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## IS THERE A TWO-SPEED EUROPE ALSO IN THE WELL-BEING?

### ABSTRACT

Eurostat databases provide forty indicators relevant to measure the well-being in different countries. In this paper we propose to identify different levels of wellbeing in two European areas, by the analysis of a sample of Centre-North Europe (Sweden, Germany, France, Britain and the Netherlands, which are among the most advanced states), and a sample of Mediterranean countries (Italy, Spain, Portugal and Greece).

The goal of the research is to grasp and quantify the specificities of these countries in a phase when inequalities grow. We have represented welfare through 11 dimensions based on 77 variables and analyzed the differences in each of them between the countries in the two areas by Pena's Distance and MPI, two different methodologies – parametric and non-parametric – that allow the combination of variables in a way consistent with our objective.

**Keywords:** European Union, Multidimensional Well-being, Composite Index, MPI, Pena's Distance

**JEL Classification:** I32, C14, O15

### RIASSUNTO

#### *Esiste un'Europa a due velocità anche nel benessere?*

Il presente studio è rivolto a misurare e valutare il livello di benessere all'interno dei paesi dell'Unione Europea, volgendo l'attenzione in particolare a un campione del Centro-Nord (Svezia, Germania, Francia, Gran Bretagna e Paesi Bassi, che rappresentano nazioni fra le più avanzate dell'UE), ed a un campione di paesi dell'area mediterranea (Italia, Spagna, Portogallo e Grecia). Scopo della ricerca è cogliere e quantificare gli aspetti specifici di questi Paesi in una fase di crescente diseguaglianza. Abbiamo rappresentato il benessere attraverso 11 dimensioni basate su 77 variabili ed analizzato le differenze in ognuna di esse tra i paesi in esame nelle due

aree, attraverso la Pena's Distance e l'MPI: due differenti metodologie (rispettivamente parametrica e non parametrica) che permettono l'aggregazione delle variabili in modo coerente rispetto all'obiettivo prefissato.

## 1. INTRODUCTION

The present study aims at assessing the level of well-being within countries of the European Union, turning the attention in particular to a sample of the Centre-North (Sweden, Germany, France, Britain and the Netherlands, i. e. nations of greater economic importance), and a sample of Mediterranean countries (Italy, Spain, Portugal and Greece). To the last group of countries we have added Ireland, which, on the one hand, is geographically far from the Mediterranean, but, on the other hand, is part of the countries in difficulty. Therefore we can understand the differences between countries described as "virtuous" by European Authorities and countries that are part of the so-called PIIGS. The final goal of the research is to get better understanding of the characteristics that countries assume in a context where the various dimensions of inequality grow.

Our methodological starting point is the measure of well-being, taking into account, as far as possible, its various economic and social aspects. Numerous studies in this regard can be found in literature, from the *capabilities approach* (Sen, 1982, 1985 and 1993 between the various publications), to the *dimensions of well-being approach* (Narayan *et al.*, 2000), and the *central human capabilities approach* (Nussbaum, 2000). They are complemented by a range of expressions, from *well-being*, to *quality of life*, *empowerment*, *capability expansion*, and *happiness*. In the present study we will refer to well-being as a set of good living conditions and actual subjective well-being (see e.g. Noll, 2002). Then we have represented welfare through 11 dimensions based on 77 variables and analyzed the differences in each of them between the countries concerned in the two areas through the combination of the variables, by Pena's Distance and MPI, two different methodologies - parametric and non-parametric - that allow the combination of variables in a manner consistent with our objective (Pena, 1977; Somarriba and Pena, 2009; Montero *et al.*, 2010; Mazziotta and Pareto, 2007 and 2012).

## 2. METHODOLOGY

We have constructed an index based on currently available data, coming directly from certified sources. They do not require costly *ad hoc* surveys and can be easily updated when necessary (Jarman, 1983; Gordon and Pantazis, 1997; Ivaldi and Testi, 201; Soliani *et al.*, 2012). The analysis of the literature offers several ways to derive the most suitable variables to insert in the index (Berger-Schmitt and Noll, 2000; Michalos *et al.*, 2010; CNEL-ISTAT, 2013; Porter *et al.*, 2013), even if the choice is conditioned by the availability of data and the purpose of the study.

The index is based on the twelve dimensions of the *Benessere Equo e Sostenibile – BES* (CNEL- ISTAT, 2012 and 2013; Ivaldi *et al.*, 2015), but excludes the domain “Landscape and Cultural Heritage”, for which we found insufficient harmonized data. BES includes the latest theoretical developments in the field, between which the recommendations of the Stiglitz-Sen-Fitoussi Commission (Stiglitz *et al.*, 2009).

The selected dimensions, listed below (Table 1), cover the multidimensional nature of well-being, are sufficiently different among themselves, and fully describe the multidimensionality of the phenomena, avoiding the risk of self-correlation.

TABLE 1- *Index Dimensions*

Health
Education and Training
Work and Life balance
Economic Well-being
Social Relationships
Politics and Institutions
Security
Subjective Well-being
Environment
Research and Innovation
Quality of Services

We have conducted a preliminary survey on the availability of data from Eurostat, WHO, OECD, European Commission and European Quality of Life Survey 2012. Then we have selected 77 variables, which should ensure sufficient completeness of information.

In absence of dominance of one dimension over all others, some combination or aggregation is necessary in order to make well-being inter-individually comparable. We have opted for equal weighting. This may result either from an “agnostic” attitude and a wish to reduce interference to a minimum, or from the lack of information about some kind of “consensus” view (Brandolini, 2008). Decancq and Lugo (2013) identify equal weighting as the preferred and facilitating procedure, adopted in most of the applications. Maggino (2009) maintains that different weights must not be used if there are no consistent hypotheses for defining them. Indeed, although it would be desirable to assign different weights to the various factors considered, there is often no reliable basis for doing this. However, equal weighting does imply an implicit judgment on the weights being equal (Nardo *et al.*, 2005).

One of the major tasks of wellbeing measures is the search for the appropriate aggregation method to incorporate multi-dimensional variables into an overall index. Clustering the items in a limited number of dimensions can simplify the interpretation of the information available in the list of variables and highlights various patterns of the quality of life in different countries. In order to do so, many techniques may be implemented.

We have defined dimensions through 77 variables and analyzed the differences in each of them between the countries in the two areas, through non parametric and parametric techniques; in particular, the MPI and the Pena’s Distance, which allow the combination of variables in a way consistent with our goals (see in this regard: Pena, 1977; Somarriba and Pena, 2009; Montero *et al.*, 2010; Mazziotta and Pareto, 2007 and 2012).

Mazziotta Pareto Index (MPI) (Mazziotta and Pareto, 2007 and 2012) is based on the assumption of “non-substitutability” of the dimensions, all of equal importance; no compensation between them is allowed. Applications of the MPI have been carried out in recent years to discuss the Millennium Development Goals (MDG) (De Muro *et al.*, 2011), verify social inequality in the Italian regions (Mazziotta *et al.*, 2010), measure the Italian health infrastructure endowment (Mazziotta and Pareto, 2011), assess quality of life levels among Italian provinces (Mazziotta and Pareto, 2012) and to measure wellbeing in European Union (Ivaldi *et al.*, 2015).

The steps in the construction of the MPI are the following: 1) normalization of the individual indicators by “standardization” and 2) aggregation of the standardized indicators by arithmetic mean with penalty function based on “horizontal variability”, i.e. the variability of standardized values for each unit. This variability, measured by the coefficient of variation, allows penalizing the score of the units which have higher imbalance between the values of the indicators. Finally, the use of the standardized deviation in reckoning the synthetic index sets up a measure which is robust and little sensitive to the elimination of a single elementary indicator (Mazziotta *et al.*, 2010).

The normalization process is carried out as follows:

$$z_{i,j} = 100 + \frac{(x_{i,j} - \mu_j)}{\sigma_j} 10 \quad \text{if the } j\text{-th indicator is “positive”}$$

$$z_{i,j} = 100 - \frac{(x_{i,j} - \mu_j)}{\sigma_j} 10 \quad \text{if the } j\text{-th indicator is “negative”}$$

Where:

- $z_{i,j}$  is the standardized value of each  $j$ -th variable of each  $i$ -th country.
- $x_{i,j}$  is the original value of each  $j$ -th variable of each  $i$ -th country.
- $\mu_j$  is the mean of each  $j$ -th indicator.
- $\sigma_j$  is the standard deviation of each  $j$ -th indicator.

The characteristic “positive” or “negative” are interpreted with respect to well-being polarity: the polarity is “positive” if increasing values of the indicator correspond to positive variations of well-being, and is “negative” if increasing values of the indicator correspond to negative variations of well-being (Mazziotta and Pareto, 2012). We have calculated the  $z$ -scores and the partial composite index for each  $k$ -th dimension, given by:

$$\bar{z}_{i,k} = \frac{\sum_{j=1}^n z_{i,j,k}}{n} \quad (k=1, \dots, 11)$$

Being:

- $\bar{z}_{i,k}$  the partial composite index for the  $k$ -th dimension for each  $i$ -th country.

- $z_{i,j,k}$  the standardized value of each  $j$ -th variable of each  $i$ -th country for each  $k$ -th dimension.

The final step of this stage is the aggregation of the standardized values, to obtain the global MPI Index. The MPI of well-being is obtained as:

$$MPI_i = \mu_{\bar{z}_i} - \sigma_{\bar{z}_i} cv_{\bar{z}_i}$$

Where:

- $MPI_i$  is the value of MPI for each  $i$ -th country.
- $\mu_{\bar{z}_i} = \frac{\sum_{k=1}^{11} \bar{z}_{i,k}}{11}$
- $\sigma_{\bar{z}_i} = \sqrt{\frac{\sum_{k=1}^{11} (\bar{z}_{i,k} - \mu_{\bar{z}_i})^2}{11}}$
- $cv_{\bar{z}_i} = \frac{\sigma_{\bar{z}_i}}{\mu_{\bar{z}_i}}$

This approach is characterized by the use of a function ( $\sigma_{\bar{z}_i} cv_{\bar{z}_i}$ ), to penalize the units with “unbalanced” values of the partial composite indices. The penalty is based on the coefficient of variation and is zero if all values are equal. The purpose is to favour the countries that, mean being equal, have a greater balance among the different dimensions of well-being (Mazziotta and Pareto, 2012).

The second methodology used is the Pena’s method (P2 Distance or DP2 method). This method was proposed by Pena (1977) and has the properties of non-negativity, commutativity, triangular inequality, existence, determination, monotony, uniqueness, transitivity, invariance to change of origin and/or scale of the units in which the variables are defined, invariance to a change in the general conditions and exhaustiveness and reference base, and so forth (Pena, 1977; Somarriba and Pena, 2009; Montero *et al.*, 2010; Nayak and Mishra, 2012).

Pena’s P2 Distance is introduced as follows:

$$DP2_i = \sum_{j=i}^m \left[ \left( \frac{d_{ij}}{\sigma_j} \right) (1 - R_{j,j-1,\dots,1}^2) \right]; i = 1, 2, \dots, n$$

where:

- $i=1, 2, \dots, n$  are cases.

- $m$  is the number of constituent variables,  $X$ , such that  $x_{ij} \in X; i = 1, 2, \dots, n; j = 1, 2, \dots, m; d = |x_{ij} - x_{\rho j}|; i = 1, 2, \dots, n; j = 1, 2, \dots, m$ .
- $\rho$  is the reference case pertaining to  $\min_i(x_{ij})$ .
- $\sigma_j$  is the standard deviation of the variable  $j$ .
- $R_{j,j-1,\dots,1}^2$ , with  $j > 1$ , is the coefficient of determination in the regression of  $x_j$  over  $x_{j-1}, x_{j-2}, \dots, x_1$ .

As pointed out by Montero *et al.* (2010) and Mishra (2012a), the quantity  $\frac{d_{ij}}{\sigma_j}$  is merely a change in the origin and the scale, and also one may use zero as the reference  $\rho$  point and  $[\max_i(x_{ij}) - \min_i(x_{ij})]$  instead of  $\sigma_j$  as a scaling factor, without any adverse effect on the formula. The real crux, however, lay in the weights  $(1 - R_{j,j-1,\dots,1}^2)$ . It may be noted that the first variable obtains an absolute weight of unity  $(1 - R_1^2)$ . The subsequent variable  $j=2$  obtains a weight  $(1 - R_{2,1}^2)$ . and in general, the  $j_{th}$  variable obtains a weight  $(1 - R_{j,j-1,\dots,1}^2)$ . It is noticeable that the weights assigned to a variable will depend on its position in the order, making the DP2-based composite synthetic indices indeterminate and arbitrary.

To resolve this indeterminacy, the following iterative procedure has been suggested by Montero *et al.*, (2010):

- 1 - Initialize the weight vector,  $w_j = 1 \forall j = 1, 2, \dots, m$  and define  $\varepsilon = 0.00001$ , say for accuracy.
- 2 - Define  $\partial_{ij} = \left(\frac{d_{ij}}{\sigma_j}\right) \forall j = 1, 2, \dots, m$  and  $i = 1, 2, \dots, n$ .
- 3 - Obtain  $DF_i = \sum_{j=i}^m \left[\left(\frac{d_{ij}}{\sigma_j}\right) w_j\right]; i = 1, 2, \dots, n$ .
- 4 - Compute the Karl Pearson's coefficient of correlation  $r(DF, \partial_j)$  between DF and  $\partial_j \forall j = 1, 2, \dots, m$ . Arrange  $|r(DF, \partial_j)|$  in a descending order and re-index the associated variables  $\partial_j$  accordingly.
- 5 - Compute  $Z_i = \sum_{j=i}^m \left[\left(\frac{d_{ij}}{\sigma_j}\right) w_j\right]; i = 1, 2, \dots, n; w_j = (1 - R_{j,j-1,\dots,1}^2)$  for  $j = 2, 3, \dots, m$  and  $w_j = 1$ .
- 6 - If  $\sum_{i=1}^n (DF_i - Z_i)^2 \geq \varepsilon$  replace DF by Z go to step 4. Else: stop.

At the end the two indexes will be standardized, in order to get them comparable. The index will be subsequently subjected to a test of robustness, through a sensitivity analysis, conducted by testing the general index subtracting in turn each of the eleven dimensions. Then the subtraction will cover two dimensions simultaneously. The index will be recalculate each time and the results will be compared using the Spearman correlation coefficient.

Finally also the two indexes have been compared through the Spearman correlation coefficient.

### 3. RESULTS AND DISCUSSION

The two methodologies yield exactly the same rank (Spearman  $\rho=1$ ). After standardisation, the cut-off 0 offers two sets of countries: Sweden, Netherlands, Germany, Ireland, France and United Kingdom, Spain, Italy, Portugal, Greece (Table 2).

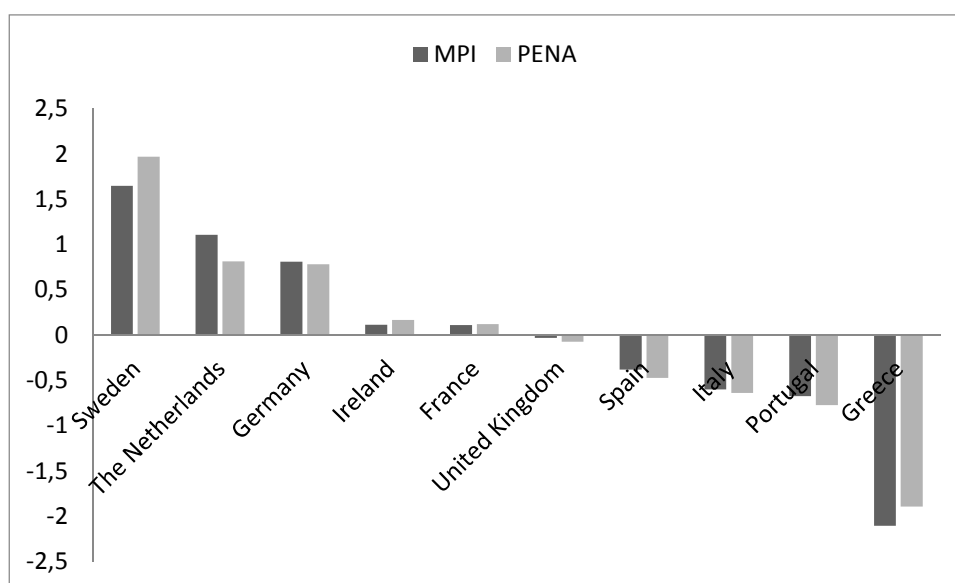
TABLE 2 - *MPI and Pena Scores Standardized*

<b>MPI</b>	Score	<b>DP2</b>	Score
Sweden	1,97	Sweden	1,65
Netherlands	0,81	Netherlands	1,10
Germany	0,78	Germany	0,81
Ireland	0,17	Ireland	0,11
France	0,12	France	0,11
United Kingdom	-0,07	United Kingdom	-0,03
Spain	-0,47	Spain	-0,38
Italy	-0,64	Italy	-0,60
Portugal	-0,77	Portugal	-0,67
Greece	-1,89	Greece	-2,10

Figure 1 compares the standardized score of the two indexes. Quite unexpectedly, our sample appears divided into three groups: North Europe (Sweden, The Netherlands and Germany) has the top level of wellbeing; Ireland, France and United Kingdom are in the middle and, finally, the remaining PIIGS countries end the rank (figure 1).



FIGURE 1 - Comparison between MPI and Pena Normalized Scores



The wellbeing in Sweden is by far higher than in The Netherlands, which immediately follow it. Indeed Sweden is first or second in nine dimensions out of eleven – see appendix 2 –. On its turn, The Netherlands exhibit good ranks in nine variables, whereas are low just in social relationship and environment. Social relationship and health are the weak point of Germany, which is high in all other dimensions. The portrait of Ireland is really peculiar: it has great variability and is at the top in social relationship and environment, and at the third place in subjective well-being. In other dimension, it is in low positions. France is well placed in economic wellbeing and security, but middle-of-the-road in all other dimensions, with bad record in subjective wellbeing, since its citizens had a dark perception of their condition. Health and security are the black spots of the United Kingdom, which largely explain its poor performance; however it is well placed just in social relationship. Spain, Italy and Portugal show similar results; we can underline the nice performance of Italy in health and the poor result of Portugal in economic wellbeing. At the end of the rank, Greece is last or second-last in all dimensions, but security, and far from all others countries.

#### 4. CONCLUSIONS

Both methodologies offer identical outcome, and this indicates the robustness of the results obtained.

The first outcome of our inquiry is the existence of three levels of wellbeing in the samples considered, with a locomotive and a snail. The great inequality among the different regions of the UE is evident, with Sweden that occupies the top place, whereas Greece is at the bottom, with a wide gap.

Our analysis confirms the validity of the Scandinavian socio-economic model and of the “Rhenish capitalism”, which are in the leading group. The second group includes Ireland, France and the United Kingdom, which are heterogeneous as their socioeconomic structure and welfare systems. The United Kingdom, last country of the second group, offers a performance worse than one can expect just looking at its economic growth. On the other hand, the outcome of Ireland is even better than the United Kingdom, thanks to specific social aspects, environment and optimism, expressed in the perceived wellbeing. Mediterranean countries are in the third group and close each other, with the exception of Greece, which has a marked detachment and appears very far from the other countries of the UE.

## APPENDIX 1

### SELECTED VARIABLES FOR THE CONSTRUCTION AND SOURCES

TABLE 2 - *Indicators and Sources*

Dimension	Indicator	Source
Health	Life Expectancy (at 1 year)	Eurostat
	Alcohol consumption among population	OECD
	Cigarettes, cigars or pipes consumption	Special Eurobarometer
	Obesity rate	WHO
	People practicing sport activities or physical exercise	EQLS 2012
	Satisfaction with health	EQLS 2012
	Infant mortality rate	Eurostat
Education and training	Early leavers from education and training	Eurostat
	Reading skills	OECD
	Science skills	OECD
	Mathematic skills	OECD

	Individuals' level of computer skills	Eurostat
	People with low levels of education	Eurostat
	Satisfaction with education	EQLS 2012
Work and life balance	People with difficulties in fulfilling family responsibilities because of the time absorbed by work	EQLS 2012
	People worried about finding a job of lower level in case of loss of employment	EQLS 2012
	Difficulties in fulfilling family responsibilities because of the time absorbed by one's work	EQLS 2012
	Satisfaction with current job	EQLS 2012
	Non-participation rate	Eurostat
	Employment rate 20-64	Eurostat
	Time devoted to hobbies and interests	EQLS 2012
Economic well-being	Gini coefficient of equalised disposable income	Eurostat
	Possibility to keep the house warm	EQLS 2012
	Possibility to pay for holidays	EQLS 2012
	<i>Per capita</i> adjusted disposable income	Eurostat
	Material deprivation rate	Eurostat
	At-risk-of-poverty rate	Eurostat
	In work at-risk-of-poverty rate	Eurostat
Social relationships	Enforced lack of a computer	Eurostat
	Participation in religious functions except for weddings, funerals, baptisms	EQLS 2012
	Participation in social activities of a club, or an association	EQLS 2012
	People practicing voluntary activities	EQLS 2012
	People taking care of children or grandchildren	EQLS 2012
	Satisfaction with family life	EQLS 2012
	Satisfaction with social life	EQLS 2012
Politics and institutions	Women executives in largest quoted companies	European Commission

	Trust in government	EQLS 2012
	Trust in judicial system	EQLS 2012
	Trust in press	EQLS 2012
	Trust in police	EQLS 2012
	Share of women elected in National government	European Commission
	Satisfaction with the economic situation of the country	EQLS 2012
Security	Robbery	Eurostat
	Drug trafficking	Eurostat
	Violent crime	Eurostat
	Motor vehicle theft	Eurostat
	Domestic burglary	Eurostat
	Homicide	Eurostat
	People in prison	Eurostat
Subjective well-being	People struggling to find their own way	EQLS 2012
	People thinking that what they do is not recognized by others	EQLS 2012
	People thinking they have little time to do the things they really like	EQLS 2012
	People thinking that what they do in life is useful and interesting	EQLS 2012
	People feeling generally happy	EQLS 2012
	Satisfaction with the current standard of living	EQLS 2012
	Stress due to problems of balance between work and private life	EQLS 2012
Environment	Greenhouse gas emissions	Eurostat
	Share of energy from renewable sources	Eurostat
	Energy intensity of the economy	Eurostat
	Household waste	Eurostat
	Problems with the quality of the air in the neighbourhood	EQLS 2012

	Generation of waste from the economic activity	Eurostat
	Water resources - long-term annual average	Eurostat
Research and innovation	European high-technology patents	Eurostat
	Level of Internet access	Eurostat
	Employment in high- and medium-high-technology manufacturing sectors	Eurostat
	Share of government budget appropriations or outlays on research and development	Eurostat
	Human resources in science and technology as a share of labour force	Eurostat
	Total researchers	Eurostat
	Turnover from innovation	Eurostat
	Quality of services	Access to public transport infrastructure
Judgment on the quality of child care services		EQLS 2012
Judgment on the quality of health services		EQLS 2012
Judgment on the quality of the pension system		EQLS 2012
Judgment on the quality of the education system		EQLS 2012
Expenditure on social protection		Eurostat
Problems with litter or rubbish on the street in the neighbourhood		EQLS 2012

APPENDIX 2  
DIMENSIONS RANKING

Health

<b>MPI</b>	<b>Score</b>
Sweden	113,12
Italy	104,97
Netherlands	102,83
France	99,32
Spain	98,55
Portugal	97,97
Germany	96,60
Ireland	95,66
United Kingdom	92,38
Greece	92,01

<b>DP2</b>	<b>Score</b>
Sweden	14,85
Italy	11,03
Netherlands	8,93
France	8,13
Spain	7,32
Portugal	6,84
Germany	5,74
Ireland	5,18
Greece	4,81
United Kingdom	3,75

Education and training

<b>MPI</b>	<b>Score</b>
Netherlands	110,11
Germany	109,67
Sweden	106,72
United Kingdom	103,78
France	99,53
Ireland	99,20
Portugal	96,29
Spain	94,10
Italy	91,82
Greece	84,99

<b>DP2</b>	<b>Score</b>
Netherlands	7,54
Sweden	7,38
Germany	7,09
United Kingdom	5,83
France	4,43
Ireland	3,88
Portugal	3,66
Spain	3,35
Italy	2,07
Greece	-2,10

## Work and life balance

<b>MPI</b>	<b>Score</b>
Sweden	108,99
Netherlands	107,44
Germany	102,75
United Kingdom	101,21
Portugal	100,72
France	100,21
Ireland	96,62
Italy	95,23
Spain	94,63
Greece	86,03

<b>DP2</b>	<b>Score</b>
Sweden	6,98
Netherlands	6,01
Germany	5,17
United Kingdom	4,78
France	4,46
Portugal	3,55
Ireland	2,95
Spain	2,46
Italy	2,29
Greece	0,65

## Economic well-being

<b>MPI</b>	<b>Score</b>
Sweden	113,47
Netherlands	112,15
Germany	105,56
France	104,45
United Kingdom	100,61
Ireland	100,30
Italy	95,06
Spain	91,00
Portugal	88,47
Greece	86,56

<b>DP2</b>	<b>Score</b>
Sweden	5,95
Netherlands	5,39
France	4,39
Germany	4,34
Ireland	3,91
United Kingdom	3,38
Italy	2,67
Spain	1,66
Greece	0,81
Portugal	0,60

## Social relationships

<b>MPI</b>	<b>Score</b>
Germany	94,81
Ireland	109,06
Sweden	100,85
United Kingdom	100,38
France	100,23
Spain	99,23
Italy	99,16
Netherlands	98,17
Portugal	96,80
Greece	93,07

<b>DP2</b>	<b>Score</b>
Ireland	10,92
United Kingdom	7,37
Sweden	6,52
Spain	6,23
France	5,48
Italy	5,40
Portugal	5,30
Netherlands	5,19
Germany	4,03
Greece	3,85

## Politics and institutions

<b>MPI</b>	<b>Score</b>
Sweden	114,57
Netherlands	108,76
Germany	107,56
Spain	99,04
United Kingdom	98,67
France	98,47
Ireland	96,00
Portugal	94,95
Italy	94,30
Greece	84,43

<b>DP2</b>	<b>Score</b>
Sweden	6,37
Netherlands	5,72
Germany	5,04
France	3,32
Spain	3,22
United Kingdom	3,10
Ireland	2,71
Portugal	2,49
Italy	2,14
Greece	0,07



## Security

<b>MPI</b>	<b>Score</b>
Germany	107,90
Greece	101,47
Netherlands	100,10
Italy	99,34
France	99,30
Sweden	99,10
Spain	97,91
Portugal	97,61
Ireland	97,33
United Kingdom	91,74

<b>DP2</b>	<b>Score</b>
Germany	9,14
Greece	6,99
France	5,83
Spain	5,19
Netherlands	5,15
Sweden	4,91
Italy	4,71
Portugal	4,64
Ireland	3,46
United Kingdom	1,83

## Subjective well-being

<b>MPI</b>	<b>Score</b>
Netherlands	113,28
Sweden	109,74
Ireland	104,55
Germany	103,86
United Kingdom	99,66
Spain	98,34
France	97,28
Italy	96,07
Portugal	94,41
Greece	80,21

<b>DP2</b>	<b>Score</b>
Netherlands	6,42
Sweden	6,20
Germany	4,74
Ireland	4,72
United Kingdom	4,19
Spain	3,48
Italy	3,41
France	3,33
Portugal	2,69
Greece	0,00

## Environment

<b>MPI</b>	<b>Score</b>
Ireland	106,90
Sweden	105,06
United Kingdom	102,12
Germany	100,30
Portugal	98,98
France	97,53
Spain	97,52
Italy	95,89
Netherlands	94,46
Greece	93,38

<b>DP2</b>	<b>Score</b>
Ireland	10,39
Sweden	10,16
United Kingdom	7,70
Germany	6,73
France	5,43
Portugal	4,40
Netherlands	3,83
Spain	3,46
Greece	3,36
Italy	2,72

## Research and innovation

<b>MPI</b>	<b>Score</b>
Sweden	109,28
Germany	107,83
France	101,57
Netherlands	101,17
United Kingdom	100,82
Spain	97,20
Ireland	96,76
Portugal	95,14
Italy	94,11
Greece	89,20

<b>DP2</b>	<b>Score</b>
Sweden	9,26
Germany	8,48
France	5,63
Netherlands	5,39
United Kingdom	5,25
Ireland	3,75
Spain	3,74
Italy	3,36
Portugal	3,32
Greece	0,84

## Quality of services

<b>MPI</b>	<b>Score</b>
Netherlands	111,17
Sweden	108,51
Germany	104,22
Spain	103,60
France	100,83
United Kingdom	100,31
Ireland	98,41
Italy	92,91
Portugal	92,82
Greece	83,18

<b>DP2</b>	<b>Score</b>
Sweden	7,36
Netherlands	7,26
Germany	5,76
Spain	5,37
United Kingdom	4,98
France	4,93
Ireland	4,26
Portugal	3,07
Italy	3,00
Greece	0,33

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