



## Working Papers

A series of short papers on regional research and indicators produced by the Directorate-General for Regional Policy

**WP 01/2012**

# Regional Governance Matters:

A Study on Regional Variation in Quality of Government within the EU

Nicholas Charron,  
Victor Lapuente  
and Lewis Dijkstra

*Regional  
Policy*

---

## > Abstract

This Working Paper presents novel data on the 'quality of government' (QoG) – understood as low corruption and as high protection of the rule of law, government effectiveness and accountability – at both national and regional levels in the 27 EU Member States. First, the Paper assesses the existing national-level data on QoG for EU Member States, pointing out the three significantly different clusters of states that emerge, namely high-, medium- and low-QoG countries. Secondly, the Paper presents original sub-national-level data for 172 EU regions, based on a survey of 34 000 residents across 18 countries. The two measures are then combined into the 'EU QoG Index' (EQI), which shows notable cross-regional variations: whilst high-performing regions in Italy and Spain (e.g. Bolzano and Pais Vasco) rank amongst the best EU regions, other regions in the same countries perform below the EU average. In addition, the Paper uses the new data to test five basic existing hypotheses on why some polities have more QoG than others. This shows that the EQI is highly correlated with regional indicators of socio-economic development and levels of social trust, yet is statistically unrelated to variables such as population or area size. Finally, the data also indicates that political decentralisation is not consistently linked with greater variation in QoG within the country or higher levels of QoG.

*Disclaimer: This Working Paper has been written by Nicholas Charron and Victor Lapuente (Gothenburg, Quality of Government Institute) and Lewis Dijkstra, European Commission Directorate-General for Regional Policy (DG REGIO) and is intended to increase awareness of the technical work being done by the staff of the Directorate-General, as well as by experts working in association with them, and to seek comments and suggestions for further analysis. The views expressed are the authors' alone and do not necessarily correspond to those of the European Commission.*

## > Contents

1	Introduction	1
2	Why study quality of government (QoG) in Europe?	2
3	Measuring QoG at the national level in Europe	3
4	Measuring QoG at the regional level in Europe	5
5	Combining the two levels of data – the EU QoG Index (EQI)	6
6	Five hypotheses on why some regions have better QoG	7
7	Results	10
8	Conclusions	15
9	References	16
APPENDIX		
10	Description of sub-national survey	18
11	Description of variables & summary statistics	19

## 1 Introduction

The principal aim of this paper is descriptive in nature – to present newly created data on ‘quality of government’ (QoG) for the 27 EU Member States and 172 sub-national regions, primarily taken from the largest multi-country, sub-national level survey on QoG to date. In the first and primary part of the Paper, we provide a detailed account of the construction of the data, the robustness checks and show the final results, along with providing the data for all countries and regions in the appendix, free for scholarly use.

Overall, the data show that even in a highly developed area such as the European Union, significant QoG variation exists between and within countries – not only between ‘new’ and ‘old’ Member States, but even among the original six countries of the Union.

The secondary aim of the paper is to use the newly-created data to test several hypotheses on the relationship between QoG and numerous commonly tested national-level correlates. Whilst the empirical section is admittedly modest, we emphasise such tests at the sub-national level were not possible before the creation of this data. Overall, we believe that the data provided here significantly contributes to our understanding of the surprisingly vast amount of QoG variation across and within EU Member States and provides a valuable tool for researchers who are interested in moving past national comparisons to more detailed, regional-level studies within the European Union.

## 2 Why study quality of government (QoG) in Europe?

During the past two decades, numerous studies have indicated that QoG is a major determinant of many variables associated with the well-being of individuals within a country. This literature emphasises the importance of *how* a government delivers its policies, instead of *what* a government delivers – that is, the size or ‘quantity’ of government. And, in particular, the focus is on the extent to which a government delivers its policies – irrespective of their nature and degree or provision – in an *effective* and *impartial* way and *without corruption*. Evidence of such attention in the way a government performs its tasks can be found not only in the rise of academic publications with a focus on this topic, along with the interest from international organisations (IO’s) such as the World Bank and the United Nations, which have increasingly underlined the value of good governance and sound institutions from a development perspective (Holmberg, Rothstein and Nasiritousi, 2009).

This has, in turn, given rise to a recent surge in new data creation, quantifying aspects of QoG, and, in particular, its most measurable components (even if the measures are subjective or perception-based), such as the lack/control of corruption, the strength of the rule of law, and bureaucratic quality or ‘government effectiveness’. There is such a high correlation amongst these cross-country indicators that comparative scholars have coined the term ‘quality of government’ to encapsulate the concept of a government that it is impartial, efficient and non-corrupt (Rothstein and Teorell, 2008). Countries with a high QoG score higher in almost all dimensions related to the welfare of their citizens (Holmberg, Rothstein and Nasiritousi, 2009). QoG has been found – in an extensive and growing literature – to lead to outcomes such as better economic performance (Knack and Keefer, 1995; Mauro, 1995; Mo, 2001), higher environmental sustainability (Morse, 2006; Welsch, 2004), lower income inequality and poverty (Gupta, Davoodi, and Alonso-Terme, 1998), better education and health outcomes (Mauro, 1998), higher levels of subjective happiness (Frey and Stutzer, 2000), and lower probabilities of civil armed conflict (Öberg and Melander, 2010).

Despite the importance of these findings, the data within this sub-field is still relatively underdeveloped. One of the major shortcomings is that most data and research related to QoG has focused exclusively on the national level, with a particular focus on developing countries. The two implicit assumptions in the extant research efforts to gather data on QoG have thus been that national differences matter more than sub-national ones and that, across similar Western democracies, the differences in QoG are fairly minor. This Paper challenges both assumptions. First, we focus exclusively on the 27 Member States of the European Union, arguably all moderately to highly

developed countries, yet, at the same time, presenting noticeable – and statistically significant – differences in QoG.<sup>1</sup> Secondly, this paper gathers data on both national and sub-national differences, uncovering how the latter tend to trump the former quite frequently – e.g. Italy’s Bolzano region ranks at the top 10% of EU regions, whilst Campania is situated among the lowest performers in QoG.

The main findings of the paper are the following. First, we find that there is significant variation in QoG across mainly four main cluster groups of states: the top performers are mostly from the Scandinavian, Germanic and English speaking countries; a second group is largely formed by the Mediterranean countries, together with Estonia and Slovenia; the third group consists of most of the ‘new’ EU Member States plus, notably, Italy and Greece; and a fourth group includes the two newest Member States – Romania and Bulgaria. We find, however, that in several countries the QoG national-level data offers a highly distorted picture due to the presence of significant sub-national variations in QoG. Previous literature has pointed in that direction. For example, differences between Northern and Southern Italy are widely known thanks to several influential works (e.g. Putnam, 1993), and the divergences between Flanders and Wallonia in Belgium, as well as the provinces in Spain, are often debated. Yet such regional differences in QoG in these two countries – and several others – have not been quantified throughout the EU in a systematic way. The most encompassing empirical studies of European regional differences (e.g. Tabellini, 2005) have mostly relied on income levels as proxies of the level of QoG in a region. The data presented in this paper – despite its cross-sectional nature given that this is the first time this information on QoG is gathered – is thus a pioneering effort to corroborate for the first time within-country QoG variations in most European Member States simultaneously.

In addition, the paper tests five basic hypotheses using the newly created European Quality of Government Index (EQI). First, we hypothesise that the EQI will be strongly correlated with measures of economic and social development – such as GDP per capita, health measures, and levels of education (H1). It is important to bear in mind that, as the previous literature has noted, the causality can work in both directions thanks to feedback effects, namely that QoG may be both cause and consequence of these socio-economic variables. Secondly, we test whether the size of a region – be it population or area size – has any association with QoG levels (H2). Thirdly, based on numerous national level studies, we hypothesise that social trust will be positively related with the EQI (H3). Finally, we hypothesise that various types of political decentralisation – in the form of federalism or regional administrative authority – will be associated with greater degrees of disparity of QoG amongst regions within a country (H4) or systematically linked with country-levels of QoG (H5). Similar to the literature, we find strong evidence for H1 and H3, yet no empirical evidence of H2 and, contrary to the extensive literature on decentralisation and QoG, no evidence for H4 or H5.

1. In this sense, the paper follows the growing body of recommendations by the European Commission regarding the importance of investing in QoG across many EU Member States. Regarding the strategies to overcome the economic-financial crisis, it has recently been argued that ‘strengthening institutional and administrative capacity can underpin structural adjustments and foster growth and jobs – and in turn significantly improve the quality of public expenditure.’ (European Commission 2010a).

The remainder of the paper is structured as follows. First, we begin the measurement of QoG within the EU with a national-level assessment, using existing data at the national level. Next, we describe the regional level survey undertaken in 172 EU regions from the largest 18 EU Member States. Subsequently, we combine national and regional QoG data into the full index (e.g. the EQI) for the entire EU. Next, we test the hypotheses discussed above with the EQI. We conclude with several suggestions of important empirical puzzles that could be addressed in the future using this new data.

## 3 Measuring QoG at the national level in Europe

According to the existing contemporary, national-level data, QoG, or ‘good governance’ is on average higher for EU Member States as compared with other world regions. This in and of itself is not surprising, but a closer look reveals, however, that there is significant variation amongst many of the Member States of the EU, which we discuss in this section.

As noted, a proliferation of QoG-type data has emerged since the mid-1990s, measuring such concepts as corruption, rule of law and others at the national level. Many of the indicators cover most or all EU Member States, such as Transparency International’s ‘Corruption Perception Index’ (CPI), the ‘International Country Risk Guide’ (ICRG), or the World Economic Forum’s ‘business leader survey on corruption and bureaucratic effectiveness’, to name a few. But in the end, one source must be selected. After reviewing all available QoG indicators covering EU Member States, we find that the World Bank’s ‘World Governance Indicators’ (WGI) data (Kaufmann, Kraay and Mastruzzi 2009 – henceforth ‘KKM’) would be the most appropriate source on which to build an indicator of QoG for EU Member States. First, as opposed to only focusing on one particular concept of QoG, such as corruption, it covers four main, inter-related ‘pillars’ of QoG that we consider highly salient:

1. Control of Corruption
2. Rule of Law
3. Government Effectiveness
4. Voice & Accountability

Secondly, the WGI covers all EU Member States for at least 10 years going back to the mid 1990s, and is now published annually. Thirdly, it is a ‘composite index’ and it is transparent in the way that it is constructed – publishing freely all underlying

data on which it is built, along with a relatively clear description of the conceptual meaning of each concept and the methodology used to create each variable. Fourthly, the theoretical scope of each QoG concept is wide rather than narrow. We believe that unless specified, all aspects of corruption, rule of law, etc. should be included rather than focusing on narrow aspects alone. This allows for more information to be included, which is good for reliability checks of the data, for example.

As far as the underlying data indicators are concerned for each pillar, the number of sources vary from country to country in the dataset covering all countries in the world (some small island states have only one source for a given pillar, for example, while some states have more than 15). However, the advantage of the EU sample is that there are at least nine common sources for each individual data indicator of QoG for the WGI, and in the case of Rule of Law (RL), there are at least 12 for all countries<sup>[2]</sup>. The sources of the underlying data are mainly from ‘risk assessment’ institutes or ‘expert’ surveys, yet they do also contain NGO assessments such as Reporters Sans Frontiers and Freedom House, along with data from government agencies and citizen-based survey data, such as the Gallop World Poll<sup>[3]</sup>, reducing the likelihood that a country’s score was driven by one source or, moreover, that a country’s score was exclusively influenced by business interests<sup>[4]</sup>.

We ranked the 27 EU Member States according to each of the four areas of QoG listed above. All underlying data for the WGI, along with the weighting schemes use by KKM, are available freely online<sup>[5]</sup>. However, we were uncertain about the robustness of the data. We therefore took all data used to construct these four QoG indices for the year 2008, replicated the original results, and conducted extensive sensitivity tests and internal/external consistency checks on each of the four areas of QoG. After running a total of 264 simulations, whereby we altered the original weighting scheme, aggregation method and removed individual data sources one at a time, we found the data to be remarkably robust to changes, along with being strongly internally consistent<sup>[6]</sup>. After confirming the robustness of the original estimates for each of the four composite indices, we then combined the four indices to create a combined, national-level ‘QoG index’. The results of this index can be seen in **Table 1**.

We used cluster analysis to assess the national level variance in QoG across EU Member States. According to the WGI’s own margins of error, the QoG estimates between countries such as Denmark and Finland, or the Czech Republic and Hungary are indistinguishable. The cluster groupings can therefore serve as a helpful tool to identify EU Member States that share common challenges to building QoG at the national level. We employed hierarchical clustering using Ward’s method and squared Euclidian distancing for the four pillars of QoG to identify the number of appropriate cluster groupings. Although distinguishing the number of groups in this type of analysis can be arbitrary at times, we found the most

2. The exceptions here are Cyprus, Luxembourg, and Malta, for which some sources were missing.

3. For a full description of the WGI composite indicators, their construction and underlying data, see Kaufmann, Kraay and Mastruzzi (2009).

4. For a more in depth debate on this topic, see Kurtz and Shrank (2007) and Kaufmann et al. (2007).

5. <http://info.worldbank.org/governance/wgi/index.asp>

6. For a more in depth look at the results of the sensitivity test, please see Charron (2010).

appropriate alignment was to distinguish between four groups in the analysis. We then used k-means clustering with squared Euclidian distancing to assign each country to a cluster group. The results show that, with some exceptions, there are certainly geographic and historic similarities to the countries within each group.

**Table 1:** National Level Scores, Rankings and Cluster Groupings of QoG in the EU 27

QoG Rank	Country	Combined WGI Total
1	DENMARK	1.978
2	SWEDEN	1.915
3	FINLAND	1.909
4	NETHERLANDS	1.834
5	LUXEMBOURG	1.747
6	AUSTRIA	1.701
7	UNITED KINGDOM	1.628
8	IRELAND	1.628
9	GERMANY	1.620
10	FRANCE	1.403
11	BELGIUM	1.368
12	MALTA	1.268
13	SPAIN	1.103
14	PORTUGAL	1.084
15	CYPRUS	1.077
16	ESTONIA	1.043
17	SLOVENIA	0.994
18	CZECH REPUBLIC	0.826
19	HUNGARY	0.759
20	SLOVAKIA	0.651
21	LATVIA	0.608
22	GREECE	0.574
23	LITHUANIA	0.563
24	POLAND	0.552
25	ITALY	0.480
26	BULGARIA	0.100
27	ROMANIA	0.059

Note: 'Comb. WGI' shows the combined averages of the four pillars of QoG from the WGI. Each WGI pillar is standardised so that the global average is '0' with a standard deviation of '1'. QoG rank is within the EU Member States only, thus Estonia, for example, is roughly one full standard deviation above the global average. Cluster groups are in the four distinct colour blocs from lightest (highest QoG) to darkest (lowest QoG).

Without claiming that these groups are 'set in stone', the data tell us that cluster 1 countries exhibit the highest levels of QoG in Europe, while cluster 2 and cluster 3 show, respectively, a moderate and moderate-to-low performance in QoG, with cluster 4 countries on the lowest end comparatively<sup>[7]</sup>. According to this picture based on aggregate national data, there thus seems to be 'four Europes' with respect to QoG: The first one includes top performers mostly from Scandinavian, Germanic and Anglo-Saxon countries. The second consists mostly of Mediterranean countries plus the two best performers in Central-Eastern Europe (Estonia and Slovenia). The third consists mostly of post-communist EU Member States and, significantly, two Western European countries, namely Italy and Greece. The fourth is the most recent Member States, Bulgaria and Romania, which on average show the lowest levels of QoG in each of the four pillars. To put this variation into a more global context, we can compare the groups of EU Member States with countries outside the EU with equivalent WGI scores. We find that according to the WGI, Denmark, Sweden and Finland are on par with the highest performing countries in the world such as Canada, New Zealand and Singapore. The average country in group 2, which includes countries such as Portugal and Slovenia, has a WGI score similar to that of South Korea, Israel and Qatar. The average country in the third group, which includes countries such as Latvia and Greece, have similar QoG levels to Botswana, Costa Rica, Uruguay or Kuwait. The two countries in the lowest group – Bulgaria and Romania – are ranked on par with countries such as Colombia, India and Ghana. Thus while the EU Member States score in the top 50th percentile globally, these global comparisons indeed show evidence of significant variation at the country-level, which merits further investigation.

7. It is worth noting several alternative cluster groupings. For example, if we had chosen just two groups, then countries from Cyprus and above in Figure 1 would belong to cluster group 1 and from Estonia and below would belong to group 2. Three groups would remain the same, except that Romania and Bulgaria would join group 3. The next division would have been six groups, whereby group 1 and group 2 in Figure 1 would be subdivided – Luxembourg through to Denmark would be group 1, whereas Austria, UK, Ireland and Germany would be an independent cluster group, France, Belgium and Malta would form a group, and the remaining four countries (Spain to Slovenia) would make up a separate group.

## 4 Measuring QoG at the regional level in Europe

While certainly relevant as a starting point, the national level cluster groups do not tell the whole story. National-level data has of course proliferated in recent years, yet measuring QoG at the regional level within most countries is ‘uncharted territory’, let alone measuring regional QoG in a multi-country context. Several recent surveys have been launched by Transparency International in Mexico and India to build measurements of citizen perceptions of corruption at the regional level. However, in most countries, in particular those in the Europe, such data do not exist and those that do are more narrowly focused on capturing corruption, mostly in Italy (Del Monte and Papagni, 2007; Golden and Picci, 2005).

To add to the necessary nuance to the national-level WGI data, we take advantage of data acquired for a large, European Commission-funded project on measuring QoG within the EU<sup>[8]</sup>. We began with a survey of approximately 34 000 EU citizens, which constitutes the largest survey ever undertaken to measure QoG at the sub-national level to date. A regional-level QoG index score for 172 NUTS 1 and NUTS 2 regions within 18 EU Member States was built based on survey questions on citizen perception of QoG<sup>[9]</sup>. As a compliment to national-level QoG data, our citizen-based data offers a source of information that is not subject to the common criticism that QoG data is biased toward ‘business friendly’ environments (see Kurtz and Shrank, 2007). A more detailed description of the survey is located in the appendix.

To capture the most relevant sub-national variation in QoG possible, we focused on three public services that are often financed, administered or politically accounted for by sub-national authorities, either at regional, county or local level: education, healthcare and law enforcement.<sup>[10]</sup> We asked respondents to rate these three public services with respect to three related concepts of QoG – the *quality*, the *impartiality* and the level of *corruption* of said services.

Such a survey assumes that respondents will use the same reference framework (or at least all respondents in a single country) as we use the regional figures to modulate the national score, see below. Some respondents, however, may use a different reference framework. For example, people with a higher level of education may hold services up to a higher standard. Recent changes in the service or events may also influence the judgements (see Kahneman, 2011). In some cases, the history of the region may also shape expectations,

for example, residents in eastern Germany may compare the quality and impartiality of their services to a different standard than residents of western Germany. For the time being, however, these questions are the only regional data available and they cannot be benchmarked against other indicators.

We have tested the data to see whether certain groups within a region have a very different opinion. In the sensitivity analysis, we have tested whether excluding certain demographic categories of respondents, including those with higher education, significantly altered the regional scores. Overall, the impact was relatively limited. When the opinion of respondents with higher education was excluded, several Polish regions improved their score significantly, but there was no systematic effect. Therefore, we conclude that in Poland the judgement differs substantially between the respondents with a tertiary education and those with secondary education or less, but that this is not the case in all countries. Some categories could not be excluded, such as urban or rural residents, as this would exclude the entire population of a single region. As a consequence, we could not test whether urban residents judge services in their region in a different way than rural residents.

The administrative and political responsibility of the regions for these three public services varies in different countries and thus may have proven problematic for this data gathering. However, we argue otherwise. We seek to capture all regional variation within a country and, as noted in the literature (e.g. Tabellini, 2005), numerous empirical indications and much anecdotal evidence suggest that the provision and quality of public services controlled by a powerful central government can nonetheless vary substantially across regions.

Furthermore, regions have become more important in the EU in terms of expenditure and authority. Public expenditure managed by regional authorities in the EU has grown substantially from 18% of total public expenditure in 1995 to 32% in 2008 (European Commission, 2010b). In addition, a recent study (Hooghe et al., 2010) shows how over the past 40 years, the authority of regions in Europe has grown. Finally, a large share of EU cohesion policy funding is managed by the regions themselves. Therefore, regions are becoming more important actors and in the cases where they are currently merely statistical units<sup>[11]</sup> they are likely to become more relevant in the future.

The regional data combine 16 survey questions about QoG in the region. To construct the regional index, we followed carefully the guidelines expressed in the Handbook on Constructing Composite Indicators (2008). Although we checked the robustness of our index, testing alternative methods to building the data, we constructed the index as follows. First, all 16 QoG questions

- 
8. ‘Measuring Quality of Government and Sub-national Variation’ Report for the EU Commission of Regional Development, European Commission Directorate-General Regional Policy, Policy Development Directorate, 2010.
  9. ‘Nomenclature of Territorial Units for Statistics’ (NUTS) 1 regions are used in Germany, UK, Sweden, Hungary, Greece, Netherlands and Belgium. NUTS 2 regions are used in Italy, Spain, Portugal, Denmark, Czech Republic, Poland, Romania, Bulgaria, Slovakia, France, and Austria.
  10. We inquired after the respondents’ recent contact with these three public services and found that 60% and 78% had personal contact with education and health services respectively in the past 12 months, while about 25% of the total respondents had direct contact with law enforcement services. The complete survey, as well as the number of respondents per country and the respondents’ experiences with the three public services in question can be found in the appendix.
  11. For example, in the recent 2007 Danish Municipal Reform, Denmark’s former 16 counties were replaced with the five NUTS 2 regions, all now having elected regional governments with near exclusive political and administrative power over the healthcare system, along with transportation and other local policy areas. A similar type of reform was made in Poland in 1999, as the elected sub-regions were drawn around the EU Commission’s NUTS 2 level regions in preparation for EU membership. For more information on Denmark’s reform, see: <http://www.regioner.dk/>; for more on Poland’s reform, see: Ferry (2003).

are aggregated from the individual to the regional level as a mean score. Next, the 16 regional scores are standardised, so as to have a common range via standardisation<sup>[12]</sup>. Then, we performed a factor analysis to see whether the 16 questions form significant sub-groups in the data. We found three relevant groups, which we label ‘pillars’ – questions pertaining to impartiality, corruption and quality – all constituted separate factor components (media and election questions aligned with the ‘quality’ pillar)<sup>[13]</sup>. Each variable is given equal weight within each pillar. Finally, the three pillars were combined using equal weighting to form the regional index. We provide the regional index for each region in the appendix<sup>[14]</sup>.

A quick examination of the data reveals fairly predictable patterns among the regions with respect to QoG. All regions within the top performing EU Member States with regard to the national QoG index (Denmark, Sweden and Netherlands) are in the top 15% of all 172 regions. Among the ‘new’ Member States, all but one of the regions are in the bottom 50% (i.e. have a score lower than ‘0’), with the only exceptions being Nord Vest (RO11) in Romania. In contrast, most of the EU-15 regions are in the top 50%, with Portugal and Greece being the only exceptions having all of their respective regions under the mean. Moreover, several of the regions in France and Italy are under the EU mean, with the latter containing two in the bottom 10 of the sample.

As with the national-level data, we performed internal consistently checks and a rigorous sensitivity test to the regional data. To test internal consistency of the 16 indicators, we used Chronbach’s Alpha correlation test, pairwise correlations and a principle component factor analysis<sup>[15]</sup>. We then performed 62 simulations in which the sensitivity of the data was tested. We checked the robustness of the equal weighting scheme using factor weights instead. We substituted the additive method of aggregation with geometric aggregation, and normalised the data via a ‘min-max’ method in place of standardisation. In addition, we removed each individual question one at a time, as well as whole question-groups (e.g. all questions pertaining to ‘quality’, ‘impartiality’ or ‘corruption’). In addition, for several simulations, we re-aggregated the data from the individual level, whereby we excluded certain demographic groups, such as men, high income respondents, young respondents, higher educated respondents and those who did not have any interaction with any of the public services in question within the last 12 months. We found that even in the most extreme scenarios, the Spearman Rank Coefficient never fell below 0.90 and that the median shift in the rankings was never above 11 as compared with the original index. We found overall that the regional data and scores are robust and internally consistent<sup>[16]</sup>.

## 5 Combining the two levels of data – the EU QoG Index (EQI)

Although the entire sample of respondents in the regional level survey is large (34 000), the number of respondents per region is on the smaller side (200). Thus we seek to add the country-context to each region’s QoG score, which we assume would also be influenced by such factors as the national legal system, immigration, trade and security areas that are not captured in the regional QoG data. Thus we add credible and robust observations to the regional-level data to compensate for any outlying region or country in the regional survey (that could be the results of limited observations) while adding the ‘national context’ of QoG. To accomplish this – along with including the nine other smaller EU Member States in the sample – we combine the WGI external assessment with our citizen-based, regional-level data to create a comprehensive EU QoG Index (EQI). Our aim was to come up with a method that fairly includes the omitted EU Member States from the survey while simultaneously maintaining the richness of the within-country variation in several of the countries surveyed in the regional-level study.

To calculate the score for each region and country, we take the country average from the WGI data from Table 1 and standardise it for the EU sample. For countries outside of the regional survey, there is nothing to add to the WGI country score, thus the WGI data is used as the QoG estimate alone<sup>[17]</sup>, and regional variation is unobserved.

For the countries with regional data, we take the national average based on the WGI and add the within-country variance based on the regional-level data described in the previous sections. Simply speaking, we calculate a national, population-weighted average of the regional scores for each of the 18 countries in the survey. We then subtract this national average score from each region’s individual QoG score in the country. This shows whether a region is above or below its national average and by how much. This figure is then added to the national level WGI data, so each region has an adjusted score, centred on the WGI. The formula employed is the following:

$$EQI_{regionXincountryY} = WGI_{countryY} + (Rqog_{regionXincountryY} - CRqog_{countryY})$$

12. For example, some questions range from 0-10, others 0-3 and others are dichotomous. To combine two or more indicators into a composite index, the data must be adjusted to have a common range.
13. To determine the number of factor groupings, we followed the Kaiser criteria – whereby a significant group must have an Eigenvalue greater than ‘1’ and the sum total of all significant factors must equal 60% or greater of the total variation.
14. The 16 individual indicators along with the three pillars can be freely downloaded at: (reference hidden for anonymity).
15. Chronbach’s Alpha coefficient of reliability was 0.94, while 89% of the pairwise correlations among the 16 questions were positive and significant. The principle component analysis (PCA) demonstrated that the questions factored together according to QoG concepts of corruption, impartiality and quality.
16. As noted in the Handbook of Constructing Composite Indicators, it is important to check the interaction effects of each of these adjustments, thus for example testing the removal of the ‘corruption’ pillar in all possible combinations of weighting, aggregation, and normalisation of the data. For a more detailed account of the robustness checks, (Charron et al., 2010).
17. The score is slightly changed due to the re-standardisation when the national and regional level estimates are combined, so as to set the final EQI’s mean to ‘0’ and standard deviation to ‘1’.



where 'EQI' is the final score from each region or country in the EQI, 'WGI' is the World Bank's national average for each country, 'Rqog' is each region's score from the regional survey and 'CRqog' is the country average (weighted by regional population) of all regions within the country from the regional survey. In keeping with the same scale as the WGI data, the EQI is standardised so that the mean is '0' with a standard deviation of '1'.

Although the national-level data and regional-level data are indeed directed at different levels of government – the WGI taps into the quality of national public sector, whilst the regional survey was explicitly asking respondents about their regional services – we argue that these two measures are indeed similar enough to combine. First and most obviously, they both capture aspects of QoG, such as corruption, quality of services, impartiality, and rule of law. Whilst the national data might be focused on several sectors of the national bureaucracy that are not measured by the regional-level data – e.g. defence, immigration, etc. – we do not find this problematic. While administrative and fiscal responsibilities vary from region to region in the EU, such areas of the public sector are out of the realm of all regional governments and thus it is most appropriate that we do not include them in any regional studies. Secondly, the WGI data are robust, well-established, and internationally used measures and are thus suited to estimate the country-level scores. In adjusting the national level scores of the EU Member States, we sacrifice none of the rich sub-national variation from the regional level survey data. Finally, in using the WGI as an 'anchor', so to speak, we can retroactively adjust data if in future rounds of regional data collection, additional countries or regions are added.

**Figure 1** shows the combined data between the WGI national-level QoG scores and the regional QoG data. Figure 2 shows the national averages with the within-country range of scores. A full list of scores for each region and country is located in the appendix in rank order. The data show that 11 of the EU-15 countries have all their regions and/or national scores above the EU average, while all regional and national-level scores for the 'New' Member States (NMS) are under the mean average<sup>[18]</sup>. Five EU-15 countries – Italy, Spain, France, Belgium and Portugal – contain regions that are both above and below the mean score, while Greece is the only EU-15 country to have all of its regions below the mean level of QoG in the EU. Among the NMS, the regional ranks are all below the EU mean, with the highest ranking region being Jihozápad (CZ03) from the Czech Republic (-0.05).

To facilitate reliable comparisons across regions, we construct a margin of error at the 95% confidence level. This level equates to the probability that a margin of error around the reported QoG estimate for each region would include the 'true'

value of QoG or, in other words, that the margin of error tells us that we can say with about 95% confidence that a region's estimate of QoG can be found within a plus/minus 1 margin of error<sup>[19]</sup>. While not exactly a 'margin of error' in a traditional sense, the range expresses the uniformity around which respondents ranked their region's QoG in the 16 questions. Thus the regions that have the largest margins of error are ones in which respondents expressed a relatively large gap between two or more sets of questions for a service or concept (such as education or 'impartiality'). For example, most respondents in Spanish regions believed their public services were among the most impartial in Europe, yet they ranked them below average on corruption questions. The lowest margin of error belongs to the Polish region of Kujawsko-Pomorskie (0.166), meaning that respondents ranked their regions very consistently across all 16 questions. Danish and Polish regions on the whole have the tightest confidence intervals, while Spanish, Romanian and Czech regions tend to have the widest margins. All margins of errors around the final EQI estimates are found in the appendix<sup>[20]</sup>.

Interestingly, the data show that within-country QoG variation is at times equally or more important than cross-country variation. For example, **Figure 2** shows the rank-order of EU Member States (again, using the WGI, national assessment as the country mean). For example, the gap between Bolzano (ITD1) to Campania (ITF3) in the data is much larger than then the gap of the national averages between Denmark and Portugal. Furthermore, while the national gap between Bulgaria and Romania at the national level is negligible, their national scores are noticeably lower than the national scores of other states such as Slovakia, Poland, Italy and Greece. However, the top region from each country, Nord Vest (RO11) in Romania and Severoiztochen (BG33) in Bulgaria, are statistically indistinguishable from average ranking regions within those other four countries. It is noteworthy that the EQI can be employed in cross-sectional analysis only at the regional level at this point, yet one can employ the WGI combined national-level index to make comparisons over time<sup>[21]</sup>.

## 6 Five hypotheses on why some regions have better QoG

In this section, we seek to discover some general patterns of QoG variation within and across countries by testing five prevailing hypotheses in the literature using the newly

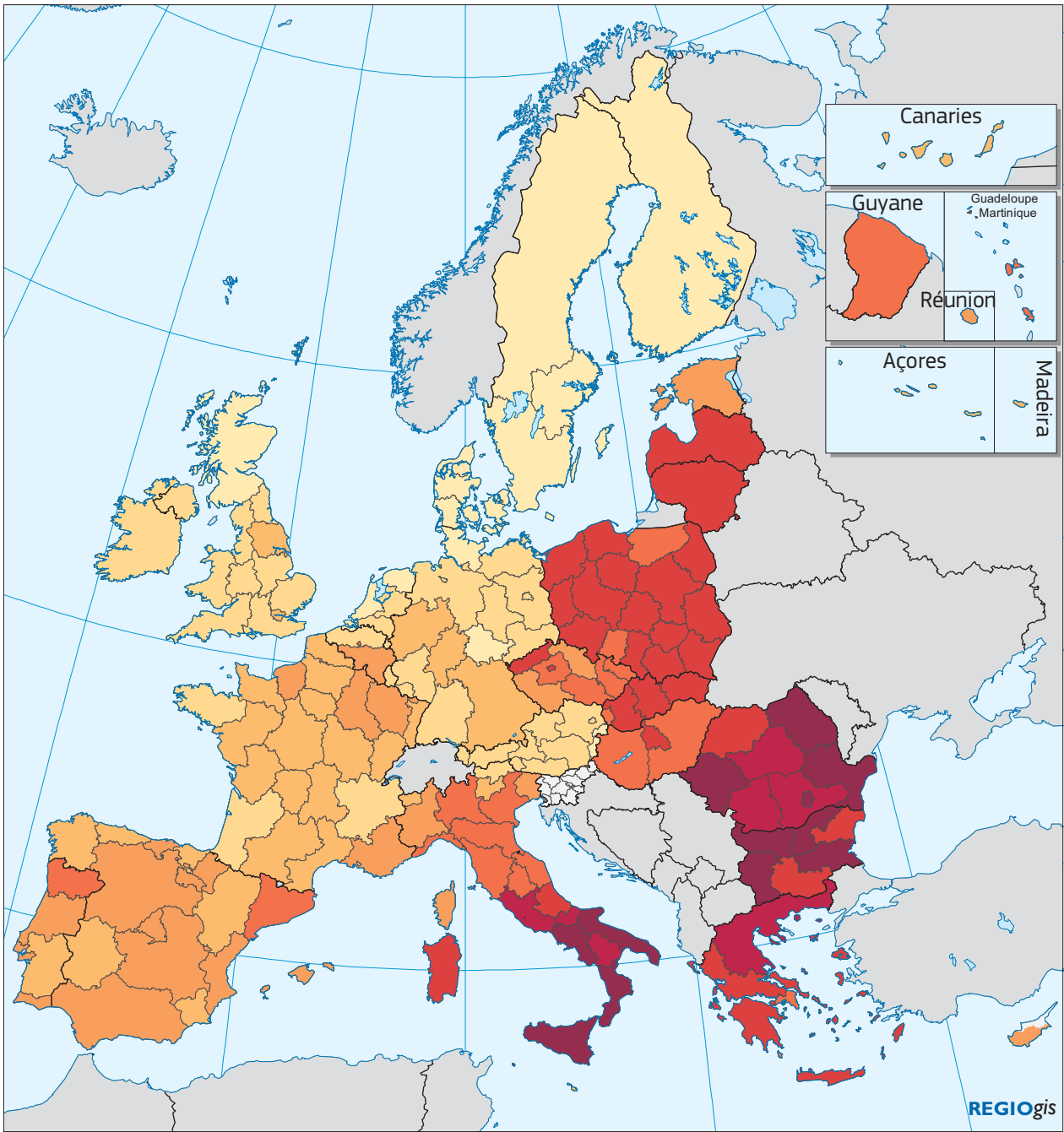
18. However, on specific combined pillars, such as rule of law or government effectiveness, several regions in the Czech Republic are above the EU mean score.

19. We know from basic statistical probability that in a sample 'x', 95% of the area of a basic normal Bell curve are between our estimate ( $\mu$ )  $1.96 \pm$  the standard error around  $\mu$ . We calculate the standard error as:  $S.E. = \frac{\sigma}{\sqrt{n}}$ . The margin of error for each individual region is based around the QoG estimate:  $1.96 \pm \frac{\sigma}{\sqrt{n}}$  with  $N = 16$ , because there are 16 indicators in the QoG index which have been aggregated from the survey data. Each region thus has their own individual margin of error based on the consistency of the estimates for each of the 16 aggregated questions in the survey. We end up with an average margin of error of 0.338, or about one third of a full standard deviation, with a minimum of 0.166 to a maximum of 0.705.

20. In addition to the standardised scale for the EQI, we also normalise the data to range from 0-100. We thank an anonymous reviewer at Regional Studies for this suggestion.

21. The next round of data collection at the regional level is scheduled for 2013, thus making a limited over-time comparison possible by 2014.

Figure 1: The EQI



**European Quality of Government index, 2009**

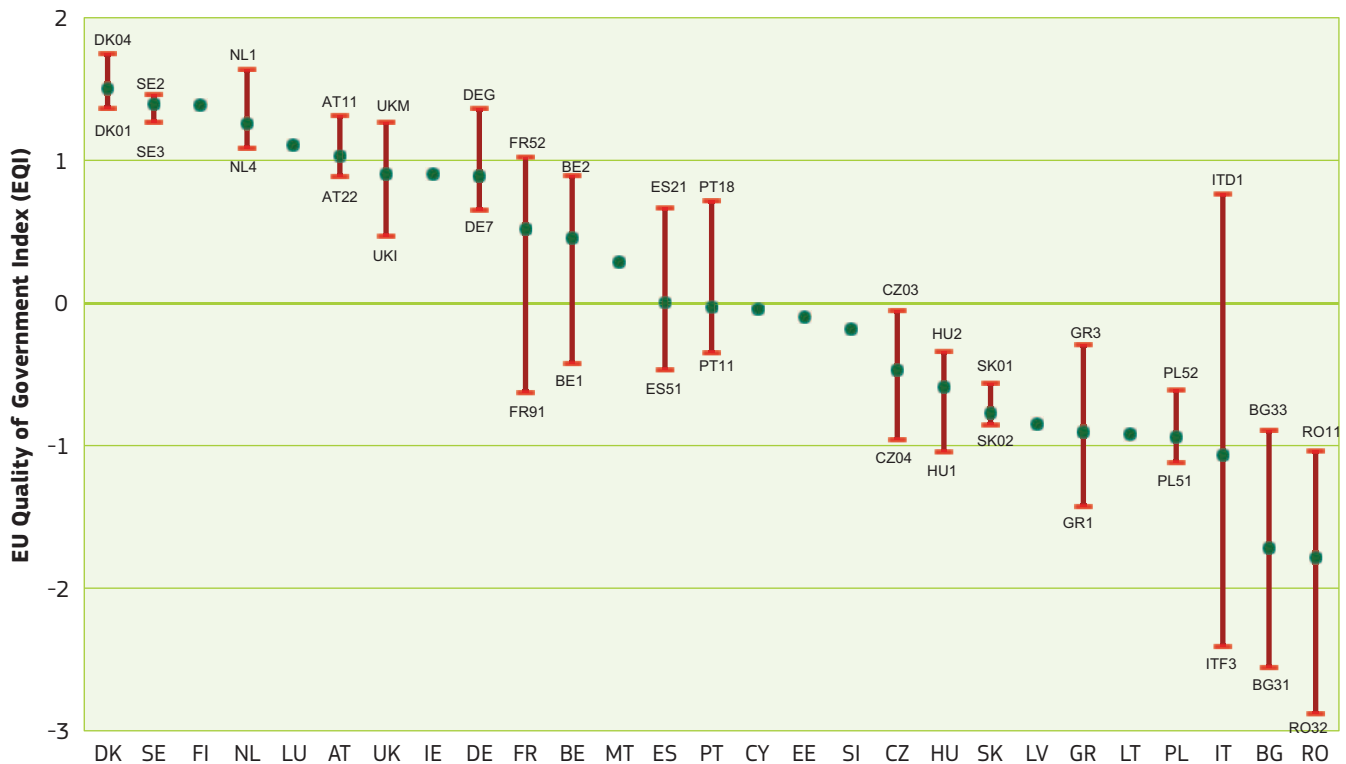
Standard deviation, range from poor quality (negative) to high quality (positive)

- <-1.75
- 0.5
- 0.5
- 0.5
- <-0.5
- 0.25 - 0.75
- 0.75 - 1.25
- <1.25

Note: EU = 0  
 Source: World Bank and regional quality of government survey

0 500 Km

Figure 2: EQI and Within-Country Variation



Note: exact scores, country and regional NUTS abbreviations are found in the appendix

constructed EQI. Following the literature on QoG, this paper does not aim to provide a unique causal direction – especially given the cross-sectional nature of the data – but only to show if a statistically meaningful relationship is present.

### H1: Levels of socio-political development will be positively associated with the EQI in regions and countries across the EU <sup>[22]</sup>.

First, it has been argued and found in several empirical cross-national studies that indicators of QoG are highly correlated with proxies for socio-economic development, such as educational attainment, income levels, technology, or health. Scholars have consistently found a strong empirical connection between reaching higher levels of economic development, and higher levels of various measures of QoG (Acemoglu, Johnson, and Robinson, 2004; Knack and Keefer, 1995; Mauro, 1995; Holmberg, Rothstein and Nasiritousi, 2009), as well as indicators of macro-level indicators of health in society (Mauro, 1998; Gupta, Davoodi, and Alonso-Terme, 1998). Therefore we test the following hypothesis:

### H2: QoG within and across countries in the EU is systematically related to the size of a region or country.

Secondly, we test the relationship between several demographic variables and the EQI, such as the regional population, and size of the geographical area. Several studies have examined these factors – or equivalent ones – with, generally speaking, mixed results on their importance to explain variation in QoG (Alesina

and Spoloare, 1997; Knack and Azfar, 1999; Alesina, 2003). The arguments and evidence are diverse regarding the size of a polity and its level of QoG. On the one hand, the argument that smaller populations are more manageable goes back to Ancient Greece. Aristotle wrote that ‘experience has also shown that it is difficult, if not impossible, for a populous state to be run by good laws’ (quoted in Alesina 2003, 303). On the face of it, this seems a reasonable prediction, as relatively small Nordic countries, such as Denmark, Sweden and Finland are all among the best performers in most QoG measures world-wide. On the other hand, Knack (2002) provides evidence that larger US states had higher-quality management practices, even when controlling for a number of socio-economic variables. However, Knack and Azfar (1999) find no relationship between size and corruption in a large cross-country sample. We thus have no clear direction to predict but, we test whether QoG and population or area size are systematically related within and across EU Member States:

### H3: QoG is positively associated with Social Trust within and across countries in the EU.

Thirdly, based on several recent studies, we hypothesise that regions/countries with higher degrees of social trust will have higher scores in the EQI. It has been extensively argued that higher levels of generalised trust – i.e. trust in strangers or people who do not belong to ‘your group’ – is a function of higher QoG (Rothstein and Uslaner, 2005). Where ‘people have faith only in their in-group’ – understanding by this either a family, a clan, an ethnic group or other social groupings such as a political party – a society, and thus its politics, is ‘seen as a zero-sum game between conflicting groups’ (Rothstein and Uslaner, 2005, 45-46).

22. By ‘countries’ we mean the nine EU Member States outside of the regional survey, which covers the 18 largest EU Member States.

In these conditions, citizens feel less attached to their political communities than to a particular social group and thus less eager to contribute to the provision of general public goods, such as paying taxes, respecting and protecting public spaces and, very importantly, engaging in social and political mobilisations asking for improvements in quality of government. Generally speaking, free-riding becomes more frequent at all social levels. In turn, public authorities lack both adequate resources and incentives to deliver policies, consolidating a ‘vicious cycle’. We thus test the following hypothesis:

**H4: Greater levels of political decentralisation will be associated with higher levels of within-country variance of QoG.**

**H5: Greater levels of political decentralisation will systematically impact the level of QoG at the country-level.**

Finally, we test whether if there is an empirical link between the level of political decentralisation and/or federalism and the amount of within-country variation in QoG as well as the level of QoG itself across countries. Although mostly untested empirically, due to a lack of empirical data at the regional level, several scholars have asserted that greater levels of decentralisation be associated with larger disparities from region to region with respect to variables such as bureaucratic quality or corruption in the public sector (Tanzi, 2001). In other words, when regions gain more decision-making control, the stronger ones will perform better and weaker ones will sink even deeper, creating larger gaps within decentralised states than in centralised ones. Furthermore, several studies have tested whether decentralisation leads to higher or lower QoG across countries, with several arguing that political decentralisation and/or federalism creates greater problems of collective action and more cumbersome decision-making rules (Gerring and Thacker, 2004), while others such as Lijphart (1977) and Watts (1999) argue that greater vertical power sharing in the form of decentralisation or federalism would lead to better QoG outcome. We thus test two hypotheses regarding the impact of decentralisation over within-country variance and over levels of QoG:

## 7 Results

We present the results in two steps, first with bivariate scatterplots then with multivariate OLS with country fixed effects for the five hypotheses. Whilst admittedly simplistic and unable to determine causal direction, we argue that as a ‘first cut’ analysis with the EQI, the straight-forward scatterplots and basic fixed effects regressions are quite revealing.

We use one of the most established indicators of socio-economic development to test H1 – the Human Development Index (HDI). This is a composite index based on several measures such as life

expectancy in good health, net-adjusted household income, and ratio of high and low education achievement in the population aged from 25 to 64 (Bubbico et al., 2011). The HDI ranges from 0-100, with higher values equalling greater levels of socio-economic development<sup>[23]</sup>. Given the strong likelihood of endogeneity between QoG and the HDI, as well as additional factors that could cause increases/decreases in either QoG or human development, we begin with the most basic analyses: a bivariate scatter plot with significance values to show the regional and country variation across the EU, and an OLS regression with fixed country effects to account for unobserved country differences to test whether the relationship between development and QoG is also present *within* countries in **Table 2**.

**Figure 3** shows clear support for H1. The  $R^2$  statistic shows that the HDI explains almost 60% of the total variation of the EQI. The beta coefficient from the bivariate regression reveals that that an increase by 25 points in the HDI is associated with an increase in the EQI by ‘1’ (or one full standard deviation). Looking at **Table 2**, we find that the relationship between the EQI and HDI holds when controlling for population, area size and country-fixed effects (Model 1) and even when controlling for social trust in a more limited sample (Model 3). In all cases HDI is significant at the 99% level of confidence.

**Figure 4** illustrates the relationship between QoG and the size of a region (population or area). Both population (in thousands) and area (in square kilometres) are taken from Eurostat. In order to explore different connections, we show the relationship between the EQI and logged variables for the size of regions<sup>[24]</sup>. Here we find no evidence to suggest that more (or less) populous regions have higher levels of QoG in the EU-wide sample. Nor do we find that area size is systematically linked with the EQI. Yet in **Table 2** we discover an interesting finding, namely that when fixed effects and the HDI are included, both variables become significant. This means that whilst not significant EU-wide, more populous regions and larger regions in terms of area have lower and higher QoG respectively within countries. A closer look at the data show that in several countries, the populous and smaller-area regions such as Bucharest, Sofia, Prague, London, Brussels and Budapest have the lowest QoG score in their respective country, which is mainly driven by the fact that citizens in these regions rated the three public services to be more corrupt compared with other citizens in other regions within these countries. We find that area size is positively related with the EQI when controlling for country-fixed effects, yet this finding is not as robust as the population variable. We conclude that whilst the two variables are not significant EU-wide, they are systematically related, on average, within countries, demonstrating mixed support for H2. An explanation could be that residents in large cities (which tend to have a large and often diverse population in a small area), perceive more corruption than in other regions in the same country; this explanation, however, requires further testing.

In **Figure 5** we test H3. Data on social trust is taken from Tabellini (2005) and is available at the regional level for

23. A description of all variables in this section is found in the appendix. The HDI is not available for overseas French departments.

24. In addition, we test the relationship with the non-logged variables, with the only difference being a slightly weaker relationship with the EQI.

Figure 3: Human Development Index and the EQI

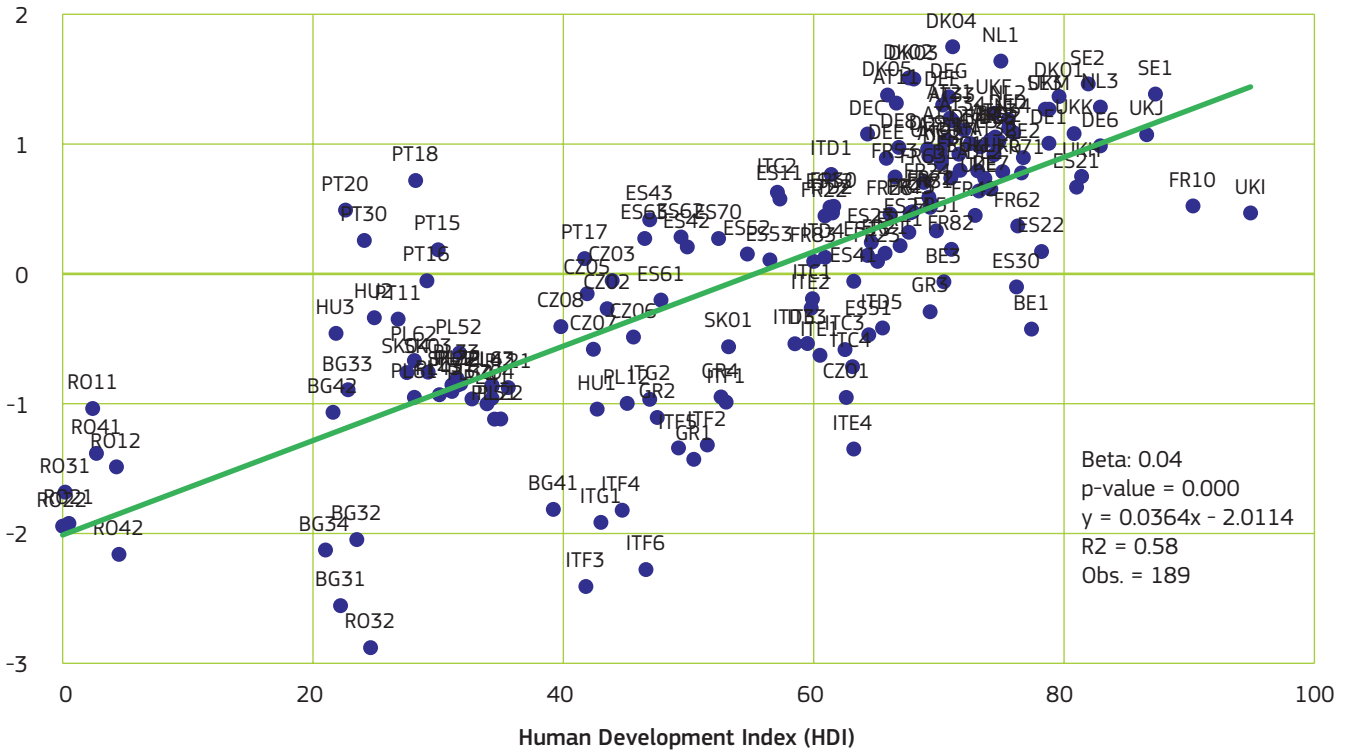
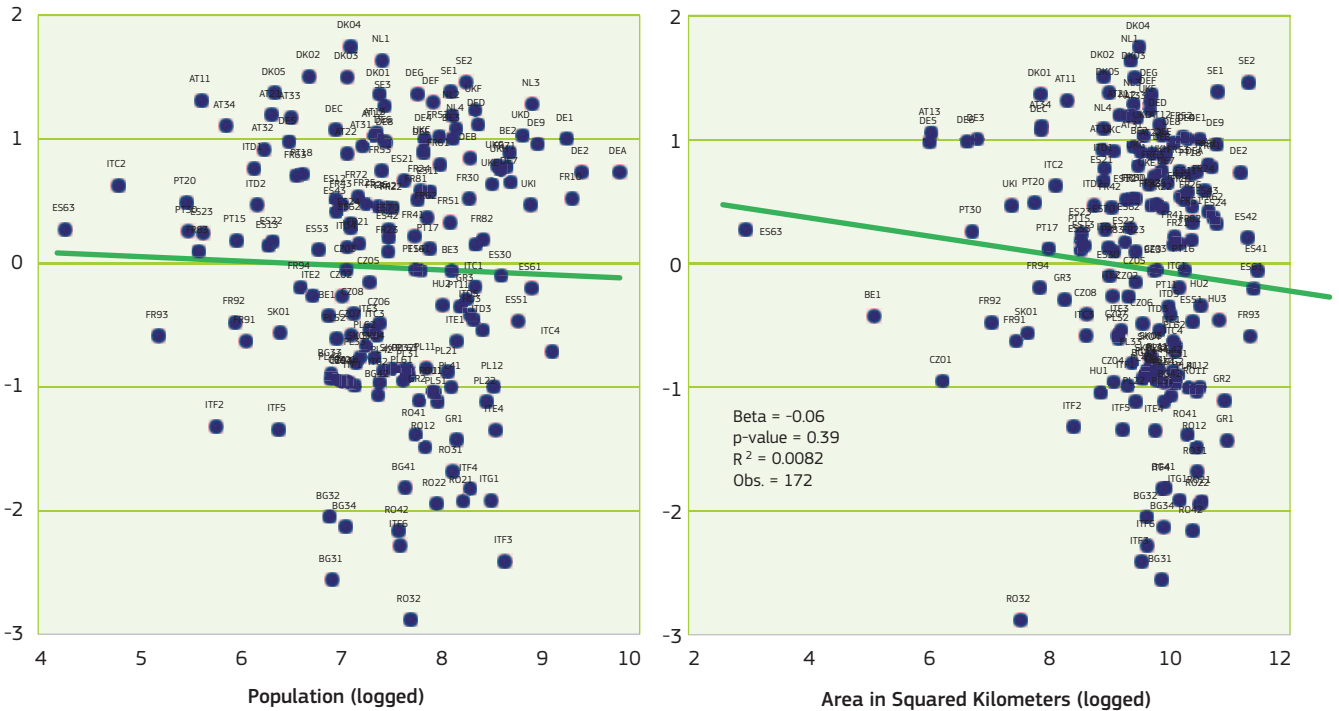


Figure 4: Regional Size and the EQI



**Table 2:** Impact of HDI, Population, Area and Trust with Country Fixed Effects on the EQI

	1	2	3
HDI	0.02** (0.003)		0.03** (0.007)
Trust		0.03** (0.004)	0.008 (0.31)
Population	-0.28** (0.001)	-0.27** (0.002)	-0.36** (0.000)
Area	0.13** (0.002)	0.09 (0.08)	0.18** (0.005)
<b>Country effects</b>			
<b>AUSTRIA</b>	.56**		
<b>BELGIUM</b>	-0.01	0.32	0.04
<b>BULGARIA</b>	-1.29**		
<b>CZECH REPUBLIC</b>	-0.30		
<b>DENMARK</b>	1.06**		
<b>FRANCE</b>	0.12		
<b>GERMANY</b>	0.79**	.15**	.16**
<b>GREECE</b>	-0.94**		
<b>HUNGARY</b>	-0.02		
<b>ITALY</b>	-0.82**	-0.97**	-0.74**
<b>NETHERLANDS</b>	1.02**	0.84**	0.81**
<b>POLAND</b>	-0.46*		
<b>PORTUGAL</b>	0.61*	0.26	1.04**
<b>ROMANIA</b>	-0.75*		
<b>SLOVAKIA</b>	-0.41*		
<b>SWEDEN</b>	0.62**		
<b>UNITED KINGDOM</b>	0.65**	.93**	.61**
Constant	-0.31	0.37	-1.08
	0.49	0.48	0.11
obs	169	73	73
Rsq.	0.87	0.75	0.79

Note: OLS regression with fixed country effects, Spain used as reference group. HDI is 'Human Development Index' (0-100), Population and area are logged values. 'Trust' is only available for Belgium, Germany (western regions), Italy, Netherlands, Portugal, Spain, and UK.

\*\* p<.01, \*p<.05

73 EU regions<sup>[25]</sup>. Figure 4 shows a strong, positive relationship between trust and QoG and the best coefficient (0.03) is positive and significant at the 99% level of confidence. The bivariate relationship weakens somewhat when removing the Italian regions from the analysis (beta drops to 0.018), yet the relationship remains 99% significant<sup>[26]</sup>. Furthermore, even when controlling for country fixed effects, we find that higher levels of QoG are associated with higher social trust within countries

as well, yet the relationship drops from significance in Model 3 of **Table 2**<sup>[27]</sup>. Again, deciding whether this correlation follows a causal relationship – as well as the direction of this causality (see Rothstein and Uslaner, 2005, for a thorough discussion on this issue) – or whether it is spurious is, because of the cross-sectional nature of the data analysed, beyond the scope of this analysis.

In testing H4 and H5, we begin by looking at the level of within-country variation (measured as the distance between highest QoG regions minus the lowest in each country) and country levels of QoG in federal, semi-federal and unitary countries. In **Figure 2** we show the EU-27 in rank order with respect to the EQI and the sub-national variation in each country<sup>[28]</sup>. Here we find that the three EU Member States considered as truly federal – Belgium, Austria and Germany – have less within-country variation in QoG than Romania or Bulgaria – two highly centralised countries. In addition, Austria and Germany have less within-country variation than two highly centralised older EU members such as Portugal or Greece.

The countries that are considered 'semi-federal' and have meaningful political and administrative regions within the data – Spain and Italy – have quite high within-country variation. Nevertheless, with only two data points, it is too difficult to generalise. Moreover, while the three federal countries perform above the EU mean, the two semi-federal countries are below the EU-average and unitary countries range from highest (Denmark and Sweden) to lowest (Romania and Bulgaria). What we can see however – at least in terms of a unitary/federal variable – is that there is no clear relationship with this and within-country QoG variation or country-wide QoG levels.

To further test H4 and H5, we take advantage of several recent indicators of political decentralisation from Hooghe, Marks and Shackel (2010). We test whether four of their variables indicating the level of political decentralisation are related with either higher within-country QoG variation or simply higher levels of QoG levels. Those indicators of decentralisation are: 'policy scope', 'representation', 'law making', and 'constitutional reform'<sup>[29]</sup>.

**Figures 6 and 7** show the relationship between the four decentralisation variables and QoG for the 18 countries that have regional data in the EQI.<sup>[30]</sup> In **Figure 6** we find no evidence suggesting that higher levels of *policy scope* or *representation* have any relationship with either within-country QoG variation or levels of QoG at the national level. Although all four Pearson correlation coefficients are in the expected direction (i.e. positive), none are statistically significant at even the 90% level of confidence. In **Figure 7**, we can see that neither higher levels of decentralisation – measured as *law making* and *constitutional reform* – are associated with greater disparities of within-country QoG amongst regions. In this case, Pearson correlation coefficients are in the opposite direction (i.e. negative), yet they are statistically indistinguishable from zero. We find some fairly weak empirical evidence to suggest that EU countries that have greater regional *law making* and *constitutional reform* have higher levels of overall QoG according to the EQI, yet the correlations are not within but only near the levels of conventional acceptability (87% and 90% respectively). Thus any generalisation from these results on decentralisation and variation in QoG should be made with a good deal of caution.

Figure 5: Social Trust and the EQI

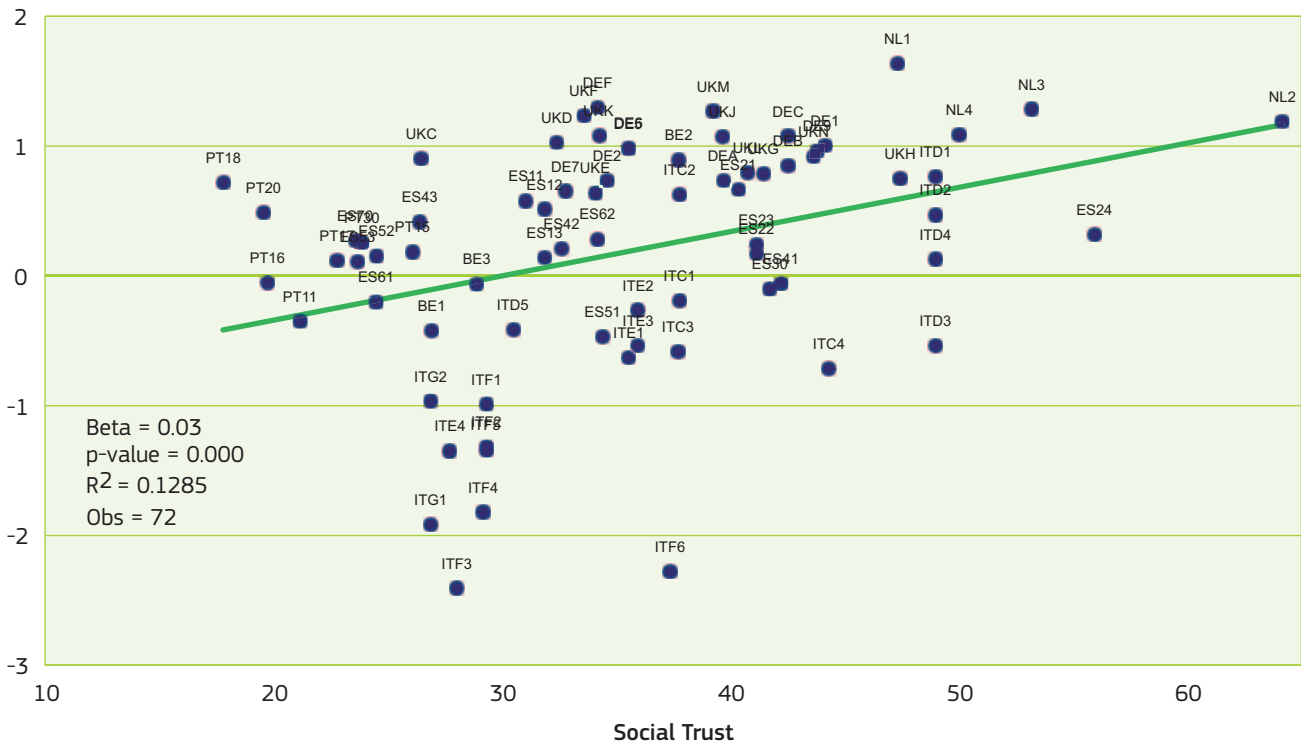
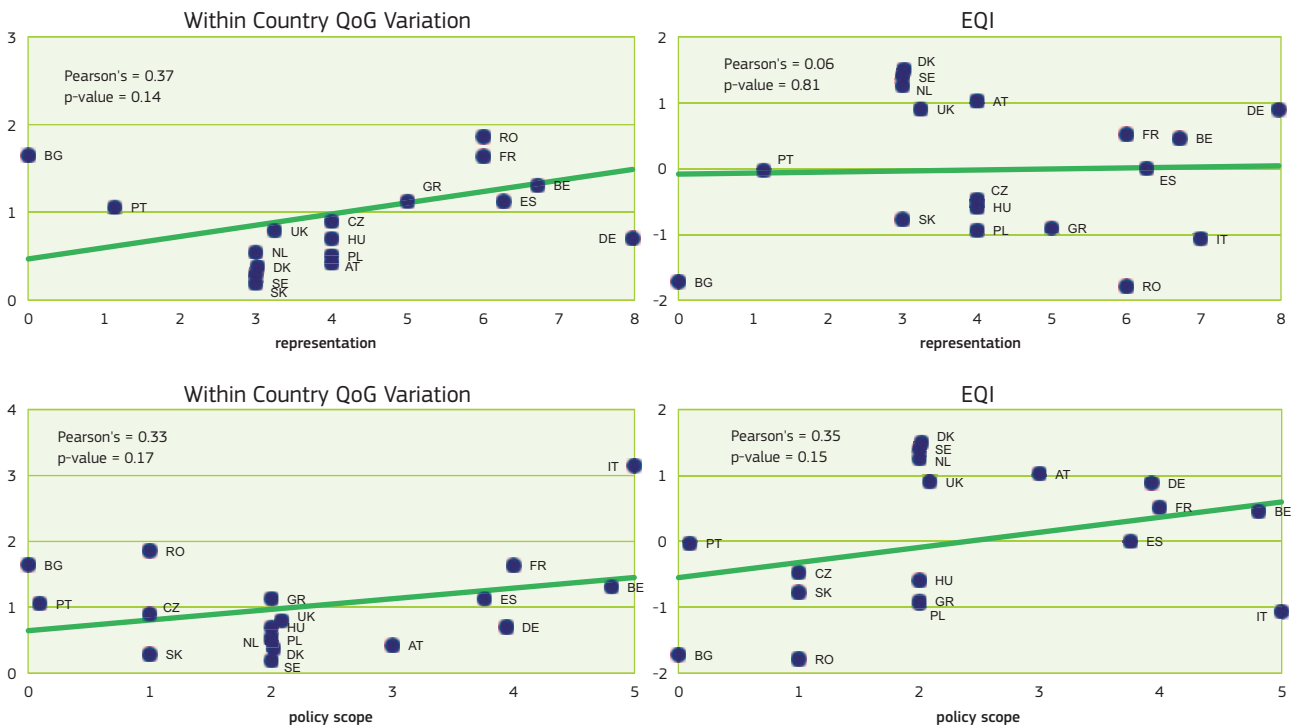


Figure 6: Political Decentralisation, EQI and Within-Country Variation



25. Regions are available for Belgium, Italy, Spain, UK, Germany (western regions only), Portugal, and the Netherlands.
26. We would like to thank an anonymous reviewer at Regional Studies for this suggestion. Scatter plot without Italian regions not shown here. The bivariate relationship results yielded the following results:  $\beta$ : 0.018, p-value: 0.001,  $R^2$ : 0.24, observations: 52.
27. That 'trust' falls from significance in Model 3 is most likely due to multicollinearity – the correlation between HDi and trust is 0.63.
28. There are of course multiple ways of measuring the extent to which 'within-country variation' is present. We chose the simplest method for the sake of parsimony – min-max (max regional score minus the min score in each country). For more approaches to this issue, see Shankar and Shah (2003: 1422-1425).
29. For a description and statistical summary of each variable, see the appendix. For a more detailed description of these variables, see Hooghe et al. (2008: 126-136).
30. In both Figures, the left-hand side (within-country variation) tests H4, while the right-hand side tests H5 (EQI).





## 8 Conclusions

The original data and analysis presented in this paper make several contributions to the literature. First and foremost, we have mapped the differences in perceived levels of quality of government among 172 EU regions based on the perception of citizens, which, in combination with the external, largely expert assessment of the national-level data, represents the most encompassing data to date on sub-national variation in corruption or good-governance variables. We believe that this paper and data may be highly valuable to both scholars and practitioners alike focusing on a wide range of topics regarding governance in Europe. For example, a region with a low QoG in the EU will not be able to use the cohesion policy funds in an efficient and effective manner. Such a region may remain stuck in low growth and low QoG equilibrium, while the regional government remains to some degree sheltered from the financial consequences of low QoG through continuing support from the EU. This may explain why the reform of EU cohesion policy puts a greater emphasis on creating the right conditions for development as an important prerequisite to (continue to) receive funding (European Commission, 2010b).

Finding the right mix of incentives and policies that improve QoG in lagging regions could make a substantial contribution to higher growth in those regions and thus to more convergence between EU regions. The data presented here can serve as a valuable benchmark to monitor changes in governance at the national and regional level in the EU.

This paper has found a notable amount of variation both *between* and *within* EU Member States. A first group of Northern European countries tend to show the highest levels of QoG. They distinguish themselves from the following three groups on the ladder: the second group encompasses most Southern-Mediterranean states – together with Estonia and Slovenia – with moderate levels of QoG; the third group covers most of ‘new’ Member States that demonstrate moderate to low levels of QoG; the fourth group consists of the two newest Member States that have the lowest levels of QoG in the EU. Significant within-country variations can be found in federal or semi-federal nations such as Italy, Belgium or Spain, but also, noticeably, in more centralised ones, such as Portugal, Romania or Bulgaria. Other countries, such as Denmark, Poland, Austria or Slovakia show very little variation across regions.

We tested five hypotheses that could help to explain some of the variation in QoG found between and within EU Member States. We found strong empirical evidence that the HDI is positively related to our indicator of QoG – both within and across countries in the EU. We found similar evidence with respect to our variable for social trust. On H2, we found a more nuanced relationship – the EQI had no statistical relationship either within or across the full sample, yet when accounting for country-fixed effects, we found robust evidence to suggest that more populous (regions with greater area size) have lower (higher) QoG *within* countries themselves on average, which may imply that QoG is lower in the large cities in a country.

Most surprising, given the sizeable literature on the consequences of federalism for governance, was the lack of a relationship between a relatively large number of proxies for political

decentralization and QoG. We hypothesised that countries with greater degrees of political decentralisation would exhibit higher degrees of within-country variation of QoG for their respective regions. We found no such evidence using several different measures of political decentralisation. Furthermore, there is no empirical pattern between decentralisation and country-levels of QoG according to the EQI – decentralised and/or federal countries are not more or less likely to have higher levels of aggregate QoG relative to more unitary/centralised states within the EU.

One explanation could be that variation within a country is linked to variation in both political *decision-making* (as we would expect in federal/more politically decentralised countries) and the quality of *implementation* of a (theoretically) centrally administered service, which has been relatively overlooked in the theoretical literature on federalism. For example, even though a country such as Romania is highly politically centralised, certain regions may have developed specific patterns of policy implementation (e.g. more merit-based and less patronage-based public organisations), which may play a decisive role in the quality of their public services. The only consistent pattern is that irrespective of decentralisation, the countries in the highest cluster group all have relatively low within-country QoG variation – even Germany and Austria, which are federal countries.

The findings presented in this paper open the door to several relevant questions that could be explored in future research. For instance, which cultural legacies, economic variables or institutional factors may explain the notable regional differences on governance? Which consequences – for example, in terms of fostering entrepreneurial activity – are evident among the best performing regions in QoG in comparison with being amongst the worst? The data presented here can thus be of use for scholars addressing these questions in fields as diverse as comparative political economy, EU studies, federalism, decentralisation and regional politics or comparative public administration. In addition, with regions playing such a growing role in the provision of public services and being the recipients of large transfers – at national level in many EU Member States, but also at European level through the EU Development Funds – the data presented here can serve as an initial tool of empirical assessment for practitioners interested in regional development policy and aid allocation.

Based on the findings of this Paper, we would like to conclude by underscoring the importance of focusing on QoG not only in developing regions of the world but inside the EU. As this Paper has shown, too many EU residents still report to have first hand experience of corruption and discrimination and the share of residents confronted with these issues is far higher in some regions and countries. Despite the methodological problems always inherent to capture a concept such as ‘good governance’, our preliminary data indicate that QoG in the EU seems to vary to a very large extent both between countries and between regions within these countries. In addition, those regions where QoG is perceived to be low by their own citizens are those regions that perform the worst in the standard indicators of human development. A tentative normative conclusion would thus be that – apart from the existing transfer policies – a joint and targeted effort to improve QoG in those regions with lower levels could substantially improve the economic prospects of these regions and the lives of their residents.

## 9 References

- Acemoglu, Daron, Johnson, Simon & Robinson, James A. 2004. 'Institutions as the Fundamental Cause of Long-Run Growth', *CEPR Discussion Papers* 4458.
- Alesina, Alberto. 2003. 'The size of countries: Does it matter?' *Journal of the European Economic Association* 1, no. 2-3: 301-316.
- Alesina, A., & Spolare, E. 1997. 'On the number and size of nations'. *Quarterly Journal of Economics*, November.
- Bubbico, R., & Dijkstra, L. 2011. 'The European Regional Human Development and Human Poverty Indices'. *European Union Regional Focus* 02/2011. [http://ec.europa.eu/regional\\_policy/information/focus/index\\_en.cfm](http://ec.europa.eu/regional_policy/information/focus/index_en.cfm)
- Charron, N., Lapuente, V. & Rothstein, B. 2010. *Measuring the quality of government and subnational variation*. Report for European Commission, Directorate-General for Regional Policy. [http://ec.europa.eu/regional\\_policy/information/studies/index\\_en.cfm#2](http://ec.europa.eu/regional_policy/information/studies/index_en.cfm#2)
- Del Monte, A. & Papagni, E. 2007. 'The determinants of corruption in Italy: Regional panel data analysis'. *European Journal of Political Economy* 23(2): 379-396.
- European Commission. 2010a. *The EU Budget review*. COM(2010) 700. Brussels.
- European Commission. 2010b. *The fifth Report on economic, social and territorial cohesion*. Publications Office of the EU, Luxembourg.
- Frey, Bruno S., & Stutzer, A. 2000. 'Happiness, Economy and Institutions'. *The Economic Journal* 110(466): 918-938.
- Gerring, J. & Thacker, S. C. 2004. 'Political institutions and corruption: the role of unitarism and parliamentarism'. *British Journal of Political Science*, 34(2), 295-330.
- Golden, Miriam A. & Lucio Picci. 2005. 'Proposal for a new measure of corruption, illustrated with Italian data'. *Economics and Politics*, vol. 17 (1): 37-75.
- Gupta S., Davoodi, H.R., Alonso-Terme, R. 1998. 'Does corruption affect income inequality and poverty?' Work. Pap. No. 98/76 (May), Int. Monetary Fund, Washington, DC.
- Holmberg, Sören, Rothstein, Bo & Nasiritousi, Naghmeh. 2009. 'Quality of Government: What You Get'. *Annual Review of Political Science* Vol. 12: 135-161.
- Hooghe, Liesbet, Marks, Gary & Schakel, Arjan H. 2010. *The Rise of Regional Authority: A Comparative Study of 42 Democracies*, London: Routledge.
- Inglehart, Ronald. 2000. 'Globalization and Post-Modern Values.' *The Washington Quarterly*. vol 23 (1): 215-228.
- Kahneman, Daniel. 2011. *Thinking, Fast and Slow*. New York: Farar, Straus and Giroux.
- Kaufmann, Daniel, Kraay, Aart & Mastruzzi, Massimo. 2009. 'Governance Matters VIII: Aggregate and Individual Governance Indicators for 1996-2008'. *World Bank Policy Research Working Paper* No. 4978. Washington, D.C.
- Knack, Stephen. 2002. 'Social Capital and the Quality of Government: Evidence from the States'. *American Journal of Political Science* Vol. 46, (4): 772-785.
- Knack, Stephen, & Keefer, Philip. 1995. 'Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures'. *Economics and Politics* 7 (3):207-27.
- Knack, Stephen & Azfar, Omar. 1999. 'Are larger countries really more corrupt?'. *Policy Research Working Paper Series* 2470. World Bank.
- Kurtz, M.J. & Schrank, A. 2007. 'Growth and Governance: Models, Measures, and Mechanisms'. *Journal of Politics*. Vol. 69 (2).

- Lijphart, Arend. 1977. *Democracy in Plural Societies*. New Haven, CT: Yale University Press.
- Longstreth, M. & Shields, T. 2009. 'A Comparison of Within Household Random Selection Methods for Random Digit Dial Surveys'. Paper presented at the annual meeting of the American Association For Public Opinion Association, Fontainebleau Resort, Miami Beach, FL.
- Mauro, Paolo. 1995. 'Corruption and growth'. *Q. J. Econ.* 110:681–712.
- Mauro, Paolo. 1998. 'Corruption and composition of government expenditure'. *J. Public Econ.* 69:263–79.
- Mo, Pak Hung. 2001. 'Corruption and economic growth'. *J. Comp. Econ.* 29:66–79.
- Morse, S. 2006. 'Is corruption bad for environmental sustainability? A cross-national analysis.' *Ecology and Society* 11(1): 22.
- Putnam, Robert D. (with Leonardi, Robert & Nanetti, Raffaella Y.). 1993. *Making Democracy Work. Civic traditions in modern Italy*, Princeton, NJ: Princeton University Press.
- Rothstein, Bo & Uslaner, Eric. 2005. 'All for all: Equality and social trust.' *World Politics* 58(1): 41–73.
- Rothstein, Bo & Teorell, Jan. 2008. 'What Is Quality of Government? A Theory of Impartial Government Institutions.' *Governance: An International Journal of Policy, Administration and Institutions* 21(2):165–190.
- Tanzi, Vito. 2001. 'Pitfalls on the Road to Fiscal Decentralization', *Carnegie Endowment for International Peace Working Paper*, 19, Washington, D.C.: Carnegie Endowment.
- Tabellini, Guido. 2005. 'Culture and Institutions: Economic Development in the Regions of Europe'. *IGIER Working Paper* No. 292. Available at SSRN: <http://ssrn.com/abstract=754086>
- Transparency International. 2006. *Global Corruption Report 2006*. London: Pluto.
- Watts, Ronald L. 1999. *Comparing federal systems*. 2nd ed. Kingston, Ontario: Queen's University and McGill-Queen's University Press.
- Welsch, H. 2004. 'Corruption, growth, and the environment: a cross-country analysis'. *Environ. Dev. Econ.* 9:663–93.
- Öberg, Magnus & Melander, Erik. 2010. 'Autocracy, Bureaucracy, and Civil War'. *APSA 2010 Annual Meeting Paper*.

## APPENDIX

### 10 Description of sub-national survey

The EU regional survey was undertaken between 15 December, 2009 and 1 February, 2010 by *Efficiencie 3*, a French market-research and survey company. The respondents, ranging from 18 years of age or older, were contacted randomly via telephone in the local language by the 'birthday method' with replacement. As Longstreth and Shields (2009) find, although not as demographically representative as the 'quota method', the birthday method obtains a reasonably representative sample of the population while providing a better distribution of opinion.

In trying to capture any regional variation within a country, we asked 34 QoG and demographic based questions to the approximately 200 respondents per NUTS region. Regarding the QoG questions, the respondents were asked about three general public services in their regions – education, healthcare and law enforcement. Publically administered areas such as immigration, customs or national security were intentionally avoided because these are dealt with at the national or even supranational level. In focusing on these three services, we asked respondents to rate their public services with respect to three related concepts of QoG – the *quality*, *impartiality* and level of *corruption* of said services <sup>[31]</sup>. In addition we included two further questions in the index – one about the fairness of regional elections and the other about the strength and effectiveness of the media in the region to expose corruption.

#### Survey Questions Incorporated in the Regional QoG Index

##### Rule of Law-focused questions

- 'How would you rate the quality of the police force in your area?' (*low/high, 0-10*)
- 'The police force gives special advantages to certain people in my area.' (*agree/disagree, 0-10*)
- 'All citizens are treated equally by the police force in my area' (*agree, rather agree, rather disagree or disagree, 1-4*)
- 'Corruption is prevalent in the police force in my area' (*agree/disagree, 0-10*)

##### Government Effectiveness-focused questions

- 'How would you rate the quality of public education in your area?' (*low/high, 0-10*)
- 'How would you rate the quality of the public healthcare system in your area?' (*low/high, 0-10*)
- 'Certain people are given special advantages in the public education system in my area' (*agree/disagree, 0-10*)
- 'Certain people are given special advantages in the public healthcare system in my area.' (*agree/disagree, 0-10*)
- 'All citizens are treated equally in the public education system in my area.' (*agree, rather agree, rather disagree or disagree, 1-4*)
- 'All citizens are treated equally in the public healthcare system in my area.' (*agree, rather agree, rather disagree or disagree, 1-4*)

##### Voice & Accountability-focused questions

- 'In your opinion, if corruption by a public employee or politician were to occur in your area, how likely is it that such corruption would be exposed by the local mass media?' (*unlikely/likely, 0-10*)
- 'Please respond to the following: Elections in my area are honest and clean from corruption.' (*agree/disagree, 0-10*)

##### Corruption-focused questions

- 'Corruption is prevalent in my area's local public school system.' (*agree/disagree, 0-10*)
- 'Corruption is prevalent in the public healthcare system in my area.' (*agree/disagree, 0-10*)
- 'In the past 12 months have you or anyone living in your household paid a bribe in any form to: health or medical services?' (*yes/no*)
- 'In your opinion, how often do you think other citizens in your area use bribery to obtain public services?' (*never/very often, 0-10*)

31. These are related concepts that have come up frequently in the comparative QoG literature, thus we try to include citizens' opinion regarding all three. For more, see Holmberg, Rothstein and Nasturosi (2009).

## 11 Description of variables & summary statistics

Country	Country Abbreviation	Country	Country Abbreviation
Belgium	BE	Luxembourg	LU
Bulgaria	BG	Hungary	HU
Czech Republic	CZ	Malta	MT
Denmark	DK	Netherlands	NL
Germany	DE	Austria	AT
Estonia	EE	Poland	PL
Ireland	IE	Portugal	PT
Greece	EL	Romania	RO
Spain	ES	Slovenia	SI
France	FR	Slovakia	SK
Italy	IT	Finland	FI
Cyprus	CY	Sweden	SE
Latvia	LV	United Kingdom	UK
Lithuania	LT		

**HDI:** Human Development Index is taken from (Bubbico et al., 2011). It is a composite indicator used to rank countries by their level of 'human development' and based on four indicators: healthy life expectancy, net adjusted household income, share of population with high or low education attainment aged 25-64. Data for NUTS 2 regions and is averaged from 2006-2008.

**Social trust:** Taken from Tabellini (2010). Social trust (TRUST) is measured as the percentage of respondents who answer that 'Most people can be trusted' (the other two answers being 'Can't be too careful' and 'Don't know') to the question 'Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?', from the World Value Surveys (Inglehart 2000). Tabellini takes the data from two waves of the survey – 1990-91 and 1995-97 – and assigns each respondent to their corresponding region. The mean number of respondents per region in the sample is 320. The TRUST variable ranges from 14.18 to 64.14, with higher values equating to higher levels of social trust.

**Population:** Total population of a country or region (logged). From Eurostat.

**Area size:** Total area is in square kilometers (logged). From Eurostat.

Measures of 'political decentralisation' (from Hooghe et al., 2010) include:

1. **'policy scope'**, which gauges the extent to which regions in a country have authority over policies such as culture-education, welfare, police, economic policy and control over local governments;
2. **'representation'**, which indicates the extent to which regional assemblies and executives obtain their authority (through election, appointment, there is no regional executive/parliament, etc.);
3. **'law making'**, which shows the extent of regional law-making influence at the national level, from no representation to the ability for a majority of regions to veto national legislation; and
4. **'constitutional reform'**, which measures the extent to which a majority of regions (independent of the national parliament) can change the national constitution. All variables are coded so that higher values mean higher levels of decentralisation.

### Summary Statistics

	Obs.	mean	St. dev	min	max
EQI	199	0.001	0.999	-2.88	1.75
HDI	125	49.9	20.49	0	90.3
Social Trust	73	35.52	9.28	17.78	64.14
Income Inequality	150	0.045	0.031	0.009	0.228
Population (log)	174	7.51	0.96	4.19	9.79
Area Size (km <sup>2</sup> ) (log)	174	9.44	1.32	2.56	12.65
Policy Scope	27	1.65	1.56	0	5
Representation	27	3.12	2.49	0	8
Law Making	27	0.29	0.64	0	2
Constitutional reform	27	0.42	0.96	0	0

## EQI Data and NUTS code in Rank Order for all Regions and Countries

Rank	NUTS code	Name	EQI	Lower margin of error threshold	Upper margin of error threshold	EQI100
1	DK04	DK_Midtjylland	1.750	1.476	2.024	100
2	NL1	NL_Northern Netherlands	1.639	1.233	2.046	97.61
3	DK02	DK_Sjaelland	1.510	1.144	1.875	94.82
4	DK	Denmark	1.505			94.71
5	DK03	DK_Syddanmark	1.501	1.247	1.755	94.63
6	SE2	SE_South Sweden	1.464	1.102	1.825	93.81
7	SE	Sweden	1.397			92.38
8	FI	Finland	1.387			92.17
9	SE1	SE_East Sweden	1.386	1.065	1.707	92.13
10	DK05	DK_Nordjylland	1.378	1.044	1.711	91.96
11	DK01	DK_Hovedstaden	1.367	1.01	1.723	91.72
12	DEG	DE_Thuringia	1.364	0.98	1.749	91.67
13	AT11	AT_Burgenland	1.316	1.127	1.504	90.62
14	DEF	DE_Schleswig-Holstein	1.301	0.943	1.658	90.3
15	NL3	NL_Western Netherlands	1.285	0.947	1.623	89.96
16	SE3	SE_North Sweden	1.269	0.973	1.565	89.61
17	UKM	UK_Scotland	1.269	0.881	1.656	89.60
18	NL	Netherlands	1.259			89.39
19	UKF	UK_East Midlands. England	1.236	0.904	1.568	88.91
20	AT21	AT_Carinthia	1.200	0.934	1.466	88.12
21	NL2	NL_Eastern Netherlands	1.190	0.824	1.556	87.90
22	AT33	AT_Tyrol	1.179	0.918	1.439	87.66
23	DED	DE_Saxony	1.122	0.829	1.415	86.44
24	AT34	AT_Vorarlberg	1.109	0.854	1.364	86.16
25	LU	Luxembourg	1.108			86.13
26	NL4	NL_Southern Netherlands	1.087	0.773	1.402	85.69
27	UKK	UK_South West. England	1.081	0.725	1.437	85.55
28	DEC	DE_Saarland	1.078	0.745	1.41	85.48
29	UKJ	UK_South East. England	1.072	0.721	1.423	85.36
30	AT13	AT_Vienna	1.054	0.807	1.301	84.97
31	AT12	AT_Lower Austria	1.032	0.816	1.247	84.49
32	AT	Austria	1.03			84.45
33	UKD	UK_North West. England	1.03	0.651	1.409	84.44
34	FR52	FR_Bretagne	1.023	0.677	1.37	84.30
35	DE1	DE_Baden-Württemberg	1.006	0.694	1.319	83.94
36	DE3	DE_Berlin	1.006	0.638	1.375	83.94
37	DE4	DE_Brandenburg	1.004	0.619	1.389	83.89
38	DE6	DE_Hamburg	0.987	0.689	1.284	83.51
39	DE5	DE_Bremen	0.978	0.67	1.287	83.33
40	DE8	DE_Mecklenburg-Vorpommern	0.975	0.681	1.268	83.25
41	DE9	DE_Lower Saxony	0.962	0.661	1.264	82.99
42	AT31	AT_Upper Austria	0.946	0.772	1.12	82.63
43	UKN	UK_Northern Ireland	0.922	0.498	1.347	82.12
44	AT32	AT_Salzburg	0.918	0.702	1.133	82.03
45	UKC	UK_North East. England	0.908	0.549	1.267	81.81
46	UK	United Kingdom	0.906			81.76
47	IE	Ireland	0.905			81.75
48	BE2	BE_Flemish Region	0.896	0.419	1.373	81.55
49	DE	Germany	0.892			81.46
50	DEE	DE_Saxony-Anhalt	0.890	0.54	1.241	81.43
51	AT22	AT_Styria	0.886	0.679	1.094	81.35

Rank	NUTS code	Name	EQI	Lower margin of error threshold	Upper margin of error threshold	EQI100
52	DEB	DE_Rhineland-Palatinate	0.851	0.61	1.092	80.58
53	FR61	FR_Aquitaine	0.798	0.485	1.111	79.44
54	UKL	UK_Wales	0.794	0.437	1.152	79.35
55	UKG	UK_West Midlands. England	0.787	0.541	1.033	79.21
56	FR71	FR_Rhine-Alpes	0.778	0.484	1.072	79.00
57	ITD1	IT_Trentino-Alto Adige (Bolzano)	0.766	0.53	1.002	78.74
58	UKH	UK_East of England	0.751	0.453	1.049	78.42
59	FR53	FR_Poitou-Charentes	0.746	0.394	1.099	78.32
60	DEA	DE_North Rhine-Westphalia	0.738	0.386	1.09	78.14
61	DE2	DE_Bavaria	0.736	0.396	1.075	78.09
62	PT18	PT_Alentejo	0.719	0.332	1.107	77.74
63	FR63	FR_Limousin	0.705	0.434	0.975	77.42
64	ES21	ES_Basque Community	0.668	0.263	1.073	76.64
65	DE7	DE_Hessen	0.653	0.378	0.929	76.31
66	UKE	UK_Yorkshire and the Humber	0.639	0.318	0.959	76.00
67	ITC2	IT_Valle d'Aosta	0.629	0.378	0.88	75.78
68	FR24	FR_Centre	0.590	0.285	0.896	74.95
69	ES11	ES_Galicia	0.577	0.043	1.111	74.66
70	FR72	FR_Auvergne	0.539	0.187	0.892	73.85
71	FR10	FR_Île-de-France	0.523	0.143	0.904	73.50
72	FR30	FR_Nord-Pas-de-Calais	0.520	0.135	0.906	73.44
73	FR	France	0.519			73.40
74	ES12	ES_Asturias	0.514	0.021	1.007	73.30
75	FR81	FR_Languedoc-Roussillon	0.513	0.232	0.793	73.28
76	PT20	PT_Açores	0.491	0.184	0.799	72.82
77	FR25	FR_Basse-Normandie	0.478	0.174	0.782	72.53
78	FR43	FR_Franche-Comté	0.47	0.096	0.845	72.36
79	ITD2	IT_Trentino-Alto Adige(Trento)	0.47	0.193	0.747	72.35
80	UKI	UK_London. England	0.469	0.212	0.727	72.34
81	FR26	FR_Bourgogne	0.461	0.203	0.719	72.15
82	BE	Belgium	0.458			72.10
83	FR42	FR_Alsace	0.451	0.106	0.795	71.93
84	FR22	FR_Picardie	0.447	0.107	0.786	71.85
85	ES43	ES_Extremadura	0.417	0.011	0.823	71.21
86	FR62	FR_Midi-Pyrénées	0.37	0.088	0.651	70.18
87	FR51	FR_Pays de la Loire	0.332	-0.043	0.706	69.36
88	ES24	ES_Aragon	0.321	-0.106	0.747	69.13
89	MT	Malta	0.286			68.40
90	ES62	ES_Region of Murcia	0.284	-0.165	0.733	68.34
91	ES70	ES_Canarias	0.272	-0.204	0.749	68.08
92	PT30	PT_Madeira	0.258	-0.152	0.667	67.76
93	ES23	ES_La Rioja	0.243	-0.282	0.768	67.45
94	FR41	FR_Lorraine	0.218	-0.116	0.552	66.90
95	ES42	ES_Castile-La Mancha	0.208	-0.209	0.624	66.69
96	FR82	FR_Provence-Alpes-Cote d'Azur	0.189	-0.085	0.463	66.28
97	PT15	PT_Algarve	0.186	-0.324	0.695	66.21
98	ES22	ES_Navarre	0.172	-0.175	0.519	65.92
99	FR21	FR_Champagne-Ardenne	0.159	-0.188	0.505	65.63
100	ES52	ES_Valencian Community	0.153	-0.27	0.576	65.50
101	ES13	ES_Cantabria	0.142	-0.321	0.606	65.28

Rank	NUTS code	Name	EQI	Lower margin of error threshold	Upper margin of error threshold	EQI100
102	ITD4	IT_Friuli-Venezia Giulia	0.128	-0.084	0.34	64.96
103	PT17	PT_Lisboa	0.118	-0.277	0.513	64.74
104	ES53	ES_Balearic Islands	0.108	-0.33	0.545	64.53
105	FR23	FR_Haute-Normandie	0.097	-0.216	0.409	64.29
106	FR83	FR_Corse	0.096	-0.259	0.452	64.28
107	ES	Spain	0.005			62.30
108	PT	Portugal	-0.027			61.61
109	CY	Cyprus	-0.04			61.33
110	CZ03	CZ_Jihozápad (Southwest)	-0.052	-0.404	0.301	61.09
111	PT16	PT_Centro	-0.053	-0.412	0.305	61.05
112	ES41	ES_Castile-Leon	-0.057	-0.529	0.415	60.97
113	BE3	BE_Walloon Region	-0.061	-0.413	0.291	60.89
114	EE	Estonia	-0.097			60.09
115	ES30	ES_Madrid	-0.1	-0.585	0.385	60.03
116	CZ05	CZ_Severovichod (Northeast)	-0.153	-0.469	0.163	58.90
117	SI	Slovenia	-0.183			58.25
118	ITC1	IT_Piemonte	-0.191	-0.441	0.058	58.07
119	FR94	FR_Réunion	-0.195	-0.71	0.321	58.00
120	ES61	ES_Andalusia	-0.202	-0.639	0.236	57.84
121	ITE2	IT_Umbria	-0.264	-0.571	0.043	56.50
122	CZ02	CZ_Central Bohemian Region	-0.268	-0.687	0.151	56.41
123	GR3	GR_Attica	-0.292	-0.843	0.259	55.90
124	HU2	HU_Transdanubia	-0.338	-0.576	-0.1	54.90
125	PT11	PT_Norte	-0.348	-0.71	0.013	54.68
126	CZ08	CZ_Moravian-Silesian Region	-0.406	-0.819	0.006	53.42
127	ITD5	IT_Emilía-Romagna	-0.417	-0.608	-0.226	53.20
128	BE1	BE_Brussels-Capital Region	-0.425	-0.835	-0.016	53.01
129	HU3	HU_Great Plain and North	-0.458	-0.69	-0.226	52.30
130	ES51	ES_Catalonia	-0.469	-0.915	-0.024	52.07
131	CZ	Czech Rep.	-0.471			52.03
132	FR92	FR_Martinique	-0.477	-0.895	-0.059	51.89
133	CZ06	CZ_Jihovichod (Southeast)	-0.486	-0.824	-0.148	51.69
134	ITE3	IT_Marche	-0.536	-0.838	-0.235	50.61
135	ITD3	IT_Veneto	-0.538	-0.801	-0.275	50.57
136	SK01	SK_Bratislava Region	-0.561	-0.86	-0.263	50.07
137	CZ07	CZ_Staední Morava (Central Moravia)	-0.581	-0.964	-0.197	49.66
138	ITC3	IT_Liguria	-0.583	-0.91	-0.256	49.61
139	HU	Hungary	-0.586			49.54
140	FR93	FR_Guyane	-0.589	-0.964	-0.214	49.48
141	PL52	PL_Opolskie	-0.61	-0.838	-0.381	49.03
142	ITE1	IT_Toscana	-0.627	-0.876	-0.378	48.65
143	FR91	FR_Guadeloupe	-0.628	-1.081	-0.174	48.64
144	PL62	PL_Warmínsko-Mazurskie	-0.668	-0.888	-0.447	47.78
145	ITC4	IT_Lombardia	-0.715	-0.936	-0.494	46.76
146	SK03	SK_Central Slovakia	-0.757	-1.002	-0.512	45.84
147	SK04	SK_Eastern Slovakia	-0.76	-1.014	-0.507	45.77
148	SK	Slovakia	-0.77			45.56
149	PL33	PL_Swietokrzyskie	-0.805	-1.04	-0.57	44.81
150	LV	Latvia	-0.844			43.96



Rank	NUTS code	Name	EQI	Lower margin of error threshold	Upper margin of error threshold	EQI100
151	PL11	PL_Lodzkie	-0.847	-1.09	-0.604	43.91
152	PL32	PL_Podkarpackie	-0.853	-1.127	-0.579	43.77
153	SK02	SK_Western Slovakia	-0.856	-1.159	-0.552	43.72
154	PL63	PL_Pomorskie	-0.858	-1.062	-0.655	43.66
155	PL42	PL_Zachodniopomorskie	-0.868	-1.079	-0.657	43.45
156	PL21	PL_Malopolskie	-0.876	-1.118	-0.634	43.28
157	BG33	BG_Severoiztochen	-0.892	-1.154	-0.631	42.92
158	GR	Greece	-0.903			42.69
159	PL31	PL_Lubelskie	-0.905	-1.132	-0.679	42.64
160	LT	Lithuania	-0.922			42.29
161	PL43	PL_Lubuskie	-0.931	-1.196	-0.666	42.09
162	PL	Poland	-0.939			41.91
163	GR4	GR_Nisia Aigaiou. Kriti	-0.948	-1.431	-0.465	41.72
164	PL61	PL_Kujawsko-Pomorskie	-0.951	-1.121	-0.781	41.66
165	CZ01	CZ_Prague	-0.952	-1.388	-0.515	41.64
166	CZ04	CZ_Severozápad (Northwest)	-0.958	-1.443	-0.473	41.51
167	PL34	PL_Podlaskie	-0.963	-1.169	-0.758	41.39
168	ITG2	IT_Sardegna	-0.966	-1.26	-0.673	41.33
169	ITF1	IT_Abruzzo	-0.988	-1.336	-0.639	40.86
170	PL12	PL_Mazowieckie	-0.998	-1.211	-0.784	40.65
171	PL41	PL_Wielkopolskie	-1.001	-1.204	-0.797	40.59
172	RO11	RO_North-West	-1.037	-1.497	-0.578	39.80
173	HU1	HU_Central Hungary	-1.042	-1.431	-0.652	39.69
174	IT	Italy	-1.064			39.21
175	BG42	BG_Yuzhen tsentralen	-1.066	-1.381	-0.752	39.17
176	GR2	GR_Kentriki Ellada	-1.106	-1.676	-0.536	38.31
177	PL22	PL_Slaskie	-1.118	-1.306	-0.93	38.06
178	PL51	PL_Dolnoslaskie	-1.119	-1.368	-0.869	38.03
179	ITF2	IT_Molise	-1.318	-1.681	-0.955	33.73
180	ITF5	IT_Basilicata	-1.341	-1.658	-1.024	33.24
181	ITE4	IT_Lazio	-1.349	-1.616	-1.082	33.06
182	RO41	RO_South-West Oltenia	-1.383	-1.945	-0.82	32.33
183	GR1	GR_Voreia Ellada	-1.428	-1.905	-0.952	31.34
184	RO12	RO_Centru	-1.487	-1.945	-1.028	30.09
185	RO31	RO_South-Muntenia	-1.681	-2.176	-1.186	25.88
186	BG	Bulgaria	-1.715			25.15
187	RO	Romania	-1.786			23.62
188	BG41	BG_Yugozapaden	-1.814	-2.18	-1.448	23.01
189	ITF4	IT_Puglia	-1.821	-2.154	-1.487	22.87
190	ITG1	IT_Sicilia	-1.914	-2.253	-1.575	20.85
191	RO21	RO_North-East	-1.922	-2.483	-1.362	20.67
192	RO22	RO_South-East	-1.944	-2.542	-1.345	20.22
193	BG32	BG_Severen tsentralen	-2.047	-2.586	-1.507	17.99
194	BG34	BG_Yugoiztochen	-2.127	-2.515	-1.739	16.25
195	RO42	RO_West	-2.161	-2.713	-1.608	15.53
196	ITF6	IT_Calabria	-2.278	-2.743	-1.813	13.00
197	ITF3	IT_Campania	-2.408	-2.716	-2.1	10.18
198	BG31	BG_Severozapaden	-2.556	-2.983	-2.128	6.99
199	RO32	RO_Bucharest-Ilfov	-2.879	-3.585	-2.174	0.00





