The above findings indicate that poverty-related country rankings may be misleading because there may be a considerable stratification of poverty within a country.

Figure 2. Spatial distribution of poverty in the European Union



Note: Thresholds correspond to quintiles; the greener the colour, the worse the conditions

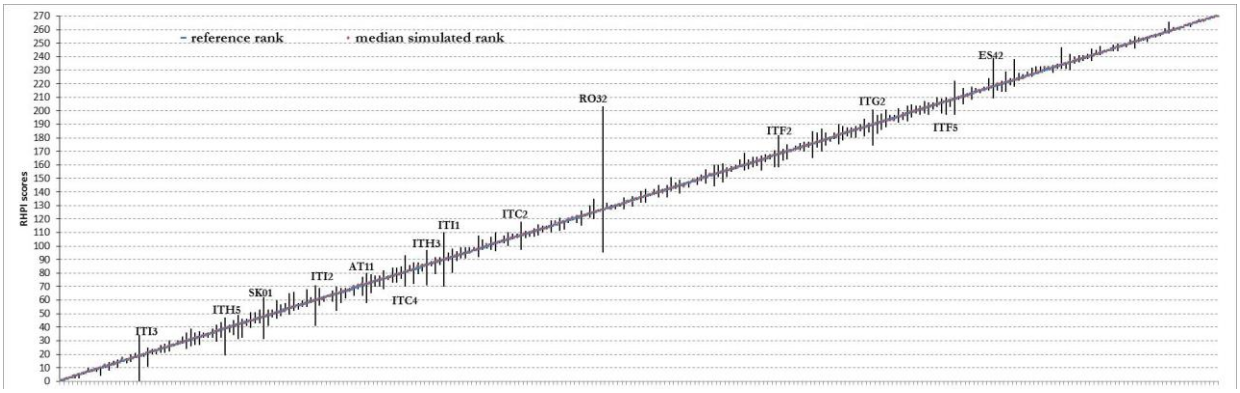
7. Results from uncertainty analysis

Uncertainty analysis was performed to assess the influence of the power of the generalised mean separately on the scores and ranks of the RHPI. The analysis revealed that the RHPI ranks and scores are considerably robust to the strength of compensability among the dimensions (detailed results are provided in Table A5 in the Appendix). However, it must be noted that changes in the power value leads to some modifications in the index scores and ranks, especially in cases of unequal performance with respect to all dimensions.

In particular, as regards ranks, we verified the difference between the median simulated score and the reference rank. The maximum observed difference amounted to 2, which corresponds to 0.74% of the maximum possible shift in rank. The length of the 90% confidence interval, constructed as the 5th and 95th percentiles of the simulated ranks, was then analysed. It appeared that only in 14 cases (noted in

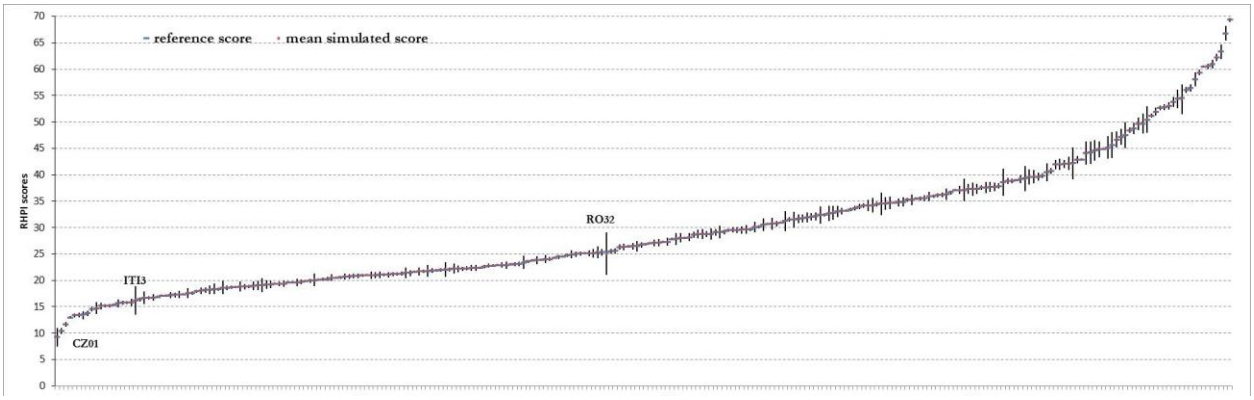
Figure **3**) did the length of this interval exceed 20 (i.e., 7.4% of the maximum possible shift in ranks). The largest fluctuations in terms of ranks were recorded for the best scoring Romanian region (i.e., the capital region), which scores very well with respect to a decent standard of living (the best result of all NUTS 2) and social exclusion (29th out of all NUTS 2) but also very poorly in terms of health (245th out of all NUTS 2).

Figure 3. Results of uncertainty analysis – reference ranks, median simulated ranks, and the 90% confidence intervals



Regarding the uncertainty analysis of the RHPI scores, we analysed the difference between the mean simulated scores and the reference scores. It appeared that in all cases, they were similar. The variation coefficients were then examined. This analysis confirmed low variation of RHPI scores. In only three out of 270 cases (noted in Figure 4) did the coefficient of variation exceed 10%.

Figure 4. Results of the uncertainty analysis – reference scores, mean simulated scores, and the mean±SD confidence intervals



8. Conclusions

In this study, we attempted to measure area-specific poverty in the European Union (EU). First, we adapted the conceptual model of this phenomenon proposed by the United Nations to the area of interest, namely, the EU. We decided that the composite indicator measuring poverty comprises four dimensions – a long and healthy life, knowledge, a decent standard of living, and social exclusion. After taking into consideration data availability, we summarised and fitted the dimensions of poverty into a composite indicator, namely, the Regional Human Poverty Index (RHPI). The RHPI has three useful properties. First, it provides information about the absolute magnitude of poverty experienced by Europeans in a given country and provides information about the relative standing of a country. Second, the RHPI shows the variability of poverty within a country with respect to NUTS 2. Third, the RHPI, contrary to the AROPE rate, is available for all NUTS 2 regions in the EU.

The RHPI was computed for 28 EU countries. Our results show that levels of poverty in the EU range from 9 to almost 70 RHPI points, with Sweden scoring unequivocally the best and Latvia, Bulgaria, and Romania scoring the worst. We also find that considerable differences in levels of poverty exist in all EU countries sufficiently large to have NUTS 2.

The RHPI has some limitations. We had to make certain assumptions to compute the RHPI. This limitation mainly relates to the compensability rate captured by the power of the generalised mean. Although the RHPI turned out to be quite robust to this assumption, we could also see that changes

in the strength of compensation among dimensions leads to some modifications in the index scores and ranks.

Data Citation and disclaimer

The responsibility for all results and conclusions presented in this study lies entirely with the authors.

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Appendix

Table A1. The PCA results

dimension	Communalities	Loadings of the first PC
Health	0.084	0.291
Knowledge	0.788	0.888
Decent standard of living	0.682	0.826
Social exclusion	0.787	0.887
KMO 0.658		
Eigenvalues 2.342 0.989 0.450 0.219		
Variance explained by the first principal component 58.54%		

Table A2. Correlations

	Health	*Knowledge*	*Decent standard of living*	*Social exclusion*		*RHPI*
Health	1					0.722
Knowledge	0.046	1				0.692
Decent standard of living	0.246	0.605	1			0.694
Social exclusion	0.164	0.764	0.562	1		0.701

Table A3. The RHPI scores and ranks at the country level

Code	Country	RHPI score	RHPI rank
AT	Austria	18.39	2
BE	Belgium	26.57	11
BG	Bulgaria	54.24	28
CY	Cyprus	27.81	12
CZ	Czech Republic	21.03	6
DE	Germany	20.14	5
DK	Denmark	23.57	9
EE	Estonia	34.84	18
EL	Greece	39.22	23
ES	Spain	33.83	17
FI	Finland	19.01	3
FR	France	23.87	10

HR	Croatia	42.27	25
HU	Hungary	39.14	22
IE	Ireland	32.11	15
IT	Italy	29.94	14
LT	Lithuania	40.51	24
LU	Luxembourg	21.09	7
LV	Latvia	46.65	26
MT	Malta	35.59	19
NL	Netherlands	19.61	4
PL	Poland	33.80	16
PT	Portugal	36.64	20
RO	Romania	51.01	27
SE	Sweden	16.62	1
SI	Slovenia	22.43	8
SK	Slovakia	37.57	21
UK	United Kingdom	29.22	13

Table A4. The RHPI scores and ranks – NUTS 2

NUTS 2	Label	RHPI score	RHPI rank		NUTS 2	Label	RHPI score	RHPI rank
CZ01	Praha	9.23	1		DEA5	Arnsberg	26.81	136
FI20	Åland	10.41	2		FR41	Lorraine	27.06	137
DE21	Oberbayern	11.69	3		AT13	Wien	27.09	138
SE11	Stockholm	12.96	4		UKD1	Cumbria	27.15	139
DE13	Freiburg	13.40	5		SI01	Vzhodna Slovenija	27.24	140
AT33	Tirol	13.46	6		UKI2	Outer London	27.29	141
AT32	Salzburg	13.50	7		CY00	Kypros	27.81	142
DE14	Tübingen	13.77	8		PL12	Mazowieckie	27.85	143
DE27	Schwaben	14.57	9		ITI4	Lazio	28.04	144
ITH1	Provincia Autonoma di Bolzano/Bozen	14.70	10		FR23	Haute-Normandie	28.04	145
AT22	Steiermark	15.14	11		ES13	Cantabria	28.16	146
DE11	Stuttgart	15.22	12		FR81	Languedoc-Roussillon	28.64	147
FI1B	Helsinki-Uusimaa	15.23	13		ES24	Aragón	28.75	148
NL31	Utrecht	15.37	14		HU10	Közép-Magyarország	28.75	149
AT31	Oberösterreich	15.74	15		UKF2	Leicestershire, Rutland and Northamptonshire	28.78	150
SE23	Västsverige	15.75	16		FR83	Corse	28.82	151
DE12	Karlsruhe	15.80	17		PL21	Malopolskie	29.13	152
DE26	Unterfranken	15.85	18		ES41	Castilla y León	29.15	153
ITI3	Marche	16.21	19		UKM2	Eastern Scotland	29.21	154
DE25	Mittelfranken	16.44	20		FR21	Champagne-Ardenne	29.51	155
ES22	Comunidad Foral de Navarra	16.68	21		UKF3	Lincolnshire	29.54	156
NL34	Zeeland	16.73	22		UKF1	Derbyshire and Nottinghamshire	29.55	157
AT21	Kärnten	16.73	23		UKL2	East Wales	29.59	158
DE71	Darmstadt	16.86	24		ITF1	Abruzzo	29.61	159
BE24	Prov. Vlaams-Brabant	17.04	25		BE34	Prov. Luxembourg (BE)	29.62	160
SI02	Zahodna Slovenija	17.05	26		UKI1	Inner London	30.06	161
DE23	Oberpfalz	17.25	27		UKM5	North Eastern Scotland	30.12	162

SE21	Småland med öarna	17.27	28		ES11	Galicia	30.52	163
DED2	Dresden	17.31	29		BE35	Prov. Namur	30.67	164
AT34	Vorarlberg	17.32	30		ES23	La Rioja	30.75	165
CZ02	Střední Cechy	17.59	31		DE50	Bremen	30.77	166
SE12	Östra Mellansverige	17.60	32		IE02	Southern and Eastern	30.95	167
FR71	Rhône-Alpes	17.89	33		ITF2	Molise	31.21	168
AT12	Niederösterreich	18.06	34		UKC2	Northumberland and Tyne and Wear	31.49	169
SE33	Övre Norrland	18.14	35		ES51	Cataluña	31.51	170
CZ03	Jihozápad	18.21	36		PL52	Opolskie	31.63	171
DED5	Leipzig	18.31	37		PL41	Wielkopolskie	31.73	172
NL41	Noord-Brabant	18.38	38		SK02	Západné Slovensko	31.92	173
ITH5	Emilia-Romagna	18.58	39		PT16	Centro (PT)	32.02	174
SE32	Mellersta Norrland	18.61	40		UKG2	Shropshire and Staffordshire	32.12	175
NL32	Noord-Holland	18.70	41		BG41	Yugozapaden	32.37	176
FI19	Länsi-Suomi	18.75	42		FR22	Picardie	32.42	177
DED4	Chemnitz	18.80	43		PL22	Slaskie	32.65	178
DE73	Kassel	18.81	44		EL42	Notio Aigaio	32.73	179
SE22	Sydsverige	18.86	45		EL43	Kriti	33.03	180
ITH2	Provincia Autonoma di Trento	18.92	46		PL63	Pomorskie	33.14	181
DE22	Niederbayern	19.05	47		BE33	Prov. Liège	33.16	182
SK01	Bratislavský kraj	19.08	48		UKN0	Northern Ireland (UK)	33.44	183
DEG0	Thüringen	19.24	49		UKL1	West Wales and The Valleys	33.69	184
DE24	Oberfranken	19.25	50		EL30	Attiki	33.91	185
FR62	Midi-Pyrénées	19.32	51		ES12	Principado de Asturias	34.11	186
DE72	Gießen	19.34	52		PL34	Podlaskie	34.18	187
BE25	Prov. West-Vlaanderen	19.38	53		ES53	Illes Balears	34.23	188
FR10	Île de France	19.54	54		UKE1	East Yorkshire and Northern Lincolnshire	34.42	189
FR51	Pays de la Loire	19.57	55		ITG2	Sardegna	34.51	190
CZ06	Jihovýchod	19.59	56		HU22	Nyugat-Dunántúl	34.56	191
SE31	Norra Mellansverige	19.70	57		EL22	Ionia Nisia	34.64	192
NL13	Drenthe	19.81	58		FR30	Nord - Pas-de-Calais	34.67	193
NL22	Gelderland	19.95	59		UKD4	Lancashire	34.82	194
ITI2	Umbria	20.02	60		EE00	Eesti	34.84	195
NL33	Zuid-Holland	20.11	61		IE01	Border, Midland and Western	35.24	196
DEF0	Schleswig-Holstein	20.20	62		PL11	Lódzkie	35.26	197
NL21	Overijssel	20.26	63		UKE3	South Yorkshire	35.47	198
CZ05	Severovýchod	20.48	64		UKC1	Tees Valley and Durham	35.52	199
FR52	Bretagne	20.48	65		MT00	Malta	35.59	200
DEB2	Trier	20.54	66		PT11	Norte	35.89	201
UKJ3	Hampshire and Isle of Wight	20.72	67		UKM3	South Western Scotland	35.93	202
BE22	Prov. Limburg (BE)	20.73	68		UKE4	West Yorkshire	36.14	203
FR53	Poitou-Charentes	20.81	69		UKD3	Greater Manchester	36.17	204
DEB1	Koblenz	20.85	70		PL51	Dolnoslaskie	36.30	205
DE60	Hamburg	20.92	71		CZ04	Severozápad	36.62	206
AT11	Burgenland (AT)	20.92	72		HR03	Jadranska Hrvatska	37.00	207
UKK2	Dorset and Somerset	20.94	73		PT18	Alentejo	37.06	208
UKJ2	Surrey, East and West Sussex	21.00	74		ITF5	Basilicata	37.11	209
UKJ1	Berkshire, Buckinghamshire and Oxfordshire	21.04	75		BE10	Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest	37.28	210
FR61	Aquitaine	21.07	76		ES52	Comunidad Valenciana	37.29	211
LU00	Luxembourg	21.09	77		PL31	Lubelskie	37.34	212
FI1C	Etelä-Suomi	21.18	78		PT17	Lisboa	37.57	213
DEA4	Detmold	21.20	79		PL43	Lubuskie	37.62	214
DEB3	Rheinhessen-Pfalz	21.26	80		HU21	Közép-Dunántúl	37.68	215
ITC4	Lombardia	21.41	81		PL61	Kujawsko-Pomorskie	37.68	216

BE23	Prov. Oost-Vlaanderen	21.41	82		PL32	Podkarpackie	37.87	217
FR24	Centre (FR)	21.65	83		ES42	Castilla-la Mancha	38.58	218
DE94	Weser-Ems	21.72	84		PL42	Zachodniopomorskie	38.77	219
NL12	Friesland (NL)	21.75	85		PL62	Warminsko-Mazurskie	38.82	220
ITH3	Veneto	21.76	86		BE32	Prov. Hainaut	38.89	221
DK04	Midtjylland	21.89	87		SK03	Stredné Slovensko	39.17	222
DEA2	Köln	21.90	88		ITF4	Puglia	39.26	223
DK05	Nordjylland	21.98	89		EL21	Ipeiros	39.56	224
ITI1	Toscana	22.03	90		EL14	Thessalia	39.63	225
FI1D	Pohjois- ja Itä-Suomi	22.04	91		PL33	Swietokrzyskie	39.63	226
ITH4	Friuli-Venezia Giulia	22.21	92		PT15	Algarve	39.78	227
UKK1	Gloucestershire, Wiltshire and Bristol/Bath area	22.21	93		LT00	Lietuva	40.51	228
NL42	Limburg (NL)	22.22	94		EL41	Voreio Aigaio	40.65	229
ES21	País Vasco	22.28	95		HU23	Dél-Dunántúl	41.94	230
DE93	Lüneburg	22.33	96		EL23	Dytiki Ellada	41.96	231
CZ07	Střední Morava	22.38	97		HU33	Dél-Alföld	42.06	232
FR42	Alsace	22.40	98		ES62	Región de Murcia	42.14	233
DE92	Hannover	22.56	99		ES64	Ciudad Autónoma de Melilla (ES)	42.16	234
DE40	Brandenburg	22.76	100		EL12	Kentriki Makedonia	42.83	235
BE21	Prov. Antwerpen	22.79	101		UKG3	West Midlands	42.85	236
FR63	Limousin	22.83	102		EL24	Sterea Ellada	44.10	237
UKH2	Bedfordshire and Hertfordshire	22.87	103		ES43	Extremadura	44.20	238
DK01	Hovedstaden	22.90	104		ITF6	Calabria	44.66	239
NL23	Flevoland	23.04	105		EL13	Dytiki Makedonia	44.81	240
DEA3	Münster	23.04	106		HR04	Kontinentalna Hrvatska	44.87	241
FR82	Provence-Alpes-Côte d'Azur	23.14	107		ES70	Canarias (ES)	45.15	242
ITC2	Valle d'Aosta/Vallée d'Aoste	23.39	108		RO11	Nord-Vest	45.67	243
FR25	Basse-Normandie	23.57	109		LV00	Latvija	46.65	244
DE30	Berlin	23.77	110		ES61	Andalucía	47.16	245
UKE2	North Yorkshire	23.81	111		RO42	Vest	47.55	246
FR26	Bourgogne	23.83	112		HU32	Észak-Alföld	48.41	247
ITC3	Liguria	23.98	113		EL25	Peloponnisos	48.74	248
DE91	Braunschweig	24.03	114		SK04	Východné Slovensko	49.64	249
FR43	Franche-Comté	24.23	115		ITF3	Campania	49.69	250
NL11	Groningen	24.45	116		ITG1	Sicilia	50.44	251
FR72	Auvergne	24.46	117		FR92	Martinique (FR)	51.17	252
DEC0	Saarland	24.74	118		FR91	Guadeloupe (FR)	51.92	253
DE80	Mecklenburg-Vorpommern	24.91	119		PT30	Região Autónoma da Madeira (PT)	52.66	254
UKH1	East Anglia	24.95	120		HU31	Észak-Magyarország	52.78	255
DK03	Syddanmark	25.09	121		EL11	Anatoliki Makedonia, Thraki	53.05	256
BE31	Prov. Brabant Wallon	25.10	122		RO12	Centru	53.78	257
DEE0	Sachsen-Anhalt	25.12	123		RO41	Sud-Vest Oltenia	54.42	258
ES30	Comunidad de Madrid	25.13	124		RO21	Nord-Est	54.48	259
ITC1	Piemonte	25.29	125		FR94	Réunion (FR)	56.05	260
UKK4	Devon	25.38	126		PT20	Região Autónoma dos Açores (PT)	56.42	261
RO32	Bucuresti - Ilfov	25.41	127		RO31	Sud - Muntenia	58.11	262
UKJ4	Kent	25.47	128		BG42	Yuzhen tsentralen	59.35	263
UKM6	Highlands and Islands	25.56	129		FR93	Guyane (FR)	60.47	264
CZ08	Moravskoslezsko	26.28	130		BG32	Severen tsentralen	60.52	265
UKH3	Essex	26.35	131		ES63	Ciudad Autónoma de Ceuta (ES)	60.98	266
DEA1	Düsseldorf	26.43	132		BG33	Severoiztochen	62.18	267
DK02	Sjælland	26.46	133		RO22	Sud-Est	63.31	268
UKG1	Herefordshire, Worcestershire and Warwickshire	26.46	134		BG34	Yugoiztochen	66.78	269

UKK3	Cornwall and Isles of Scilly	26.72	135		BG31	Severozapaden	69.34	270

Table A5. Results of the uncertainty analysis

NUTS2	Reference rank	Median rank	90% CI for ranks [p5; p95]	Reference score	Mean score	Median score	90% CI for scores [p5; p95]
CZ01	1	1	[1; 2]	9.23	9.21	9.23	[6.38; 11.99]
FI20	2	2	[1; 2]	10.41	10.41	10.41	[9.62; 11.22]
DE21	3	3	[3; 3]	11.69	11.66	11.69	[11; 12.24]
SE11	4	4	[4; 6]	12.96	12.95	12.96	[12.52; 13.33]
DE13	5	5	[5; 8]	13.40	13.37	13.40	[12.73; 13.92]
AT33	6	6	[6; 7]	13.46	13.41	13.46	[12.69; 13.97]
AT32	7	7	[4; 7]	13.50	13.38	13.50	[12.06; 14.37]
DE14	8	8	[8; 9]	13.77	13.74	13.77	[12.94; 14.44]
DE27	9	9	[9; 11]	14.57	14.54	14.57	[13.87; 15.13]
ITH1	10	10	[9; 16]	14.70	14.72	14.70	[12.98; 16.51]
AT22	11	12	[11; 13]	15.14	15.07	15.14	[13.99; 15.98]
DE11	12	12	[10; 16]	15.22	15.21	15.22	[14.73; 15.62]
FI1B	13	13	[11; 14]	15.23	15.21	15.23	[14.71; 15.65]
NL31	14	14	[12; 18]	15.37	15.35	15.37	[14.88; 15.77]
AT31	15	16	[13; 17]	15.74	15.62	15.74	[14.22; 16.67]
SE23	16	16	[15; 19]	15.75	15.74	15.75	[15.13; 16.33]
DE12	17	17	[14; 20]	15.80	15.79	15.80	[15.4; 16.16]
DE26	18	18	[15; 18]	15.85	15.82	15.85	[14.71; 16.87]
ITI3	19	19	[4; 55]	16.21	16.20	16.21	[11.99; 20.4]
DE25	20	20	[19; 22]	16.44	16.42	16.44	[15.8; 17]
ES22	21	21	[17; 31]	16.68	16.70	16.68	[14.87; 18.57]
NL34	22	22	[20; 24]	16.73	16.71	16.73	[16.15; 17.19]
AT21	23	22	[21; 25]	16.73	16.72	16.73	[15.68; 17.73]
DE71	24	24	[21; 27]	16.86	16.85	16.86	[16.47; 17.21]
BE24	25	25	[22; 29]	17.04	17.03	17.04	[16.72; 17.29]
SI02	26	26	[22; 30]	17.05	17.04	17.05	[16.78; 17.3]
DE23	27	27	[26; 28]	17.25	17.22	17.25	[16.35; 17.99]
SE21	28	28	[26; 29]	17.27	17.24	17.27	[16.51; 17.9]
DED2	29	29	[25; 30]	17.31	17.33	17.31	[16.29; 18.41]
AT34	30	30	[24; 36]	17.32	17.31	17.32	[17.06; 17.54]
CZ02	31	31	[23; 36]	17.59	17.59	17.59	[16.12; 19.09]
SE12	32	32	[28; 37]	17.60	17.59	17.60	[17.13; 18.04]
FR71	33	33	[29; 39]	17.89	17.89	17.89	[17.44; 18.35]
AT12	34	34	[32; 36]	18.06	18.01	18.06	[17.06; 18.84]
SE33	35	35	[34; 38]	18.14	18.11	18.14	[17.26; 18.85]
CZ03	36	36	[33; 40]	18.21	18.21	18.20	[16.95; 19.5]
DED5	37	37	[32; 45]	18.31	18.36	18.31	[16.89; 19.97]
NL41	38	38	[32; 44]	18.38	18.36	18.38	[17.88; 18.79]
ITH5	39	39	[31; 59]	18.58	18.64	18.58	[16.85; 20.59]
SE32	40	40	[38; 44]	18.61	18.57	18.61	[17.86; 19.18]
NL32	41	41	[37; 48]	18.70	18.69	18.70	[18.18; 19.14]
FI19	42	42	[35; 53]	18.75	18.74	18.75	[18.42; 19.01]
DED4	43	43	[40; 54]	18.80	18.84	18.80	[17.48; 20.32]
DE73	44	43	[41; 46]	18.81	18.80	18.81	[17.98; 19.59]
SE22	45	45	[39; 50.5]	18.86	18.86	18.86	[18.37; 19.35]
ITH2	46	46	[41; 49]	18.92	18.93	18.92	[17.66; 20.23]
DE22	47	47	[41; 51]	19.05	19.01	19.05	[17.66; 20.25]
SK01	48	48	[34; 65]	19.08	19.09	19.08	[17.05; 21.18]
DEG0	49	49	[45; 57]	19.24	19.23	19.24	[17.9; 20.52]
DE24	50	50	[47; 53]	19.25	19.22	19.25	[18.08; 20.26]
FR62	51	51	[42; 56]	19.32	19.32	19.32	[18.95; 19.7]
DE72	52	51	[46; 55]	19.34	19.33	19.34	[18.61; 20.03]
BE25	53	52	[47; 53]	19.38	19.32	19.38	[18.41; 20.04]
FR10	54	54	[43; 59]	19.54	19.54	19.54	[19.26; 19.82]
FR51	55	55	[44; 58]	19.57	19.58	19.57	[19.24; 19.92]
CZ06	56	56	[54; 59]	19.59	19.59	19.59	[18.59; 20.58]
SE31	57	56	[53; 58]	19.70	19.68	19.70	[19; 20.29]

NL13	58	58	[48; 61]	19.81	19.80	19.81	[19.45; 20.11]
NL22	59	59	[56; 60]	19.95	19.93	19.95	[19.33; 20.47]
ITI2	60	60	[49; 79]	20.02	20.03	20.02	[18.21; 21.9]
NL33	61	61	[53; 66]	20.11	20.11	20.11	[19.89; 20.3]
DEF0	62	61	[60; 64]	20.20	20.20	20.20	[19.68; 20.7]
NL21	63	63	[62; 63]	20.26	20.24	20.26	[19.65; 20.76]
CZ05	64	64	[61; 69]	20.48	20.48	20.48	[19.51; 21.47]
FR52	65	65	[60; 78]	20.48	20.48	20.48	[20.28; 20.66]
DEB2	66	66	[63; 74]	20.54	20.53	20.54	[20.08; 20.96]
UKJ3	67	67	[65; 73]	20.72	20.71	20.72	[19.72; 21.66]
BE22	68	67	[66; 68]	20.73	20.69	20.73	[19.9; 21.39]
FR53	69	70	[68; 76]	20.81	20.82	20.81	[20.17; 21.47]
DEB1	70	71	[70; 73]	20.85	20.83	20.85	[20.06; 21.53]
DE60	71	72	[66; 80]	20.92	20.91	20.92	[20.5; 21.3]
AT11	72	72	[64; 86]	20.92	20.92	20.92	[20.76; 21.06]
UKK2	73	73	[67; 81]	20.94	20.94	20.94	[19.91; 21.97]
UKJ2	74	74	[70; 78]	21.00	20.98	21.00	[20.03; 21.88]
UKJ1	75	75	[72; 80]	21.04	21.02	21.04	[20.04; 21.94]
FR61	76	76	[70; 84]	21.07	21.07	21.07	[20.64; 21.5]
LU00	77	76	[75; 78]	21.09	21.06	21.09	[20.24; 21.8]
FI1C	78	78	[72; 83]	21.18	21.16	21.18	[20.62; 21.65]
DEA4	79	79	[74; 85]	21.20	21.19	21.20	[20.68; 21.68]
DEB3	80	80	[75; 84]	21.26	21.24	21.26	[20.62; 21.79]
ITC4	81	81	[69; 92]	21.41	21.45	21.41	[19.96; 23.05]
BE23	82	82	[78; 82]	21.41	21.34	21.41	[20.29; 22.19]
FR24	83	83	[78; 94]	21.65	21.65	21.65	[21.42; 21.88]
DE94	84	85	[81; 90]	21.72	21.69	21.72	[20.52; 22.78]
NL12	85	85	[83; 89]	21.75	21.74	21.75	[21.22; 22.22]
ITH3	86	86	[75; 101]	21.76	21.80	21.76	[20.15; 23.57]
DK04	87	87	[85; 89]	21.89	21.86	21.89	[21.19; 22.43]
DEA2	88	88	[84; 97]	21.90	21.89	21.90	[21.55; 22.22]
DK05	89	89	[86; 92]	21.98	21.95	21.98	[21.36; 22.46]
ITI1	90	90	[70; 110]	22.03	22.08	22.03	[19.99; 24.28]
FI1D	91	91	[87; 93]	22.04	22.03	22.04	[21.41; 22.6]
ITH4	92	92	[86; 104]	22.21	22.24	22.21	[20.79; 23.78]
UKK1	93	93	[90; 97]	22.21	22.22	22.21	[21.23; 23.21]
NL42	94	94	[89; 97]	22.22	22.19	22.22	[21.54; 22.77]
ES21	95	95	[91; 99]	22.28	22.28	22.28	[21.63; 22.92]
DE93	96	95	[92; 96.5]	22.33	22.32	22.33	[21.4; 23.2]
CZ07	97	97	[95; 98]	22.38	22.37	22.38	[21.47; 23.27]
FR42	98	98	[88; 104]	22.40	22.40	22.40	[22.13; 22.68]
DE92	99	99	[93; 101]	22.56	22.56	22.56	[22.05; 23.07]
DE40	100	101	[99; 103]	22.76	22.75	22.76	[22.13; 23.37]
BE21	101	101	[95; 105]	22.79	22.77	22.79	[22.31; 23.18]
FR63	102	102	[94; 108]	22.83	22.82	22.83	[22.49; 23.15]
UKH2	103	103	[102; 104]	22.87	22.87	22.87	[22.11; 23.64]
DK01	104	104	[100; 106]	22.90	22.88	22.90	[21.8; 23.91]
NL23	105	105	[100; 110]	23.04	23.02	23.04	[22.58; 23.43]
DEA3	106	106	[103; 107]	23.04	23.03	23.04	[22.37; 23.66]
FR82	107	107	[105; 108]	23.14	23.14	23.14	[22.46; 23.83]
ITC2	108	108	[98; 119]	23.39	23.45	23.39	[21.57; 25.5]
FR25	109	109	[107; 112]	23.57	23.57	23.57	[23.14; 24.01]
DE30	110	110	[109; 113]	23.77	23.78	23.77	[23.38; 24.21]
UKE2	111	111	[109; 115]	23.81	23.81	23.81	[22.56; 25.06]
FR26	112	112	[108; 116]	23.83	23.84	23.83	[23.66; 24.02]
ITC3	113	113	[111; 116]	23.98	23.99	23.98	[22.84; 25.19]
DE91	114	113	[112; 115]	24.03	24.02	24.03	[23.38; 24.65]
FR43	115	115	[111; 120]	24.23	24.23	24.23	[24.01; 24.45]
NL11	116	117	[114; 117]	24.45	24.44	24.45	[23.78; 25.05]
FR72	117	117	[113; 123]	24.46	24.46	24.46	[24.23; 24.69]
DEC0	118	118	[117; 124]	24.74	24.73	24.74	[24.26; 25.19]
DE80	119	120	[119; 122]	24.91	24.92	24.91	[23.86; 26.04]
UKH1	120	121	[119; 122]	24.95	24.93	24.95	[24.05; 25.78]
DK03	121	122	[120; 126]	25.09	25.07	25.09	[24.43; 25.65]
BE31	122	122	[118; 129]	25.10	25.10	25.10	[24.76; 25.46]
DEE0	123	123	[122; 124]	25.12	25.13	25.12	[24.19; 26.08]
ES30	124	124	[118; 127]	25.13	25.12	25.13	[23.83; 26.41]
ITC1	125	125	[115; 130]	25.29	25.31	25.29	[23.54; 27.16]

UKK4	126	126	[125; 127]	25.38	25.35	25.38	[24.32; 26.3]
RO32	127	127	[50.5; 159]	25.41	25.05	25.41	[18.37; 30.73]
UKJ4	128	128	[124; 129]	25.47	25.47	25.47	[24.75; 26.17]
UKM6	129	127.5	[126; 129]	25.56	25.53	25.56	[24.67; 26.31]
CZ08	130	130	[129; 133]	26.28	26.27	26.28	[25.51; 27.01]
UKH3	131	131	[131; 133]	26.35	26.33	26.35	[25.27; 27.33]
DEA1	132	132	[128; 137]	26.43	26.42	26.43	[26.08; 26.75]
DK02	133	133	[132; 134]	26.46	26.43	26.46	[25.42; 27.34]
UKG1	134	133	[130; 138]	26.46	26.44	26.46	[24.84; 27.97]
UKK3	135	135	[134; 136]	26.72	26.69	26.72	[25.79; 27.52]
DEA5	136	136	[131; 140]	26.81	26.81	26.81	[26.4; 27.21]
FR41	137	137	[132; 142]	27.06	27.06	27.06	[26.87; 27.26]
AT13	138	138	[137; 139]	27.09	27.07	27.09	[26.13; 27.96]
UKD1	139	139	[136; 140]	27.15	27.15	27.15	[26.07; 28.24]
SI01	140	140	[135; 144]	27.24	27.24	27.24	[27.05; 27.43]
UKI2	141	140	[139; 142]	27.29	27.31	27.29	[26.23; 28.48]
CY00	142	142	[139; 148]	27.81	27.81	27.81	[27.41; 28.21]
PL12	143	143	[135; 145]	27.85	27.83	27.85	[26.06; 29.54]
ITI4	144	144	[141; 146]	28.04	28.04	28.04	[26.63; 29.46]
FR23	145	145	[141; 151]	28.04	28.04	28.04	[27.83; 28.26]
ES13	146	144	[143; 146]	28.16	28.16	28.16	[27; 29.29]
FR81	147	147	[146; 151]	28.64	28.64	28.64	[27.74; 29.55]
ES24	148	149	[149; 150]	28.75	28.74	28.75	[27.5; 29.97]
HU10	149	149	[147; 153]	28.75	28.75	28.75	[27.37; 30.14]
UKF2	150	150	[147; 152]	28.78	28.77	28.78	[27.86; 29.64]
FR83	151	151	[145; 156]	28.82	28.81	28.82	[27.15; 30.46]
PL21	152	153	[152; 153]	29.13	29.12	29.13	[28.12; 30.1]
ES41	153	153	[146; 162]	29.15	29.14	29.15	[27.28; 30.97]
UKM2	154	154	[148; 157]	29.21	29.18	29.21	[28.46; 29.83]
FR21	155	155	[149; 163]	29.51	29.51	29.51	[29.12; 29.91]
UKF3	156	156	[154; 161]	29.54	29.54	29.54	[28.78; 30.28]
UKF1	157	157	[155; 159]	29.55	29.54	29.55	[28.68; 30.37]
UKL2	158	158	[156; 159]	29.59	29.56	29.59	[28.43; 30.6]
ITF1	159	159	[154; 160]	29.61	29.61	29.61	[28.37; 30.86]
BE34	160	160	[151; 164]	29.62	29.61	29.62	[29.14; 30.06]
UKI1	161	161	[158; 165]	30.06	30.11	30.05	[28.59; 31.79]
UKM5	162	162	[158; 166]	30.12	30.12	30.12	[29.6; 30.63]
ES11	163	163	[160; 167]	30.52	30.52	30.52	[28.74; 32.28]
BE35	164	164	[161; 172]	30.67	30.67	30.67	[30.41; 30.92]
ES23	165	165	[162; 168]	30.75	30.74	30.75	[28.99; 32.48]
DE50	166	166	[164; 168]	30.77	30.76	30.77	[29.93; 31.53]
IE02	167	167	[163; 176]	30.95	30.95	30.95	[30.81; 31.1]
ITF2	168	168	[154; 178]	31.21	31.21	31.21	[28.27; 34.11]
UKC2	169	169	[166; 175]	31.49	31.50	31.49	[30.78; 32.23]
ES51	170	170	[165; 176]	31.51	31.50	31.50	[29.19; 33.81]
PL52	171	170	[169; 171]	31.63	31.62	31.63	[30.37; 32.84]
PL41	172	172	[170; 173]	31.73	31.72	31.73	[30.46; 32.95]
SK02	173	173	[170; 175]	31.92	31.91	31.92	[30.35; 33.45]
PT16	174	174	[171; 178]	32.02	32.04	32.02	[30.94; 33.2]
UKG2	175	175	[173; 177]	32.12	32.09	32.12	[30.86; 33.23]
BG41	176	176	[167; 187]	32.37	32.38	32.37	[29.86; 34.94]
FR22	177	177	[170; 181]	32.42	32.43	32.42	[31.98; 32.89]
PL22	178	178	[169; 186]	32.65	32.64	32.65	[30.35; 34.9]
EL42	179	179	[174; 184]	32.73	32.76	32.73	[30.73; 34.86]
EL43	180	180	[179; 183]	33.03	33.03	33.03	[31.44; 34.62]
PL63	181	181	[178; 183]	33.14	33.13	33.14	[32.11; 34.12]
BE33	182	182	[174; 189]	33.16	33.16	33.16	[33.01; 33.32]
UKN0	183	183	[177; 188]	33.44	33.43	33.44	[32.92; 33.93]
UKL1	184	184	[180; 187]	33.69	33.68	33.69	[32.91; 34.41]
EL30	185	185	[182; 190]	33.91	33.94	33.91	[33.2; 34.76]
ES12	186	186	[183; 192]	34.11	34.12	34.11	[33.44; 34.82]
PL34	187	187	[184; 189]	34.18	34.17	34.18	[32.56; 35.74]
ES53	188	188	[182; 195]	34.23	34.22	34.23	[32.11; 36.31]
UKE1	189	189	[187; 194]	34.42	34.41	34.42	[33.73; 35.08]
ITG2	190	190	[179; 206]	34.51	34.52	34.51	[31.21; 37.84]
HU22	191	191	[185; 199]	34.56	34.56	34.56	[32.65; 36.47]
EL22	192	192	[186; 198]	34.64	34.64	34.64	[32.83; 36.47]
FR30	193	193	[185; 198]	34.67	34.68	34.67	[34.48; 34.87]

UKD4	194	193	[190; 194]	34.82	34.77	34.82	[33.54; 35.85]
EE00	195	193	[191; 195]	34.84	34.83	34.84	[33.43; 36.2]
IE01	196	196	[190; 201]	35.24	35.24	35.24	[34.66; 35.82]
PL11	197	197	[195; 201]	35.26	35.26	35.26	[33.73; 36.77]
UKE3	198	198	[192; 204]	35.47	35.47	35.47	[35.01; 35.92]
UKC1	199	199	[193; 203]	35.52	35.52	35.52	[34.95; 36.1]
MT00	200	200	[196; 202]	35.59	35.57	35.59	[34.7; 36.36]
PT11	201	201	[198; 205]	35.89	35.90	35.89	[34.54; 37.3]
UKM3	202	202	[197; 206]	35.93	35.92	35.93	[35.41; 36.39]
UKE4	203	203	[200; 209]	36.14	36.13	36.14	[35.58; 36.65]
UKD3	204	204	[202; 207]	36.17	36.16	36.17	[35.5; 36.79]
PL51	205	205	[200; 207]	36.30	36.31	36.30	[34.63; 38]
CZ04	206	206	[203; 214]	36.62	36.62	36.62	[36.03; 37.22]
HR03	207	207	[204; 217]	37.00	37.00	37.00	[36.75; 37.25]
PT18	208	208	[208; 213]	37.06	37.08	37.06	[35.95; 38.25]
ITF5	209	209	[196; 221]	37.11	37.10	37.11	[33.81; 40.36]
BE10	210	210	[209; 212]	37.28	37.29	37.28	[35.77; 38.84]
ES52	211	211	[205; 217]	37.29	37.28	37.29	[35.29; 39.25]
PL31	212	211	[210; 212]	37.34	37.32	37.34	[35.89; 38.73]
PT17	213	213	[208; 218]	37.57	37.57	37.57	[36.91; 38.23]
PL43	214	214	[211; 215]	37.62	37.59	37.62	[35.85; 39.22]
HU21	215	215	[214; 217]	37.68	37.68	37.68	[36.15; 39.24]
PL61	216	215	[213; 216]	37.68	37.67	37.68	[36.32; 39.01]
PL32	217	217	[210; 219]	37.87	37.87	37.87	[37.06; 38.67]
ES42	218	218	[197; 227]	38.58	38.55	38.57	[34.45; 42.57]
PL42	219	220	[219; 224]	38.77	38.77	38.77	[37.87; 39.67]
PL62	220	220	[218; 226]	38.82	38.82	38.82	[38.18; 39.45]
BE32	221	221	[213; 228]	38.89	38.89	38.89	[38.78; 39]
SK03	222	222	[220; 225]	39.17	39.16	39.17	[37.96; 40.35]
ITF4	223	223	[208; 228]	39.26	39.25	39.26	[35.52; 42.94]
EL21	224	224	[220; 226]	39.56	39.55	39.56	[37.24; 41.82]
EL14	225	224	[222; 226]	39.63	39.62	39.63	[37.68; 41.53]
PL33	226	226	[223; 227]	39.63	39.62	39.63	[38.4; 40.8]
PT15	227	227	[222; 229]	39.78	39.79	39.78	[39.08; 40.52]
LT00	228	228	[223; 229]	40.51	40.48	40.51	[37.82; 43.03]
EL41	229	229	[225; 230]	40.65	40.66	40.65	[39.78; 41.54]
HU23	230	232	[230; 233]	41.94	41.94	41.93	[40.54; 43.33]
EL23	231	232	[231; 233]	41.96	41.97	41.96	[40.3; 43.64]
HU33	232	232	[230; 236]	42.06	42.05	42.05	[40.9; 43.2]
ES62	233	233	[231; 235]	42.14	42.13	42.14	[40.19; 44.05]
ES64	234	234	[221; 237]	42.16	42.13	42.16	[37.34; 46.82]
EL12	235	235	[234; 239]	42.83	42.84	42.82	[41.75; 43.97]
UKG3	236	236	[230; 242]	42.85	42.85	42.85	[42.51; 43.18]
EL24	237	237	[234; 239]	44.10	44.09	44.10	[40.71; 47.42]
ES43	238	238	[235; 240]	44.20	44.18	44.20	[40.85; 47.47]
ITF6	239	239	[237; 241]	44.66	44.64	44.66	[41.58; 47.67]
EL13	240	240	[238; 242]	44.81	44.81	44.81	[42.44; 47.18]
HR04	241	241	[236; 245]	44.87	44.87	44.87	[44.77; 44.97]
ES70	242	242	[239; 242]	45.15	45.14	45.15	[41.77; 48.46]
RO11	243	243	[238; 245]	45.67	45.58	45.67	[41.65; 49.23]
LV00	244	244	[243; 245]	46.65	46.63	46.64	[44.26; 48.95]
ES61	245	245	[245; 246]	47.16	47.15	47.16	[44.81; 49.47]
RO42	246	246	[243; 248]	47.55	47.47	47.54	[43.5; 51.2]
HU32	247	247	[244; 250]	48.41	48.41	48.41	[47.62; 49.19]
EL25	248	248	[247; 249]	48.74	48.73	48.74	[47.01; 50.45]
SK04	249	249	[249; 251]	49.64	49.63	49.64	[47.74; 51.49]
ITF3	250	250	[247; 251]	49.69	49.68	49.69	[46.69; 52.64]
ITG1	251	251	[247; 256]	50.44	50.44	50.44	[46.58; 54.31]
FR92	252	252	[250; 253]	51.17	51.18	51.17	[50.64; 51.74]
FR91	253	253	[252; 254]	51.92	51.94	51.92	[50.74; 53.2]
PT30	254	254	[253; 257]	52.66	52.66	52.66	[51.95; 53.4]
HU31	255	255	[254; 256]	52.78	52.78	52.78	[51.89; 53.69]
EL11	256	256	[255; 258]	53.05	53.05	53.05	[52.03; 54.08]
RO12	257	257	[257; 259]	53.78	53.76	53.77	[52.25; 55.22]
RO41	258	258	[255; 259]	54.42	54.37	54.42	[51.48; 57.1]
RO21	259	259	[252; 261]	54.48	54.29	54.48	[49.57; 58.44]
FR94	260	260	[258; 260]	56.05	56.07	56.05	[55.25; 56.93]
PT20	261	261	[260; 261]	56.42	56.43	56.42	[55.44; 57.43]

RO31	262	262	[262; 262]	58.11	58.08	58.11	[55.99; 60.05]
BG42	263	263	[263; 263]	59.35	59.34	59.34	[58.54; 60.15]
FR93	264	264	[264; 266]	60.47	60.47	60.47	[60.13; 60.82]
BG32	265	265	[264; 265]	60.52	60.52	60.52	[59.74; 61.29]
ES63	266	266	[264; 266]	60.98	60.98	60.98	[59.67; 62.29]
BG33	267	267	[267; 268]	62.18	62.18	62.18	[61.13; 63.24]
RO22	268	268	[267; 268]	63.31	63.28	63.31	[61.12; 65.35]
BG34	269	269	[269; 269]	66.78	66.76	66.78	[64.61; 68.84]
BG31	270	270	[270; 270]	69.34	69.33	69.34	[68.72; 69.92]

Table A6. Indicators of the RHPI

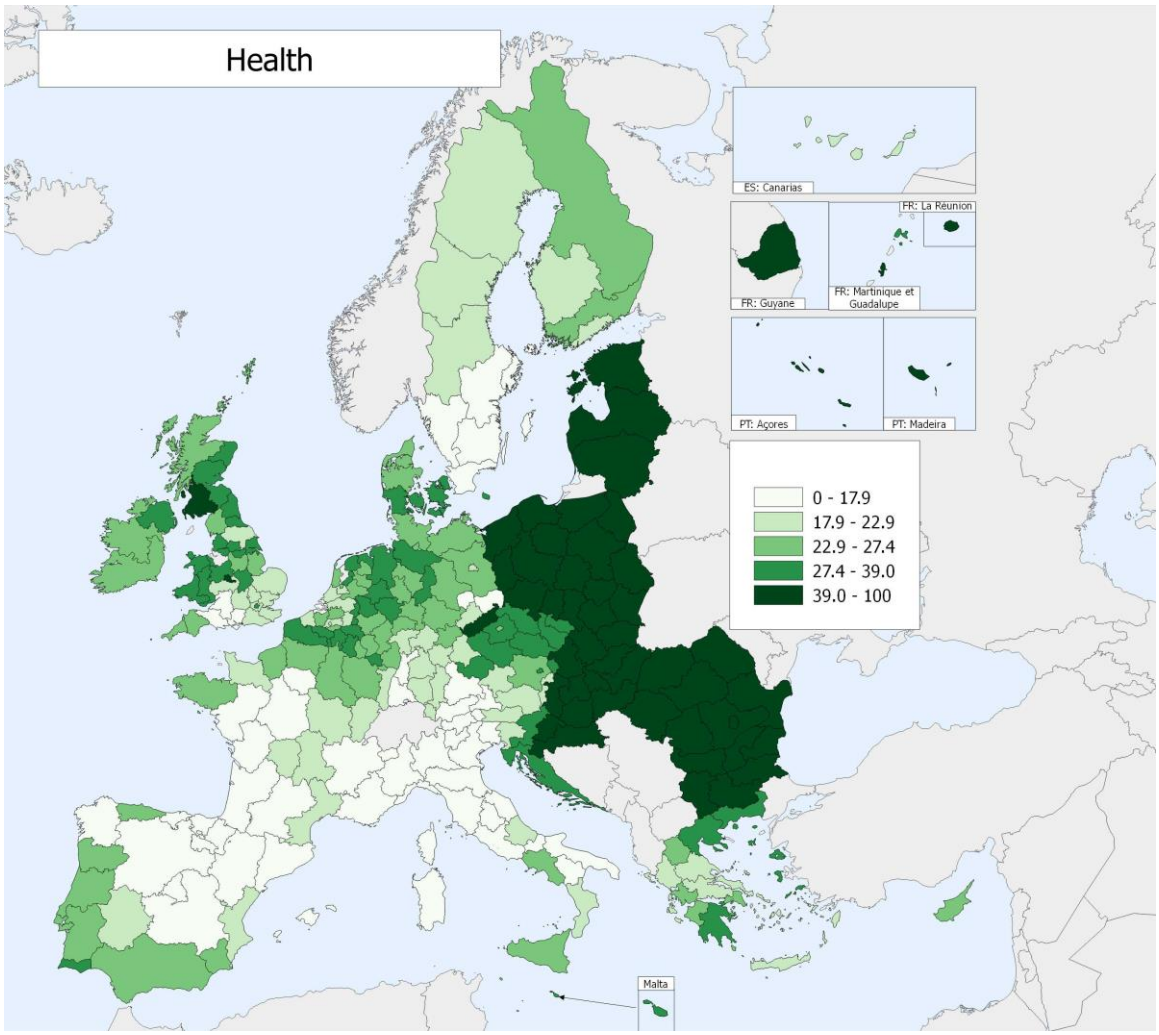
NUTS 2	Label	health	knowledge	decent standard of living	social exclusion		NUTS 2	Label	health	knowledge	decent standard of living	social exclusion
AT11	Burgenland (AT)	22.72	20.09	24.10	12.10		FR81	Languedoc-Roussillon	18.39	41.17	40.53	29.39
AT12	Niederösterreich	25.32	14.75	18.11	3.77		FR82	Provence-Alpes-Côte d'Azur	15.44	33.09	33.26	20.39
AT13	Wien	33.98	19.16	39.85	10.35		FR83	Corse	15.34	46.31	44.21	32.14
AT21	Kärnten	18.51	12.24	36.17	4.12		FR91	Guadeloupe (FR)	38.67	65.07	44.21	97.92
AT22	Steiermark	19.06	11.80	24.79	2.22		FR92	Martinique (FR)	42.73	59.77	44.21	80.10
AT31	Oberösterreich	21.77	14.62	16.23	1.35		FR93	Guyane (FR)	60.00	62.91	44.21	83.56
AT32	Salzburg	17.86	11.61	18.80	1.00		FR94	Réunion (FR)	47.16	63.94	44.21	100.00
AT33	Tirol	14.86	14.71	17.94	2.20		HR03	Jadranska Hrvatska	39.00	28.57	46.44	41.85
AT34	Vorarlberg	18.01	19.69	18.71	7.43		HR04	Kontinentalna Hrvatska	46.88	38.86	46.44	52.58
BE10	Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest	22.86	44.00	69.97	50.33		HU10	Közép-Magyarország	44.92	19.56	13.66	21.60
BE21	Prov. Antwerpen	24.70	27.83	19.05	8.97		HU21	Közép-Dunántúl	57.59	25.73	24.36	21.25
BE22	Prov. Limburg (BE)	20.37	29.59	19.05	5.50		HU22	Nyugat-Dunántúl	55.45	22.36	24.36	13.64
BE23	Prov. Oost-Vlaanderen	26.54	23.53	19.05	3.95		HU23	Dél-Dunántúl	60.99	33.09	24.36	24.54
BE24	Prov. Vlaams-Brabant	18.89	17.68	19.05	6.54		HU31	Észak-Magyarország	70.10	41.27	40.02	38.56
BE25	Prov. West-Vlaanderen	22.05	23.20	19.05	3.60		HU32	Észak-Alföld	63.01	40.16	40.02	28.70
BE31	Prov. Brabant Wallon	24.36	23.05	40.49	15.54		HU33	Dél-Alföld	58.57	28.64	40.02	23.68
BE32	Prov. Hainaut	36.15	44.92	40.49	31.98		IE01	Border, Midland and Western	25.88	46.17	37.62	47.39
BE33	Prov. Liège	29.79	37.44	40.49	26.27		IE02	Southern and Eastern	26.80	35.26	29.92	39.94
BE34	Prov. Luxembourg (BE)	27.52	34.17	40.49	13.98		ITC1	Piemonte	13.43	49.83	26.84	23.50
BE35	Prov. Namur	28.11	34.17	40.49	19.70		ITC2	Valle d'Aosta/Vallée d'Aoste	15.33	51.47	14.61	12.17
BG31	Severozapaden	81.89	60.51	71.25	42.89		ITC3	Liguria	15.14	42.77	26.93	16.41
BG32	Severen tsentralen	75.83	45.25	61.92	43.93		ITC4	Lombardia	12.73	44.52	17.26	15.72
BG33	Severoiztochen	81.82	44.74	56.62	46.18		ITF1	Abruzzo	17.89	44.14	46.61	27.14
BG34	Yugoiztochen	94.46	51.39	55.59	28.00		ITF2	Molise	13.46	54.37	57.05	34.93
BG41	Yugozapaden	56.90	15.34	19.74	20.56		ITF3	Campania	25.96	73.99	86.82	60.54
BG42	Yuzhen tsentralen	75.61	47.15	54.74	38.56		ITF4	Puglia	16.77	71.06	66.12	45.48
CY00	Kypros	23.35	37.48	31.72	17.45		ITF5	Basilicata	16.52	62.27	69.88	41.16
CZ01	Praha	23.99	1.02	5.79	2.91		ITF6	Calabria	22.03	70.86	74.84	55.87
CZ02	Střední Čechy	31.41	9.41	10.93	6.54		ITG1	Sicilia	24.26	77.82	100.00	54.66
CZ03	Jihozápad	31.24	9.84	11.35	9.31		ITG2	Sardegna	15.00	68.98	43.27	42.71
CZ04	Severozápad	47.96	27.66	32.66	25.06		ITH1	Provincia Autonoma di Bolzano/Bozen	8.53	33.96	15.80	3.08
CZ05	Severovýchod	32.33	12.34	13.58	12.95		ITH2	Provincia Autonoma di Trento	12.52	36.27	21.28	6.72
CZ06	Jihovýchod	30.51	9.99	17.69	13.12		ITH3	Veneto	12.53	45.82	20.77	12.77
CZ07	Střední Morava	33.27	12.33	20.85	15.72		ITH4	Friuli-Venezia Giulia	13.37	44.05	22.99	12.77
CZ08	Moravskoslezsko	35.65	15.14	28.81	21.77		ITH5	Emilia-Romagna	9.76	43.06	14.78	12.95
DE11	Stuttgart	18.94	12.85	18.71	4.81		ITI1	Toscana	10.71	48.48	23.68	16.23

DE12	Karlsruhe	17.86	13.35	23.59	6.20		ITI2	Umbria	9.23	40.68	26.33	17.96
DE13	Freiburg	15.83	11.54	20.59	2.91		ITI3	Marche	3.14	44.47	27.27	19.87
DE14	Tübingen	18.50	9.85	19.57	2.91		ITI4	Lazio	15.98	46.89	37.28	27.66
DE21	Oberbayern	15.95	8.36	15.72	2.56		LT00	Lietuva	63.61	16.72	43.01	31.98
DE22	Niederbayern	28.90	11.32	23.59	4.29		LU00	Luxembourg	26.31	16.32	30.09	6.20
DE23	Oberpfalz	22.72	12.18	24.96	4.47		LV00	Latvija	71.56	22.64	43.70	36.48
DE24	Oberfranken	26.90	12.09	27.53	4.98		MT00	Malta	34.90	48.34	32.66	13.29
DE25	Mittelfranken	20.26	12.29	24.79	5.33		NL11	Groningen	30.91	18.62	30.78	10.00
DE26	Unterfranken	22.35	8.80	25.73	4.12		NL12	Friesland (NL)	28.15	18.55	21.02	8.79
DE27	Schwaben	19.07	10.91	19.74	3.77		NL13	Drenthe	23.58	20.49	16.92	8.45
DE30	Berlin	21.33	19.09	41.82	26.62		NL21	Overijssel	26.29	17.53	20.25	6.89
DE40	Brandenburg	26.77	13.30	35.74	20.39		NL22	Gelderland	25.95	18.93	16.74	6.54
DE50	Bremen	34.67	25.77	47.38	11.73		NL23	Flevoland	28.64	20.67	22.65	9.83
DE60	Hamburg	24.91	16.51	27.70	10.18		NL31	Utrecht	18.85	12.79	20.00	4.98
DE71	Darmstadt	20.58	13.62	21.28	7.06		NL32	Noord-Holland	23.24	15.27	23.08	6.89
DE72	Gießen	24.33	12.57	30.35	8.27		NL33	Zuid-Holland	22.56	19.40	22.22	10.18
DE73	Kassel	23.44	12.20	31.72	7.06		NL34	Zeeland	17.27	22.59	14.69	4.81
DE80	Mecklenburg-Vorpommern	25.60	13.78	52.60	26.27		NL41	Noord-Brabant	22.56	18.89	16.06	6.02
DE91	Braunschweig	30.08	16.22	33.69	12.60		NL42	Limburg (NL)	28.51	21.65	18.54	7.23
DE92	Hannover	26.25	16.25	34.63	12.43		PL11	Lódzkie	53.36	19.81	32.15	21.60
DE93	Lüneburg	31.21	14.18	27.44	8.79		PL12	Mazowieckie	43.52	13.70	32.15	12.08
DE94	Weser-Ems	28.71	13.94	34.46	6.20		PL21	Malopolskie	41.33	16.48	30.09	21.43
DEA1	Düsseldorf	31.42	21.62	31.03	15.02		PL22	Slaskie	54.21	14.70	30.09	18.31
DEA2	Köln	24.47	18.24	30.78	11.56		PL31	Lubelskie	48.45	21.76	57.05	19.87
DEA3	Münster	29.56	16.32	30.09	10.18		PL32	Podkarpackie	44.17	26.91	57.05	22.46
DEA4	Detmold	24.57	16.87	31.29	9.14		PL33	Swietokrzyskie	50.16	22.53	57.05	30.43
DEA5	Arnsberg	31.23	20.89	35.83	15.54		PL34	Podlaskie	44.49	18.14	57.05	18.83
DEB1	Koblenz	24.19	16.97	33.26	6.37		PL41	Wielkopolskie	45.69	18.72	35.23	16.23
DEB2	Trier	23.94	16.70	28.81	8.99		PL42	Zachodniopomorskie	53.02	27.81	35.23	22.81
DEB3	Rheinhessen-Pfalz	25.56	18.01	28.21	7.06		PL43	Lubuskie	55.34	26.71	35.23	11.91
DEC0	Saarland	29.72	19.05	32.57	12.60		PL51	Dolnoslaskie	56.42	20.86	29.32	21.43
DED2	Dresden	17.59	8.43	40.96	19.52		PL52	Opolskie	46.35	21.26	29.32	13.29
DED4	Chemnitz	18.03	8.94	50.29	21.60		PL61	Kujawsko-Pomorskie	54.75	22.83	36.51	21.95
DED5	Leipzig	16.21	8.60	50.29	27.48		PL62	Warminsko-Mazurskie	49.94	31.35	36.51	21.60
DEE0	Sachsen-Anhalt	27.02	13.82	47.63	27.31		PL63	Pomorskie	45.49	22.31	36.51	15.89
DEF0	Schleswig-Holstein	25.03	14.31	28.12	9.83		PT11	Norte	23.07	59.86	33.26	41.33
DEG0	Thüringen	23.87	7.84	39.50	16.41		PT15	Algarve	30.14	57.91	40.47	35.96
DK01	Hovedstaden	32.94	14.34	27.18	8.10		PT16	Centro (PT)	22.97	54.70	27.18	25.06
DK02	Sjælland	36.49	21.84	24.45	7.93		PT17	Lisboa	27.40	52.00	40.26	43.41
DK03	Syddanmark	31.69	21.16	27.78	9.31		PT18	Alentejo	25.85	60.51	34.04	34.93
DK04	Midtjylland	26.33	19.80	26.93	6.54		PT20	Região Autónoma dos Açores (PT)	45.57	80.62	60.85	37.18
DK05	Nordjylland	25.71	20.92	26.50	6.89		PT30	Região Autónoma da Madeira (PT)	41.24	73.12	53.12	50.16
EE00	Eesti	50.48	18.36	36.60	26.27		RO11	Nord-Vest	76.92	28.92	36.34	8.62
EL11	Anatoliki Makedonia, Thraki	37.91	71.66	56.28	71.96		RO12	Centru	74.18	44.88	41.04	23.68
EL12	Kentriki Makedonia	29.96	47.10	56.28	80.44		RO21	Nord-Est	82.20	32.46	74.93	8.62
EL13	Dytiki Makedonia	24.68	64.59	56.28	85.12		RO22	Sud-Est	88.44	44.88	65.00	25.58
EL14	Thessalia	22.05	56.80	56.28	63.31		RO31	Sud - Muntenia	82.05	46.15	49.52	20.56
EL21	Ipeiros	20.67	58.69	57.99	64.52		RO32	Bucuresti - Ilfov	54.81	19.56	1.00	5.42
EL22	Ionia Nisia	19.69	53.66	57.99	30.08		RO41	Sud-Vest Oltenia	78.62	32.36	69.71	18.31

EL23	Dytiki Ellada	25.43	53.04	57.99	77.67		RO42	Vest	79.66	28.19	41.82	10.00
EL24	Sterea Ellada	20.77	72.74	57.99	79.06		SE11	Stockholm	12.60	14.43	19.91	3.77
EL25	Peloponnisos	30.24	73.45	57.99	62.96		SE12	Östra Mellansverige	16.30	18.66	29.66	7.06
EL30	Attiki	27.01	36.91	29.24	72.48		SE21	Småland med öarna	16.24	19.04	30.01	4.47
EL41	Voreio Aigaio	29.06	54.73	39.25	62.62		SE22	Sydsverige	17.13	19.59	33.26	8.27
EL42	Notio Aigaio	18.52	61.51	39.25	24.20		SE23	Västsverige	14.03	17.43	28.98	4.98
EL43	Kriti	18.69	52.15	39.25	48.43		SE31	Norra Mellansverige	19.11	21.06	32.32	5.85
ES11	Galicia	16.10	49.72	38.48	45.31		SE32	Mellersta Norrland	19.12	20.42	27.01	4.47
ES12	Principado de Asturias	25.99	47.38	26.84	49.64		SE33	Övre Norrland	21.22	15.10	29.41	4.29
ES13	Cantabria	16.59	41.17	37.37	39.94		SI01	Vzhodna Slovenija	30.06	21.29	34.11	24.20
ES21	País Vasco	14.61	32.21	24.19	31.29		SI02	Zahodna Slovenija	20.81	11.29	19.65	16.23
ES22	Comunidad Foral de Navarra	7.07	35.16	14.86	28.18		SK01	Bratislavský kraj	36.62	8.24	9.04	11.04
ES23	La Rioja	16.28	47.80	47.72	38.39		SK02	Západné Slovensko	48.12	16.34	21.88	37.69
ES24	Aragón	16.72	43.48	36.94	39.94		SK03	Stredné Slovensko	52.41	23.81	27.61	56.04
ES30	Comunidad de Madrid	13.85	38.08	31.38	41.85		SK04	Východné Slovensko	69.50	27.61	35.40	68.16
ES41	Castilla y León	14.69	45.87	43.70	42.37		UKC1	Tees Valley and Durham	30.96	39.19	56.02	20.73
ES42	Castilla-la Mancha	15.30	60.98	76.04	64.00		UKC2	Northumberland and Tyne and Wear	28.54	31.59	56.02	15.89
ES43	Extremadura	20.93	65.55	82.03	64.35		UKD1	Cumbria	22.96	29.35	54.74	10.18
ES51	Cataluña	15.35	54.43	36.17	53.96		UKD3	Greater Manchester	36.47	35.36	54.74	16.23
ES52	Comunidad Valenciana	20.19	55.22	50.54	62.27		UKD4	Lancashire	36.70	34.19	54.74	9.66
ES53	Illes Balears	17.70	57.16	48.23	41.85		UKE1	East Yorkshire and Northern Lincolnshire	29.95	40.59	52.17	16.75
ES61	Andalucía	26.16	65.10	72.70	75.08		UKE2	North Yorkshire	20.23	25.22	52.17	7.06
ES62	Región de Murcia	23.98	58.31	67.06	59.16		UKE3	South Yorkshire	34.68	35.46	52.17	19.00
ES63	Ciudad Autónoma de Ceuta (ES)	42.55	76.49	72.19	95.15		UKE4	West Yorkshire	35.71	36.95	52.17	17.27
ES64	Ciudad Autónoma de Melilla (ES)	16.08	66.81	76.55	85.46		UKF1	Derbyshire and Nottinghamshire	27.00	31.85	50.89	11.22
ES70	Canarias (ES)	21.53	63.81	79.98	79.92		UKF2	Leicestershire, Rutland and Northamptonshire	27.56	28.93	50.89	10.18
FI19	Länsi-Suomi	20.16	20.71	20.08	7.41		UKF3	Lincolnshire	27.33	30.63	50.89	12.43
FI1B	Helsinki-Uusimaa	19.72	13.93	14.61	4.47		UKG1	Herefordshire, Worcestershire and Warwickshire	22.70	29.01	57.30	6.20
FI1C	Etelä-Suomi	23.13	19.19	31.72	7.75		UKG2	Shropshire and Staffordshire	32.89	30.02	57.30	9.48
FI1D	Pohjois- ja Itä-Suomi	23.33	20.33	35.23	7.75		UKG3	West Midlands	41.41	44.47	57.30	26.45
FI20	Åland	5.36	17.98	18.80	6.88		UKH1	East Anglia	22.13	27.97	44.47	8.45
FR10	Île de France	14.97	25.66	24.62	17.27		UKH2	Bedfordshire and Hertfordshire	21.11	22.16	44.47	9.14
FR21	Champagne-Ardenne	24.68	40.91	29.92	20.91		UKH3	Essex	21.41	34.18	44.47	8.79
FR22	Picardie	27.40	46.00	29.41	24.02		UKI1	Inner London	28.61	22.06	73.99	14.16
FR23	Haute-Normandie	24.87	36.49	25.90	22.64		UKI2	Outer London	22.48	27.54	59.87	12.60
FR24	Centre (FR)	17.76	28.93	22.73	18.31		UKJ1	Berkshire, Buckinghamshire and Oxfordshire	19.67	21.81	40.62	5.50
FR25	Basse-Normandie	18.96	33.38	26.84	14.85		UKJ2	Surrey, East and West Sussex	19.09	22.36	40.62	5.85
FR26	Bourgogne	20.48	30.54	24.62	19.70		UKJ3	Hampshire and Isle of Wight	17.17	24.41	40.62	6.20
FR30	Nord - Pas-de-Calais	29.29	41.41	39.93	33.02		UKJ4	Kent	20.88	32.11	40.62	11.22
FR41	Lorraine	23.20	34.42	28.21	22.81		UKK1	Gloucestershire, Wiltshire and Bristol/Bath area	17.37	26.68	44.47	8.27
FR42	Alsace	19.82	30.56	21.02	14.68		UKK2	Dorset and Somerset	17.01	23.58	44.47	6.89
FR43	Franche-Comté	21.40	31.32	25.04	16.93		UKK3	Cornwall and Isles of Scilly	26.91	26.70	44.47	8.10
FR51	Pays de la Loire	15.54	27.91	21.54	13.64		UKK4	Devon	23.37	28.34	44.47	7.06
FR52	Bretagne	23.05	20.02	21.54	10.70		UKL1	West Wales and The Valleys	30.31	38.63	52.17	14.33
FR53	Poitou-Charentes	14.07	31.29	28.12	16.06		UKL2	East Wales	28.17	31.14	52.17	8.62
FR61	Aquitaine	16.03	29.76	26.24	14.68		UKM2	Eastern Scotland	31.94	27.33	41.90	10.35

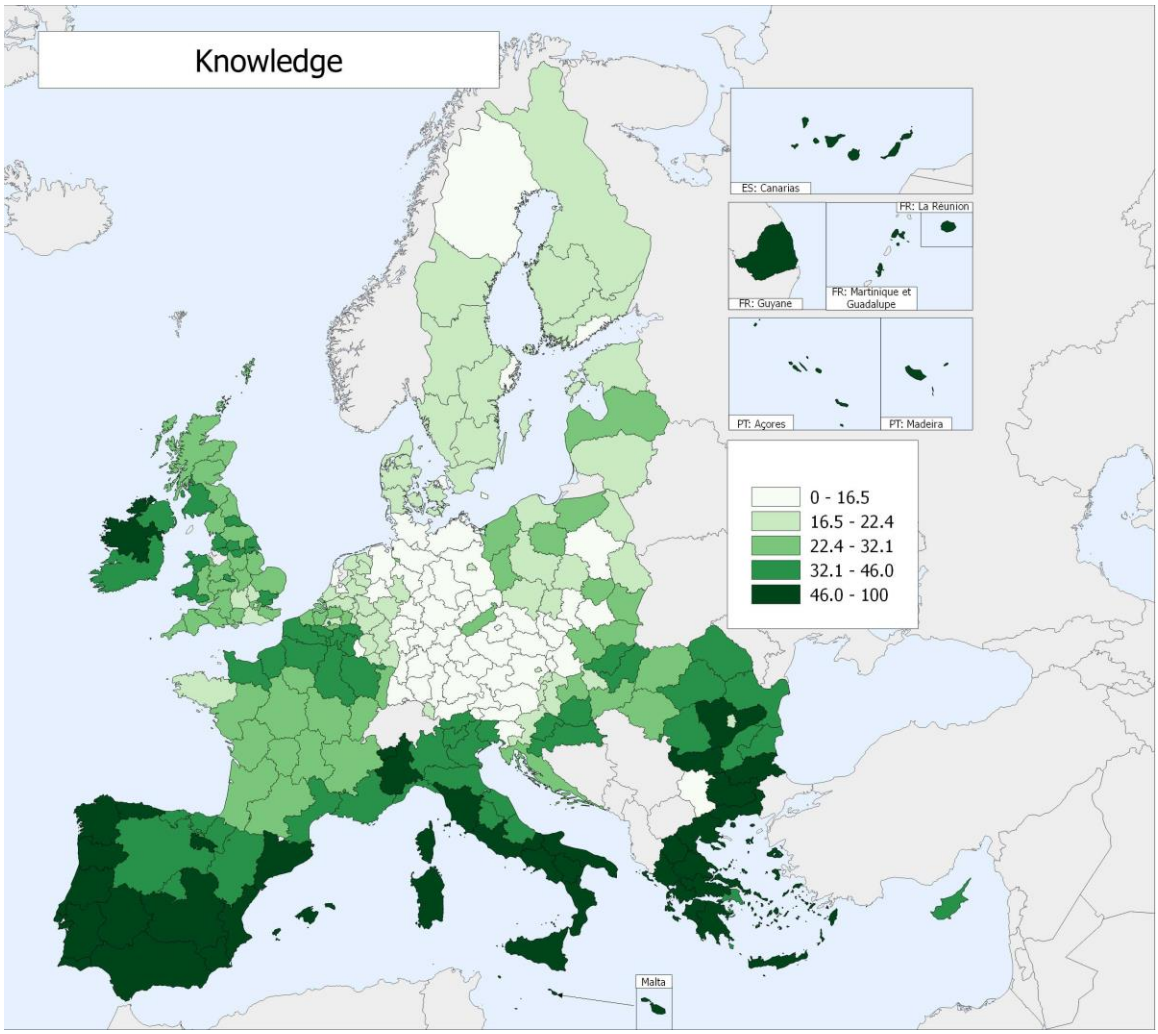
FR62	Midi-Pyrénées	14.64	24.68	28.81	14.33		UKM3	South Western Scotland	41.45	32.68	41.90	16.93
FR63	Limousin	19.63	28.24	30.43	13.12		UKM5	North Eastern Scotland	35.28	22.45	41.90	17.90
FR71	Rhône-Alpes	12.92	26.29	22.82	12.77		UKM6	Highlands and Islands	26.65	24.43	41.90	7.75
FR72	Auvergne	21.07	30.67	28.81	17.10		UKN0	Northern Ireland (UK)	30.39	38.51	47.03	16.93

Figure A1. Spatial distribution (NUTS 2) of the health dimension in the EU



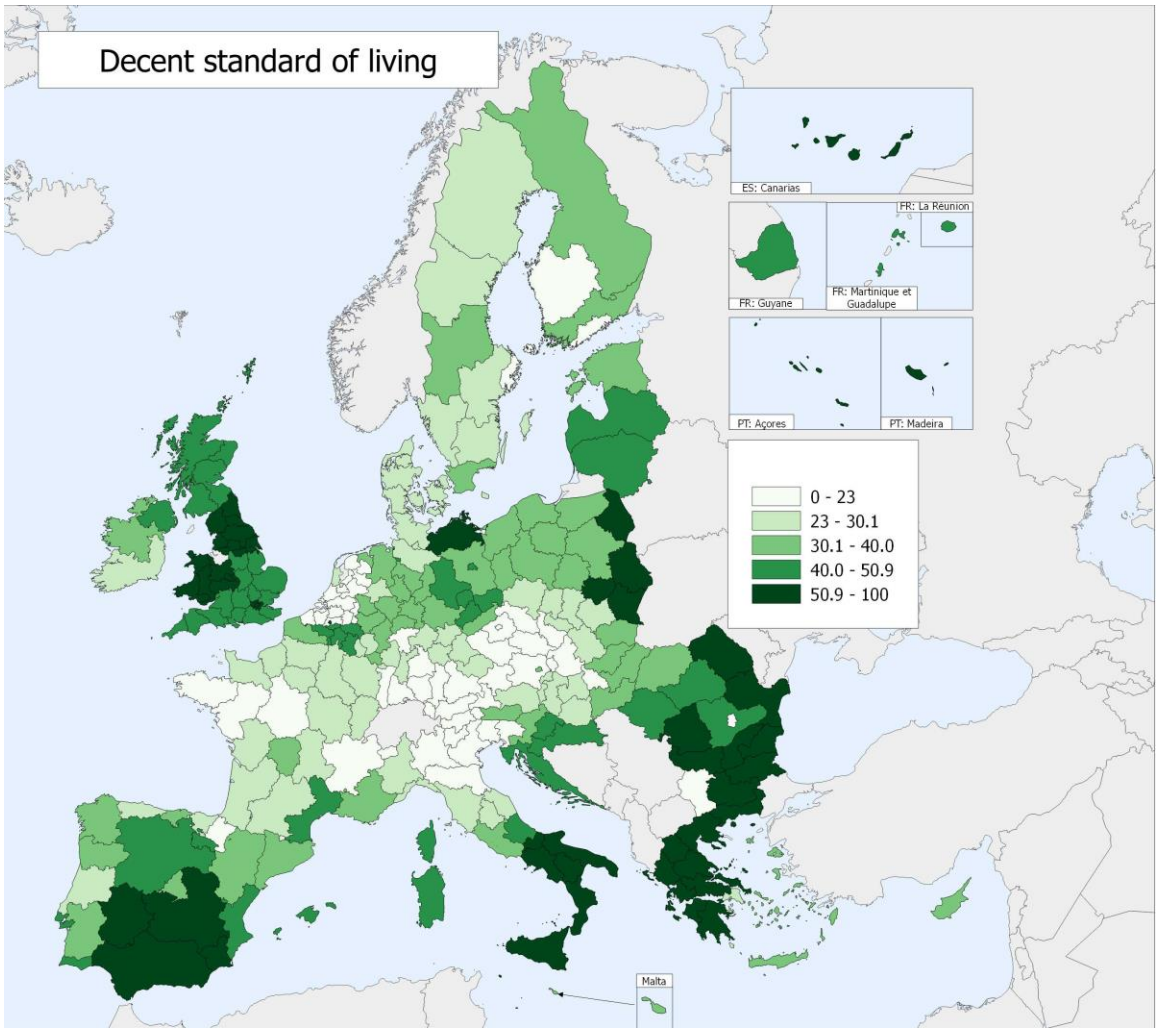
Note: Thresholds correspond to quintiles; the greener colour, the worst conditions

Figure A2. Spatial distribution (NUTS 2) of the knowledge dimension in the EU (the greener, the worst)



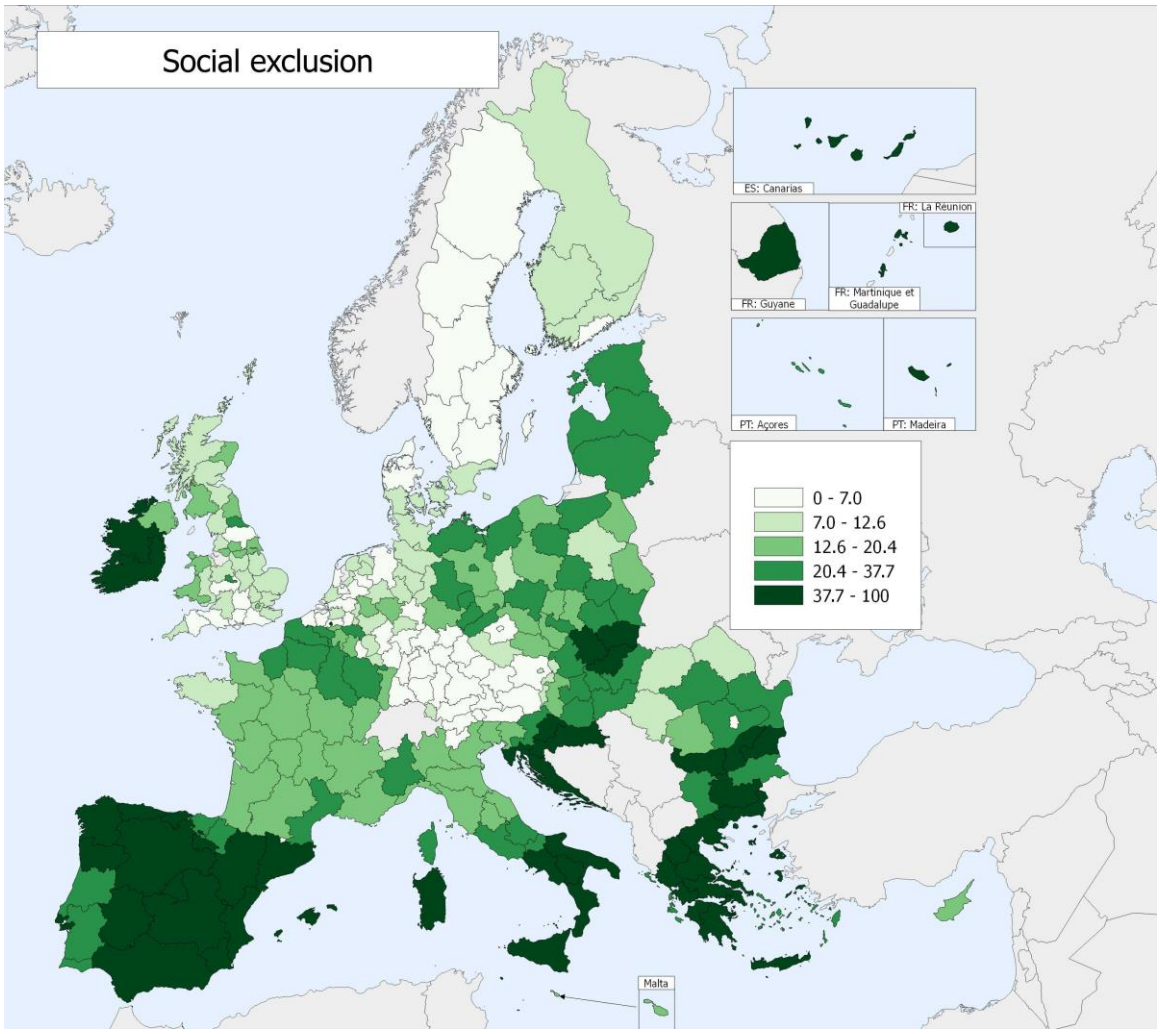
Note: Thresholds correspond to quintiles; the greener colour, the worst conditions

Figure A3. Spatial distribution (NUTS 2) of the decent standard of living dimension in the EU (the greener, the worst)



Note: Thresholds correspond to quintiles; the greener colour, the worst conditions

Figure A4. Spatial distribution (NUTS 2) of the social exclusion dimension in the EU (the greener, the worst)



Note: Thresholds correspond to quintiles; the greener colour, the worst conditions

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