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EU Regional Competitiveness Index

RCI 2013

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EU Regional Competitiveness Index

RCI 2013

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Any inaccuracies of fact or faults in reasoning are our own and accordingly we take full responsibility.

Table of Contents

Executive Summary i

1 Introduction 1

2 Theory 3

2.1. The concept and definition 3

2.2. What regional level: Functional economic or Political regions? 5

1.3. Factors of competitiveness and the reach of public policies 7

3 Methods and improvements 8

4 Pillar by pillar analysis 17

4.1 Institutions 17

4.2 Macroeconomic stability 37

4.3 Infrastructure 45

4.4 Health 52

4.5 Basic Education 61

4.6 Higher Education and Lifelong Learning 67

4.7 Labor Market Efficiency 75

4.8 Market Size 83

4.9 Technological Readiness 90

4.10 Business Sophistication 107

4.11 Innovation 113

5 RCI 2013 121

6 Time comparison analysis 139

6.1 Pillar by pillar time comparison 139

References 158

Appendix A – List of candidate indicators (80 candidates, 73 selected) 160

Appendix B – Regions population size (per 1000 inhabitants) 166

average 2007-2010 166

Appendix C – Regions GDP and stage of development 167

Executive Summary

To improve the understanding of territorial competitiveness at the regional level, the European Commission has developed the Regional Competitiveness Index – RCI- which shows the strengths and weaknesses of each of the EU NUTS 2 regions.

RCI was first published in 2010 as the result of a coordinated action between the Joint Research Centre and the Directorate-General for Regional Policy. The index development started in 2008 and builds on the methodology developed by the World Economic Forum for the Global Competitiveness Index. It covers a wide range of issues related to territorial competitiveness including innovation, quality of institutions, infrastructure (including digital networks) and measures of health and human capital.

RCI 2013 is the second edition of the index and includes updated and more data together with method refinements. It is important to note that the increased number of indicators and the methodological refinements reduce the comparability over time.

The final aim is to set-up an RCI time series which may serve as a tool to assist EU regions in setting the right priorities to further increase their competitiveness. Regions have indeed to pick priorities for their development strategies. The economic crisis made this even more difficult as public funding becomes scarcer. RCI can provide a guide to what each region should focus on, taking into account its specific situation and its overall level of development. In this perspective, RCI may play a critical role in the debate on the future of cohesion policy.

Already in its first edition, the index proved to be a robust way to summarise many different indicators into one index. RCI 2013 is based on a set of 80 candidate indicators of which 73 have been eventually included in the index.

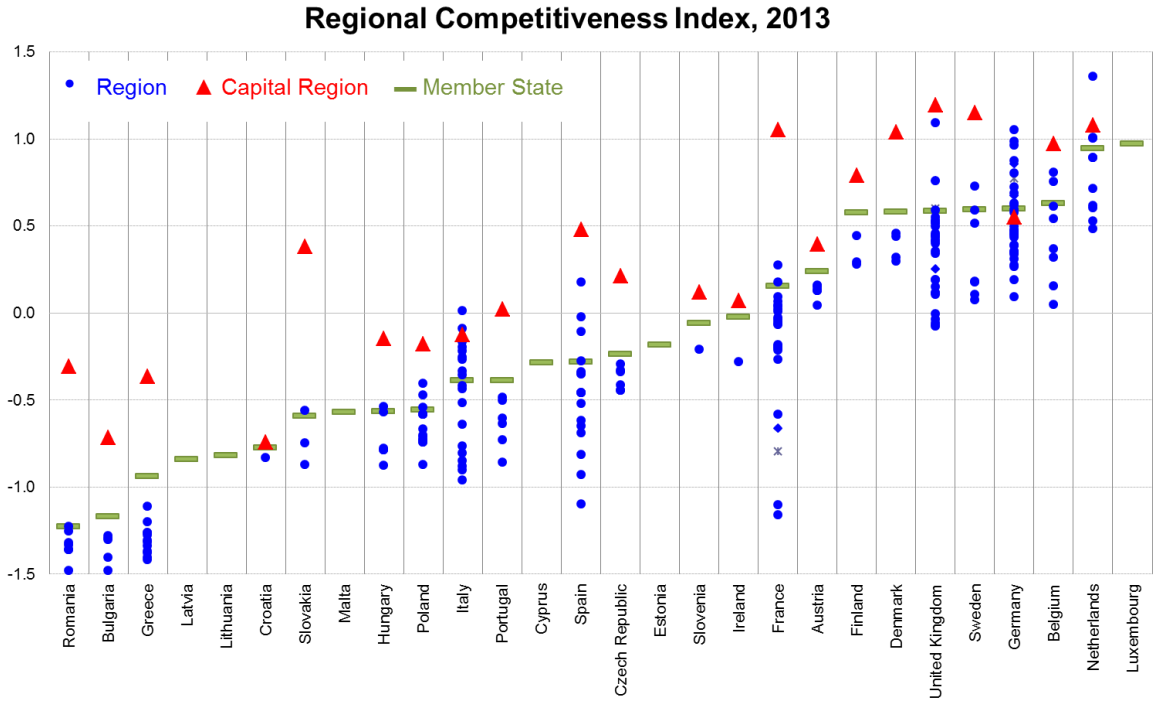
The table here alongside shows the ten most competitive EU regions based upon RCI 2013 scores normalized between 0 (lowest level of competitiveness) and 100 (highest). Eight out of the top-ten regions in 2013 confirm their position with respect to 2010. The best group includes again Utrecht, the highest competitive region in both editions, the London area and the area including Oxford, the two Netherland regions of Noord and Zuid Holland which comprise Amsterdam, the Danish region Hovedstaden (including Copenhagen), Stockholm and Île de France (including Paris). The new entries in the top-ten are the Frankfurt region (Darmstadt) and the Surrey, East & West Sussex in the United Kingdom. It is striking that seven out of the top-ten are either capital regions or regions including large cities.

region	RCI 2013
Utrecht	100
London area (Inner London, Outer London, Bedfordshire, Hertfordshire and Essex)	94
Berkshire, Buckinghamshire and Oxfordshire	94
Region of Stockholm	93
Surrey, East and West Sussex	91
Region of Amsterdam (Flevoland and Noord-Holland)	90
Region of Frankfurt (Darmstadt)	89
Region of Paris (Île de France)	89
Region of Copenaghen (Hovedstaden)	89
Zuid-Holland	88

At the other end of the competitiveness scale, we find some regions which are unfortunately steadily worst performers. These are the Bulgarian region Severozapaden, the Greek region Notio Aigaio, and two southern Romanian regions Sud-Est and Sud-Vest Oltenia.

The index reveals substantial differences in competitiveness within some countries as shown by the Figure below, where RCI 2013 scores are shown by country, reordered according to the country weighted average score. The dots represent the region scores within each country while the triangles show the country average. In some countries like France, Spain, United Kingdom, Slovakia, Romania, Sweden and Greece, the level of variability is particularly high with the capital region almost always being the best performer within the

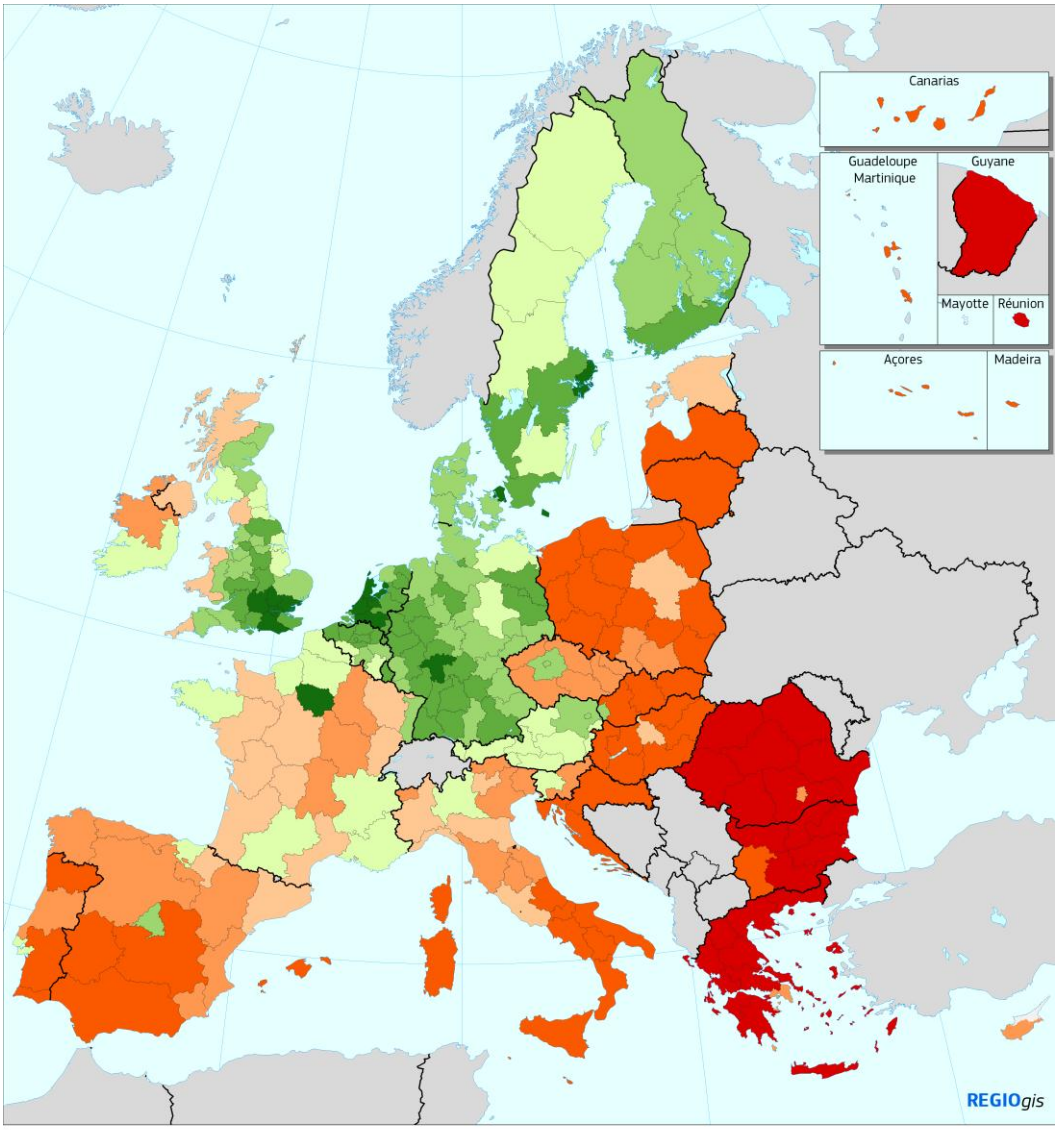
country. Germany and Italy are exceptions where the capital region is not the most competitive one.



These results demonstrate that territorial competitiveness in the EU has a strong regional dimension, which national level analysis does not properly capture in the EU. The gap and variation in regional competitiveness should stimulate a debate to what extent these gaps are harmful for their national competitiveness and to what extent the internal variation can be remediated.

The distribution of RCI 2013 scores across EU regions is shown in the map below. The higher the class, the higher the level of regional competitiveness. The overall pattern is not so different from the one by RCI 2010. The so-called blue banana, which linked the region of greater London all the way to Lombardy passing through the Benelux countries and Bavaria does not appear on the RCI map or, better, does not appear in its complete form as it leaves out the northern part of Italy. RCI shows a more polycentric pattern with strong capital and metropolitan regions in many parts of Europe. Some capital regions are surrounded by similarly competitive regions, but in many countries, particularly in the less developed Member States in Central and Eastern Europe, regions neighboring the capital are

less competitive. As this was also observed for the 2010 edition, RCI shows that in the past three years no spillover effects helped to lift these lagging-behind surrounding regions. The general economic and financial crisis certainly did not help.



Regional Competitiveness Index - RCI 2013

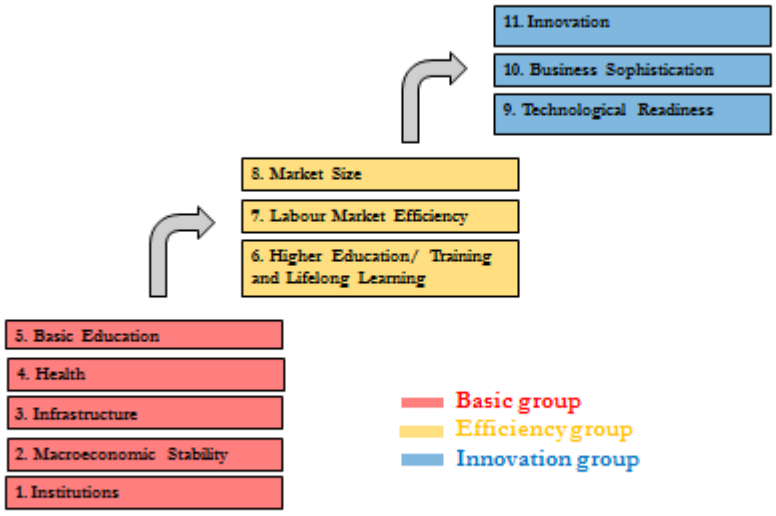
Index: values range for low (negative) to high (positive)

< -1	0 - 0.2
-1 - -0.5	0.2 - 0.5
-0.5- -0.2	0.5 - 1
-0.2 - 0	> 1

Source: Joint Research Centre and DG for Regional and Urban Policy

0 500 Km

RCI 2013 has basically the same framework and structure of the 2010 edition and includes most recent data for all the indicators mainly between 2009 and 2011. As for the previous version, the index is based on eleven pillars describing both inputs and outputs of territorial competitiveness, grouped into three sets describing basic, efficiency and innovative factors of competitiveness. The basic pillars represent the basic drivers of all economies. They include (1) Quality of Institutions, (2) Macro-economic Stability, (3) Infrastructure, (4) Health and the (5) Quality of Primary and Secondary Education. These pillars are most important for less developed regions.



The efficiency pillars are (6) Higher Education and Lifelong Learning (7) Labour Market Efficiency and (8) Market Size. The innovation pillars, which are particularly important for the most advanced regional economies, include (9) Technological Readiness, (10) Business Sophistication and (11) Innovation. This group plays a more important role for intermediate and especially for highly developed regions. Overall, the RCI framework is designed to capture short- as well as long-term capabilities of the regions.

Some modifications have been implemented in this new release to enrich the level of description and to cope with lack of data. Most importantly, Croatia is included in the 2013 edition being a new EU Member State as of July 1st, 2013.

Being the first release, RCI 2010 was a *learning* index as most often happens in these initiatives. The new release implements all the lessons learnt from the previous one. We also tried, with RCI 2013, to take into account as much as possible the numerous suggestions and remarks we collected after the 2010 publication. In particular, for RCI 2013 we implemented suggestions by the World Economic Forum team responsible for the Global Competitiveness Index and the Institute for Strategy and Competitiveness at Harvard Business School. To both teams we are extremely grateful.

In addition, we also would like to thank the numerous comments we received from regions, journalists, researchers and Chambers of Commerce during the consultation period of the draft report which took place between August and September 2013.

In the Index construction, some regions are merged with surrounding ones to correct for commuting patterns following the new OECD-EC city definition. With respect to the former edition, more capital regions are merged with their surrounding regions: Wien (AT), Brussels (BE), Praha (CZ), Berlin (DE), Amsterdam (NL) and London (UK). In addition to the commuting issue, RCI 2013 has to cope with the second review under the NUTS Regulation, amending NUTS for the EU-27, which came into effect on 1 January 2012. As most of the indicators included in RCI are not yet available at the new NUTS classification, the new Regulation is adopted when possible while the old classification is kept in the other cases.

Candidate indicators are mainly selected from Eurostat with some additional official sources, such as the World Economic Forum, a novelty of this release, OECD-PISA and Regpat, the European Cluster Observatory, the World Bank Ease of Doing Business Index and Governance Indicators, to name a few. A total number of 80 candidate indicators have been selected and 73 finally entered RCI 2013 having passed the statistical tests. Multivariate analysis is carried out at the pillar level on the set of candidate indicators to assess their contribution in describing the latent dimension behind the pillar, which is understood as a 'component' of the final Index. 'Anomalous' indicators are excluded from further analysis.

A score is computed for each pillar as simple average of the z-score standardized and/or transformed indicators. Sub-indexes for the basic, efficiency and innovation groups of pillars are computed as arithmetic means of pillar scores. The overall RCI score is instead the result of a weighted aggregation of the three sub-indexes, based on the WEF-GCI approach. The

weighting system and the regions classification into development stages have been slightly modified in this version. Five classes, instead of three of the previous release, are used now to allow for a smoother change in the weighting values across development stages. We also decided to slightly increase, with respect to RCI 2010, the weight assigned to the innovation group for the lowest developed economies, to reward innovative policies even in underdeveloped regions, as also recommended by the WEF team.

1 Introduction

In 2010 a joint project between DG JRC and DG Regio led to the publication of the EU Regional Competitiveness Index - RCI 2010, the first composite in Europe aiming at mapping the economic performance and competitiveness of the regions, at the NUTS 2, level for all Member States. Results showed great variation within each country, with under-competitive regions scattered all around strong regions. In this respect, the national level is not assumed to make the real difference in terms of competitiveness.

The project provided with a method to benchmark regional competitiveness and to identify the key factors which would allow a low competitive region to catch-up. RCI can be considered as an overall but synthetic picture of regional competitiveness.

This report discusses the second release of RCI – RCI 2013, and represents the final deliverable of the Administrative Arrangement n° CCI 2011.CE.16.BAT.057 between DG REGIO and DG JRC.

RCI 2013 has essentially the same framework and structure of RCI 2010 and includes most recent data for all the indicators. As for the previous version, RCI 2013 is based on 11 pillars describing both inputs and outputs of territorial competitiveness (Figure 1). The pillars are then classified into three major groups: (I) Basic, (II) Efficiency and (III) Innovation, which are assigned different weights according to the region development stage, following the Global Competitiveness Index approach by the WEF (Schwab & Sala-I-Martin, 2012).

The basic group includes the following five pillars (1) Institutions, (2) Macroeconomic Stability, (3) Infrastructures, (4) Health and (5) Quality of Primary and Secondary Education. These five pillars are taken to represent the key basic drivers of all types of economies.

As a regional economy develops, other factors related to a more skilled labour force and a more efficient labour market enter into play for its advancement in competitiveness and are part of the Efficiency group. This includes three pillars (6) Higher Education, Training and Lifelong Learning, (7) Labour Market Efficiency and (8) Market Size.

At the most advanced stage of development of a regional economy, drivers of improvement are part of the Innovation group which consists of three pillars: (9) Technological Readiness, (10) Business Sophistication and (11) Innovation.

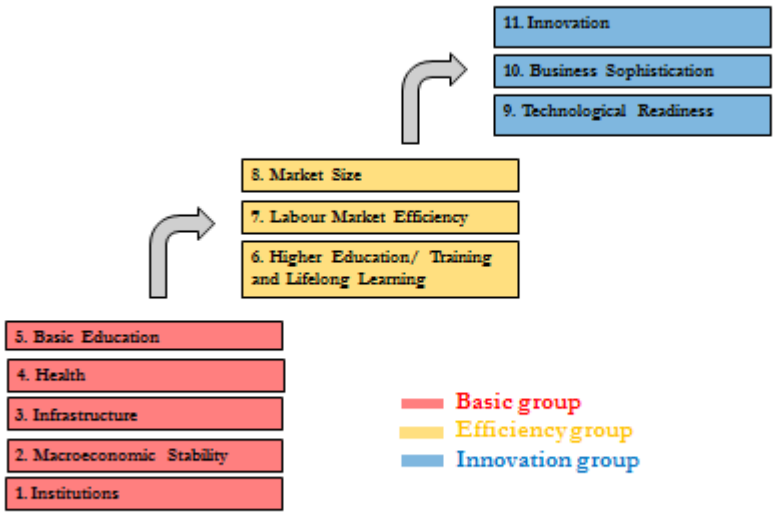


Figure 1: RCI framework

The present document is the final deliverable of the project and is articulated in three parts. The first part briefly describes the method adopted for the construction of the Index with particular focus on modifications and improvements with respect to RCI 2010. The second part discusses results with region's scores and ranks at the sub-index and at the index levels. The last part provides a time comparison analysis, RCI 2010 vs RCI 2013, pillar by pillar.

Being the first release, RCI 2010 was indeed a learning index as most often happens in such initiatives. The new release implements the lessons learnt from the previous one. We also tried, with RCI 2013, to take into account all the comments received during the consultation period of the draft report.

2 Theory

Regional competitiveness is as much debated by politicians and policy makers as it is doubted by academics. For politicians and policy makers, it offers a fairly fuzzy umbrella concept that covers aspects that matter to the firms and residents of a region. It tends to focus on measurable differences between regions which fall (partly) under the control of public authorities, without employing any clear political or conceptual framework.

Despite accusations that regional competitiveness is embedded in a neo-liberal ideology (Bristow 2010), the concept, as adopted in the present work, neither assumes nor supports a minimal state. On the contrary, this new Index, as with most other measures of competitiveness, gives the Nordic regions some of the highest scores despite having economies in which the public sector accounts for some of the highest shares of GDP in the world.

We adopt a simple definition of regional competitiveness which responds pragmatically to current issues raised in the literature and allows us to consider how these issues can guide indicator selection.

2.1. The concept and definition

A broad notion of competitiveness refers to the inclination and skills to compete, to win and retain a position in the market, to increase market share and profitability, and eventually to consolidate commercially successful activities (Filó, 2007). The World Economic Forum (WEF) produces one of the best known competitiveness indices – the Global Competitiveness Index (GCI). The Forum defines national competitiveness as the 'set of institutions, policies and factors that determine the level of productivity of a country' (Schwab and Sala-I-Martin, 2012; Schwab and Porter, 2007). The WEF definition links micro- (firm-level) to macro- (country-level) competitiveness. The framework describing a firm's capacity to compete, grow and be profitable (Martin et al., 2006) is relatively uncontested, but applying the same concept to countries or regions has been subject to much debate. The implicit analogy between firms and nations has been widely criticised because a country cannot go out of business and because competition between countries can

benefit both, while competition between companies in the same sector is more likely to be a zero sum game (Krugman, 1996).

Between the micro and the macro levels stands the concept of regional competitiveness. A region is neither a simple aggregation of firms nor a scaled version of nations (Gardiner et al., 2004). Meyer-Stamer (2008) states that: 'We can define (systemic) competitiveness of a territory as the ability of a locality or region to generate high and rising incomes and improve the livelihoods of the people living there.' In contrast to the WEF definition focussed on the concept of productivity, this definition is based entirely on the benefits to people living in a region. It assumes a close link between competitiveness and prosperity. It characterises competitive regions not only by using output-related terms such as productivity but also by determining the sustained or improved level of comparative prosperity (Bristow, 2005).

Along the same lines we propose a definition of regional competitiveness which integrates the perspective of both firm and of residents (Dijkstra et al., 2011):

Regional competitiveness can be defined as the ability to offer an attractive and sustainable environment for firms and residents to live and work.

Sustainable in this definition is not used in the purely ecological-environmental sense, but in the sense of a region's capacity to provide an attractive environment in both the short- and long-term. This means that a region which reduces taxes to such a degree that it can no longer maintain the quality of its public infrastructure and services does not provide a sustainable, attractive environment.

These definitions cover issues which benefit both firms and residents, such as good institutions, and issues where their interests may conflict, such as wages. We strive to balance the most important aspects of an attractive environment by combining the goals of commercial success with personal well-being.

One important difference compared to the Meyer-Stamer definition is that our working definition refers to a point in time and not to changes over time. Likewise, all the indicators included in the Index refer to the situation at one point in time and not to changes over time.

2.2. What regional level: Functional economic or Political regions?

The literature raises two issues related to the selection of the appropriate regional level. First, competitiveness should be calculated for functional economic regions. The second is that the region should have an important political and administrative role. In most countries, however, functional regions are not administrative and vice-versa. Thus in practice, these two recommendations can be rarely combined.

The RCI index focuses on NUTS 2 regions in the European Union. NUTS 2 regions are administrative or statistical regions which do not take into account functional economic links.

For example, London and Paris are both cities of approximately the same size (7.7 and 6.7 million respectively). Paris is included in the NUTS 2 region of Ile de France with 12 million inhabitants. This has the benefit that it includes the commuter belt around Paris. Greater London, on the contrary, is spilt into two NUTS 2 regions: Inner London (3 million) and Outer London (4.7 million) although both fall under the same mayor. In addition, these two NUTS 2 regions do not cover the commuter belt around London. This problem arises for a number of cities: London, Brussels, Prague, Berlin, Amsterdam and Vienna.

What are the consequences of not merging regions which have strong functional economic links?

- It does not take into account the qualifications of the people working in the city but living in a neighbouring region. Educational attainment is measured where people live, not where they work. For example, the educational attainment rates of Brabant Wallon and Vlaams-Brabant are much higher than that of Brussels. Half of the people working in Brussels live outside the city.

- It distorts GDP per head. Comparing GDP per head or per person employed for Inner London with the one for Ile de France is not meaningful. Inner London concentrates the financial industry and has a GDP per head of 328 (EU=100), while Ile de France has a GDP of 180. But Greater London has a GDP per head of 187. This distortion is due to commuting patterns (people who work there, but not live there contribute to GDP but not the population) and the concentration of certain industries.

The effect of commuting can be avoided by measuring GDP per person employed, but this will still not solve the problem of the concentration of a small part of the urban economy in

one place. For example: GDP per person employed of Inner London is 305 (EU=100), while Ile de France is 160. In Greater London it is 176.

How was this problem solved? We used the new OECD-EC definition of a city and its commuting zone. In this definition, cities are identified by the presence of a high-density cluster or urban centre with a population of at least 50 000 inhabitants. This high-density cluster or urban centre is defined using a population grid with cells of 1 sq km. Once the cities have been defined, the commuting patterns are analysed. A commuting zone of a city consists of all contiguous municipalities that send 15% or more of their working residents to the city. Municipalities that fall below this threshold but are surrounded by municipalities that are above this threshold are also included. This avoids having commuting zones with internal "holes".

How are the NUTS 2 regions selected to merge? If a region has at least 40% of its population inside the commuting zone, it is added to the region which contained the city. This criterion is applied to all NUTS 2 regions, but only a few NUTS 2 regions with the capital had neighbouring regions with a high-share of its population in the commuting zone of the capital.

This approach is a novelty with respect to the 2010 edition of the index. Compared to the 2010 version, more capital regions are merged with one or more of their neighbouring regions: Wien (AT), Brussels (BE), Praha (CZ), Berlin (DE), Amsterdam (NL) and London (UK), see Table 2. The remaining NUTS 2 regions may contain multiple functional urban areas, but they do break up a single functional urban area in to distinct parts.

Do all the regions in the RCI 2013 have an important political role?

Many regions used in the RCI do not have an important political role. The level of decentralization is quite varied within Europe and in Central and Eastern Member States in particular, centralization is still quite high. The goal of the competitiveness index, however, is not to follow the geography of decision-making. This would mean that in a highly centralized country, the RCI had to be national. The goal is to measure spatial variations in issues that influence the attractiveness for firms and residents.

1.3. Factors of competitiveness and the reach of public policies

Theories about economic growth or competitiveness consider issues or assets which fall outside the scope of public policies, or which can hardly be affected by public intervention, for example, the land area of a country, the presence of natural resources such as oil or gas, the presence of a port or a large city or the (meteorological) climate. Although in a global perspective these features may go some way to accounting for GDP levels per head or GDP growth, this paper does not include such indicators in the Regional Competitiveness Index.

As the economies in the EU are all moderately to highly developed, this study follows the recommendation of Combes (2008) to put aside most natural differences between regions such as raw materials, geographical specificities or climate – i.e. what Cronon (1991) calls 'first nature'. The Index targets Cronon's 'second nature', which is the result of human actions, modifications and improvements.

Nevertheless, some indicators will still be influenced by geography, topography and population density. For example, the indicators on access to flights, potential road accessibility or potential GDP will all be influenced by an island location, mountain ranges or the presence of large cities. While islands, mountains and cities are fairly permanent features of a region, this analysis did not want to assume that they would automatically influence competitiveness. All three examples above are also influenced by the quality of the road network, the demand for flights and changes in productivity. These influences do change over time and are sensitive to public policies.

To summarise, this work does not claim the death of distance or that geography does not matter, but it only considers the impact of distance or geography to the extent that it changes a number of features which are important location factors for firms and enterprises.

3 Methods and improvements

The whole procedure adopted to set-up RCI 2013 is the same as that followed for the 2010 release (Annoni & Kozovska, 2010; Dijkstra, Annoni, & Kozovska, 2011) with some slight modifications and improvements. Being the first release, RCI 2010 was indeed a *learning* index as most often happens in such initiatives. The new release implements the lessons learnt from the previous one. We also tried, with RCI 2013, to take into account all the numerous suggestions and remarks we collected from various researchers/practitioners in the field after the 2010 publication. In this Chapter we briefly recall the methods followed for the index construction with particular emphasis on the modifications with respect to the first release.

In addition, to the changes in the merged regions (see above), two more changes were made to the regions included in the RCI 2013.

The first change of this release is the inclusion of Croatia with its two NUTS 2 regions Jadranska Hrvatska (HR03) and Kontinentalna Hrvatska (HR04). Croatia is in fact a new EU Member State as of July, 1st 2013.

The second change was due to modification of the NUTS region classification for the EU-27, which came into effect on January 1st 2012 (Eurostat, 2011). As most of the indicators used for RCI are not yet available at the new NUTS classification, we adopted the new Regulation when possible and kept the old classification in the other cases. Specifically: *i.* former German regions DE41 and DE42 are merged into the new DE40: Brandenburg and *ii.* former Finland regions FI1A and FI13 are merged into the new FI1D:Pohjois- ja Itä-Suomi.

It shall be noted that for some regions in Germany, Italy and United Kingdom, the new NUTS Regulation assigns different codes. In RCI we kept the former codes. Region codes used in RCI 2013 and corresponding names are shown in Table 1.

Modifications adopted in RCI 2013 for the NUTS 2 classification are summarized in Table 2. The value of all the RCI indicators is accordingly combined in these cases taking into account the regional population size (Appendix B). Eventually, a total number of 262

regions are included in RCI 2013 (the official number of NUTS 2 regions for 28 member States, including Croatia, is 273).

Indicators selected to populate the RCI framework are preferable of quantitative type (hard data) and mainly form Eurostat. When some information has been unavailable or inappropriate at the required territorial level, other databases are used such as: World Economic Forum (a novelty of this new release), OECD-PISA and OECD-Regpat, the World Bank and Cluster Observatory, to name a few.

In the choice of the indicators, some modifications are implemented in RCI 2013 to cope with:

- Lack of most recent data for some indicators;
- Availability of more reliable indicators;
- Availability of new measures at the regional levels (Institution pillar, Sect. 4.1).

Table 1: RCI 2013 region codes and names

RCI 2013 NUTS2 codes and names												
1	**AT00**	AT00: AT12:Niederösterreich + AT13:Wien	67	**DEF0**	DEF0:Schleswig-Holstein	133	**GR30**	GR30:Attiki	198	**PL62**	PL62:Warminsko-Mazurskie
2	**AT11**	AT11:Burgenland (AT)	68	**DEG0**	DEG0:Thüringen	134	**GR41**	GR41:Voreio Aigaio	199	**PL63**	PL63:Pomorskie
3	**AT21**	AT21:Kärnten	69	**DK01**	DK01:Hovedstaden	135	**GR42**	GR42:Notio Aigaio	200	**PT11**	PT11:Norte
4	**AT22**	AT22:Steiermark	70	**DK02**	DK02:Sjælland	136	**GR43**	GR43:Kriti	201	**PT15**	PT15:Algarve
5	**AT31**	AT31:Oberösterreich	71	**DK03**	DK03:Syddanmark	137	**HR03**	HR03:Jadranska Hrvatska	202	**PT16**	PT16:Centro (PT)
6	**AT32**	AT32:Salzburg	72	**DK04**	DK04:Midtjylland	138	**HR04**	HR04:Kontinentalna Hrvatska	203	**PT17**	PT17:Lisboa
7	**AT33**	AT33:Tirol	73	**DK05**	DK05:Nordjylland	139	**HU10**	HU10:Közép-Magyarország	204	**PT18**	PT18:Alentejo
8	**AT34**	AT34:Vorarlberg	74	**EE00**	EE00:Eesti	140	**HU21**	HU21:Közép-Dunántúl	205	**PT20**	PT20:Região Autónoma dos Açores (PT)
9	**BE00**	BE00: BE10:Rég. Bruxelles / Brussels Gewest + BE24:Prov. Vlaams-Brabant + BE31:Prov. Brabant Wallon	75	**ES11**	ES11:Galicia	141	**HU22**	HU22:Nyugat-Dunántúl	206	**PT30**	PT30:Região Autónoma da Madeira (PT)
10	**BE21**	BE21:Prov. Antwerpen	76	**ES12**	ES12:Principado de Asturias	142	**HU23**	HU23:Dél-Dunántúl	207	**RO11**	RO11:Nord-Vest
11	**BE22**	BE22:Prov. Limburg (BE)	77	**ES13**	ES13:Cantabria	143	**HU31**	HU31:Észak-Magyarország	208	**RO12**	RO12:Centru
12	**BE23**	BE23:Prov. Oost-Vlaanderen	78	**ES21**	ES21:País Vasco	144	**HU32**	HU32:Észak-Alföld	209	**RO21**	RO21:Nord-Est
13	**BE25**	BE25:Prov. West-Vlaanderen	79	**ES22**	ES22:Comunidad Foral de Navarra	145	**HU33**	HU33:Dél-Alföld	210	**RO22**	RO22:Sud-Est
14	**BE32**	BE32:Prov. Hainaut	80	**ES23**	ES23:La Rioja	146	**IE01**	IE01:Border, Midland and Western	211	**RO31**	RO31:Sud - Muntenia
15	**BE33**	BE33:Prov. Liège	81	**ES24**	ES24:Aragón	147	**IE02**	IE02:Southern and Eastern	212	**RO32**	RO32:Bucuresti - Ilfov
16	**BE34**	BE34:Prov. Luxembourg (BE)	82	**ES30**	ES30:Comunidad de Madrid	148	**ITC1**	ITC1:Piemonte	213	**RO41**	RO41:Sud-Vest Oltenia
17	**BE35**	BE35:Prov. Namur	83	**ES41**	ES41:Castilla y León	149	**ITC2**	ITC2:Valle d'Aosta/Vallée d'Aoste	214	**RO42**	RO42:Vest
18	**BG31**	BG31:Severozapaden	84	**ES42**	ES42:Castilla-la Mancha	150	**ITC3**	ITC3:Liguria	215	**SE11**	SE11:Stockholm
19	**BG32**	BG32:Severen tsentralen	85	**ES43**	ES43:Extremadura	151	**ITC4**	ITC4:Lombardia	216	**SE12**	SE12:Östra Mellansverige
20	**BG33**	BG33:Severoiztochen	86	**ES51**	ES51:Cataluña	152	**ITD1**	ITD1:Provincia Autonoma di Bolzano/Bozen	217	**SE21**	SE21:Småland med öarna
21	**BG34**	BG34:Yugoiztochen	87	**ES52**	ES52:Comunidad Valenciana	153	**ITD2**	ITD2:Provincia Autonoma di Trento	218	**SE22**	SE22:Sydsverige
22	**BG41**	BG41:Yugozapaden	88	**ES53**	ES53:Illes Balears	154	**ITD3**	ITD3:Veneto	219	**SE23**	SE23:Västsverige
23	**BG42**	BG42:Yuzhen tsentralen	89	**ES61**	ES61:Andalucía	155	**ITD4**	ITD4:Friuli-Venezia Giulia	220	**SE31**	SE31:Norra Mellansverige
24	**CY00**	CY00:Kypros	90	**ES62**	ES62:Región de Murcia	156	**ITD5**	ITD5:Emilia-Romagna	221	**SE32**	SE32:Mellersta Norrland
25	**CZ00**	CZ00: CZ01:Praha + CZ02:Střední Cechy	91	**ES63**	ES63:Ciudad Autónoma de Ceuta (ES)	157	**ITE1**	ITE1:Toscana	222	**SE33**	SE33:Övre Norrland
26	**CZ03**	CZ03:Jihozápad	92	**ES64**	ES64:Ciudad Autónoma de Melilla (ES)	158	**ITE2**	ITE2:Umbria	223	**SI01**	SI01:Vzhodna Slovenija
27	**CZ04**	CZ04:Severozápad	93	**ES70**	ES70:Canarias (ES)	159	**ITE3**	ITE3:Marche	224	**SI02**	SI02:Zahodna Slovenija
28	**CZ05**	CZ05:Severovýchod	94	**FI18**	FI18:Etelä-Suomi	160	**ITE4**	ITE4:Lazio	225	**SK01**	SK01:Bratislavský kraj
29	**CZ06**	CZ06:Jihovýchod	95	**FI19**	FI19:Länsi-Suomi	161	**ITF1**	ITF1:Abruzzo	226	**SK02**	SK02:Západné Slovensko
30	**CZ07**	CZ07:Střední Morava	96	**FI1D**	FI1D:Pohjois- ja Itä-Suomi	162	**ITF2**	ITF2:Molise	227	**SK03**	SK03:Stredné Slovensko
31	**CZ08**	CZ08:Moravskoslezsko	97	**FI20**	FI20:Åland	163	**ITF3**	ITF3:Campania	228	**SK04**	SK04:Východné Slovensko
32	**DE00**	DE00: DE30:Berlin + DE40:Brandenburg	98	**FR10**	FR10:Île de France	164	**ITF4**	ITF4:Puglia	229	**UK00**	UK00: UKH2:Bedfordshire and Hertfordshire + UKH3:Essex + UKI1:Inner London + UKI2:Outer London
33	**DE11**	DE11:Stuttgart	99	**FR21**	FR21:Champagne-Ardenne	165	**ITF5**	ITF5:Basilicata	230	**UKC1**	UKC1:Tees Valley and Durham
34	**DE12**	DE12:Karlsruhe	100	**FR22**	FR22:Picardie	166	**ITF6**	ITF6:Calabria	231	**UKC2**	UKC2:Northumberland and Tyne and Wear
35	**DE13**	DE13:Freiburg	101	**FR23**	FR23:Haute-Normandie	167	**ITG1**	ITG1:Sicilia	232	**UKD1**	UKD1:Cumbria
36	**DE14**	DE14:Tübingen	102	**FR24**	FR24:Centre (FR)	168	**ITG2**	ITG2:Sardegna	233	**UKD2**	UKD2:Cheshire
37	**DE21**	DE21:Oberbayern	103	**FR25**	FR25:Basse-Normandie	169	**LT00**	LT00:Lietuva	234	**UKD3**	UKD3:Greater Manchester
38	**DE22**	DE22:Niederbayern	104	**FR26**	FR26:Bourgogne	170	**LU00**	LU00:Luxembourg	235	**UKD4**	UKD4:Lancashire
39	**DE23**	DE23:Oberpfalz	105	**FR30**	FR30:Nord - Pas-de-Calais	171	**LV00**	LV00:Latvija	236	**UKD5**	UKD5:Merseyside
40	**DE24**	DE24:Oberfranken	106	**FR41**	FR41:Lorraine	172	**MT00**	MT00:Malta	237	**UKE1**	UKE1:East Yorkshire and Northern Lincolnshire
41	**DE25**	DE25:Mittelfranken	107	**FR42**	FR42:Alsace	173	**NL00**	NL00: NL23:Flevoland + NL32:Noord-Holland	238	**UKE2**	UKE2:North Yorkshire
42	**DE26**	DE26:Unterfranken	108	**FR43**	FR43:Franche-Comté	174	**NL11**	NL11:Groningen	239	**UKE3**	UKE3:South Yorkshire
43	**DE27**	DE27:Schwaben	109	**FR51**	FR51:Pays de la Loire	175	**NL12**	NL12:Friesland (NL)	240	**UKE4**	UKE4:West Yorkshire
44	**DE50**	DE50:Bremen	110	**FR52**	FR52:Bretagne	176	**NL13**	NL13:Drenthe	241	**UKF1**	UKF1:Derbyshire and Nottinghamshire
45	**DE60**	DE60:Hamburg	111	**FR53**	FR53:Poitou-Charentes	177	**NL21**	NL21:Overijssel	242	**UKF2**	UKF2:Leicestershire, Rutland and Northamptonshire
46	**DE71**	DE71:Darmstadt	112	**FR61**	FR61:Aquitaine	178	**NL22**	NL22:Gelderland	243	**UKF3**	UKF3:Lincolnshire
47	**DE72**	DE72:Gießen	113	**FR62**	FR62:Midi-Pyrénées	179	**NL31**	NL31:Utrecht	244	**UKG1**	UKG1:Herefordshire, Worcestershire and Warwickshire
48	**DE73**	DE73:Kassel	114	**FR63**	FR63:Limousin	180	**NL33**	NL33:Zuid-Holland	245	**UKG2**	UKG2:Shropshire and Staffordshire
49	**DE80**	DE80:Mecklenburg-Vorpommern	115	**FR71**	FR71:Rhône-Alpes	181	**NL34**	NL34:Zeeland	246	**UKG3**	UKG3:West Midlands
50	**DE91**	DE91:Braunschweig	116	**FR72**	FR72:Auvergne	182	**NL41**	NL41:Noord-Brabant	247	**UKH1**	UKH1:East Anglia
51	**DE92**	DE92:Hannover	117	**FR81**	FR81:Languedoc-Roussillon	183	**NL42**	NL42:Limburg (NL)	248	**UKJ1**	UKJ1:Berkshire, Buckinghamshire and Oxfordshire
52	**DE93**	DE93:Lüneburg	118	**FR82**	FR82:Provence-Alpes-Côte d'Azur	184	**PL11**	PL11:Łódzkie	249	**UKJ2**	UKJ2:Surrey, East and West Sussex
53	**DE94**	DE94:Weser-Ems	119	**FR83**	FR83:Corse	185	**PL12**	PL12:Mazowieckie	250	**UKJ3**	UKJ3:Hampshire and Isle of Wight
54	**DEA1**	DEA1:Düsseldorf	120	**FR91**	FR91:Guadeloupe (FR)	186	**PL21**	PL21:Malopolskie	251	**UKJ4**	UKJ4:Kent
55	**DEA2**	DEA2:Köln	121	**FR92**	FR92:Martinique (FR)	187	**PL22**	PL22:Slaskie	252	**UKK1**	UKK1:Gloucestershire, Wiltshire and Bristol/Bath area
56	**DEA3**	DEA3:Münster	122	**FR93**	FR93:Guyane (FR)	188	**PL31**	PL31:Lubelskie	253	**UKK2**	UKK2:Dorset and Somerset
57	**DEA4**	DEA4:Detmold	123	**FR94**	FR94:Réunion (FR)	189	**PL32**	PL32:Podkarpackie	254	**UKK3**	UKK3:Cornwall and Isles of Scilly
58	**DEA5**	DEA5:Arnsberg	124	**GR11**	GR11:Anatoliki Makedonia, Thraki	190	**PL33**	PL33:Swietokrzyskie	255	**UKK4**	UKK4:Devon
59	**DEB1**	DEB1:Koblenz	125	**GR12**	GR12:Kentriki Makedonia	191	**PL34**	PL34:Podlaskie	256	**UKL1**	UKL1:West Wales and The Valleys
60	**DEB2**	DEB2:Trier	126	**GR13**	GR13:Dytiki Makedonia	192	**PL41**	PL41:Wielkopolskie	257	**UKL2**	UKL2:East Wales
61	**DEB3**	DEB3:Rheinhessen-Pfalz	127	**GR14**	GR14:Thessalia	193	**PL42**	PL42:Zachodniopomorskie	258	**UKM2**	UKM2:Eastern Scotland
62	**DEC0**	DEC0:Saarland	128	**GR21**	GR21:Ipeiros	194	**PL43**	PL43:Lubuskie	259	**UKM3**	UKM3:South Western Scotland
63	**DED1**	DED1:Chemnitz	129	**GR22**	GR22:Ionia Nisia	195	**PL51**	PL51:Dolnoslaskie	260	**UKM5**	UKM5:North Eastern Scotland
64	**DED2**	DED2:Dresden	130	**GR23**	GR23:Dytiki GRlada	196	**PL52**	PL52:Opolskie	261	**UKM6**	UKM6:Highlands and Islands
65	**DED3**	DED3:Leipzig	131	**GR24**	GR24:Sterea GRlada	197	**PL61**	PL61:Kujawsko-Pomorskie	262	**UKN0**	UKN0:Northern Ireland (UK)
66	**DEE0**	DEE0:Sachsen-Anhalt	132	**GR25**	GR25:PGRoponnisos						

Table 2: NUTS 2 classification adopted for RCI 2013

Merged regions due to commuting patterns	**Official NUTS 2 regions**	**New merged region**
Wien	AT12: Niederösterreich AT13: Wien	AT00
Brussels	BE10: Rég. Bruxelles/Brussels Gewest BE24: Prov. Vlaams-Brabant BE31: Prov. Brabant Wallon	BE00 (as in RCI 2010)
Praha	CZ01: Praha CZ02: Střední Cechy	CZ00
Berlin	DE30: Berlin DE40: Brandenburg (former DE41+DE42)	DE00
Amsterdam	NL23: Flevoland NL32: Noord-Holland	NL00
London	UKI1: Inner London UKI2: Outer London UKH2: Bedfordshire and Hertfordshire UKH3: Essex	UK00
Merged regions due to the revised NUTS 2 classification	**Old NUTS 2 classification**	**New NUTS 2 classification**
	FI1A: Pohjois-Suomi FI13: Itä-Suomi	FI1D:Pohjois- ja Itä-Suomi

Candidate indicators are presented for each pillar in Chapter 4. Once included in the pillar as candidates, indicators are tested on two additional criteria:

1. data reliability and availability;
2. statistical consistency, within each pillar, assessed by multivariate analysis.

As for the previous release, the statistical assessment of RCI 2013 is carried out with a twofold intention: 1. to assess the indicator quality, including missing values and outliers analysis (univariate analysis); 2. to verify whether the set of indicators within each dimension is jointly consistent (multivariate analysis).

Univariate analysis is carried out separately for each indicator. Indicators eventually included in the framework have a missing data limit of about 10-15%.

As regards outliers, in this release we prefer to limit the adjustment only to strictly necessary cases. We then relax the skewness criterion, allowing for skewness absolute values slightly higher than one. In the Health pillar case, no outlier correction is performed for reasons explained in Section 4.4. When necessary, outliers are adjusted by adopting a Box-Cox transformation, as for the former release. Box-Cox transformations are a set of continuous, monotonously increasing, power transformations which include the logarithmic one as a particular case (Zani, 2000). They depend on a power parameter λ and generate a contraction of high values for $\lambda < 1$ or a stretching of high values for $\lambda > 1$. To correct for different range and measurement units, weighted z-scores are computed with region population size as weights (average population sizes 2007-2010 are used as weights, Appendix B).

Internal data consistency within each pillar is verified by Principal Component Analysis – PCA, a multivariate explorative technique (Morrison, 2005). Among multivariate methods, PCA is particularly suitable for statistically summarising data in a parsimonious way. It is in fact a dimensionality reduction technique which is designed to capture all relevant information into a small number of transformed dimensions. The usefulness of PCA in composite developing is easy to understand: each dimension in a composite is designed to describe a particular aspect of the latent phenomenon to be measured (the level of competitiveness in this case). As these aspects are not directly observable, they are measured by a set of observable indicators which, by definition, are related to the aspect they are supposed to describe and, consequently, to each other. In an ideal situation, each dimension should show a unique most relevant PCA component accounting for a large amount of variability associated to the full set of indicators. Plus, all the indicators should contribute roughly to the same extent and direction to the most relevant component. PCA is applied to check for internal consistency of each RCI dimension. This allows for detecting non-influencing indicators or indicators describing something else or something more than they meant to. Multivariate analysis helped us in refining the RCI framework. In the revised framework almost all the pillars show a clear unique underlying dimension with a well-balanced contribution of each indicator within each pillar. As Hagerty and Land (2007)

showed and Michalos (2011) reasserted, '… the agreements and disagreements about weights assigned to objective indicators will be largely overwhelmed by the correlations among indicators and much rarer than expected except in some relatively extraordinary circumstances' (from Michalos, 2011, p. 127). Assessing the level of consistency within each dimension plays a key role as the higher the consistency, the lower the effect of different weighting scheme on the final index.

The indicators eventually included are standardized by means of regional population weighted z-scores (Annoni & Kozovska, 2010) and reversed, if necessary, in order for them to have positive orientation with respect to territorial competitiveness (the higher the value, the better the level of competitiveness).

The weighting system and the regions classification into development stages have been slightly modified, also following the suggestions by the WEF team in charge of the Global Competitiveness Index. Five classes, instead of three of the previous release, are used now to allow for a smoother change in the weighting values across development stages. In fact, RCI does not have any transition stages which are instead used in WEF-GCI with country specific set of weights (Table 3). By adding two more classes we try to cope with this issue.

The 75% threshold is maintained as it is the value defined by the EU Commission to identify regions eligible for the 'Convergence' objective. That threshold is highly relevant as it affects EU policy funding. Weights are chosen on the basis of the following considerations. If one considers the WEF-GCI development stage classification, 20 out of 28 EU countries fall into the WEF-defined innovation-driven stage (Schwab & Sala-I-Martin, 2012). Still RCI is at the regional, sub-national level and is characterized by strong within-country variability. This means that when looking at national averages the picture is "smoothed out" as the map in Figure 2 shows clearly. By comparing development stages as defined by WEF with the development stages of EU regions, the lowest development stage for RCI – called medium stage - corresponds to the so-called "efficiency-driven" economies of WEF-GCI (Schwab & Sala-I-Martin, 2012). The WEF-GCI weights of the efficiency-driven economies are 40%, 50%, 10% for basic, efficiency and innovation groups of pillars respectively (see Table 3). Starting from these reference values, we decided to slightly increase, with respect to RCI 2010, the weight assigned to the innovation group for the lowest developed economies, to reward innovative policies even in underdeveloped regions, as also recommended by WEF

team. The RCI 2010 development stage classification and associated weighting scheme is shown in Table 4, while Table 5 shows the newly adopted scheme. The weight set for the highest development stage is exactly that of the most developed countries in WEF-GCI. Weights in between vary linearly from the lowest value to the highest.

Table 3: Weighting scheme and economy's development stages of WEF-GCI (Schwab and Sala-I-Martin 2012, pg. 9)

WEF-GCI weighting scheme

	Stage 1: Factor-driven	Transition from stage 1 to stage 2	Stage 2: Efficiency-driven	Transition from stage 2 to stage 3	Stage 3: Innovation-driven
GDP per head in US$	**<2000**	**2000 - 2999**	**3000 - 8999**	**9000 - 17000**	**>17000**
weight for basic sub-index	60%	40-60%	40%	20-40%	20%
weight for efficiency sub-index	35%	35-50%	50%	50%	50%
weight for innovative sub-index	5%	5-10%	10%	10-30%	30%

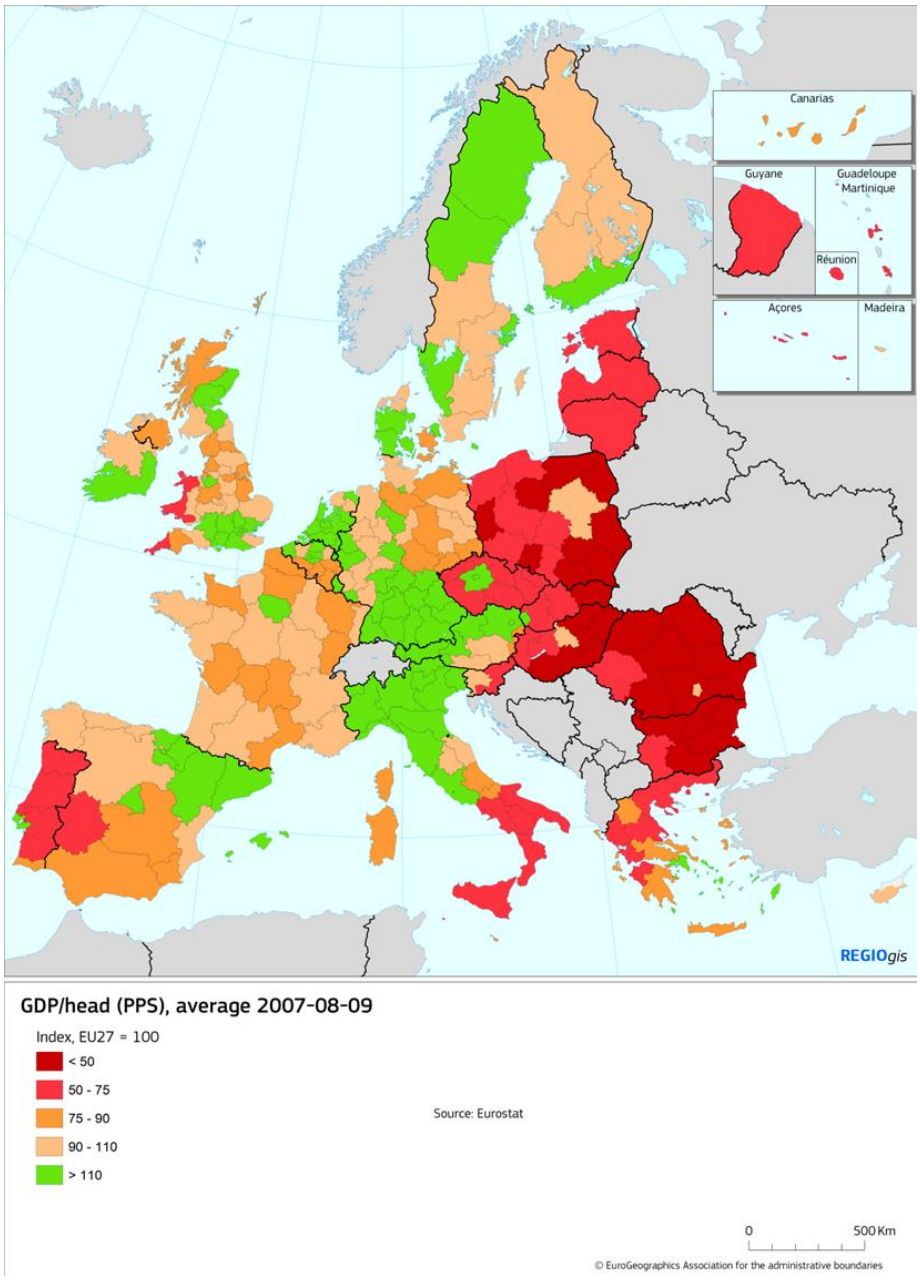


Figure 2: GDP per head distribution across EU regions

Table 4
RCI 2010 weighting system

GDP per head in EU index	DEV. STAGE	Weigths Basic	Efficiency	Innovation	
<75	1	40.0%	50.0%	10.0%	100%
[75-100)	2	30.0%	50.0%	20.0%	100%
>=110	3	20.0%	50.0%	30.0%	100%

Table 5
RCI 2013 weighting system

GDP per head in EU index	DEV. STAGE	Weigths Basic	Efficiency	Innovation	
<50	1	35.00%	50.00%	15.00%	100%
[50-75)	2	31.25%	50.00%	18.75%	100%
[75-90)	3	27.50%	50.00%	22.50%	100%
[90-110)	4	23.75%	50.00%	26.25%	100%
>=110	5	20.00%	50.00%	30.00%	100%

The Report is structured as follows: Chapter 4 describes, pillar by pillar, the modifications of RCI 2013 with respect to the previous edition, the statistical assessment and the pillar scores/regions ranking. Chapter 5 provides regions scores and ranks for the RCI sub-indexes and final index. Eventually, a pillar-by-pillar time comparison analysis is provided in Chapter 6.

4 Pillar by pillar analysis

4.1 Institutions

Given new survey data availability, the pillar Institutions is split into two sub-pillars, one at the regional data, with new survey data which became available in 2012, and the other at the country level, as in RCI 2010.

Regional sub-pillar

In 2012 a novel survey data on perceived quality of governance – QoG - became available for the EU. It consists of data acquired for a large, European Commission-funded project on measuring quality of governance within the EU (Charron, Lapuente, & Dijkstra, 2012). The survey is the largest one ever undertaken to measure quality of governance at the sub-national level so far. It includes approximately 34000 EU citizens for a total of 172 regions, either at the NUTS 1 or NUTS 2 level, within the EU Member States. The NUTS level covered by the survey for different countries is shown in Table 6. In our analysis the NUTS 2 level is kept by simply assigning NUTS 1 values, when available, to the corresponding NUTS 2 regions, thus imposing no variation at the NUTS 2 level.

Table 6: Regional level of the QoG survey.

Country	Regional level of the QoG survey
Austria	NUTS 2
Belgium	NUTS 1
Bulgaria	NUTS 2
Cyprus	NUTS 0
Czech Republic	NUTS 2
Germany	NUTS 1
Denmark	NUTS 2
Estonia	NUTS 0
Spain	NUTS 2
Finland	NUTS 0
France	NUTS 2
Greece	NUTS 1
Croatia	-
Hungary	NUTS 1
Ireland	NUTS 0
Italy	NUTS 2

Lithuania	NUTS 0
Luxemburg	NUTS 0
Latvia	NUTS 0
Malta	NUTS 0
Netherlands	NUTS 1
Poland	NUTS 2
Portugal	NUTS 2
Romania	NUTS 1
Sweden	NUTS 1
Slovenia	NUTS 0
Slovakia	NUTS 2
United Kingdom	NUTS 1

Survey questions are focused on four aspects related to three public services (education, healthcare and law enforcement): corruption, rule of law, government effectiveness and voice&accountability. Four standardized indicators are provided with and used in the regional sub-pillar of RCI 2013 (for additional details refer to Charron et al., 2012).

In Table 7 the summary descriptive statistics of the regional QoG indicators is shown. Arrows refer to the orientation of the indicators with respect to territorial competitiveness, upward (downward) arrows meaning positive (negative) orientation. Histograms are shown in Figure 3. No outlier correction is necessary in this case.

Table 7: Institutions - Regional sub-pillar: summary description of candidate indicators.

Indicator name	Corruption	RuleLaw	GovEffect	VoiceAccount
description of indicator	perception of corruption in public services, especially in the local public school and healthcare systems	quality and fairness of local police force	quality and fairness of local public school and healthcare systems	fairness of elections and neutrality of mass media
source	DG Regio project on QoG	DG Regio project on QoG	DG Regio project on QoG	DG Regio project on QoG
reference year	2009	2009	2009	2009
orientation	↑	↑	↑	↑
% of missing values	0	0	0	0
average	0.0	0.0	0.0	0.0
standard deviation	1.0	1.0	1.0	1.0
coefficient of variation	-	-	-	-
skewness	0.35	0.55	0.49	0.79
skewness correction	no	no	no	no
maximum value	1.9	1.6	1.9	1.6
region corresponding to maximum value	DK02	DK03	DK04	SE20
minimum value	-2.8	-3.3	-2.6	-3.1
region corresponding to minimum value	RO32	BG31	RO32	BG32
population weighted average*	0.0	0.0	0.0	0.0
population weighted standard deviation*	1.0	1.0	1.0	1.0

* No weighted standardisation is adopetd in this case.

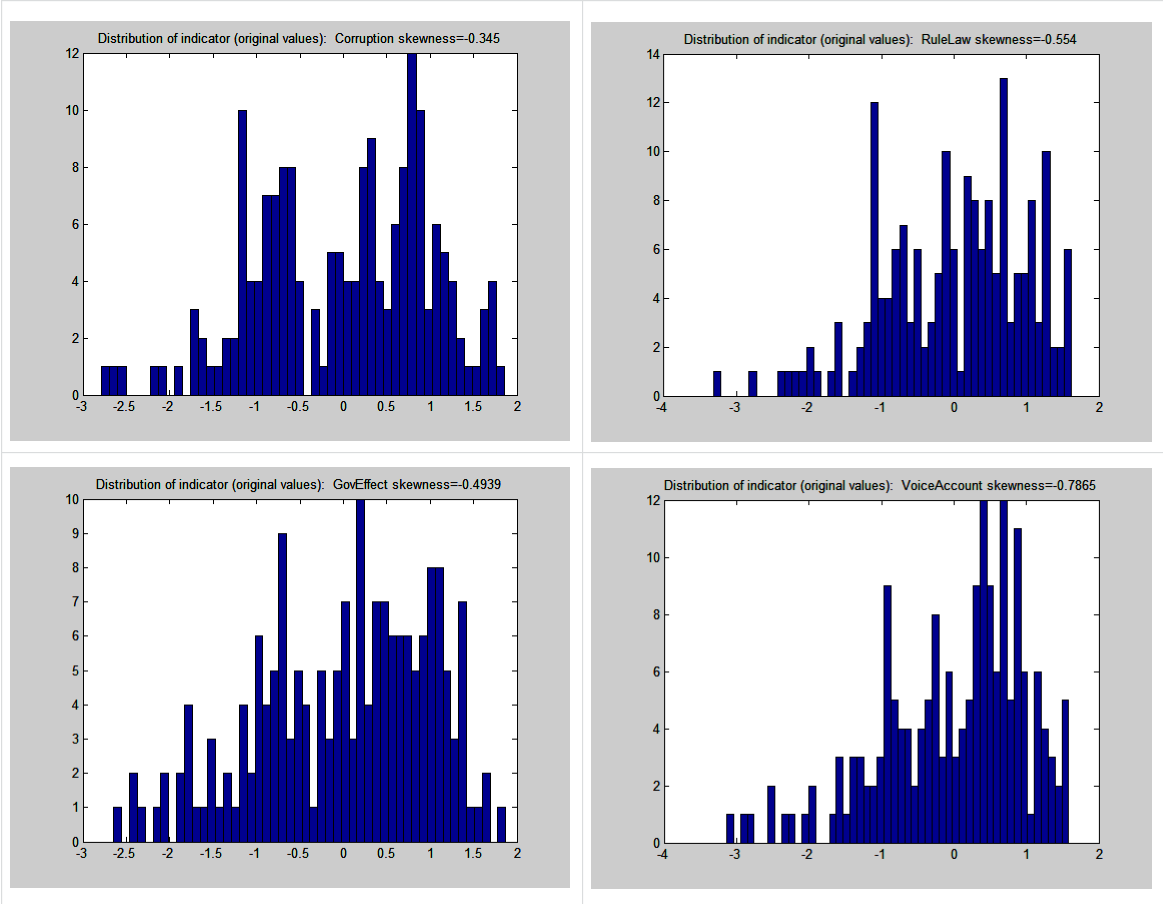


Figure 3: Institutions - Regional sub-pillar: indicator histograms

Table 8: Institutions - Regional sub-pillar: correlation matrix

Correlation Matrix					
		Corruption	**RuleLaw**	**GovEffect**	**VoiceAccount**
Correlation	**Corruption**	1.000	.922	.914	.866
	RuleLaw	.922	1.000	.932	.884
	GovEffect	.914	.932	1.000	.857
	VoiceAccount	.866	.884	.857	1.000
p-value	**Corruption**	1.000	.000	.000	.000
	RuleLaw	.000	1.000	.000	.000
	GovEffect	.000	.000	1.000	.000
	VoiceAccount	.000	.000	.000	1.000

Table 8 shows the pairwise correlations and associated p-value of the four QoG indicators. This high level of correlation is, as expected, associated to a high level of consistency as

shown by PCA results summarized in Table 9 and Figure 4. The share of variance explained by the first principal component – PC – is 92% and the scree plot shows a steep trend from the first to the second component, suggesting that the indicators are measuring a single latent phenomenon. The analysis of the PC loadings, which are always statistically significant, shows that almost all the indicators contribute to the first PC to the same extent.

Table 9: Institutions - Regional sub-pillar: PCA outcomes

Number of indicators included	Variance explained by first PC	First PC loadings	
		Min value (corresponding indicator)	Max value (corresponding indicator)
4	92%	0.49 (Voice&Accountability)	0.51 (Gov. Effectiveness)

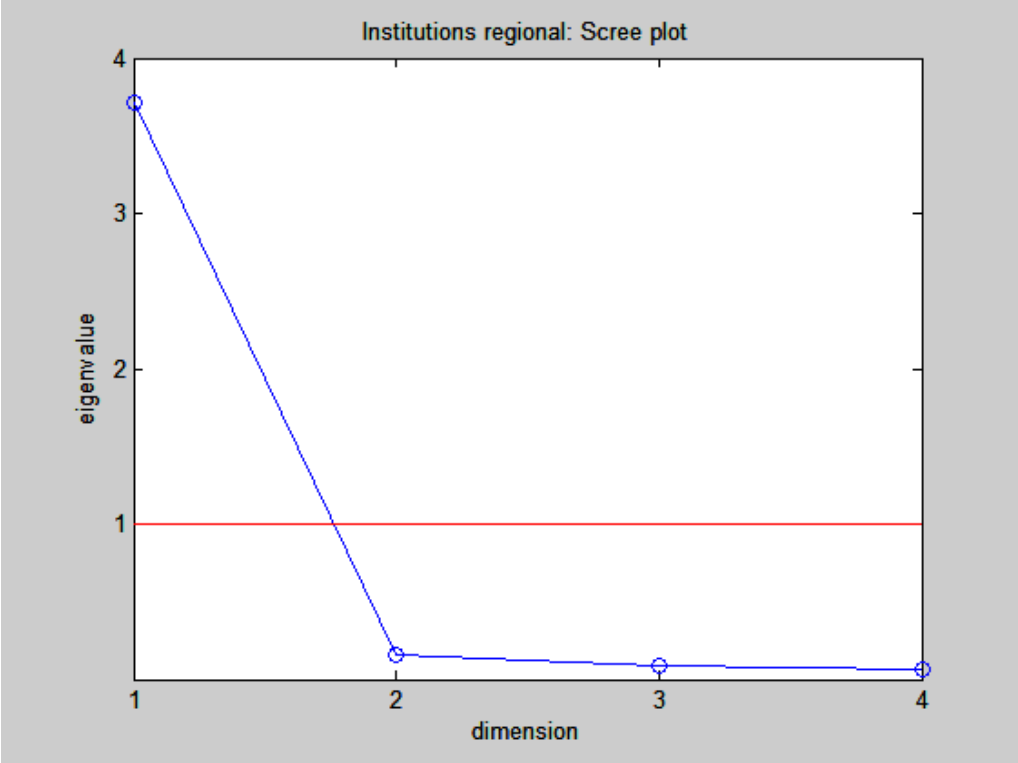


Figure 4: Institutions - Regional sub-pillar: PCA scree plot

The distribution of the scores across EU regions is shown in Figure 5 where scores are classified into five classes according to percentiles (P_{20}, P_{40}, P_{60}, P_{80}). Region scores and ranks

are shown in Table 10, where regions are listed in alphabetic order according to their label. Table 11 lists the regions from best to worst. Rank ties are due to countries originally described at the NUTS 1 level only.

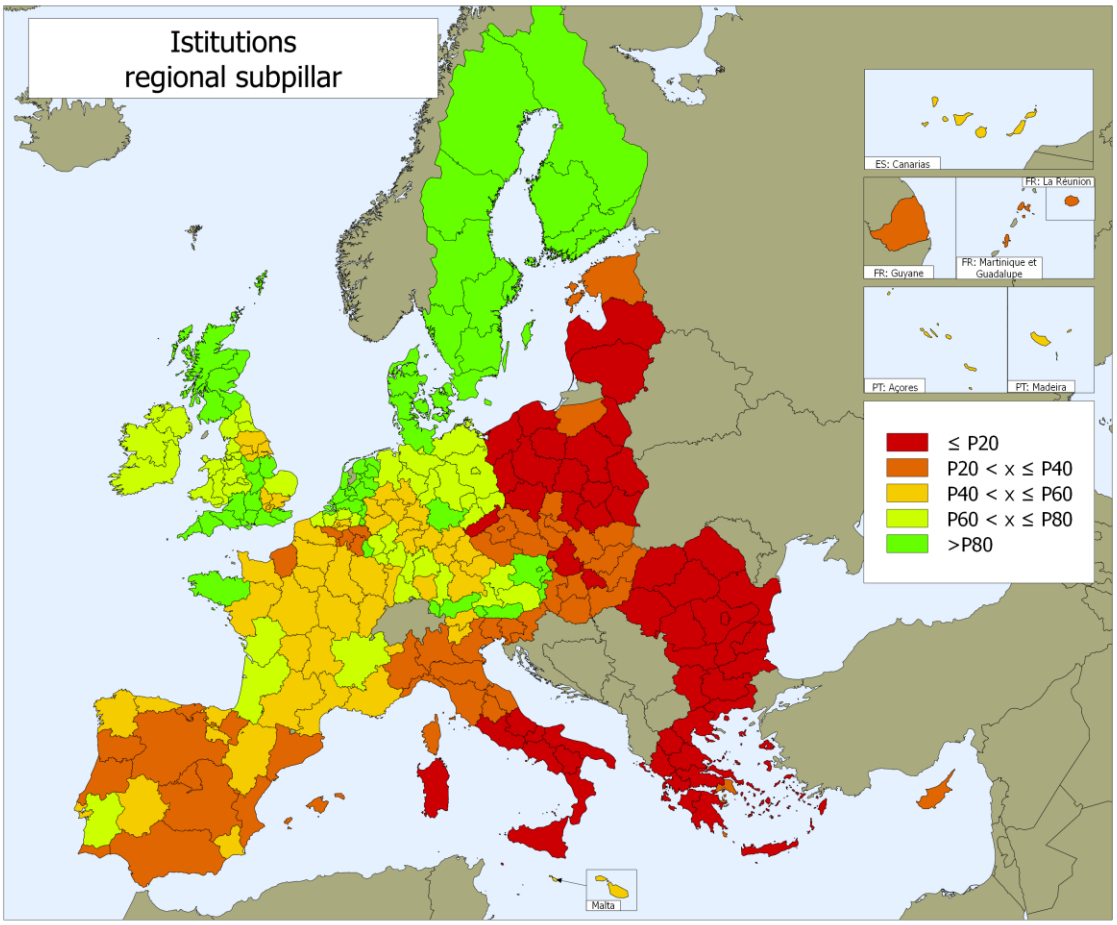


Figure 5: Institutions - Regional sub-pillar: score distribution

Table 10: Institutions - Regional sub-pillar: scores and ranks of regions in alphabetic order

Region	scores	ranks	Region	scores	ranks	Region	scores	ranks	Region	scores	ranks
AT00	1.06	47	DEF0	1.07	46	GR30	-0.42	190	PL62	-0.72	202
AT11	1.29	22	DEG0	1.11	40	GR41	-0.87	217	PL63	-0.79	205
AT21	1.17	31	DK01	1.35	17	GR42	-0.87	217	PT11	-0.32	180
AT22	0.82	80	DK02	1.50	5	GR43	-0.87	217	PT15	0.21	153
AT31	0.93	61	DK03	1.43	9	HR03	NaN	NaN	PT16	-0.02	165
AT32	0.97	58	DK04	1.69	1	HR04	NaN	NaN	PT17	0.21	151
AT33	1.12	37	DK05	1.37	12	HU10	-0.95	229	PT18	0.74	95
AT34	1.09	45	EE00	-0.12	171	HU21	-0.35	183	PT20	0.49	130
BE00	0.34	140	ES11	0.52	127	HU22	-0.35	183	PT30	0.22	150
BE21	0.86	67	ES12	0.42	135	HU23	-0.35	183	RO11	-1.19	237
BE22	0.86	67	ES13	0.20	154	HU31	-0.41	188	RO12	-1.49	244
BE23	0.86	67	ES21	0.65	116	HU32	-0.41	188	RO21	-2.03	251
BE25	0.86	67	ES22	0.15	157	HU33	-0.41	188	RO22	-1.97	250
BE32	0.14	160	ES23	0.27	147	IE01	0.93	60	RO31	-1.79	248
BE33	0.14	160	ES24	0.29	146	IE02	0.93	60	RO32	-2.79	258
BE34	0.14	160	ES30	-0.13	172	ITC1	-0.19	173	RO41	-1.56	245
BE35	0.14	160	ES41	-0.05	166	ITC2	0.40	137	RO42	-2.17	255
BG31	-2.35	257	ES42	0.21	152	ITC3	-0.53	197	SE11	1.39	11
BG32	-2.09	254	ES43	0.38	138	ITC4	-0.67	200	SE12	1.39	11
BG33	-1.11	234	ES51	-0.35	185	ITD1	0.53	126	SE21	1.47	7
BG34	-2.05	253	ES52	0.15	156	ITD2	0.32	142	SE22	1.47	7
BG41	-1.82	249	ES53	0.08	162	ITD3	-0.52	196	SE23	1.47	7
BG42	-1.16	235	ES61	-0.23	176	ITD4	0.07	163	SE31	1.28	24
CY00	-0.09	169	ES62	0.29	144	ITD5	-0.47	193	SE32	1.28	24
CZ00	-0.51	195	ES63	NaN	NaN	ITE1	-0.61	199	SE33	1.28	24
CZ03	-0.08	167	ES64	NaN	NaN	ITE2	-0.25	177	SI01	-0.20	175
CZ04	-0.87	215	ES70	0.24	148	ITE3	-0.45	192	SI02	-0.20	175
CZ05	-0.10	170	FI18	1.36	15	ITE4	-1.21	239	SK01	-0.56	198
CZ06	-0.41	186	FI19	1.36	15	ITF1	-0.87	220	SK02	-0.87	219
CZ07	-0.43	191	FI1D	1.36	15	ITF2	-1.18	236	SK03	-0.74	203
CZ08	-0.33	181	FI20	1.36	15	ITF3	-2.17	256	SK04	-0.74	204
DE00	0.84	73	FR10	0.57	120	ITF4	-1.61	246	UK00	0.60	119
DE11	0.84	73	FR21	0.30	143	ITF5	-1.20	238	UKC1	0.85	70
DE12	0.84	73	FR22	0.55	121	ITF6	-2.03	252	UKC2	0.85	70
DE13	0.84	73	FR23	0.17	155	ITG1	-1.70	247	UKD1	0.98	55
DE14	0.65	112	FR24	0.60	118	ITG2	-0.92	225	UKD2	0.98	55
DE21	0.65	112	FR25	0.51	129	LT00	-0.90	224	UKD3	0.98	55
DE22	0.65	112	FR26	0.47	132	LU00	1.15	36	UKD4	0.98	55
DE23	0.65	112	FR30	0.48	131	LV00	-0.83	208	UKD5	0.98	55
DE24	0.65	112	FR41	0.29	145	MT00	0.33	141	UKE1	0.65	107
DE25	0.65	112	FR42	0.47	133	NL00	1.30	21	UKE2	0.65	107
DE26	0.65	112	FR43	0.51	128	NL11	1.59	3	UKE3	0.65	107
DE27	0.81	81	FR51	0.37	139	NL12	1.59	3	UKE4	0.65	107
DE50	0.80	83	FR52	1.01	48	NL13	1.59	3	UKF1	1.20	29
DE60	0.80	82	FR53	0.76	91	NL21	1.23	27	UKF2	1.20	29
DE71	0.55	123	FR61	0.83	75	NL22	1.23	27	UKF3	1.20	29
DE72	0.55	123	FR62	0.41	136	NL31	1.31	19	UKG1	0.82	77
DE73	0.55	123	FR63	0.65	117	NL33	1.31	19	UKG2	0.82	77
DE80	0.79	90	FR71	0.79	89	NL34	1.31	19	UKG3	0.82	77
DE91	0.79	87	FR72	0.53	125	NL41	1.12	39	UKH1	0.75	94
DE92	0.79	87	FR81	0.44	134	NL42	1.12	39	UKJ1	1.09	43
DE93	0.79	87	FR82	0.24	149	PL11	-0.82	206	UKJ2	1.09	43
DE94	0.79	87	FR83	0.03	164	PL12	-0.98	230	UKJ3	1.09	43
DEA1	0.66	102	FR91	-0.49	194	PL21	-0.88	222	UKJ4	1.09	43
DEA2	0.66	102	FR92	-0.32	179	PL22	-1.04	231	UKK1	1.00	51
DEA3	0.66	102	FR93	-0.25	178	PL31	-0.84	209	UKK2	1.00	51
DEA4	0.66	102	FR94	-0.09	168	PL32	-0.88	221	UKK3	1.00	51
DEA5	0.66	102	GR11	-1.36	242	PL33	-0.83	207	UKK4	1.00	51
DEB1	0.70	98	GR12	-1.36	242	PL34	-0.94	227	UKL1	0.76	93
DEB2	0.70	98	GR13	-1.36	242	PL41	-1.04	232	UKL2	0.76	93
DEB3	0.70	98	GR14	-1.36	242	PL42	-0.89	223	UKM2	1.17	34
DEC0	0.82	79	GR21	-0.87	212	PL43	-0.95	228	UKM3	1.17	34
DED1	0.90	63	GR22	-0.87	212	PL51	-1.10	233	UKM5	1.17	34
DED2	0.90	63	GR23	-0.87	212	PL52	-0.68	201	UKM6	1.17	34
DED3	0.90	63	GR24	-0.87	212	PL61	-0.93	226	UKN0	0.79	84
DEE0	0.72	96	GR25	-0.87	212						

Table 11: Institutions - Regional sub-pillar: regions reordered from best to worst

Reordered regions (from best to worst)												
DK04	1	AT34	45	FR71	89	FR42	133	ITE2	177	ITF1	220
NL11	3	DEF0	46	DE80	90	FR81	134	FR93	178	PL32	221
NL12	3	AT00	47	FR53	91	ES12	135	FR92	179	PL21	222
NL13	3	FR52	48	UKL1	93	FR62	136	PT11	180	PL42	223
DK02	5	UKK1	51	UKL2	93	ITC2	137	CZ08	181	LT00	224
SE21	7	UKK2	51	UKH1	94	ES43	138	HU21	183	ITG2	225
SE22	7	UKK3	51	PT18	95	FR51	139	HU22	183	PL61	226
SE23	7	UKK4	51	DEE0	96	BE00	140	HU23	183	PL34	227
DK03	9	UKD1	55	DEB1	98	MT00	141	ES51	185	PL43	228
SE11	11	UKD2	55	DEB2	98	ITD2	142	CZ06	186	HU10	229
SE12	11	UKD3	55	DEB3	98	FR21	143	HU31	188	PL12	230
DK05	12	UKD4	55	DEA1	102	ES62	144	HU32	188	PL22	231
FI18	15	UKD5	55	DEA2	102	FR41	145	HU33	188	PL41	232
FI19	15	AT32	58	DEA3	102	ES24	146	GR30	190	PL51	233
FI1D	15	IE01	60	DEA4	102	ES23	147	CZ07	191	BG33	234
FI20	15	IE02	60	DEA5	102	ES70	148	ITE3	192	BG42	235
DK01	17	AT31	61	UKE1	107	FR82	149	ITD5	193	ITF2	236
NL31	19	DED1	63	UKE2	107	PT30	150	FR91	194	RO11	237
NL33	19	DED2	63	UKE3	107	PT17	151	CZ00	195	ITF5	238
NL34	19	DED3	63	UKE4	107	ES42	152	ITD3	196	ITE4	239
NL00	21	BE21	67	DE14	112	PT15	153	ITC3	197	GR11	242
AT11	22	BE22	67	DE21	112	ES13	154	SK01	198	GR12	242
SE31	24	BE23	67	DE22	112	FR23	155	ITE1	199	GR13	242
SE32	24	BE25	67	DE23	112	ES52	156	ITC4	200	GR14	242
SE33	24	UKC1	70	DE24	112	ES22	157	PL52	201	RO12	244
NL21	27	UKC2	70	DE25	112	BE32	160	PL62	202	RO41	245
NL22	27	DE00	73	DE26	112	BE33	160	SK03	203	ITF4	246
UKF1	29	DE11	73	ES21	116	BE34	160	SK04	204	ITG1	247
UKF2	29	DE12	73	FR63	117	BE35	160	PL63	205	RO31	248
UKF3	29	DE13	73	FR24	118	ES53	162	PL11	206	BG41	249
AT21	31	FR61	75	UK00	119	ITD4	163	PL33	207	RO22	250
UKM2	34	UKG1	77	FR10	120	FR83	164	LV00	208	RO21	251
UKM3	34	UKG2	77	FR22	121	PT16	165	PL31	209	ITF6	252
UKM5	34	UKG3	77	DE71	123	ES41	166	GR21	212	BG34	253
UKM6	34	DEC0	79	DE72	123	CZ03	167	GR22	212	BG32	254
LU00	36	AT22	80	DE73	123	FR94	168	GR23	212	RO42	255
AT33	37	DE27	81	FR72	125	CY00	169	GR24	212	ITF3	256
NL41	39	DE60	82	ITD1	126	CZ05	170	GR25	212	BG31	257
NL42	39	DE50	83	ES11	127	EE00	171	CZ04	215	RO32	258
DEG0	40	UKN0	84	FR43	128	ES30	172	GR41	217	ES63	NaN
UKJ1	43	DE91	87	FR25	129	ITC1	173	GR42	217	ES64	NaN
UKJ2	43	DE92	87	PT20	130	SI01	175	GR43	217	HR03	NaN
UKJ3	43	DE93	87	FR30	131	SI02	175	SK02	219	HR04	NaN
UKJ4	43	DE94	87	FR26	132	ES61	176				

Country sub-pillar

The Institutions sub-pillar at the national level is enriched with new indicators with respect to RCI 2010. The new indicators are a selection of the indicators included in the Institutions pillar of WEF-GCI 2012-2013 index (Schwab & Sala-I-Martin, 2012). By including WEF indicators we try to cover some aspects not captured by RCI 2010 like: property rights and intellectual property protection, efficiency of legal framework, crime and police service reliability.

The list of the indicators now included in the sub-pillar is provided by Table 12 together with some basic descriptive statistics. The indicators with negative orientation with respect to the level of institutions (indicated by downward arrows) are reversed before score computations. Histograms are shown in Figure 6 to Figure 8.

PCA shows that, despite the high number of indicators and their different sources (World Economic Forum, World bank and Eurobarometer), the perceived quality of institutions is a clear underlying concept strongly country dependent (Figure 9). Pairwise correlations are always statistically significant at level α=0.05, apart from a couple of cases for "Ease of doing business" and "Business costs of crime and violence indicators" [1]. The percentage of variance accounted for by the first PC is 76% with all the indicators contributing almost equally to the first component (Table 13).

This means that the perceived quality of the institutions depends almost exclusively on the country the citizen lives in and not on the particular service (police service, media, legal institutions, government, etc.).

The distribution of scores across countries is shown in Figure 10 while Table 14 shows scores and ranks. Countries reordered according to their score are displayed in Figure 11.

[1] The correlation matrix is not shown in this case given the high number of indicators.

Table 12: Institutions - Country sub-pillar: summary description of candidate indicators

Indicator name	Country level corruption perception	Regional level corruption perception	Voice and accountability	Political stability	Government effectiveness	Regulatory quality	Rule of law	Control of corruption	Ease of doing business index
description of indicator	% of respondents who totally agree that corruption is a major problem in their country	% of respondents who agree that there is corruption in regional institutions in their country	score ranging from -2.5 to 2.5	score ranging from -2.5 to 2.5	score ranging from -2.5 to 2.5	score ranging from -2.5 to 2.5	score ranging from -2.5 to 2.5	score ranging from -2.5 to 2.5	rank out of 183
source	Special Eurobarometer 325	Special Eurobarometer 325	World Bank Governance Indicators	World Bank Governance Indicators	World Bank Governance Indicators	World Bank Governance Indicators	World Bank Governance Indicators	World Bank Governance Indicators	World Bank Doing Business Report
reference year	2011	2011	2011	2011	2011	2011	2011	2011	2011
orientation	↓	↓	↑	↑	↑	↑	↑	↑	↓
% of missing values	3.57	3.57	0	0	0.0	0.0	0.0	0.0	0.0
missing countries	HR	HR	-	-	-	-	-	-	-
average	74.7	73.6	1.1	0.8	1.1	1.2	1.1	1.0	41.7
standard deviation	23.0	19.2	0.3	0.4	0.6	0.4	0.6	0.8	25.4
coefficient of variation	0.3	0.3	0.3	0.5	0.5	0.4	0.5	0.8	0.6
skewness	-1.02	-1.11	-0.37	-0.32	-0.18	0.12	-0.34	0.16	0.56
skewness correction	no	no	no	no	no	no	no	no	no
maximum value	98.0	95.0	1.6	1.4	2.2	1.9	2.0	2.4	102.0
country corresponding to maximum value	GR	GR	DK	FI	FI	DK	FI	DK	MT
minimum value	19.0	22.0	0.4	-0.1	-0.2	0.5	-0.1	-0.2	5.0
country corresponding to minimum value	DK	DK	RO	GR	RO	GR	BG	RO	DK
population weighted average	73.34	74.98	1.13	0.65	1.12	1.19	1.19	1.06	38.82
population weighted standard deviation	16.91	14.60	0.26	0.34	0.55	0.37	0.56	0.74	22.93

Indicator name	Property rights	Intellectual property protection	Efficiency of legal framework in settling disputes	Efficiency of legal framework in challenging regulations	Transparency of government policymaking	Business costs of crime and violence	Organized crime	Reliability of police services
description of indicator	1-7 (best)	1-7 (best)	1-7 (best)	1-7 (best)	1-7 (best)	1-7 (best)	1-7 (best)	1-7 (best)
source	World Economic Forum - Global Competitiveness Index	World Economic Forum - Global Competitiveness Index	World Economic Forum - Global Competitiveness Index	World Economic Forum - Global Competitiveness Index	World Economic Forum - Global Competitiveness Index	World Economic Forum - Global Competitiveness Index	World Economic Forum - Global Competitiveness Index	World Economic Forum - Global Competitiveness Index
reference year	2012-2103 edition - period of reference: 2011	2012-2103 edition - period of reference: 2011	2012-2103 edition - period of reference: 2011	2012-2103 edition - period of reference: 2011	2012-2103 edition - period of reference: 2011	2012-2103 edition - period of reference: 2011	2012-2103 edition - period of reference: 2011	2012-2103 edition - period of reference: 2011
orientation	↑	↑	↑	↑	↑	↑	↑	↑
% of missing values	0	0	0	0	0	0	0	0
missing countries	-	-	-	-	-	-	-	-
average	5.0	4.6	3.9	3.9	4.5	5.4	5.7	5.1
standard deviation	0.9	1.0	1.1	1.1	0.7	0.5	0.8	0.9
coefficient of variation	0.2	0.2	0.3	0.3	0.2	0.1	0.1	0.2
skewness	0.02	0.09	0.24	0.20	0.08	-0.83	-1.20	-0.25
skewness correction	no	no	no	no	no	no	no	no
maximum value	6.5	6.3	6.0	5.9	6.1	6.4	6.8	6.6
country corresponding to maximum value	FI	FI	FI	FI	FI	FI	LU	FI
minimum value	3.5	2.9	2.4	2.4	3.1	3.8	3.5	3.4
country corresponding to minimum value	BG	RO	SK	SK	IT	BG	IT	BG
population weighted average	5.16	4.75	4.02	4.03	4.41	5.33	5.51	5.30
population weighted standard deviation	0.84	1.02	1.10	1.04	0.76	0.46	0.84	0.81

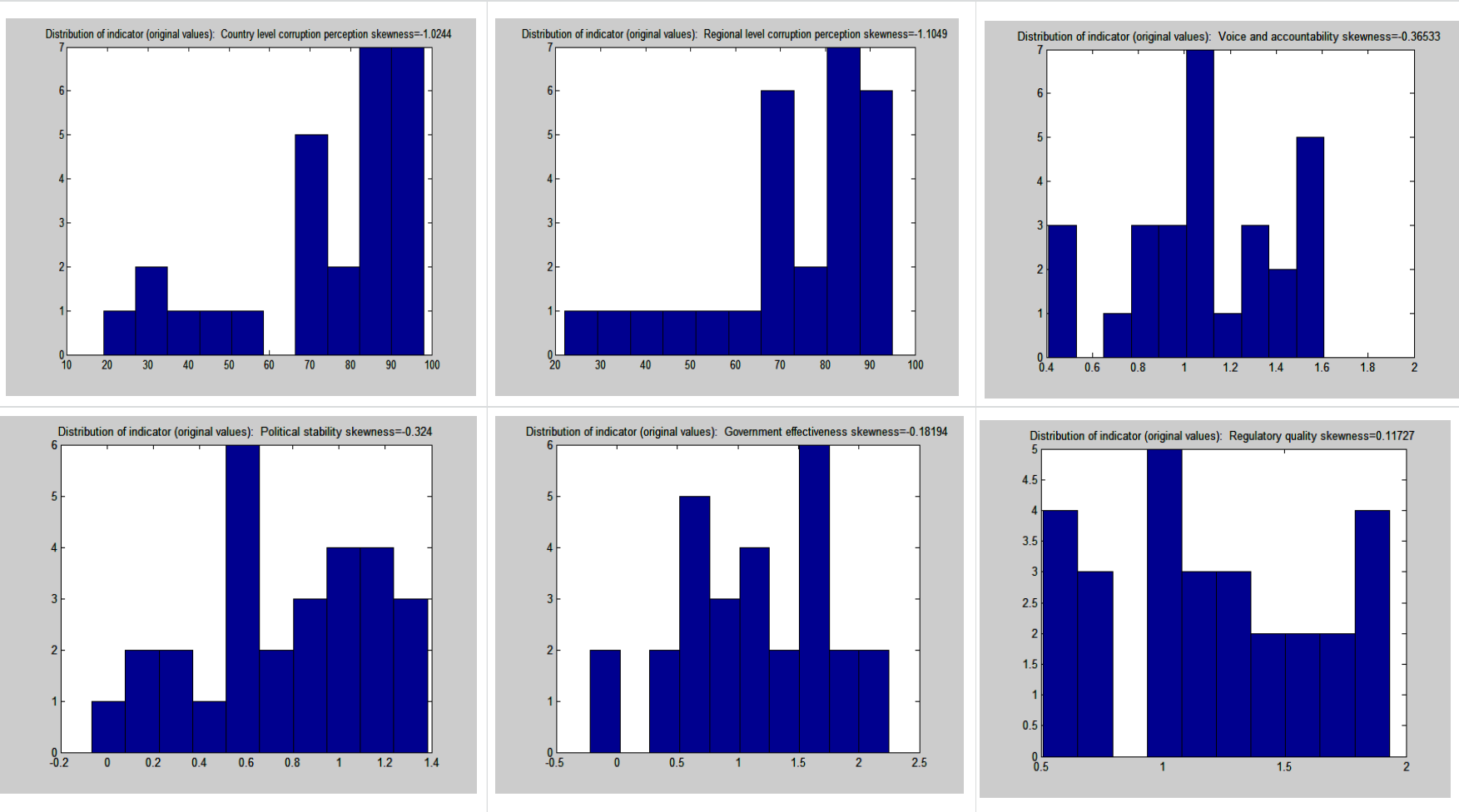


Figure 6: Institutions - Country sub-pillar: indicator histograms

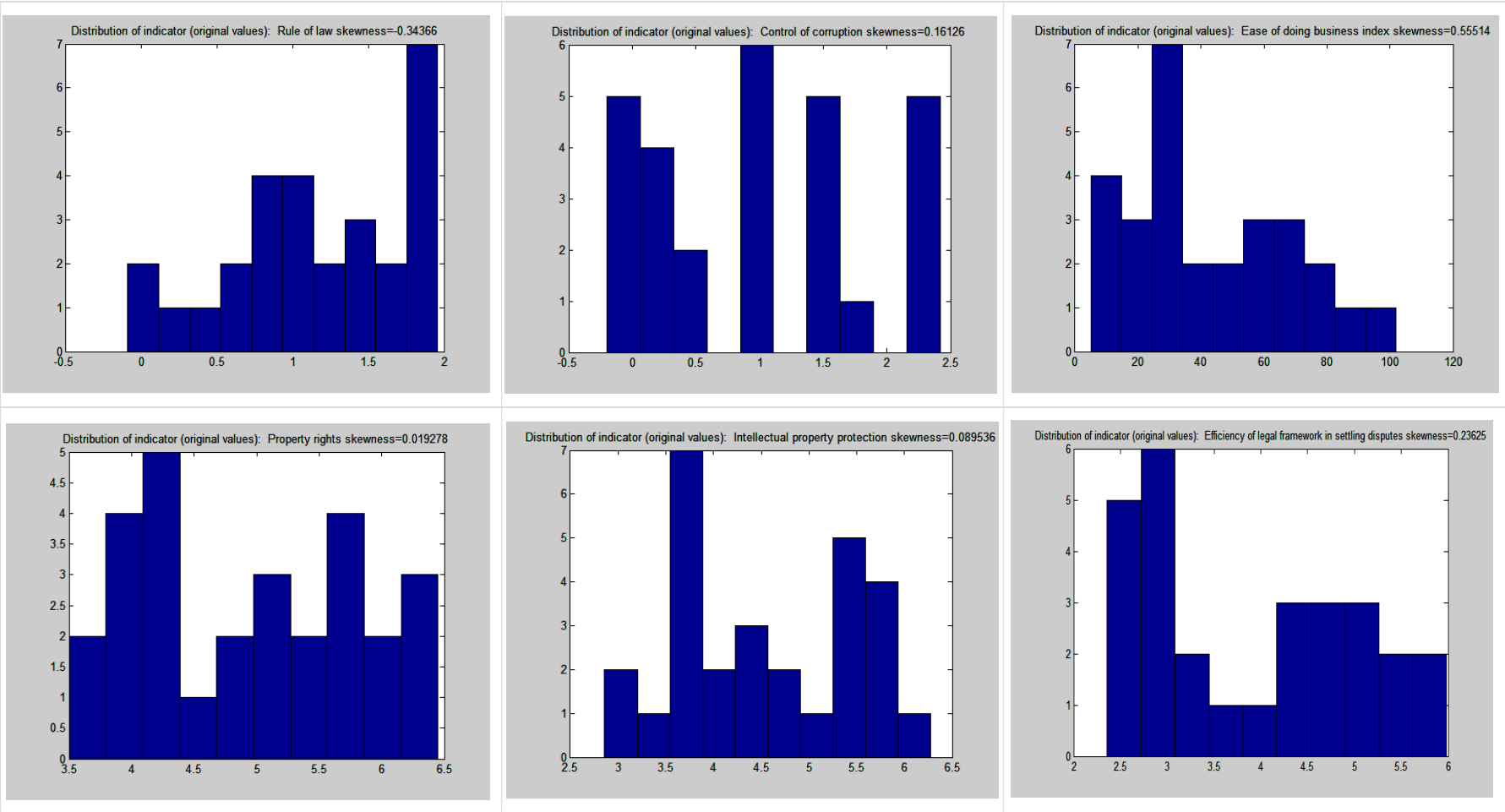


Figure 7: Institutions - Country sub-pillar: indicator histograms

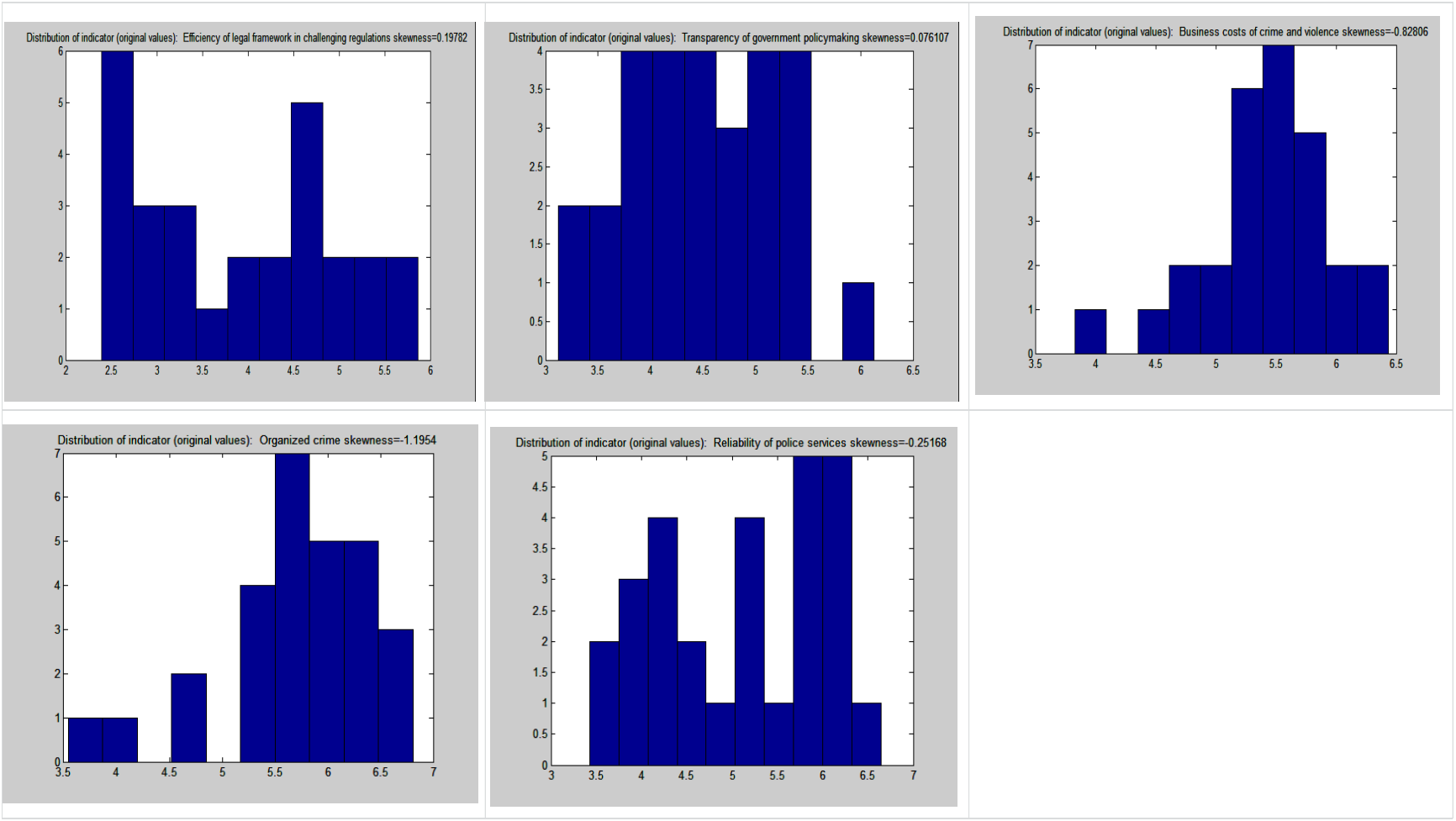


Figure 8: Institutions - Country sub-pillar: indicator histograms

Table 13: Institutions - Country sub-pillar: PCA outcomes

Number of indicators included	Variance explained by first PC	First PC loadings[2]	
		Min value (corresponding indicator)	Max value (corresponding indicator)
17	76%	0.17 (ease of doing business)	0.29 (Voice&Accountability)

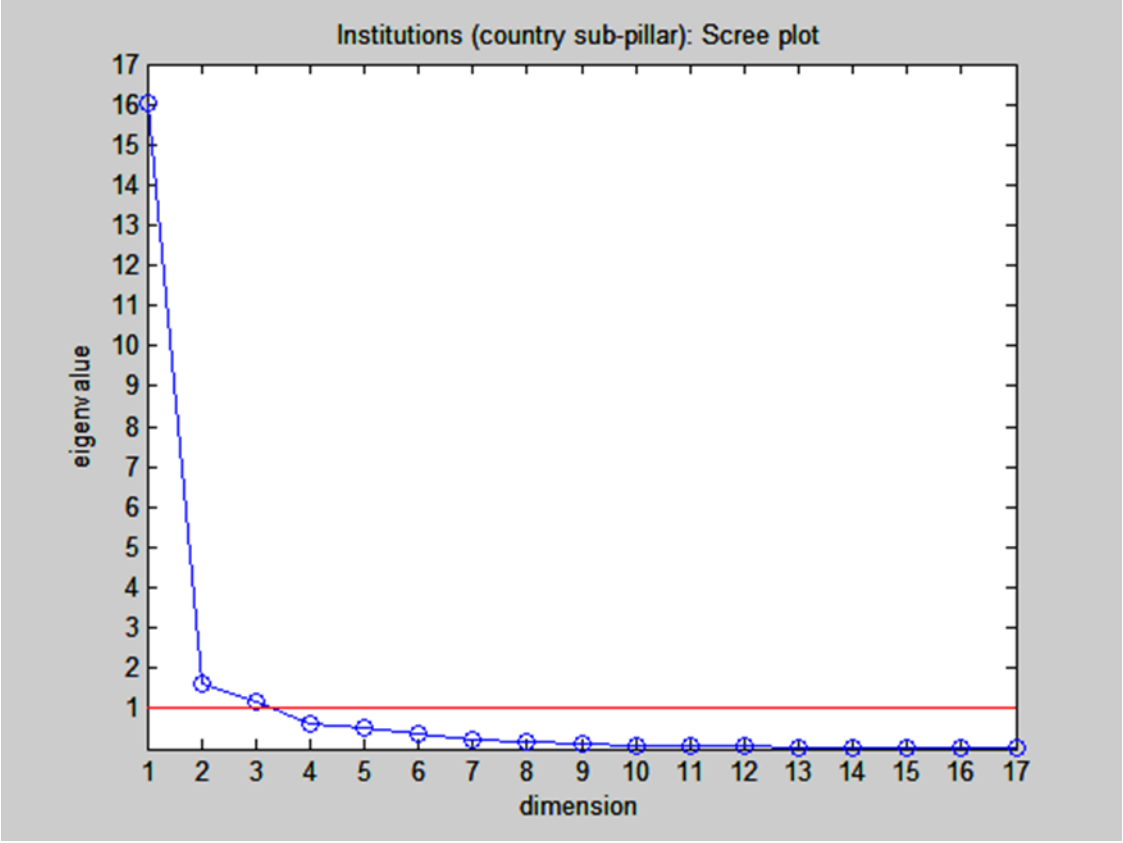


Figure 9: Institutions - Country sub-pillar: PCA scree plot

[2] Also in this case all the loadings are statistically significant, or, in other words, all the correlations between the first PC and the standardized indicators are significant. In fact, the following relationship holds between PCA loadings λ and the correlation coefficient ρ between the indicators and the principal components: $\rho = \lambda\sqrt{\text{eigenvalue}}$ (Morrison, 2005).

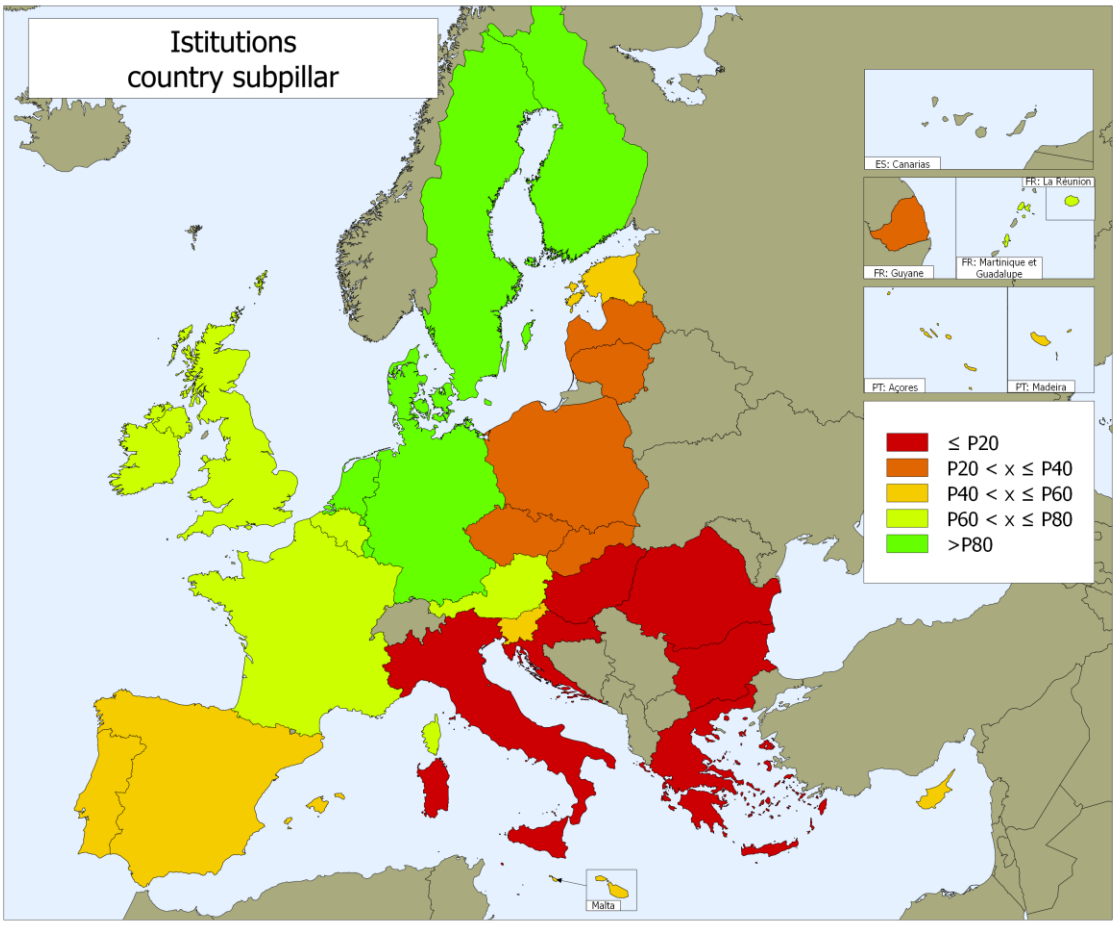


Figure 10: Institutions - Country sub-pillar: score distribution

Table 14: Institutions - Country sub-pillar: country scores and ranks

country	scores	ranks
AT	0.74	7
BE	0.45	10
BG	-1.70	28
CY	-0.01	14
CZ	-0.61	20
DE	0.79	6
DK	1.34	3
EE	0.27	12
ES	-0.26	15
FI	1.77	1
FR	0.29	11
GR	-1.34	26
HR	-1.24	25
HU	-0.83	23
IE	0.64	9
IT	-1.21	24
LT	-0.55	19
LU	1.35	2
LV	-0.65	21
MT	0.07	13
NL	1.33	4
PL	-0.43	18
PT	-0.29	16
RO	-1.56	27
SE	1.29	5
SI	-0.38	17
SK	-0.79	22
UK	0.72	8

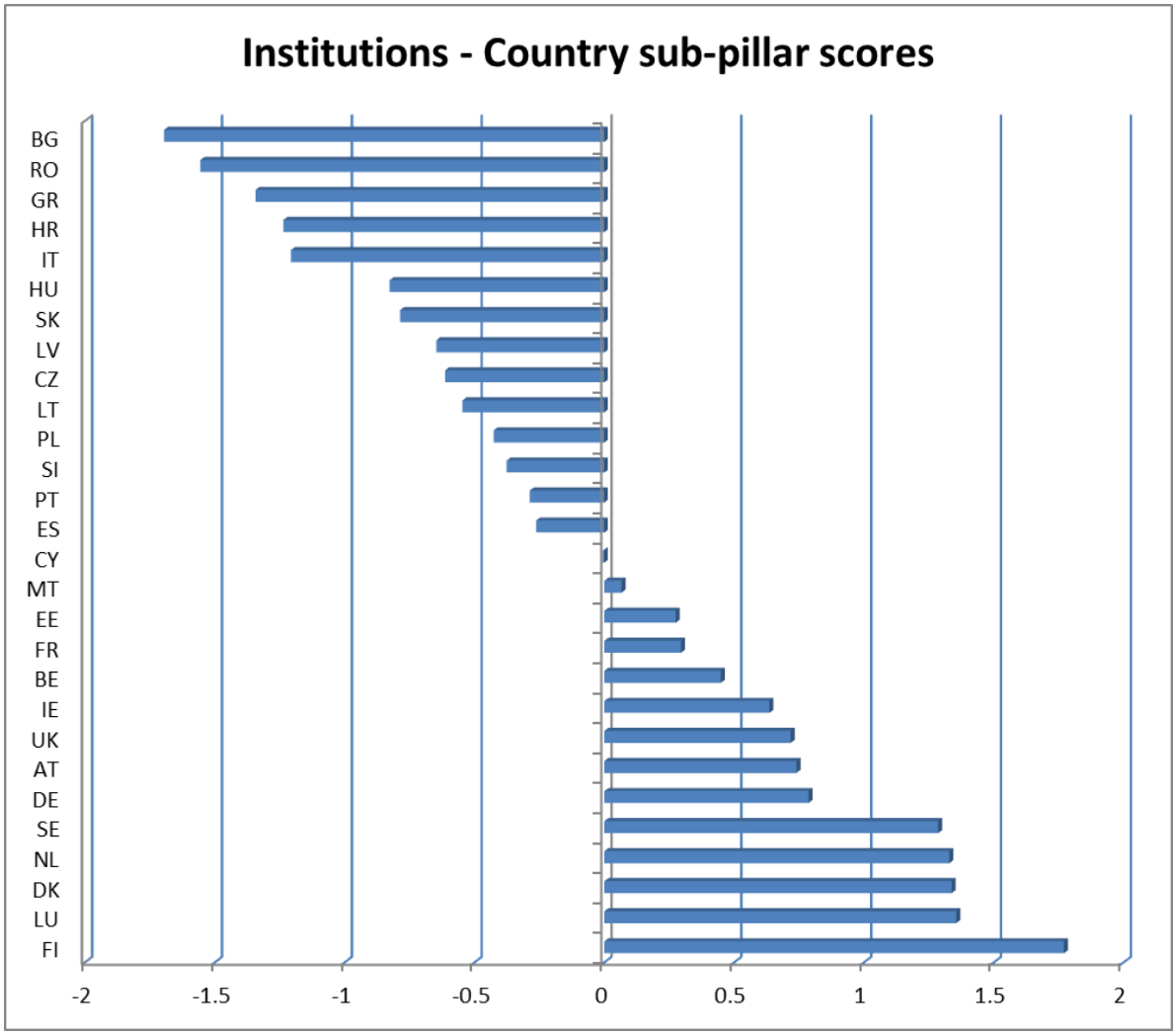


Figure 11: Institutions - Country sub-pillar: reordered countries

Institutions scores and ranks

The final scores of the Institutions pillar are simply computed by averaging, for each region, the country score and the regional score. The map of institutions scores is shown in Figure 12. Table 15 and Table 16 list regions scores and ranks.

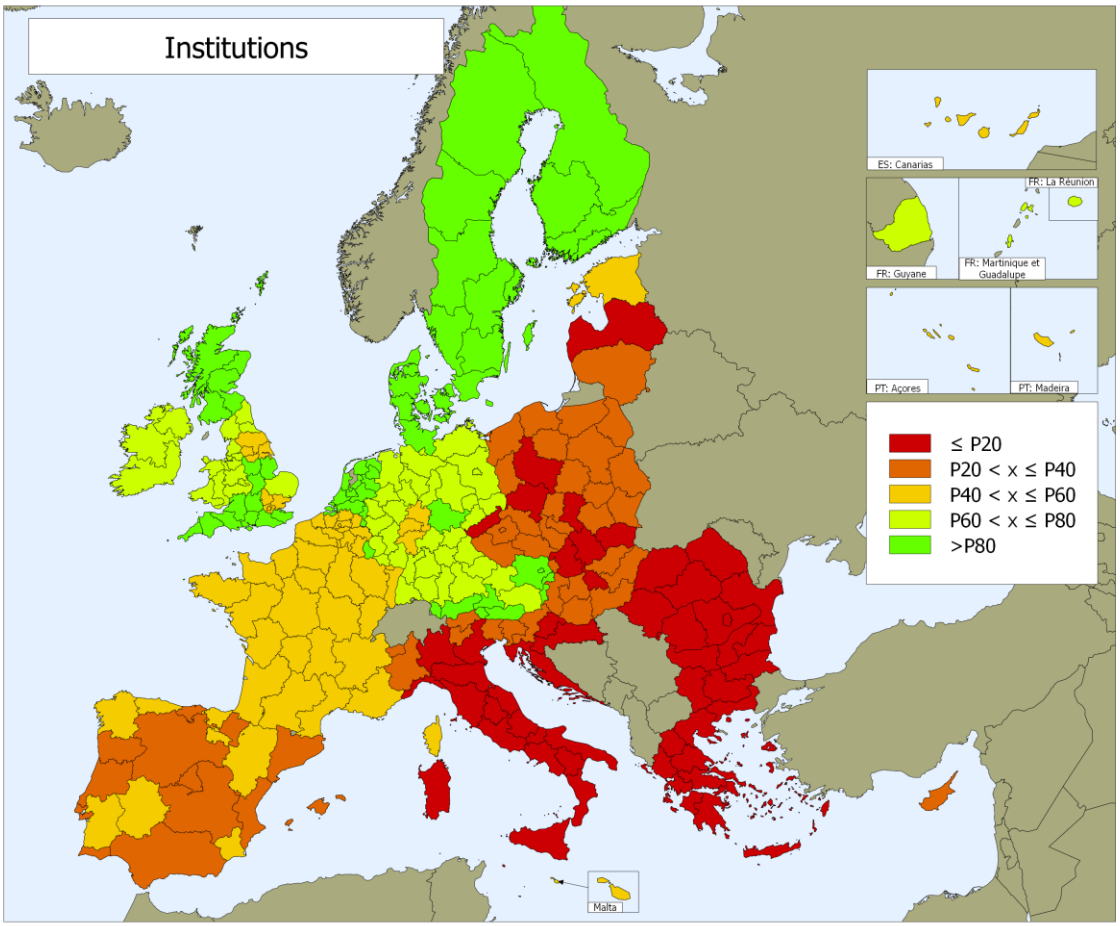


Figure 12: Institutions: score distribution

Table 15: Institutions pillar: region scores and ranks

Region	scores	ranks	Region	scores	ranks	Region	scores	ranks	Region	scores	ranks
AT00	0.90	47	DEF0	0.93	41	GR30	-0.88	222	PL62	-0.57	188
AT11	1.02	30	DEG0	0.95	35	GR41	-1.11	233	PL63	-0.61	192
AT21	0.96	34	DK01	1.34	15	GR42	-1.11	233	PT11	-0.30	175
AT22	0.78	79	DK02	1.42	9	GR43	-1.11	233	PT15	-0.04	161
AT31	0.83	61	DK03	1.38	10	HR03	-1.24	239	PT16	-0.15	167
AT32	0.86	52	DK04	1.51	5	HR04	-1.24	239	PT17	-0.04	160
AT33	0.93	40	DK05	1.35	14	HU10	-0.89	223	PT18	0.23	141
AT34	0.91	42	EE00	0.08	148	HU21	-0.59	189	PT20	0.10	146
BE00	0.39	126	ES11	0.13	145	HU22	-0.59	189	PT30	-0.03	159
BE21	0.65	111	ES12	0.08	149	HU23	-0.59	189	RO11	-1.37	245
BE22	0.65	111	ES13	-0.03	158	HU31	-0.62	193	RO12	-1.52	250
BE23	0.65	111	ES21	0.19	143	HU32	-0.62	193	RO21	-1.79	257
BE25	0.65	111	ES22	-0.06	164	HU33	-0.62	193	RO22	-1.76	256
BE32	0.29	134	ES23	0.00	154	IE01	0.78	77	RO31	-1.67	253
BE33	0.29	134	ES24	0.01	153	IE02	0.78	77	RO32	-2.17	262
BE34	0.29	134	ES30	-0.20	169	ITC1	-0.70	206	RO41	-1.56	251
BE35	0.29	134	ES41	-0.16	168	ITC2	-0.40	180	RO42	-1.86	258
BG31	-2.02	261	ES42	-0.03	157	ITC3	-0.87	221	SE11	1.34	16
BG32	-1.89	260	ES43	0.06	150	ITC4	-0.94	225	SE12	1.34	16
BG33	-1.40	246	ES51	-0.31	176	ITD1	-0.34	177	SE21	1.38	11
BG34	-1.87	259	ES52	-0.06	163	ITD2	-0.44	181	SE22	1.38	11
BG41	-1.76	255	ES53	-0.09	165	ITD3	-0.87	220	SE23	1.38	11
BG42	-1.43	248	ES61	-0.25	170	ITD4	-0.57	187	SE31	1.28	22
CY00	-0.05	162	ES62	0.02	152	ITD5	-0.84	219	SE32	1.28	22
CZ00	-0.56	186	ES63	-0.26	171	ITE1	-0.91	224	SE33	1.28	22
CZ03	-0.34	178	ES64	-0.26	171	ITE2	-0.73	209	SI01	-0.29	173
CZ04	-0.74	213	ES70	-0.01	155	ITE3	-0.83	217	SI02	-0.29	173
CZ05	-0.36	179	FI18	1.57	1	ITE4	-1.21	238	SK01	-0.67	202
CZ06	-0.51	183	FI19	1.57	1	ITF1	-1.04	226	SK02	-0.83	218
CZ07	-0.52	184	FI1D	1.57	1	ITF2	-1.19	236	SK03	-0.76	215
CZ08	-0.47	182	FI20	1.57	1	ITF3	-1.69	254	SK04	-0.77	216
DE00	0.81	62	FR10	0.43	121	ITF4	-1.41	247	UK00	0.66	110
DE11	0.81	62	FR21	0.30	133	ITF5	-1.20	237	UKC1	0.79	75
DE12	0.81	62	FR22	0.42	122	ITF6	-1.62	252	UKC2	0.79	75
DE13	0.81	62	FR23	0.23	140	ITG1	-1.45	249	UKD1	0.85	53
DE14	0.72	96	FR24	0.45	120	ITG2	-1.07	227	UKD2	0.85	53
DE21	0.72	96	FR25	0.40	125	LT00	-0.73	208	UKD3	0.85	53
DE22	0.72	96	FR26	0.38	128	LU00	1.25	27	UKD4	0.85	53
DE23	0.72	96	FR30	0.39	127	LV00	-0.74	212	UKD5	0.85	53
DE24	0.72	96	FR41	0.29	138	MT00	0.20	142	UKE1	0.69	103
DE25	0.72	96	FR42	0.38	129	NL00	1.31	21	UKE2	0.69	103
DE26	0.72	96	FR43	0.40	124	NL11	1.46	6	UKE3	0.69	103
DE27	0.80	67	FR51	0.33	132	NL12	1.46	6	UKE4	0.69	103
DE50	0.79	69	FR52	0.65	115	NL13	1.46	6	UKF1	0.96	31
DE60	0.79	68	FR53	0.53	118	NL21	1.28	25	UKF2	0.96	31
DE71	0.67	107	FR61	0.56	116	NL22	1.28	25	UKF3	0.96	31
DE72	0.67	107	FR62	0.35	131	NL31	1.32	18	UKG1	0.77	80
DE73	0.67	107	FR63	0.47	119	NL33	1.32	18	UKG2	0.77	80
DE80	0.79	74	FR71	0.54	117	NL34	1.32	18	UKG3	0.77	80
DE91	0.79	70	FR72	0.41	123	NL41	1.22	28	UKH1	0.73	90
DE92	0.79	70	FR81	0.37	130	NL42	1.22	28	UKJ1	0.90	43
DE93	0.79	70	FR82	0.27	139	PL11	-0.62	196	UKJ2	0.90	43
DE94	0.79	70	FR83	0.16	144	PL12	-0.70	207	UKJ3	0.90	43
DEA1	0.72	91	FR91	-0.10	166	PL21	-0.65	200	UKJ4	0.90	43
DEA2	0.72	91	FR92	-0.01	156	PL22	-0.73	210	UKK1	0.86	48
DEA3	0.72	91	FR93	0.02	151	PL31	-0.63	198	UKK2	0.86	48
DEA4	0.72	91	FR94	0.10	147	PL32	-0.65	199	UKK3	0.86	48
DEA5	0.72	91	GR11	-1.35	241	PL33	-0.63	197	UKK4	0.86	48
DEB1	0.74	85	GR12	-1.35	241	PL34	-0.68	204	UKL1	0.74	88
DEB2	0.74	85	GR13	-1.35	241	PL41	-0.73	211	UKL2	0.74	88
DEB3	0.74	85	GR14	-1.35	241	PL42	-0.66	201	UKM2	0.94	36
DEC0	0.80	66	GR21	-1.11	228	PL43	-0.69	205	UKM3	0.94	36
DED1	0.84	58	GR22	-1.11	228	PL51	-0.76	214	UKM5	0.94	36
DED2	0.84	58	GR23	-1.11	228	PL52	-0.56	185	UKM6	0.94	36
DED3	0.84	58	GR24	-1.11	228	PL61	-0.68	203	UKN0	0.75	83
DEE0	0.75	84	GR25	-1.11	228						

Table 16: Institutions pillar: reordered regions from best performer to lowest performer

Reordered regions (from best to worst)												
FI18	1	UKJ3	43	UKL2	88	FR21	133	ITD1	177	ITD3	220
FI19	1	UKJ4	43	UKH1	90	BE32	134	CZ03	178	ITC3	221
FI1D	1	AT00	47	DEA1	91	BE33	134	CZ05	179	GR30	222
FI20	1	UKK1	48	DEA2	91	BE34	134	ITC2	180	HU10	223
DK04	5	UKK2	48	DEA3	91	BE35	134	ITD2	181	ITE1	224
NL11	6	UKK3	48	DEA4	91	FR41	138	CZ08	182	ITC4	225
NL12	6	UKK4	48	DEA5	91	FR82	139	CZ06	183	ITF1	226
NL13	6	AT32	52	DE14	96	FR23	140	CZ07	184	ITG2	227
DK02	9	UKD1	53	DE21	96	PT18	141	PL52	185	GR21	228
DK03	10	UKD2	53	DE22	96	MT00	142	CZ00	186	GR22	228
SE21	11	UKD3	53	DE23	96	ES21	143	ITD4	187	GR23	228
SE22	11	UKD4	53	DE24	96	FR83	144	PL62	188	GR24	228
SE23	11	UKD5	53	DE25	96	ES11	145	HU21	189	GR25	228
DK05	14	DED1	58	DE26	96	PT20	146	HU22	189	GR41	233
DK01	15	DED2	58	UKE1	103	FR94	147	HU23	189	GR42	233
SE11	16	DED3	58	UKE2	103	EE00	148	PL63	192	GR43	233
SE12	16	AT31	61	UKE3	103	ES12	149	HU31	193	ITF2	236
NL31	18	DE00	62	UKE4	103	ES43	150	HU32	193	ITF5	237
NL33	18	DE11	62	DE71	107	FR93	151	HU33	193	ITE4	238
NL34	18	DE12	62	DE72	107	ES62	152	PL11	196	HR03	239
NL00	21	DE13	62	DE73	107	ES24	153	PL33	197	HR04	239
SE31	22	DEC0	66	UK00	110	ES23	154	PL31	198	GR11	241
SE32	22	DE27	67	BE21	111	ES70	155	PL32	199	GR12	241
SE33	22	DE60	68	BE22	111	FR92	156	PL21	200	GR13	241
NL21	25	DE50	69	BE23	111	ES42	157	PL42	201	GR14	241
NL22	25	DE91	70	BE25	111	ES13	158	SK01	202	RO11	245
LU00	27	DE92	70	FR52	115	PT30	159	PL61	203	BG33	246
NL41	28	DE93	70	FR61	116	PT17	160	PL34	204	ITF4	247
NL42	28	DE94	70	FR71	117	PT15	161	PL43	205	BG42	248
AT11	30	DE80	74	FR53	118	CY00	162	ITC1	206	ITG1	249
UKF1	31	UKC1	75	FR63	119	ES52	163	PL12	207	RO12	250
UKF2	31	UKC2	75	FR24	120	ES22	164	LT00	208	RO41	251
UKF3	31	IE01	77	FR10	121	ES53	165	ITE2	209	ITF6	252
AT21	34	IE02	77	FR22	122	FR91	166	PL22	210	RO31	253
DEG0	35	AT22	79	FR72	123	PT16	167	PL41	211	ITF3	254
UKM2	36	UKG1	80	FR43	124	ES41	168	LV00	212	BG41	255
UKM3	36	UKG2	80	FR25	125	ES30	169	CZ04	213	RO22	256
UKM5	36	UKG3	80	BE00	126	ES61	170	PL51	214	RO21	257
UKM6	36	UKN0	83	FR30	127	ES63	171	SK03	215	RO42	258
AT33	40	DEE0	84	FR26	128	ES64	171	SK04	216	BG34	259
DEF0	41	DEB1	85	FR42	129	SI01	173	ITE3	217	BG32	260
AT34	42	DEB2	85	FR81	130	SI02	173	SK02	218	BG31	261
UKJ1	43	DEB3	85	FR62	131	PT11	175	ITD5	219	RO32	262
UKJ2	43	UKL1	88	FR51	132	ES51	176				

4.2 Macroeconomic stability

The pillar is at the country level only, as in RCI 2010. The initial candidate indicators are the same as those in the previous version (Table 17 and Figure 13), but recent data show some interesting features. First, government surplus is not present any longer for any country. Sweden is the only country with a zero balance, all the others show deficits. Second, the statistical assessment suggests Inflation as being not fully consistent with the other indicators (Table 18 and Figure 14), while in the previous RCI version Government debt was excluded due to a low level of consistency. Updated indicators reflect the economic and financial crisis and the different economic policies adopted by different countries with different monetary policies. For instance, inflation can be used as a countermeasure only in the non-euro zone as a simple analysis of variance (Bohrnstedt & Knoke, 1988) suggests: the average inflation rate of the non-euro zone is significantly higher than that of the euro-zone (p-value = 0.008), as can be seen in Table 19. The inflation indicator cannot be used any longer to describe overall macroeconomic stability for the EU as a whole as has been used as an instrument to control the crisis. Inflation is discarded from RCI 2013.

It is important to notice that, even with the exclusion of Inflation, the level of consistency of the pillar is pretty low with the first component accounting for only 51% of total variability and a second one accounting for 17%. We cannot say that the set of indicators underlies a single concept in this case. Macroeconomic stability proves to be a complex, multi-facet phenomenon, especially in a period of economic crisis.

Macroeconomic stability scores distributions is shown in Figure 15, while scores and ranks are displayed in Table 20 and Figure 16.

Table 17: Macroeconomic stability: summary description of candidate indicators

Indicator name	Government surplus/deficit	National savings	Inflation	Government bond yields	Government debt
description of indicator	government surplus (+) or deficit (-) as % of GDP	national savings as % of GDP	annual average rate of change in Harmonised Indices of Consumer Prices (HICP)	EMU convergence criterion bond yields	government debt as a % of GDP
source	Eurostat	Eurostat	Eurostat	Eurostat	Eurostat
reference year	average 2009-2011	average 2009-2011	average 2009-2011	average 2009-2011	average 2009-2011
orientation	↑	↑	↓	↓	↓
% of missing values	0	7.1	0	3.6	0.0
missing countries	-	HR, LU	-	HR	-
average	-5.5	18.6	2.2	5.0	60.2
standard deviation	4.0	5.6	1.2	2.3	32.0
coefficient of variation	-0.7	0.3	0.5	0.5	0.5
skewness	1.41	0.83	0.80	0.50	0.73
skewness correction	no*	no	no	no	no
maximum value	0.0	25.5	5.8	10.0	149.5
country corresponding to maximum value	SE	SE	RO	GR	GR
minimum value	-19.4	4.4	-0.7	0.0	6.7
country corresponding to minimum value	IE	GR	IE	EE	EE
population weighted average	-6.13	18.47	2.20	4.39	75.26
population weighted standard deviation	3.14	4.39	1.17	1.76	26.65

* The high level of skewness of Government surplus/deficit is due to a very low value of IE. Due to the nature of the indicator, it was decided not to modify the distribution.

Shadowed indicators Excluded from final computations because not fitting according to PCA

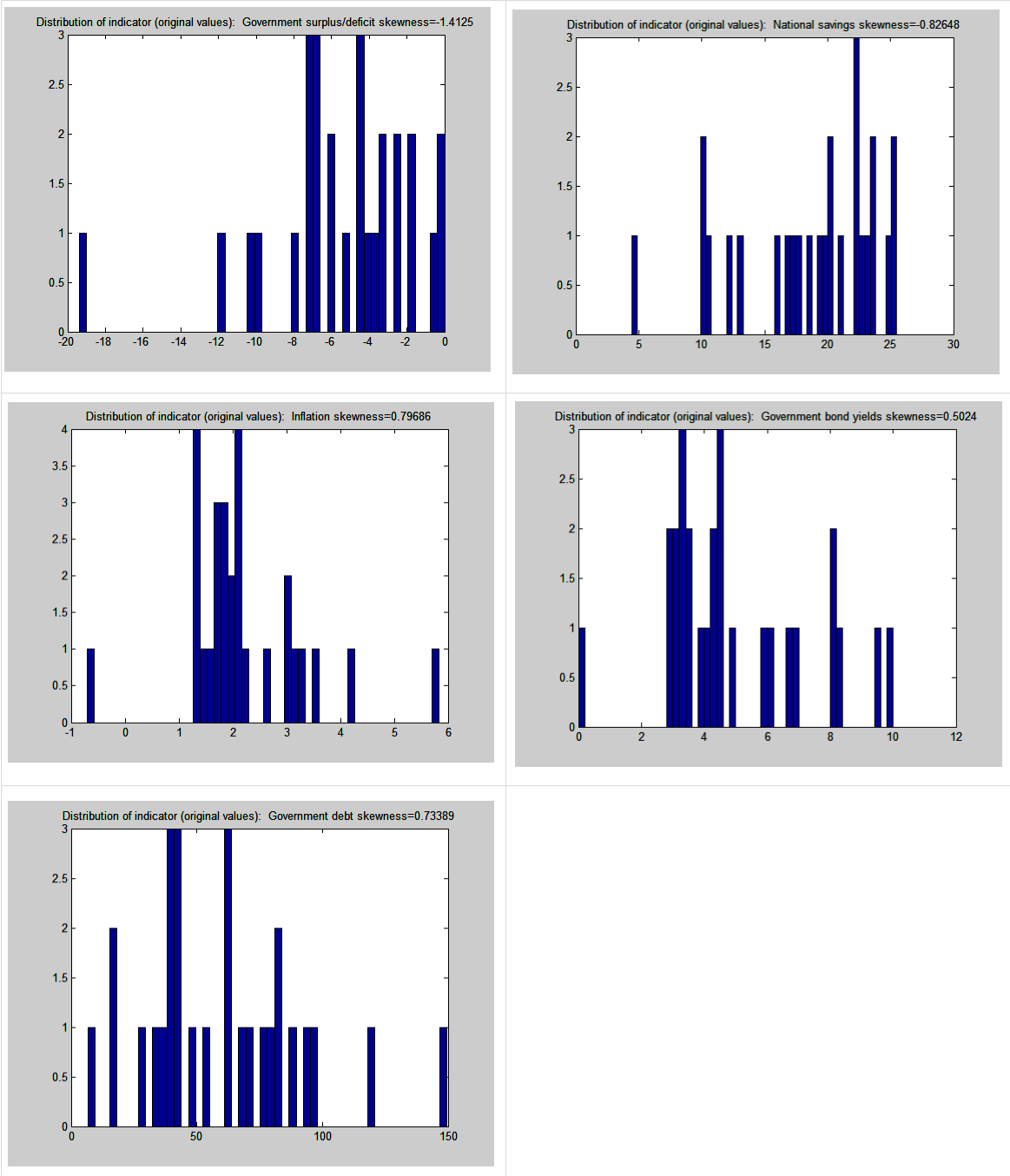


Figure 13: Macroeconomic stability: indicator histograms

Table 18: Macroeconomic stability: PCA outcomes

Number of indicators included	Variance explained by first PC	First PC loadings	
		Min value (corresponding indicator)	Max value (corresponding indicator)
5	51%	0.04 (Inflation)	0.55 (Gov. surplus/deficit)

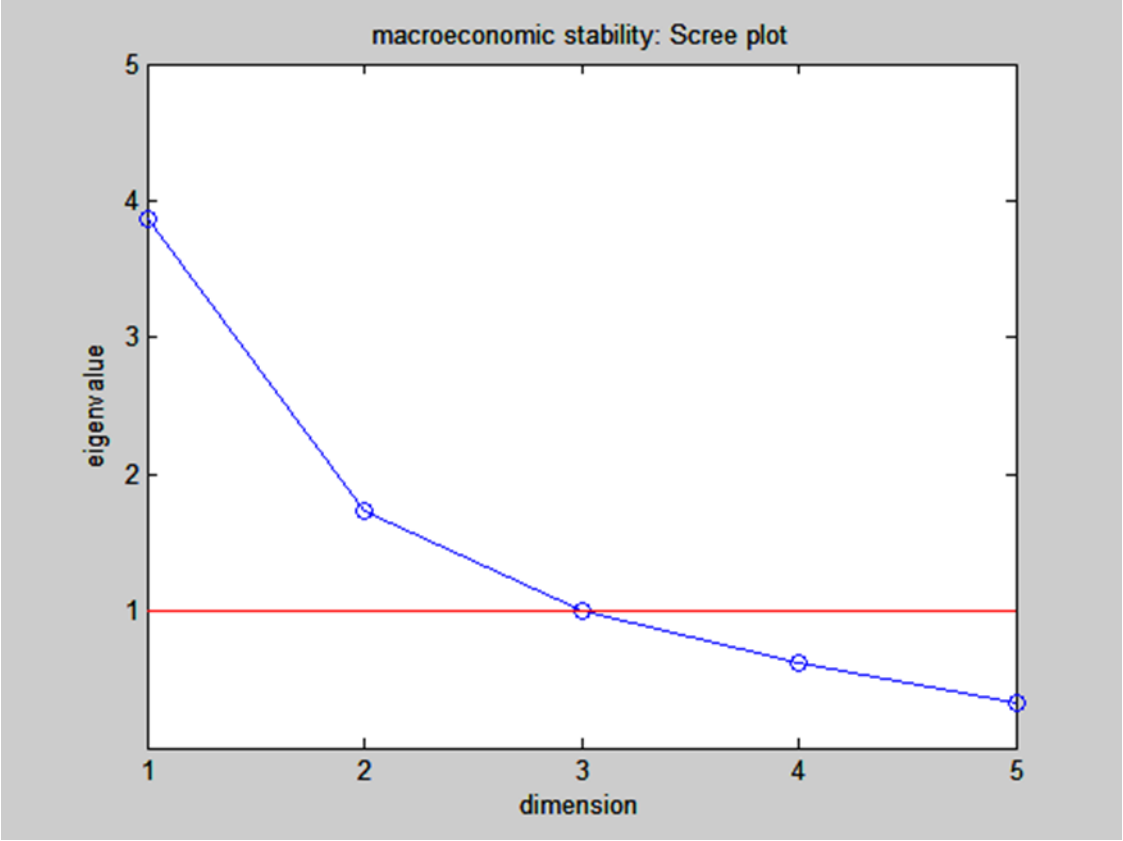


Figure 14: Macroeconomic stability: PCA scree plot

Table 19: ANOVA results for inflation euro-zone (1) vs non euro-zone (0)

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	8.608	1	8.608	8.259	.008
Within Groups	27.099	26	1.042		
Total	35.707	27			
eurozone_ind	**Mean**	**N**	**Std. Deviation**		
0	2.9000	11	1.31833		
1	1.7647	17	.77938		
Total	2.2107	28	1.14999		

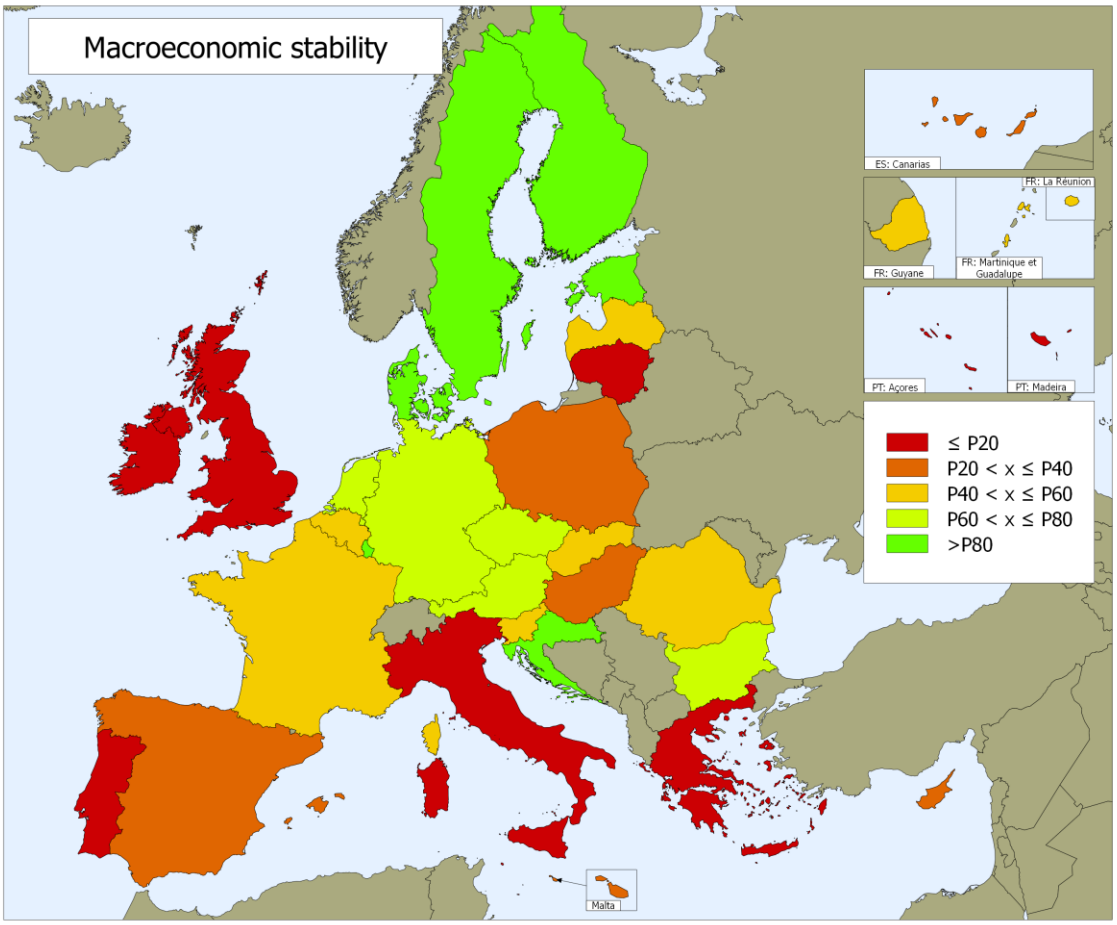


Figure 15: Macroeconomic stability: score distribution

Table 20: Macroeconomic stability: country scores and ranks

country	scores	ranks
AT	0.71	9
BE	0.24	14
BG	0.78	7
CY	-0.41	22
CZ	0.61	11
DE	0.74	8
DK	1.00	4
EE	2.04	1
ES	-0.21	21
FI	0.86	6
FR	-0.01	16
GR	-2.76	28
HR	0.96	5
HU	-0.15	19
IE	-1.88	27
IT	-0.42	24
LT	-0.42	23
LU	1.49	2
LV	-0.09	17
MT	-0.20	20
NL	0.66	10
PL	-0.14	18
PT	-1.15	26
RO	0.05	15
SE	1.43	3
SI	0.47	12
SK	0.34	13
UK	-0.46	25

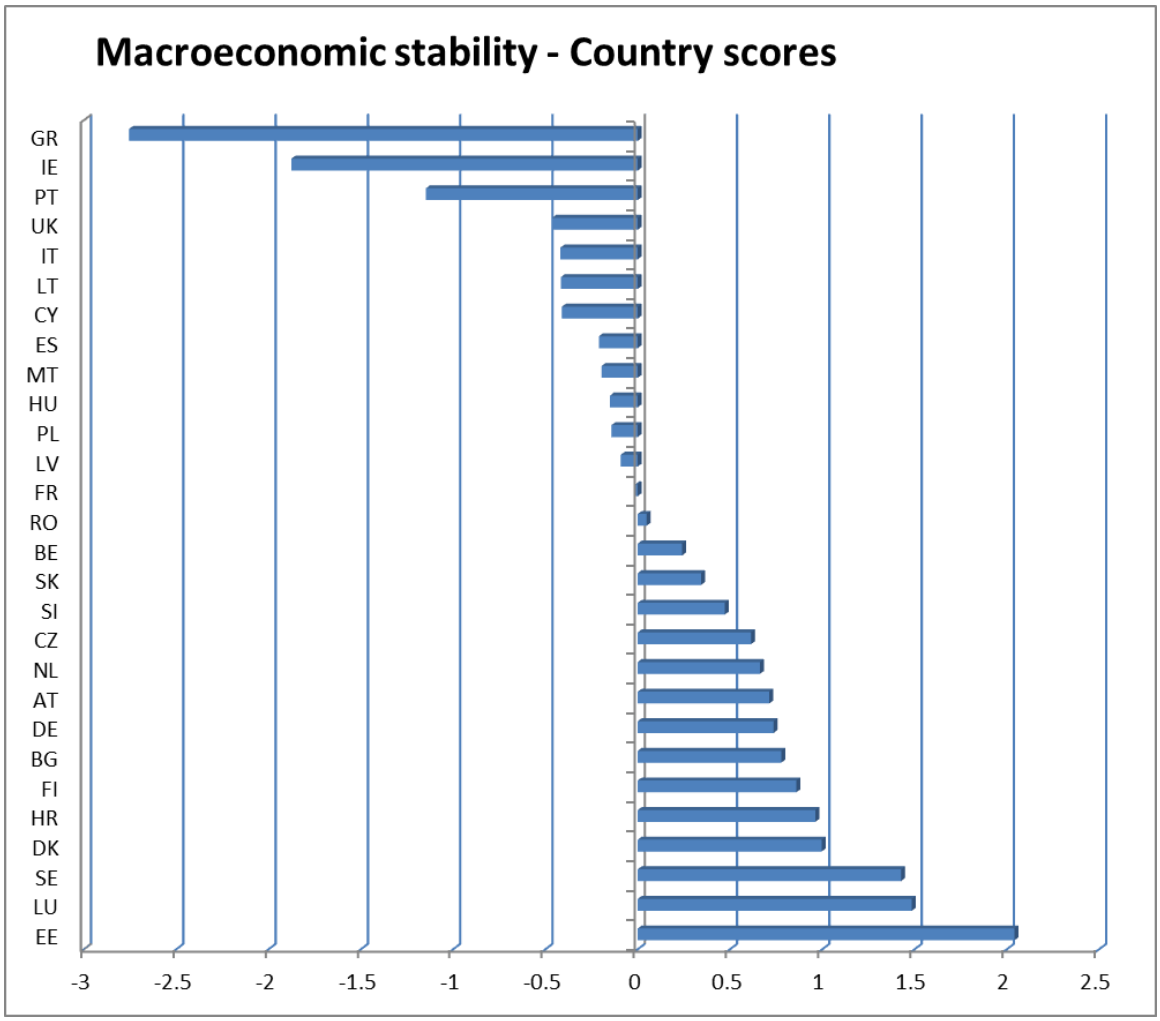


Figure 16: Macroeconomic stability: reordered countries

4.3 Infrastructure

A major modification is adopted for this pillar as the two indicators on motorway and railway density are substituted by motorway and railway potential accessibility indicators, computed by Spiekerman and Wegener at the request of DG Regio (European Commission, 2010a, p. 56 and 60). Both indicators take into account ferry networks allowing for correcting islands penalization.

The computation of potential accessibility indicators is based on the assumption that the attraction of a destination increases with size, and declines with travel time. Destination size is represented by population. Accessibility to population is seen as an indicator for the size of market areas for suppliers of goods and services. Potential accessibility is founded on sound behavioral principles but contains parameters that need to be calibrated and their values cannot be expressed in familiar units. Potential accessibility is a construct of two functions, the activity function representing the activities or opportunities to be reached and the impedance function representing the effort, time, distance or cost needed to reach them (impedance function) (Spiekermann, Wegener, & Copus, 2002). For potential accessibility the two functions are combined multiplicatively, i.e. they are weights to each other and both are necessary elements of accessibility: The interpretation is that the greater the number of attractive destinations in areas *j* and the more accessible areas *j* are from area *i*, the greater the accessibility of area *i*. The accessibility model used in RCI 2013 is based on the work of Spiekermann and Wegener (1996) and uses centroids of NUTS 2 regions as origins and destinations. The accessibility model calculates the minimum paths for the road network, i.e. minimum travel times between the centroids of the NUTS 2 regions. For each region the value of the potential accessibility indicator is calculated by summing up the population in all other regions weighted by the travel time to go there. For access to the region to itself, the time to the centroid of the region is used, while for access to other regions: (*i*) travel time over the network between the two centroids plus the (*ii*) access from the destination centroid to the destination region are used. The potential accessibility indicators use population and give the highest weight to the population that can be reached within four hours.

The indicator on passenger flights is the same as that included in RCI 2010: it is from Eurostat/EuroGeographics/National Statistical Institutes and corresponds to the daily number of passenger flights accessible within 90' drive from the region center.

All indicators are positively associated to the concept of regional competitiveness as shown in Table 21.

Table 21: Infrastructure: summary description of candidate indicators.

Indicator name	Motorway potential accessibility	Railway potential accessibility	Number of passenger flights
description of indicator	population living in surrounding regions weighted by travel time along motorways	population living in surrounding regions weighted by travel time along railways	daily number of passenger flights (accessible within 90'drive)
source	DG Regio	DG Regio	Eurostat/EuroGeographics/ National Statitical Institutes
reference year	2010	2010	2010
orientation	↑	↑	↑
% of missing values	2.29	2.29	0.00
missing regions	FR91 -> FR94; HR03, HR04	FR91 -> FR94; HR03, HR04	-
average	87.30	83.49	440.46
standard deviation	73.80	69.11	536.55
coefficient of variation	0.85	0.83	1.22
skewness	0.86	0.91	1.88
skewness correction	no	no	yes with λ=0.5
maximum value	299.21	295.97	2840.27
country corresponding to maximum value	DEA1	BE00	UKJ1
minimum value	0.89	1.17	0.00
country corresponding to minimum value	GR41	FI20	FR91
population weighted average	99.90	100.03	39.59
population weighted standard deviation	75.65	72.09	25.01

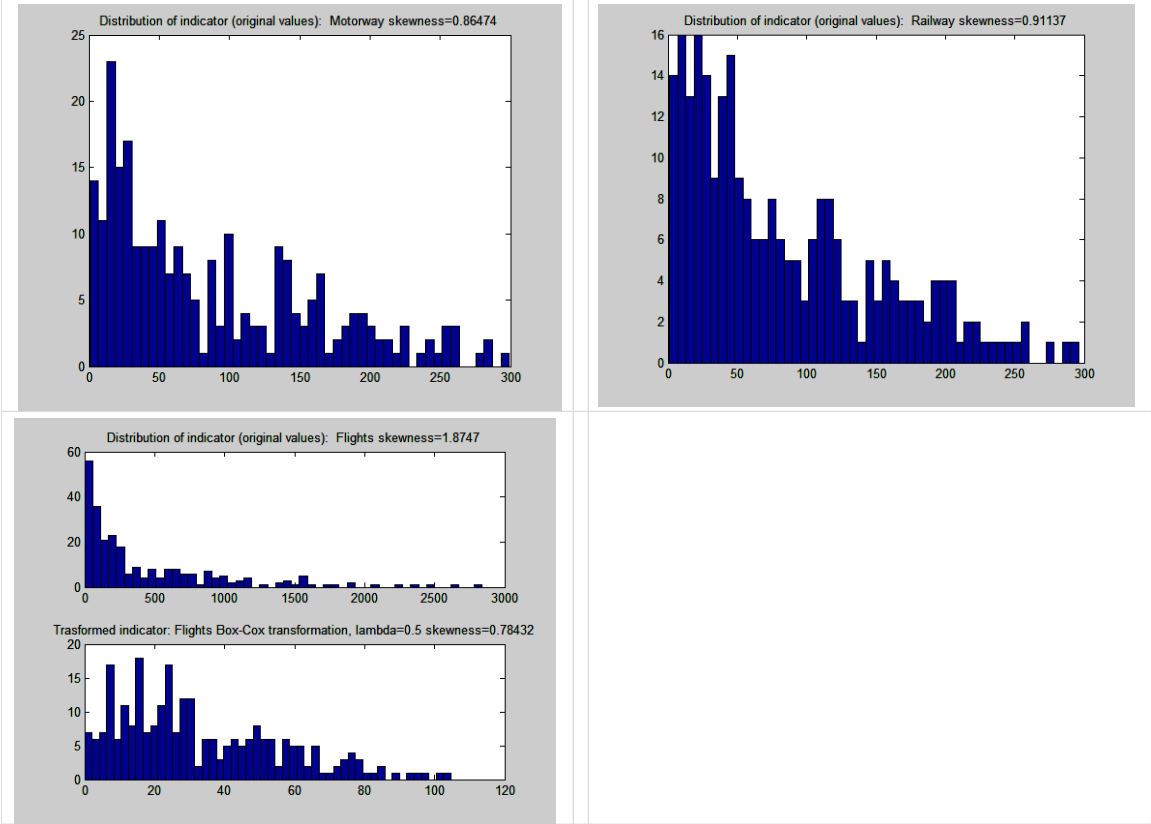


Figure 17: Infrastructure: indicator histograms

Table 22: Infrastructure: correlation matrix

Correlation Matrix

		Motorway potential accessibility	Railway potential accessibility	Number of passenger flights
Correlation	Motorway potential accessibility	1.000	.959	.796
	Railway potential accessibility	.959	1.000	.806
	Number of passenger flights	.796	.806	1.000
p-value	Motorway potential accessibility	1.000	.000	.000
	Railway potential accessibility	.000	1.000	.000
	Number of passenger flights	.000	.000	1.000

Table 22 shows pairwise correlations and associated *p*-values of the three infrastructure indicators. This high level of correlation is, as expected, associated to a high level of consistency as shown by PCA results summarized in Table 23 and Figure 18. The share of

variance explained by the first principal component is 91% and the scree plot shows a steep trend from the first to the second component, suggesting that the indicators included are indeed measuring a single latent phenomenon. The analysis of the PC loadings, which are always statistically significant, shows that almost all the indicators contribute to the first PC to the same extent.

Table 23: Infrastructure: PCA outcomes

Number of indicators included	Variance explained by first PC	First PC loadings	
		Min value (corresponding indicator)	Max value (corresponding indicator)
3	91%	0.53 (# of passenger flights)	0.60 (Motorway pot. accessibility)

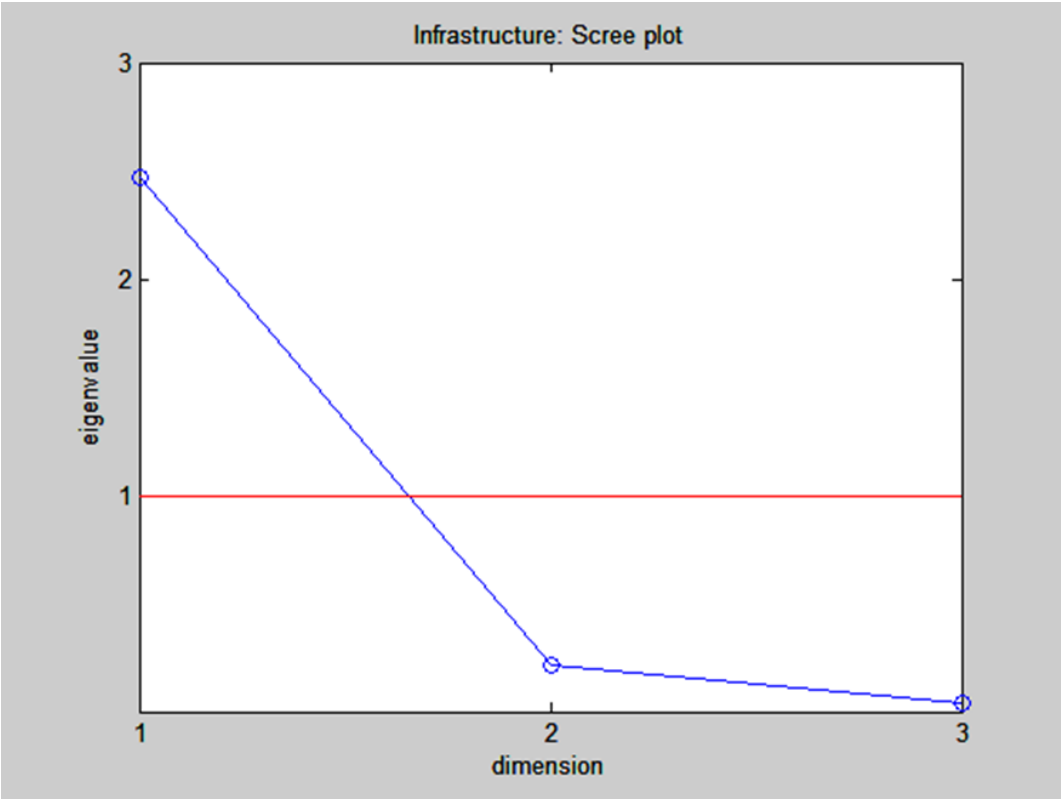


Figure 18: Infrastructure: PCA scree plot

The map of Infrastructure scores is shown in Figure 19. Table 24 and Table 25 list regions scores and ranks.

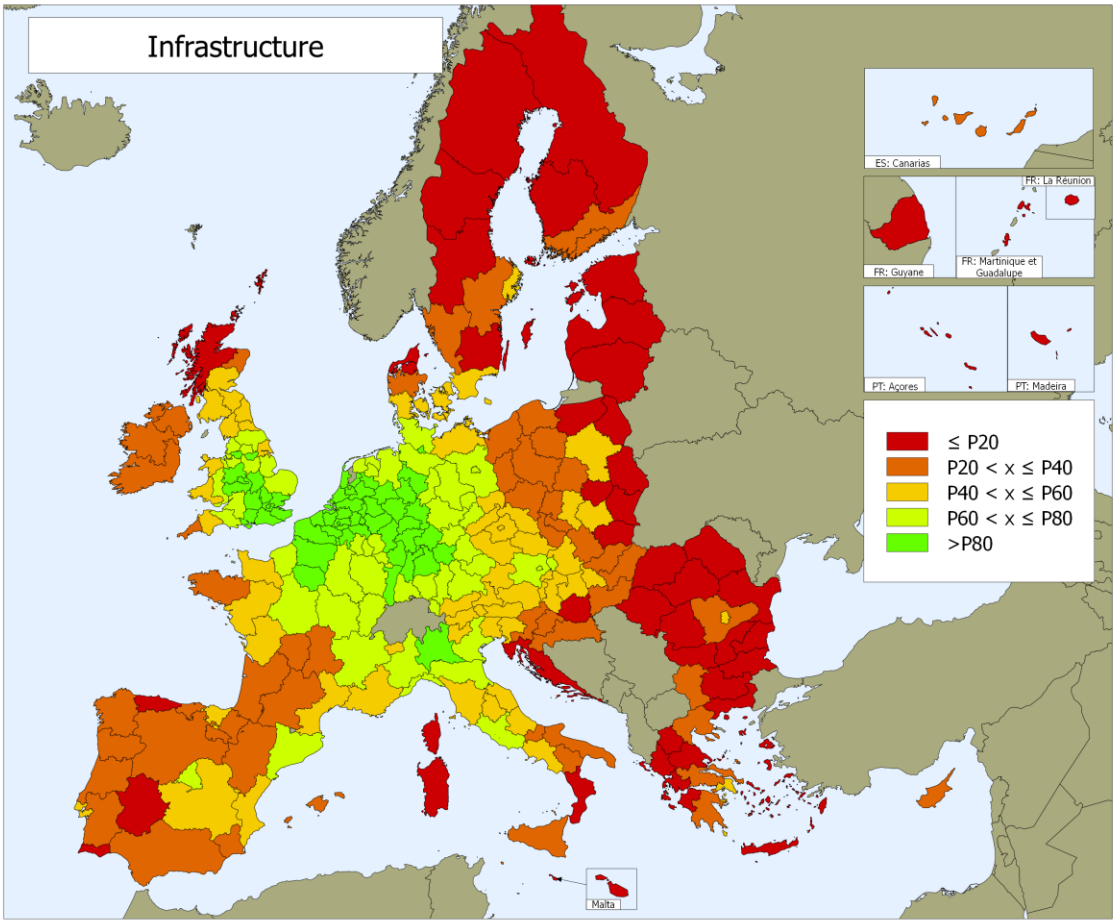


Figure 19: Infrastructure: score distribution

Table 24: Infrastructure: region scores and ranks

Region	scores	ranks	Region	scores	ranks	Region	scores	ranks	Region	scores	ranks
AT00	0.00	91	DEF0	0.02	87	GR30	-0.32	111	PL62	-1.16	229
AT11	-0.29	110	DEG0	-0.07	97	GR41	-1.32	255	PL63	-0.97	198
AT21	-0.64	145	DK01	-0.39	118	GR42	-1.26	247	PT11	-0.77	160
AT22	-0.65	147	DK02	-0.40	119	GR43	-1.16	228	PT15	-1.04	208
AT31	-0.45	125	DK03	-0.72	151	HR03	-1.10	216	PT16	-0.83	173
AT32	-0.49	134	DK04	-0.84	174	HR04	-0.93	190	PT17	-0.51	136
AT33	-0.19	102	DK05	-1.04	209	HU10	-0.39	117	PT18	-0.86	181
AT34	0.16	78	EE00	-1.21	235	HU21	-0.55	140	PT20	-1.30	253
BE00	1.78	7	ES11	-0.94	193	HU22	-0.47	130	PT30	-1.23	242
BE21	1.92	6	ES12	-1.09	214	HU23	-1.15	225	RO11	-1.20	233
BE22	1.71	10	ES13	-0.93	192	HU31	-0.90	186	RO12	-1.15	223
BE23	1.38	22	ES21	-0.73	153	HU32	-1.00	204	RO21	-1.21	237
BE25	1.04	34	ES22	-0.93	189	HU33	-0.93	191	RO22	-1.22	238
BE32	1.19	25	ES23	-0.89	185	IE01	-0.95	195	RO31	-0.90	187
BE33	1.99	2	ES24	-0.98	200	IE02	-0.80	167	RO32	-0.61	143
BE34	0.38	65	ES30	0.45	61	ITC1	0.28	70	RO41	-1.25	246
BE35	1.18	26	ES41	-0.82	170	ITC2	-0.20	103	RO42	-1.13	221
BG31	-1.20	234	ES42	-0.46	128	ITC3	0.02	90	SE11	-0.45	126
BG32	-1.21	236	ES43	-1.23	241	ITC4	0.78	44	SE12	-0.80	165
BG33	-1.15	226	ES51	-0.06	95	ITD1	-0.47	132	SE21	-1.11	218
BG34	-1.19	232	ES52	-0.65	146	ITD2	-0.34	113	SE22	-0.43	124
BG41	-0.97	199	ES53	-0.86	180	ITD3	0.15	80	SE23	-0.82	169
BG42	-1.09	215	ES61	-0.84	179	ITD4	-0.40	122	SE31	-1.12	219
CY00	-1.01	205	ES62	-0.77	161	ITD5	0.20	76	SE32	-1.29	250
CZ00	-0.18	101	ES63	-1.32	256	ITE1	-0.21	104	SE33	-1.28	249
CZ03	-0.49	135	ES64	-1.34	257	ITE2	-0.40	121	SI01	-0.78	162
CZ04	-0.23	108	ES70	-0.96	196	ITE3	-0.73	154	SI02	-0.67	149
CZ05	-0.57	141	FI18	-0.75	157	ITE4	0.33	67	SK01	-0.02	92
CZ06	-0.46	127	FI19	-1.14	222	ITF1	-0.64	144	SK02	-0.48	133
CZ07	-0.80	166	FI1D	-1.31	254	ITF2	-0.84	177	SK03	-1.03	207
CZ08	-0.74	156	FI20	-1.36	258	ITF3	-0.33	112	SK04	-1.08	213
DE00	0.52	59	FR10	1.64	14	ITF4	-0.83	171	UK00	1.63	15
DE11	0.85	38	FR21	0.28	71	ITF5	-0.89	184	UKC1	-0.24	109
DE12	1.41	21	FR22	0.98	35	ITF6	-1.05	211	UKC2	-0.36	115
DE13	0.64	52	FR23	0.14	81	ITG1	-0.95	194	UKD1	-0.47	131
DE14	0.35	66	FR24	0.14	83	ITG2	-1.16	231	UKD2	0.71	50
DE21	0.55	56	FR25	-0.66	148	LT00	-1.12	220	UKD3	0.75	48
DE22	0.16	79	FR26	-0.03	93	LU00	0.30	69	UKD4	0.50	60
DE23	0.31	68	FR30	1.26	23	LV00	-1.06	212	UKD5	0.40	63
DE24	0.12	85	FR41	0.02	88	MT00	-1.16	230	UKE1	-0.22	107
DE25	0.75	47	FR42	0.76	46	NL00	1.10	32	UKE2	0.19	77
DE26	1.06	33	FR43	-0.10	98	NL11	-0.16	99	UKE3	0.81	41
DE27	0.53	57	FR51	-0.36	116	NL12	0.24	73	UKE4	0.58	54
DE50	0.77	45	FR52	-0.84	175	NL13	0.13	84	UKF1	0.65	51
DE60	0.82	40	FR53	-0.69	150	NL21	1.13	29	UKF2	1.16	28
DE71	1.75	9	FR61	-0.75	158	NL22	1.66	12	UKF3	0.02	89
DE72	1.52	17	FR62	-0.74	155	NL31	1.76	8	UKG1	0.93	36
DE73	0.79	42	FR63	-0.99	203	NL33	1.56	16	UKG2	0.78	43
DE80	-0.40	123	FR71	0.06	86	NL34	0.82	39	UKG3	1.13	31
DE91	0.42	62	FR72	-0.83	172	NL41	1.98	4	UKH1	0.28	72
DE92	0.74	49	FR81	-0.57	142	NL42	1.99	3	UKJ1	1.49	18
DE93	0.39	64	FR82	-0.22	106	PL11	-0.79	164	UKJ2	1.18	27
DE94	0.23	74	FR83	-1.23	240	PL12	-0.54	138	UKJ3	1.13	30
DEA1	1.97	5	FR91	-1.58	259	PL21	-0.72	152	UKJ4	1.24	24
DEA2	2.13	1	FR92	-1.58	259	PL22	-0.54	139	UKK1	0.62	53
DEA3	1.46	19	FR93	-1.58	259	PL31	-1.15	224	UKK2	-0.07	96
DEA4	0.86	37	FR94	-1.58	259	PL32	-1.11	217	UKK3	-0.99	201
DEA5	1.68	11	GR11	-1.25	244	PL33	-1.05	210	UKK4	-0.54	137
DEB1	1.65	13	GR12	-0.96	197	PL34	-1.24	243	UKL1	-0.46	129
DEB2	0.52	58	GR13	-1.22	239	PL41	-0.86	183	UKL2	-0.05	94
DEB3	1.46	20	GR14	-1.25	245	PL42	-0.84	176	UKM2	-0.40	120
DEC0	0.57	55	GR21	-1.29	251	PL43	-0.78	163	UKM3	-0.35	114
DED1	-0.17	100	GR22	-1.27	248	PL51	-0.81	168	UKM5	-0.84	178
DED2	-0.22	105	GR23	-1.30	252	PL52	-0.75	159	UKM6	-1.16	227
DED3	0.14	82	GR24	-0.91	188	PL61	-0.99	202	UKN0	-0.86	182
DEE0	0.20	75	GR25	-1.02	206						

Table 25: Infrastructure: reordered regions from best performer to lowest performer

Reordered regions (from best to worst)											
DEA2	1	DE50	45	UKF3	89	SK02	133	ITF2	177	LT00	220
BE33	2	FR42	46	ITC3	90	AT32	134	UKM5	178	RO42	221
NL42	3	DE25	47	AT00	91	CZ03	135	ES61	179	FI19	222
NL41	4	UKD3	48	SK01	92	PT17	136	ES53	180	RO12	223
DEA1	5	DE92	49	FR26	93	UKK4	137	PT18	181	PL31	224
BE21	6	UKD2	50	UKL2	94	PL12	138	UKN0	182	HU23	225
BE00	7	UKF1	51	ES51	95	PL22	139	PL41	183	BG33	226
NL31	8	DE13	52	UKK2	96	HU21	140	ITF5	184	UKM6	227
DE71	9	UKK1	53	DEG0	97	CZ05	141	ES23	185	GR43	228
BE22	10	UKE4	54	FR43	98	FR81	142	HU31	186	PL62	229
DEA5	11	DEC0	55	NL11	99	RO32	143	RO31	187	MT00	230
NL22	12	DE21	56	DED1	100	ITF1	144	GR24	188	ITG2	231
DEB1	13	DE27	57	CZ00	101	AT21	145	ES22	189	BG34	232
FR10	14	DEB2	58	AT33	102	ES52	146	HR04	190	RO11	233
UK00	15	DE00	59	ITC2	103	AT22	147	HU33	191	BG31	234
NL33	16	UKD4	60	ITE1	104	FR25	148	ES13	192	EE00	235
DE72	17	ES30	61	DED2	105	SI02	149	ES11	193	BG32	236
UKJ1	18	DE91	62	FR82	106	FR53	150	ITG1	194	RO21	237
DEA3	19	UKD5	63	UKE1	107	DK03	151	IE01	195	RO22	238
DEB3	20	DE93	64	CZ04	108	PL21	152	ES70	196	GR13	239
DE12	21	BE34	65	UKC1	109	ES21	153	GR12	197	FR83	240
BE23	22	DE14	66	AT11	110	ITE3	154	PL63	198	ES43	241
FR30	23	ITE4	67	GR30	111	FR62	155	BG41	199	PT30	242
UKJ4	24	DE23	68	ITF3	112	CZ08	156	ES24	200	PL34	243
BE32	25	LU00	69	ITD2	113	FI18	157	UKK3	201	GR11	244
BE35	26	ITC1	70	UKM3	114	FR61	158	PL61	202	GR14	245
UKJ2	27	FR21	71	UKC2	115	PL52	159	FR63	203	RO41	246
UKF2	28	UKH1	72	FR51	116	PT11	160	HU32	204	GR42	247
NL21	29	NL12	73	HU10	117	ES62	161	CY00	205	GR22	248
UKJ3	30	DE94	74	DK01	118	SI01	162	GR25	206	SE33	249
UKG3	31	DEE0	75	DK02	119	PL43	163	SK03	207	SE32	250
NL00	32	ITD5	76	UKM2	120	PL11	164	PT15	208	GR21	251
DE26	33	UKE2	77	ITE2	121	SE12	165	DK05	209	GR23	252
BE25	34	AT34	78	ITD4	122	CZ07	166	PL33	210	PT20	253
FR22	35	DE22	79	DE80	123	IE02	167	ITF6	211	FI1D	254
UKG1	36	ITD3	80	SE22	124	PL51	168	LV00	212	GR41	255
DEA4	37	FR23	81	AT31	125	SE23	169	SK04	213	ES63	256
DE11	38	DED3	82	SE11	126	ES41	170	ES12	214	ES64	257
NL34	39	FR24	83	CZ06	127	ITF4	171	BG42	215	FI20	258
DE60	40	NL13	84	ES42	128	FR72	172	HR03	216	FR91	259
UKE3	41	DE24	85	UKL1	129	PT16	173	PL32	217	FR92	259
DE73	42	FR71	86	HU22	130	DK04	174	SE21	218	FR93	259
UKG2	43	DEF0	87	UKD1	131	FR52	175	SE31	219	FR94	259
ITC4	44	FR41	88	ITD1	132	PL42	176				

4.4 Health

Candidate indicators for this pillar are the same as for the previous RCI edition and, as for RCI 2010, the indicator "Hospital Beds" (rate of hospital beds per 100,000 inhabitants) is discarded as not consistent with the rest of the indicators, as shown shortly below. Hospital beds will not be considered as a candidate indicator any longer.

The main difference with respect to the previous edition is the fact that no correction for outliers is adopted in this case that is no skewness correction is performed. We took this decision as extreme cases are exactly what we want to highlight in this particular case. Regions with high infant mortality rates or low healthy life expectancy are, and should be, duly accounted for. No "methodological discount" is allowed any longer for these cases.

A couple of additional remarks are also needed. Most updated data on road fatalities come from DG MOVE (CARE database) while data for the 2010 release come from Eurostat data. This source change implies some slight modifications for some countries and 2010 values cannot be considered fully comparable to 2013. To partially cope with this, we decided to take the 2008-2010 average for the road fatalities indicator from DG MOVE database. Missing values in the DG MOVE database are replaced by values from Eurostat database.

As regards suicide rate, the indicator can be biased as being more related to religious commitment than to people's wellbeing and happiness. Higher levels of religiosity seem to be inversely associated with suicide (Hilton, Fellingham, & Lyon, 2002) and this may be either due to a non-reporting attitude (many religions consider suicide as a grave sin) or to the actual socio-psychological helpfulness of religious activities. This suggests that suicide rate can be more linked to the particular community the individual belongs to rather than the overall quality of the environment the individual is living in. Suicide rate indicator shows indeed the least level of consistency with the other indicators (see PCA analysis below) but we nevertheless decided to keep it in the pillar, as it was in RCI 2010.

The summary description of the indicators included in the pillar is provided by Table 26 where the indicators "Hospital beds" is shadowed because it is excluded from the analysis as not fitting the pillar (see PCA outcomes below). Histograms are shown in Figure 20.

From the correlation matrix (Table 27) both Hospital beds and Suicide rate are not significantly correlated to Road Fatalities and Infant Mortality. Each of these indicators is indeed carrying different pieces of information. To what extent is it plausible to aggregate them? PCA analysis may help to judge. Two dimensions are hidden by the seven indicators explaining respectively 51 and 17% of total variance (Figure 21 and Table 28). Hospital beds indicator gives the lowest contribution to the most relevant component while mostly contributes to the second one. As aforementioned, it is therefore excluded from the analysis. Suicide rate is the second lowest contributor to the first component but is kept in the pillar all the same as it was for the 2010 release of the index.

With the exclusion of Hospital beds the variance accounted for by the first PCA component is 58%.

The map of Health scores across EU regions is shown in Figure 22. Table 29 and Table 30 list regions scores and ranks.

Table 26: Health: summary description of candidate indicators.

Indicator name	Hospital beds	Road fatalities (average 08-10)	Healthy life expectancy	Infant mortality	Cancer disease death rate	Heart disease	Suicide
description of indicator	rate of hospital beds per 100,000 inhabitants	number of deaths in road accidents per million inhabitants	number of years of healthy life expected	number of deaths of children under 1 year of age during the year to the number of live births in that year	standardized cancer death rate for population under 65	standardized heart diseases death rate for population under 65	standardized death rate for suicide for population under 65
source	Eurostat Regional Statistics	DG MOVE+ENER-SRD, CARE database	Eurostat/DG Regional Policy	Eurostat Regional Statistics	Eurostat	Eurostat	Eurostat
reference year	2010	average 2008-2010	2010	2010	average 2007-09	average 2007-09	average 2007-09
orientation	↑	↓	↑	↓	↓	↓	↓
% of missing values	10.30	0.00	0.00	0.00	0.00	0.00	0.00
missing regions	UK00 --> UKK4	-	-	-	-	-	-
average	566.09	81.34	73.05	4.08	77.10	50.41	9.87
standard deviation	204.46	41.30	4.07	1.96	20.25	34.94	4.77
coefficient of variation	0.36	0.51	0.06	0.48	0.26	0.69	0.48
skewness	0.26	1.10	-1.01	2.36	1.57	1.94	1.12
skewness correction*	no	no	no	no	no	no	no
maximum value	1264.80	242.96	78.60	15.80	163.10	205.70	29.30
country corresponding to maximum value	DE80	GR25	IE02	BG34	HU32	BG31	LT00
minimum value	189.40	10.51	61.62	0.00	45.10	20.00	2.10
country corresponding to minimum value	GR24	ES63	PT30	ES64	FI20	FR71	ES30
population weighted average	569.94	74.08	73.10	4.05	76.56	48.37	9.39
population weighted standard deviation	201.11	37.11	3.97	1.82	19.02	34.69	4.86

* No skewness correction is adopted for this pillar

Shadowed indicators Excluded from final computations because not fitting according to PCA

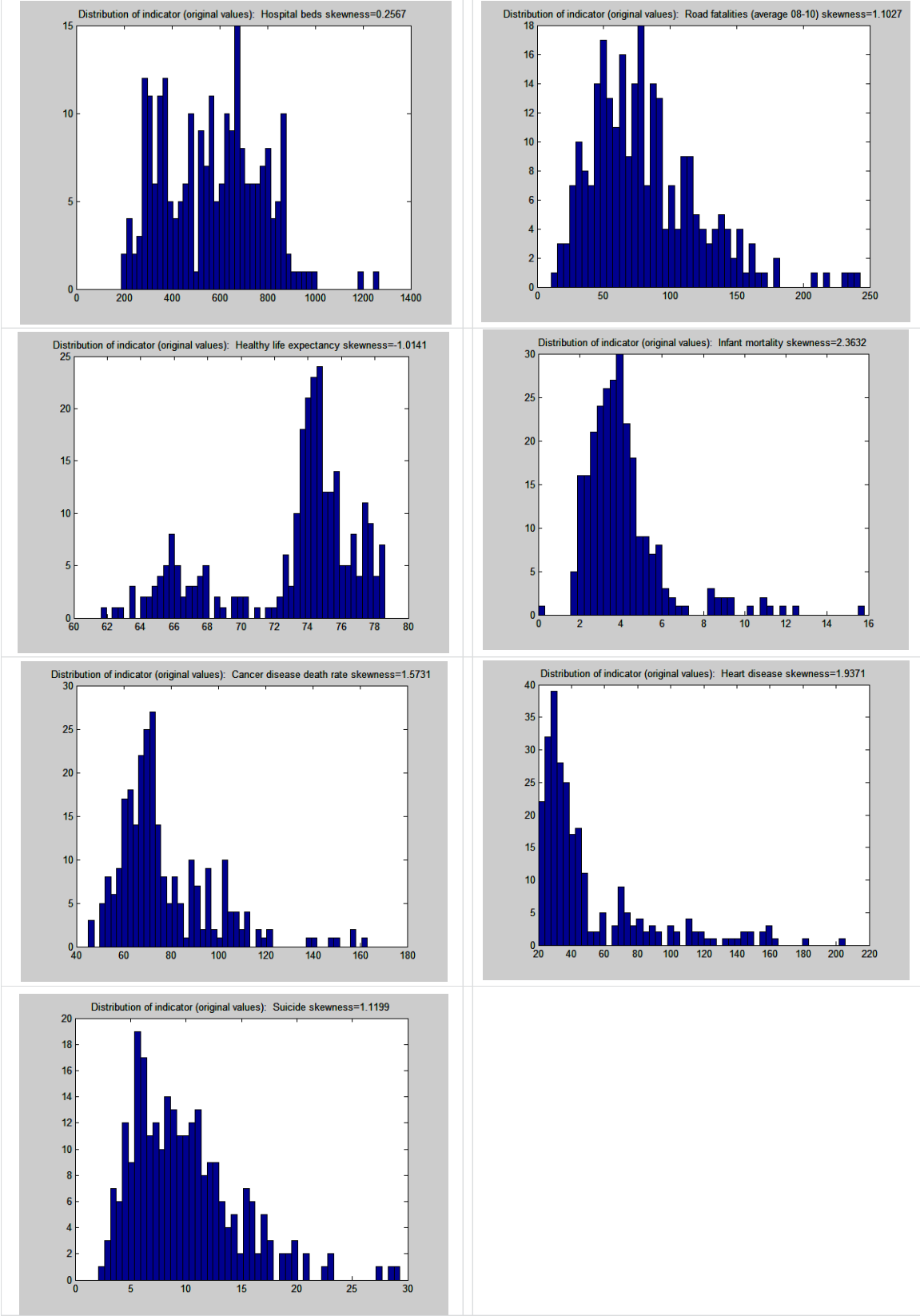


Figure 20: Health: indicator histograms

Table 27: Health: correlation matrix (in bold non-significant correlations at level α=0.05)

Correlation Matrix

		Hospital beds	Road fatalities (average 08-10)	Healthy life expectancy	Infant mortality	Cancer disease death rate	Heart disease	Suicide
Correlation	Hospital beds	1.000	**-.077**	-.204	**.082**	.247	.206	.356
	Road fatalities	**-.077**	1.000	-.483	.308	.436	.481	**.162**
	Healthy life expectancy	-.204	-.483	1.000	-.430	-.748	-.746	-.378
	Infant mortality	**.082**	.308	-.430	1.000	.453	.667	**.111**
	Cancer disease death rate	.247	.436	-.748	.453	1.000	.793	.437
	Heart disease	.206	.481	-.746	.667	.793	1.000	.316
	Suicide	.356	**.162**	-.378	**.111**	.437	.316	1.000
p-value	Hospital beds	1.000	**.242**	.002	**.209**	.000	.001	.000
	Road fatalities (average 08-10)	**.242**	1.000	.000	.000	.000	.000	**.013**
	Healthy life expectancy	.002	.000	1.000	.000	.000	.000	.000
	Infant mortality	**.209**	.000	.000	1.000	.000	.000	**.088**
	Cancer disease death rate	.000	.000	.000	.000	1.000	.000	.000
	Heart disease	.001	.000	.000	.000	.000	1.000	.000
	Suicide	.000	**.013**	.000	**.088**	.000	.000	1.000

Table 28: Health: PCA outcomes

Number of indicators included	Component	Variance explained	Loadings	
			Min value (corresponding indicator)	Max value (corresponding indicator)
7	first	51%	0.14 (Hospital beds)	0.48 (Cancer death rate)
	second	17%	0.02 (Healthy life expectancy)	0.69 (Hospital beds)

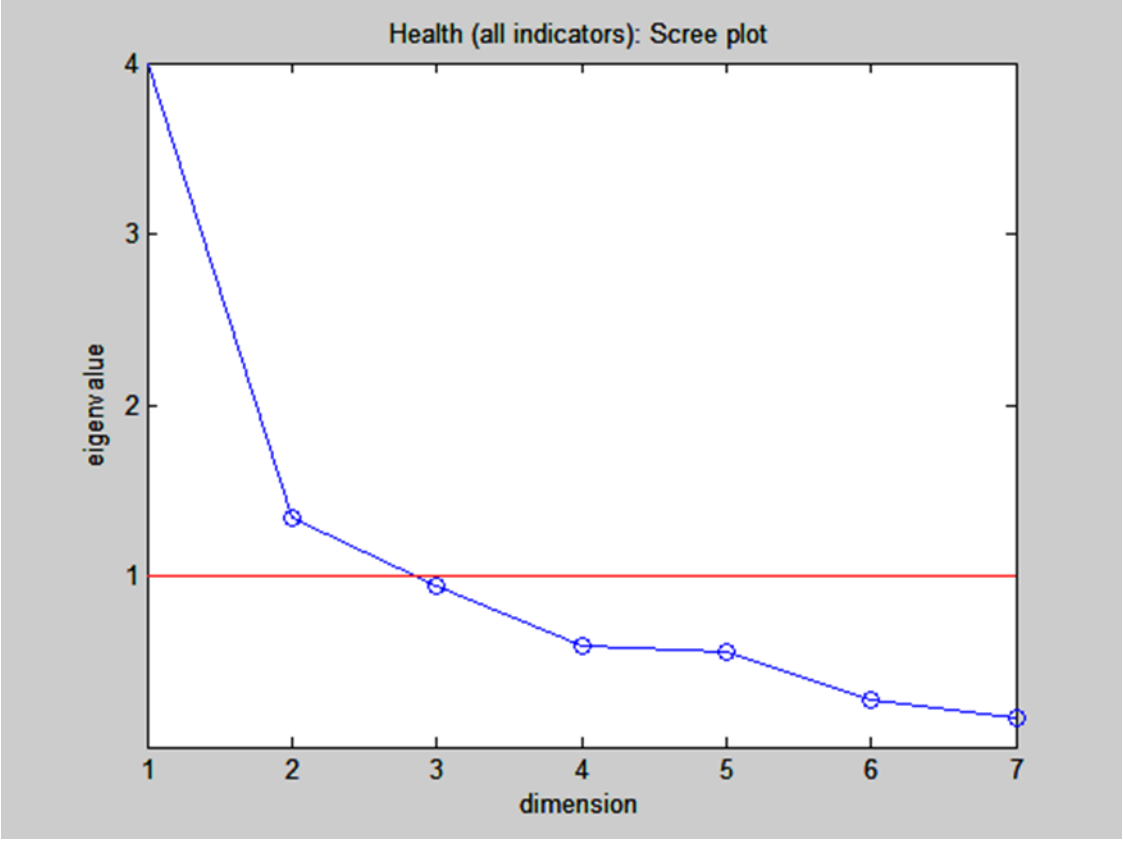


Figure 21: Health: PCA scree plot

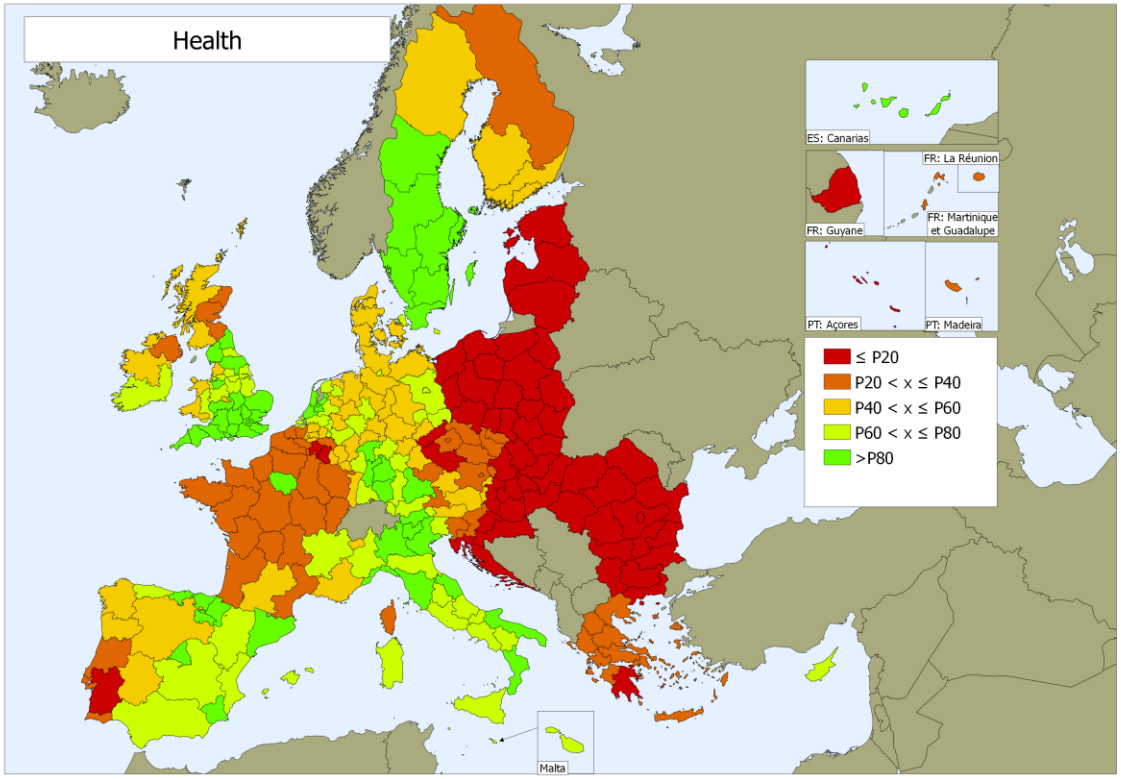


Figure 22: Health: score distribution

Table 29: Health: region scores and ranks

Region	scores	ranks	Region	scores	ranks	Region	scores	ranks	Region	scores	ranks
AT00	0.09	156	DEF0	0.32	118	GR30	-0.05	169	PL62	-1.30	235
AT11	0.32	116	DEG0	0.31	124	GR41	-0.08	174	PL63	-1.03	222
AT21	0.33	112	DK01	0.36	97	GR42	-0.40	199	PT11	0.32	119
AT22	0.16	148	DK02	0.22	134	GR43	-0.25	189	PT15	-0.30	195
AT31	0.10	153	DK03	0.19	141	HR03	-1.11	227	PT16	0.08	160
AT32	0.08	158	DK04	0.30	127	HR04	-1.09	224	PT17	0.09	157
AT33	0.38	92	DK05	0.33	111	HU10	-1.39	240	PT18	-0.67	211
AT34	0.39	88	EE00	-0.84	216	HU21	-1.93	253	PT20	-0.71	212
BE00	0.21	135	ES11	0.32	115	HU22	-1.65	244	PT30	-0.44	202
BE21	0.13	151	ES12	0.36	102	HU23	-2.14	258	RO11	-1.90	251
BE22	0.21	138	ES13	0.62	24	HU31	-2.16	259	RO12	-1.80	247
BE23	-0.18	181	ES21	0.62	25	HU32	-2.64	262	RO21	-1.84	249
BE25	-0.19	185	ES22	0.67	19	HU33	-2.22	260	RO22	-2.07	256
BE32	-0.64	208	ES23	0.56	37	IE01	0.30	129	RO31	-2.00	254
BE33	-0.42	201	ES24	0.44	74	IE02	0.44	76	RO32	-1.08	223
BE34	-1.20	233	ES30	0.94	2	ITC1	0.46	68	RO41	-1.67	245
BE35	-0.77	213	ES41	0.34	110	ITC2	0.13	150	RO42	-2.07	255
BG31	-1.84	250	ES42	0.48	63	ITC3	0.71	14	SE11	0.98	1
BG32	-1.76	246	ES43	0.34	108	ITC4	0.60	30	SE12	0.73	10
BG33	-2.10	257	ES51	0.68	17	ITD1	0.55	40	SE21	0.71	13
BG34	-2.58	261	ES52	0.48	66	ITD2	0.73	11	SE22	0.68	18
BG41	-1.13	228	ES53	0.45	70	ITD3	0.54	44	SE23	0.79	4
BG42	-1.64	243	ES61	0.36	101	ITD4	0.50	59	SE31	0.58	31
CY00	0.42	82	ES62	0.54	41	ITD5	0.36	100	SE32	0.58	32
CZ00	-0.28	192	ES63	0.12	152	ITE1	0.61	28	SE33	0.33	114
CZ03	-0.67	210	ES64	0.89	3	ITE2	0.50	56	SI01	-0.36	198
CZ04	-1.10	226	ES70	0.57	36	ITE3	0.63	23	SI02	-0.29	194
CZ05	-0.41	200	FI18	0.31	123	ITE4	0.45	71	SK01	-0.48	203
CZ06	-0.22	188	FI19	0.26	132	ITF1	0.42	85	SK02	-1.02	221
CZ07	-0.56	204	FI1D	0.02	165	ITF2	0.44	72	SK03	-1.13	229
CZ08	-0.62	207	FI20	0.58	33	ITF3	0.42	84	SK04	-1.34	237
DE00	0.43	78	FR10	0.60	29	ITF4	0.52	51	UK00	0.73	9
DE11	0.58	34	FR21	-0.21	187	ITF5	0.39	87	UKC1	0.52	54
DE12	0.53	47	FR22	-0.34	196	ITF6	0.52	49	UKC2	0.57	35
DE13	0.52	52	FR23	-0.18	182	ITG1	0.36	98	UKD1	0.54	43
DE14	0.53	48	FR24	-0.08	172	ITG2	0.38	90	UKD2	0.61	27
DE21	0.52	50	FR25	-0.17	180	LT00	-1.91	252	UKD3	0.37	96
DE22	0.05	163	FR26	-0.19	183	LU00	0.31	122	UKD4	0.17	145
DE23	0.17	146	FR30	-0.34	197	LV00	-1.81	248	UKD5	0.37	95
DE24	0.16	147	FR41	0.02	167	MT00	0.51	55	UKE1	0.44	73
DE25	0.38	94	FR42	0.31	121	NL00	0.66	21	UKE2	0.54	42
DE26	0.48	65	FR43	-0.08	173	NL11	0.30	126	UKE3	0.39	89
DE27	0.46	69	FR51	0.06	162	NL12	0.46	67	UKE4	0.38	93
DE50	0.19	142	FR52	-0.28	193	NL13	0.40	86	UKF1	0.42	83
DE60	0.49	62	FR53	0.02	164	NL21	0.34	109	UKF2	0.54	46
DE71	0.56	38	FR61	0.10	155	NL22	0.44	75	UKF3	0.43	80
DE72	0.30	130	FR62	0.21	136	NL31	0.71	12	UKG1	0.54	45
DE73	0.34	107	FR63	-0.16	179	NL33	0.67	20	UKG2	0.36	99
DE80	0.21	139	FR71	0.42	81	NL34	0.49	61	UKG3	0.33	113
DE91	0.31	125	FR72	-0.05	170	NL41	0.50	60	UKH1	0.65	22
DE92	0.28	131	FR81	-0.19	184	NL42	0.43	77	UKJ1	0.70	15
DE93	0.16	149	FR82	0.20	140	PL11	-1.43	241	UKJ2	0.78	6
DE94	0.25	133	FR83	0.02	166	PL12	-1.16	231	UKJ3	0.77	7
DEA1	0.35	105	FR91	-0.21	186	PL21	-0.79	214	UKJ4	0.56	39
DEA2	0.52	53	FR92	-0.07	171	PL22	-1.09	225	UKK1	0.75	8
DEA3	0.34	106	FR93	-0.64	209	PL31	-1.14	230	UKK2	0.68	16
DEA4	0.48	64	FR94	-0.15	177	PL32	-0.80	215	UKK3	0.78	5
DEA5	0.38	91	GR11	-0.88	217	PL33	-1.30	234	UKK4	0.62	26
DEB1	0.31	120	GR12	-0.26	190	PL34	-1.01	220	UKL1	0.30	128
DEB2	0.35	104	GR13	-0.13	176	PL41	-1.18	232	UKL2	0.50	58
DEB3	0.43	79	GR14	-0.27	191	PL42	-1.33	236	UKM2	0.08	161
DEC0	0.21	137	GR21	-0.16	178	PL43	-1.45	242	UKM3	0.18	143
DED1	0.32	117	GR22	-0.02	168	PL51	-1.36	239	UKM5	-0.13	175
DED2	0.50	57	GR23	-0.59	206	PL52	-0.98	219	UKM6	0.10	154
DED3	0.35	103	GR24	-0.58	205	PL61	-1.35	238	UKN0	0.08	159
DEE0	0.18	144	GR25	-0.91	218						

Table 30: Health: reordered regions from best performer to lowest performer

Reordered regions (from best to worst)											
SE11	1	UKG1	45	UKE3	89	DE94	133	FR94	177	PL34	220
ES30	2	UKF2	46	ITG2	90	DK02	134	GR21	178	SK02	221
ES64	3	DE12	47	DEA5	91	BE00	135	FR63	179	PL63	222
SE23	4	DE14	48	AT33	92	FR62	136	FR25	180	RO32	223
UKK3	5	ITF6	49	UKE4	93	DEC0	137	BE23	181	HR04	224
UKJ2	6	DE21	50	DE25	94	BE22	138	FR23	182	PL22	225
UKJ3	7	ITF4	51	UKD5	95	DE80	139	FR26	183	CZ04	226
UKK1	8	DE13	52	UKD3	96	FR82	140	FR81	184	HR03	227
UK00	9	DEA2	53	DK01	97	DK03	141	BE25	185	BG41	228
SE12	10	UKC1	54	ITG1	98	DE50	142	FR91	186	SK03	229
ITD2	11	MT00	55	UKG2	99	UKM3	143	FR21	187	PL31	230
NL31	12	ITE2	56	ITD5	100	DEE0	144	CZ06	188	PL12	231
SE21	13	DED2	57	ES61	101	UKD4	145	GR43	189	PL41	232
ITC3	14	UKL2	58	ES12	102	DE23	146	GR12	190	BE34	233
UKJ1	15	ITD4	59	DED3	103	DE24	147	GR14	191	PL33	234
UKK2	16	NL41	60	DEB2	104	AT22	148	CZ00	192	PL62	235
ES51	17	NL34	61	DEA1	105	DE93	149	FR52	193	PL42	236
SE22	18	DE60	62	DEA3	106	ITC2	150	SI02	194	SK04	237
ES22	19	ES42	63	DE73	107	BE21	151	PT15	195	PL61	238
NL33	20	DEA4	64	ES43	108	ES63	152	FR22	196	PL51	239
NL00	21	DE26	65	NL21	109	AT31	153	FR30	197	HU10	240
UKH1	22	ES52	66	ES41	110	UKM6	154	SI01	198	PL11	241
ITE3	23	NL12	67	DK05	111	FR61	155	GR42	199	PL43	242
ES13	24	ITC1	68	AT21	112	AT00	156	CZ05	200	BG42	243
ES21	25	DE27	69	UKG3	113	PT17	157	BE33	201	HU22	244
UKK4	26	ES53	70	SE33	114	AT32	158	PT30	202	RO41	245
UKD2	27	ITE4	71	ES11	115	UKN0	159	SK01	203	BG32	246
ITE1	28	ITF2	72	AT11	116	PT16	160	CZ07	204	RO12	247
FR10	29	UKE1	73	DED1	117	UKM2	161	GR24	205	LV00	248
ITC4	30	ES24	74	DEF0	118	FR51	162	GR23	206	RO21	249
SE31	31	NL22	75	PT11	119	DE22	163	CZ08	207	BG31	250
SE32	32	IE02	76	DEB1	120	FR53	164	BE32	208	RO11	251
FI20	33	NL42	77	FR42	121	FI1D	165	FR93	209	LT00	252
DE11	34	DE00	78	LU00	122	FR83	166	CZ03	210	HU21	253
UKC2	35	DEB3	79	FI18	123	FR41	167	PT18	211	RO31	254
ES70	36	UKF3	80	DEG0	124	GR22	168	PT20	212	RO42	255
ES23	37	FR71	81	DE91	125	GR30	169	BE35	213	RO22	256
DE71	38	CY00	82	NL11	126	FR72	170	PL21	214	BG33	257
UKJ4	39	UKF1	83	DK04	127	FR92	171	PL32	215	HU23	258
ITD1	40	ITF3	84	UKL1	128	FR24	172	EE00	216	HU31	259
ES62	41	ITF1	85	IE01	129	FR43	173	GR11	217	HU33	260
UKE2	42	NL13	86	DE72	130	GR41	174	GR25	218	BG34	261
UKD1	43	ITF5	87	DE92	131	UKM5	175	PL52	219	HU32	262
ITD3	44	AT34	88	FI19	132	GR13	176				

4.5 Basic Education

The pillar is identical as the "Quality of Primary and Secondary Education" pillar of RCI 2010. The pillar name has been simplified into Basic Education.

The classical OECD- PISA indicators on low achievers in reading, math and science are included at the country level. No regional description could be added for this pillar due to the lack of reliable data at the sub-national level.

Summary statistics and histograms of the indicators are shown in Table 31 and Figure 23.

Table 31: Basic Education: summary description of candidate indicators

description of indicator	% of pupils, 15 year old, with proficiency level 1 or lower in reading	% of pupils, 15 year old, with proficiency level 1 or lower in math	% of pupils, 15 year old, with proficiency level 1 or lower in science
source	OECD Programme for International Student Assessment (PISA)	OECD Programme for International Student Assessment (PISA)	OECD Programme for International Student Assessment (PISA)
reference year	2009	2009	2009
orientation	⇩	⇩	⇩
% of missing values	7.14	7.14	7.14
missing countries	CY, MT	CY, MT	CY, MT
average	20.69	23.30	18.45
standard deviation	7.19	8.63	7.57
coefficient of variation	0.35	0.37	0.41
skewness	1.47	1.38	1.63
skewness correction	yes with λ=0.05	yes with λ=0.05	yes with λ=0.05
maximum value	41.00	47.12	41.39
country corresponding to maximum value	BG	BG	RO
minimum value	8.10	7.85	6.01
country corresponding to minimum value	FI	FI	FI
population weighted average	2.76	2.87	2.67
population weighted standard deviation	0.20	0.22	0.25

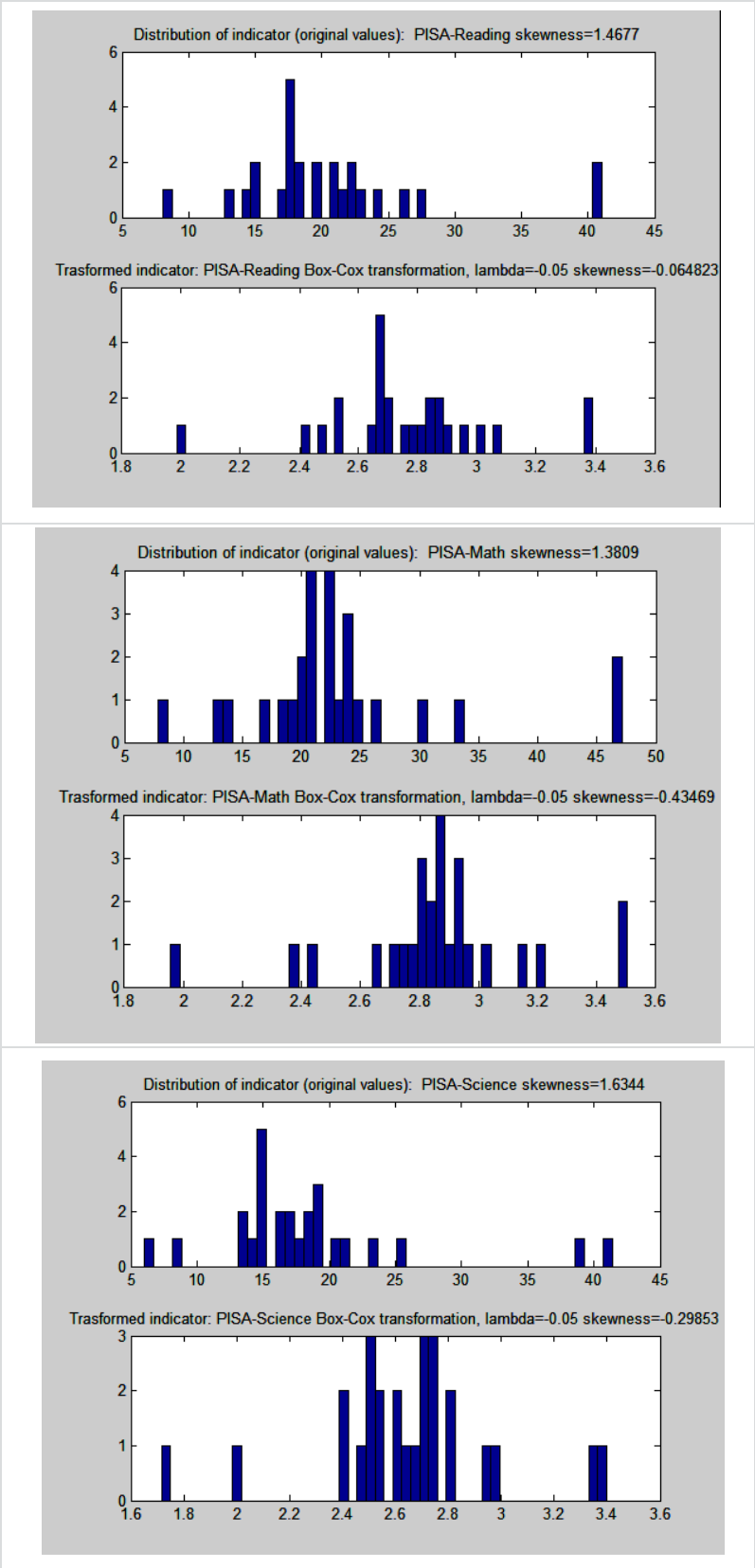


Figure 23: Basic Education: indicator histograms

As expected the three indicators are strongly consistent with each other. There is a clear single dimension explaining 95% of data variability with all the indicators equally contributing (Table 32 and Figure 24).

Table 32: Basic Education: PCA outcomes

Number of indicators included	Variance explained by first PC	First PC loadings	
		Min value (corresponding indicator)	Max value (corresponding indicator)
3	94%	0.57 (low achievers in science)	0.58 (low achievers in math)

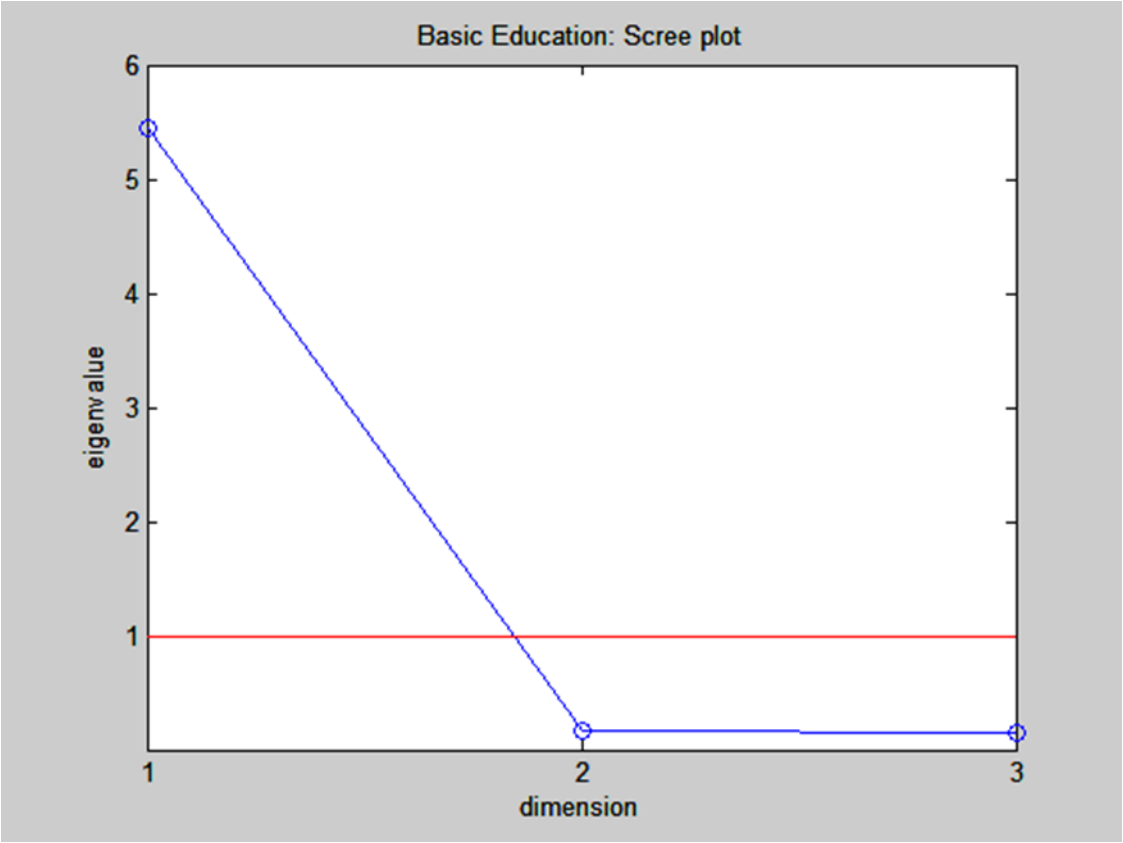


Figure 24: Basic Education: PCA scree plot

The score distribution across EU countries is displayed in Figure 25 while scores and rankings are shown in Table 33 and Figure 26.

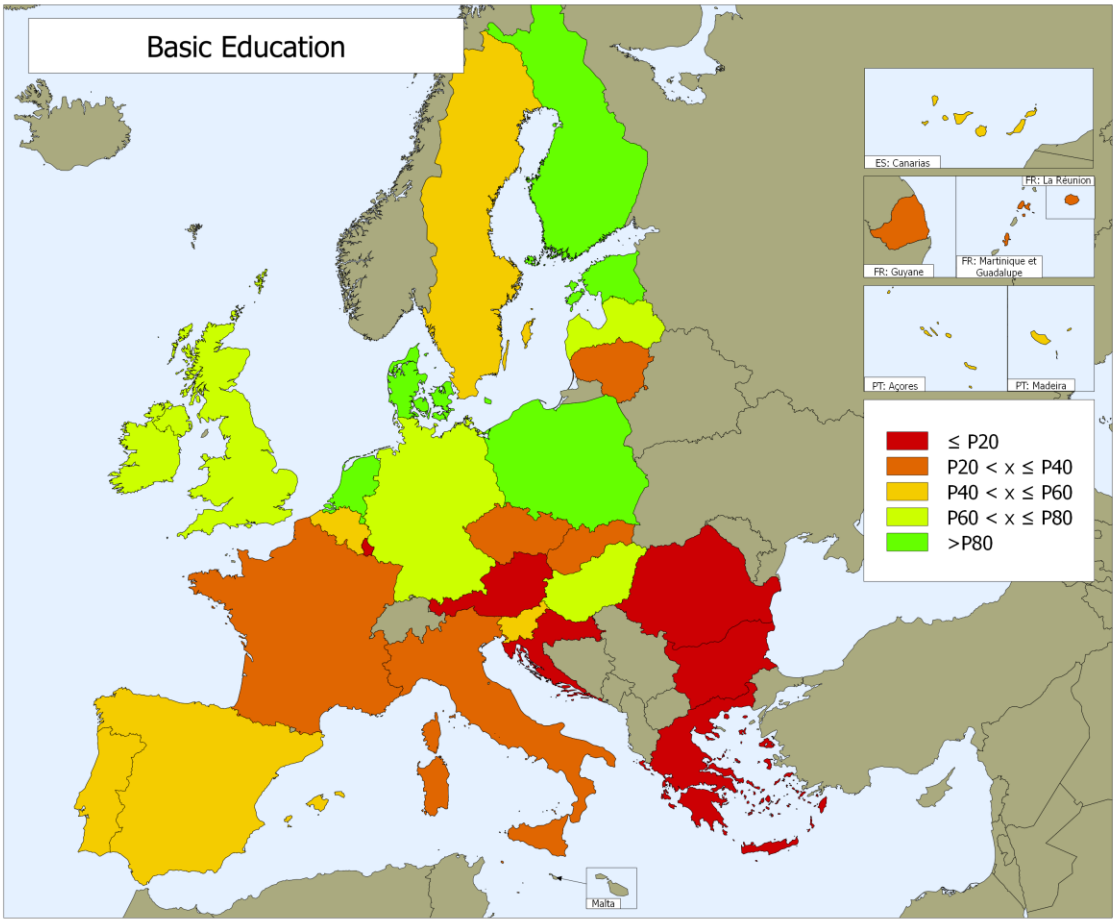


Figure 25: Basic Education: score distribution

Table 33: Basic Education: country scores and ranks

country	scores	ranks
AT	-0.77	21
BE	0.29	11
BG	-2.93	25
CY	NaN	NaN
CZ	-0.25	18
DE	0.49	6
DK	0.75	5
EE	2.17	2
ES	-0.15	15
FI	3.94	1
FR	-0.17	16
GR	-0.96	24
HR	-0.79	22
HU	0.38	8
IE	0.42	7
IT	-0.46	19
LT	-0.52	20
LU	-0.87	23
LV	0.32	10
MT	NaN	NaN
NL	1.43	3
PL	0.81	4
PT	0.12	13
RO	-2.98	26
SE	0.11	14
SI	0.18	12
SK	-0.24	17
UK	0.38	9

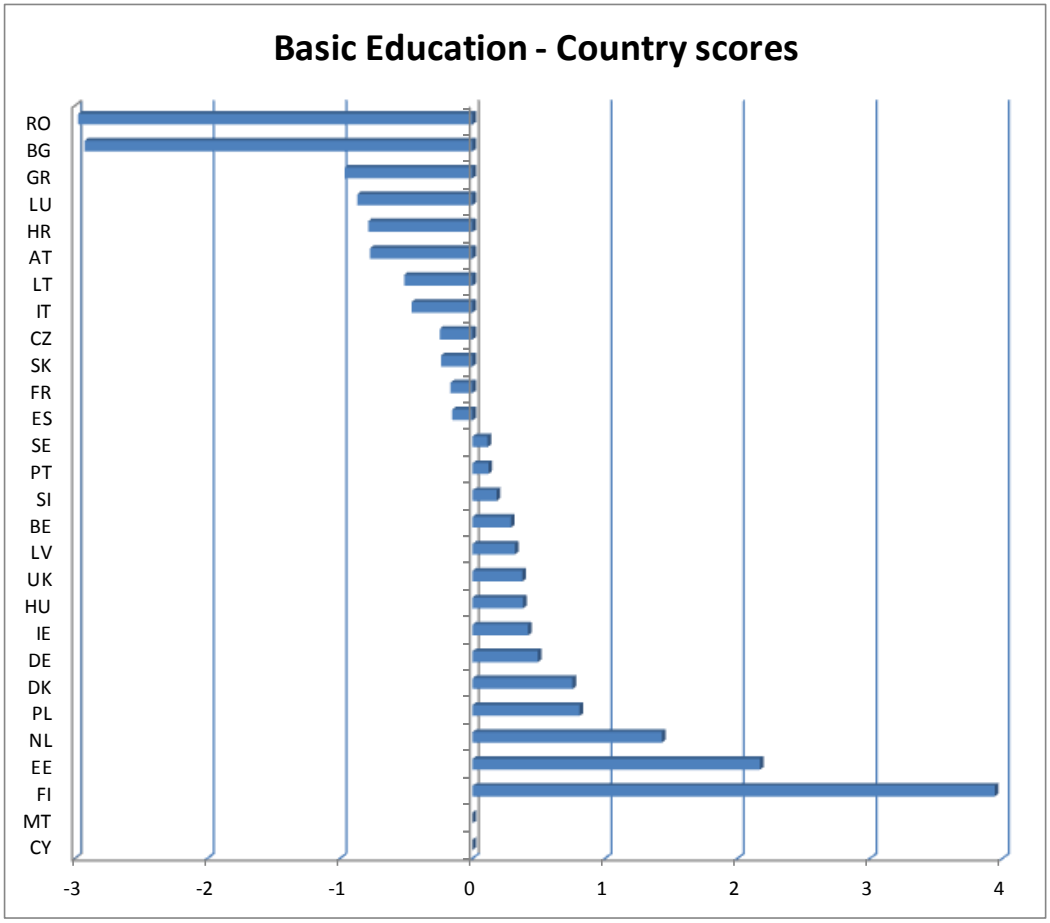


Figure 26: Basic Education: reordered countries

4.6 Higher Education and Lifelong Learning

With respect to the former edition we tried to enrich the pillar by including an indicator on gender balance computed as the absolute value of the difference between tertiary education rates between women and men. The aim is to provide a picture of the distance to the ideal condition of perfect equilibrium between men and women. Unfortunately the multivariate analysis detects this new indicator as misfitting with the rest of indicators, as shown later in this Section, and the gender balance indicator is excluded from further computations. The misfit is likely due to the different preference of men and women with respect to different educational fields. In the EU it is well-known the imbalance, in favor to men, of graduates in science and ICT sectors (European Commission, 2010b), while human sciences are generally preferred by women. We believe that an indicator on gender balance attainment by field of education would be a better measure for the RCI. Unfortunately this cannot be provided at the NUTS 2 level.

The list of candidate indicators and their summary statistics are shown in Table 34. Early school leavers indicator is also discarded from the analysis as having too many missing values. Histograms are shown in Figure 27.

From the correlation matrix (Table 35) it can be seen that the Gender Balance indicator is describing something different, or something more, than the rest of indicators. It is not correlated with Share of population with higher education and Accessibility to universities. This anomaly is reflected by PCA outcomes (Table 36 and Figure 28) which show the presence of two underlying latent factors. The Gender balance indicator does not contribute to the first one, but to the second latent factor (Table 36). Gender balance indicator is then excluded from the pillar.

The pillar score distribution is displayed in Figure 29. Score values and region ranks are listed in Table 37 and Table 38.

Table 34: Higher Education & Lifelong learning: summary description of candidate indicators.

Indicator name	Population 25-64 with higher education	Lifelong learning	Early school leavers	Accessibility to universities	Gender balance on tertiary education - distance to equilibrium
description of indicator	Population aged 25-64 with higher educational attainment (ISCED5_6), % of total population of age group	Participation of adults aged 25-64 in education and training, % of population aged 25-64	People with at most lower secondary education and not in further education or training, % of total population aged 18-24	Population living at more than 60 minutes from the nearest university, % of total population	distance from equilibrium: abs(women's share-men's share)
source	Eurostat, LFS	Eurostat Regional Education Statistics	Eurostat Structural Indicators	Nordregio/EuroGeographics/ GISCO/ EEA ETC-TE	Eurostat, LFS
reference year	2011	2011	average 2009-2011	2006 (same as in RCI 2010)	2011
orientation	↑	↑	↓	↓	↓
% of missing values	1.52	3.04	17.87	3.04	1.53
missing regions	FR91 -> FR94	BG31, BG32, FR83 -> FR94, GR42	see the data table	FR91 -> FR94, HR03, HR04, PT20, PT30	FR91 -> FR94
average	25.85	9.62	14.56	12.05	5.05
standard deviation	8.39	6.50	7.54	21.64	3.51
coefficient of variation	0.32	0.68	0.52	1.80	0.70
skewness	0.27	1.22	1.31	2.43	0.79
skewness correction	no	yes with λ=0.8	yes with λ=0.8	yes with λ=0.3	no
maximum value	46.33	36.10	45.69	99.99	17.05
country corresponding to maximum value	UKJ1	DK01	PT20	GR13	EE00
minimum value	9.93	0.80	2.44	0.00	0.01
country corresponding to minimum value	CZ04	RO41	SK02	AT11	CZ03
population weighted average	26.72	5.71	9.24	0.30	4.60
population weighted standard deviation	8.96	3.60	4.07	3.41	3.29

Shadowed indicators excluded from further analysis

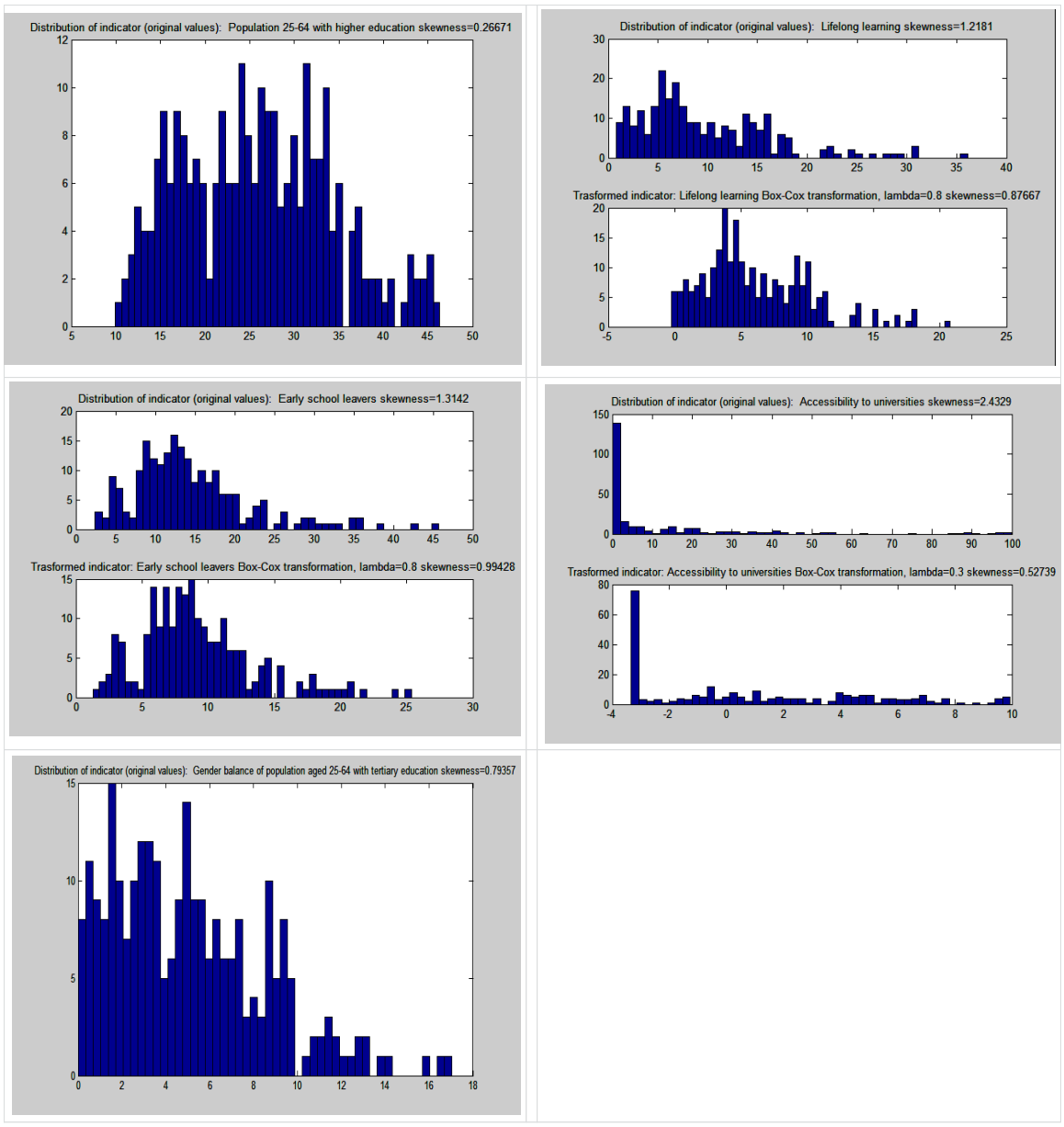


Figure 27: Higher Education & Lifelong Learning: indicator histograms

Table 35: Higher Education and Lifelong learning: correlation matrix (in bold non-significant correlations at level α=0.05)

Correlation Matrix

		Population 25-64 with higher education	Lifelong learning	Accessibility to universities	Gender balance on tertiary education - distance to equilibrium
Correlation	Population 25-64 with higher education	1.000	.536	-.363	.099
	Lifelong learning	.536	1.000	-.193	.177
	Accessibility to universities	-.363	-.193	1.000	.057
	Gender balance on tertiary education - distance to equilibrium	.099	.177	.057	1.000
p-value	Population 25-64 with higher education	1.000	.000	.000	**.119**
	Lifelong learning	.000	1.000	.002	.005
	Accessibility to universities	.000	.002	1.000	**.373**
	Gender balance on tertiary education - distance to equilibrium	**.119**	.005	**.373**	1.000

Table 36: Higher Education & Lifelong Learning: PCA outcomes

Number of indicators included	Component	Variance explained	Loadings	
			Min value (corresponding indicator)	Max value (corresponding indicator)
4	first	43%	0.19 (Gender balance)	0.64 (Lifelong learning)
	second	28%	0.01 (Share of pop. With higher education)	0.76 (Gender balance)

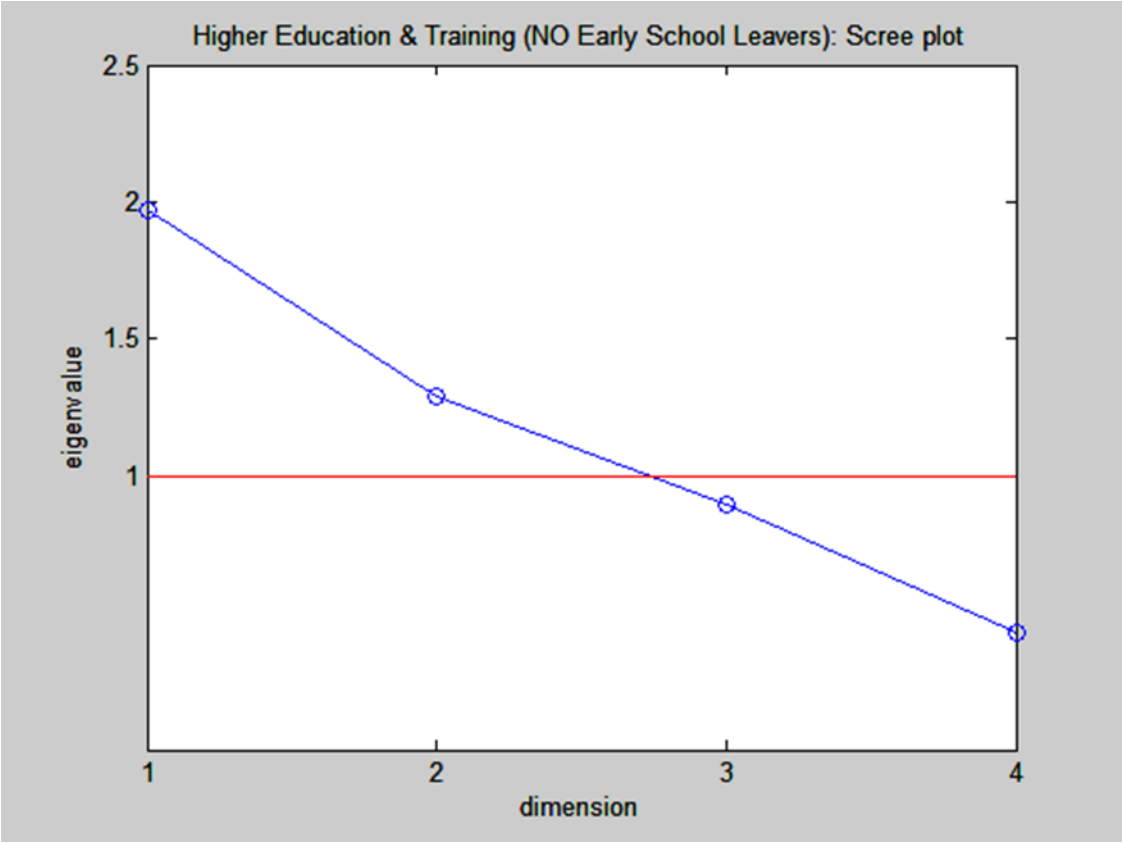


Figure 28: Higher Education and Lifelong Learning: PCA scree plot

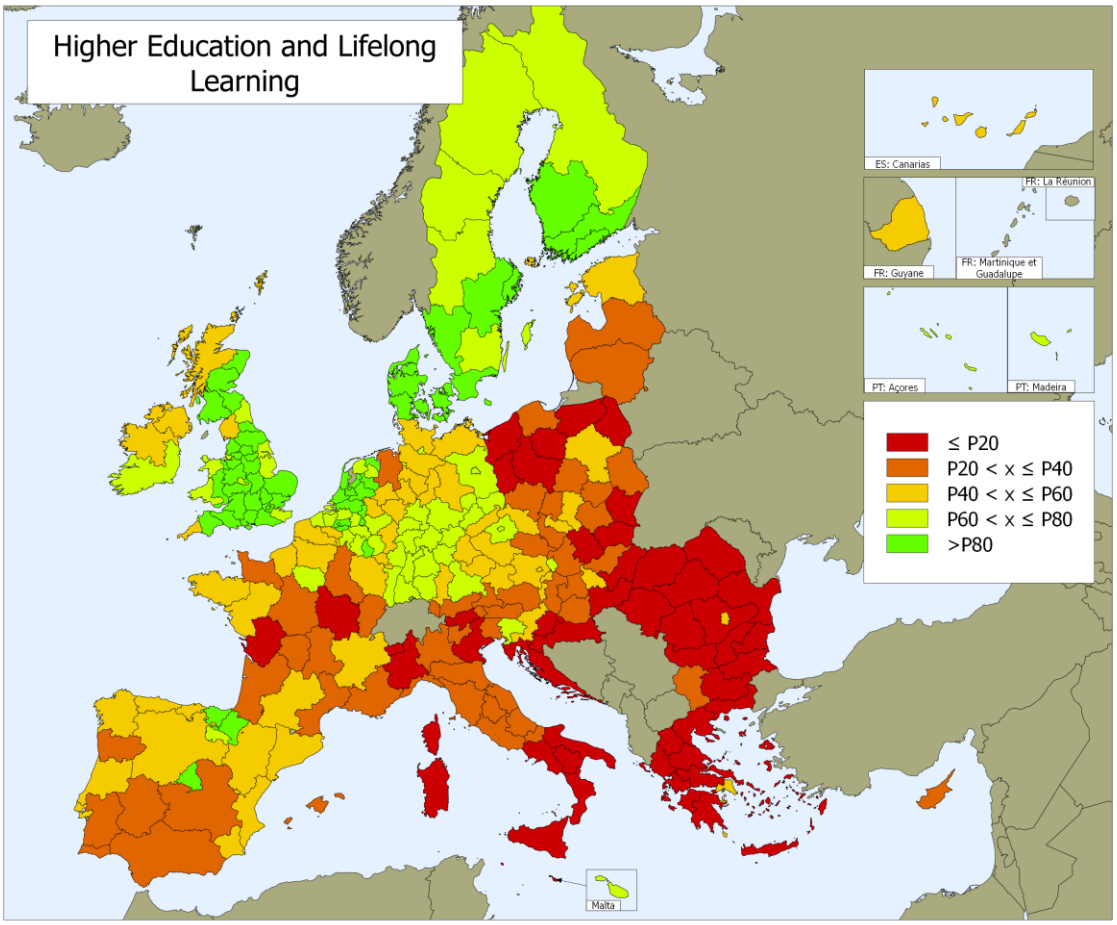


Figure 29: Higher Education & Lifelong Learning: score distribution

Table 37: Higher Education and Lifelong Learning: region scores and ranks

Region	scores	ranks	Region	scores	ranks	Region	scores	ranks	Region	scores	ranks
AT00	0.09	118	DEF0	-0.13	138	GR30	-0.16	142	PL62	-1.25	233
AT11	0.03	126	DEG0	0.47	75	GR41	-1.41	242	PL63	-0.63	191
AT21	-0.46	170	DK01	2.04	1	GR42	-2.02	258	PT11	-0.26	154
AT22	-0.23	152	DK02	0.80	38	GR43	-1.46	244	PT15	-0.64	193
AT31	0.03	127	DK03	0.73	45	HR03	-1.12	228	PT16	-0.15	140
AT32	-0.43	168	DK04	0.75	42	HR04	-1.11	227	PT17	0.27	98
AT33	-0.43	166	DK05	0.79	41	HU10	-0.22	150	PT18	-0.58	183
AT34	-0.32	158	EE00	-0.02	132	HU21	-0.46	171	PT20	-1.05	221
BE00	1.09	18	ES11	-0.19	148	HU22	-0.39	164	PT30	-0.73	203
BE21	0.51	72	ES12	0.09	119	HU23	-0.70	201	RO11	-1.57	246
BE22	0.36	85	ES13	0.23	100	HU31	-0.69	198	RO12	-1.43	243
BE23	0.55	66	ES21	1.22	13	HU32	-0.87	215	RO21	-1.58	248
BE25	0.44	80	ES22	0.86	35	HU33	-0.98	218	RO22	-1.71	254
BE32	0.01	130	ES23	0.45	77	IE01	0.09	120	RO31	-1.58	249
BE33	0.42	81	ES24	0.14	112	IE02	0.47	74	RO32	0.08	121
BE34	0.32	90	ES30	1.16	15	ITC1	-0.85	213	RO41	-1.65	252
BE35	0.39	84	ES41	0.03	125	ITC2	-1.60	250	RO42	-1.38	239
BG31	-1.86	257	ES42	-0.63	192	ITC3	-0.48	172	SE11	1.65	2
BG32	-1.08	225	ES43	-0.69	197	ITC4	-0.65	194	SE12	1.00	26
BG33	-1.12	229	ES51	0.18	107	ITD1	-1.27	235	SE21	0.54	68
BG34	-1.41	241	ES52	0.21	103	ITD2	-0.61	189	SE22	1.47	7
BG41	-0.60	187	ES53	-0.50	176	ITD3	-0.81	211	SE23	1.29	10
BG42	-1.37	238	ES61	-0.31	157	ITD4	-0.57	180	SE31	0.28	96
CY00	-0.29	156	ES62	0.06	122	ITD5	-0.48	173	SE32	0.32	91
CZ00	0.63	58	ES63	-1.03	220	ITE1	-0.61	190	SE33	0.36	86
CZ03	-0.11	135	ES64	-0.65	195	ITE2	-0.34	160	SI01	0.22	101
CZ04	-0.16	143	ES70	-0.54	177	ITE3	-0.74	204	SI02	0.64	57
CZ05	-0.05	133	FI18	1.50	6	ITE4	-0.38	163	SK01	0.69	48
CZ06	-0.41	165	FI19	0.98	27	ITF1	-0.37	161	SK02	-0.49	175
CZ07	-0.45	169	FI1D	0.61	61	ITF2	-0.55	179	SK03	-0.81	210
CZ08	-0.15	139	FI20	0.14	113	ITF3	-0.85	214	SK04	-1.07	224
DE00	0.63	59	FR10	0.69	49	ITF4	-1.08	226	UK00	1.55	4
DE11	0.52	70	FR21	-0.37	162	ITF5	-1.24	232	UKC1	0.70	46
DE12	0.52	71	FR22	-0.18	146	ITF6	-1.22	231	UKC2	0.67	50
DE13	0.39	83	FR23	-0.23	151	ITG1	-1.38	240	UKD1	-0.12	136
DE14	0.55	67	FR24	-0.60	188	ITG2	-1.06	222	UKD2	1.22	12
DE21	0.62	60	FR25	-0.69	199	LT00	-0.48	174	UKD3	1.04	21
DE22	0.01	129	FR26	-0.92	217	LU00	1.03	23	UKD4	0.91	30
DE23	0.12	115	FR30	0.05	123	LV00	-0.66	196	UKD5	0.65	54
DE24	0.31	92	FR41	-0.12	137	MT00	-1.47	245	UKE1	0.67	52
DE25	0.29	94	FR42	0.40	82	NL00	1.01	24	UKE2	1.11	16
DE26	0.30	93	FR43	-0.26	155	NL11	1.09	19	UKE3	0.79	39
DE27	0.19	104	FR51	-0.16	141	NL12	0.35	87	UKE4	0.79	40
DE50	0.45	76	FR52	0.11	117	NL13	0.58	64	UKF1	1.00	25
DE60	0.66	53	FR53	-0.77	206	NL21	0.84	37	UKF2	1.10	17
DE71	0.56	65	FR61	-0.58	184	NL22	0.91	31	UKF3	0.50	73
DE72	0.53	69	FR62	-0.17	145	NL31	1.53	5	UKG1	0.97	28
DE73	0.29	95	FR63	-0.57	181	NL33	1.04	22	UKG2	0.96	29
DE80	0.16	108	FR71	-0.16	144	NL34	0.44	78	UKG3	0.64	55
DE91	0.24	99	FR72	-0.70	200	NL41	0.87	33	UKH1	0.73	43
DE92	0.21	102	FR81	-0.43	167	NL42	0.73	44	UKJ1	1.60	3
DE93	-0.19	147	FR82	-0.24	153	PL11	-0.76	205	UKJ2	1.41	8
DE94	-0.34	159	FR83	-1.57	247	PL12	0.01	128	UKJ3	0.89	32
DEA1	0.14	111	FR91	NaN	NaN	PL21	-0.59	185	UKJ4	0.67	51
DEA2	0.34	89	FR92	NaN	NaN	PL22	-0.20	149	UKK1	1.31	9
DEA3	0.15	109	FR93	NaN	NaN	PL31	-0.58	182	UKK2	0.86	34
DEA4	0.00	131	FR94	NaN	NaN	PL32	-0.78	207	UKK3	-0.08	134
DEA5	0.04	124	GR11	-1.22	230	PL33	-0.60	186	UKK4	0.85	36
DEB1	0.12	116	GR12	-0.83	212	PL34	-0.78	208	UKL1	0.64	56
DEB2	0.35	88	GR13	-1.65	251	PL41	-1.02	219	UKL2	1.28	11
DEB3	0.44	79	GR14	-1.28	236	PL42	-0.88	216	UKM2	1.22	14
DEC0	0.12	114	GR21	-1.26	234	PL43	-1.06	223	UKM3	0.70	47
DED1	0.27	97	GR22	-1.69	253	PL51	-0.55	178	UKM5	1.07	20
DED2	0.58	63	GR23	-1.33	237	PL52	-0.73	202	UKM6	0.18	106
DED3	0.58	62	GR24	-1.75	255	PL61	-0.81	209	UKN0	0.15	110
DEE0	0.19	105	GR25	-1.77	256						

Table 38: Higher Education and Lifelong Learning
reordered regions from best performer to lowest performer

Reordered regions (from best to worst)												
DK01	1	DK03	45	DEA2	89	CZ05	133	ES70	177	ES63	220
SE11	2	UKC1	46	BE34	90	UKK3	134	PL51	178	PT20	221
UKJ1	3	UKM3	47	SE32	91	CZ03	135	ITF2	179	ITG2	222
UK00	4	SK01	48	DE24	92	UKD1	136	ITD4	180	PL43	223
NL31	5	FR10	49	DE26	93	FR41	137	FR63	181	SK04	224
FI18	6	UKC2	50	DE25	94	DEF0	138	PL31	182	BG32	225
SE22	7	UKJ4	51	DE73	95	CZ08	139	PT18	183	ITF4	226
UKJ2	8	UKE1	52	SE31	96	PT16	140	FR61	184	HR04	227
UKK1	9	DE60	53	DED1	97	FR51	141	PL21	185	HR03	228
SE23	10	UKD5	54	PT17	98	GR30	142	PL33	186	BG33	229
UKL2	11	UKG3	55	DE91	99	CZ04	143	BG41	187	GR11	230
UKD2	12	UKL1	56	ES13	100	FR71	144	FR24	188	ITF6	231
ES21	13	SI02	57	SI01	101	FR62	145	ITD2	189	ITF5	232
UKM2	14	CZ00	58	DE92	102	FR22	146	ITE1	190	PL62	233
ES30	15	DE00	59	ES52	103	DE93	147	PL63	191	GR21	234
UKE2	16	DE21	60	DE27	104	ES11	148	ES42	192	ITD1	235
UKF2	17	FI1D	61	DEE0	105	PL22	149	PT15	193	GR14	236
BE00	18	DED3	62	UKM6	106	HU10	150	ITC4	194	GR23	237
NL11	19	DED2	63	ES51	107	FR23	151	ES64	195	BG42	238
UKM5	20	NL13	64	DE80	108	AT22	152	LV00	196	RO42	239
UKD3	21	DE71	65	DEA3	109	FR82	153	ES43	197	ITG1	240
NL33	22	BE23	66	UKN0	110	PT11	154	HU31	198	BG34	241
LU00	23	DE14	67	DEA1	111	FR43	155	FR25	199	GR41	242
NL00	24	SE21	68	ES24	112	CY00	156	FR72	200	RO12	243
UKF1	25	DE72	69	FI20	113	ES61	157	HU23	201	GR43	244
SE12	26	DE11	70	DEC0	114	AT34	158	PL52	202	MT00	245
FI19	27	DE12	71	DE23	115	DE94	159	PT30	203	RO11	246
UKG1	28	BE21	72	DEB1	116	ITE2	160	ITE3	204	FR83	247
UKG2	29	UKF3	73	FR52	117	ITF1	161	PL11	205	RO21	248
UKD4	30	IE02	74	AT00	118	FR21	162	FR53	206	RO31	249
NL22	31	DEG0	75	ES12	119	ITE4	163	PL32	207	ITC2	250
UKJ3	32	DE50	76	IE01	120	HU22	164	PL34	208	GR13	251
NL41	33	ES23	77	RO32	121	CZ06	165	PL61	209	RO41	252
UKK2	34	NL34	78	ES62	122	AT33	166	SK03	210	GR22	253
ES22	35	DEB3	79	FR30	123	FR81	167	ITD3	211	RO22	254
UKK4	36	BE25	80	DEA5	124	AT32	168	GR12	212	GR24	255
NL21	37	BE33	81	ES41	125	CZ07	169	ITC1	213	GR25	256
DK02	38	FR42	82	AT11	126	AT21	170	ITF3	214	BG31	257
UKE3	39	DE13	83	AT31	127	HU21	171	HU32	215	GR42	258
UKE4	40	BE35	84	PL12	128	ITC3	172	PL42	216	FR91	NaN
DK05	41	BE22	85	DE22	129	ITD5	173	FR26	217	FR92	NaN
DK04	42	SE33	86	BE32	130	LT00	174	HU33	218	FR93	NaN
UKH1	43	NL12	87	DEA4	131	SK02	175	PL41	219	FR94	NaN
NL42	44	DEB2	88	EE00	132	ES53	176				

4.7 Labor Market Efficiency

The pillar is the same as in RCI 2010 except for the introduction of a new indicator at the regional level and the different treatment of gender balance indicators.

The new entry in the pillar is the share of population aged 15-24 not in education, employment or training – NEET, which is to our knowledge a better indicator than youth unemployment to describe the situation of young generations. The numerator of NEET refers to persons who meet the following two conditions: (*i*) they are not employed (i.e. unemployed or inactive according to the International Labour Organisation definition) and (*ii*) they have not received any education or training in the four weeks preceding the survey. The denominator in the total population consists of the same age group and sex. Students, which account for the majority of those under 25, are included in NEET but omitted in youth unemployment. NEET is then preferable than youth unemployment as it gives a more realistic picture of the youth condition. The main reason is that many in the 15-24 age group are full-time students and are neither working nor looking for a job.

Another modification with respect to the 2010 release is the way gender balance indicators, gender balance unemployment and employment, are included in the index. It was in fact decided to consider gender balance indicators as measures of "distance to equilibrium", thus assigning a negative meaning to all those situations where female rates are different, either greater or lower, than male rates. Absolute values of the rate difference are then included and the two gender balance indicators are considered to be negatively oriented (the higher the worse). We believe that this approach provides a better picture than the censoring approach adopted for RCI 2010 (Annoni & Kozovska, 2010).

The list of indicators included in the pillar and their summary statistics are shown in Table 39, while Figure 30 shows their histograms.

Pairwise correlations are all significant (at level α=0.05) apart from a couple of cases for gender balance employment, which is uncorrelated with unemployment and labor productivity, and gender balance unemployment, which is uncorrelated with labor productivity (correlation table not shown here).

PCA outcomes (Table 40 and Figure 31) highlight the presence of a prevalent dimension, explaining 58% of total variance, together with a minor second dimension accounting for

14% of variability and consisting mainly by the gender balance employment indicator. This means that, despite an overall satisfactory internal consistency of the pillar, gender balance measures show some problems.

The spatial distribution of pillar scores (all indicators included) is shown in Figure 32. Scores and ranks are listed in Table 41 and Table 42.

Table 39: Labor Market Efficiency: summary description of candidate indicators.

Indicator name	Employment rate (excluding agriculture)	Long-term unemployment	Unemployment	Labor productivity	Gender balance unemployment	Gender balance employment	Female unemployment	Share of population aged 15-24 not in education, employment or training (NEET)
description of indicator	% of population 15-64 years	% of labor force	% of active population	GDP/person employed in industry and services (€), Index, EU27 = 100	ABSOLUTE difference between female and male unemployment rates	ABSOLUTE difference between male and female employment rates	% of female unemployed	% of population aged 15-24
source	Eurostat Regional Employment, LFS	Eurostat Regional Employment, LFS	Eurostat Regional Employment, LFS	Eurostat Regional Employment, LFS	Eurostat, DG Regio	Eurostat, DG Regio	Eurostat Regional Employment, LFS	Eurostat, DG Regio
reference year	2011	2011	2011	2009	2011	2011	2011	average 2009-2011
orientation	↑	↓	↓	↑	↓	↓	↓	↓
% of missing values	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.02
missing regions	-	-	-	-	-	-	-	AT11, AT21, AT32->34, ES63->64, FI20, FR63, FR72, FR83, FR91->94, GR41, ITC2, NL34, UKK3, UKM5->6
average	62.24	4.25	9.66	92.64	0.20	0.17	10.06	12.44
standard deviation	10.56	3.30	5.40	35.72	0.19	0.09	6.25	5.18
coefficient of variation	0.17	0.78	0.56	0.39	0.93	0.53	0.62	0.42
skewness	-0.55	1.73	1.43	-0.12	2.76	1.04	1.70	0.67
skewness correction	no	yes with λ=0.5	yes with λ=0.5	no	yes with λ=0.5	no	yes with λ=0.5	no
maximum value	78.80	19.76	30.40	228.33	1.50	0.53	39.10	29.74
country corresponding to maximum value	SE11	FR94	ES61	NL11	FR83	ITF3	ES63	BG31
minimum value	34.45	0.11	2.50	15.18	0.00	0.01	2.70	0.00
country corresponding to minimum value	RO41	FI20	AT32	BG32	DE12	LT00	AT33	DEB2
population weighted average	62.15	1.93	4.06	95.53	-1.23	-0.96	4.12	12.74
population weighted standard deviation	10.47	1.30	1.56	36.65	0.36	0.12	1.66	5.18

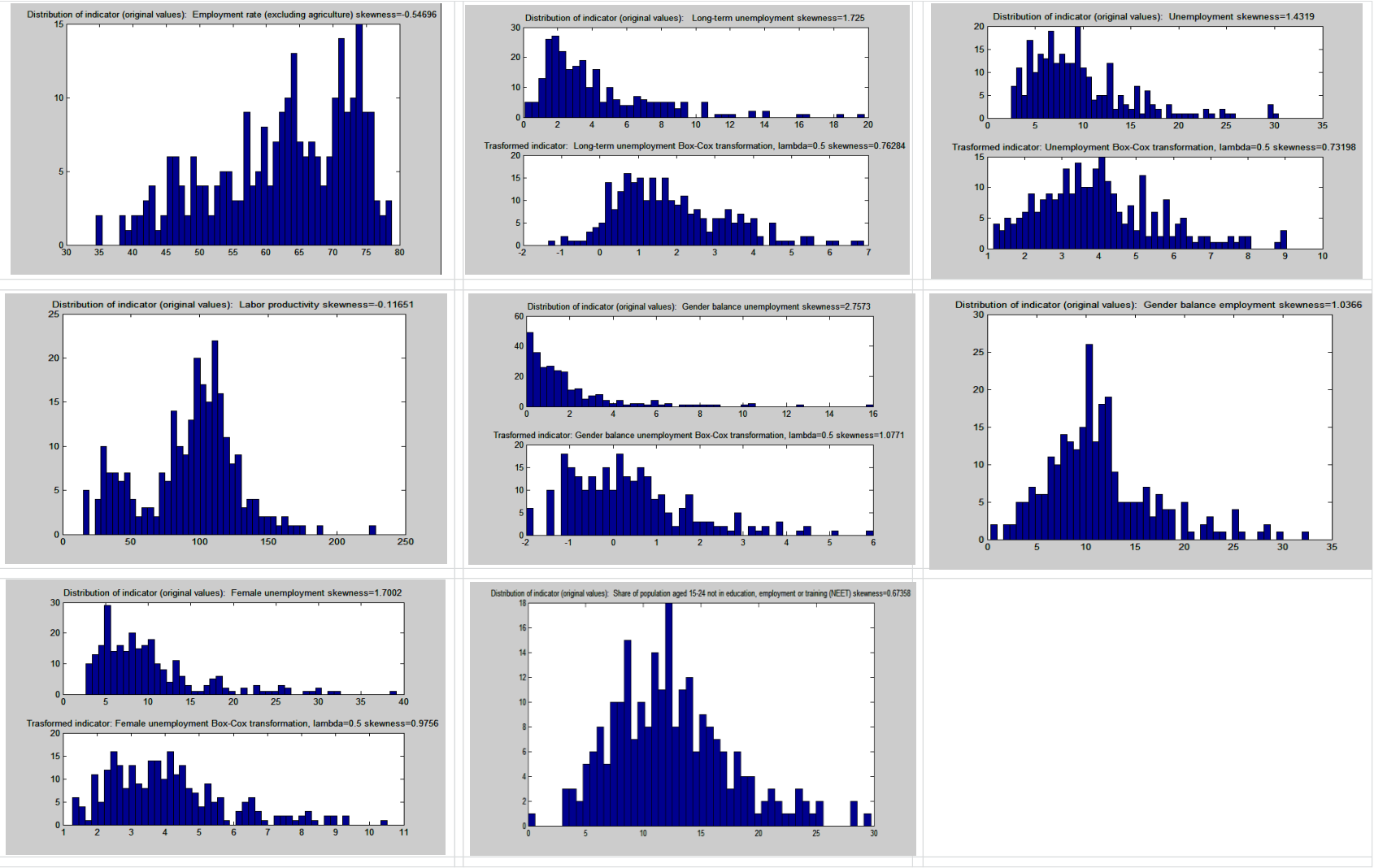


Figure 30: Labor Market Efficiency: indicator histograms

Table 40: Labor Market Efficiency: PCA outcomes

Number of indicators included	Component	Variance explained	Loadings	
			Min value (corresponding indicator)	Max value (corresponding indicator)
8	first	58%	0.20 (Labor productivity)	0.42 (Long-term unemployment)
	second	14%	0.06 (employment rate)	0.76 (Gender balance employment)

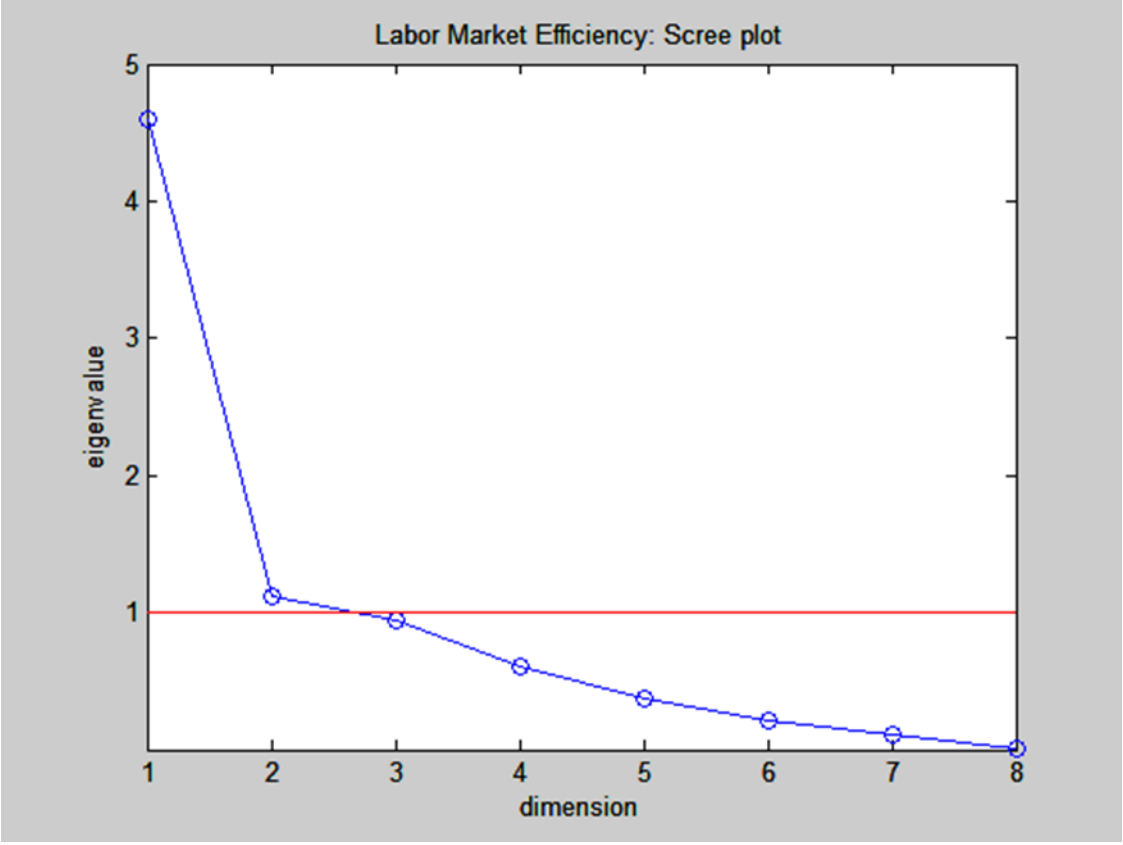


Figure 31: Labor Market Efficiency: PCA scree plot

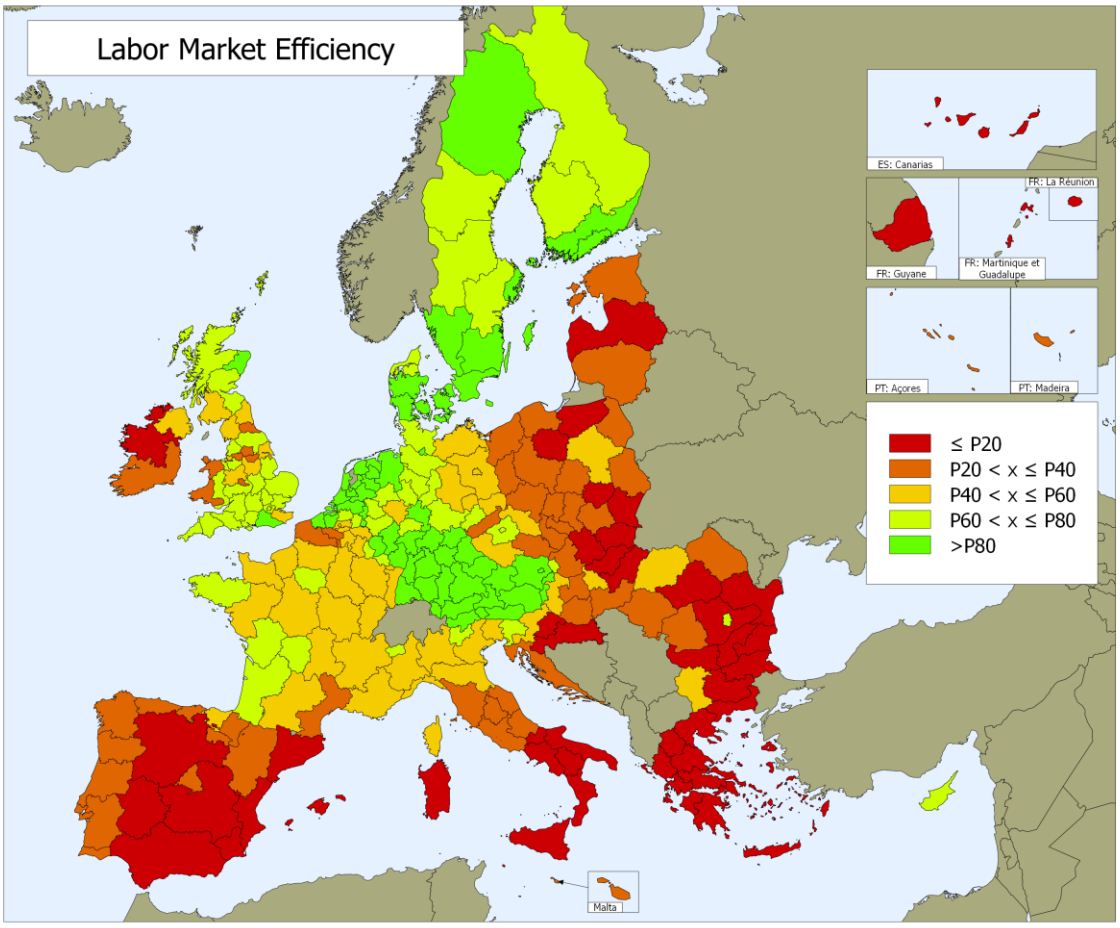


Figure 32: Labor Market Efficiency: score distribution

Table 41: Labor Market Efficiency: region scores and ranks

Region	scores	ranks	Region	scores	ranks	Region	scores	ranks	Region	scores	ranks
AT00	0.81	43	DEF0	0.57	73	GR30	-0.89	227	PL62	-0.68	210
AT11	0.82	42	DEG0	0.50	78	GR41	-1.46	244	PL63	-0.22	169
AT21	0.90	34	DK01	0.98	25	GR42	-1.11	237	PT11	-0.54	200
AT22	1.07	15	DK02	0.85	39	GR43	-1.08	235	PT15	-0.38	184
AT31	0.93	31	DK03	0.77	47	HR03	-0.64	208	PT16	-0.13	160
AT32	1.16	9	DK04	0.96	28	HR04	-0.71	214	PT17	-0.20	167
AT33	1.15	10	DK05	0.70	58	HU10	-0.05	151	PT18	-0.30	180
AT34	0.77	48	EE00	-0.30	179	HU21	-0.28	178	PT20	-0.49	194
BE00	0.25	113	ES11	-0.60	204	HU22	-0.03	148	PT30	-0.50	195
BE21	0.71	55	ES12	-0.52	197	HU23	-0.62	206	RO11	0.07	136
BE22	0.66	61	ES13	-0.42	188	HU31	-0.82	224	RO12	-0.82	223
BE23	1.00	20	ES21	-0.02	146	HU32	-0.70	213	RO21	-0.06	154
BE25	1.10	13	ES22	-0.07	156	HU33	-0.33	182	RO22	-0.86	226
BE32	-0.51	196	ES23	-0.64	207	IE01	-0.80	222	RO31	-0.69	212
BE33	0.04	140	ES24	-0.46	193	IE02	-0.44	192	RO32	0.46	87
BE34	0.07	137	ES30	-0.22	170	ITC1	-0.05	150	RO41	-0.56	201
BE35	0.31	106	ES41	-0.76	219	ITC2	0.60	69	RO42	-0.16	164
BG31	-1.04	234	ES42	-1.46	245	ITC3	0.20	120	SE11	1.16	7
BG32	-0.93	229	ES43	-1.62	247	ITC4	0.12	128	SE12	0.63	65
BG33	-1.03	232	ES51	-0.67	209	ITD1	0.75	50	SE21	0.79	46
BG34	-0.76	220	ES52	-0.98	231	ITD2	0.46	85	SE22	0.81	45
BG41	0.10	130	ES53	-0.73	215	ITD3	0.07	138	SE23	0.92	32
BG42	-0.90	228	ES61	-1.70	252	ITD4	0.17	125	SE31	0.70	57
CY00	0.35	99	ES62	-1.10	236	ITD5	0.30	108	SE32	0.63	64
CZ00	0.47	83	ES63	-2.64	262	ITE1	-0.07	155	SE33	0.74	51
CZ03	0.10	129	ES64	-2.15	261	ITE2	-0.14	161	SI01	0.07	135
CZ04	-0.53	199	ES70	-1.11	239	ITE3	-0.10	159	SI02	0.45	89
CZ05	-0.02	145	FI18	0.85	40	ITE4	-0.33	183	SK01	0.51	77
CZ06	-0.15	163	FI19	0.59	71	ITF1	-0.58	203	SK02	-0.56	202
CZ07	-0.15	162	FI1D	0.39	92	ITF2	-0.78	221	SK03	-0.84	225
CZ08	-0.44	190	FI20	1.58	1	ITF3	-1.87	257	SK04	-1.03	233
DE00	0.13	127	FR10	0.62	66	ITF4	-1.63	249	UK00	0.50	79
DE11	0.97	27	FR21	0.03	141	ITF5	-1.11	238	UKC1	-0.27	175
DE12	0.99	22	FR22	-0.06	153	ITF6	-1.18	241	UKC2	0.03	142
DE13	1.19	5	FR23	0.01	143	ITG1	-1.68	251	UKD1	0.09	131
DE14	1.06	16	FR24	0.29	109	ITG2	-0.97	230	UKD2	0.44	90
DE21	1.25	4	FR25	0.31	107	LT00	-0.61	205	UKD3	-0.07	157
DE22	0.97	26	FR26	0.09	132	LU00	0.71	56	UKD4	0.35	102
DE23	0.95	29	FR30	-0.42	187	LV00	-0.76	218	UKD5	-0.02	147
DE24	0.90	36	FR41	0.00	144	MT00	-0.40	185	UKE1	-0.05	152
DE25	1.00	21	FR42	0.26	111	NL00	1.26	3	UKE2	0.65	63
DE26	0.91	33	FR43	0.20	119	NL11	1.18	6	UKE3	-0.22	168
DE27	0.88	37	FR51	0.20	118	NL12	1.03	17	UKE4	-0.09	158
DE50	0.38	94	FR52	0.66	62	NL13	0.90	35	UKF1	0.19	122
DE60	0.82	41	FR53	0.35	100	NL21	1.16	8	UKF2	0.37	97
DE71	0.93	30	FR61	0.37	98	NL22	1.10	14	UKF3	0.34	103
DE72	0.66	60	FR62	0.27	110	NL31	1.40	2	UKG1	0.47	84
DE73	0.81	44	FR63	0.52	76	NL33	0.98	24	UKG2	0.25	114
DE80	0.20	121	FR71	0.21	117	NL34	1.11	12	UKG3	-0.28	177
DE91	0.71	54	FR72	0.14	126	NL41	1.14	11	UKH1	0.46	86
DE92	0.50	81	FR81	-0.26	174	NL42	1.01	19	UKJ1	0.70	59
DE93	0.61	67	FR82	-0.04	149	PL11	-0.18	165	UKJ2	0.72	52
DE94	0.87	38	FR83	0.08	133	PL12	0.23	115	UKJ3	0.61	68
DEA1	0.35	101	FR91	-1.62	248	PL21	-0.31	181	UKJ4	0.22	116
DEA2	0.49	82	FR92	-1.20	242	PL22	-0.41	186	UKK1	0.50	80
DEA3	0.52	75	FR93	-1.91	258	PL31	-0.28	176	UKK2	0.59	72
DEA4	0.59	70	FR94	-1.91	259	PL32	-0.69	211	UKK3	0.38	93
DEA5	0.26	112	GR11	-1.79	255	PL33	-0.75	216	UKK4	0.37	96
DEB1	0.71	53	GR12	-1.63	250	PL34	-0.23	173	UKL1	-0.22	171
DEB2	0.99	23	GR13	-1.80	256	PL41	-0.52	198	UKL2	0.38	95
DEB3	0.75	49	GR14	-1.71	253	PL42	-0.44	189	UKM2	0.33	104
DEC0	0.46	88	GR21	-1.57	246	PL43	-0.23	172	UKM3	0.06	139
DED1	0.43	91	GR22	-1.12	240	PL51	-0.19	166	UKM5	1.02	18
DED2	0.32	105	GR23	-1.71	254	PL52	-0.44	191	UKM6	0.56	74
DED3	0.19	123	GR24	-2.06	260	PL61	-0.76	217	UKN0	0.08	134
DEE0	0.17	124	GR25	-1.26	243						

Table 42: Labor Market Efficiency
reordered regions from best performer to lowest performer

Reordered regions (from best to worst)												
FI20	1	SE22	45	SI02	89	FR83	133	UKG3	177	BG34	220
NL31	2	SE21	46	UKD2	90	UKN0	134	HU21	178	ITF2	221
NL00	3	DK03	47	DED1	91	SI01	135	EE00	179	IE01	222
DE21	4	AT34	48	FI1D	92	RO11	136	PT18	180	RO12	223
DE13	5	DEB3	49	UKK3	93	BE34	137	PL21	181	HU31	224
NL11	6	ITD1	50	DE50	94	ITD3	138	HU33	182	SK03	225
SE11	7	SE33	51	UKL2	95	UKM3	139	ITE4	183	RO22	226
NL21	8	UKJ2	52	UKK4	96	BE33	140	PT15	184	GR30	227
AT32	9	DEB1	53	UKF2	97	FR21	141	MT00	185	BG42	228
AT33	10	DE91	54	FR61	98	UKC2	142	PL22	186	BG32	229
NL41	11	BE21	55	CY00	99	FR23	143	FR30	187	ITG2	230
NL34	12	LU00	56	FR53	100	FR41	144	ES13	188	ES52	231
BE25	13	SE31	57	DEA1	101	CZ05	145	PL42	189	BG33	232
NL22	14	DK05	58	UKD4	102	ES21	146	CZ08	190	SK04	233
AT22	15	UKJ1	59	UKF3	103	UKD5	147	PL52	191	BG31	234
DE14	16	DE72	60	UKM2	104	HU22	148	IE02	192	GR43	235
NL12	17	BE22	61	DED2	105	FR82	149	ES24	193	ES62	236
UKM5	18	FR52	62	BE35	106	ITC1	150	PT20	194	GR42	237
NL42	19	UKE2	63	FR25	107	HU10	151	PT30	195	ITF5	238
BE23	20	SE32	64	ITD5	108	UKE1	152	BE32	196	ES70	239
DE25	21	SE12	65	FR24	109	FR22	153	ES12	197	GR22	240
DE12	22	FR10	66	FR62	110	RO21	154	PL41	198	ITF6	241
DEB2	23	DE93	67	FR42	111	ITE1	155	CZ04	199	FR92	242
NL33	24	UKJ3	68	DEA5	112	ES22	156	PT11	200	GR25	243
DK01	25	ITC2	69	BE00	113	UKD3	157	RO41	201	GR41	244
DE22	26	DEA4	70	UKG2	114	UKE4	158	SK02	202	ES42	245
DE11	27	FI19	71	PL12	115	ITE3	159	ITF1	203	GR21	246
DK04	28	UKK2	72	UKJ4	116	PT16	160	ES11	204	ES43	247
DE23	29	DEF0	73	FR71	117	ITE2	161	LT00	205	FR91	248
DE71	30	UKM6	74	FR51	118	CZ07	162	HU23	206	ITF4	249
AT31	31	DEA3	75	FR43	119	CZ06	163	ES23	207	GR12	250
SE23	32	FR63	76	ITC3	120	RO42	164	HR03	208	ITG1	251
DE26	33	SK01	77	DE80	121	PL11	165	ES51	209	ES61	252
AT21	34	DEG0	78	UKF1	122	PL51	166	PL62	210	GR14	253
NL13	35	UK00	79	DED3	123	PT17	167	PL32	211	GR23	254
DE24	36	UKK1	80	DEE0	124	UKE3	168	RO31	212	GR11	255
DE27	37	DE92	81	ITD4	125	PL63	169	HU32	213	GR13	256
DE94	38	DEA2	82	FR72	126	ES30	170	HR04	214	ITF3	257
DK02	39	CZ00	83	DE00	127	UKL1	171	ES53	215	FR93	258
FI18	40	UKG1	84	ITC4	128	PL43	172	PL33	216	FR94	259
DE60	41	ITD2	85	CZ03	129	PL34	173	PL61	217	GR24	260
AT11	42	UKH1	86	BG41	130	FR81	174	LV00	218	ES64	261
AT00	43	RO32	87	UKD1	131	UKC1	175	ES41	219	ES63	262
DE73	44	DEC0	88	FR26	132	PL31	176				

4.8 Market Size

In the pillar Market Size of this new edition we decided to discard the GDP index and the Compensation of employees. Also the disposable income indicator is included as income per capita.

The two indicators on potential GDP are the same as in RCI 2010 and provide an estimate of the GDP and population available within a pre-defined neighborhood. They are expressed respectively in pps and population size (EU average set to 100). For details on the computation of potential GDP indicators refer to (Annoni and Kozovska 2010).

Indicators eventually included in the pillar are shown in Table 43. Figure 33 shows their histograms.

The pillar features a good internal consistency with a first principal component explaining as much as 76% of variability with a balanced contribution of all the indicators included Table 44 and Figure 34).

Table 43: Market size: summary description of candidate indicators

Indicator name	Disposable income per capita	Potential GDP in PPS	Potential POP
description of indicator	Gross adjusted disposable household income in PPCS per capita, index	Potential market size expressed in GDP (pps), index EU28=100	Potential market size expressed in population, index EU28=100
source	Eurostat	Eurostat, DG Regional Policy estimates	Eurostat, DG Regional Policy estimates
reference year	2009	2009	2006
orientation	↑	↑	↑
% of missing values	1.53	1.53	1.53
missing regions	FR94, HR03, HR04, MT00	FR91 -> FR94	FR91 -> FR94
average	95.54	182.63	169.05
standard deviation	28.25	199.08	151.84
coefficient of variation	0.30	1.09	0.90
skewness	-0.72	2.02	1.52
skewness correction	no	yes with λ=0.5	yes with λ=0.5
maximum value	164.44	1279.98	827.06
country corresponding to maximum value	LU00	UK00	UK00
minimum value	24.59	2.09	0.00
country corresponding to minimum value	BG31	SE33	PT20
population weighted average	98.29	25.97	25.18
population weighted standard deviation	29.80	14.89	11.41

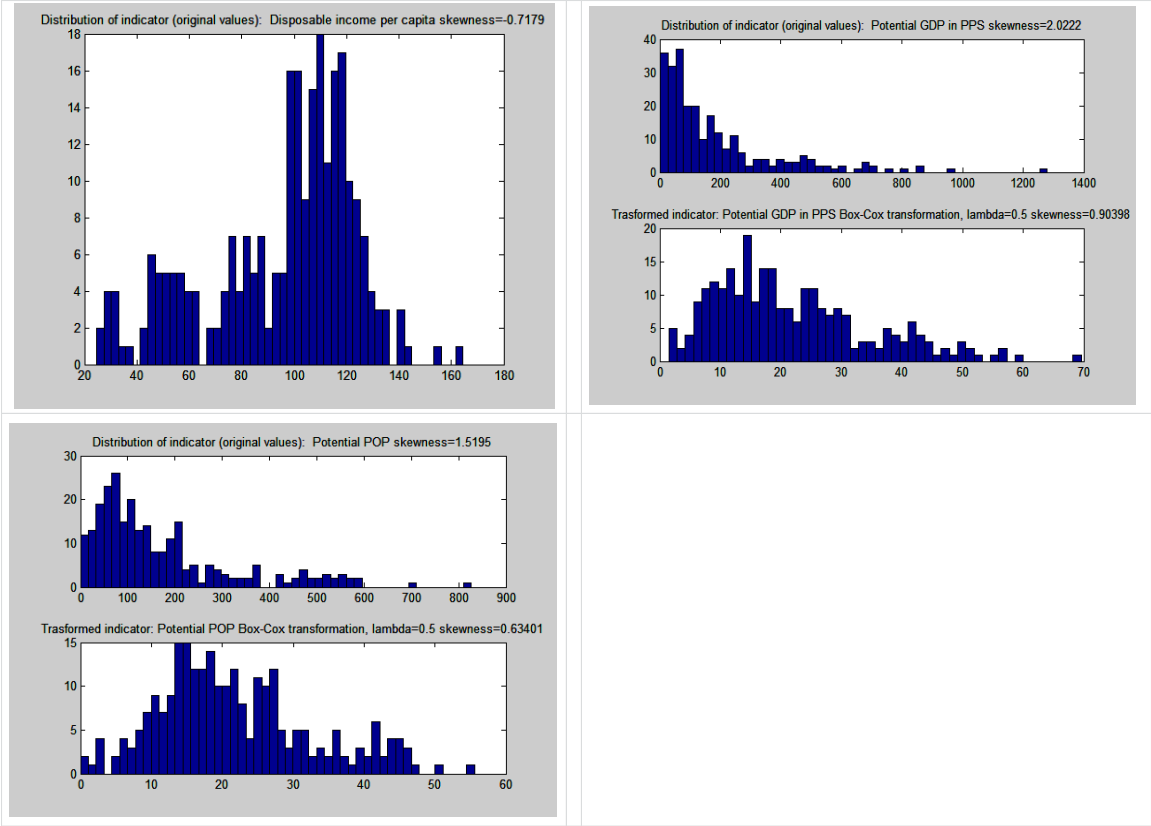


Figure 33: Market Size: indicator histograms

Table 44: Market Size PCA outcomes

Number of indicators included	Variance explained by first PC	First PC loadings	
		Min value (corresponding indicator)	Max value (corresponding indicator)
3	76%	0.48 (Disposable income)	0.63 (Potential POP)

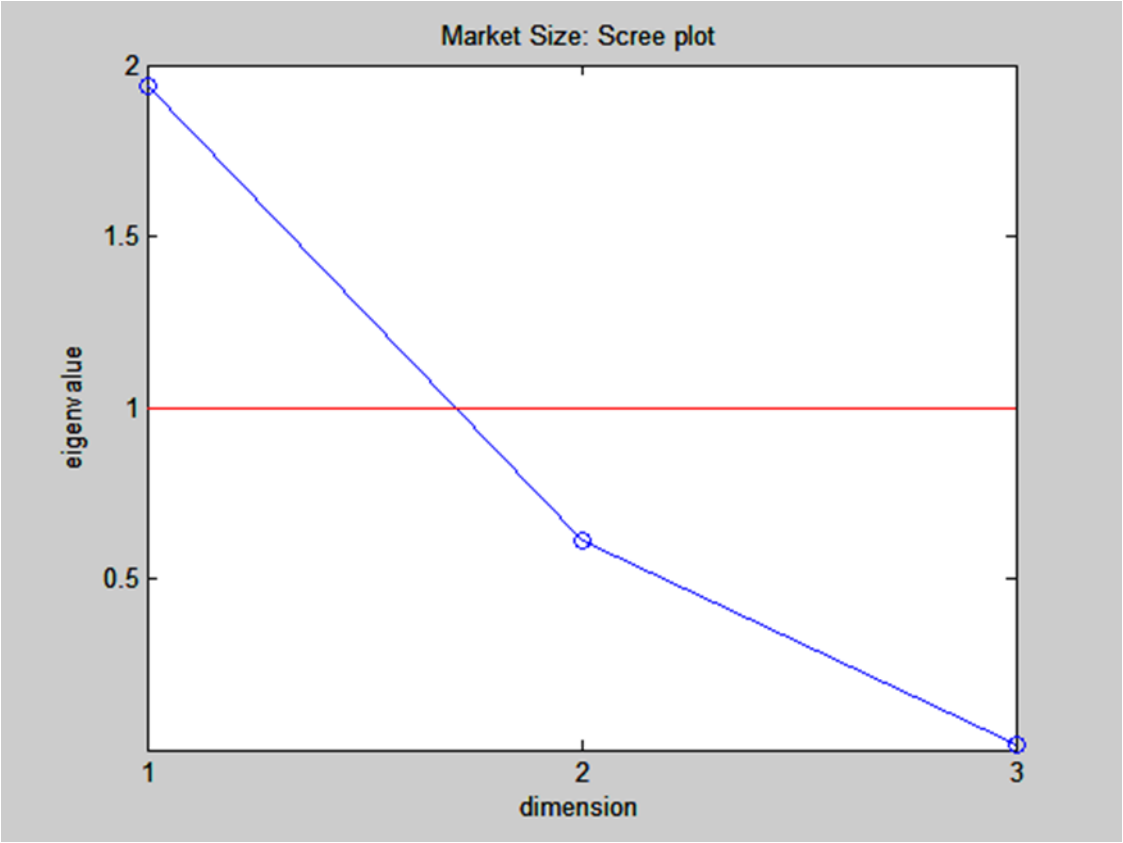


Figure 34: Market Size: PCA scree plot

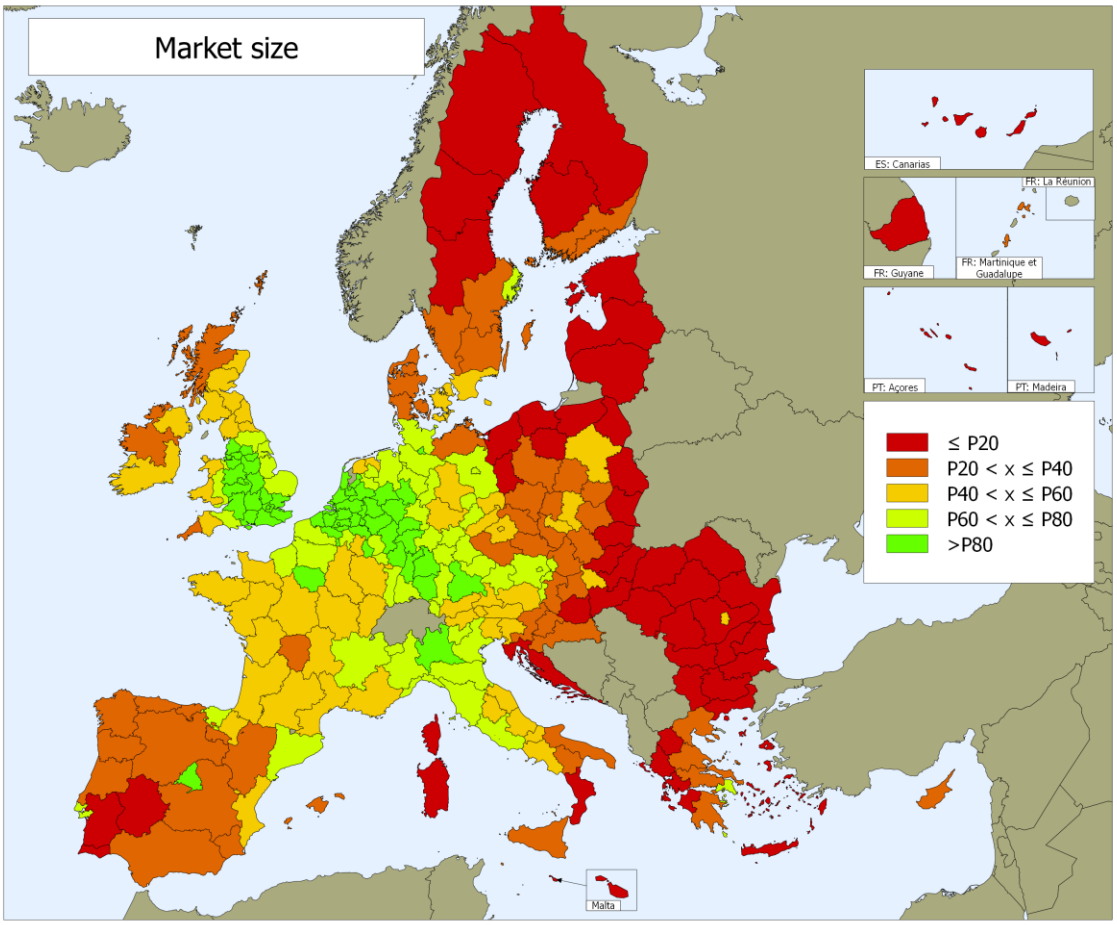


Figure 35: Market Size: score distribution

Table 45: Market Size: region scores and ranks

Region	scores	ranks	Region	scores	ranks	Region	scores	ranks	Region	scores	ranks
AT00	0.40	59	DEF0	0.17	78	GR30	0.35	64	PL62	-1.31	243
AT11	0.12	83	DEG0	-0.12	106	GR41	-1.10	224	PL63	-1.04	217
AT21	-0.35	132	DK01	-0.10	105	GR42	-1.14	228	PT11	-0.76	186
AT22	-0.25	123	DK02	-0.35	130	GR43	-1.16	234	PT15	-1.03	216
AT31	-0.05	99	DK03	-0.55	156	HR03	-1.26	239	PT16	-0.86	199
AT32	-0.20	114	DK04	-0.57	158	HR04	-0.78	192	PT17	0.03	89
AT33	-0.16	111	DK05	-0.74	182	HU10	-0.41	134	PT18	-0.95	208
AT34	-0.04	98	EE00	-1.54	257	HU21	-0.76	185	PT20	-1.48	255
BE00	1.27	10	ES11	-0.65	170	HU22	-0.92	206	PT30	-1.34	246
BE21	1.34	8	ES12	-0.63	167	HU23	-1.26	238	RO11	-1.41	250
BE22	1.10	18	ES13	-0.57	159	HU31	-0.96	209	RO12	-1.38	247
BE23	1.16	16	ES21	0.17	77	HU32	-1.14	227	RO21	-1.45	254
BE25	0.65	44	ES22	-0.18	113	HU33	-1.16	232	RO22	-1.42	252
BE32	0.65	45	ES23	-0.57	160	IE01	-0.81	193	RO31	-1.05	218
BE33	0.53	49	ES24	-0.65	171	IE02	-0.52	151	RO32	-0.21	115
BE34	-0.10	104	ES30	0.84	32	ITC1	0.35	63	RO41	-1.39	248
BE35	0.30	67	ES41	-0.71	176	ITC2	-0.02	97	RO42	-1.43	253
BG31	-1.55	258	ES42	-0.76	183	ITC3	-0.08	100	SE11	0.15	80
BG32	-1.42	251	ES43	-1.16	233	ITC4	0.86	29	SE12	-0.58	161
BG33	-1.55	259	ES51	-0.01	94	ITD1	-0.23	119	SE21	-0.86	197
BG34	-1.57	261	ES52	-0.44	141	ITD2	0.01	93	SE22	-0.40	133
BG41	-1.16	231	ES53	-0.78	190	ITD3	0.31	66	SE23	-0.58	162
BG42	-1.48	256	ES61	-0.78	191	ITD4	-0.09	101	SE31	-1.00	214
CY00	-0.87	200	ES62	-0.65	169	ITD5	0.45	53	SE32	-1.12	226
CZ00	-0.26	124	ES63	-0.84	195	ITE1	-0.02	96	SE33	-1.16	235
CZ03	-0.82	194	ES64	-1.29	240	ITE2	-0.22	117	SI01	-0.77	188
CZ04	-0.52	152	ES70	-1.05	219	ITE3	-0.24	121	SI02	-0.52	153
CZ05	-0.67	174	FI18	-0.60	164	ITE4	0.23	71	SK01	0.09	84
CZ06	-0.70	175	FI19	-0.98	211	ITF1	-0.46	146	SK02	-0.62	165
CZ07	-0.67	173	FI1D	-1.23	237	ITF2	-0.44	140	SK03	-0.84	196
CZ08	-0.45	143	FI20	-0.91	204	ITF3	-0.27	125	SK04	-1.06	220
DE00	0.32	65	FR10	1.83	2	ITF4	-0.71	177	UK00	2.36	1
DE11	0.93	26	FR21	-0.42	135	ITF5	-0.72	178	UKC1	-0.10	103
DE12	1.03	23	FR22	0.41	58	ITF6	-0.93	207	UKC2	-0.35	131
DE13	0.52	50	FR23	0.14	82	ITG1	-0.77	189	UKD1	-0.28	126
DE14	0.63	46	FR24	-0.13	107	ITG2	-0.99	213	UKD2	1.18	14
DE21	0.69	40	FR25	-0.45	144	LT00	-1.31	242	UKD3	1.08	19
DE22	0.08	85	FR26	-0.42	136	LU00	0.65	43	UKD4	0.67	41
DE23	0.03	91	FR30	0.15	81	LV00	-1.55	260	UKD5	0.73	39
DE24	0.17	76	FR41	-0.16	112	MT00	-1.32	244	UKE1	0.06	86
DE25	0.41	57	FR42	0.27	69	NL00	0.87	28	UKE2	0.47	52
DE26	0.39	61	FR43	-0.32	129	NL11	-0.24	122	UKE3	0.85	31
DE27	0.45	54	FR51	-0.30	127	NL12	-0.13	109	UKE4	0.88	27
DE50	0.48	51	FR52	-0.44	142	NL13	0.03	90	UKF1	0.94	24
DE60	1.06	21	FR53	-0.48	147	NL21	0.43	56	UKF2	0.86	30
DE71	1.07	20	FR61	-0.44	139	NL22	1.04	22	UKF3	0.15	79
DE72	0.62	47	FR62	-0.48	148	NL31	1.45	6	UKG1	0.75	37
DE73	0.19	74	FR63	-0.60	163	NL33	1.24	13	UKG2	0.78	34
DE80	-0.54	155	FR71	-0.02	95	NL34	0.77	35	UKG3	0.75	36
DE91	0.20	73	FR72	-0.46	145	NL41	1.27	11	UKH1	0.24	70
DE92	0.44	55	FR81	-0.48	149	NL42	1.26	12	UKJ1	1.68	5
DE93	0.40	60	FR82	-0.22	116	PL11	-0.73	181	UKJ2	1.78	3
DE94	0.18	75	FR83	-1.01	215	PL12	-0.51	150	UKJ3	0.93	25
DEA1	1.74	4	FR91	-0.73	179	PL21	-0.62	166	UKJ4	1.29	9
DEA2	1.39	7	FR92	-0.63	168	PL22	-0.22	118	UKK1	0.58	48
DEA3	1.11	17	FR93	-1.40	249	PL31	-1.20	236	UKK2	0.22	72
DEA4	0.66	42	FR94	NaN	NaN	PL32	-1.15	230	UKK3	-0.66	172
DEA5	1.17	15	GR11	-1.07	221	PL33	-0.90	203	UKK4	-0.30	128
DEB1	0.74	38	GR12	-0.76	184	PL34	-1.34	245	UKL1	-0.44	138
DEB2	0.29	68	GR13	-0.99	212	PL41	-0.86	198	UKL2	0.03	88
DEB3	0.81	33	GR14	-0.88	201	PL42	-1.14	229	UKM2	-0.13	108
DEC0	0.36	62	GR21	-1.11	225	PL43	-1.07	222	UKM3	-0.24	120
DED1	0.04	87	GR22	-1.29	241	PL51	-0.77	187	UKM5	-0.43	137
DED2	-0.10	102	GR23	-1.07	223	PL52	-0.73	180	UKM6	-0.91	205
DED3	0.02	92	GR24	-0.56	157	PL61	-0.97	210	UKN0	-0.54	154
DEE0	-0.16	110	GR25	-0.90	202						

Table 46: Market Size
reordered regions from best performer to lowest performer

Reordered regions (from best to worst)												
UK00	1	BE32	45	PT17	89	SE22	133	ITF4	177	SK04	220
FR10	2	DE14	46	NL13	90	HU10	134	ITF5	178	GR11	221
UKJ2	3	DE72	47	DE23	91	FR21	135	FR91	179	PL43	222
DEA1	4	UKK1	48	DED3	92	FR26	136	PL52	180	GR23	223
UKJ1	5	BE33	49	ITD2	93	UKM5	137	PL11	181	GR41	224
NL31	6	DE13	50	ES51	94	UKL1	138	DK05	182	GR21	225
DEA2	7	DE50	51	FR71	95	FR61	139	ES42	183	SE32	226
BE21	8	UKE2	52	ITE1	96	ITF2	140	GR12	184	HU32	227
UKJ4	9	ITD5	53	ITC2	97	ES52	141	HU21	185	GR42	228
BE00	10	DE27	54	AT34	98	FR52	142	PT11	186	PL42	229
NL41	11	DE92	55	AT31	99	CZ08	143	PL51	187	PL32	230
NL42	12	NL21	56	ITC3	100	FR25	144	SI01	188	BG41	231
NL33	13	DE25	57	ITD4	101	FR72	145	ITG1	189	HU33	232
UKD2	14	FR22	58	DED2	102	ITF1	146	ES53	190	ES43	233
DEA5	15	AT00	59	UKC1	103	FR53	147	ES61	191	GR43	234
BE23	16	DE93	60	BE34	104	FR62	148	HR04	192	SE33	235
DEA3	17	DE26	61	DK01	105	FR81	149	IE01	193	PL31	236
BE22	18	DEC0	62	DEG0	106	PL12	150	CZ03	194	FI1D	237
UKD3	19	ITC1	63	FR24	107	IE02	151	ES63	195	HU23	238
DE71	20	GR30	64	UKM2	108	CZ04	152	SK03	196	HR03	239
DE60	21	DE00	65	NL12	109	SI02	153	SE21	197	ES64	240
NL22	22	ITD3	66	DEE0	110	UKN0	154	PL41	198	GR22	241
DE12	23	BE35	67	AT33	111	DE80	155	PT16	199	LT00	242
UKF1	24	DEB2	68	FR41	112	DK03	156	CY00	200	PL62	243
UKJ3	25	FR42	69	ES22	113	GR24	157	GR14	201	MT00	244
DE11	26	UKH1	70	AT32	114	DK04	158	GR25	202	PL34	245
UKE4	27	ITE4	71	RO32	115	ES13	159	PL33	203	PT30	246
NL00	28	UKK2	72	FR82	116	ES23	160	FI20	204	RO12	247
ITC4	29	DE91	73	ITE2	117	SE12	161	UKM6	205	RO41	248
UKF2	30	DE73	74	PL22	118	SE23	162	HU22	206	FR93	249
UKE3	31	DE94	75	ITD1	119	FR63	163	ITF6	207	RO11	250
ES30	32	DE24	76	UKM3	120	FI18	164	PT18	208	BG32	251
DEB3	33	ES21	77	ITE3	121	SK02	165	HU31	209	RO22	252
UKG2	34	DEF0	78	NL11	122	PL21	166	PL61	210	RO42	253
NL34	35	UKF3	79	AT22	123	ES12	167	FI19	211	RO21	254
UKG3	36	SE11	80	CZ00	124	FR92	168	GR13	212	PT20	255
UKG1	37	FR30	81	ITF3	125	ES62	169	ITG2	213	BG42	256
DEB1	38	FR23	82	UKD1	126	ES11	170	SE31	214	EE00	257
UKD5	39	AT11	83	FR51	127	ES24	171	FR83	215	BG31	258
DE21	40	SK01	84	UKK4	128	UKK3	172	PT15	216	BG33	259
UKD4	41	DE22	85	FR43	129	CZ07	173	PL63	217	LV00	260
DEA4	42	UKE1	86	DK02	130	CZ05	174	RO31	218	BG34	261
LU00	43	DED1	87	UKC2	131	CZ06	175	ES70	219	FR94	NaN
BE25	44	UKL2	88	AT21	132	ES41	176				

4.9 Technological Readiness

The pillar Technological Readiness is split into two sub-pillar as in RCI 2010: one at the regional level that refers to individual and households and one at the national level that refers to enterprises.

Regional sub-pillar - Households

As in former edition, three indicators are included in the regional sub-pillar to describe the use of broadband and internet connections by individuals and households.

Summary statistics of the indicators included is shown in Table 47 while histograms are displayed in Figure 36.

The internal consistency of the pillar is very high with almost all the variability (94%) accounted by the first component almost equally explained by the three indicators (Table 48 and Figure 37).

Table 47: Technological readiness regional: summary description of candidate indicators

description of indicator	% of total households with access to broadband	% of individuals who ordered goods or services over the internet for private use	% of total households with internet access
source	Eurostat Regional Information Society Statistics	Eurostat Regional Information Society Statistics	Eurostat Regional Information Society Statistics
reference year	2011	2011	2011
orientation	↑	↑	↑
% of missing values	0.00	0.00	0.38
missing regions	-	-	UKM5, UKM6
average	65.80	42.96	71.00
standard deviation	14.99	22.59	13.97
coefficient of variation	0.23	0.53	0.20
skewness	-0.73	-0.10	-0.46
skewness correction	no	no	no
maximum value	90.71	82.00	97.70
country corresponding to maximum value	SE11	UKK1	NL21
minimum value	16.53	2.76	34.70
country corresponding to minimum value	RO21	RO42	BG31
population weighted average	65.93	42.60	71.62
population weighted standard deviation	14.65	22.66	12.99

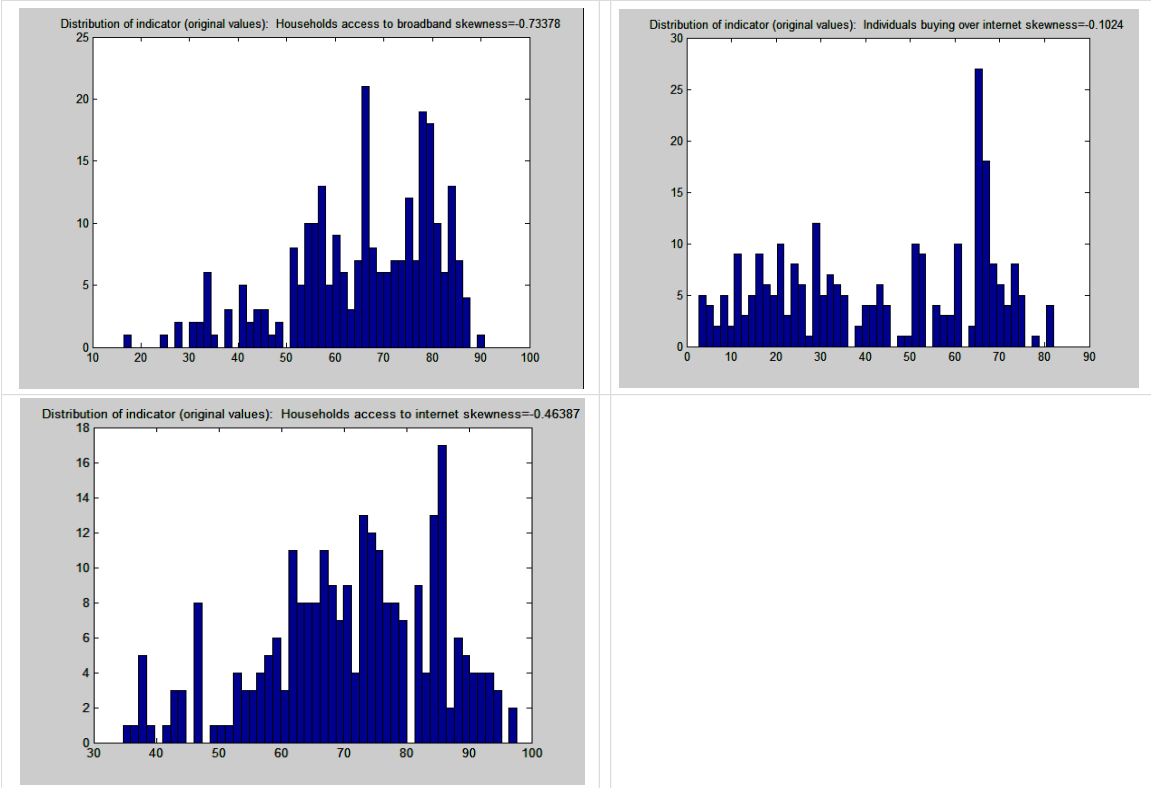


Figure 36: Technological Readiness regional: indicator histograms

Table 48: Technological Readiness regional: PCA outcomes

Number of indicators included	Variance explained by first PC	First PC loadings	
		Min value (corresponding indicator)	Max value (corresponding indicator)
3	94%	0.55 (Individuals buying over internet)	0.60 (Households access to internet)

Figure 37: Technological Readiness regional: PCA scree plot

Figure 38 shows the map of the distribution of the scores of the Technological readiness regional sub-pillar. Table 49 and Table 50 display score and rank values region by region.

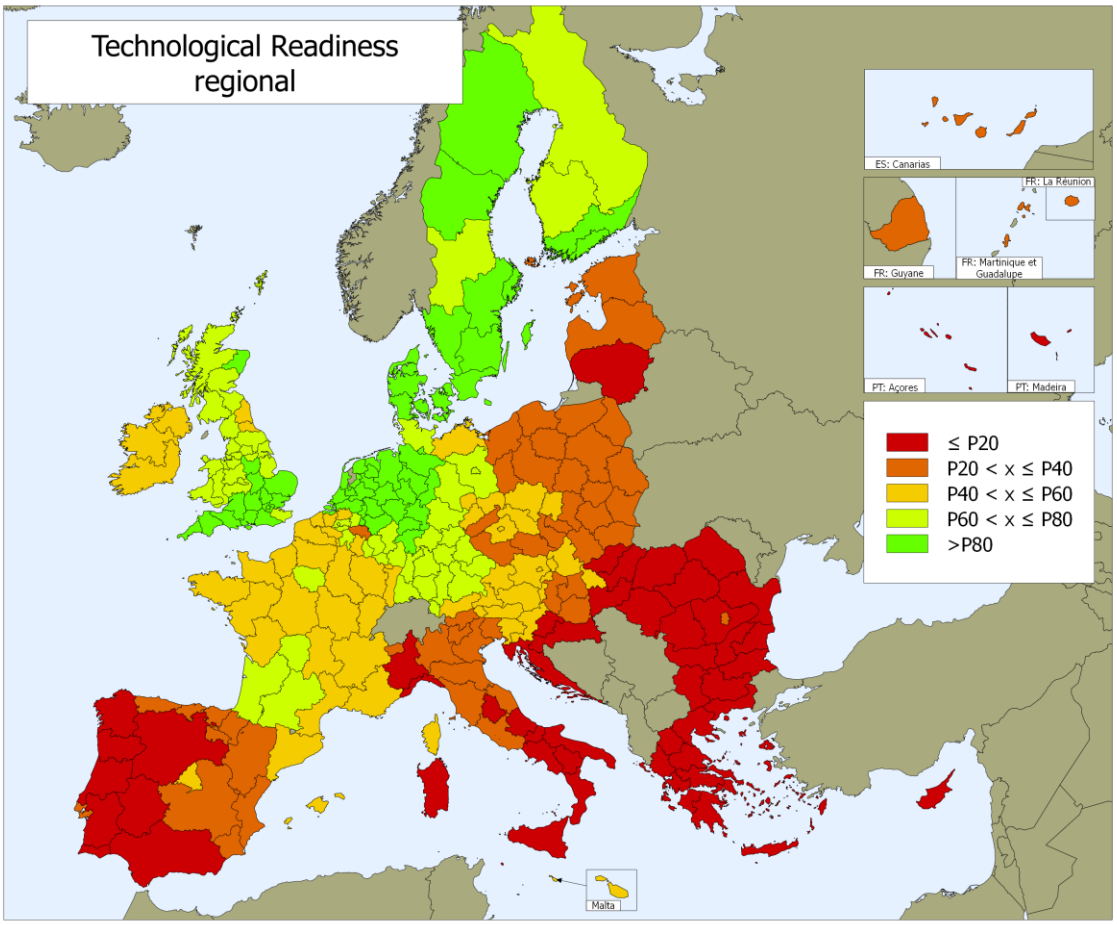


Figure 38: Technological readiness regional: score distribution

Table 49: Technological Readiness regional: region scores and ranks

Region	scores	ranks	Region	scores	ranks	Region	scores	ranks	Region	scores	ranks
AT00	0.39	105	DEF0	0.95	66	GR30	-0.92	218	PL62	-0.47	171
AT11	0.02	136	DEG0	0.85	74	GR41	-1.56	238	PL63	-0.47	171
AT21	-0.03	138	DK01	1.44	5	GR42	-1.56	238	PT11	-1.12	228
AT22	-0.03	139	DK02	1.20	25	GR43	-1.56	238	PT15	-0.87	214
AT31	0.30	115	DK03	1.03	50	HR03	-1.06	222	PT16	-1.21	230
AT32	0.27	117	DK04	1.37	10	HR04	-1.31	231	PT17	-0.34	163
AT33	0.13	134	DK05	1.29	18	HU10	-0.09	142	PT18	-1.34	232
AT34	0.76	80	EE00	-0.34	161	HU21	-0.48	175	PT20	-0.86	212
BE00	0.54	97	ES11	-1.08	225	HU22	-0.51	177	PT30	-1.07	223
BE21	0.42	101	ES12	-0.53	178	HU23	-0.80	206	RO11	-1.98	250
BE22	0.55	96	ES13	-0.30	160	HU31	-0.92	217	RO12	-2.07	257
BE23	0.33	113	ES21	-0.27	159	HU32	-1.08	226	RO21	-2.51	262
BE25	0.17	129	ES22	-0.34	162	HU33	-0.87	213	RO22	-2.24	259
BE32	0.20	128	ES23	-0.63	182	IE01	-0.15	148	RO31	-1.96	248
BE33	-0.24	154	ES24	-0.48	174	IE02	0.27	116	RO32	-0.73	199
BE34	0.15	132	ES30	0.02	135	ITC1	-0.91	216	RO41	-2.07	256
BE35	0.56	94	ES41	-0.89	215	ITC2	-0.76	202	RO42	-1.86	246
BG31	-2.26	260	ES42	-0.81	207	ITC3	-1.14	229	SE11	1.68	1
BG32	-1.88	247	ES43	-1.08	224	ITC4	-0.64	184	SE12	1.38	9
BG33	-2.30	261	ES51	-0.05	141	ITD1	-0.63	183	SE21	1.18	26
BG34	-2.12	258	ES52	-0.70	196	ITD2	-0.58	180	SE22	1.38	7
BG41	-1.11	227	ES53	-0.16	150	ITD3	-0.82	208	SE23	1.24	23
BG42	-1.97	249	ES61	-0.84	211	ITD4	-0.77	203	SE31	0.96	65
CY00	-0.92	219	ES62	-0.78	204	ITD5	-0.74	200	SE32	1.15	28
CZ00	-0.16	149	ES63	-0.15	147	ITE1	-0.71	197	SE33	1.34	12
CZ03	-0.49	176	ES64	-0.56	179	ITE2	-0.95	220	SI01	-0.12	144
CZ04	-0.59	181	ES70	-0.73	198	ITE3	-0.75	201	SI02	-0.12	144
CZ05	-0.21	151	FI18	1.07	37	ITE4	-0.78	205	SK01	-0.09	143
CZ06	-0.35	164	FI19	0.86	71	ITF1	-1.02	221	SK02	-0.13	146
CZ07	-0.70	195	FI1D	0.81	75	ITF2	-1.38	233	SK03	-0.45	170
CZ08	-0.40	167	FI20	-0.25	155	ITF3	-1.40	234	SK04	-0.64	185
DE00	0.58	93	FR10	0.85	73	ITF4	-1.72	245	UK00	1.28	20
DE11	0.73	81	FR21	0.21	118	ITF5	-1.50	236	UKC1	0.15	133
DE12	0.73	81	FR22	0.21	118	ITF6	-1.48	235	UKC2	0.35	109
DE13	0.73	81	FR23	0.21	118	ITG1	-1.54	237	UKD1	0.87	69
DE14	0.73	81	FR24	0.21	118	ITG2	-0.83	209	UKD2	0.87	70
DE21	0.98	53	FR25	0.21	118	LT00	-0.84	210	UKD3	0.67	86
DE22	0.98	53	FR26	0.21	118	LU00	0.86	72	UKD4	0.78	77
DE23	0.98	53	FR30	-0.04	140	LV00	-0.69	194	UKD5	0.71	85
DE24	0.98	53	FR41	0.34	110	MT00	0.33	114	UKE1	0.58	92
DE25	0.98	53	FR42	0.34	110	NL00	1.53	2	UKE2	0.64	87
DE26	0.98	53	FR43	0.34	110	NL11	1.34	13	UKE3	0.64	88
DE27	0.98	53	FR51	0.21	124	NL12	1.38	8	UKE4	0.77	78
DE50	1.35	11	FR52	0.21	124	NL13	1.47	3	UKF1	1.05	39
DE60	1.05	40	FR53	0.21	124	NL21	1.45	4	UKF2	1.08	32
DE71	1.07	34	FR61	0.60	89	NL22	1.28	21	UKF3	0.90	68
DE72	1.07	34	FR62	0.60	89	NL31	1.32	16	UKG1	0.94	67
DE73	1.07	34	FR63	0.60	89	NL33	1.29	17	UKG2	0.97	61
DE80	0.21	127	FR71	0.16	130	NL34	1.14	29	UKG3	0.46	100
DE91	1.04	41	FR72	0.16	130	NL41	1.17	27	UKH1	1.11	30
DE92	1.04	41	FR81	0.42	102	NL42	1.26	22	UKJ1	1.33	15
DE93	1.04	41	FR82	0.42	102	PL11	-0.38	165	UKJ2	1.29	19
DE94	1.04	41	FR83	0.42	102	PL12	-0.38	165	UKJ3	1.41	6
DEA1	1.04	45	FR91	-0.69	190	PL21	-0.45	168	UKJ4	0.97	60
DEA2	1.04	45	FR92	-0.69	190	PL22	-0.45	168	UKK1	1.09	31
DEA3	1.04	45	FR93	-0.69	190	PL31	-0.69	186	UKK2	1.33	14
DEA4	1.04	45	FR94	-0.69	190	PL32	-0.69	186	UKK3	1.20	24
DEA5	1.04	45	GR11	-1.63	241	PL33	-0.69	186	UKK4	1.06	38
DEB1	0.96	62	GR12	-1.63	241	PL34	-0.69	186	UKL1	0.76	79
DEB2	0.96	62	GR13	-1.63	241	PL41	-0.26	156	UKL2	1.00	52
DEB3	0.96	62	GR14	-1.63	241	PL42	-0.26	156	UKM2	0.80	76
DEC0	0.56	95	GR21	-2.07	251	PL43	-0.26	156	UKM3	0.48	99
DED1	0.38	106	GR22	-2.07	251	PL51	-0.23	152	UKM5	1.08	33
DED2	0.38	106	GR23	-2.07	251	PL52	-0.23	152	UKM6	1.03	51
DED3	0.38	106	GR24	-2.07	251	PL61	-0.47	171	UKN0	-0.03	137
DEE0	0.49	98	GR25	-2.07	251						

Table 50: Technological readiness regional reordered regions from best performer to lowest performer

Reordered regions (from best to worst)												
SE11	1	DEA1	45	FR61	89	UKC1	133	HU22	177	ITE2	220
NL00	2	DEA2	45	FR62	89	AT33	134	ES12	178	ITF1	221
NL13	3	DEA3	45	FR63	89	ES30	135	ES64	179	HR03	222
NL21	4	DEA4	45	UKE1	92	AT11	136	ITD2	180	PT30	223
DK01	5	DEA5	45	DE00	93	UKN0	137	CZ04	181	ES43	224
UKJ3	6	DK03	50	BE35	94	AT21	138	ES23	182	ES11	225
SE22	7	UKM6	51	DEC0	95	AT22	139	ITD1	183	HU32	226
NL12	8	UKL2	52	BE22	96	FR30	140	ITC4	184	BG41	227
SE12	9	DE21	53	BE00	97	ES51	141	SK04	185	PT11	228
DK04	10	DE22	53	DEE0	98	HU10	142	PL31	186	ITC3	229
DE50	11	DE23	53	UKM3	99	SK01	143	PL32	186	PT16	230
SE33	12	DE24	53	UKG3	100	SI01	144	PL33	186	HR04	231
NL11	13	DE25	53	BE21	101	SI02	144	PL34	186	PT18	232
UKK2	14	DE26	53	FR81	102	SK02	146	FR91	190	ITF2	233
UKJ1	15	DE27	53	FR82	102	ES63	147	FR92	190	ITF3	234
NL31	16	UKJ4	60	FR83	102	IE01	148	FR93	190	ITF6	235
NL33	17	UKG2	61	AT00	105	CZ00	149	FR94	190	ITF5	236
DK05	18	DEB1	62	DED1	106	ES53	150	LV00	194	ITG1	237
UKJ2	19	DEB2	62	DED2	106	CZ05	151	CZ07	195	GR41	238
UK00	20	DEB3	62	DED3	106	PL51	152	ES52	196	GR42	238
NL22	21	SE31	65	UKC2	109	PL52	152	ITE1	197	GR43	238
NL42	22	DEF0	66	FR41	110	BE33	154	ES70	198	GR11	241
SE23	23	UKG1	67	FR42	110	FI20	155	RO32	199	GR12	241
UKK3	24	UKF3	68	FR43	110	PL41	156	ITD5	200	GR13	241
DK02	25	UKD1	69	BE23	113	PL42	156	ITE3	201	GR14	241
SE21	26	UKD2	70	MT00	114	PL43	156	ITC2	202	ITF4	245
NL41	27	FI19	71	AT31	115	ES21	159	ITD4	203	RO42	246
SE32	28	LU00	72	IE02	116	ES13	160	ES62	204	BG32	247
NL34	29	FR10	73	AT32	117	EE00	161	ITE4	205	RO31	248
UKH1	30	DEG0	74	FR21	118	ES22	162	HU23	206	BG42	249
UKK1	31	FI1D	75	FR22	118	PT17	163	ES42	207	RO11	250
UKF2	32	UKM2	76	FR23	118	CZ06	164	ITD3	208	GR21	251
UKM5	33	UKD4	77	FR24	118	PL11	165	ITG2	209	GR22	251
DE71	34	UKE4	78	FR25	118	PL12	165	LT00	210	GR23	251
DE72	34	UKL1	79	FR26	118	CZ08	167	ES61	211	GR24	251
DE73	34	AT34	80	FR51	124	PL21	168	PT20	212	GR25	251
FI18	37	DE11	81	FR52	124	PL22	168	HU33	213	RO41	256
UKK4	38	DE12	81	FR53	124	SK03	170	PT15	214	RO12	257
UKF1	39	DE13	81	DE80	127	PL61	171	ES41	215	BG34	258
DE60	40	DE14	81	BE32	128	PL62	171	ITC1	216	RO22	259
DE91	41	UKD5	85	BE25	129	PL63	171	HU31	217	BG31	260
DE92	41	UKD3	86	FR71	130	ES24	174	GR30	218	BG33	261
DE93	41	UKE2	87	FR72	130	HU21	175	CY00	219	RO21	262
DE94	41	UKE3	88	BE34	132	CZ03	176				

Country sub-pillar

Technological readiness of enterprises, which is at the national level as for RCI 2010, has been completely renovated. A preliminary analysis of the updated indicators from the Community Survey on ICT usage and e-commerce included in the previous release showed a very poor level of indicator consistency. This led us to move to other sources, specifically the WEF and Eurostat.

Four indicators from the Technological Readiness pillar of WEF-GCI 2012-2013 index (Schwab & Sala-I-Martin, 2012) are included: 1. Availability of latest technologies; 2. Firm-level technological absorption; 3. Technological adoption and 4. FDI and technology transfer.

The following indicators are instead selected from Eurostat: 5. Enterprises having purchased on line at least 1% of the time; 6. Enterprises having received orders online (at least 1%) and 7. Enterprises with fixed broadband access. These data are collected by the National Statistical Institutes or Ministries and are based on Eurostat's annual model surveys on ICT (Information and Communication Technologies) usage and e-commerce in enterprises.

The list of the indicators now included in the sub-pillar is provided by Table 47 together with some basic descriptive statistics of the indicators. All the indicators have positive orientation with respect to the level of technological readiness of enterprises. Histograms are shown in Figure 39.

PCA shows a good internal consistency of indicators. The variance accounted by the first principal component reaches 71% with an almost balanced contribution of all the indicators (Table 52 and Figure 40).

The distribution of scores across countries is shown in Figure 41 while Table 53 shows scores and ranks. Countries reordered according to their score are displayed in Figure 42.

Table 51: Technological Readiness - Country sub-pillar: summary description of candidate indicators

Indicator name	Availability of latest technologies	Firm-level technology absorption	Technological adoption	FDI and technology transfer	Enterprises having purchased online (at least 1%)	Enterprises having received orders online (at least 1%)	Enterprises with fixed broadband access
description of indicator	1-7 (best)	1-7 (best)	1-7 (best)	1-7 (best)	% of enterprises with at least 10 persons employed in the given NACE sectors, by size class. NACE Rev 2 since 2009	% of enterprises with at least 10 persons employed in the given NACE sectors, by size class. NACE Rev 2 since 2009	% of enterprises with at least 10 persons employed in the given NACE sectors. NACE Rev 2 since 2009
source	World Economic Forum Global Competitiveness Index	World Economic Forum Global Competitiveness Index	World Economic Forum Global Competitiveness Index	World Economic Forum Global Competitiveness Index	Eurostat	Eurostat	Eurostat
reference year	2012-2103 edition - period of reference: 2011	2012-2103 edition - period of reference: 2011	2012-2103 edition - period of reference: 2011	2012-2103 edition - period of reference: 2011	average 2009-2011	average 2009-2011	average 2009-2011
orientation	↑	↑	↑	↑	↑	↑	↑
% of missing values	0.00	0.00	0.00	0.00	0.00	0.00	0.00
missing countries	-	-	-	-	-	-	-
average	5.76	5.19	5.26	4.84	24.15	13.36	81.86
standard deviation	0.70	0.64	0.56	0.59	13.38	6.38	10.43
coefficient of variation	0.12	0.12	0.11	0.12	0.55	0.48	0.13
skewness	-0.58	-0.27	-0.56	0.25	0.43	0.06	-1.42
skewness correction	no	no	no	no	no	no	yes with λ=2
maximum value	6.69	6.30	6.05	6.43	48.00	22.67	94.67
country corresponding to maximum value	SE	SE	SE	IE	DK	BE	ES
minimum value	4.16	3.99	4.19	3.82	5.00	3.33	47.67
country corresponding to minimum value	RO	BG	RO	IT	BG	BG	RO
population weighted average	5.80	5.21	5.23	4.68	25.28	12.71	3562.42
population weighted standard deviation	0.74	0.66	0.56	0.47	12.57	6.04	808.42

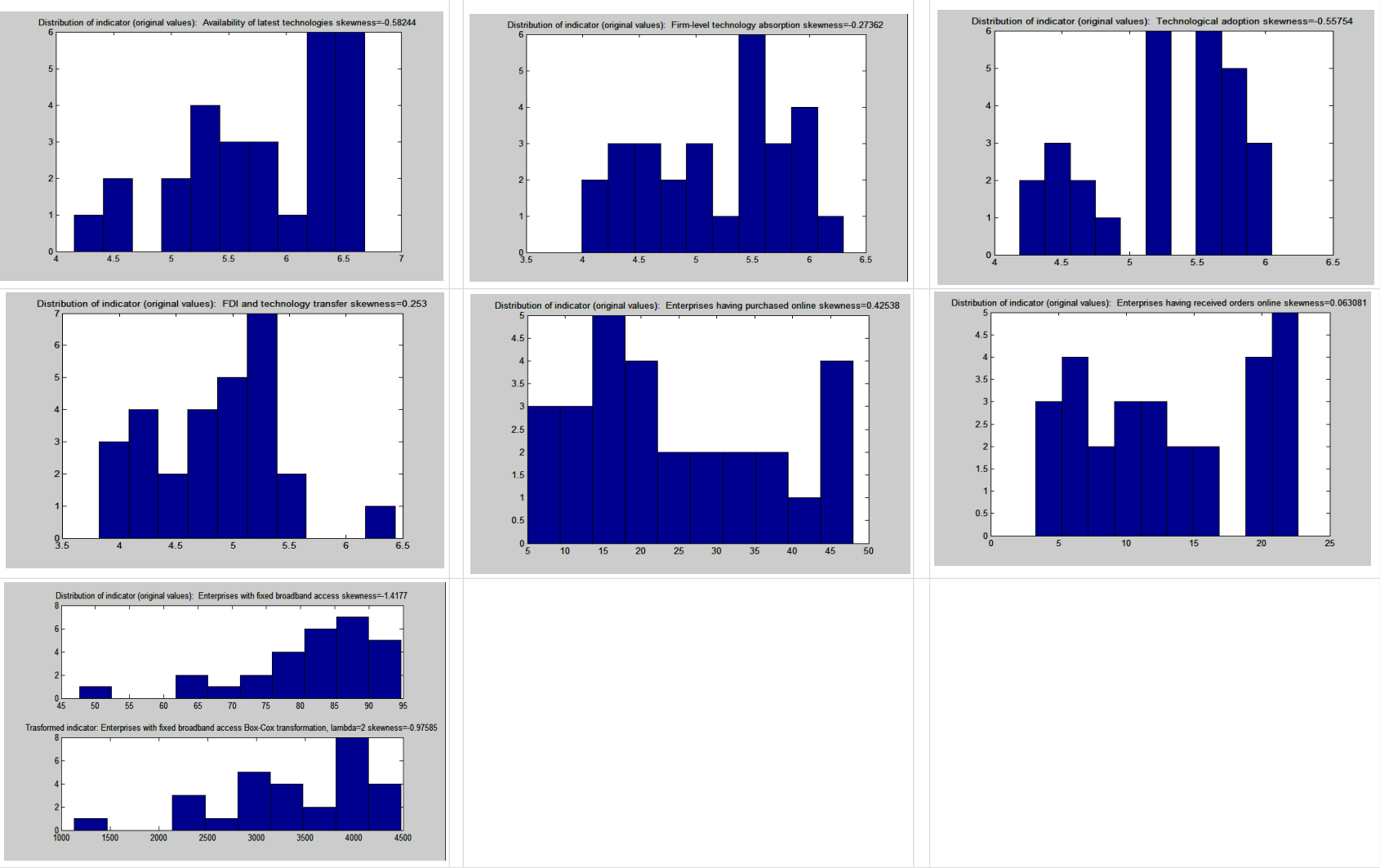


Figure 39: Technological Readiness - Country sub-pillar: indicator histograms

Table 52: Technological Readiness - Country sub-pillar: PCA outcomes

Number of indicators included	Variance explained by first PC	First PC loadings	
		Min value (corresponding indicator)	Max value (corresponding indicator)
7	71%	0.30 (Enterprises with fixed broadband access)	0.43 (Technological adoption)

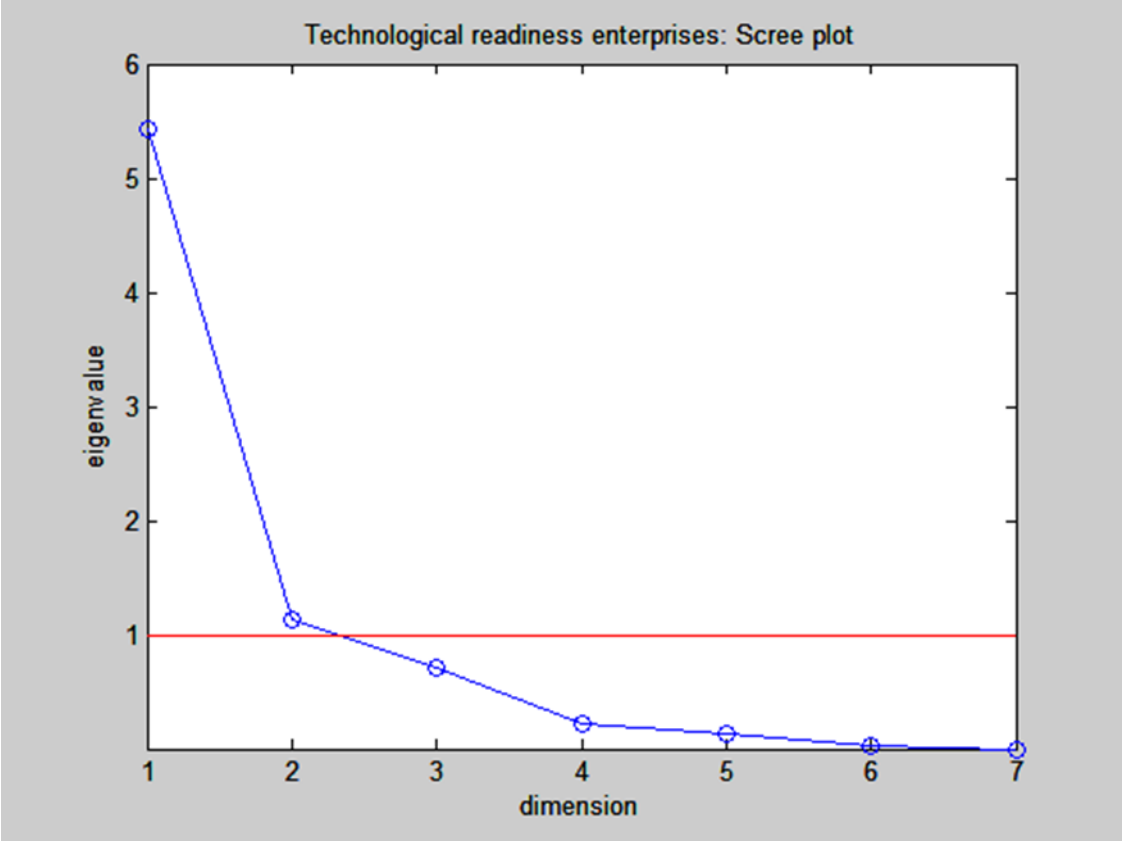


Figure 40: Technological Readiness - Country sub-pillar: PCA scree plot

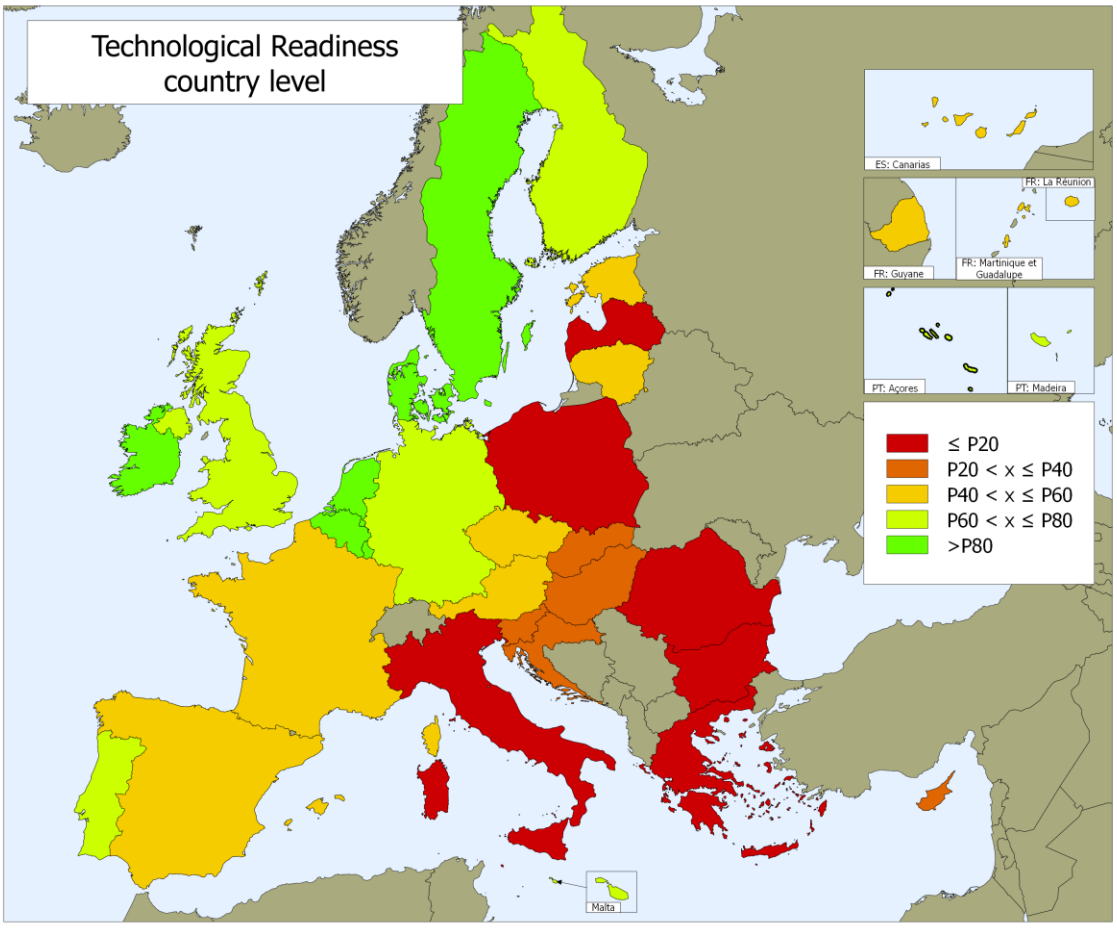


Figure 41: Technological Readiness - Country sub-pillar: score distribution

Table 53: Technological readiness - Country sub-pillar: country scores and ranks

country	scores	ranks
AT	0.43	12
BE	1.04	3
BG	-1.66	27
CY	-0.39	20
CZ	0.34	13
DE	0.68	8
DK	0.87	4
EE	0.22	15
ES	0.14	16
FI	0.62	9
FR	0.29	14
GR	-1.13	24
HR	-0.50	21
HU	-0.29	18
IE	1.26	2
IT	-1.18	26
LT	0.10	17
LU	0.78	6
LV	-1.10	23
MT	0.52	10
NL	0.84	5
PL	-1.13	25
PT	0.44	11
RO	-1.78	28
SE	1.32	1
SI	-0.60	22
SK	-0.32	19
UK	0.70	7

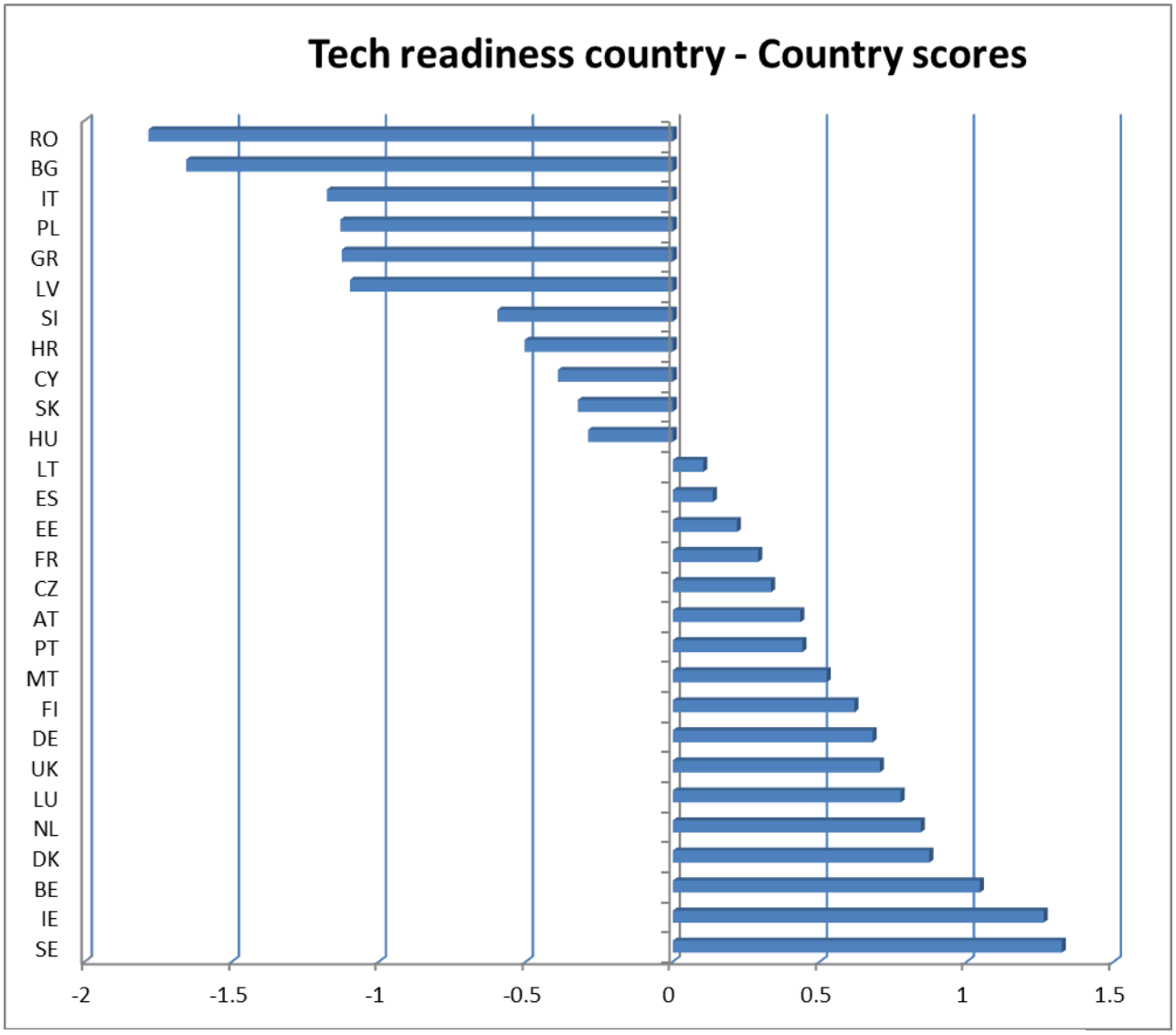


Figure 42: Technological Readiness - Country sub-pillar: reordered countries

Technological Readiness scores and ranks

As for the Institutions pillar, the final scores of the Technological Readiness pillar are simply computed by averaging, for each region, the country score and the regional score. The map of institutions scores is shown in Figure 43. Table 54 and Table 55 list regions scores and ranks.

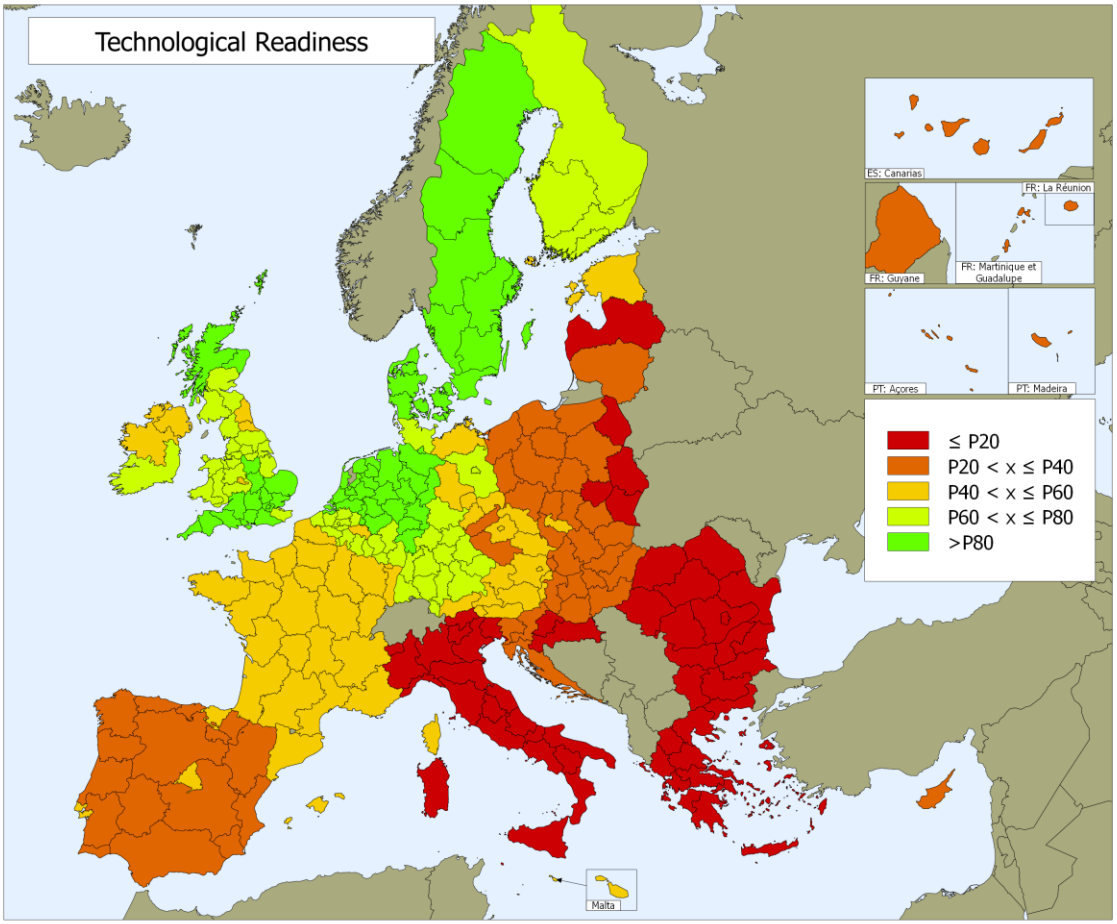


Figure 43: Technological Readiness: score distribution

Table 54: Technological Readiness pillar: region scores and ranks

Region	scores	ranks	Region	scores	ranks	Region	scores	ranks	Region	scores	ranks
AT00	0.41	115	DEF0	0.81	68	GR30	-1.02	226	PL62	-0.80	206
AT11	0.23	136	DEG0	0.76	76	GR41	-1.35	236	PL63	-0.80	206
AT21	0.20	139	DK01	1.15	10	GR42	-1.35	236	PT11	-0.34	177
AT22	0.20	140	DK02	1.04	22	GR43	-1.35	236	PT15	-0.22	169
AT31	0.37	117	DK03	0.95	30	HR03	-0.78	203	PT16	-0.39	184
AT32	0.35	121	DK04	1.12	13	HR04	-0.91	213	PT17	0.05	146
AT33	0.28	126	DK05	1.08	16	HU10	-0.19	160	PT18	-0.45	187
AT34	0.60	99	EE00	-0.06	152	HU21	-0.39	183	PT20	-0.21	167
BE00	0.79	72	ES11	-0.47	189	HU22	-0.40	186	PT30	-0.32	174
BE21	0.73	81	ES12	-0.19	161	HU23	-0.55	191	RO11	-1.88	255
BE22	0.80	71	ES13	-0.08	155	HU31	-0.60	193	RO12	-1.93	258
BE23	0.69	89	ES21	-0.07	153	HU32	-0.69	197	RO21	-2.15	262
BE25	0.61	97	ES22	-0.10	156	HU33	-0.58	192	RO22	-2.01	261
BE32	0.62	95	ES23	-0.24	171	IE01	0.56	104	RO31	-1.87	254
BE33	0.40	116	ES24	-0.17	158	IE02	0.77	75	RO32	-1.26	231
BE34	0.60	98	ES30	0.08	144	ITC1	-1.04	227	RO41	-1.93	257
BE35	0.80	70	ES41	-0.38	182	ITC2	-0.97	221	RO42	-1.82	253
BG31	-1.96	259	ES42	-0.34	176	ITC3	-1.16	230	SE11	1.50	1
BG32	-1.77	251	ES43	-0.47	188	ITC4	-0.91	212	SE12	1.35	3
BG33	-1.98	260	ES51	0.04	147	ITD1	-0.91	211	SE21	1.25	6
BG34	-1.89	256	ES52	-0.28	172	ITD2	-0.88	209	SE22	1.35	2
BG41	-1.38	244	ES53	-0.01	150	ITD3	-1.00	224	SE23	1.28	5
BG42	-1.81	252	ES61	-0.35	178	ITD4	-0.97	222	SE31	1.14	12
CY00	-0.66	194	ES62	-0.32	175	ITD5	-0.96	219	SE32	1.23	7
CZ00	0.09	143	ES63	-0.01	148	ITE1	-0.94	218	SE33	1.33	4
CZ03	-0.08	154	ES64	-0.21	168	ITE2	-1.06	228	SI01	-0.36	179
CZ04	-0.13	157	ES70	-0.29	173	ITE3	-0.96	220	SI02	-0.36	179
CZ05	0.06	145	FI18	0.84	53	ITE4	-0.98	223	SK01	-0.21	166
CZ06	-0.01	149	FI19	0.74	78	ITF1	-1.10	229	SK02	-0.22	170
CZ07	-0.18	159	FI1D	0.71	83	ITF2	-1.28	232	SK03	-0.39	185
CZ08	-0.03	151	FI20	0.18	141	ITF3	-1.29	233	SK04	-0.48	190
DE00	0.63	94	FR10	0.57	103	ITF4	-1.45	245	UK00	0.99	28
DE11	0.70	85	FR21	0.25	127	ITF5	-1.34	235	UKC1	0.43	114
DE12	0.70	85	FR22	0.25	127	ITF6	-1.33	234	UKC2	0.53	108
DE13	0.70	85	FR23	0.25	127	ITG1	-1.36	239	UKD1	0.79	73
DE14	0.70	85	FR24	0.25	127	ITG2	-1.00	225	UKD2	0.78	74
DE21	0.83	56	FR25	0.25	127	LT00	-0.37	181	UKD3	0.68	90
DE22	0.83	56	FR26	0.25	127	LU00	0.82	67	UKD4	0.74	79
DE23	0.83	56	FR30	0.13	142	LV00	-0.89	210	UKD5	0.71	84
DE24	0.83	56	FR41	0.32	123	MT00	0.43	113	UKE1	0.64	93
DE25	0.83	56	FR42	0.32	123	NL00	1.19	8	UKE2	0.67	91
DE26	0.83	56	FR43	0.32	123	NL11	1.09	15	UKE3	0.67	92
DE27	0.83	56	FR51	0.25	133	NL12	1.11	14	UKE4	0.74	80
DE50	1.02	25	FR52	0.25	133	NL13	1.16	9	UKF1	0.88	37
DE60	0.87	42	FR53	0.25	133	NL21	1.15	11	UKF2	0.89	34
DE71	0.87	38	FR61	0.44	109	NL22	1.06	19	UKF3	0.80	69
DE72	0.87	38	FR62	0.44	109	NL31	1.08	17	UKG1	0.82	63
DE73	0.87	38	FR63	0.44	109	NL33	1.07	18	UKG2	0.84	55
DE80	0.44	112	FR71	0.22	137	NL34	0.99	29	UKG3	0.58	101
DE91	0.86	43	FR72	0.22	137	NL41	1.01	26	UKH1	0.91	32
DE92	0.86	43	FR81	0.35	118	NL42	1.05	21	UKJ1	1.02	24
DE93	0.86	43	FR82	0.35	118	PL11	-0.76	201	UKJ2	1.00	27
DE94	0.86	43	FR83	0.35	118	PL12	-0.76	201	UKJ3	1.06	20
DEA1	0.86	47	FR91	-0.20	162	PL21	-0.79	204	UKJ4	0.84	54
DEA2	0.86	47	FR92	-0.20	162	PL22	-0.79	204	UKK1	0.90	33
DEA3	0.86	47	FR93	-0.20	162	PL31	-0.91	214	UKK2	1.02	23
DEA4	0.86	47	FR94	-0.20	162	PL32	-0.91	214	UKK3	0.95	31
DEA5	0.86	47	GR11	-1.38	240	PL33	-0.91	214	UKK4	0.88	36
DEB1	0.82	64	GR12	-1.38	240	PL34	-0.91	214	UKL1	0.73	82
DEB2	0.82	64	GR13	-1.38	240	PL41	-0.70	198	UKL2	0.85	52
DEB3	0.82	64	GR14	-1.38	240	PL42	-0.70	198	UKM2	0.75	77
DEC0	0.62	96	GR21	-1.60	246	PL43	-0.70	198	UKM3	0.59	100
DED1	0.53	105	GR22	-1.60	246	PL51	-0.68	195	UKM5	0.89	35
DED2	0.53	105	GR23	-1.60	246	PL52	-0.68	195	UKM6	0.87	41
DED3	0.53	105	GR24	-1.60	246	PL61	-0.80	206	UKN0	0.34	122
DEE0	0.58	102	GR25	-1.60	246						

Table 55: Technological Readiness pillar: reordered regions from best performer to lowest performer

Reordered regions (from best to worst)											
SE11	1	DE93	43	BE23	89	FR51	133	PT11	177	ITE3	220
SE22	2	DE94	43	UKD3	90	FR52	133	ES61	178	ITC2	221
SE12	3	DEA1	47	UKE2	91	FR53	133	SI01	179	ITD4	222
SE33	4	DEA2	47	UKE3	92	AT11	136	SI02	179	ITE4	223
SE23	5	DEA3	47	UKE1	93	FR71	137	LT00	181	ITD3	224
SE21	6	DEA4	47	DE00	94	FR72	137	ES41	182	ITG2	225
SE32	7	DEA5	47	BE32	95	AT21	139	HU21	183	GR30	226
NL00	8	UKL2	52	DEC0	96	AT22	140	PT16	184	ITC1	227
NL13	9	FI18	53	BE25	97	FI20	141	SK03	185	ITE2	228
DK01	10	UKJ4	54	BE34	98	FR30	142	HU22	186	ITF1	229
NL21	11	UKG2	55	AT34	99	CZ00	143	PT18	187	ITC3	230
SE31	12	DE21	56	UKM3	100	ES30	144	ES43	188	RO32	231
DK04	13	DE22	56	UKG3	101	CZ05	145	ES11	189	ITF2	232
NL12	14	DE23	56	DEE0	102	PT17	146	SK04	190	ITF3	233
NL11	15	DE24	56	FR10	103	ES51	147	HU23	191	ITF6	234
DK05	16	DE25	56	IE01	104	ES63	148	HU33	192	ITF5	235
NL31	17	DE26	56	DED1	105	CZ06	149	HU31	193	GR41	236
NL33	18	DE27	56	DED2	105	ES53	150	CY00	194	GR42	236
NL22	19	UKG1	63	DED3	105	CZ08	151	PL51	195	GR43	236
UKJ3	20	DEB1	64	UKC2	108	EE00	152	PL52	195	ITG1	239
NL42	21	DEB2	64	FR61	109	ES21	153	HU32	197	GR11	240
DK02	22	DEB3	64	FR62	109	CZ03	154	PL41	198	GR12	240
UKK2	23	LU00	67	FR63	109	ES13	155	PL42	198	GR13	240
UKJ1	24	DEF0	68	DE80	112	ES22	156	PL43	198	GR14	240
DE50	25	UKF3	69	MT00	113	CZ04	157	PL11	201	BG41	244
NL41	26	BE35	70	UKC1	114	ES24	158	PL12	201	ITF4	245
UKJ2	27	BE22	71	AT00	115	CZ07	159	HR03	203	GR21	246
UK00	28	BE00	72	BE33	116	HU10	160	PL21	204	GR22	246
NL34	29	UKD1	73	AT31	117	ES12	161	PL22	204	GR23	246
DK03	30	UKD2	74	FR81	118	FR91	162	PL61	206	GR24	246
UKK3	31	IE02	75	FR82	118	FR92	162	PL62	206	GR25	246
UKH1	32	DEG0	76	FR83	118	FR93	162	PL63	206	BG32	251
UKK1	33	UKM2	77	AT32	121	FR94	162	ITD2	209	BG42	252
UKF2	34	FI19	78	UKN0	122	SK01	166	LV00	210	RO42	253
UKM5	35	UKD4	79	FR41	123	PT20	167	ITD1	211	RO31	254
UKK4	36	UKE4	80	FR42	123	ES64	168	ITC4	212	RO11	255
UKF1	37	BE21	81	FR43	123	PT15	169	HR04	213	BG34	256
DE71	38	UKL1	82	AT33	126	SK02	170	PL31	214	RO41	257
DE72	38	FI1D	83	FR21	127	ES23	171	PL32	214	RO12	258
DE73	38	UKD5	84	FR22	127	ES52	172	PL33	214	BG31	259
UKM6	41	DE11	85	FR23	127	ES70	173	PL34	214	BG33	260
DE60	42	DE12	85	FR24	127	PT30	174	ITE1	218	RO22	261
DE91	43	DE13	85	FR25	127	ES62	175	ITD5	219	RO21	262
DE92	43	DE14	85	FR26	127	ES42	176				

4.10 Business Sophistication

The new pillar on Business Sophistication includes Employment and GVA for K to N sectors. With respect to the first Index edition, both indicators are updated to 2010 and take into account the NACE classification rev. 2, which is to be used, in general, for statistics referring to economic activities performed as from 1 January 2008 onwards. Selected sectors correspond to: K: Financial and insurance activities; L: Real estate activities; M and N: Professional, scientific, technical, administration and support service activities. As there is no possibility to achieve a continuity with the previous classification (due to missing data), the indicators are not completely comparable to those used in the 2010 edition.

An additional indicator is also selected as a candidate, which estimates the employees working in foreign owned firms as a share of total employment excluding the Agriculture sector. The estimates used here are from a recent study by the PBL Netherlands Environmental Assessment Agency (Weterings, Raspe, & van den Berge, 2011). Unfortunately, the indicator does not comply with one of our inclusion criteria as it has a high share of missing values, more than 16%. It is then excluded from the analysis.

Summary statistics of candidate indicators is shown in Table 56 while histograms are displayed in Figure 44.

Given that only two indicators are eventually included in the pillar, PCA analysis is not carried out in this case.

Table 56: Business Sophistication: summary description of candidate indicators

Indicator name	Employment (K-N sectors)	GVA (K-N sectors)	Foreign owned firms
description of indicator	employment in the "Financial and insurance activities; real estate activities; professional, scientific and technical activities; administrative and support service activities" sectors (K-N) as % of total employment	GVA in the "Financial and insurance activities; real estate activities; professional, scientific and technical activities; administrative and support service activities" sectors (K-N) as % of total GVA	Workers in foreign owned firms as % of total employment excluding Agriculture
source	Eurostat Regional Statistics	Eurostat Regional Statistics	PBL NL Environmental Assessment Agency
reference year	2010	2010	2010
orientation	↑	↑	↑
% of missing values	0.00	0.00	16.41
missing regions	-	-	see the data table
average	12.33	21.85	8.89
standard deviation	4.72	6.03	11.91
coefficient of variation	0.38	0.28	1.34
skewness	0.35	0.07	3.86
skewness correction	no	no	
maximum value	26.55	46.12	93.41
country corresponding to maximum value	LU00	LU00	LU00
minimum value	0.00	0.00	0.00
country corresponding to minimum value	UKD2	UKD2	GR13
population weighted average	13.80	23.71	4.38
population weighted standard deviation	5.11	6.44	3.06

Shadowed indicators excluded from final computations because of too many missing values

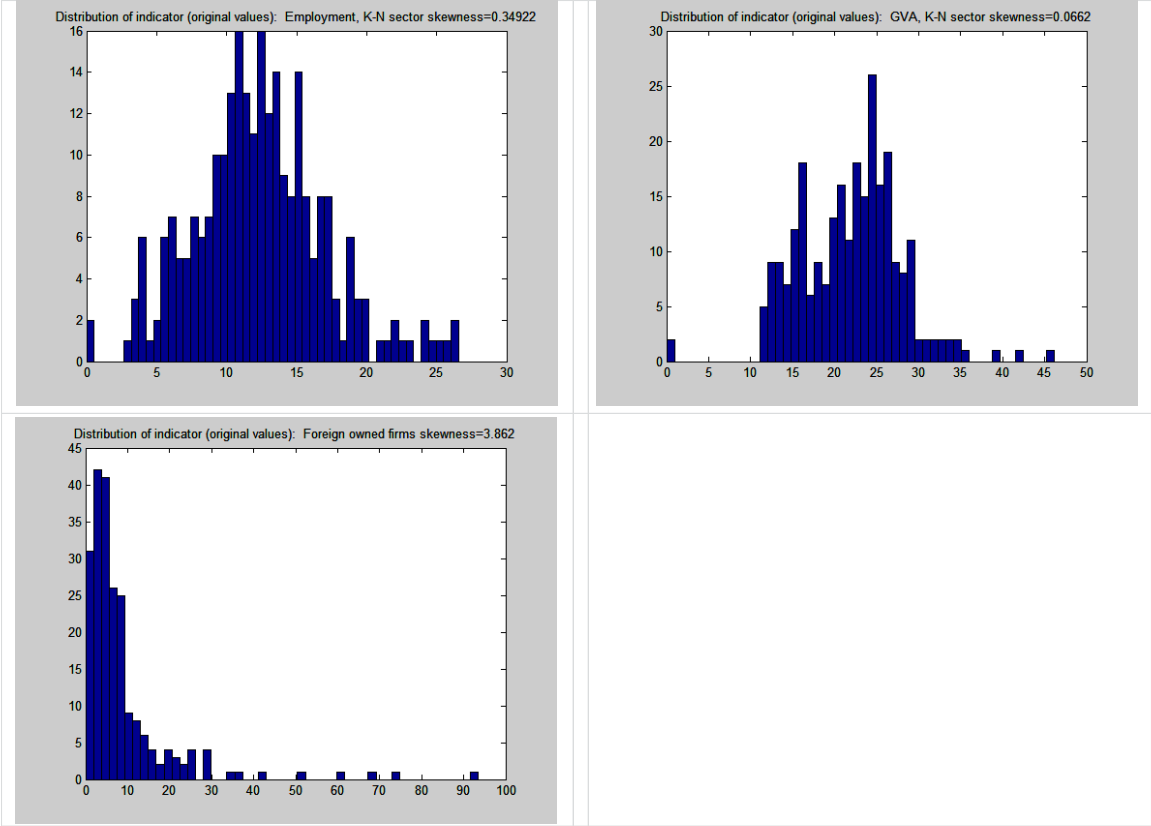


Figure 44: Business Sophistication: indicator histograms

Figure 45 shows the map of the distribution of regional sub-scores of the Business Sophistication pillar. Table 57 and Table 58 display score and rank values region by region.

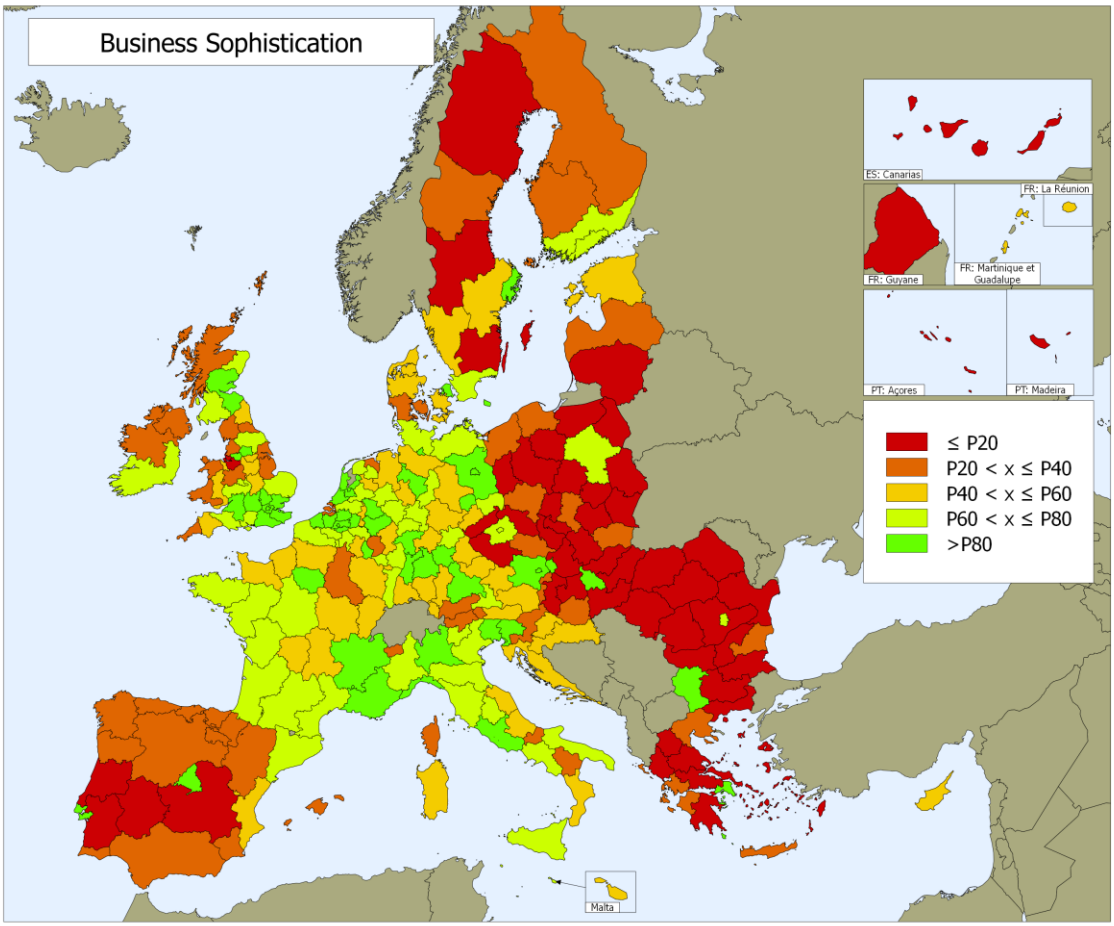


Figure 45: Business Sophistication: score distribution

Table 57: Business Sophistication: region scores and ranks

Region	scores	ranks	Region	scores	ranks	Region	scores	ranks	Region	scores	ranks
AT00	0.50	42	DEF0	0.40	48	GR30	0.57	38	PL62	-1.38	233
AT11	-0.63	176	DEG0	-0.23	131	GR41	-1.15	215	PL63	-0.97	197
AT21	-0.29	137	DK01	0.94	16	GR42	-1.39	235	PT11	-0.89	190
AT22	-0.17	121	DK02	-0.30	139	GR43	-1.05	203	PT15	-0.50	166
AT31	-0.21	129	DK03	-0.39	153	HR03	-0.26	135	PT16	-1.41	239
AT32	0.00	92	DK04	-0.13	117	HR04	-0.21	128	PT17	0.87	18
AT33	-0.44	160	DK05	-0.31	141	HU10	0.72	25	PT18	-1.45	242
AT34	-0.33	146	EE00	-0.36	150	HU21	-1.26	223	PT20	-1.41	240
BE00	1.99	5	ES11	-0.85	188	HU22	-1.25	221	PT30	-0.38	152
BE21	0.99	15	ES12	-0.58	172	HU23	-1.05	205	RO11	-1.61	254
BE22	0.52	41	ES13	-0.59	173	HU31	-1.49	244	RO12	-1.55	248
BE23	0.66	30	ES21	-0.41	158	HU32	-1.29	226	RO21	-1.65	255
BE25	0.49	43	ES22	-0.94	194	HU33	-1.25	222	RO22	-1.60	253
BE32	0.21	66	ES23	-1.02	201	IE01	-0.54	170	RO31	-1.84	259
BE33	0.29	60	ES24	-0.84	187	IE02	0.39	50	RO32	0.13	77
BE34	-0.16	120	ES30	0.81	19	ITC1	0.38	52	RO41	-1.82	258
BE35	0.36	53	ES41	-0.89	189	ITC2	-0.45	161	RO42	-1.59	251
BG31	-1.33	230	ES42	-1.30	228	ITC3	0.65	33	SE11	1.45	9
BG32	-1.40	237	ES43	-1.19	218	ITC4	0.64	35	SE12	-0.33	144
BG33	-0.90	191	ES51	0.00	94	ITD1	-0.39	154	SE21	-1.15	214
BG34	-1.36	231	ES52	-0.35	147	ITD2	-0.01	99	SE22	0.06	84
BG41	0.66	29	ES53	-0.41	156	ITD3	-0.01	98	SE23	-0.35	149
BG42	-1.51	245	ES61	-0.41	157	ITD4	0.44	45	SE31	-1.20	219
CY00	-0.06	110	ES62	-0.80	183	ITD5	0.33	56	SE32	-0.98	199
CZ00	0.39	51	ES63	-1.58	250	ITE1	0.29	59	SE33	-1.19	217
CZ03	-1.23	220	ES64	-1.60	252	ITE2	0.09	82	SI01	-0.51	167
CZ04	-1.28	224	ES70	-0.32	143	ITE3	-0.03	106	SI02	0.53	39
CZ05	-1.30	229	FI18	0.15	74	ITE4	0.80	22	SK01	1.23	12
CZ06	-0.79	182	FI19	-0.67	179	ITF1	-0.33	145	SK02	-1.37	232
CZ07	-1.29	227	FI1D	-0.72	181	ITF2	-0.40	155	SK03	-1.14	212
CZ08	-1.28	225	FI20	-1.11	207	ITF3	0.11	78	SK04	-1.03	202
DE00	0.93	17	FR10	2.38	3	ITF4	-0.01	97	UK00	1.69	7
DE11	0.66	32	FR21	-0.48	164	ITF5	-0.42	159	UKC1	-0.59	174
DE12	0.58	37	FR22	-0.24	132	ITF6	-0.12	114	UKC2	-0.14	119
DE13	-0.32	142	FR23	-0.02	101	ITG1	0.01	88	UKD1	-0.98	198
DE14	-0.18	122	FR24	0.13	75	ITG2	-0.03	104	UKD2	-3.19	261
DE21	1.38	10	FR25	-0.20	126	LT00	-1.11	208	UKD3	0.61	36
DE22	-0.23	130	FR26	-0.31	140	LU00	2.99	1	UKD4	-0.63	177
DE23	-0.20	127	FR30	0.28	63	LV00	-0.47	163	UKD5	-3.19	261
DE24	0.13	76	FR41	-0.12	115	MT00	0.01	91	UKE1	-0.95	195
DE25	0.72	26	FR42	0.04	87	NL00	1.81	6	UKE2	0.00	96
DE26	-0.09	112	FR43	-0.28	136	NL11	-0.53	168	UKE3	-0.38	151
DE27	-0.05	109	FR51	0.20	67	NL12	0.20	68	UKE4	0.74	24
DE50	0.68	27	FR52	0.01	90	NL13	0.16	71	UKF1	-0.35	148
DE60	2.01	4	FR53	0.00	95	NL21	-0.13	118	UKF2	-0.02	100
DE71	2.50	2	FR61	0.18	70	NL22	0.41	47	UKF3	-0.82	185
DE72	0.30	57	FR62	0.33	55	NL31	1.55	8	UKG1	0.11	79
DE73	0.10	81	FR63	-0.30	138	NL33	0.81	21	UKG2	-0.49	165
DE80	0.01	89	FR71	0.52	40	NL34	-0.67	178	UKG3	0.35	54
DE91	0.07	83	FR72	-0.18	125	NL41	0.39	49	UKH1	0.27	64
DE92	0.66	31	FR81	0.19	69	NL42	-0.10	113	UKJ1	0.81	20
DE93	-0.04	107	FR82	0.48	44	PL11	-1.12	210	UKJ2	1.25	11
DE94	-0.02	103	FR83	-0.69	180	PL12	0.16	72	UKJ3	0.29	58
DEA1	1.00	14	FR91	-0.25	134	PL21	-1.16	216	UKJ4	0.43	46
DEA2	1.15	13	FR92	-0.18	124	PL22	-0.94	193	UKK1	0.79	23
DEA3	0.28	61	FR93	-0.57	171	PL31	-1.54	246	UKK2	0.05	86
DEA4	-0.03	105	FR94	-0.24	133	PL32	-1.78	257	UKK3	-0.62	175
DEA5	0.28	62	GR11	-1.40	236	PL33	-1.76	256	UKK4	-0.18	123
DEB1	-0.13	116	GR12	-0.84	186	PL34	-1.55	249	UKL1	-0.82	184
DEB2	-0.46	162	GR13	-1.85	260	PL41	-1.47	243	UKL2	-0.08	111
DEB3	0.00	93	GR14	-1.13	211	PL42	-1.05	204	UKM2	0.67	28
DEC0	0.23	65	GR21	-1.12	209	PL43	-1.38	234	UKM3	0.10	80
DED1	-0.02	102	GR22	-0.93	192	PL51	-0.96	196	UKM5	0.15	73
DED2	0.05	85	GR23	-1.06	206	PL52	-1.44	241	UKM6	-0.98	200
DED3	0.65	34	GR24	-1.55	247	PL61	-1.41	238	UKN0	-0.54	169
DEE0	-0.04	108	GR25	-1.14	213						

Table 58: Business Sophistication
reordered regions from best performer to lowest performer

Reordered regions (from best to worst)												
LU00	1	ITD4	45	DE80	89	FR94	133	UKD4	177	CZ03	220
DE71	2	UKJ4	46	FR52	90	FR91	134	NL34	178	HU22	221
FR10	3	NL22	47	MT00	91	HR03	135	FI19	179	HU33	222
DE60	4	DEF0	48	AT32	92	FR43	136	FR83	180	HU21	223
BE00	5	NL41	49	DEB3	93	AT21	137	FI1D	181	CZ04	224
NL00	6	IE02	50	ES51	94	FR63	138	CZ06	182	CZ08	225
UK00	7	CZ00	51	FR53	95	DK02	139	ES62	183	HU32	226
NL31	8	ITC1	52	UKE2	96	FR26	140	UKL1	184	CZ07	227
SE11	9	BE35	53	ITF4	97	DK05	141	UKF3	185	ES42	228
DE21	10	UKG3	54	ITD3	98	DE13	142	GR12	186	CZ05	229
UKJ2	11	FR62	55	ITD2	99	ES70	143	ES24	187	BG31	230
SK01	12	ITD5	56	UKF2	100	SE12	144	ES11	188	BG34	231
DEA2	13	DE72	57	FR23	101	ITF1	145	ES41	189	SK02	232
DEA1	14	UKJ3	58	DED1	102	AT34	146	PT11	190	PL62	233
BE21	15	ITE1	59	DE94	103	ES52	147	BG33	191	PL43	234
DK01	16	BE33	60	ITG2	104	UKF1	148	GR22	192	GR42	235
DE00	17	DEA3	61	DEA4	105	SE23	149	PL22	193	GR11	236
PT17	18	DEA5	62	ITE3	106	EE00	150	ES22	194	BG32	237
ES30	19	FR30	63	DE93	107	UKE3	151	UKE1	195	PL61	238
UKJ1	20	UKH1	64	DEE0	108	PT30	152	PL51	196	PT16	239
NL33	21	DEC0	65	DE27	109	DK03	153	PL63	197	PT20	240
ITE4	22	BE32	66	CY00	110	ITD1	154	UKD1	198	PL52	241
UKK1	23	FR51	67	UKL2	111	ITF2	155	SE32	199	PT18	242
UKE4	24	NL12	68	DE26	112	ES53	156	UKM6	200	PL41	243
HU10	25	FR81	69	NL42	113	ES61	157	ES23	201	HU31	244
DE25	26	FR61	70	ITF6	114	ES21	158	SK04	202	BG42	245
DE50	27	NL13	71	FR41	115	ITF5	159	GR43	203	PL31	246
UKM2	28	PL12	72	DEB1	116	AT33	160	PL42	204	GR24	247
BG41	29	UKM5	73	DK04	117	ITC2	161	HU23	205	RO12	248
BE23	30	FI18	74	NL21	118	DEB2	162	GR23	206	PL34	249
DE92	31	FR24	75	UKC2	119	LV00	163	FI20	207	ES63	250
DE11	32	DE24	76	BE34	120	FR21	164	LT00	208	RO42	251
ITC3	33	RO32	77	AT22	121	UKG2	165	GR21	209	ES64	252
DED3	34	ITF3	78	DE14	122	PT15	166	PL11	210	RO22	253
ITC4	35	UKG1	79	UKK4	123	SI01	167	GR14	211	RO11	254
UKD3	36	UKM3	80	FR92	124	NL11	168	SK03	212	RO21	255
DE12	37	DE73	81	FR72	125	UKN0	169	GR25	213	PL33	256
GR30	38	ITE2	82	FR25	126	IE01	170	SE21	214	PL32	257
SI02	39	DE91	83	DE23	127	FR93	171	GR41	215	RO41	258
FR71	40	SE22	84	HR04	128	ES12	172	PL21	216	RO31	259
BE22	41	DED2	85	AT31	129	ES13	173	SE33	217	GR13	260
AT00	42	UKK2	86	DE22	130	UKC1	174	ES43	218	UKD2	261
BE25	43	FR42	87	DEG0	131	UKK3	175	SE31	219	UKD5	261
FR82	44	ITG1	88	FR22	132	AT11	176				

4.11 Innovation

The changes with respect to the 2010 edition for the pillar are:

1. Innovation patent application not included as not present any longer in Eurostat at the regional level;
2. Scientific publication indicator is now from ScienceMetrix and is based on Scopus data (Campbell, 2012);
3. High-tech, ICT and EPO Biotechnology patent-related indicators are all measured on number of applications and not on authors/inventors;
4. Two indicators provided by the European Cluster Observatory are added, Eshare HT and Wshare HT, measuring the regional cluster strength in the high-tech sector.

With respect to the first RCI edition, which included a cluster-related indicator in the business sophistication pillar, RCI 2013 includes two cluster measures in the innovation pillar developed by the European Cluster Observatory (www.clusterobservatory.eu). There are two reasons for that: 1. the newly available cluster indicators describe cluster strength in the high-tech sector only, thus referring to the innovative capacity of the region and 2. the statistical assessment demonstrated a better level of consistency of these indicators in the Innovation pillar than in the Business Sophistication pillar. A throughout discussion with Cluster Observatory and Harvard Business School teams helped us in our decision.

The two additional indicators are selected from a set of measures by Cluster Observatory and refer to the number of employees – Eshare HT - and the average wage – Wshare HT - in the high-tech sectors. Aerospace, Analytical Instruments, Biotechnology, Chemical, IT, Telecom and Medical Devices are all considered as high-tech sectors. The indicators are based on detailed data on the number of employees and the average wage for each combination of NUTS 2 regions and NACE 4-digit industry (for most countries), which are grouped into cluster categories. The location quotient (LQ) is then computed for each such cluster category/region combination. As this measures a region's specialisation in a cluster category, and the overall strength of the cluster portfolio needs to be defined at a regional level, Eshare and Wshare are computed as regional aggregates by computing:

- the share of employees in strong clusters for Eshare;
- the share of total payroll in strong clusters for Wshare.

Cluster Observatory defines a cluster strong if it satisfies two conditions:

1. it is in top 20% among all clusters in the same cluster category ranked by LQ, in order to include only the most specialised ones in every industry;
2. it is in top 80% among all clusters in the same cluster category ranked by employment, to avoid having very small, artificial clusters.

The year of reference for cluster indicators ranges from 2009 to 2011 for most countries with the following exceptions: Belgium and Spain (2008), United Kingdom (2007), Czech Republic and the Netherlands (2005), Greece (2006) and Malta (2002). More on the methodology at the European Cluster Observatory web-site (www.clusterobservatory.eu).

The list of the candidate indicators included in the pillar is provided by Table 59 together with basic descriptive statistics. Only two indicators, Employment in Technology & Knowledge Intensive Sectors and EPO Biotechnology Patent Applications, are discarded from the analysis as affected by too many missing values (respectively 25 and 17%).

All the indicators have positive orientation with respect to the level of technological readiness of enterprises. Histograms are shown in Figure 46.

PCA shows a good internal consistency of indicators with 63% of variance explained by the first principal component and a balanced contribution of all the indicators (Table 60 and Figure 47). It must be noted, however, the presence of a non-irrelevant second latent dimension, accounting for 14% of total variability and mainly explained by the two cluster-related indicators. As expected the two indicators bring a type of information slightly different than the others more classical measures of innovation.

The distribution of scores across regions is shown in Figure 48 while Table 61 shows scores and ranks. Regions reordered according to their score are displayed in Table 62.

Table 59: Innovation: summary description of candidate indicators

Indicator name	Total patent applications	Core creative class employment	Knowledge workers	Scientific publications	Total intramural R&D expenditure	Human Resources in Science and Technology
description of indicator	number of applications per million inhabitants	% of population aged 15-64	knowledge workers as % out of total employment	Number of Scientific Publications per million inhabitants	total R&D expenditure as % of GDP	as of % labor force
source	EUROSTAT	Eurostat, LFS	Eurostat, LFS	ScienceMetrix based on Scopus data	Eurostat, Regional Science and Technology Statistics	Eurostat, Regional Science and Technology Statistics
reference year	average 2007-2008	2010-2011	2011	average 2008-2010	2009	2011
orientation	↑	↑	↑	↑	↑	↑
% of missing values	1.90	1.52	1.52	0.00	1.90	1.52
missing regions	ES63, ES64, GR13, GR41, RO22	FR91 -> FR94	FR91 -> FR94	-	DE22, DE23, FR92 -> FR94	FR91 -> FR94
average	91.67	8.09	36.86	1360.62	1.50	19.31
standard deviation	113.92	2.61	7.71	1086.27	1.26	5.55
coefficient of variation	1.24	0.32	0.21	0.80	0.84	0.29
skewness	2.04	0.67	0.07	1.28	1.76	0.58
skewness correction	yes with λ=0.3	no	no	yes with λ=0.8	yes with λ=0.5	no
maximum value	585.52	16.64	58.62	5322.80	7.93	42.67
country corresponding to maximum value	DE11	DK01	SK01	NL11	DE91	UKM5
minimum value	0.23	3.55	18.12	46.20	0.10	9.02
country corresponding to minimum value	RO31	CZ04	RO21	BG31	PL43	CZ04
population weighted average	8.01	8.32	38.25	425.68	0.43	20.10
population weighted standard deviation	4.89	2.75	8.13	231.29	0.89	5.56

Indicator name	Employment in technology and knowledge-intensive sectors	High-tech-patent application	ICT patent application	EPO Biotechnology patent applications	Eshare HT	Wshare HT
description of indicator	as of % total employment	High Technology EPO patent applications, number of applications per million inhabitants	ICT EPO patent applications, number of applications per million inhabitants	EPO patent applications, number of applications per million inhabitants	Share of employees in strong clusters among high-tech clusters	share of total payroll in strong clusters among high-tech clusters
source	Eurostat, Regional Science and Technology Statistics	OECD REGPAT	OECD REGPAT	OECD REGPAT	Cluster Observatory	Cluster Observatory
reference year	2011	average 2008-2009	average 2008-2009	average 2007-2009	2009-2011	2009-2011
orientation	↑	↑	↑	↑	↑	↑
% of missing values	25.10	4.94	4.18	17.11	3.05	3.05
missing regions	see the data table	ES43, ES63, ES64, FI20, FR93, GR13, GR21, GR22, GR41->GR43, PL33, PT30	ES43, ES63, ES64, FI20, FR93, GR13, GR22, GR25, GR41, GR42, PT30	see the data table	ES63, ES64, FR91 ->FR94, HR03, HR04	ES63, ES64, FR91 ->FR94, HR03, HR04
average	2.56	9.92	15.02	4.77	0.03	0.05
standard deviation	1.39	14.68	22.54	6.57	0.04	0.06
coefficient of variation	0.54	1.48	1.50	1.38	1.18	1.16
skewness	1.63	2.75	2.85	4.18	1.25	1.12
skewness correction	yes with λ=0.5	yes with λ=0.3	yes with λ=0.3	yes with λ=0.3	yes with λ=0.8	yes with λ=0.8
maximum value	9.00	86.03	142.15	63.64	0.18	0.26
country corresponding to maximum value	UKJ1	NL41	DE25	DK01	IE01	UKJ1
minimum value	0.60	0.15	0.16	0.05	0.00	0.00
country corresponding to minimum value	RO21	RO31	PL33	RO21	AT11	AT11
population weighted average	1.23	2.48	3.19	1.43	-1.17	-1.14
population weighted standard deviation	0.88	2.56	2.91	1.81	0.07	0.10

Shadowed indicators Excluded from final computations because too many missing values

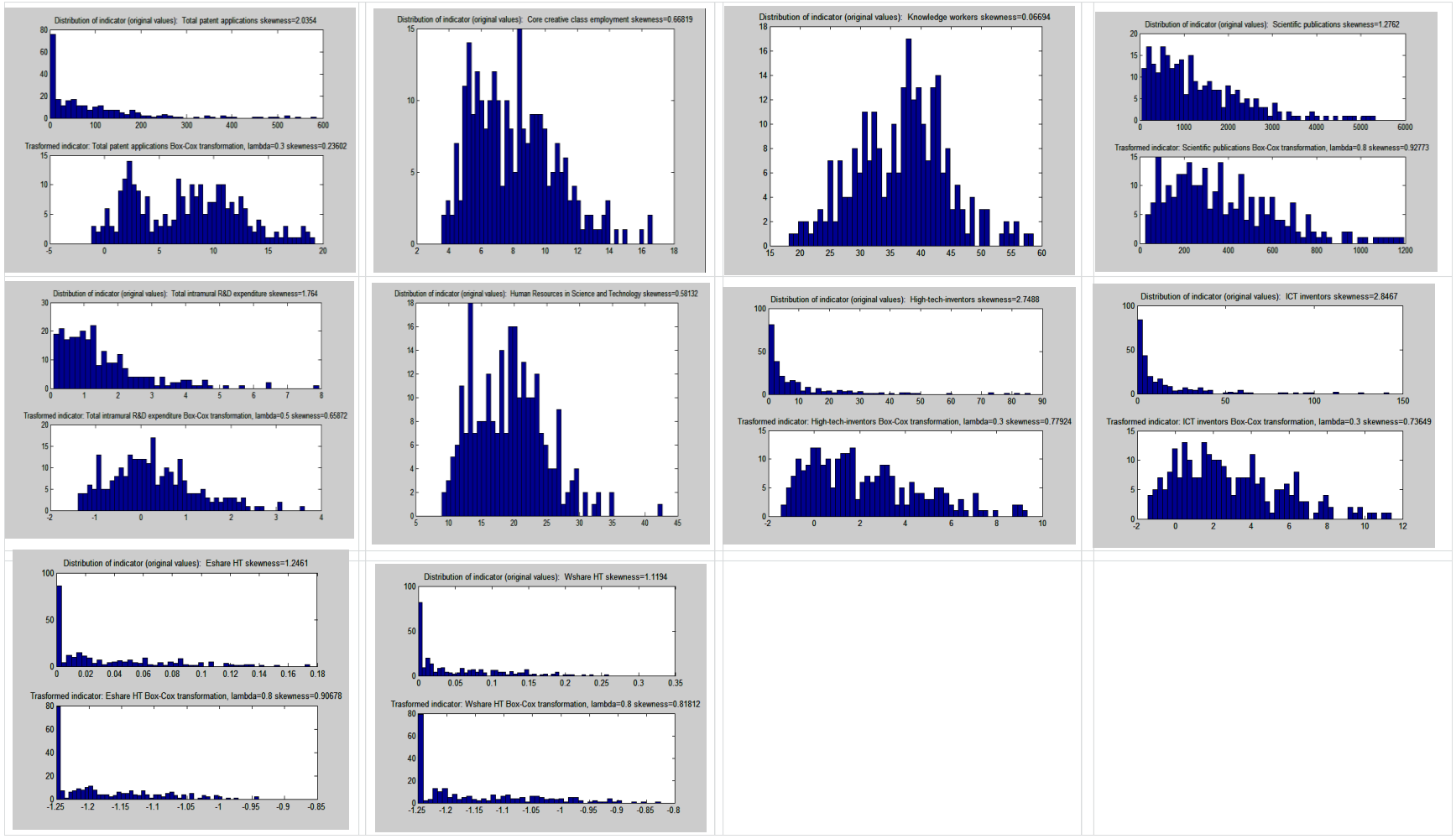


Figure 46: Innovation: indicator histograms

Number of indicators included	Component	Variance explained	Loadings	
			Min value (corresponding indicator)	Max value (corresponding indicator)
10	first	63%	0.27 (Eshare HT)	0.36 (Total intramural R&D expenditure)
	second	14%	0.09 (High-tech patents)	0.66 (Eshare HT)

Table 60: Innovation: PCA outcomes

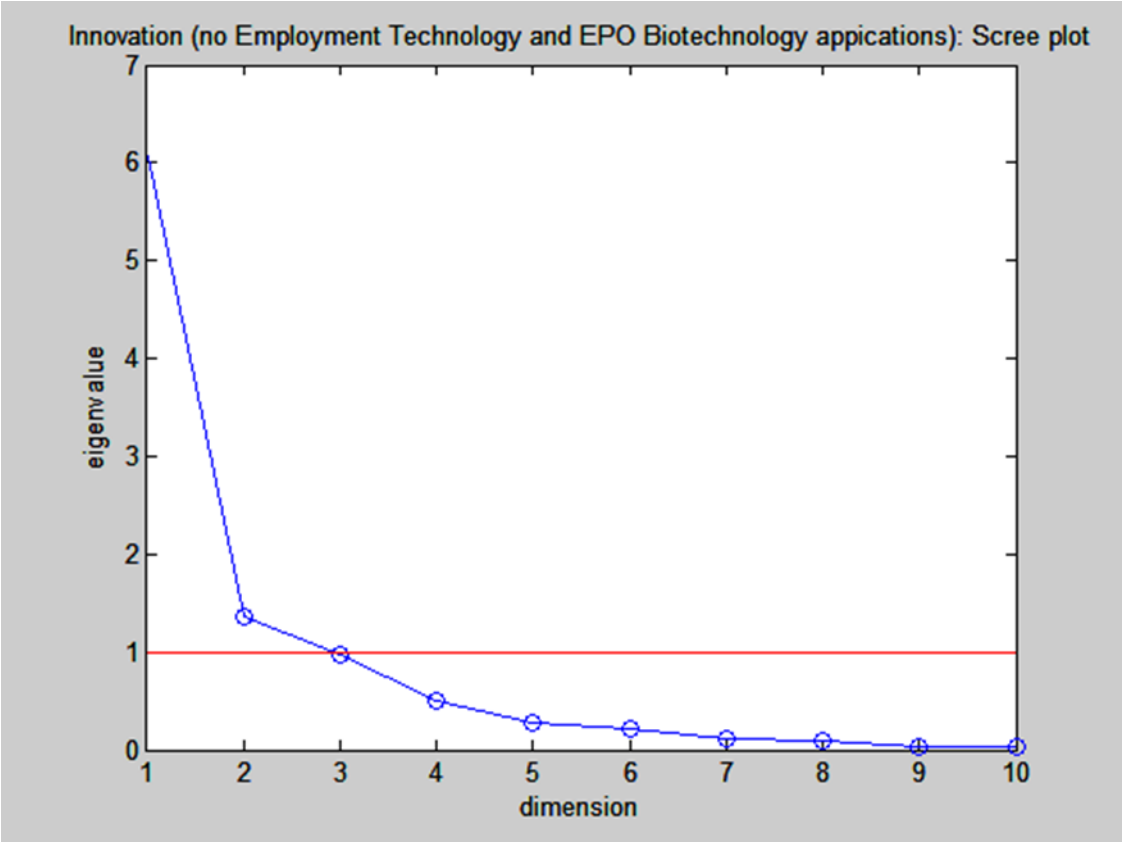


Figure 47: Innovation: PCA scree plot

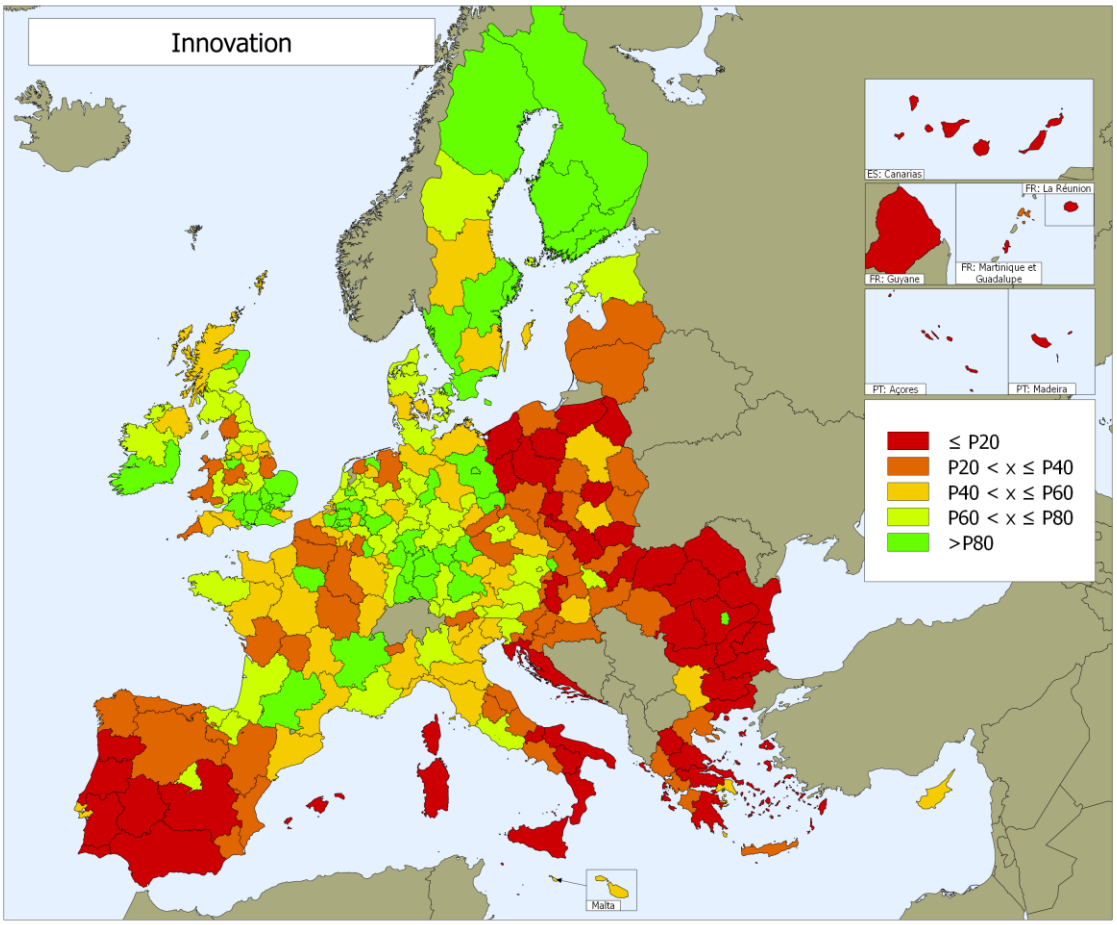


Figure 48: Innovation: score distribution

Table 61: Innovation: country scores and ranks

Region	scores	ranks	Region	scores	ranks	Region	scores	ranks	Region	scores	ranks
AT00	0.47	55	DEF0	0.24	75	GR30	-0.05	109	PL62	-1.11	244
AT11	-0.74	190	DEG0	0.46	57	GR41	-0.98	225	PL63	-0.58	171
AT21	0.11	87	DK01	2.22	2	GR42	-1.33	253	PT11	-0.86	208
AT22	0.42	62	DK02	0.25	74	GR43	-0.83	203	PT15	-1.00	229
AT31	-0.25	132	DK03	-0.24	130	HR03	-0.95	219	PT16	-0.97	224
AT32	-0.06	111	DK04	0.37	66	HR04	-0.76	193	PT17	-0.29	141
AT33	0.08	89	DK05	0.14	85	HU10	0.40	65	PT18	-1.06	233
AT34	0.01	97	EE00	0.20	81	HU21	-0.62	176	PT20	-1.12	246
BE00	1.39	10	ES11	-0.70	180	HU22	-0.91	215	PT30	-1.23	248
BE21	0.80	39	ES12	-0.54	165	HU23	-0.40	152	RO11	-0.97	222
BE22	-0.03	107	ES13	-0.65	178	HU31	-0.45	155	RO12	-1.33	252
BE23	0.77	40	ES21	0.05	93	HU32	-0.88	209	RO21	-1.41	259
BE25	-0.17	125	ES22	0.06	91	HU33	-0.76	194	RO22	-1.49	262
BE32	-0.08	115	ES23	-0.66	179	IE01	0.42	64	RO31	-1.42	260
BE33	0.28	71	ES24	-0.51	163	IE02	0.80	38	RO32	0.65	45
BE34	-0.46	157	ES30	0.60	48	ITC1	-0.08	113	RO41	-1.10	240
BE35	-0.05	110	ES41	-0.72	183	ITC2	-0.70	181	RO42	-0.74	191
BG31	-1.37	255	ES42	-0.95	220	ITC3	-0.15	122	SE11	2.24	1
BG32	-1.18	247	ES43	-0.92	217	ITC4	0.01	98	SE12	1.36	12
BG33	-1.12	245	ES51	-0.29	140	ITD1	-0.54	167	SE21	-0.28	138
BG34	-1.46	261	ES52	-0.72	184	ITD2	-0.14	120	SE22	1.59	8
BG41	-0.31	143	ES53	-1.11	242	ITD3	-0.39	151	SE23	1.10	21
BG42	-1.36	254	ES61	-0.89	210	ITD4	-0.28	135	SE31	-0.28	137
CY00	-0.31	144	ES62	-0.79	200	ITD5	-0.26	133	SE32	0.23	76
CZ00	0.51	50	ES63	-1.38	256	ITE1	-0.31	145	SE33	0.98	28
CZ03	-0.61	175	ES64	-0.70	182	ITE2	-0.72	185	SI01	-0.49	160
CZ04	-0.78	199	ES70	-1.06	232	ITE3	-0.77	196	SI02	0.43	60
CZ05	-0.57	170	FI18	1.61	6	ITE4	0.25	73	SK01	1.03	26
CZ06	-0.42	153	FI19	0.92	31	ITF1	-0.76	195	SK02	-0.73	186
CZ07	-0.75	192	FI1D	0.86	33	ITF2	-1.10	241	SK03	-0.97	223
CZ08	-1.08	236	FI20	0.26	72	ITF3	-0.58	172	SK04	-1.07	234
DE00	1.06	25	FR10	1.31	13	ITF4	-0.92	216	UK00	0.72	43
DE11	1.26	15	FR21	-0.80	201	ITF5	-1.08	237	UKC1	0.23	77
DE12	1.64	5	FR22	-0.47	158	ITF6	-1.11	243	UKC2	0.15	84
DE13	1.11	20	FR23	0.00	100	ITG1	-0.90	211	UKD1	-0.50	161
DE14	1.49	9	FR24	-0.15	121	ITG2	-1.00	230	UKD2	0.82	37
DE21	1.94	4	FR25	-0.32	146	LT00	-0.55	169	UKD3	-0.16	123
DE22	-0.14	119	FR26	-0.59	173	LU00	0.94	30	UKD4	0.06	90
DE23	1.17	18	FR30	-0.42	154	LV00	-0.78	197	UKD5	-0.27	134
DE24	0.32	68	FR41	-0.35	149	MT00	-0.33	148	UKE1	-0.28	139
DE25	1.60	7	FR42	0.30	70	NL00	0.47	56	UKE2	0.21	79
DE26	0.48	53	FR43	-0.12	116	NL11	0.75	42	UKE3	-0.23	129
DE27	0.45	58	FR51	-0.24	131	NL12	-0.48	159	UKE4	-0.28	136
DE50	0.85	35	FR52	0.20	80	NL13	-0.36	150	UKF1	0.32	69
DE60	1.39	11	FR53	-0.61	174	NL21	0.12	86	UKF2	0.01	99
DE71	1.18	17	FR61	0.06	92	NL22	0.19	82	UKF3	-0.62	177
DE72	0.47	54	FR62	1.22	16	NL31	1.30	14	UKG1	0.04	94
DE73	0.02	96	FR63	-0.51	162	NL33	0.49	52	UKG2	-0.54	166
DE80	-0.14	117	FR71	0.75	41	NL34	-0.06	112	UKG3	-0.20	128
DE91	0.82	36	FR72	-0.18	127	NL41	0.86	34	UKH1	0.91	32
DE92	0.58	49	FR81	-0.17	124	NL42	0.65	46	UKJ1	2.07	3
DE93	-0.02	105	FR82	0.50	51	PL11	-0.84	205	UKJ2	1.06	23
DE94	-0.52	164	FR83	-0.98	227	PL12	0.00	103	UKJ3	1.11	19
DEA1	0.42	63	FR91	-0.84	206	PL21	-0.30	142	UKJ4	0.00	101
DEA2	1.03	27	FR92	-1.08	235	PL22	-0.83	204	UKK1	1.06	24
DEA3	0.02	95	FR93	-1.24	249	PL31	-0.86	207	UKK2	-0.03	106
DEA4	0.42	61	FR94	-1.05	231	PL32	-0.81	202	UKK3	-0.55	168
DEA5	-0.04	108	GR11	-1.10	239	PL33	-1.29	250	UKK4	-0.02	104
DEB1	0.22	78	GR12	-0.73	188	PL34	-1.09	238	UKL1	-0.46	156
DEB2	0.16	83	GR13	-0.90	212	PL41	-0.96	221	UKL2	0.63	47
DEB3	0.94	29	GR14	-0.98	226	PL42	-0.91	214	UKM2	0.44	59
DEC0	0.00	102	GR21	-0.73	187	PL43	-0.99	228	UKM3	0.11	88
DED1	-0.14	118	GR22	-1.32	251	PL51	-0.78	198	UKM5	0.72	44
DED2	1.09	22	GR23	-0.74	189	PL52	-0.94	218	UKM6	-0.32	147
DED3	0.33	67	GR24	-1.41	258	PL61	-0.90	213	UKN0	-0.08	114
DEE0	-0.17	126	GR25	-1.38	257						

Table 62: Innovation
reordered regions from best performer to lowest performer

Reordered regions (from best to worst)												
SE11	1	RO32	45	AT33	89	ITD5	133	UKF3	177	ES42	220
DK01	2	NL42	46	UKD4	90	UKD5	134	ES13	178	PL41	221
UKJ1	3	UKL2	47	ES22	91	ITD4	135	ES23	179	RO11	222
DE21	4	ES30	48	FR61	92	UKE4	136	ES11	180	SK03	223
DE12	5	DE92	49	ES21	93	SE31	137	ITC2	181	PT16	224
FI18	6	CZ00	50	UKG1	94	SE21	138	ES64	182	GR41	225
DE25	7	FR82	51	DEA3	95	UKE1	139	ES41	183	GR14	226
SE22	8	NL33	52	DE73	96	ES51	140	ES52	184	FR83	227
DE14	9	DE26	53	AT34	97	PT17	141	ITE2	185	PL43	228
BE00	10	DE72	54	ITC4	98	PL21	142	SK02	186	PT15	229
DE60	11	AT00	55	UKF2	99	BG41	143	GR21	187	ITG2	230
SE12	12	NL00	56	FR23	100	CY00	144	GR12	188	FR94	231
FR10	13	DEG0	57	UKJ4	101	ITE1	145	GR23	189	ES70	232
NL31	14	DE27	58	DEC0	102	FR25	146	AT11	190	PT18	233
DE11	15	UKM2	59	PL12	103	UKM6	147	RO42	191	SK04	234
FR62	16	SI02	60	UKK4	104	MT00	148	CZ07	192	FR92	235
DE71	17	DEA4	61	DE93	105	FR41	149	HR04	193	CZ08	236
DE23	18	AT22	62	UKK2	106	NL13	150	HU33	194	ITF5	237
UKJ3	19	DEA1	63	BE22	107	ITD3	151	ITF1	195	PL34	238
DE13	20	IE01	64	DEA5	108	HU23	152	ITE3	196	GR11	239
SE23	21	HU10	65	GR30	109	CZ06	153	LV00	197	RO41	240
DED2	22	DK04	66	BE35	110	FR30	154	PL51	198	ITF2	241
UKJ2	23	DED3	67	AT32	111	HU31	155	CZ04	199	ES53	242
UKK1	24	DE24	68	NL34	112	UKL1	156	ES62	200	ITF6	243
DE00	25	UKF1	69	ITC1	113	BE34	157	FR21	201	PL62	244
SK01	26	FR42	70	UKN0	114	FR22	158	PL32	202	BG33	245
DEA2	27	BE33	71	BE32	115	NL12	159	GR43	203	PT20	246
SE33	28	FI20	72	FR43	116	SI01	160	PL22	204	BG32	247
DEB3	29	ITE4	73	DE80	117	UKD1	161	PL11	205	PT30	248
LU00	30	DK02	74	DED1	118	FR63	162	FR91	206	FR93	249
FI19	31	DEF0	75	DE22	119	ES24	163	PL31	207	PL33	250
UKH1	32	SE32	76	ITD2	120	DE94	164	PT11	208	GR22	251
FI1D	33	UKC1	77	FR24	121	ES12	165	HU32	209	RO12	252
NL41	34	DEB1	78	ITC3	122	UKG2	166	ES61	210	GR42	253
DE50	35	UKE2	79	UKD3	123	ITD1	167	ITG1	211	BG42	254
DE91	36	FR52	80	FR81	124	UKK3	168	GR13	212	BG31	255
UKD2	37	EE00	81	BE25	125	LT00	169	PL61	213	ES63	256
IE02	38	NL22	82	DEE0	126	CZ05	170	PL42	214	GR25	257
BE21	39	DEB2	83	FR72	127	PL63	171	HU22	215	GR24	258
BE23	40	UKC2	84	UKG3	128	ITF3	172	ITF4	216	RO21	259
FR71	41	DK05	85	UKE3	129	FR26	173	ES43	217	RO31	260
NL11	42	NL21	86	DK03	130	FR53	174	PL52	218	BG34	261
UK00	43	AT21	87	FR51	131	CZ03	175	HR03	219	RO22	262
UKM5	44	UKM3	88	AT31	132	HU21	176				

5 RCI 2013

RCI 2013 sub-indexes and scores are computed on the basis of the 11 pillar scores presented in Chapter 4. As in the previous edition, the three sub-indexes – basic, efficiency and innovation – are computed as simple arithmetic averages of the three groups of pillars.

The Basic group of pillars consists of Institutions, Macroeconomic Stability, Infrastructure, Health and Basic Education pillars. They are considered as factors which are strictly necessary for the basic functioning of any economy and cover aspects like unskilled or low skilled labor force, infrastructures, quality of governance and public health, which are also important economic and social determinants. The simple arithmetic average of these pillars gives the first RCI sub-index (Basic sub-index) shown in Figure 49.

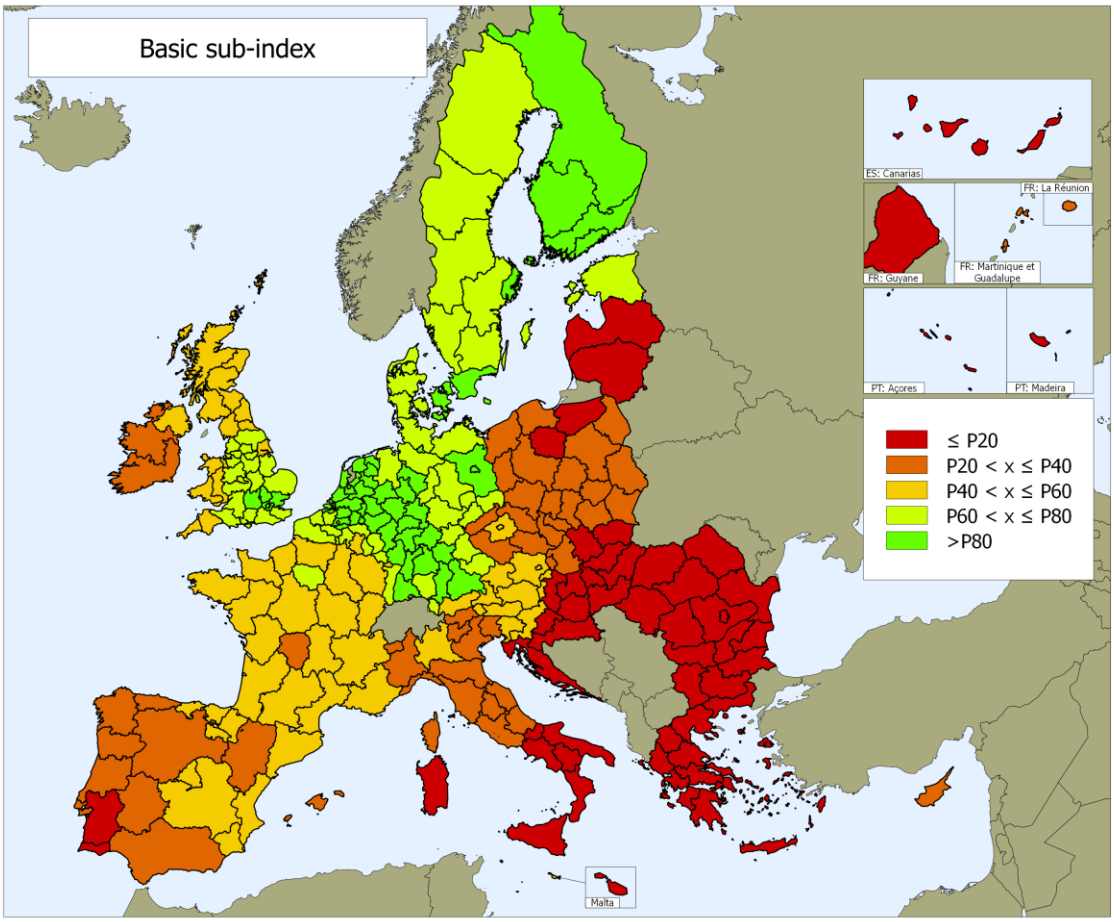


Figure 49: Score distribution of the Basic sub-index

The second group of pillars includes Higher Education and Lifelong Learning, Labor Market Efficiency and Market Size. They describe a socio-economic environment more developed than the previous one, with a potential skilled labor force and a more structured labor market. These pillars are used for the computation of the Efficiency sub-index shown in Figure 50.

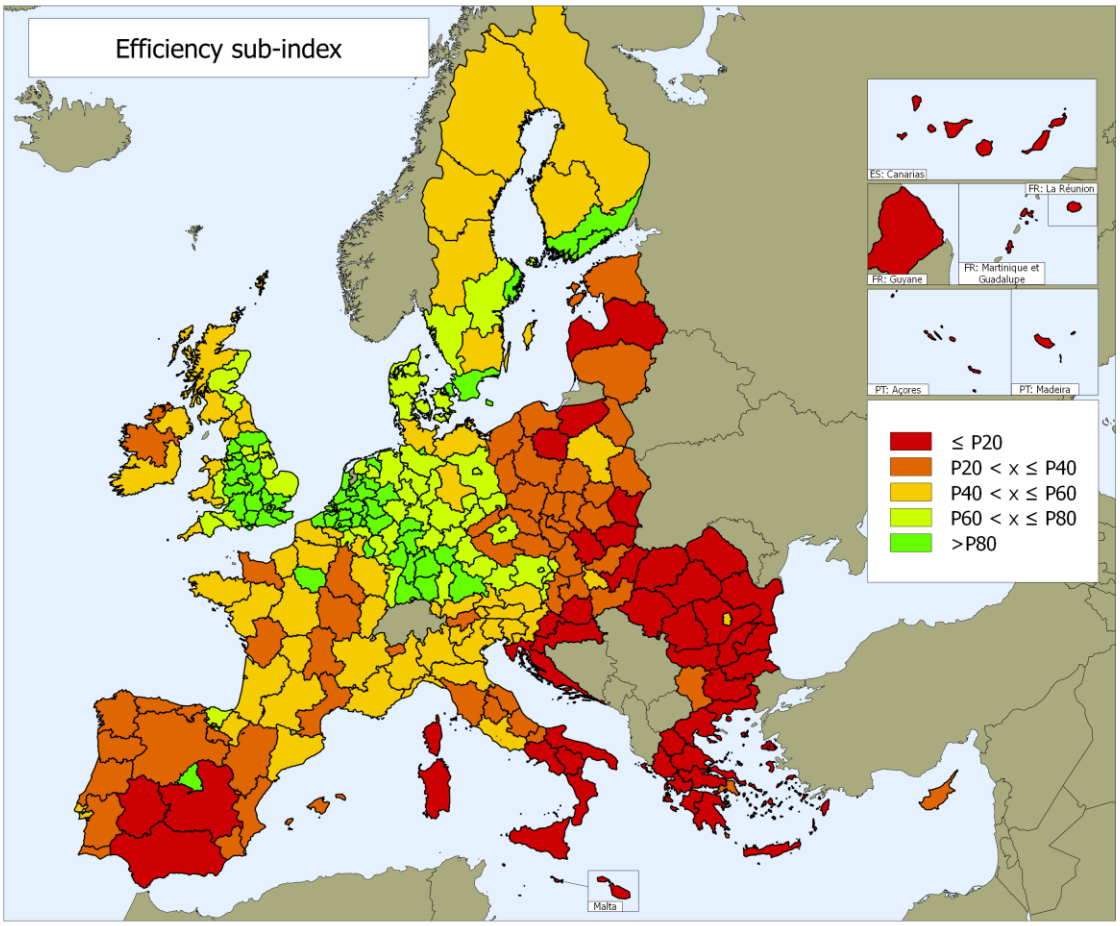


Figure 50: Score distribution of the Efficiency sub-index

The last group of pillars comprises all the high tech and innovation related pillars: Technological Readiness, Business Sophistication and Innovation. A region scoring high in these aspects is expected to have the most competitive economy. The distribution of Innovation sub-index scores is shown in Figure 51.

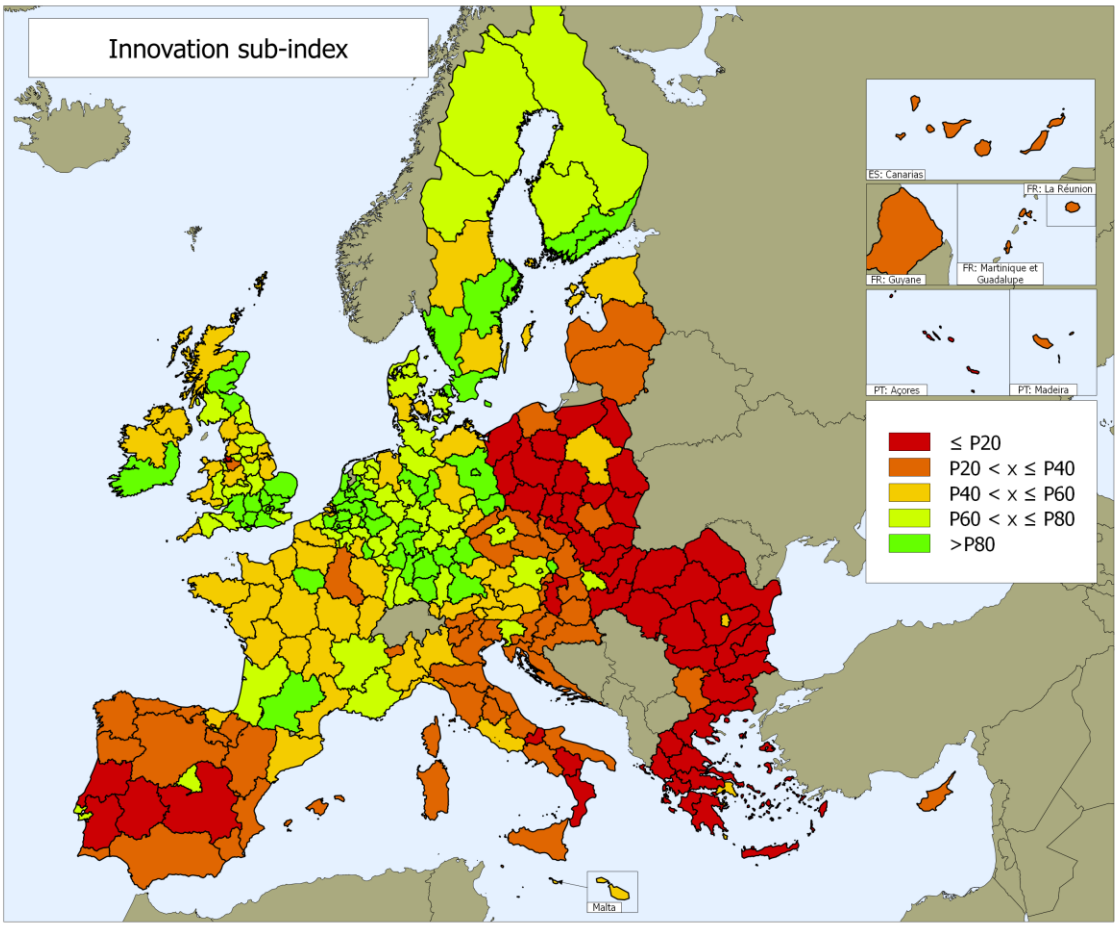


Figure 51: Score distribution on the Innovation sub-index

The three sub-indexes are then aggregated using a weighted linear function with weights depending on the region development stage as discussed in Chapter 2. Some improvements are adopted for this release: namely, a higher number of development stage classes, now 5 instead of 3, to allow for a smoother weight change across different stages and slightly increase of the weights assigned to the innovation pillar group for the lowest developed regional economies to reward innovative policies even in lagging behind regions, as also recommended by the WEF-GCI team (Table 5).

RCI 2013 sub-indexes and index scores and ranks are shown in Table 63.

Table 63: RCI 2013 scores and ranks for the 3 sub-indexes and the final index

region	Basic sub-index		Efficiency sub-index		Innovation sub-index		RCI 2013	
	scores	ranks	scores	ranks	scores	ranks	scores	ranks
AT00	0.186	105	0.435	68	0.462	52	0.393	75
AT11	0.197	103	0.321	84	-0.379	162	0.129	110
AT21	0.118	114	0.029	121	0.007	121	0.044	124
AT22	0.045	121	0.196	103	0.151	102	0.148	108
AT31	0.085	118	0.303	89	-0.031	126	0.159	104
AT32	0.078	119	0.175	106	0.100	110	0.133	109
AT33	0.211	102	0.187	105	-0.024	124	0.128	111
AT34	0.281	93	0.137	109	0.093	111	0.153	106
BE00	0.584	45	0.871	15	1.389	7	0.969	14
BE21	0.647	30	0.852	18	0.838	23	0.807	20
BE22	0.620	33	0.707	36	0.429	56	0.614	35
BE23	0.477	69	0.905	14	0.708	29	0.752	26
BE25	0.407	82	0.729	32	0.308	79	0.538	44
BE32	0.274	95	0.046	119	0.251	90	0.155	105
BE33	0.479	67	0.329	83	0.322	76	0.369	79
BE34	0.002	127	0.098	115	-0.007	123	0.048	122
BE35	0.248	99	0.332	81	0.371	67	0.318	87
BG31	-1.442	254	-1.486	259	-1.554	255	-1.481	262
BG32	-1.402	252	-1.141	237	-1.450	252	-1.279	246
BG33	-1.360	251	-1.232	242	-1.332	247	-1.292	247
BG34	-1.558	260	-1.245	244	-1.567	257	-1.403	259
BG41	-1.203	237	-0.550	189	-0.341	158	-0.715	208
BG42	-1.263	243	-1.252	245	-1.560	256	-1.302	248
CY00	-0.262	176	-0.266	162	-0.342	160	-0.285	163
CZ00	-0.132	147	0.282	91	0.328	74	0.213	96
CZ03	-0.227	170	-0.275	163	-0.638	185	-0.328	166
CZ04	-0.341	187	-0.404	175	-0.728	199	-0.445	180
CZ05	-0.193	161	-0.246	157	-0.602	182	-0.296	164
CZ06	-0.164	154	-0.420	178	-0.408	163	-0.338	168
CZ07	-0.302	185	-0.421	179	-0.742	201	-0.444	179
CZ08	-0.294	181	-0.345	170	-0.797	208	-0.414	176
DE00	0.599	42	0.359	78	0.874	19	0.551	42
DE11	0.693	26	0.806	23	0.873	20	0.804	21
DE12	0.796	19	0.846	20	0.975	17	0.875	18
DE13	0.639	31	0.701	37	0.497	49	0.627	32
DE14	0.565	48	0.745	28	0.673	34	0.687	30
DE21	0.604	38	0.854	17	1.384	8	0.963	15
DE22	0.431	76	0.354	79	0.151	101	0.309	88
DE23	0.485	65	0.365	77	0.597	38	0.459	60
DE24	0.445	74	0.459	64	0.426	57	0.446	65
DE25	0.615	34	0.567	48	1.047	14	0.721	28
DE26	0.698	25	0.533	54	0.405	61	0.528	49
DE27	0.603	39	0.507	57	0.409	60	0.497	55
DE50	0.596	43	0.439	66	0.848	22	0.593	38
DE60	0.665	28	0.847	19	1.422	5	0.983	12
DE71	0.841	16	0.855	16	1.515	3	1.050	7
DE72	0.742	23	0.602	44	0.550	44	0.621	33
DE73	0.606	37	0.427	70	0.328	73	0.433	71
DE80	0.364	87	-0.063	130	0.106	108	0.092	118
DE91	0.549	52	0.384	73	0.585	41	0.476	58
DE92	0.609	36	0.381	75	0.700	30	0.522	50
DE93	0.512	58	0.271	92	0.267	88	0.336	85
DE94	0.499	62	0.239	98	0.105	109	0.266	94
DEA1	0.854	14	0.743	30	0.760	27	0.770	23
DEA2	0.918	13	0.739	31	1.014	15	0.857	19
DEA3	0.751	22	0.594	45	0.389	63	0.577	41
DEA4	0.659	29	0.418	71	0.419	59	0.475	59
DEA5	0.804	18	0.487	59	0.368	68	0.531	45
DEB1	0.787	20	0.523	56	0.303	80	0.528	47
DEB2	0.569	47	0.541	53	0.172	98	0.451	63
DEB3	0.771	21	0.669	40	0.589	39	0.672	31
DEC0	0.563	49	0.314	86	0.281	86	0.354	80
DED1	0.445	75	0.249	97	0.123	105	0.274	92
DED2	0.471	71	0.269	93	0.559	42	0.390	76
DED3	0.512	59	0.265	95	0.506	46	0.387	77
DEE0	0.472	70	0.067	117	0.122	106	0.191	97

region	Basic sub-index		Efficiency sub-index		Innovation sub-index		RCI 2013	
	scores	ranks	scores	ranks	scores	ranks	scores	ranks
DEF0	0.499	63	0.202	100	0.482	50	0.346	83
DEG0	0.483	66	0.285	90	0.331	70	0.350	82
DK01	0.613	35	0.973	12	1.437	4	1.040	9
DK02	0.599	41	0.436	67	0.328	72	0.457	61
DK03	0.522	56	0.316	85	0.109	107	0.295	89
DK04	0.546	53	0.384	74	0.456	53	0.438	69
DK05	0.479	68	0.250	96	0.303	81	0.318	86
EE00	0.448	73	-0.617	195	-0.074	132	-0.182	148
ES11	-0.171	156	-0.481	183	-0.673	193	-0.458	182
ES12	-0.204	163	-0.354	171	-0.436	165	-0.340	169
ES13	-0.141	150	-0.255	161	-0.439	167	-0.277	161
ES21	-0.057	135	0.459	63	-0.143	140	0.175	103
ES22	-0.134	148	0.201	101	-0.330	157	-0.025	131
ES23	-0.138	149	-0.254	160	-0.640	187	-0.347	170
ES24	-0.179	159	-0.326	167	-0.507	173	-0.351	172
ES30	0.167	110	0.593	46	0.498	48	0.479	57
ES41	-0.202	162	-0.478	182	-0.661	189	-0.460	183
ES42	-0.073	138	-0.951	220	-0.862	219	-0.690	205
ES43	-0.238	173	-1.155	238	-0.859	217	-0.813	223
ES51	-0.011	129	-0.166	148	-0.081	133	-0.109	142
ES52	-0.117	142	-0.405	176	-0.451	168	-0.349	171
ES53	-0.172	158	-0.668	198	-0.509	174	-0.521	188
ES61	-0.219	169	-0.930	219	-0.550	176	-0.649	202
ES62	-0.115	141	-0.564	192	-0.639	186	-0.457	181
ES63	-0.365	193	-1.504	260	-0.987	230	-1.098	236
ES64	-0.216	168	-1.363	253	-0.840	211	-0.930	234
ES70	-0.154	151	-0.901	216	-0.558	177	-0.618	199
FI18	1.185	1	0.585	47	0.867	21	0.790	22
FI19	1.097	7	0.196	102	0.330	71	0.445	66
FI1D	1.015	10	-0.075	131	0.284	84	0.278	91
FI20	1.118	6	0.268	94	-0.222	151	0.291	90
FR10	0.500	61	1.047	8	1.421	6	1.050	8
FR21	0.036	122	-0.250	158	-0.342	159	-0.206	154
FR22	0.178	107	0.060	118	-0.150	142	0.045	123
FR23	0.002	126	-0.026	126	0.077	114	0.008	129
FR24	0.066	120	-0.145	142	0.080	113	-0.036	133
FR25	-0.123	144	-0.279	165	-0.090	135	-0.194	151
FR26	-0.001	128	-0.418	177	-0.216	149	-0.266	159
FR30	0.226	100	-0.076	132	-0.006	122	0.023	126
FR41	0.030	123	-0.094	135	-0.051	128	-0.050	135
FR42	0.255	98	0.309	87	0.220	94	0.273	93
FR43	0.009	125	-0.128	141	-0.028	125	-0.068	138
FR51	-0.030	132	-0.082	133	0.071	115	-0.029	132
FR52	-0.130	146	0.107	114	0.155	100	0.063	121
FR53	-0.063	136	-0.299	166	-0.119	138	-0.194	150
FR61	-0.053	134	-0.218	151	0.226	93	-0.062	137
FR62	-0.071	137	-0.126	140	0.663	35	0.094	117
FR63	-0.172	157	-0.218	152	-0.120	139	-0.183	149
FR71	0.170	109	0.012	122	0.500	47	0.178	101
FR72	-0.130	145	-0.339	168	-0.047	127	-0.216	156
FR81	-0.114	140	-0.392	174	0.127	104	-0.199	153
FR82	0.013	124	-0.164	146	0.444	54	0.038	125
FR83	-0.244	174	-0.833	209	-0.438	166	-0.582	195
FR91	-0.413	198	-1.175	239	-0.429	164	-0.797	221
FR92	-0.369	194	-0.915	218	-0.484	171	-0.664	203
FR93	-0.477	212	-1.655	261	-0.668	192	-1.102	237
FR94	-0.361	192	-1.913	262	-0.494	172	-1.162	239
GR11	-1.440	253	-1.357	252	-1.292	245	-1.371	256
GR12	-1.259	242	-1.072	232	-0.982	228	-1.114	238
GR13	-1.285	245	-1.479	258	-1.377	250	-1.403	258
GR14	-1.318	247	-1.290	247	-1.162	241	-1.275	245
GR21	-1.255	241	-1.314	249	-1.148	239	-1.265	244
GR22	-1.224	238	-1.368	254	-1.282	244	-1.309	249
GR23	-1.343	248	-1.370	255	-1.129	238	-1.317	250
GR24	-1.263	244	-1.457	257	-1.517	254	-1.417	260
GR25	-1.351	249	-1.313	248	-1.372	249	-1.337	253

region	Basic sub-index		Efficiency sub-index		Innovation sub-index		RCI 2013	
	scores	ranks	scores	ranks	scores	ranks	scores	ranks
GR30	-0.994	236	-0.234	156	-0.166	144	-0.366	174
GR41	-1.246	239	-1.323	250	-1.157	240	-1.264	243
GR42	-1.298	246	-1.422	256	-1.354	248	-1.376	257
GR43	-1.247	240	-1.233	243	-1.074	235	-1.201	240
HR03	-0.654	229	-1.007	226	-0.664	190	-0.832	225
HR04	-0.615	227	-0.867	214	-0.626	184	-0.743	213
HU10	-0.487	214	-0.229	153	0.312	78	-0.148	144
HU21	-0.568	223	-0.501	184	-0.754	204	-0.569	192
HU22	-0.496	216	-0.446	180	-0.852	213	-0.538	189
HU23	-0.730	233	-0.859	213	-0.668	191	-0.785	219
HU31	-0.691	231	-0.822	208	-0.846	212	-0.780	218
HU32	-0.806	234	-0.904	217	-0.950	227	-0.877	231
HU33	-0.707	232	-0.821	207	-0.862	218	-0.787	220
IE01	-0.265	177	-0.508	187	0.144	103	-0.279	162
IE02	-0.209	165	-0.165	147	0.654	36	0.072	120
ITC1	-0.168	155	-0.181	150	-0.247	153	-0.198	152
ITC2	-0.271	179	-0.340	169	-0.707	197	-0.436	178
ITC3	-0.205	164	-0.116	138	-0.219	150	-0.165	146
ITC4	-0.089	139	0.114	111	-0.086	134	0.013	128
ITD1	-0.229	171	-0.253	159	-0.612	183	-0.356	173
ITD2	-0.187	160	-0.044	127	-0.343	161	-0.162	145
ITD3	-0.212	166	-0.147	143	-0.463	170	-0.255	158
ITD4	-0.270	178	-0.167	149	-0.271	154	-0.219	157
ITD5	-0.231	172	0.091	116	-0.297	155	-0.090	141
ITE1	-0.279	180	-0.233	155	-0.322	156	-0.269	160
ITE2	-0.300	184	-0.232	154	-0.564	178	-0.335	167
ITE3	-0.361	191	-0.358	172	-0.589	181	-0.419	177
ITE4	-0.261	175	-0.160	145	0.025	118	-0.125	143
ITF1	-0.427	200	-0.469	181	-0.729	200	-0.516	187
ITF2	-0.494	215	-0.591	193	-0.928	225	-0.640	201
ITF3	-0.496	217	-0.997	224	-0.586	180	-0.764	217
ITF4	-0.518	219	-1.140	236	-0.790	207	-0.880	232
ITF5	-0.516	218	-1.023	228	-0.948	226	-0.850	227
ITF6	-0.605	226	-1.112	235	-0.853	214	-0.905	233
ITG1	-0.583	224	-1.278	246	-0.748	202	-0.961	235
ITG2	-0.545	220	-1.009	227	-0.676	194	-0.807	222
LT00	-0.937	235	-0.801	205	-0.678	195	-0.820	224
LU00	0.495	64	0.795	25	1.581	2	0.971	13
LV00	-0.675	230	-0.991	223	-0.716	198	-0.840	226
MT00	-0.164	153	-1.063	231	0.034	117	-0.569	193
NL00	1.034	9	1.049	7	1.155	11	1.078	6
NL11	0.738	24	0.674	39	0.436	55	0.616	34
NL12	0.851	15	0.415	72	0.275	87	0.482	56
NL13	0.816	17	0.500	58	0.318	77	0.528	48
NL21	0.969	11	0.810	21	0.378	65	0.712	29
NL22	1.094	8	1.015	9	0.553	43	0.892	16
NL31	1.176	2	1.459	2	1.310	9	1.358	1
NL33	1.127	5	1.087	6	0.789	26	1.006	10
NL34	0.945	12	0.772	27	0.088	112	0.601	36
NL41	1.158	3	1.090	5	0.755	28	1.003	11
NL42	1.147	4	1.001	10	0.533	45	0.890	17
PL11	-0.434	202	-0.558	191	-0.904	221	-0.584	197
PL12	-0.348	189	-0.089	134	-0.201	147	-0.180	147
PL21	-0.300	183	-0.507	186	-0.750	203	-0.471	184
PL22	-0.341	188	-0.278	164	-0.853	215	-0.406	175
PL31	-0.451	205	-0.685	200	-1.103	237	-0.666	204
PL32	-0.378	195	-0.872	215	-1.166	242	-0.743	214
PL33	-0.461	208	-0.748	201	-1.319	246	-0.733	212
PL34	-0.455	207	-0.784	202	-1.185	243	-0.729	211
PL41	-0.422	199	-0.801	204	-1.042	234	-0.728	209
PL42	-0.434	201	-0.821	206	-0.885	220	-0.712	207
PL43	-0.449	204	-0.788	203	-1.021	232	-0.704	206
PL51	-0.452	206	-0.503	185	-0.806	209	-0.544	190
PL52	-0.325	186	-0.634	197	-1.020	231	-0.584	196
PL61	-0.472	210	-0.847	211	-1.037	233	-0.744	215

region	Basic sub-index		Efficiency sub-index		Innovation sub-index		RCI 2013	
	scores	ranks	scores	ranks	scores	ranks	scores	ranks
PL62	-0.473	211	-1.081	233	-1.098	236	-0.871	230
PL63	-0.388	197	-0.627	196	-0.783	206	-0.582	194
PT11	-0.356	190	-0.520	188	-0.697	196	-0.502	186
PT15	-0.483	213	-0.684	199	-0.572	179	-0.603	198
PT16	-0.387	196	-0.381	173	-0.923	224	-0.485	185
PT17	-0.297	182	0.032	120	0.208	95	0.019	127
PT18	-0.466	209	-0.610	194	-0.984	229	-0.635	200
PT20	-0.587	225	-1.006	225	-0.915	222	-0.858	228
PT30	-0.546	221	-0.859	212	-0.642	188	-0.728	210
RO11	-1.479	255	-0.971	221	-1.487	253	-1.226	241
RO12	-1.480	256	-1.208	241	-1.601	258	-1.362	255
RO21	-1.555	259	-1.028	229	-1.738	262	-1.319	251
RO22	-1.596	261	-1.330	251	-1.702	260	-1.479	261
RO31	-1.501	258	-1.107	234	-1.711	261	-1.336	252
RO32	-1.356	250	0.110	113	-0.159	143	-0.309	165
RO41	-1.481	257	-1.199	240	-1.615	259	-1.360	254
RO42	-1.597	262	-0.990	222	-1.384	251	-1.254	242
SE11	0.680	27	0.989	11	1.730	1	1.149	4
SE12	0.562	50	0.348	80	0.793	25	0.516	52
SE21	0.502	60	0.157	108	-0.057	129	0.183	100
SE22	0.633	32	0.627	43	1.003	16	0.727	27
SE23	0.578	46	0.541	52	0.674	33	0.588	40
SE31	0.459	72	-0.006	124	-0.113	137	0.076	119
SE32	0.424	80	-0.054	128	0.162	99	0.106	115
SE33	0.375	84	-0.022	125	0.377	66	0.177	102
SI01	-0.154	152	-0.157	144	-0.453	169	-0.212	155
SI02	-0.118	143	0.189	104	0.199	96	0.119	112
SK01	-0.215	167	0.432	69	0.685	32	0.378	78
SK02	-0.445	203	-0.556	190	-0.774	205	-0.562	191
SK03	-0.564	222	-0.833	210	-0.831	210	-0.749	216
SK04	-0.617	228	-1.052	230	-0.859	216	-0.871	229
UK00	0.586	44	1.468	1	1.136	12	1.192	2
UKC1	0.194	104	0.113	112	0.022	119	0.115	113
UKC2	0.182	106	0.118	110	0.181	97	0.150	107
UKD1	0.166	111	-0.102	136	-0.230	152	-0.057	136
UKD2	0.416	81	0.945	13	-0.530	175	0.397	74
UKD3	0.375	85	0.684	38	0.379	64	0.531	46
UKD4	0.288	92	0.642	42	0.055	116	0.412	73
UKD5	0.307	91	0.455	65	-0.916	223	0.106	116
UKE1	0.164	112	0.226	99	-0.194	146	0.114	114
UKE2	0.265	96	0.745	29	0.295	83	0.513	53
UKE3	0.358	88	0.474	61	0.019	120	0.340	84
UKE4	0.311	90	0.527	55	0.398	62	0.442	68
UKF1	0.388	83	0.710	35	0.281	85	0.521	51
UKF2	0.514	57	0.778	26	0.295	82	0.589	39
UKF3	0.262	97	0.332	82	-0.215	148	0.190	98
UKG1	0.430	77	0.726	34	0.322	75	0.550	43
UKG2	0.364	86	0.661	41	-0.064	130	0.416	72
UKG3	0.427	78	0.373	76	0.245	91	0.352	81
UKH1	0.315	89	0.479	60	0.698	31	0.497	54
UKJ1	0.601	40	1.328	3	1.298	10	1.174	3
UKJ2	0.553	51	1.302	4	1.105	13	1.093	5
UKJ3	0.543	54	0.810	22	0.820	24	0.760	24
UKJ4	0.522	55	0.726	33	0.421	58	0.598	37
UKK1	0.426	79	0.797	24	0.915	18	0.758	25
UKK2	0.277	94	0.559	50	0.346	69	0.436	70
UKK3	0.112	115	-0.117	139	-0.073	131	-0.037	134
UKK4	0.170	108	0.306	88	0.229	92	0.251	95
UKL1	0.098	117	-0.005	123	-0.182	145	-0.006	130
UKL2	0.221	101	0.562	49	0.466	51	0.456	62
UKM2	0.107	116	0.472	62	0.622	37	0.444	67
UKM3	0.137	113	0.174	107	0.266	89	0.189	99
UKM5	-0.024	131	0.554	51	0.587	40	0.448	64
UKM6	-0.040	133	-0.057	129	-0.147	141	-0.073	139
UKN0	-0.023	130	-0.103	137	-0.093	136	-0.079	140

Table 64: RCI 2013 reordered regions (from best to worst performers)

region		RCI 2013	
		scores	ranks
NL31	NL31:Utrecht	1.358	1
UK00	UK00: UKH2:Bedfordshire and Hertfordshire + UKH3:Essex + UKI1:Inner London + UKI2:Outer London	1.192	2
UKJ1	UKJ1:Berkshire, Buckinghamshire and Oxfordshire	1.174	3
SE11	SE11:Stockholm	1.149	4
UKJ2	UKJ2:Surrey, East and West Sussex	1.093	5
NL00	NL00: NL23:Flevoland + NL32:Noord-Holland	1.078	6
DE71	DE71:Darmstadt	1.050	7
FR10	FR10:Île de France	1.050	8
DK01	DK01:Hovedstaden	1.040	9
NL33	NL33:Zuid-Holland	1.006	10
NL41	NL41:Noord-Brabant	1.003	11
DE60	DE60:Hamburg	0.983	12
LU00	LU00:Luxembourg	0.971	13
BE00	BE00: BE10:Rég. Bruxelles / Brussels Gewest + BE24:Prov. Vlaams-Brabant + BE31:Prov. Brabant Wallon	0.969	14
DE21	DE21:Oberbayern	0.963	15
NL22	NL22:Gelderland	0.892	16
NL42	NL42:Limburg (NL)	0.890	17
DE12	DE12:Karlsruhe	0.875	18
DEA2	DEA2:Köln	0.857	19
BE21	BE21:Prov. Antwerpen	0.807	20
DE11	DE11:Stuttgart	0.804	21
FI18	FI18:Etelä-Suomi	0.790	22
DEA1	DEA1:Düsseldorf	0.770	23
UKJ3	UKJ3:Hampshire and Isle of Wight	0.760	24
UKK1	UKK1:Gloucestershire, Wiltshire and Bristol/Bath area	0.758	25
BE23	BE23:Prov. Oost-Vlaanderen	0.752	26
SE22	SE22:Sydsverige	0.727	27
DE25	DE25:Mittelfranken	0.721	28
NL21	NL21:Overijssel	0.712	29
DE14	DE14:Tübingen	0.687	30
DEB3	DEB3:Rheinhessen-Pfalz	0.672	31
DE13	DE13:Freiburg	0.627	32
DE72	DE72:Gießen	0.621	33
NL11	NL11:Groningen	0.616	34
BE22	BE22:Prov. Limburg (BE)	0.614	35
NL34	NL34:Zeeland	0.601	36
UKJ4	UKJ4:Kent	0.598	37
DE50	DE50:Bremen	0.593	38
UKF2	UKF2:Leicestershire, Rutland and Northamptonshire	0.589	39
SE23	SE23:Västsverige	0.588	40
DEA3	DEA3:Münster	0.577	41
DE00	DE00: DE30:Berlin + DE40:Brandenburg	0.551	42
UKG1	UKG1:Herefordshire, Worcestershire and Warwickshire	0.550	43
BE25	BE25:Prov. West-Vlaanderen	0.538	44
DEA5	DEA5:Arnsberg	0.531	45
UKD3	UKD3:Greater Manchester	0.531	46
DEB1	DEB1:Koblenz	0.528	47
NL13	NL13:Drenthe	0.528	48
DE26	DE26:Unterfranken	0.528	49
DE92	DE92:Hannover	0.522	50
UKF1	UKF1:Derbyshire and Nottinghamshire	0.521	51
SE12	SE12:Östra Mellansverige	0.516	52
UKE2	UKE2:North Yorkshire	0.513	53
UKH1	UKH1:East Anglia	0.497	54
DE27	DE27:Schwaben	0.497	55
NL12	NL12:Friesland (NL)	0.482	56
ES30	ES30:Comunidad de Madrid	0.479	57
DE91	DE91:Braunschweig	0.476	58
DEA4	DEA4:Detmold	0.475	59
DE23	DE23:Oberpfalz	0.459	60
DK02	DK02:Sjælland	0.457	61
UKL2	UKL2:East Wales	0.456	62
DEB2	DEB2:Trier	0.451	63
UKM5	UKM5:North Eastern Scotland	0.448	64
DE24	DE24:Oberfranken	0.446	65
FI19	FI19:Länsi-Suomi	0.445	66

region		RCI 2013	
		scores	ranks
UKM2	UKM2:Eastern Scotland	0.444	67
UKE4	UKE4:West Yorkshire	0.442	68
DK04	DK04:Midtjylland	0.438	69
UKK2	UKK2:Dorset and Somerset	0.436	70
DE73	DE73:Kassel	0.433	71
UKG2	UKG2:Shropshire and Staffordshire	0.416	72
UKD4	UKD4:Lancashire	0.412	73
UKD2	UKD2:Cheshire	0.397	74
AT00	AT00: AT12:Niederösterreich + AT13:Wien	0.393	75
DED2	DED2:Dresden	0.390	76
DED3	DED3:Leipzig	0.387	77
SK01	SK01:Bratislavský kraj	0.378	78
BE33	BE33:Prov. Liège	0.369	79
DEC0	DEC0:Saarland	0.354	80
UKG3	UKG3:West Midlands	0.352	81
DEG0	DEG0:Thüringen	0.350	82
DEF0	DEF0:Schleswig-Holstein	0.346	83
UKE3	UKE3:South Yorkshire	0.340	84
DE93	DE93:Lüneburg	0.336	85
DK05	DK05:Nordjylland	0.318	86
BE35	BE35:Prov. Namur	0.318	87
DE22	DE22:Niederbayern	0.309	88
DK03	DK03:Syddanmark	0.295	89
FI20	FI20:Åland	0.291	90
FI1D	FI1D:Pohjois- ja Itä-Suomi	0.278	91
DED1	DED1:Chemnitz	0.274	92
FR42	FR42:Alsace	0.273	93
DE94	DE94:Weser-Ems	0.266	94
UKK4	UKK4:Devon	0.251	95
CZ00	CZ00: CZ01:Praha + CZ02:Střední Čechy	0.213	96
DEE0	DEE0:Sachsen-Anhalt	0.191	97
UKF3	UKF3:Lincolnshire	0.190	98
UKM3	UKM3:South Western Scotland	0.189	99
SE21	SE21:Småland med öarna	0.183	100
FR71	FR71:Rhône-Alpes	0.178	101
SE33	SE33:Övre Norrland	0.177	102
ES21	ES21:País Vasco	0.175	103
AT31	AT31:Oberösterreich	0.159	104
BE32	BE32:Prov. Hainaut	0.155	105
AT34	AT34:Vorarlberg	0.153	106
UKC2	UKC2:Northumberland and Tyne and Wear	0.150	107
AT22	AT22:Steiermark	0.148	108
AT32	AT32:Salzburg	0.133	109
AT11	AT11:Burgenland (AT)	0.129	110
AT33	AT33:Tirol	0.128	111
SI02	SI02:Zahodna Slovenija	0.119	112
UKC1	UKC1:Tees Valley and Durham	0.115	113
UKE1	UKE1:East Yorkshire and Northern Lincolnshire	0.114	114
SE32	SE32:Mellersta Norrland	0.106	115
UKD5	UKD5:Merseyside	0.106	116
FR62	FR62:Midi-Pyrénées	0.094	117
DE80	DE80:Mecklenburg-Vorpommern	0.092	118
SE31	SE31:Norra Mellansverige	0.076	119
IE02	IE02:Southern and Eastern	0.072	120
FR52	FR52:Bretagne	0.063	121
BE34	BE34:Prov. Luxembourg (BE)	0.048	122
FR22	FR22:Picardie	0.045	123
AT21	AT21:Kärnten	0.044	124
FR82	FR82:Provence-Alpes-Côte d'Azur	0.038	125
FR30	FR30:Nord - Pas-de-Calais	0.023	126
PT17	PT17:Lisboa	0.019	127
ITC4	ITC4:Lombardia	0.013	128
FR23	FR23:Haute-Normandie	0.008	129
UKL1	UKL1:West Wales and The Valleys	-0.006	130
ES22	ES22:Comunidad Foral de Navarra	-0.025	131
FR51	FR51:Pays de la Loire	-0.029	132

region		RCI 2013	
		scores	ranks
FR24	FR24:Centre (FR)	**-0.036**	**133**
UKK3	UKK3:Cornwall and Isles of Scilly	**-0.037**	**134**
FR41	FR41:Lorraine	**-0.050**	**135**
UKD1	UKD1:Cumbria	**-0.057**	**136**
FR61	FR61:Aquitaine	**-0.062**	**137**
FR43	FR43:Franche-Comté	**-0.068**	**138**
UKM6	UKM6:Highlands and Islands	**-0.073**	**139**
UKN0	UKN0:Northern Ireland (UK)	**-0.079**	**140**
ITD5	ITD5:Emilia-Romagna	**-0.090**	**141**
ES51	ES51:Cataluña	**-0.109**	**142**
ITE4	ITE4:Lazio	**-0.125**	**143**
HU10	HU10:Közép-Magyarország	**-0.148**	**144**
ITD2	ITD2:Provincia Autonoma di Trento	**-0.162**	**145**
ITC3	ITC3:Liguria	**-0.165**	**146**
PL12	PL12:Mazowieckie	**-0.180**	**147**
EE00	EE00:Eesti	**-0.182**	**148**
FR63	FR63:Limousin	**-0.183**	**149**
FR53	FR53:Poitou-Charentes	**-0.194**	**150**
FR25	FR25:Basse-Normandie	**-0.194**	**151**
ITC1	ITC1:Piemonte	**-0.198**	**152**
FR81	FR81:Languedoc-Roussillon	**-0.199**	**153**
FR21	FR21:Champagne-Ardenne	**-0.206**	**154**
SI01	SI01:Vzhodna Slovenija	**-0.212**	**155**
FR72	FR72:Auvergne	**-0.216**	**156**
ITD4	ITD4:Friuli-Venezia Giulia	**-0.219**	**157**
ITD3	ITD3:Veneto	**-0.255**	**158**
FR26	FR26:Bourgogne	**-0.266**	**159**
ITE1	ITE1:Toscana	**-0.269**	**160**
ES13	ES13:Cantabria	**-0.277**	**161**
IE01	IE01:Border, Midland and Western	**-0.279**	**162**
CY00	CY00:Kypros	**-0.285**	**163**
CZ05	CZ05:Severovýchod	**-0.296**	**164**
RO32	RO32:Bucuresti - Ilfov	**-0.309**	**165**
CZ03	CZ03:Jihozápad	**-0.328**	**166**
ITE2	ITE2:Umbria	**-0.335**	**167**
CZ06	CZ06:Jihovýchod	**-0.338**	**168**
ES12	ES12:Principado de Asturias	**-0.340**	**169**
ES23	ES23:La Rioja	**-0.347**	**170**
ES52	ES52:Comunidad Valenciana	**-0.349**	**171**
ES24	ES24:Aragón	**-0.351**	**172**
ITD1	ITD1:Provincia Autonoma di Bolzano/Bozen	**-0.356**	**173**
GR30	GR30:Attiki	**-0.366**	**174**
PL22	PL22:Slaskie	**-0.406**	**175**
CZ08	CZ08:Moravskoslezsko	**-0.414**	**176**
ITE3	ITE3:Marche	**-0.419**	**177**
ITC2	ITC2:Valle d'Aosta/Vallée d'Aoste	**-0.436**	**178**
CZ07	CZ07:Strední Morava	**-0.444**	**179**
CZ04	CZ04:Severozápad	**-0.445**	**180**
ES62	ES62:Región de Murcia	**-0.457**	**181**
ES11	ES11:Galicia	**-0.458**	**182**
ES41	ES41:Castilla y León	**-0.460**	**183**
PL21	PL21:Malopolskie	**-0.471**	**184**
PT16	PT16:Centro (PT)	**-0.485**	**185**
PT11	PT11:Norte	**-0.502**	**186**
ITF1	ITF1:Abruzzo	**-0.516**	**187**
ES53	ES53:Illes Balears	**-0.521**	**188**
HU22	HU22:Nyugat-Dunántúl	**-0.538**	**189**
PL51	PL51:Dolnoslaskie	**-0.544**	**190**
SK02	SK02:Západné Slovensko	**-0.562**	**191**
HU21	HU21:Közép-Dunántúl	**-0.569**	**192**
MT00	MT00:Malta	**-0.569**	**193**
PL63	PL63:Pomorskie	**-0.582**	**194**
FR83	FR83:Corse	**-0.582**	**195**
PL52	PL52:Opolskie	**-0.584**	**196**
PL11	PL11:Lódzkie	**-0.584**	**197**

region		RCI 2013	
		scores	ranks
PT15	PT15:Algarve	**-0.603**	**198**
ES70	ES70:Canarias (ES)	**-0.618**	**199**
PT18	PT18:Alentejo	**-0.635**	**200**
ITF2	ITF2:Molise	**-0.640**	**201**
ES61	ES61:Andalucía	**-0.649**	**202**
FR92	FR92:Martinique (FR)	**-0.664**	**203**
PL31	PL31:Lubelskie	**-0.666**	**204**
ES42	ES42:Castilla-la Mancha	**-0.690**	**205**
PL43	PL43:Lubuskie	**-0.704**	**206**
PL42	PL42:Zachodniopomorskie	**-0.712**	**207**
BG41	BG41:Yugozapaden	**-0.715**	**208**
PL41	PL41:Wielkopolskie	**-0.728**	**209**
PT30	PT30:Região Autónoma da Madeira (PT)	**-0.728**	**210**
PL34	PL34:Podlaskie	**-0.729**	**211**
PL33	PL33:Swietokrzyskie	**-0.733**	**212**
HR04	HR04:Kontinentalna Hrvatska	**-0.743**	**213**
PL32	PL32:Podkarpackie	**-0.743**	**214**
PL61	PL61:Kujawsko-Pomorskie	**-0.744**	**215**
SK03	SK03:Stredné Slovensko	**-0.749**	**216**
ITF3	ITF3:Campania	**-0.764**	**217**
HU31	HU31:Észak-Magyarország	**-0.780**	**218**
HU23	HU23:Dél-Dunántúl	**-0.785**	**219**
HU33	HU33:Dél-Alföld	**-0.787**	**220**
FR91	FR91:Guadeloupe (FR)	**-0.797**	**221**
ITG2	ITG2:Sardegna	**-0.807**	**222**
ES43	ES43:Extremadura	**-0.813**	**223**
LT00	LT00:Lietuva	**-0.820**	**224**
HR03	HR03:Jadranska Hrvatska	**-0.832**	**225**
LV00	LV00:Latvija	**-0.840**	**226**
ITF5	ITF5:Basilicata	**-0.850**	**227**
PT20	PT20:Região Autónoma dos Açores (PT)	**-0.858**	**228**
SK04	SK04:Východné Slovensko	**-0.871**	**229**
PL62	PL62:Warminsko-Mazurskie	**-0.871**	**230**
HU32	HU32:Észak-Alföld	**-0.877**	**231**
ITF4	ITF4:Puglia	**-0.880**	**232**
ITF6	ITF6:Calabria	**-0.905**	**233**
ES64	ES64:Ciudad Autónoma de Melilla (ES)	**-0.930**	**234**
ITG1	ITG1:Sicilia	**-0.961**	**235**
ES63	ES63:Ciudad Autónoma de Ceuta (ES)	**-1.098**	**236**
FR93	FR93:Guyane (FR)	**-1.102**	**237**
GR12	GR12:Kentriki Makedonia	**-1.114**	**238**
FR94	FR94:Réunion (FR)	**-1.162**	**239**
GR43	GR43:Kriti	**-1.201**	**240**
RO11	RO11:Nord-Vest	**-1.226**	**241**
RO42	RO42:Vest	**-1.254**	**242**
GR41	GR41:Voreio Aigaio	**-1.264**	**243**
GR21	GR21:Ipeiros	**-1.265**	**244**
GR14	GR14:Thessalia	**-1.275**	**245**
BG32	BG32:Severen tsentralen	**-1.279**	**246**
BG33	BG33:Severoiztochen	**-1.292**	**247**
BG42	BG42:Yuzhen tsentralen	**-1.302**	**248**
GR22	GR22:Ionia Nisia	**-1.309**	**249**
GR23	GR23:Dytiki GRlada	**-1.317**	**250**
RO21	RO21:Nord-Est	**-1.319**	**251**
RO31	RO31:Sud - Muntenia	**-1.336**	**252**
GR25	GR25:PGRoponnisos	**-1.337**	**253**
RO41	RO41:Sud-Vest Oltenia	**-1.360**	**254**
RO12	RO12:Centru	**-1.362**	**255**
GR11	GR11:Anatoliki Makedonia, Thraki	**-1.371**	**256**
GR42	GR42:Notio Aigaio	**-1.376**	**257**
GR13	GR13:Dytiki Makedonia	**-1.403**	**258**
BG34	BG34:Yugoiztochen	**-1.403**	**259**
GR24	GR24:Sterea GRlada	**-1.417**	**260**
RO22	RO22:Sud-Est	**-1.479**	**261**
BG31	BG31:Severozapaden	**-1.481**	**262**

Table 64 shows reordered regions, from best to worst, their RCI 2013 score and the corresponding rank. The ten most competitive EU regions based upon RCI 2013 scores normalized between 0 (lowest level of competitiveness) and 100 (highest) are listed in Table 65. Eight out of the top-ten regions in 2013 confirm their position with respect to 2010. The best group includes again Utrecht, the highest competitive region in both editions, the London area and the area including Oxford, the two Netherland regions of Noord and Zuid Holland which comprise Amsterdam, the Danish region Hovedstaden (including Copenhagen), Stockholm and Île de France (including Paris). The new entries in the top-ten are the Frankfurt region (Darmstadt) and the Surrey, East & West Sussex in the United Kingdom. It is striking that seven out of the top-ten are either capital regions or regions including large cities.

At the other end of the competitiveness scale, we find some regions which are unfortunately steadily worst performers. These are the Bulgarian region Severozapaden, the Greek region Notio Aigaio, and two southern Romanian regions Sud-Est and Sud-Vest Oltenia.

Table 65: Top-ten regions in RCI 2013

region	RCI 2013
Utrecht	100
London area (Inner London, Outer London, Bedfordshire, Hertfordshire and Essex)	94
Berkshire, Buckinghamshire and Oxfordshire	94
Region of Stockholm	93
Surrey, East and West Sussex	91
Region of Amsterdam (Flevoland and Noord-Holland)	90
Region of Frankfurt (Darmstadt)	89
Region of Paris (Île de France)	89
Region of Copenaghen (Hovedstaden)	89
Zuid-Holland	88

The map of RCI 2013 is displayed in Figure 52. Scores are classified into five classes according to the score distribution percentiles (P_{20}, P_{40}, P_{60}, P_{80}). The higher the class, the higher the level of regional competitiveness. The overall pattern is not so different from the one by RCI 2010. The so-called blue banana, which linked the region of greater London all the way to Lombardy passing through the Benelux countries and Bavaria (Brunet R., 1989) does not appear on the RCI map or, better, does not appear in its complete form as it leaves out the northern part of Italy. RCI shows a more polycentric pattern with strong capital and metropolitan regions in many parts of Europe. Some capital regions are surrounded by similarly competitive regions, but in many countries the regions neighboring the capital are less competitive. As this was also observed for the 2010 edition, RCI shows that in the past three years no spillover effects helped to lift these lagging-behind surrounding regions. The general economic and financial crisis certainly did not help.

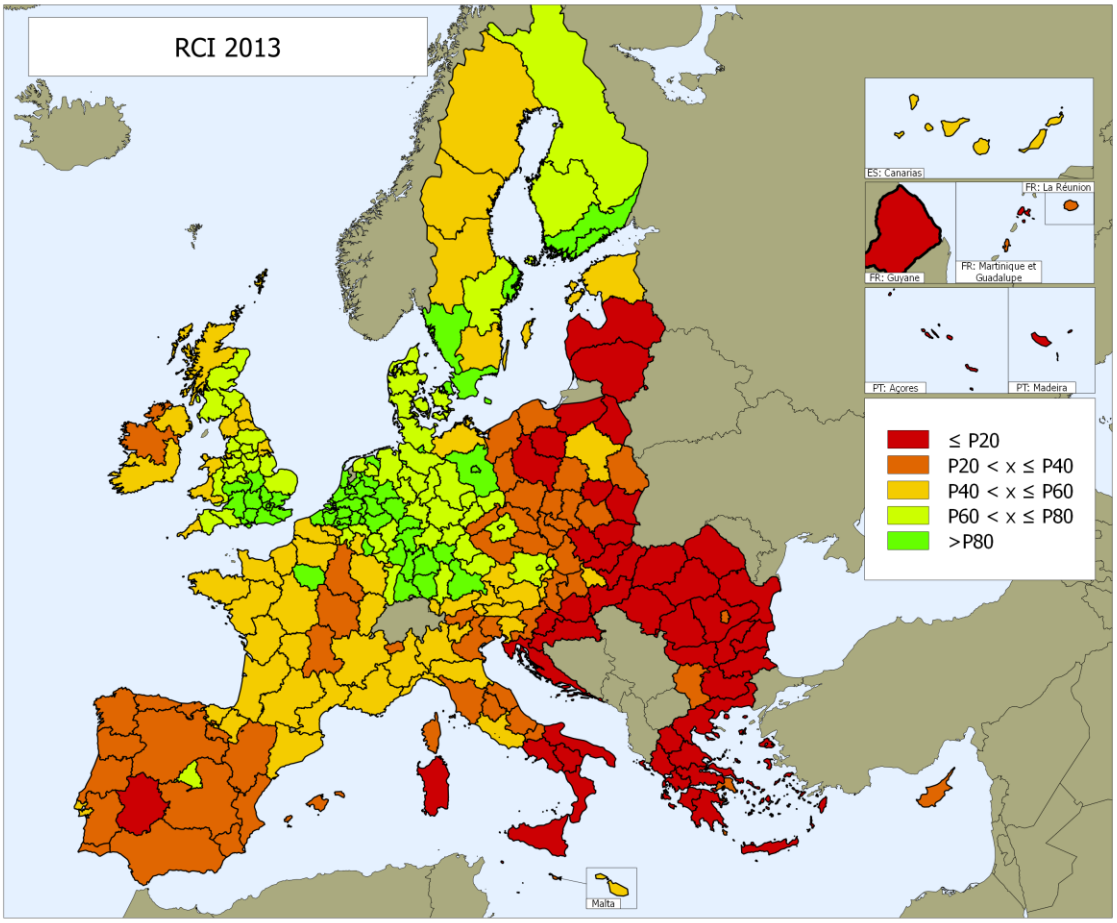


Figure 52: Score distribution of RCI 2013

The substantial disparities within several countries also highlight the need for regional analysis and the limits of a purely national approach.

As in the previous edition, an indicator of competitiveness on the country level is computed as a population weighted average of the regional scores for each country, the Country Competitiveness Index – CCI 2013. Table 66 shows country scores and rankings for both RCI editions. The comparison is purely indicative (rankings are not comparable in general and this is even more valid here as do not even have the same number of countries in the two releases), still we can note that the group of top and bottom countries is quite stable.

CCI 2013 distribution is shown in Figure 53.

Table 66: Country competitiveness scores and ranks for the 2013 and 2010 editions

conuntry	CCI 2013	CCI 2013		conuntry	CCI 2010	CCI 2010
	scores	ranks			scores	ranks
LU	0.971	1		NL	0.904	1
NL	0.945	2		DK	0.742	2
BE	0.631	3		FI	0.721	3
DE	0.598	4		LU	0.600	4
SE	0.594	5		SE	0.552	5
UK	0.584	6		UK	0.488	6
DK	0.579	7		BE	0.416	7
FI	0.575	8		DE	0.391	8
AT	0.237	9		IE	0.383	9
FR	0.154	10		AT	0.312	10
IE	-0.023	11		FR	0.169	11
SI	-0.057	12		SI	0.116	12
EE	-0.182	13		EE	-0.178	13
CZ	-0.235	14		ES	-0.214	14
ES	-0.281	15		CZ	-0.223	15
CY	-0.285	16		IT	-0.250	16
PT	-0.387	17		CY	-0.298	17
IT	-0.389	18		PT	-0.437	18
PL	-0.558	19		PL	-0.468	19
HU	-0.564	20		SK	-0.501	20
MT	-0.569	21		LT	-0.538	21
SK	-0.592	22		HU	-0.612	22
HR	-0.773	23		LV	-0.700	23
LT	-0.820	24		GR	-0.743	24
LV	-0.840	25		MT	-0.775	25
GR	-0.938	26		BG	-1.072	26
BG	-1.171	27		RO	-1.167	27
RO	-1.228	28		HR	-	-

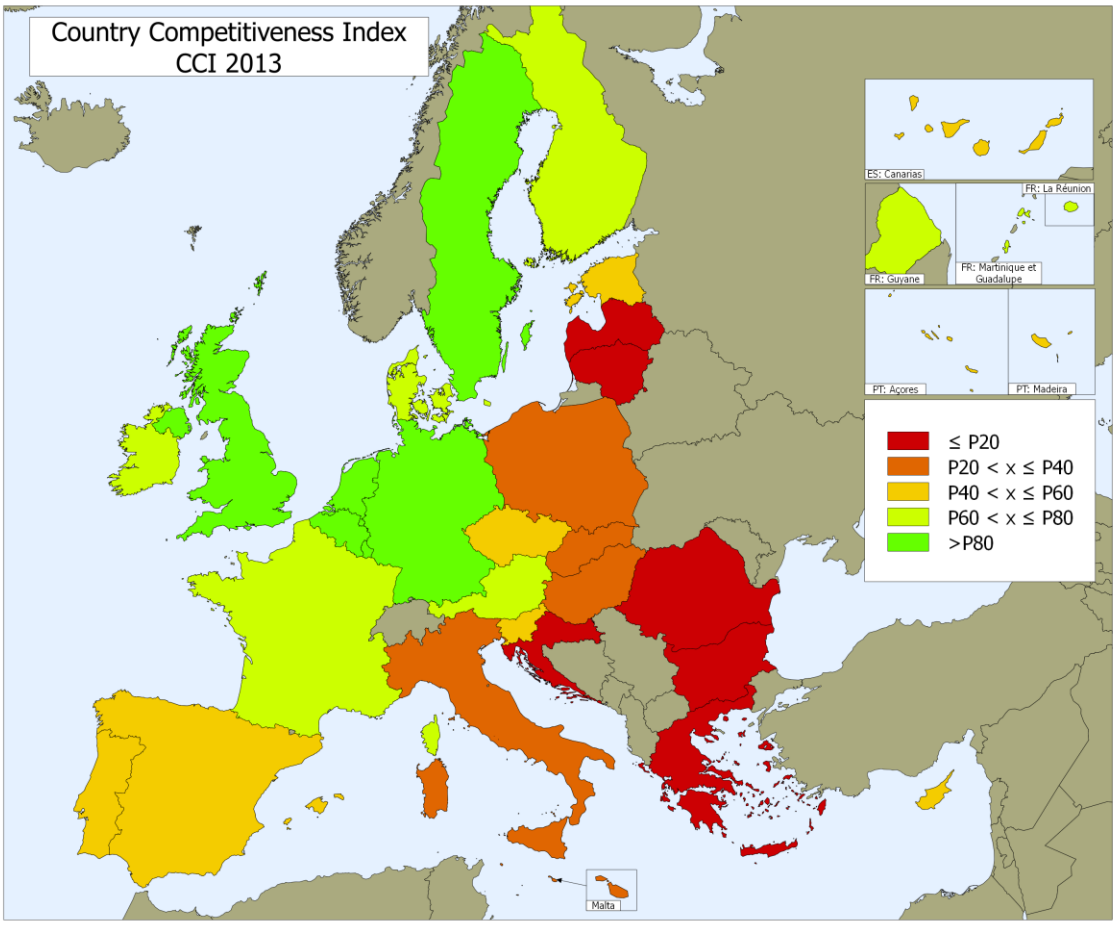


Figure 53: Score distribution of CCI 2013 (country weighted RCI averages)

Averaged country scores are useful to compare RCI to other international indexes of competitiveness at the national level. For instance, Figure 54 shows the relation between CCI 2013 and the WEF Global Competitiveness Index scores, edition 2012-2013 (Schwab & Sala-I-Martin, 2012) for EU28 Member States. The level of association is pretty high with a correlation coefficient of 0.91.

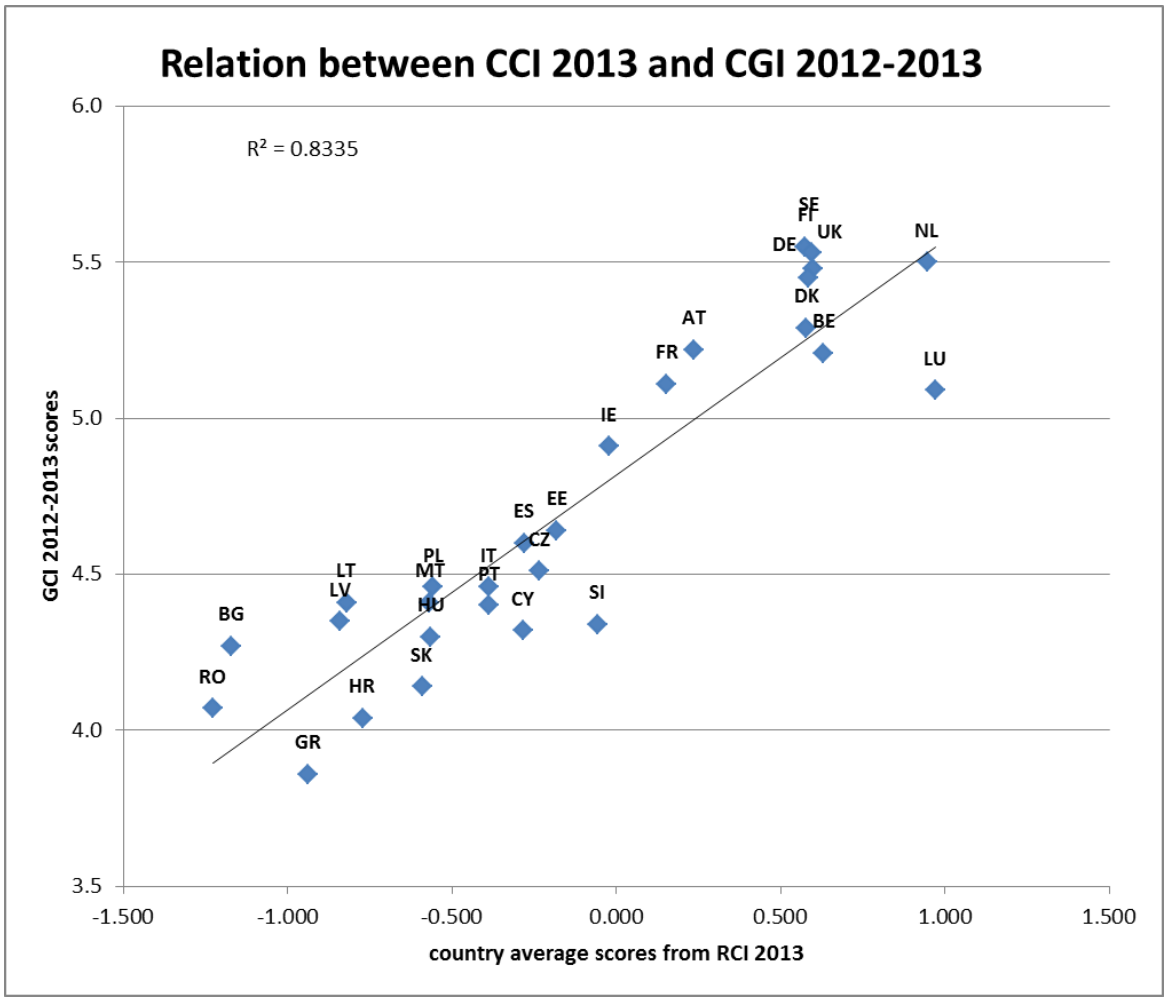


Figure 54: Relation between CCI 2013 and WEF-GCI 2012-2013

All in all, our results underline that competitiveness has a strong regional dimension, which national level analysis does not capture. As for the previous edition, the level of within country variability is still very high, as can be seen by Figure 55 where RCI 2013 scores are shown by country, reordered according to the country weighted average. The dots represent the region scores within each country while the triangles show the country average.

In some countries like France, Spain, United Kingdom, Slovakia, Romania, Sweden and Greece, the level of variability is particularly high with the capital region almost always being the best performer within the country. Italy is an exception as Lombardy is the Italian most competitive region.

These results demonstrate that territorial competitiveness in the EU has a strong regional dimension, which national level analysis does not properly capture in the EU. The gap and

variation in regional competitiveness should stimulate a debate to what extent these gaps are harmful for their national competitiveness and to what extent the internal variation can be remediated.

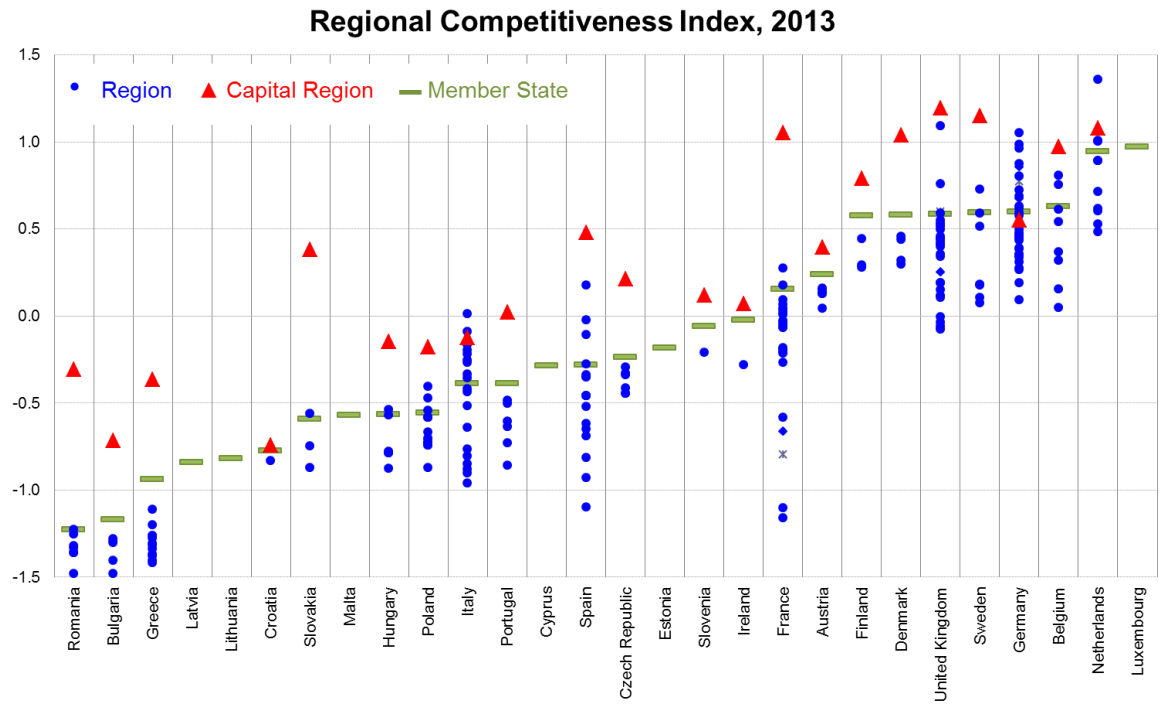


Figure 55: RCI 2013 scores by country

Uncertainty analysis has been carried out for this release by following the same procedure adopted for RCI 2010 (Annoni & Kozovska, 2010; OECD-JRC, 2008). Results are similar to those obtained for RCI 2010, showing pretty stable results.

6 Time comparison analysis

The comparison of RCI 2013 with RCI 2010 scores is not feasible because RCI 2013 implements some improvements and modifications that, even if not affecting the overall index structure, make the direct score comparison not meaningful.

Ranking comparability over time is also troublesome as ranks are mutually dependent. In our case the non-comparability of ranks is even more true as we added a country – Croatia - in the analysis. Moreover, rankings are based solely on the ordinal properties of scores and do not take into account the actual distance between regions. It may happen that a shift in rank is due to a very small difference in scores.

A pillar by pillar analysis is instead provided here that is based on the set of raw (neither standardized, nor transformed) indicators which are simultaneously included in the two RCI editions.

6.1 Pillar by pillar time comparison

To allow for a meaningful comparison between the two time points of RCI, we carry out an analysis based on the common set of raw indicators included in both RCI editions. "Raw" means that indicators are taken in their raw form that is neither standardized nor transformed. They are then fully comparable. Also, the analysis is carried out at the NUTS 2 level of RCI 2010, meaning that only Brussels and London areas are merged to cope for commuting patterns.

For each pillar, the average growth rate across indicators included in both RCI editions is computed via a geometric mean, by properly taken into account different indicators orientation.

In the following results are shown for all the pillars where the analysis has been possible. Being a new entry, time comparison analysis for Croatia cannot be carried out.

In the analysis positive and negative growth rates are highlighted if outside the interval [-5%; +5%]. This is arbitrarily selected. For completeness, results always show the actual growth rate, as well.

Institutions (country sub-pillar only)

The Institutions pillar consists of a country-level sub-pillar and a regional level one (Section 4.1). The latter is a new entry for the 2013 edition so that no time comparison analysis is feasible for the regional sub-pillar.

The common set of indicators in the country-level sub-pillar includes: 1. Country level corruption perception; 2. Regional level corruption perception; 3. Voice and accountability; 4. Political stability; 5. Government effectiveness; 6. Regulatory quality; 7. Rule of law; 8. Control of corruption and 9. Ease of doing business index.

Table 67 shows country average growth rates.

Table 67: Institutions country sub-pillar

country	average growth rate %	country	average growth rate %
AT	-7.5	IE	-10.3
BE	-0.4	IT	-1.1
BG	-5.6	LT	-0.2
CY	2.2	LU	7.9
CZ	1.3	LV	0.7
DE	6.0	MT	4.1
DK	8.2	NL	10.6
EE	4.6	PL	11.5
ES	3.3	PT	1.2
FI	13.0	RO	-4.1
FR	-0.4	SE	1.9
GR	-1.4	SI	2.6
HR		SK	-0.3
HU	-2.6	UK	-4.5

Macroeconomic Stability

The common set of indicators consists of: 1. Government surplus/deficit; 2. National savings; 3. Inflation and 4. Government bond yields. Government surplus/deficit and

Inflation can get positive and negative value. In the analysis they have been re-normalized within fixed minimum and maximum value. Table 68 shows results for this pillar.

Table 68: Macroeconomic stability

Country	Average growth rate %	Country	Average growth rate %
AT	2.6	IE	-37.8
BE	-0.1	IT	-1.5
BG	24.0	LT	-6.1
CY	-6.6	LU	13.7
CZ	11.6	LV	20.2
DE	13.0	MT	6.9
DK	-0.4	NL	-1.9
EE	34.1	PL	-13.8
ES	-9.0	PT	-11.4
FI	-7.3	RO	-3.9
FR	4.2	SE	5.1
GR	-37.8	SI	1.0
HR		SK	2.2
HU	17.3	UK	-10.0

Infrastructure

As only one indicator (Number of passenger flights) is in common between the two RCI editions, the analysis is skipped in this case.

Health

In the Health pillar case, time comparison analysis is based on the following indicators simultaneously included in both RCI releases: 1. Road fatalities; 2. Healthy life expectancy; 3. Infant mortality; 4. Cancer death rate; 5. Heart disease rate and 6. Suicide rate. Results are shown in Table 69.

Table 69: Health pillar

Region	Average growth rate %	Region	Average growth rate %	Region	Average growth rate %	Region	Average growth rate %
AT11	17.1	DED3	14.3	GR25	-15.4	PL62	-15.5
AT12	14.9	DEE0	22.4	GR30	-17.9	PL63	-7.2
AT13	12.8	DEF0	8.8	GR41	-9.6	PT11	21.1
AT21	12.8	DEG0	3.3	GR42	-24.8	PT15	26.3
AT22	5.2	DK01	5.1	GR43	-12.5	PT16	18.7
AT31	6.7	DK02	16.3	HR03		PT17	10.7
AT32	0.0	DK03	11.3	HR04		PT18	12.7
AT33	7.4	DK04	23.1	HU10	7.8	PT20	-6.1
AT34	10.5	DK05	34.1	HU21	11.2	PT30	35.8
BE00	20.5	EE00	21.7	HU22	3.1	RO11	2.0
BE21	-17.9	ES11	21.0	HU23	4.4	RO12	3.2
BE22	34.2	ES12	31.0	HU31	15.1	RO21	-0.9
BE23	8.3	ES13	9.7	HU32	-1.9	RO22	-5.2
BE25	5.3	ES21	24.3	HU33	4.7	RO31	-4.8
BE32	14.5	ES22	22.7	IE01	-8.2	RO32	-4.4
BE33	7.6	ES23	26.1	IE02	14.7	RO41	-2.5
BE34	22.3	ES24	17.2	ITC1	16.6	RO42	0.9
BE35	-0.3	ES30	18.5	ITC2	50.1	SE11	14.7
BG31	-0.4	ES41	13.7	ITC3	19.7	SE12	6.4
BG32	-7.7	ES42	16.5	ITC4	24.5	SE21	17.4
BG33	-6.8	ES43	10.6	ITD1	19.8	SE22	12.6
BG34	-3.3	ES51	13.8	ITD2	54.2	SE23	14.0
BG41	4.2	ES52	17.1	ITD3	22.2	SE31	8.8
BG42	0.1	ES53	12.3	ITD4	46.0	SE32	9.8
CY00	2.6	ES61	15.7	ITD5	22.8	SE33	-1.8
CZ01	2.2	ES62	22.1	ITE1	11.2	SI01	19.8
CZ02	10.2	ES63	3.2	ITE2	5.2	SI02	5.5
CZ03	-2.2	ES64	-13.5	ITE3	20.7	SK01	6.2
CZ04	3.9	ES70	27.1	ITE4	4.6	SK02	-0.1
CZ05	7.1	FI13	11.4	ITF1	1.3	SK03	8.4
CZ06	20.3	FI18	8.2	ITF2	28.4	SK04	3.8
CZ07	4.0	FI19	17.7	ITF3	1.1	UKC1	32.2
CZ08	3.5	FI1A	16.7	ITF4	-0.1	UKC2	12.8
DE11	-1.2	FI20	-13.3	ITF5	18.9	UKD1	14.5
DE12	10.5	FR10	11.5	ITF6	-2.9	UKD2	13.9
DE13	20.8	FR21	9.5	ITG1	-4.3	UKD3	21.8
DE14	7.9	FR22	13.1	ITG2	10.6	UKD4	-0.5
DE21	4.2	FR23	7.4	LT00	21.0	UKD5	9.7
DE22	9.0	FR24	8.2	LU00	5.2	UKE1	26.0
DE23	11.4	FR25	8.7	LV00	20.7	UKE2	26.1
DE24	-7.0	FR26	9.3	MT00	0.1	UKE3	2.6
DE25	8.2	FR30	11.9	NL11	10.2	UKE4	28.4
DE26	-3.1	FR41	19.2	NL12	15.1	UKF1	11.0
DE27	17.5	FR42	19.5	NL13	5.2	UKF2	2.3
DE30	2.8	FR43	5.8	NL21	6.7	UKF3	12.9
DE41	19.8	FR51	14.5	NL22	19.4	UKG1	29.6
DE42	20.2	FR52	7.1	NL23	-12.8	UKG2	7.8
DE50	10.9	FR53	16.7	NL31	13.3	UKG3	2.6
DE60	17.6	FR61	12.1	NL32	13.7	UKH1	14.4
DE71	7.7	FR62	6.2	NL33	13.3	UKH2	10.9
DE72	15.8	FR63	11.0	NL34	2.8	UKH3	13.0
DE73	-8.0	FR71	14.7	NL41	11.6	UKI	11.3
DE80	3.9	FR72	16.1	NL42	8.4	UKJ1	7.8
DE91	9.2	FR81	6.1	PL11	-6.0	UKJ2	21.9
DE92	1.7	FR82	12.6	PL12	-5.4	UKJ3	-2.8
DE93	14.8	FR83	14.6	PL21	-5.4	UKJ4	-10.1
DE94	15.4	FR91	10.6	PL22	-3.8	UKK1	-2.4
DEA1	9.3	FR92	3.7	PL31	0.6	UKK2	-10.1
DEA2	15.4	FR93	24.0	PL32	-5.2	UKK3	18.1
DEA3	3.9	FR94	17.9	PL33	-9.6	UKK4	6.3
DEA4	11.4	GR11	-11.1	PL34	12.1	UKL1	12.8
DEA5	4.0	GR12	-11.9	PL41	4.6	UKL2	15.6
DEB1	18.3	GR13	-25.1	PL42	-6.5	UKM2	5.6
DEB2	26.5	GR14	-17.5	PL43	-11.3	UKM3	26.5
DEB3	2.6	GR21	-15.5	PL51	-6.1	UKM5	7.7
DEC0	10.6	GR22	-17.8	PL52	1.4	UKM6	25.1
DED1	5.1	GR23	-10.6	PL61	-13.1	UKN0	1.6
DED2	13.4	GR24	-17.9				

Basic Education

The three PISA scores are taken into account in the analysis as included in both RCI 2010 and RCI 2013 (Table 70).

Table 70: Basic Education pillar

Country	Average growth rate %	Country	Average growth rate %
AT	-19.5	IE	-17.3
BE	-2.1	IT	26.6
BG	15.7	LT	3.2
CY		LU	-7.8
CZ	-6.2	LV	9.3
DE	6.4	MT	
DK	-2.3	NL	-3.7
EE	-3.2	PL	10.5
ES	13.6	PT	30.9
FI	-32.4	RO	18.9
FR	6.1	SE	-13.2
GR	9.6	SI	-13.9
HR		SK	9.3
HU	5.6	UK	4.0

Higher Education and Lifelong Learning

The common set of indicators includes in this case: 1. Share of population 25-64 with higher education; 2. Lifelong learning and 3. Early school leavers.

Results are displayed by Table 71.

Table 71: Higher Education and Lifelong Learning

Region	Average growth rate %	Region	Average growth rate %	Region	Average growth rate %	Region	Average growth rate %
AT11	2.9	DED3	-5.4	GR25	1.3	PL62	-0.9
AT12	15.4	DEE0	3.0	GR30	11.2	PL63	16.4
AT13	20.4	DEF0	11.3	GR41	9.3	PT11	90.8
AT21	-3.4	DEG0	8.8	GR42	8.3	PT15	87.1
AT22	18.9	DK01	23.9	GR43	3.3	PT16	64.6
AT31	3.1	DK02	1.6	HR03		PT17	67.5
AT32	4.8	DK03	3.5	HR04		PT18	83.2
AT33	8.7	DK04	9.6	HU10	1.3	PT20	72.1
AT34	2.7	DK05	1.6	HU21	3.5	PT30	83.1
BE00	13.2	EE00	30.8	HU22	23.8	RO11	23.1
BE21	2.6	ES11	5.0	HU23	25.4	RO12	5.8
BE22	0.1	ES12	13.3	HU31	9.6	RO21	16.6
BE23	7.6	ES13	12.2	HU32	-3.8	RO22	33.3
BE25	8.6	ES21	4.8	HU33	2.4	RO31	25.1
BE32	5.0	ES22	2.1	IE01	7.4	RO32	20.3
BE33	9.3	ES23	6.5	IE02	4.8	RO41	0.5
BE34	6.6	ES24	7.9	ITC1	5.5	RO42	28.3
BE35	19.2	ES30	12.6	ITC2	3.6	SE11	36.3
BG31	16.1	ES41	4.6	ITC3	2.3	SE12	27.3
BG32	16.1	ES42	10.1	ITC4	0.9	SE21	29.1
BG33	7.8	ES43	3.6	ITD1	10.9	SE22	27.3
BG34	10.4	ES51	5.7	ITD2	-2.4	SE23	33.1
BG41	17.4	ES52	10.2	ITD3	-7.0	SE31	33.3
BG42	21.3	ES53	10.3	ITD4	-2.2	SE32	18.7
CY00	4.1	ES61	6.6	ITD5	11.7	SE33	20.6
CZ01	68.2	ES62	7.8	ITE1	2.5	SI01	-0.6
CZ02	95.8	ES63	10.5	ITE2	3.5	SI02	28.9
CZ03	69.6	ES64	35.0	ITE3	4.5	SK01	-14.2
CZ04	59.9	ES70	2.9	ITE4	-11.2	SK02	54.5
CZ05	64.0	FI13	10.4	ITF1	11.2	SK03	36.0
CZ06	73.4	FI18	4.9	ITF2	-7.5	SK04	54.2
CZ07	59.4	FI19	0.8	ITF3	8.2	UKC1	-5.5
CZ08	95.4	FI1A	6.1	ITF4	2.8	UKC2	-9.4
DE11	14.4	FI20	16.2	ITF5	-7.0	UKD1	-22.6
DE12	7.8	FR10	-10.9	ITF6	2.0	UKD2	-0.6
DE13	3.4	FR21	-14.3	ITG1	-1.3	UKD3	-1.4
DE14	12.8	FR22	-10.3	ITG2	8.0	UKD4	-8.2
DE21	9.4	FR23	-5.6	LT00	18.0	UKD5	-6.7
DE22	0.0	FR24	19.5	LU00	85.2	UKE1	-1.8
DE23	15.9	FR25	-10.1	LV00	5.8	UKE2	-3.7
DE24	13.9	FR26	1.7	MT00	15.1	UKE3	0.8
DE25	5.7	FR30	-0.5	NL11	1.6	UKE4	-12.4
DE26	0.6	FR41	-15.9	NL12	4.2	UKF1	1.1
DE27	19.5	FR42	6.5	NL13	-4.4	UKF2	-5.0
DE30	6.5	FR43	10.5	NL21	12.0	UKF3	-2.4
DE41	-9.7	FR51	7.0	NL22	16.4	UKG1	-24.7
DE42	4.7	FR52	-14.1	NL23	10.8	UKG2	-4.5
DE50	10.9	FR53	-1.5	NL31	11.1	UKG3	-16.6
DE60	8.6	FR61	-4.3	NL32	9.9	UKH1	-8.8
DE71	13.2	FR62	-13.5	NL33	6.7	UKH2	-5.0
DE72	8.9	FR63	5.4	NL34	-10.2	UKH3	-3.7
DE73	13.6	FR71	-8.2	NL41	7.8	UKI	5.0
DE80	5.0	FR72	-18.0	NL42	11.5	UKJ1	-7.2
DE91	4.1	FR81	-7.6	PL11	4.7	UKJ2	-13.6
DE92	6.8	FR82	-0.6	PL12	2.3	UKJ3	-0.5
DE93	8.3	FR83	-4.1	PL21	2.7	UKJ4	-11.1
DE94	5.8	FR91		PL22	5.0	UKK1	-6.4
DEA1	12.2	FR92		PL31	-1.7	UKK2	3.2
DEA2	4.8	FR93		PL32	-7.6	UKK3	-9.1
DEA3	6.5	FR94		PL33	9.3	UKK4	-7.8
DEA4	7.0	GR11	1.4	PL34	14.6	UKL1	-4.9
DEA5	10.0	GR12	24.9	PL41	-1.5	UKL2	-6.3
DEB1	21.8	GR13	23.6	PL42	-6.3	UKM2	-12.4
DEB2	2.7	GR14	27.3	PL43	-2.9	UKM3	-12.1
DEB3	16.0	GR21	8.7	PL51	-1.3	UKM5	-1.8
DEC0	22.9	GR22	45.0	PL52	4.7	UKM6	-7.5
DED1	-0.1	GR23	10.2	PL61	8.5	UKN0	-23.0
DED2	0.9	GR24	37.9				

Labor Market Efficiency

Common indicators are: 1. Employment rate (excluding agriculture); 2. Long-term unemployment; 3. Unemployment; 4. Labor productivity; 5. Gender balance unemployment; 6. Gender balance employment and 7. Female unemployment. Results are shown in Table 72.

Market Size

Two indicators are included in the time comparison analysis of the Market Size pillar: 1. Potential GDP in PPS and 2. Potential population. For results see Table 73.

Table 72: Labor Market Efficiency

Region	Average growth rate %	Region	Average growth rate %	Region	Average growth rate %	Region	Average growth rate %
AT11	-15.9	DED3	55.1	GR25	-20.6	PL62	-18.1
AT12	38.7	DEE0	39.3	GR30	-33.5	PL63	-16.1
AT13	-5.3	DEF0	17.7	GR41	-28.4	PT11	-12.7
AT21	19.2	DEG0	59.3	GR42	-21.1	PT15	-3.7
AT22	2.6	DK01	-38.7	GR43	-29.2	PT16	-13.2
AT31	-2.8	DK02	-15.7	HR03		PT17	-34.0
AT32	2.1	DK03	-30.7	HR04		PT18	10.4
AT33	8.3	DK04	-3.6	HU10	-21.9	PT20	-19.4
AT34	-2.3	DK05	-22.6	HU21	-36.0	PT30	-22.1
BE00	-6.2	EE00	-43.7	HU22	-5.0	RO11	-8.6
BE21	-23.0	ES11	-19.4	HU23	-9.4	RO12	-7.9
BE22	8.9	ES12	-0.7	HU31	13.2	RO21	-4.4
BE23	14.6	ES13	-24.5	HU32	-5.8	RO22	-15.8
BE25	31.3	ES21	-18.3	HU33	-3.0	RO31	-9.7
BE32	10.7	ES22	-18.5	IE01	-38.7	RO32	9.6
BE33	50.7	ES23	-22.5	IE02	-42.6	RO41	-14.2
BE34	15.4	ES24	-31.3	ITC1	-12.0	RO42	-3.3
BE35	88.3	ES30	4.3	ITC2	3.7	SE11	-5.7
BG31	-32.2	ES41	-13.2	ITC3	10.8	SE12	8.4
BG32	-37.6	ES42	-28.1	ITC4	-18.0	SE21	-14.1
BG33	-15.1	ES43	-11.1	ITD1	-9.9	SE22	-13.3
BG34	-39.2	ES51	-36.6	ITD2	-2.2	SE23	-10.0
BG41	-55.5	ES52	-15.2	ITD3	-13.6	SE31	8.9
BG42	-51.3	ES53	-32.1	ITD4	-0.8	SE32	-28.5
CY00	-10.2	ES61	-15.7	ITD5	-20.8	SE33	14.0
CZ01	-11.4	ES62	-15.7	ITE1	-6.5	SI01	-10.1
CZ02	-35.7	ES63	-19.6	ITE2	-12.1	SI02	-41.7
CZ03	-24.4	ES64	1.7	ITE3	-23.1	SK01	-25.7
CZ04	-9.9	ES70	-25.3	ITE4	5.6	SK02	-16.2
CZ05	-15.2	FI13	-26.5	ITF1	-11.4	SK03	1.0
CZ06	-23.7	FI18	-16.2	ITF2	9.2	SK04	24.4
CZ07	-19.0	FI19	1.3	ITF3	-5.7	UKC1	-26.7
CZ08	-2.0	FI1A	-9.4	ITF4	-3.1	UKC2	-15.1
DE11	26.5	FI20	18.7	ITF5	17.7	UKD1	-43.9
DE12	7.5	FR10	10.9	ITF6	22.3	UKD2	-9.1
DE13	42.1	FR21	16.9	ITG1	3.1	UKD3	-19.9
DE14	25.3	FR22	-7.0	ITG2	19.7	UKD4	-2.2
DE21	9.2	FR23	7.2	LT00	-44.7	UKD5	0.9
DE22	48.5	FR24	-6.5	LU00	-0.9	UKE1	-34.6
DE23	18.5	FR25	56.8	LV00	-40.1	UKE2	-48.9
DE24	49.6	FR26	-37.1	MT00	-3.2	UKE3	-19.2
DE25	5.7	FR30	-11.7	NL11	-7.9	UKE4	-28.5
DE26	19.4	FR41	3.8	NL12	-10.4	UKF1	-26.4
DE27	13.5	FR42	-1.0	NL13	-10.7	UKF2	-11.8
DE30	19.3	FR43	20.0	NL21	6.9	UKF3	6.5
DE41	5.0	FR51	-13.7	NL22	-14.5	UKG1	-33.4
DE42	2.8	FR52	5.3	NL23	30.6	UKG2	-28.7
DE50	25.2	FR53	-1.2	NL31	-9.3	UKG3	-4.3
DE60	26.3	FR61	39.1	NL32	-14.1	UKH1	-29.0
DE71	16.3	FR62	-6.3	NL33	-19.1	UKH2	-12.0
DE72	11.9	FR63	12.1	NL34	-5.5	UKH3	-14.7
DE73	32.0	FR71	-16.5	NL41	-8.3	UKI	-7.2
DE80	10.3	FR72	-2.0	NL42	-7.4	UKJ1	-32.1
DE91	24.0	FR81	-15.9	PL11	-7.9	UKJ2	-19.4
DE92	16.3	FR82	-31.4	PL12	8.7	UKJ3	-48.5
DE93	-17.0	FR83	45.6	PL21	-19.2	UKJ4	-10.7
DE94	26.2	FR91	4.9	PL22	-28.9	UKK1	-37.2
DEA1	-7.4	FR92	-0.4	PL31	-26.0	UKK2	-3.9
DEA2	-7.8	FR93	13.9	PL32	-25.9	UKK3	-27.3
DEA3	1.5	FR94	-8.2	PL33	-27.7	UKK4	-32.7
DEA4	28.1	GR11	-19.8	PL34	-28.2	UKL1	-31.6
DEA5	-18.0	GR12	-29.4	PL41	-13.8	UKL2	-14.8
DEB1	38.1	GR13	-16.6	PL42	6.0	UKM2	-25.5
DEB2	-14.7	GR14	-32.3	PL43	-5.5	UKM3	-28.7
DEB3	30.5	GR21	-10.9	PL51	20.8	UKM5	-14.7
DEC0	3.4	GR22	-24.7	PL52	-22.4	UKM6	-32.7
DED1	64.5	GR23	-17.9	PL61	-21.0	UKN0	-21.9
DED2	15.0	GR24	-31.9				

Table 73: Market Size

Region	Average growth rate %	Region	Average growth rate %	Region	Average growth rate %	Region	Average growth rate %
AT11	1.8	DED3	-6.0	GR25	-1.6	PL62	2.7
AT12	3.2	DEE0	-6.1	GR30	0.5	PL63	3.4
AT13	4.4	DEF0	-0.5	GR41	7.4	PT11	1.9
AT21	-1.1	DEG0	-5.4	GR42	15.5	PT15	5.0
AT22	-0.5	DK01	-3.1	GR43	-1.1	PT16	1.1
AT31	1.5	DK02	-2.6	HR03		PT17	5.4
AT32	1.4	DK03	-3.0	HR04		PT18	2.6
AT33	2.4	DK04	-3.5	HU10	-0.8	PT20	27.4
AT34	10.7	DK05	-4.4	HU21	-2.0	PT30	37.8
BE00	0.6	EE00	-8.6	HU22	-4.1	RO11	-2.7
BE21	0.3	ES11	2.1	HU23	-13.0	RO12	-2.9
BE22	-0.3	ES12	-1.8	HU31	-1.3	RO21	-1.1
BE23	0.5	ES13	-1.0	HU32	-1.4	RO22	1.2
BE25	-0.5	ES21	0.8	HU33	-2.6	RO31	4.0
BE32	0.0	ES22	3.1	IE01	1.3	RO32	6.7
BE33	-0.5	ES23	3.5	IE02	1.7	RO41	-3.6
BE34	-0.4	ES24	4.6	ITC1	0.5	RO42	-3.9
BE35	0.1	ES30	8.0	ITC2	0.3	SE11	1.6
BG31	-3.4	ES41	1.3	ITC3	1.2	SE12	-2.3
BG32	0.5	ES42	7.0	ITC4	2.2	SE21	-5.8
BG33	-1.6	ES43	-0.3	ITD1	3.1	SE22	-2.6
BG34	1.2	ES51	8.6	ITD2	2.9	SE23	-4.7
BG41	5.5	ES52	8.9	ITD3	2.4	SE31	-5.7
BG42	0.6	ES53	11.8	ITD4	-0.7	SE32	-6.3
CY00	36.1	ES61	3.6	ITD5	2.3	SE33	-22.0
CZ01	-0.3	ES62	12.4	ITE1	1.7	SI01	-20.0
CZ02	-0.6	ES63	10.6	ITE2	2.1	SI02	-7.0
CZ03	-1.9	ES64	-13.4	ITE3	2.0	SK01	2.7
CZ04	-2.7	ES70	10.2	ITE4	2.3	SK02	0.1
CZ05	-0.5	FI13	-4.6	ITF1	1.6	SK03	0.6
CZ06	0.2	FI18	-1.8	ITF2	0.0	SK04	2.2
CZ07	-0.7	FI19	-4.1	ITF3	0.6	UKC1	-3.8
CZ08	0.1	FI1A	-15.6	ITF4	0.2	UKC2	-5.0
DE11	-2.6	FI20	-2.9	ITF5	-0.5	UKD1	-3.5
DE12	-1.7	FR10	4.7	ITF6	-1.1	UKD2	-4.2
DE13	-1.2	FR21	-2.5	ITG1	0.2	UKD3	-3.9
DE14	-1.3	FR22	2.5	ITG2	2.7	UKD4	-3.9
DE21	0.4	FR23	0.8	LT00	-8.8	UKD5	-4.6
DE22	-0.2	FR24	1.7	LU00	-1.0	UKE1	-2.4
DE23	-1.2	FR25	-2.7	LV00	-10.8	UKE2	-2.9
DE24	-3.2	FR26	-1.3	MT00	3.2	UKE3	-3.2
DE25	-1.7	FR30	-1.4	NL11	0.5	UKE4	-3.2
DE26	-2.2	FR41	-2.9	NL12	1.6	UKF1	-3.4
DE27	-0.4	FR42	-1.4	NL13	0.8	UKF2	-2.7
DE30	1.4	FR43	-1.1	NL21	0.7	UKF3	-2.2
DE41	0.4	FR51	2.7	NL22	0.6	UKG1	-4.1
DE42	-0.8	FR52	1.8	NL23	1.4	UKG2	-4.5
DE50	-0.4	FR53	0.3	NL31	0.7	UKG3	-4.3
DE60	-0.8	FR61	2.3	NL32	1.0	UKH1	-1.6
DE71	-1.3	FR62	5.7	NL33	0.2	UKH2	-0.6
DE72	-1.9	FR63	-3.8	NL34	0.2	UKH3	-0.3
DE73	-3.5	FR71	2.6	NL41	0.0	UKI	-0.1
DE80	-3.0	FR72	-2.7	NL42	-0.9	UKJ1	-1.4
DE91	-3.8	FR81	6.6	PL11	2.1	UKJ2	-0.6
DE92	-1.6	FR82	4.0	PL12	4.1	UKJ3	-1.8
DE93	-1.1	FR83	13.5	PL21	3.6	UKJ4	-0.3
DE94	-0.3	FR91		PL22	1.6	UKK1	-3.5
DEA1	-1.3	FR92		PL31	2.6	UKK2	-2.5
DEA2	-1.4	FR93		PL32	3.9	UKK3	0.1
DEA3	-1.4	FR94		PL33	2.5	UKK4	-0.9
DEA4	-2.0	GR11	9.7	PL34	1.7	UKL1	-4.2
DEA5	-2.2	GR12	3.2	PL41	4.0	UKL2	-4.7
DEB1	-1.5	GR13	2.8	PL42	0.6	UKM2	-4.8
DEB2	-1.7	GR14	0.7	PL43	-0.2	UKM3	-4.6
DEB3	-1.9	GR21	2.5	PL51	1.4	UKM5	-1.6
DEC0	-3.4	GR22	4.2	PL52	1.2	UKM6	-1.0
DED1	-4.6	GR23	2.4	PL61	2.6	UKN0	-2.0
DED2	-3.4	GR24	0.4				

Technological Readiness (regional sub-pillar only)

In the case of the Technological Readiness pillar, the time comparison analysis is possible only for the regional sub-pillar, which regards technological readiness of households. The enterprise sub-pillar, at the country level, includes all different indicators with respect to RCI 2010 (see Section 4.9 for details).

Indicators included in the analysis are: 1. Share of households with access to broadband; 2. Share of individuals buying over internet and 3. Share of households access to internet.

Results are shown in Table 74.

Business Sophistication

No time comparison is feasible in this case as NACE sectors have been changed between the two RCI releases. Full comparability between Employment and GVA by sector in the two editions is not granted. This pillar is discarded from the time comparison analysis.

Innovation

Most of the indicators used in the latest RCI edition are comparable with those of the 2010 edition. These are: 1. Total patent applications; 2. Core creative class employment; 3. Knowledge workers; 4. Total intramural R&D expenditure; 5. Human Resources in Science and Technology; 6. Employment in technology and knowledge-intensive sectors; 7. High-tech-inventors and 8. ICT inventors.

Results are shown in Table 75.

Table 74: Technological Readiness regional sub-pillar (households)

Region	Average growth rate %	Region	Average growth rate %	Region	Average growth rate %	Region	Average growth rate %
AT11	12.9	DED3	33.8	GR25	69.0	PL62	16.4
AT12	17.9	DEE0	11.7	GR30	33.0	PL63	16.4
AT13	7.8	DEF0	8.0	GR41	42.6	PT11	25.6
AT21	17.7	DEG0	19.8	GR42	42.6	PT15	18.3
AT22	20.2	DK01	6.7	GR43	42.6	PT16	34.4
AT31	11.3	DK02	14.4	HR03		PT17	24.4
AT32	6.4	DK03	8.4	HR04		PT18	33.8
AT33	10.4	DK04	11.7	HU10	23.1	PT20	35.5
AT34	24.0	DK05	13.0	HU21	18.9	PT30	29.9
BE00	19.3	EE00	13.9	HU22	24.3	RO11	41.9
BE21	10.8	ES11	26.8	HU23	36.2	RO12	62.7
BE22	19.6	ES12	18.9	HU31	22.5	RO21	-0.4
BE23	9.9	ES13	19.2	HU32	39.4	RO22	-8.0
BE25	5.0	ES21	16.5	HU33	23.8	RO31	56.9
BE32	30.3	ES22	14.3	IE01	32.0	RO32	37.8
BE33	23.1	ES23	30.6	IE02	14.6	RO41	76.5
BE34	15.1	ES24	23.5	ITC1	39.4	RO42	13.9
BE35	39.6	ES30	13.0	ITC2	44.1	SE11	8.3
BG31	49.2	ES41	26.9	ITC3	19.3	SE12	8.4
BG32	123.8	ES42	23.9	ITC4	26.5	SE21	8.1
BG33	26.6	ES43	30.0	ITD1	25.5	SE22	13.2
BG34	47.5	ES51	15.8	ITD2	25.4	SE23	6.3
BG41	34.6	ES52	22.4	ITD3	29.6	SE31	3.2
BG42	73.8	ES53	10.6	ITD4	22.2	SE32	7.8
CY00	17.8	ES61	23.8	ITD5	23.1	SE33	11.8
CZ01	16.2	ES62	35.2	ITE1	17.7	SI01	20.5
CZ02	49.4	ES63	61.1	ITE2	25.1	SI02	20.5
CZ03	42.6	ES64	23.1	ITE3	18.8	SK01	36.7
CZ04	68.5	ES70	10.1	ITE4	17.0	SK02	26.0
CZ05	71.3	FI13	21.6	ITF1	13.4	SK03	26.6
CZ06	46.5	FI18	8.3	ITF2	18.7	SK04	20.4
CZ07	62.4	FI19	15.2	ITF3	13.9	UKC1	5.8
CZ08	66.9	FI1A	8.7	ITF4	22.8	UKC2	-6.5
DE11	11.0	FI20		ITF5	24.9	UKD1	
DE12	11.0	FR10	21.9	ITF6	28.8	UKD2	4.2
DE13	11.0	FR21	30.8	ITG1	16.8	UKD3	14.3
DE14	11.0	FR22	30.8	ITG2	28.0	UKD4	8.5
DE21	13.5	FR23	30.8	LT00	31.1	UKD5	20.9
DE22	13.5	FR24	30.8	LU00	3.2	UKE1	9.3
DE23	13.5	FR25	30.8	LV00	18.2	UKE2	8.1
DE24	13.5	FR26	30.8	MT00	22.2	UKE3	11.1
DE25	13.5	FR30	38.4	NL11	16.8	UKE4	11.7
DE26	13.5	FR41	28.5	NL12	18.6	UKF1	15.1
DE27	13.5	FR42	28.5	NL13	9.5	UKF2	7.3
DE30	11.3	FR43	28.5	NL21	11.6	UKF3	
DE41	33.9	FR51	39.2	NL22	7.7	UKG1	-0.8
DE42	12.8	FR52	39.2	NL23	13.9	UKG2	2.2
DE50		FR53	39.2	NL31	-0.5	UKG3	7.6
DE60	12.8	FR61	44.3	NL32	4.3	UKH1	4.5
DE71	12.1	FR62	44.3	NL33	6.1	UKH2	6.6
DE72	12.1	FR63	44.3	NL34	13.8	UKH3	12.1
DE73	12.1	FR71	20.5	NL41	4.4	UKI	9.5
DE80	10.7	FR72	20.5	NL42	12.5	UKJ1	12.5
DE91	16.5	FR81	17.9	PL11	20.6	UKJ2	2.3
DE92	16.5	FR82	17.9	PL12	20.6	UKJ3	13.5
DE93	16.5	FR83	17.9	PL21	20.5	UKJ4	3.0
DE94	16.5	FR91		PL22	20.5	UKK1	5.9
DEA1	6.0	FR92		PL31	21.2	UKK2	12.7
DEA2	6.0	FR93		PL32	21.2	UKK3	
DEA3	6.0	FR94		PL33	21.2	UKK4	20.4
DEA4	6.0	GR11	59.7	PL34	21.2	UKL1	2.9
DEA5	6.0	GR12	59.7	PL41	18.2	UKL2	16.0
DEB1	14.8	GR13	59.7	PL42	18.2	UKM2	3.4
DEB2	14.8	GR14	59.7	PL43	18.2	UKM3	21.8
DEB3	14.8	GR21	69.0	PL51	26.2	UKM5	
DEC0	2.1	GR22	69.0	PL52	26.2	UKM6	-2.4
DED1	33.8	GR23	69.0	PL61	16.4	UKN0	23.0
DED2	33.8	GR24	69.0				

Table 75: Innovation

Region	Average growth rate %	Region	Average growth rate %	Region	Average growth rate %	Region	Average growth rate %
AT11	9.7	DED3	2.9	GR25	-15.0	PL62	94.9
AT12	-18.1	DEE0	-21.5	GR30	-14.9	PL63	29.3
AT13	-26.6	DEF0	-17.5	GR41	-22.5	PT11	31.1
AT21	-22.9	DEG0	-17.7	GR42	-0.7	PT15	69.5
AT22	-19.3	DK01	-15.6	GR43	-16.2	PT16	-8.5
AT31	-27.4	DK02	-24.6	HR03		PT17	-22.8
AT32	-14.3	DK03	-25.9	HR04		PT18	22.8
AT33	-12.3	DK04	-15.0	HU10	-16.4	PT20	48.7
AT34	5.3	DK05	-15.1	HU21	-20.4	PT30	-4.3
BE00	-6.3	EE00	29.1	HU22	21.4	RO11	11.1
BE21	-17.1	ES11	6.7	HU23	-4.3	RO12	37.0
BE22	-20.9	ES12	15.5	HU31	3.1	RO21	82.3
BE23	-16.0	ES13	8.8	HU32	11.6	RO22	0.6
BE25	-33.1	ES21	4.0	HU33	36.1	RO31	-8.8
BE32	-28.1	ES22	7.4	IE01	-18.4	RO32	12.9
BE33	-16.6	ES23	28.5	IE02	-14.1	RO41	26.7
BE34	-43.8	ES24	-29.8	ITC1	-26.5	RO42	22.3
BE35	-40.9	ES30	2.1	ITC2	-15.9	SE11	-12.5
BG31	17.2	ES41	-16.2	ITC3	-13.2	SE12	-20.2
BG32	0.7	ES42	4.3	ITC4	-26.2	SE21	-35.5
BG33	-1.6	ES43	-4.7	ITD1	7.2	SE22	-11.6
BG34	-21.2	ES51	-11.3	ITD2	-1.8	SE23	-28.9
BG41	-20.7	ES52	-19.8	ITD3	-22.4	SE31	-18.4
BG42	6.9	ES53	-8.9	ITD4	-28.2	SE32	30.6
CY00	47.7	ES61	-0.9	ITD5	-22.2	SE33	-24.5
CZ01	-23.7	ES62	25.3	ITE1	-27.0	SI01	-11.9
CZ02	-4.8	ES63	-9.4	ITE2	-23.1	SI02	18.3
CZ03	0.6	ES64	-3.5	ITE3	-9.0	SK01	18.7
CZ04	-30.1	ES70	3.1	ITE4	-24.7	SK02	1.0
CZ05	-17.0	FI13	-27.6	ITF1	-48.4	SK03	0.0
CZ06	11.2	FI18	-29.8	ITF2	-24.6	SK04	8.8
CZ07	13.0	FI19	-38.4	ITF3	-13.2	UKC1	-14.7
CZ08	-39.8	FI1A	-26.5	ITF4	-22.8	UKC2	2.0
DE11	-22.8	FI20	-16.8	ITF5	-44.3	UKD1	-12.5
DE12	-19.6	FR10	-20.0	ITF6	-24.5	UKD2	-31.4
DE13	-24.8	FR21	-22.3	ITG1	-36.2	UKD3	-34.6
DE14	-15.1	FR22	-30.4	ITG2	-28.2	UKD4	-14.8
DE21	-23.5	FR23	1.5	LT00	1.4	UKD5	-28.9
DE22	-15.4	FR24	-18.8	LU00	-25.3	UKE1	-13.0
DE23	-15.7	FR25	-27.5	LV00	11.5	UKE2	-22.2
DE24	0.4	FR26	-34.3	MT00	-26.7	UKE3	-25.6
DE25	-20.6	FR30	-12.9	NL11	-14.1	UKE4	-27.9
DE26	-15.0	FR41	-5.8	NL12	-5.1	UKF1	-10.3
DE27	-11.5	FR42	-8.3	NL13	-29.4	UKF2	-32.0
DE30	-11.1	FR43	-4.8	NL21	-15.9	UKF3	-15.4
DE41	-8.1	FR51	-17.7	NL22	-32.1	UKG1	-35.1
DE42	-2.7	FR52	-17.9	NL23	-6.4	UKG2	-27.2
DE50	-18.0	FR53	-18.8	NL31	-15.7	UKG3	-20.3
DE60	-21.1	FR61	-0.5	NL32	-16.2	UKH1	-31.6
DE71	-25.2	FR62	-17.1	NL33	-7.1	UKH2	-27.2
DE72	-32.5	FR63	-7.7	NL34	-20.4	UKH3	-42.5
DE73	-9.7	FR71	-12.0	NL41	-40.3	UKI	-20.0
DE80	-7.0	FR72	-33.7	NL42	-32.8	UKJ1	-15.7
DE91	-15.8	FR81	-19.3	PL11	75.9	UKJ2	-16.7
DE92	-20.8	FR82	-15.5	PL12	-10.6	UKJ3	-26.5
DE93	-5.1	FR83	-40.6	PL21	30.2	UKJ4	-34.3
DE94	-24.2	FR91	-17.7	PL22	7.2	UKK1	-17.9
DEA1	-15.5	FR92	42.2	PL31	87.1	UKK2	-28.1
DEA2	-31.0	FR93	-38.6	PL32	-29.5	UKK3	-19.3
DEA3	-20.9	FR94	66.5	PL33	64.9	UKK4	-33.8
DEA4	-5.3	GR11	43.5	PL34	49.2	UKL1	-31.3
DEA5	-17.9	GR12	-16.5	PL41	12.7	UKL2	-20.9
DEB1	-9.5	GR13	-22.0	PL42	-4.0	UKM2	-28.2
DEB2	-26.7	GR14	31.0	PL43	-37.3	UKM3	-18.2
DEB3	-21.0	GR21	62.9	PL51	19.3	UKM5	-29.6
DEC0	-9.6	GR22	-3.5	PL52	-1.8	UKM6	-11.4
DED1	-1.8	GR23	61.4	PL61	39.5	UKN0	-27.2
DED2	-15.5	GR24	-28.2				

For the reasons cited above, we decided not to include a table with the rank in the RCI2010 and the RCI2013. . For transparency reasons, we have included a table which shows the 2010 and 2013 scores in Table 76. Please note that the scores for the RCI2010 have been modified to mimic the regions used in the 2013 version. This has been done by creating population weighted averages of the final RCI2010 score for the combined and new regions. Please note that this is a rough approximation of what the score would be if each of the indicators would have been combined prior to aggregation into pillars, groups and the final index. In addition, some of the combined regions (Praha, the two Finnish regoins and London) combine regions with different stages of development which makes the comparison every more fraught.

Although this table allows a comparison of the two versions of the RCI, it is not possible to identify whether the differences in the score is due to changes in the data or changes in the method. In some cases, it may be primarily due to changes in the values of the indicators included in both versions, in other cases it may be mainly due to the changes in methodology and indicator selection.

Table 76: RCI 2013 and RCI 2010 scores

COUNTRY	NUTS CODE	Merged regions code	NUTS NAME	RCI 2010 scores	DEVELOPMENT STAGE 2010	RCI 2013 scores	DEV STAGE 2013
Austria	AT11		Burgenland (A)	0.021	INTERMEDIATE	0.129	3
Austria	AT12	AT00	Niederösterreich	0.423	HIGH	0.393	5
Austria	AT13	AT00	Wien	0.423	HIGH	0.393	5
Austria	AT21		Kärnten	0.083	HIGH	0.044	4
Austria	AT22		Steiermark	0.256	HIGH	0.148	4
Austria	AT31		Oberösterreich	0.357	HIGH	0.159	5
Austria	AT32		Salzburg	0.275	HIGH	0.133	5
Austria	AT33		Tirol	0.280	HIGH	0.128	5
Austria	AT34		Vorarlberg	0.049	HIGH	0.153	5
Belgium	BE10	BE00	Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest	0.729	HIGH	0.969	5
Belgium	BE21		Prov. Antwerpen	0.658	HIGH	0.807	5
Belgium	BE22		Prov. Limburg (B)	0.312	INTERMEDIATE	0.614	4
Belgium	BE23		Prov. Oost-Vlaanderen	0.578	HIGH	0.752	4
Belgium	BE24	BE00	Prov. Vlaams-Brabant	0.729	HIGH	0.969	5
Belgium	BE25		Prov. West-Vlaanderen	0.428	HIGH	0.538	5
Belgium	BE31	BE00	Prov. Brabant Wallon	0.729	HIGH	0.969	5
Belgium	BE32		Prov. Hainaut	-0.049	INTERMEDIATE	0.155	3
Belgium	BE33		Prov. Liège	0.079	INTERMEDIATE	0.369	3
Belgium	BE34		Prov. Luxembourg (B)	-0.225	INTERMEDIATE	0.048	3
Belgium	BE35		Prov. Namur	-0.043	INTERMEDIATE	0.318	3
Bulgaria	BG31		Severozapaden	-1.387	MEDIUM	-1.481	1
Bulgaria	BG32		Severen tsentralen	-1.275	MEDIUM	-1.279	1
Bulgaria	BG33		Severoiztochen	-1.294	MEDIUM	-1.292	1
Bulgaria	BG34		Yugoiztochen	-1.291	MEDIUM	-1.403	1
Bulgaria	BG41		Yugozapaden	-0.562	MEDIUM	-0.715	2
Bulgaria	BG42		Yuzhen tsentralen	-1.144	MEDIUM	-1.302	1
Cyprus	CY00		Κύπρος / Kýpros	-0.298	INTERMEDIATE	-0.285	4
Czech Republic	CZ01	CZ00	Praha	0.164	HIGH	0.213	5
Czech Republic	CZ02	CZ00	Střední Čechy	0.164	INTERMEDIATE	0.213	5
Czech Republic	CZ03		Jihozápad	-0.212	MEDIUM	-0.328	2
Czech Republic	CZ04		Severozápad	-0.491	MEDIUM	-0.445	2
Czech Republic	CZ05		Severovýchod	-0.261	MEDIUM	-0.296	2
Czech Republic	CZ06		Jihovýchod	-0.221	MEDIUM	-0.338	2
Czech Republic	CZ07		Střední Morava	-0.406	MEDIUM	-0.444	2
Czech Republic	CZ08		Moravskoslezsko	-0.503	MEDIUM	-0.414	2
Germany	DE11		Stuttgart	0.635	HIGH	0.804	5
Germany	DE12		Karlsruhe	0.633	HIGH	0.875	5
Germany	DE13		Freiburg	0.472	HIGH	0.627	5
Germany	DE14		Tübingen	0.461	HIGH	0.687	5
Germany	DE21		Oberbayern	0.876	HIGH	0.963	5
Germany	DE22		Niederbayern	0.140	HIGH	0.309	5

Germany	DE23		Oberpfalz	0.307	HIGH	0.459	5
Germany	DE24		Oberfranken	0.179	HIGH	0.446	5
Germany	DE25		Mittelfranken	0.484	HIGH	0.721	5
Germany	DE26		Unterfranken	0.349	HIGH	0.528	5
Germany	DE27		Schwaben	0.304	HIGH	0.497	5
Germany	DE30	DE00	Berlin	0.340	INTERMEDIATE	0.551	4
Germany	DE41	DE00	Brandenburg - Nordost	0.340	INTERMEDIATE	0.551	4
Germany	DE42	DE00	Brandenburg - Südwest	0.340	INTERMEDIATE	0.551	4
Germany	DE50		Bremen	0.285	HIGH	0.593	5
Germany	DE60		Hamburg	0.687	HIGH	0.983	5
Germany	DE71		Darmstadt	0.758	HIGH	1.050	5
Germany	DE72		Gießen	0.313	HIGH	0.621	4
Germany	DE73		Kassel	0.181	HIGH	0.433	5
Germany	DE80		Mecklenburg-Vorpommern	0.003	INTERMEDIATE	0.092	3
Germany	DE91		Braunschweig	0.230	HIGH	0.476	4
Germany	DE92		Hannover	0.331	HIGH	0.522	5
Germany	DE93		Lüneburg	0.097	INTERMEDIATE	0.336	3
Germany	DE94		Weser-Ems	0.097	HIGH	0.266	4
Germany	DEA1		Düsseldorf	0.585	HIGH	0.770	5
Germany	DEA2		Köln	0.627	HIGH	0.857	5
Germany	DEA3		Münster	0.365	INTERMEDIATE	0.577	4
Germany	DEA4		Detmold	0.266	HIGH	0.475	4
Germany	DEA5		Arnsberg	0.307	HIGH	0.531	4
Germany	DEB1		Koblenz	0.167	INTERMEDIATE	0.528	4
Germany	DEB2		Trier	0.138	INTERMEDIATE	0.451	4
Germany	DEB3		Rheinhessen-Pfalz	0.410	HIGH	0.672	4
Germany	DEC0		Saarland	0.151	HIGH	0.354	5
Germany	DED1		Chemnitz	0.080	INTERMEDIATE	0.274	3
Germany	DED2		Dresden	0.227	INTERMEDIATE	0.390	3
Germany	DED3		Leipzig	0.180	INTERMEDIATE	0.387	4
Germany	DEE0		Sachsen-Anhalt	0.032	INTERMEDIATE	0.191	3
Germany	DEF0		Schleswig-Holstein	0.229	INTERMEDIATE	0.346	4
Germany	DEG0		Thüringen	0.138	INTERMEDIATE	0.350	3
Denmark	DK01		Hovedstaden	1.130	HIGH	1.040	5
Denmark	DK02		Sjælland	0.608	INTERMEDIATE	0.457	3
Denmark	DK03		Syddanmark	0.572	HIGH	0.295	5
Denmark	DK04		Midtjylland	0.614	HIGH	0.438	5
Denmark	DK05		Nordjylland	0.454	HIGH	0.318	4
Estonia	EE00		Eesti	-0.178	MEDIUM	-0.182	2
Spain	ES11		Galicia	-0.393	INTERMEDIATE	-0.458	4
Spain	ES12		Principado de Asturias	-0.482	INTERMEDIATE	-0.340	4
Spain	ES13		Cantabria	-0.451	HIGH	-0.277	4
Spain	ES21		País Vasco	0.106	HIGH	0.175	5
Spain	ES22		Comunidad Foral de Navarra	-0.156	HIGH	-0.025	5
Spain	ES23		La Rioja	-0.560	HIGH	-0.347	5
Spain	ES24		Aragón	-0.356	HIGH	-0.351	5
Spain	ES30		Comunidad de Madrid	0.427	HIGH	0.479	5
Spain	ES41		Castilla y León	-0.446	HIGH	-0.460	4

Spain	ES42		Castilla-La Mancha	-0.621	INTERMEDIATE	-0.690	3
Spain	ES43		Extremadura	-0.815	MEDIUM	-0.813	2
Spain	ES51		Cataluña	0.155	HIGH	-0.109	5
Spain	ES52		Comunidad Valenciana	-0.217	INTERMEDIATE	-0.349	4
Spain	ES53		Illes Balears	-0.609	HIGH	-0.521	5
Spain	ES61		Andalucía	-0.460	INTERMEDIATE	-0.649	3
Spain	ES62		Región de Murcia	-0.495	INTERMEDIATE	-0.457	3
Spain	ES63		Ciudad Autónoma de Ceuta	-1.483	INTERMEDIATE	-1.098	4
Spain	ES64		Ciudad Autónoma de Melilla	-1.597	INTERMEDIATE	-0.930	3
Spain	ES70		Canarias	-0.742	INTERMEDIATE	-0.618	3
Finland	FI13	FI1D	Itä-Suomi	0.324	INTERMEDIATE	0.278	4
Finland	FI18		Etelä-Suomi	1.031	HIGH	0.790	5
Finland	FI19		Länsi-Suomi	0.528	HIGH	0.445	4
Finland	FI1A	FI1D	Pohjois-Suomi	0.300	HIGH	0.278	4
Finland	FI20		Åland	0.032	HIGH	0.291	5
France	FR10		Île de France	1.017	HIGH	1.050	5
France	FR21		Champagne-Ardenne	-0.176	INTERMEDIATE	-0.206	4
France	FR22		Picardie	-0.035	INTERMEDIATE	0.045	3
France	FR23		Haute-Normandie	-0.058	INTERMEDIATE	0.008	4
France	FR24		Centre	-0.018	INTERMEDIATE	-0.036	4
France	FR25		Basse-Normandie	-0.198	INTERMEDIATE	-0.194	3
France	FR26		Bourgogne	-0.158	INTERMEDIATE	-0.266	4
France	FR30		Nord - Pas-de-Calais	0.007	INTERMEDIATE	0.023	3
France	FR41		Lorraine	-0.027	INTERMEDIATE	-0.050	3
France	FR42		Alsace	0.179	HIGH	0.273	4
France	FR43		Franche-Comté	-0.177	INTERMEDIATE	-0.068	3
France	FR51		Pays de la Loire	0.035	INTERMEDIATE	-0.029	4
France	FR52		Bretagne	0.112	INTERMEDIATE	0.063	4
France	FR53		Poitou-Charentes	-0.176	INTERMEDIATE	-0.194	3
France	FR61		Aquitaine	-0.081	INTERMEDIATE	-0.062	4
France	FR62		Midi-Pyrénées	0.096	INTERMEDIATE	0.094	4
France	FR63		Limousin	-0.291	INTERMEDIATE	-0.183	3
France	FR71		Rhône-Alpes	0.360	HIGH	0.178	4
France	FR72		Auvergne	-0.146	INTERMEDIATE	-0.216	3
France	FR81		Languedoc-Roussillon	-0.114	INTERMEDIATE	-0.199	3
France	FR82		Provence-Alpes-Côte d'Azur	0.152	HIGH	0.038	4
France	FR83		Corse	-0.849	INTERMEDIATE	-0.582	3
France	FR91		Guadeloupe	-1.219	INTERMEDIATE	-0.797	2
France	FR92		Martinique	-1.049	INTERMEDIATE	-0.664	2
France	FR93		Guyane	-1.750	MEDIUM	-1.102	2
France	FR94		Réunion	-1.173	MEDIUM	-1.162	2
Greece	GR11		Anatoliki Makedonia, Thraki	-1.178	MEDIUM	-1.371	2
Greece	GR12		Kentriki Makedonia	-0.783	MEDIUM	-1.114	2
Greece	GR13		Dytiki Makedonia	-1.233	INTERMEDIATE	-1.403	3
Greece	GR14		Thessalia	-1.026	MEDIUM	-1.275	2
Greece	GR21		Ipeiros	-1.311	MEDIUM	-1.265	2
Greece	GR22		Ionia Nisia	-1.465	MEDIUM	-1.309	3
Greece	GR23		Dytiki Ellada	-1.103	MEDIUM	-1.317	2

Greece	GR24		Sterea Ellada	-1.115	INTERMEDIATE	-1.417	3
Greece	GR25		Peloponnisos	-1.172	INTERMEDIATE	-1.337	3
Greece	GR30		Attiki	-0.152	HIGH	-0.366	5
Greece	GR41		Voreio Aigaio	-1.511	MEDIUM	-1.264	3
Greece	GR42		Notio Aigaio	-1.376	INTERMEDIATE	-1.376	5
Greece	GR43		Kriti	-1.135	INTERMEDIATE	-1.201	3
Croatia	HR03		Jadranska Hrvatska			-0.832	2
Croatia	HR04		Kontinentalna Hrvatska			-0.743	2
Hungary	HU10		Közép-Magyarország	-0.057	HIGH	-0.148	4
Hungary	HU21		Közép-Dunántúl	-0.628	MEDIUM	-0.569	2
Hungary	HU22		Nyugat-Dunántúl	-0.658	MEDIUM	-0.538	2
Hungary	HU23		Dél-Dunántúl	-0.923	MEDIUM	-0.785	1
Hungary	HU31		Észak-Magyarország	-0.905	MEDIUM	-0.780	1
Hungary	HU32		Észak-Alföld	-0.937	MEDIUM	-0.877	1
Hungary	HU33		Dél-Alföld	-0.874	MEDIUM	-0.787	1
Ireland	IE01		Border, Midland and Western	0.031	INTERMEDIATE	-0.279	4
Ireland	IE02		Southern and Eastern	0.512	HIGH	0.072	5
Italy	ITC1		Piemonte	-0.084	HIGH	-0.198	5
Italy	ITC2		Valle d'Aosta/Vallée d'Aoste	-0.674	HIGH	-0.436	5
Italy	ITC3		Liguria	-0.255	HIGH	-0.165	5
Italy	ITC4		Lombardia	0.211	HIGH	0.013	5
Italy	ITD1		Provincia Autonoma Bolzano/Bozen	-0.478	HIGH	-0.356	5
Italy	ITD2		Provincia Autonoma Trento	-0.413	HIGH	-0.162	5
Italy	ITD3		Veneto	-0.067	HIGH	-0.255	5
Italy	ITD4		Friuli-Venezia Giulia	-0.275	HIGH	-0.219	5
Italy	ITD5		Emilia-Romagna	0.060	HIGH	-0.090	5
Italy	ITE1		Toscana	-0.154	HIGH	-0.269	5
Italy	ITE2		Umbria	-0.370	INTERMEDIATE	-0.335	4
Italy	ITE3		Marche	-0.362	HIGH	-0.419	4
Italy	ITE4		Lazio	0.006	HIGH	-0.125	5
Italy	ITF1		Abruzzo	-0.451	INTERMEDIATE	-0.516	3
Italy	ITF2		Molise	-0.788	INTERMEDIATE	-0.640	3
Italy	ITF3		Campania	-0.530	MEDIUM	-0.764	2
Italy	ITF4		Puglia	-0.668	MEDIUM	-0.880	2
Italy	ITF5		Basilicata	-0.918	INTERMEDIATE	-0.850	2
Italy	ITF6		Calabria	-0.772	MEDIUM	-0.905	2
Italy	ITG1		Sicilia	-0.676	MEDIUM	-0.961	2
Italy	ITG2		Sardegna	-0.915	INTERMEDIATE	-0.807	3
Lithuania	LT00		Lietuva	-0.538	MEDIUM	-0.820	2
Luxembourg	LU00		Luxembourg (Grand-Duché)	0.600	HIGH	0.971	5
Latvia	LV00		Latvija	-0.700	MEDIUM	-0.840	2
Malta	MT00		Malta	-0.775	INTERMEDIATE	-0.569	3
Netherlands	NL11		Groningen	0.623	HIGH	0.616	5
Netherlands	NL12		Friesland (NL)	0.392	HIGH	0.482	4
Netherlands	NL13		Drenthe	0.346	HIGH	0.528	4
Netherlands	NL21		Overijssel	0.682	HIGH	0.712	5
Netherlands	NL22		Gelderland	0.835	HIGH	0.892	5

Netherlands	NL23	NL00	Flevoland	1.046	HIGH	1.078	5
Netherlands	NL31		Utrecht	1.253	HIGH	1.358	5
Netherlands	NL32	NL00	Noord-Holland	1.046	HIGH	1.078	5
Netherlands	NL33		Zuid-Holland	1.024	HIGH	1.006	5
Netherlands	NL34		Zeeland	0.496	HIGH	0.601	5
Netherlands	NL41		Noord-Brabant	0.993	HIGH	1.003	5
Netherlands	NL42		Limburg (NL)	0.752	HIGH	0.890	5
Poland	PL11		Łódzkie	-0.495	MEDIUM	-0.584	2
Poland	PL12		Mazowieckie	-0.070	INTERMEDIATE	-0.180	4
Poland	PL21		Małopolskie	-0.325	MEDIUM	-0.471	1
Poland	PL22		Śląskie	-0.230	MEDIUM	-0.406	2
Poland	PL31		Lubelskie	-0.679	MEDIUM	-0.666	1
Poland	PL32		Podkarpackie	-0.652	MEDIUM	-0.743	1
Poland	PL33		Świętokrzyskie	-0.684	MEDIUM	-0.733	1
Poland	PL34		Podlaskie	-0.823	MEDIUM	-0.729	1
Poland	PL41		Wielkopolskie	-0.511	MEDIUM	-0.728	2
Poland	PL42		Zachodniopomorskie	-0.654	MEDIUM	-0.712	2
Poland	PL43		Lubuskie	-0.718	MEDIUM	-0.704	1
Poland	PL51		Dolnośląskie	-0.448	MEDIUM	-0.544	2
Poland	PL52		Opolskie	-0.568	MEDIUM	-0.584	1
Poland	PL61		Kujawsko-Pomorskie	-0.726	MEDIUM	-0.744	1
Poland	PL62		Warmińsko-Mazurskie	-0.866	MEDIUM	-0.871	1
Poland	PL63		Pomorskie	-0.543	MEDIUM	-0.582	2
Portugal	PT11		Norte	-0.493	MEDIUM	-0.502	2
Portugal	PT15		Algarve	-0.906	INTERMEDIATE	-0.603	3
Portugal	PT16		Centro (P)	-0.432	MEDIUM	-0.485	2
Portugal	PT17		Lisboa	-0.050	HIGH	0.019	5
Portugal	PT18		Alentejo	-0.756	MEDIUM	-0.635	2
Portugal	PT20		Região Autónoma dos Açores	-1.485	MEDIUM	-0.858	2
Portugal	PT30		Região Autónoma da Madeira	-1.202	INTERMEDIATE	-0.728	4
Romania	RO11		Nord-Vest	-1.146	MEDIUM	-1.226	1
Romania	RO12		Centru	-1.294	MEDIUM	-1.362	1
Romania	RO21		Nord-Est	-1.260	MEDIUM	-1.319	1
Romania	RO22		Sud-Est	-1.385	MEDIUM	-1.479	1
Romania	RO31		Sud - Muntenia	-1.197	MEDIUM	-1.336	1
Romania	RO32		Bucureşti - Ilfov	-0.339	INTERMEDIATE	-0.309	4
Romania	RO41		Sud-Vest Oltenia	-1.369	MEDIUM	-1.360	1
Romania	RO42		Vest	-1.193	MEDIUM	-1.254	2
Sweden	SE11		Stockholm	1.081	HIGH	1.149	5
Sweden	SE12		Östra Mellansverige	0.515	HIGH	0.516	4
Sweden	SE21		Småland med öarna	0.208	HIGH	0.183	4
Sweden	SE22		Sydsverige	0.593	HIGH	0.727	4
Sweden	SE23		Västsverige	0.630	HIGH	0.588	5
Sweden	SE31		Norra Mellansverige	0.048	HIGH	0.076	4
Sweden	SE32		Mellersta Norrland	-0.025	HIGH	0.106	5
Sweden	SE33		Övre Norrland	0.082	HIGH	0.177	5
Slovenia	SI01		Vzhodna Slovenija	0.003	MEDIUM	-0.212	2
Slovenia	SI02		Zahodna Slovenija	0.248	HIGH	0.119	4

Slovakia	SK01		Bratislavský kraj	0.366	HIGH	0.378	5
Slovakia	SK02		Západné Slovensko	-0.361	MEDIUM	-0.562	2
Slovakia	SK03		Stredné Slovensko	-0.700	MEDIUM	-0.749	2
Slovakia	SK04		Východné Slovensko	-0.829	MEDIUM	-0.871	1
United Kingdom	UKC1		Tees Valley and Durham	0.015	INTERMEDIATE	0.115	3
United Kingdom	UKC2		Northumberland and Tyne and Wear	0.141	INTERMEDIATE	0.150	4
United Kingdom	UKD1		Cumbria	-0.092	INTERMEDIATE	-0.057	3
United Kingdom	UKD2		Cheshire	0.550	HIGH	0.397	5
United Kingdom	UKD3		Greater Manchester	0.430	HIGH	0.531	4
United Kingdom	UKD4		Lancashire	0.273	INTERMEDIATE	0.412	3
United Kingdom	UKD5		Merseyside	0.231	INTERMEDIATE	0.106	3
United Kingdom	UKE1		East Yorkshire and Northern Lincolnshire	0.035	INTERMEDIATE	0.114	3
United Kingdom	UKE2		North Yorkshire	0.480	HIGH	0.513	4
United Kingdom	UKE3		South Yorkshire	0.216	INTERMEDIATE	0.340	3
United Kingdom	UKE4		West Yorkshire	0.366	HIGH	0.442	4
United Kingdom	UKF1		Derbyshire and Nottinghamshire	0.373	HIGH	0.521	4
United Kingdom	UKF2		Leicestershire, Rutland and Northamptonshire	0.434	HIGH	0.589	4
United Kingdom	UKF3		Lincolnshire	-0.170	INTERMEDIATE	0.190	3
United Kingdom	UKG1		Herefordshire, Worcestershire and Warwickshire	0.429	HIGH	0.550	4
United Kingdom	UKG2		Shropshire and Staffordshire	0.322	INTERMEDIATE	0.416	3
United Kingdom	UKG3		West Midlands	0.345	HIGH	0.352	4
United Kingdom	UKH1		East Anglia	0.530	HIGH	0.497	4
United Kingdom	UKH2	UK00	Bedfordshire and Hertfordshire	0.928	HIGH	1.192	5
United Kingdom	UKH3	UK00	Essex	0.928	INTERMEDIATE	1.192	5
United Kingdom	UKI1	UK00	Inner London	0.928	HIGH	1.192	5
United Kingdom	UKI2	UK00	Outer London	0.928	HIGH	1.192	5
United Kingdom	UKJ1		Berkshire, Buckinghamshire and Oxfordshire	0.954	HIGH	1.174	5
United Kingdom	UKJ2		Surrey, East and West Sussex	0.871	HIGH	1.093	5
United Kingdom	UKJ3		Hampshire and Isle of Wight	0.678	HIGH	0.760	5
United Kingdom	UKJ4		Kent	0.417	INTERMEDIATE	0.598	4
United Kingdom	UKK1		Gloucestershire, Wiltshire and Bristol/Bath area	0.759	HIGH	0.758	5
United Kingdom	UKK2		Dorset and Somerset	0.353	INTERMEDIATE	0.436	4
United Kingdom	UKK3		Cornwall and Isles of Scilly	-0.281	INTERMEDIATE	-0.037	2
United Kingdom	UKK4		Devon	0.230	INTERMEDIATE	0.251	3
United Kingdom	UKL1		West Wales and The Valleys	0.056	MEDIUM	-0.006	2
United Kingdom	UKL2		East Wales	0.333	HIGH	0.456	4
United Kingdom	UKM2		Eastern Scotland	0.565	HIGH	0.444	5
United Kingdom	UKM3		South Western Scotland	0.291	HIGH	0.189	4
United Kingdom	UKM5		North Eastern Scotland	0.386	HIGH	0.448	5
United Kingdom	UKM6		Highlands and Islands	-0.091	INTERMEDIATE	-0.073	3
United Kingdom	UKN0		Northern Ireland	0.092	INTERMEDIATE	-0.079	3

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Appendix A – List of candidate indicators (80 candidates, 73 selected)

pillar name		indicator #	Indicators	source	geographical level	unit of measurement	reference year	included (I)/ discarded (D)	reason for discarding
Institutions regional	1.a	1	Corruption	DG Regio project on QoG	NUTS2	z-scores (the higher the better)	2009	I	
Institutions regional	1.a	2	RuleLaw	DG Regio project on QoG	NUTS2	z-scores (the higher the better)	2009	I	
Institutions regional	1.a	3	GovEffect	DG Regio project on QoG	NUTS2	z-scores (the higher the better)	2009	I	
Institutions regional	1.a	4	VoiceAccount	DG Regio project on QoG	NUTS2	z-scores (the higher the better)	2009	I	
Institutions national	1.b	1	Corruption is a major problem in (OUR COUNTRY)	Special Eurobarometer 325	country	survey data - % of respondents	2011	I	
Institutions national	1.b	2	There is corruption in regional institutions in (OUR COUNTRY)	Special Eurobarometer 325	country	survey data - % of respondents	2011	I	
Institutions national	1.b	3	Voice and accountability	Worldbank Worldwide Governance Indicators	country	score ranging from -2.5 to 2.5 & % rank (0-100)	2011	I	
Institutions national	1.b	4	Political stability	Worldbank Worldwide Governance Indicators	country	score ranging from -2.5 to 2.5 & % rank (0-100)	2011	I	
Institutions national	1.b	5	Government effectiveness	Worldbank Worldwide Governance Indicators	country	score ranging from -2.5 to 2.5 & % rank (0-100)	2011	I	
Institutions national	1.b	6	Regulatory quality	Worldbank Worldwide Governance Indicators	country	score ranging from -2.5 to 2.5 & % rank (0-100)	2011	I	
Institutions national	1.b	7	Rule of law	Worldbank Worldwide Governance Indicators	country	score ranging from -2.5 to 2.5 & % rank (0-100)	2011	I	
Institutions national	1.b	8	Control of corruption	Worldbank Worldwide Governance Indicators	country	score ranging from -2.5 to 2.5 & % rank (0-100)	2011	I	
Institutions national	1.b	9	Easy of doing business	Worldbank	country	rank out of 183	2011	I	

pillar name		indicator #	Indicators	source	geographical level	unit of measurement	reference year	included (I)/ discarded (D)	reason for discarding
Institutions national	1.b	10	Property rights	World Economic Forum - Global Competitiveness Index	country	1-7 (best)	2011	I	
Institutions national	1.b	11	Intellectual property protection	World Economic Forum - Global Competitiveness Index	country	1-7 (best)	2011	I	
Institutions national	1.b	12	Efficiency of legal framework in settling disputes	World Economic Forum - Global Competitiveness Index	country	1-7 (best)	2011	I	
Institutions national	1.b	13	Efficiency of legal framework in challenging regulations	World Economic Forum - Global Competitiveness Index	country	1-7 (best)	2011	I	
Institutions national	1.b	14	Transparency of government policymaking	World Economic Forum - Global Competitiveness Index	country	1-7 (best)	2011	I	
Institutions national	1.b	15	Business costs of crime and violence	World Economic Forum - Global Competitiveness Index	country	1-7 (best)	2011	I	
Institutions national	1.b	16	Organized crime	World Economic Forum - Global Competitiveness Index	country	1-7 (best)	2011	I	
Institutions national	1.b	17	Reliability of police services	World Economic Forum - Global Competitiveness Index	country	1-7 (best)	2011	I	
Macroeconomic stability	2	1	General government deficit/surplus	Eurostat	country	% of GDP	average 2009-2011	I	
Macroeconomic stability	2	2	National savings	Eurostat	country	% of GDP	average 2009-2011	I	
Macroeconomic stability	2	3	Inflation	Eurostat	country	annual average change rate of HICP	average 2009-2011	D	not fitting based on multivariate statistical analysis
Macroeconomic stability	2	4	Government bond yields	Eurostat	country	EMU convergence criterion bond yields	average 2009-2011	I	
Macroeconomic stability	2	5	Government debt	Eurostat	country	% of GDP	average 2009-2011	I	

pillar name		indicator #	Indicators	source	geographical level	unit of measurement	reference year	included (I)/ discarded (D)	reason for discarding
Infrastructure	3	1	Motorway potential accessibility	DG Regio	NUTS2	population living in surrounding regions weighted by travel time along motorways	2010	I	
Infrastructure	3	2	Railway potential accessibility	DG Regio	NUTS2	population living in surrounding regions weighted by travel time along railways	2010	I	
Infrastructure	3	3	Number of passenger flights (accessible within 90' drive)	Eurostat/EuroGeographics/National Statistical Institutes	NUTS2	daily no. of passenger flights	2010	I	
Health	4	1	Hospital beds	Eurostat Regional Statistics	NUTS2	number of hospital beds/100,000 inhabitants	2010	D	not fitting based on multivariate statistical analysis
Health	4	2	Road fatalities	DG MOVE+ENER-SRD, CARE database	NUTS2	number of deaths in road accidents per million inhabitants	average 2008-2010	I	
Health	4	3	Healthy life expectancy	Eurostat, DG Regio	NUTS2	number of years of healthy life expected	2010	I	
Health	4	4	Infant mortality	Eurostat Regional Statistics	NUTS2	number of deaths of children under 1 year of age during the year to the number of live births in that year	2010	I	
Health	4	5	Cancer disease death rate	Eurostat	NUTS2	standardized cancer death rate for population under 65 (neoplasm C00-D48)	average 2007-2009	I	
Health	4	6	Heart disease death rate	Eurostat	NUTS2	standardized heart diseases death rate for population under 65 (diseases of the circulatory system I00-I99)	average 2007-2009	I	
Health	4	7	Suicide death rate	Eurostat	NUTS2	standardized death rate for suicide for population under 65 (intentional self-harm X60-X84)	average 2007-2009	I	
Basic Education	5	1	Share of low-achieving 15 years olds in reading	OECD Programme for International Student Assessment (PISA)	country	% of students with reading proficiency level 1 or below	2009	I	
Basic Education	5	2	Share of low-achieving 15 years olds in math	OECD Programme for International Student Assessment (PISA)	country	% of students with math proficiency level 1 or below	2009	I	
Basic Education	5	3	Share of low-achieving 15 years olds in science	OECD Programme for International Student Assessment (PISA)	country	% of students with science proficiency level 1 or below	2009	I	

pillar name		indicator #	Indicators	source	geographical level	unit of measurement	reference year	included (I)/ discarded (D)	reason for discarding
Higher education & lifelong learning	6	1	Population aged 25-64 with higher educational attainment (ISCED 5-6)	Eurostat (LFS)	NUTS2	% of total population of age group	2011	I	
Higher education & lifelong learning	6	2	Lifelong learning	Eurostat Regional Statistics	NUTS 2	% of population aged 25-64 participating in education and training	2011	I	
Higher education & lifelong learning	6	3	Early school leavers	Eurostat Structural Indicators	NUTS2	% of the population aged 18-24 having attained at most lower secondary school and not going further	average 2009/2011	D	too high percentage of missing values, 18%
Higher education & lifelong learning	6	4	Accessibility to universities	Nordregio, EuroGeographics, GISCO, EEA ETC-TE	NUTS2	% of regional population at more than 60 minutes from the nearest university	2006 (same as RCI 2010)	I	
Higher education & lifelong learning	6	5	Gender balance on tertiary education	Eurostat LFS	NUTS2	distance to equilibrium: absolute value of (rate women - rate men)	2011	D	not fitting based on multivariate statistical analysis
Labor market efficiency	7	1	Employment rate (excluding agriculture)	Eurostat Regional Labour Market Statistics (LFS)	NUTS 2	% of population 15-64 years	2011	I	
Labor market efficiency	7	2	Long-term unemployment	Eurostat Regional Labour Market Statistics (LFS)	NUTS 2	% of labor force unemployed for 12 months or more	2011	I	
Labor market efficiency	7	3	Unemployment rate	Eurostat Regional Labour Market Statistics (LFS)	NUTS 2	% of active population	2011	I	
Labor market efficiency	7	4	Labor productivity	Eurostat Regional Labour Market Statistics (LFS)	NUTS 2	GDP/person employed in industry and services (€), Index, EU27 = 100	2009	I	
Labor market efficiency	7	5	Gender balance unemployment	Eurostat/DG Regio	NUTS 2	distance to equilibrium: absolute value of (rate women - rate men)	2011	I	
Labor market efficiency	7	6	Gender balance employment	Eurostat/DG Regio	NUTS 2	distance to equilibrium: absolute value of (rate women - rate men)	2011	I	
Labor market efficiency	7	7	Female unemployment	Eurostat Regional Labour Market Statistics (LFS)	NUTS 2	% of female unemployed	2011	I	
Labor market efficiency	7	8	NEET	Eurostat/DG Regio	NUTS 2	% of population aged 15-24 not in education, employment or training	average 2009-2011	I	

pillar name		indicator #	Indicators	source	geographical level	unit of measurement	reference year	included (I)/ discarded (D)	reason for discarding
Market size	8	1	Disposable income per capita	Eurostat	NUTS2	Gross adjusted disposable household income in PPCS per capita (index)	2009	I	
Market size	8	2	Potential market size expressed in GDP	Eurostat, DG Regional Policy estimates	NUTS2	index GDP (pps) EU28=100	2009	I	
Market size	8	3	Potential market size expressed in population	Eurostat, DG Regional Policy estimates	NUTS2	index population EU28=100	2006	I	
Technological readiness regional	9.a	1	Households with access to broadband	Eurostat Regional Information Statistics	NUTS2	% of total households	2011	I	
Technological readiness regional	9.a	2	Individuals buying over internet	Eurostat Regional Information Statistics	NUTS2	% of individuals	2011	I	
Technological readiness regional	9.a	3	Household access to internet	Eurostat Regional Information Statistics	NUTS2	% of total households	2011	I	
Technological readiness national	9.b	1	Availability of latest technologies	World Economic Forum Global Competitiveness Index	country	1-7 (best)	2011	I	
Technological readiness national	9.b	2	Firm-level technology absorption	World Economic Forum Global Competitiveness Index	country	1-7 (best)	2011	I	
Technological readiness national	9.b	3	Technological adoption	World Economic Forum Global Competitiveness Index	country	1-7 (best)	2011	I	
Technological readiness national	9.b	4	FDI and technology transfer	World Economic Forum Global Competitiveness Index	country	1-7 (best)	2011	I	
Technological readiness national	9.b	5	Enterprises having purchased online (at least 1%)	Eurostat Community Survey on ICT usage and e-commerce	country	% of enterprises with at least 10 persons employed in the given NACE sectors, by size class. NACE Rev 2 since 2009	average 2009-2011	I	
Technological readiness national	9.b	6	Enterprises having received orders online (at least 1%)	Eurostat Community Survey on ICT usage and e-commerce	country	% of enterprises with at least 10 persons employed in the given NACE sectors, by size class. NACE Rev 2 since 2009	average 2009-2011	I	
Technological readiness national	9.b	7	Enterprises with fixed broadband access	Eurostat Community Survey on ICT usage and e-commerce	country	% of enterprises with at least 10 persons employed in the given NACE sectors. NACE Rev 2 since 2009	average 2009-2011	I	

pillar name		indicator #	Indicators	source	geographical level	unit of measurement	reference year	included (I)/ discarded (D)	reason for discarding
Business sophistication	10	1	Employment (K-N sectors)	Eurostat Regional Statistics	NUTS2	employment in the "Financial and insurance activities; real estate activities; professional, scientific and technical activities; administrative and support service activities" sectors (K-N) as % of total employment	2010	I	
Business sophistication	10	2	GVA (K-N sectors)	Eurostat Regional Statistics	NUTS2	GVA in the "Financial and insurance activities; real estate activities; professional, scientific and technical activities; administrative and support service activities" sectors (K-N) as % of total GVA	2010	I	
Business sophistication	10	3	Foreign owned firms	PBL NL Environmental Assessment Agency	NUTS 2	Workers in foreign owned firms as % of total employment excluding Agriculture	2010	D	too high percentage of missing values, 16%
Innovation	11	1	Total patent applications	Eurostat	NUTS2	number of applications per million inhabitants	average 2007-2008	I	
Innovation	11	2	Core Creativity Class employment	Eurostat (LFS)	NUTS 2	% of population aged 15-64	average 2010-2011	I	
Innovation	11	3	Knowledge workers	Eurostat (LFS)	NUTS 2	% of total employment	2011	I	
Innovation	11	4	Scientific publications	ScienceMetrix based on Scopus data	NUTS2	publications per million inhabitants	average 2008-2010	I	
Innovation	11	5	Total intramural R&D expenditure	Eurostat Regional Science and Technology Statistics	NUTS2	% of GDP	2009	I	
Innovation	11	6	Human Resources in Science and Technology (HRST)	Eurostat Regional Science and Technology Statistics	NUTS2	% of labour force	2011	I	
Innovation	11	7	Employment in technology and knowledge-intensive	Eurostat Regional Science and Technology Statistics	NUTS2	% of total employment	2011	D	too high percentage of missing values, 25%
Innovation	11	8	High-tech patents	OECD REGPAT	NUTS2	number of applications (high technology EPO patent) per million inhabitants	average 2008-2009	I	
Innovation	11	9	ICT patents	OECD REGPAT	NUTS2	number of applications (ICT EPO patent) per million inhabitants	average 2008-2009	I	
Innovation	11	10	Biotechnology patents	OECD REGPAT	NUTS2	number of applications (biotechnology EPO patent) per million inhabitants	average 2007-2009	D	too high percentage of missing values, 17%
Innovation	11	11	Eshare HT	Cluster Observatory	NUTS2	Share of employees in strong clusters among high-tech clusters	2009-2011 for most countries	I	
Innovation	11	12	Wshare HT	Cluster Observatory	NUTS2	share of total payroll in strong clusters among high-tech clusters	2009-2011 for most countries	I	

Appendix B – Regions population size (per 1000 inhabitants) average 2007-2010

Region	pop size	Region	pop size	Region	pop size	Region	pop size
AT00	3289.65	DEF0	2834.45	GR30	4083.20	PL62	1426.85
AT11	282.68	DEG0	2270.00	GR41	200.28	PL63	2220.63
AT21	559.80	DK01	1664.13	GR42	307.43	PT11	3744.73
AT22	1206.83	DK02	819.80	GR43	608.98	PT15	430.03
AT31	1409.10	DK03	1197.48	HR03	1466.72	PT16	2382.80
AT32	528.85	DK04	1245.75	HR04	2962.92	PT17	2818.95
AT33	703.95	DK05	579.35	HU10	2924.05	PT18	757.00
AT34	367.35	EE00	1340.73	HU21	1101.85	PT20	244.65
BE00	2515.63	ES11	2735.73	HU22	997.40	PT30	246.98
BE21	1731.08	ES12	1058.23	HU23	953.80	RO11	2722.18
BE22	832.70	ES13	574.03	HU31	1223.05	RO12	2524.63
BE23	1420.83	ES21	2136.43	HU32	1503.15	RO21	3717.03
BE25	1155.15	ES22	612.25	HU33	1325.90	RO22	2818.45
BE32	1305.15	ES23	312.80	IE01	1191.25	RO31	3279.58
BE33	1060.95	ES24	1304.95	IE02	3237.73	RO32	2251.65
BE34	266.58	ES30	6257.75	ITC1	4421.28	RO41	2258.48
BE35	468.93	ES41	2500.10	ITC2	126.85	RO42	1922.73
BG31	915.95	ES42	2006.03	ITC3	1613.30	SE11	1984.05
BG32	923.18	ES43	1080.25	ITC4	9735.68	SE12	1546.33
BG33	990.13	ES51	7259.73	ITD1	498.45	SE21	807.55
BG34	1120.58	ES52	4940.13	ITD2	519.05	SE22	1367.03
BG41	2114.33	ES53	1061.40	ITD3	4871.48	SE23	1852.53
BG42	1536.53	ES61	8122.40	ITD4	1227.80	SE31	825.48
CY00	801.63	ES62	1433.78	ITD5	4327.50	SE32	370.13
CZ00	2454.30	ES63	73.18	ITE1	3702.25	SE33	507.95
CZ03	1201.83	ES64	70.78	ITE2	892.28	SI01	1082.50
CZ04	1140.63	ES70	2063.70	ITE3	1565.03	SI02	949.40
CZ05	1503.60	FI18	2652.65	ITE4	5620.18	SK01	616.95
CZ06	1660.05	FI19	1349.73	ITF1	1330.90	SK02	1865.20
CZ07	1232.55	FI1D	1296.28	ITF2	320.45	SK03	1350.48
CZ08	1248.45	FI20	27.45	ITF3	5815.30	SK04	1580.55
DE00	5954.60	FR10	11724.73	ITF4	4080.20	UK00	11120.03
DE11	4004.55	FR21	1337.23	ITF5	589.98	UKC1	1166.08
DE12	2739.80	FR22	1910.68	ITF6	2007.63	UKC2	1415.13
DE13	2196.05	FR23	1831.45	ITG1	5036.10	UKD1	495.45
DE14	1807.25	FR24	2539.83	ITG2	1669.10	UKD2	1004.78
DE21	4331.45	FR25	1470.25	LT00	3340.00	UKD3	2595.23
DE22	1191.73	FR26	1640.60	LU00	493.35	UKD4	1447.25
DE23	1084.10	FR30	4032.15	LV00	2259.00	UKD5	1352.20
DE24	1082.70	FR41	2348.58	MT00	412.75	UKE1	915.93
DE25	1712.23	FR42	1841.35	NL00	3031.83	UKE2	792.18
DE26	1328.03	FR43	1167.80	NL11	575.15	UKE3	1313.48
DE27	1786.33	FR51	3540.65	NL12	644.78	UKE4	2218.48
DE50	662.25	FR52	3174.08	NL13	489.45	UKF1	2077.25
DE60	1771.83	FR53	1760.90	NL21	1125.30	UKF2	1665.35
DE71	3786.80	FR61	3205.30	NL22	1991.45	UKF3	696.95
DE72	1048.93	FR62	2860.10	NL31	1210.73	UKG1	1267.70
DE73	1231.98	FR63	741.53	NL33	3485.10	UKG2	1520.05
DE80	1665.83	FR71	6174.55	NL34	381.00	UKG3	2631.13
DE91	1624.80	FR72	1344.48	NL41	2435.05	UKH1	2337.65
DE92	2149.48	FR81	2609.95	NL42	1123.60	UKJ1	2215.05
DE93	1697.23	FR82	4889.78	PL11	2549.20	UKJ2	2665.88
DE94	2478.03	FR83	306.13	PL12	5205.60	UKJ3	1862.93
DEA1	5190.40	FR91	447.78	PL21	3288.78	UKJ4	1662.10
DEA2	4387.30	FR92	395.83	PL22	4648.25	UKK1	2318.05
DEA3	2606.08	FR93	224.10	PL31	2161.88	UKK2	1234.78
DEA4	2051.23	FR94	814.40	PL32	2099.78	UKK3	532.70
DEA5	3699.88	GR11	606.68	PL33	1272.88	UKK4	1137.05
DEB1	1499.23	GR12	1944.25	PL34	1191.53	UKL1	1893.20
DEB2	514.90	GR13	293.23	PL41	3397.93	UKL2	1099.53
DEB3	2014.63	GR14	736.08	PL42	1692.85	UKM2	1987.53
DEC0	1030.00	GR21	354.73	PL43	1009.30	UKM3	2293.75
DED1	1487.73	GR22	231.15	PL51	2878.03	UKM5	455.15
DED2	1639.58	GR23	741.93	PL52	1034.13	UKM6	446.15
DED3	1068.03	GR24	554.85	PL61	2067.78	UKN0	1780.18
DEE0	2384.73	GR25	592.25				

Appendix C – Regions GDP and stage of development

Region	GDP index	Dev. Stage	Region	GDP index	Dev. Stage	Region	GDP index	Dev. Stage	Region	GDP index	Dev. Stage
AT00	132.37	5	DEF0	100.62	4	GR30	120.19	5	PL62	42.26	1
AT11	82.85	3	DEG0	83.74	3	GR41	75.53	3	PL63	55.37	2
AT21	104.99	4	DK01	147.55	5	GR42	112.45	5	PT11	62.80	2
AT22	108.31	4	DK02	88.66	3	GR43	83.27	3	PT15	86.10	3
AT31	123.57	5	DK03	110.50	5	HR03	60.42	2	PT16	65.36	2
AT32	142.54	5	DK04	113.76	5	HR04	62.97	2	PT17	110.70	5
AT33	129.80	5	DK05	108.90	4	HU10	105.15	4	PT18	72.28	2
AT34	131.05	5	EE00	67.66	2	HU21	56.26	2	PT20	73.25	2
BE00	163.57	5	ES11	90.99	4	HU22	60.91	2	PT30	103.00	4
BE21	135.27	5	ES12	96.53	4	HU23	43.43	1	RO11	41.67	1
BE22	96.08	4	ES13	101.82	4	HU31	39.59	1	RO12	44.04	1
BE23	105.00	4	ES21	135.19	5	HU32	40.30	1	RO21	28.32	1
BE25	110.22	5	ES22	130.56	5	HU33	42.20	1	RO22	36.31	1
BE32	76.40	3	ES23	113.27	5	IE01	95.57	4	RO31	37.62	1
BE33	86.69	3	ES24	114.31	5	IE02	151.02	5	RO32	106.66	4
BE34	78.50	3	ES30	135.42	5	ITC1	113.38	5	RO41	34.45	1
BE35	81.61	3	ES41	99.37	4	ITC2	131.42	5	RO42	50.31	2
BG31	27.44	1	ES42	83.30	3	ITC3	110.94	5	SE11	170.75	5
BG32	29.18	1	ES43	71.83	2	ITC4	133.82	5	SE12	104.85	4
BG33	35.85	1	ES51	120.95	5	ITD1	145.04	5	SE21	108.75	4
BG34	34.98	1	ES52	93.43	4	ITD2	123.76	5	SE22	107.94	4
BG41	71.43	2	ES53	111.38	5	ITD3	120.98	5	SE23	116.62	5
BG42	29.92	1	ES61	79.95	3	ITD4	118.42	5	SE31	104.73	4
CY00	97.02	4	ES62	87.24	3	ITD5	129.12	5	SE32	111.36	5
CZ00	124.15	5	ES63	93.77	4	ITE1	112.63	5	SE33	113.15	5
CZ03	70.25	2	ES64	88.47	3	ITE2	97.75	4	SI01	73.31	2
CZ04	64.24	2	ES70	89.43	3	ITE3	105.58	4	SI02	106.64	4
CZ05	66.01	2	FI18	134.15	5	ITE4	121.03	5	SK01	168.63	5
CZ06	72.87	2	FI19	105.01	4	ITF1	86.64	3	SK02	67.96	2
CZ07	64.11	2	FI1D	93.92	4	ITF2	83.60	3	SK03	56.95	2
CZ08	67.86	2	FI20	151.30	5	ITF3	66.55	2	SK04	48.79	1
DE00	93.96	4	FR10	175.34	5	ITF4	68.41	2	UK00	163.74	5
DE11	137.08	5	FR21	94.91	4	ITF5	74.49	2	UKC1	78.51	3
DE12	131.91	5	FR22	82.91	3	ITF6	66.94	2	UKC2	90.49	4
DE13	113.10	5	FR23	93.73	4	ITG1	68.10	2	UKD1	89.42	3
DE14	122.25	5	FR24	91.15	4	ITG2	79.16	3	UKD2	117.02	5
DE21	161.87	5	FR25	84.23	3	LT00	58.47	2	UKD3	98.36	4
DE22	115.00	5	FR26	92.02	4	LU00	273.35	5	UKD4	84.83	3
DE23	122.82	5	FR30	87.67	3	LV00	54.26	2	UKD5	80.14	3
DE24	112.43	5	FR41	84.67	3	MT00	78.79	3	UKE1	85.78	3
DE25	132.04	5	FR42	101.13	4	NL00	143.76	5	UKE2	96.23	4
DE26	115.69	5	FR43	86.38	3	NL11	175.39	5	UKE3	84.45	3
DE27	119.74	5	FR51	96.58	4	NL12	106.97	4	UKE4	98.12	4
DE50	158.65	5	FR52	90.44	4	NL13	102.54	4	UKF1	95.15	4
DE60	187.07	5	FR53	85.93	3	NL21	114.41	5	UKF2	107.76	4
DE71	156.57	5	FR61	94.65	4	NL22	112.35	5	UKF3	79.76	3
DE72	107.64	4	FR62	95.33	4	NL31	155.55	5	UKG1	95.08	4
DE73	113.75	5	FR63	83.02	3	NL33	134.30	5	UKG2	83.88	3
DE80	82.55	3	FR71	108.91	4	NL34	122.62	5	UKG3	97.31	4
DE91	109.64	4	FR72	86.91	3	NL41	132.19	5	UKH1	102.29	4
DE92	112.86	5	FR81	84.91	3	NL42	117.05	5	UKJ1	146.72	5
DE93	83.94	3	FR82	99.62	4	PL11	52.70	2	UKJ2	116.17	5
DE94	101.08	4	FR83	86.83	3	PL12	91.19	4	UKJ3	110.96	5
DEA1	132.68	5	FR91	65.58	2	PL21	49.24	1	UKJ4	92.49	4
DEA2	117.03	5	FR92	71.61	2	PL22	61.28	2	UKK1	117.35	5
DEA3	98.54	4	FR93	51.16	2	PL31	38.98	1	UKK2	93.97	4
DEA4	109.75	4	FR94	65.39	2	PL32	39.11	1	UKK3	73.16	2
DEA5	106.80	4	GR11	67.89	2	PL33	44.73	1	UKK4	88.10	3
DEB1	96.09	4	GR12	74.82	2	PL34	42.05	1	UKL1	70.06	2
DEB2	94.47	4	GR13	85.60	3	PL41	60.08	2	UKL2	102.64	4
DEB3	105.37	4	GR14	71.05	2	PL42	50.89	2	UKM2	111.50	5
DEC0	112.18	5	GR21	64.41	2	PL43	49.39	1	UKM3	101.31	4
DED1	83.01	3	GR22	84.59	3	PL51	61.94	2	UKM5	154.01	5
DED2	88.42	3	GR23	66.22	2	PL52	47.38	1	UKM6	84.09	3
DED3	90.05	4	GR24	85.88	3	PL61	49.13	1	UKN0	86.34	3
DEE0	83.93	3	GR25	75.07	3						

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Abstract

To measure the different dimensions of competitiveness at the regional level, the European Commission has developed the Regional Competitiveness Index – RCI. The RCI was published in 2010 and this is the 2013 edition, which includes most recent data and implements improvements and refinements. RCI 2013 reveals a strong regional dimension of competitiveness, which national level indicators cannot capture, and a polycentric pattern with strong capital and metropolitan regions in many parts of Europe. Some capital regions are surrounded by similarly competitive regions, but in many countries, particularly in the less developed Member States in Central and Eastern Europe, regions neighboring the capital are less competitive.

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