Does regional growth affect public attitudes towards the European Union?

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Abstract
This study analyses the impact of growth (in absolute and relative terms) of the European regions on the attitudes towards the European Union (EU) of their citizens. It does so in a period of socioeconomic turbulence caused by the financial and sovereign debt crises, the accession to the Union of countries of Central and Eastern Europe and the spread of anti-European rhetoric. In a first stage, regional indicators of support for and trust in the EU are calculated from the microdata of several Eurobarometer surveys. They confirm interesting changes in the regional distribution of citizens’ attitudes during the period analysed, which vary between the two indicators. In a second stage, these indicators are merged with data on regional growth to assess the impact of the latter on citizens’ perception of the EU. The results suggest that support for and trust in the EU are more widespread in regions with a dynamic economy. This positive impact of growth remains significant and sizeable after controlling for several economic characteristics of the region. However, the impact of regional growth on attitudes towards the EU is not the same in all regions. The effect of support and trust is more intense in regions with per capita income above the EU average.

JEL Classification 018 · R11 · R58

1 Introduction

The extent to which citizens of the member states of the European Union (EU) identify with the European integration process and whether they support the EU and its institutions have been the object of social interest and academic study since the
creation of the European Economic Community by the Treaty of Rome in 1957. However, it is also true that interest in the attitudes of European citizens towards the EU has been renewed as a result of recent threats to the European integration process, namely the spread of Euroscepticism and the rise of populism and neo-nationalism in several member states. Anti-European rhetoric have included messages that emphasize the pernicious effect of European institutions and regulations on the performance of national and regional economies. In this scenario, the economic context could have had a significant influence on the citizens’ attitudes towards the EU. Specifically, people living in areas with a dynamic economy could have been less affected by messages that blame the EU for poor economic prospects. Conversely, the discontent of people in declining places, hit with greater intensity by the Great Recession and with little resilience, could have led them to be less favourable to the process of European integration.

Against this background, this study hypothesizes that sustained economic growth (in absolute and relative terms) in the region influence the attitudes of its citizens towards the EU. This hypothesis is tested in an interesting period, 2007–2016, characterized by the socioeconomic turbulences caused by the financial and sovereign debt crises, the accession to the Union of Central and Eastern European countries, with levels of income per capita well below the EU average, and the above-mentioned rise of anti-European rhetoric. The study contributes to the literature about the effect of the economic situation on public attitudes towards the EU by placing in the foreground the subnational heterogeneity in attitudes and emphasizing the role of growth in the medium–long term. In turn, it adds to the recent empirical literature on the Geography of Discontent by focusing on the impact of local growth on the citizens perception of the EU (instead of in the anti-EU vote). Furthermore, the study provides novel evidence on the hypothesis of a separate impact of regional growth on EU sentiment depending on the region’s initial economic situation.

The first challenge faced by the study is the calculation of aggregate indicators of public attitudes towards the EU for a set of regions in the 28 EU member states. Two traditional indicators are obtained by aggregating the micro-level data from different Eurobarometer surveys: one based on support for the process of integration, as a measure of the view of the current and future benefits of belonging to the EU, and another on trust in the EU, which aims to capture the people’s assessment of how the European project is managed. In a second stage, regional data on these indicators are merged with that of regional growth and economic convergence to test the hypothesis of the study.

The results suggest that growth in the region stimulates support for and trust in the EU. Such positive impact of growth remains significant and sizeable after controlling for several economic characteristics of the region. However, the impact of growth on attitudes towards the EU is not the same in all regions. The effect on support and trust is more intense in regions with levels of income per capita above the EU average. In fact, there does not seem to be a significant growth effect on trust in the EU for regions below the EU average income. The evidence also points to noteworthy differences in the impact of economic convergence on the two indicators. Whereas there are significant effects on support of converging/diverging to the EU economic standards, the estimates reject any significant effect in the case of trust in...
the EU. These results thus confirm the importance of considering different dimensions of public attitudes towards the EU.

The rest of the paper is organized as follows. The related literature on the determinants of public support for the EU and that on the factors behind the Geography of Discontent is briefly summarized in Sect. 2. The dataset and variables used to compute the regional indicators of public attitudes towards the EU are introduced in the third section, which also includes a descriptive analysis of regional disparities in support for and trust in the EU. Section 4 sketches the empirical strategy followed to assess the validity of the hypotheses of the study, whereas the results are discussed in Sect. 5. Finally, Sect. 6 concludes.

2 Related literature

This study draws on two strands of the literature. The first has provided arguments and evidence regarding the determinants of public support for European integration. In brief, it has argued that support for the EU and the citizens’ identification with the European project varies with their degree of cognitive mobilization and political awareness, social values and the strength of a national identity (e.g. Gabel 1998; Hooghe and Marks 2004, 2005). Likewise, this literature has suggested that in forming their opinion about the EU, people follow the cues of the national media and politicians and that, in turn, their attitudes towards the EU are influenced by trust in national institutions (e.g. Gabel 1998; Clements 2011). Besides, it has been argued that the citizens’ perception of the EU may also be affected by the economic returns of the European integration process. Economic utilitarian theory points out that those individuals who benefit most from integration tend to have a more positive view of the EU (Hooghe and Marks 2004, 2005; Verhaegen et al. 2014). This egotropic vision has a social equivalent (sociotropic), when the people attitudes towards the EU are influenced by the benefit that integration has for the economy of their country (Gabel and Palmer 1995).

While empirical studies have provided favourable evidence of the role of the individual’s economic situation, the evidence regarding the contribution of aggregate economic conditions is less robust. Among the most recent studies, Serricchio et al. (2013) find no significant effect of economic growth, unemployment and inflation rates on the degree of support for the EU immediately after the impact of the financial crisis. This result contrasts with those of Foster and Frieden (2017) when considering a longer period, between 2004 and 2015, and the effect on trust in the EU. They conclude that economic factors, especially unemployment, help to explain the decrease in trust observed throughout the period. To be clear, their results suggest that trust in the EU fell where unemployment increased, and that this was especially so in debtor countries. A similar conclusion was reached by Gómez (2015) in his analysis of the effect of various indicators of the country’s economic situation on support for the EU during the Great Recession. In this case, the country’s unemployment appears as the most important element of public support for the EU, while economic growth would not have had a relevant effect on the evolution of support for the EU since 2007. Finally, Dustmann et al. (2017) conclude that trust in European
institutions and support for the EU are not very sensitive to the country’s economic situation. It should be noted, in any case, that these studies have evaluated the effect of the country’s economic situation and, consequently, have not taken into account the marked territorial heterogeneity within them.

This study also connects with the recent literature on the Geography of Discontent, specifically regarding the arguments linking the rise and spread of populism in general and anti-EU sentiment in particular with the poor economic prospects of declining and lagging-behind territories (Algan et al. 2017; Los et al. 2017; Rodríguez-Pose 2018; McCann 2020). The Geography of Discontent would be associated with the large regional disparities in productivity, having a clear impact on institutional stability and governance. Rodríguez-Pose (2018) argues that the increase and extension of anti-system votes are ‘the response to long-term economic and industrial declines’ and that the reaction has been produced by ‘the places that don’t matter’ instead of ‘the people that don’t matter’. In other words, this literature has renewed the interest in the impact of inter-territorial inequality, this time in terms of its influence on the institutional system (McCann 2020). This is so even in Europe where, although spatial inequalities are moderate compared to other parts of the world, regional differences in growth and, as a result, in future prospects, may be contributing to generating political instability. In this sense, Dijkstra et al. (2020) point to the combination of job loss and decline in labour participation and per capita income in low-productivity regions as geographical elements of the spread of anti-EU sentiment.

Most of the empirical studies in this strand of the literature have considered the impact of economic factors in general and, in particular, of differences in income and their growth on electoral results. Several of them have analysed the case of the Brexit vote (e.g. Becker et al. 2017), concluding that regional differences in income and GDP per capita are relevant to explain the unequal geographical distribution of the results of the referendum. Similarly, other studies have provided evidence about the contribution of the sub-national economic context in explaining territorial differences in the recent increase in the vote for populist parties. As an example, Essletzbichler et al. (2018) show how the percentages of right-wing populist votes tend to be higher in regions of old industrialization, with high unemployment rates and more intensely affected by the Great Recession. In a pan-European setting, Dijkstra et al. (2020) test the hypothesis that the percentage of votes against European integration is closely related to local economic decline. Their empirical analysis merges sub-national electoral results in EU countries between 2013 and 2018 with indicators of population characteristics and different types of long-term territorial decline. Their results confirm the importance of pure geographic factors in explaining the anti-European vote and the significant impact of long-term economic and industrial decline.

Overall, the empirical studies of the first strand of the literature have considered the effect of the economy on public attitudes towards the EU, but they have done so considering the economic situation of the country, thus neglecting subnational heterogeneity, and without emphasizing the role of growth in the medium–long term. Conversely, those referring to the second strand have emphasized the role of regional growth, but they have done so by analysing their impact on the increase in
the populist and anti-EU vote. However, although anti-European attitudes and voting for anti-integration parties are undoubtedly related, the evidence shows that such a relationship is far from perfect (Dijkstra et al. 2020). As Lechler (2019) argues, measuring the degree of Euroscepticism based on citizens’ attitudes is more comparable across territories and better captures the distinctive nature of anti-EU sentiment. This is so given that in the case of elections, political parties campaign on various platforms. In fact, this study relates closely to that of Lechler (2019) who, using aggregated data for the NUTS 2 regions from Eurobarometer microdata, shows that the regions that have experienced declines in their employment are more likely to show Eurosceptic attitudes.

3 Regional indicators of public attitudes towards the EU

3.1 Data

The most popular data source for measuring public attitudes towards the EU in the literature is the Eurobarometer survey. The Eurobarometer is conducted since the mid-70s on behalf of the European Commission to monitor the public opinion in the EU and its member states, in particular with respect to the perception that citizens have about the EU integration process, its institutions and policies. The Standard Eurobarometer includes a series of ‘stable’ or ‘topical’ questions that allow tracking the evolution of public opinion on specific issues. In particular, a group of questions refers to attitudes towards European integration and perception of EU institutions.

As in Capello and Perucca (2018), Smętkowski and Dąbrowski (2019) and Lechler (2019), I combined samples of the Eurobarometer surveys of three consecutive years. In this way, the number of responses by region is expected to be large enough to keep the statistical margins within reasonable limits.¹

The period analysed in this study extends from 2007 to 2016. Although it is possible to calculate indicators of support and trust from the Eurobarometer surveys prior to 2007, I did not make use of this earlier information for two reasons: first, because the questions of interest are available only for the EU member states in the year in which the survey was carried out. To be clear, information for the EU13 countries (those who joined the EU in the last enlargements) was only included starting from the year in which they joined the EU. Second, it is because changes over time in the definition of the territorial breakdown (NUTS system) make the comparison of regional aggregate figures from the Eurobarometer survey over longer periods of time rather difficult. On the other hand, the most recent Eurobarometer surveys (from 2017 onwards) were not used in this study because they were not available

¹ The average number of observations used to compute the indicators in the set of regions used for the analysis is 442.7, whereas in the median region there are 300 observations. In less than 10% of the regions, the number of responses is lower than 100, whereas in the top 25% there are more than 500 responses. In any case, it should be mentioned that some robustness checks were performed to assess the influence of the inclusion of regions with fewer responses. In general, the main conclusions derived from the results remained unaltered when these regions were excluded from the analysis.
when the above-mentioned databases were prepared. Considering these circum-
stances, I defined two subperiods, which include three years each: 2007–2009 and
2014–2016. The first is the period just before the sovereign debt crisis hit a number
of European countries and, therefore, before bailout programmes and severe auster-
ity measures were put in place. The second corresponds to the initial phase of recov-
ery, characterized by moderate growth.

It should be noted that for calculating the regional indicators of support and trust
I assumed that the degree of support for and trust in the EU in a region does not
change dramatically from one year to the next. On the one hand, this allowed me to
combine the responses in the surveys of three consecutive years. On the other hand,
I led me to consider a window of five years between subperiods in order to maxi-
mize differences over time in citizens’ perceptions.

The micro-data files of Standard Eurobarometers include the codes of the regions
where respondents live. This allowed to calculate the indicators of support and trust
for a set of EU regions for the two periods mentioned above. However, changes in
the definition of the NUTS system introduced over the analysed period resulted in
a decrease in the territorial detail used for some countries (e.g. some regions had to
be grouped). In addition, I had to gather responses in regions with a low number of
individuals in the sample after adding the responses in the Eurobarometer surveys
of three consecutive years. The criteria for grouping regions in this case was geo-
graphical proximity. As a result, the final set of territorial units is composed by 180
regions, 124 from the EU15 and 56 from the EU13 (see Table 3 of “Appendix”).

The Eurobarometer surveys used to compute the indicators of interest for the set
of EU regions in the two periods were selected based on the inclusion of the ques-
tions proxying for support and trust (since not all questions are included in both the
spring and autumn editions). From each of these Eurobarometer surveys, individual
responses to two specific questions were used to compute aggregate indicators for
the regions of the EU. The degree of support for the EU was computed as the share
of people in the region that responded: ‘A good thing’ to the following question:

‘Generally speaking, do you think that (OUR COUNTRY’S) membership of the
European Union is …? A good thing / A bad thing / Neither a good thing nor a bad
thing / DK’.

This indicator of support for the EU is the one most frequently used in the extant
literature, (e.g. Serricchio et al. 2013; Verhaegen et al. 2014). It can be considered as
a proxy of the perception of the current and future benefits of belonging to the EU.

The other indicator aims to proxy citizens’ trust in the EU. In this case, the pro-
portion of the population of the region that tends to trust in the EU was computed
using the response ‘Tend to trust’ to the following question: ‘I would like to ask you
a question about how much trust in certain institutions. For each of the following
institutions, please tell me if you tend to trust it or tend not to trust it?—The Eu-
ropean Union’.

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2 See Table 1 of the Online Supplemental Material for information about the number of individual
observations used to compute the regional indicators for each subperiod.

3 See the Online Supplemental Material for details of the specific Eurobarometers used in the analysis.
A similar indicator of trust in the EU has been used in, for example, the study of Harterveld et al. (2013). It can be thought to capture the people’s assessment of how the European project is managed.

It should be noted that, in both cases, the corresponding weights available in the micro-data files of the Eurobarometer surveys were used to estimate the proportions of the corresponding populations.

3.2 Descriptive analysis

It is well known that there are sizeable and persistent disparities in several socioeconomic dimensions among the regions of the EU (Fratesi and Perucca 2018; Iammarino et al. 2019). According to the sociotropic utilitarian argument, such disparities in the economic context are expected to lead to differences between regions in the way in which their populations perceive the EU. Moreover, regional asymmetries in the incidence of the crisis, and in responses to the measures promoted by the European institutions, could have caused sudden and sizeable changes in the perceptions of citizens in different regions (Gómez 2015).

Due to the large number of regions, the descriptive analysis is based on the estimation of the shape of the distribution of the regional indicators of support and trust. To be clear, the density function of each indicator is estimated nonparametrically using the kernel method and the corresponding values for the set of regions. This is done separately for each of the two subperiods considered in the analysis. The comparison of the estimated densities for each subperiod allows to conclude on the evolution of regional disparities in the analysed period.

The densities depicted in the left part of Fig. 1 confirm the existence of large regional disparities in the proportion of the region’s population that supports the EU. There is a large mass of probability in the 2007–2009 subperiod for low values of the indicator (below 40%) as well as for relatively large values (between 60 and 80%). In other words, the regional distribution of this indicator was rather dispersed at the end of the past decade. The shape of the distribution changed somewhat in the 2014–2016 subperiod. However, the null hypothesis of equality of the distributions for the two subperiods cannot be rejected (Kolmogorov–Smirnov test), suggesting that there was stability over the period analysed in the regional distribution of support for the EU.

The same analysis for the trust indicator reveals some important differences. In this case, the estimated densities are shown at the right of Fig. 1. It is clearly observed that changes in the degree of trust over the analysed period are more striking than those observed in the case of support for the EU. To be clear, there is a dramatic shift of the distribution to the left, meaning that there was a generalized substantial decrease in trust in the EU, probably fuelled by the impact of the crisis.

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4 The simple descriptive statistics of the indicators, distinguishing by period, are reported in Table 4 of Appendix.
This is confirmed by the Kolmogorov–Smirnov test, which clearly rejects the null of equality of the regional distributions of trust in the two subperiods. The test statistic and corresponding p-values—in parenthesis—of the (combined) Kolmogorov–Smirnov test are 0.068 (0.808) in the case of support for the EU and 0.483 (0.000) in the case of trust in the EU. The complete set of results is available upon request.

This evidence is complemented with that derived from the choropleth maps in Fig. 2. They confirm substantial heterogeneity in the geographical distribution of the two indicators, which goes beyond that corresponding to differences between countries. In fact, regional disparities in support for and trust in the EU are far from negligible within most countries.

Overall, the descriptive evidence confirms that attitudes towards the EU vary widely across EU regions and suggests that regional trust in the EU could have been much more affected by the economic turbulences in the analysed period than support for the European project. Therefore, it seems sensible to assess the impact of regional growth on public attitudes towards the EU using both indicators.

**Fig. 1** Distribution of regional attitudes towards the EU
Does regional growth affect public attitudes towards the EU?

4 Empirical strategy

This section outlines the empirical model designed to test the hypotheses of the study and introduces the indicators used to proxy regional growth, as well as the variables that control regional heterogeneity in attitudes towards the EU.

The hypothesis that individuals living in regions with a more dynamic economy tend to have a more positive perception of the EU is tested using the following specification:

\[
\text{Attitudes}_{EU_{it}} = \alpha_i + \delta_t + \beta \cdot \text{growth}_{it-1} + \gamma \cdot \text{belowEU}_{it-1} \cdot \text{growth}_{it-1} + \tau \cdot \text{belowEU}_{it-1} \cdot Z_{it-1} \cdot \rho + \varepsilon_{it}
\]  

where Attitudes_{EU} is any of the two regional indicators used in the study, i.e. support for the EU and trust in the EU, and growth denotes the indicator of economic growth experienced by the region in a period immediately before the measurement of public attitudes. The subscripts \(i\) and \(t\) denote regions and periods, respectively. The specification includes period fixed effects (\(\delta_t\)) to account for shocks that are common to all regions and region fixed effects (\(\alpha_i\)) to account for unobservable time-invariant regional factors that can affect in a way or another attitudes towards

Note: Intervals are based on the quintiles of the variables in 2007-09 and are kept fixed in the 2014-16 year.

Fig. 2 Distribution of public attitudes in the EU
the EU of the region’s population. As an alternative specification, country instead of region fixed effects are considered, since some sources of EU sentiment can be driven by country-specific factors. Meanwhile, Z includes a set of controls of the socioeconomic situation in the region that are likely to determine the degree of support for and trust in the EU, while \( \varepsilon \) is a well-behaved error term that absorbs unexpected shocks for regions and periods.

The empirical model also includes belowEU—a dummy variable that equals one when per capita GDP in the region is below the average level in the EU and zero otherwise—and its interaction with regional growth. In this way the specification allows testing the hypothesis that the effect of regional growth on attitudes varies between regions with per capita income below and above the EU average. To be clear, I hypothesize that sustained growth over the last years would have stimulated a positive perception of the EU with higher intensity in regions with income levels below the average. Therefore, \( \beta \) captures the change in the percentage of the region’s population that support the EU, or trust in the EU, induced by a unitary change in the indicator of growth for the most developed EU regions, while the effect for the less developed is given by \( \beta + \gamma \).

Growth of per capita GDP over the past 5 years is used as the indicator of regional economic growth. To be clear, it is computed as the average annual growth rate of per capita GDP in PPS in the five years before the beginning of the two sub-periods in which the attitudes’ indicators are measured. This is an indicator of absolute growth that aims to capture the direct effect of a positive economic evolution in the region on the perception of the EU of its population. As in Lechler (2019), the 5-year horizon aims to capture not only short-time changes in the regional economy but persistent variations that people have noticed and can still remember. In addition to this measure of absolute growth in the region, results are also obtained for the 5-year growth in the deviation of per capita GDP in the region and that in the EU as a whole. This is a relative indicator of regional growth that aims to capture the fact that people’s perception of their prosperity may depend not only of the economic situation of the region where they live, but also on their awareness of the overall economic situation in the EU (McCann 2020). I use the results from this indicator to assess the hypothesis that relative regional growth matters when it comes to the formation of the citizens’ perception of the EU.

In a further stage, the specification is slightly modified to account for a more subtle impact of regional growth on public attitudes. Sustained growth in regions below the EU economic standards can be more effective in shaping a positive opinion of their citizens if it contributes to narrowing the gap with the more developed areas of the Union. Conversely, as argued in the previous section, people living in

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6 In their cross-section analysis of the drivers of anti-EU voting, Dijkstra et al. (2020) control for country fixed effects because they argue that European citizens cast their votes in national elections mostly in response to domestic issues. Despite this effect may be not so clear in the case of public attitudes, I also provide results when controlling for country unobserved effects. It should be kept in mind that in that case the estimates exploit only regional variation within each country. I thank an anonymous reviewer for this suggestion.

7 The threshold is specific to each of the subperiods under analysis.
regions that were among the prosperous in the past but have seen the decline of their economies may blame globalization in general and EU integration in particular for their fortune. In other words, convergence to the EU average from above may induce a negative perception of the EU. The following specification is used to assess this hypothesis:

\[
\text{Attitudes}_{EU,t} = \alpha_i + \delta_t + \sum_{k=2}^{4} \beta_k \cdot D_{g,k,t-1} + Z_{it-1} \cdot \rho + \epsilon_{it}
\]  

(2)

where \(D_{g,k}\) is a set of dummy variables defined based on growth in the region over the five-year period relative to growth in the entire EU and its initial gap in GDP per capita relative to the EU average. Four categories are defined: (i) convergence from above, when growth in the region was lower than in the EU as a whole and its GDP per capita was above the EU average; (ii) convergence from below, when the region grew faster than the EU and its GDP per capita was below the average; (iii) divergence from below, that is the case of regions that grew less and had lower initial GDP per capita than the EU; and (iv) divergence from above, which is the category of the most developed regions that grew faster than the average (omitted category). The significance of the \(\beta_k\) coefficients will confirm that the effect of regional (relative) growth on public attitudes towards the EU depends on the initial economic situation of the region.

As has been noticed, the specifications in (1) and (2) include a set of regional variables (\(Z\)) with the aim of controlling for differences across regions and over time in socioeconomic characteristics that can affect attitudes towards the EU in one way or another and, simultaneously influence the pace of regional growth. They are the (log) level of per capita GDP, the percentage of population with tertiary education, the employment rate, the (log) population density and the proportion of the population aged 65 and over. I also included the (log) total Structural Fund payments per capita in the region to account for the effect of the intensity of the EU Cohesion Policy in the region (Verhaegen et al. 2014; López-Bazo and Royuela 2019), and an index of quality of government, to take into account regional differences in the quality of local institutions (Charron et al. 2015).  

The data source for both regional growth indicators and most control variables is the PERCEIVE regional database (Charron 2017). The codes of the regions included in this database were used to merge this data with the regional indicators of support for and trust in the EU. The exceptions are the indicators of institutional quality and population aged 65 years and over. In the first case the source is the QoG EU

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8 As stressed by an anonymous reviewer, it should be acknowledged that the period under analysis includes events that could have destabilized politics in Europe, such as the Syrian refugee crisis of 2015–2016. However, they will confound the estimate of the effect of regional growth on attitudes towards the EU only if the effect of these shocks was asymmetrically distributed in the EU regions and if they were, in a way or another, related to sustained growth in the past. If this were the case, I assume that the effect of these events is captured by the observed and unobserved region controls.
Regional Database of The Quality of Government Institute, whereas data for the second come from the Eurostat regional dataset. It should be noted that the growth indicator and control variables are measured in the year just before the beginning of the periods used to calculate the regional indicators of support and trust. In this way, the risk of reverse causality of the regressors in the empirical model is minimized. The descriptive statistics of the indicators of public attitudes towards the EU, the measures of regional growth and the control variables are reported in Table 4 of Appendix. The corresponding correlation matrix is reported in Table 2 of the Online Supplemental Material.

5 Results

This section discusses the results of the estimation of the effect of regional economic growth on people’s attitudes towards the EU in the European regions. The results of the estimation of the specifications for the regional indicator of support for the EU are summarized in Table 1. For each indicator of regional growth, the table includes the results from a benchmark specification that accounts only for period fixed effects, then those obtained when a separate response of regions above and below the EU average is allowed, and the regional controls and fixed effects are added and, finally, the ones when using country instead of region fixed effects. Columns (i) to (iii) correspond to the estimates using the 5-year growth of per capita GDP as the variable proxying for regional growth in absolute terms. It is observed that there is a significant positive correlation between the growth in the region and the extent of regional support for the EU. The positive effect of growth is confirmed by the results of the estimation of the specification that controls for observed and unobserved regional heterogeneity, reported in column (ii). They also point to a higher effect in regions whose income per capita is above the EU average. To be precise, an increase of one percentage point in the average annual growth rate over a period of five years raises support for the EU by 2.2 percentage points in the most developed EU regions, but only by 1.07 in the least developed. As shown in column (iii), despite country factors capture a large portion of the variability in support for the EU, similar growth effects are estimated when exploiting regional variation within each country.

By and large, the evidence when using the second indicator of growth is similar to that reported above. In this case, I consider relative (with respect to the EU)

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9 Data for the regional European Quality of Government Index is available for 2010, 2013 and 2017. I used the 2010 values of the index for the subperiod 2007–2009 and those for 2013 for the subperiod 2014–2016.

10 Preliminary evidence on the association between the indicators of public attitudes and regional growth is reported in Figures 1 and 2 of the Online Supplemental Material.

11 It should be noted that despite being large in magnitude, the coefficient of the interaction is significant only at the 10% level, since it is estimated with relatively low precision. Still, the results suggest that support for the EU in most of the less developed regions was lower than in most of the group of the more developed ones.
Table 1  Effect of regional growth on support for the EU

|                          | (i)     | (ii)     | (iii)    | (iv)     | (v)     | (vi)     | (vii)    | (viii)   | (ix)    |
|--------------------------|---------|----------|----------|----------|---------|----------|----------|----------|---------|
| Growth GDPpc             | 1.656***| 2.196*** | 2.183*** |          |         |          |          |          |         |
|                          | (0.364) | (0.673)  | (0.654)  |          |         |          |          |          |         |
| Below EU average GDPpc * | −1.122* | −1.251*  |          |          |         |          |          |          |         |
| Growth GDPpc             |         |          |          |          |         |          |          |          |         |
|                          | (0.632) | (0.636)  |          |          |         |          |          |          |         |
| Change in deviation GDPpc| 0.281***| 0.510*** | 0.453*** |          |         |          |          |          |         |
| EU                      | (0.067) | (0.139)  | (0.140)  |          |         |          |          |          |         |
| Below EU average GDPpc * | −0.353**| −0.317** |          |          |         |          |          |          |         |
| Change deviation GDPpc   |         |          |          |          |         |          |          |          |         |
| EU                      | (0.161) | (0.157)  |          |          |         |          |          |          |         |
| Convergence from above   | −0.072***| −0.045** | −0.056***|          |         |          |          |          |         |
|                          | (0.027) | (0.017)  | (0.015)  |          |         |          |          |          |         |
| Convergence from below   | −0.084***| 0.077**  | −0.027   |          |         |          |          |          |         |
|                          | (0.026) | (0.035)  | (0.027)  |          |         |          |          |          |         |
| Divergence from below    | −0.156***| 0.061**  | −0.032   |          |         |          |          |          |         |
|                          | (0.027) | (0.028)  | (0.019)  |          |         |          |          |          |         |
| Structural Fund          | 0.052***| 0.001    | 0.052*** | 0.003    | 0.041** | 0.003    |          |          |         |
| expenditures pc (log)   | (0.017) | (0.010)  | (0.017)  | (0.009)  | (0.018) | (0.010)  |          |          |         |
| GDP pc (log)             | −0.281**| 0.007    | −0.267** | 0.006    | −0.282***| 0.015    |          |          |         |
|                          | (0.112) | (0.034)  | (0.114)  | (0.034)  | (0.104) | (0.034)  |          |          |         |
| Tertiary education       | 0.001   | 0.000    | 0.001    | −0.000   | 0.000   | −0.000   |          |          |         |
|                          | (0.003) | (0.001)  | (0.003)  | (0.001)  | (0.004) | (0.001)  |          |          |         |
| Employment rate          | 0.009***| 0.003**  | 0.009*** | 0.003**  | 0.011***| 0.004**  |          |          |         |
|                          | (0.003) | (0.002)  | (0.003)  | (0.001)  | (0.003) | (0.002)  |          |          |         |
| Population density (log) | −0.206  | 0.034*** | −0.236   | 0.034*** |          | −0.172   | 0.033*** |          |         |
|                          | (0.253) | (0.009)  | (0.250)  | (0.009)  | (0.259) | (0.009)  |          |          |         |
| Quality of Government    | 0.015   | 0.021    | 0.015    | 0.022    | 0.020   | 0.020    |          |          |         |
|                          | (0.032) | (0.016)  | (0.032)  | (0.016)  | (0.030) | (0.016)  |          |          |         |
Table 1 (continued)

|                          | (i)   | (ii)  | (iii) | (iv)  | (v)   | (vi)  | (vii) | (viii) | (ix)  |
|--------------------------|-------|-------|-------|-------|-------|-------|-------|--------|-------|
| Population 65 and over   | −0.024** | −0.000 | −0.022* | −0.000 | −0.023** | 0.000 |
|                          | (0.011) | (0.003) | (0.012) | (0.003) | (0.012) | (0.003) |
| below EU average GDPpc   | 0.130*** | 0.039 | 0.093*** | −0.002 |
|                          | (0.033) | (0.030) | (0.024) | (0.018) |
| Region FE                | No    | Yes   | No    | No    | Yes   | No    | No    | Yes    | No    |
| Country FE               | No    | No    | Yes   | No    | No    | Yes   | No    | Yes    | No    |
| Period FE                | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes    | Yes   |
| Observations             | 350   | 346   | 346   | 350   | 346   | 346   | 350   | 346    | 346   |
| Number of regions        | 175   | 173   | 173   | 175   | 173   | 173   | 175   | 173    | 173   |
| $R^2$                    | 0.056 | 0.260 | 0.716 | 0.050 | 0.265 | 0.717 | 0.122 | 0.236  | 0.714 |

The dependent variable is the percentage of population that supports the EU in each region. Robust standard errors clustered by region in parenthesis. Omitted category in columns (vii) to (ix) is ‘Divergence from above’

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$
Does regional growth affect public attitudes towards the…

instead of absolute regional growth. Column (iv) of Table 1 indicates a positive overall association between growth in the region relative to that in the EU and the extent of regional support for the Union. This positive association remains significant for the more developed regions after including the regional controls (column v). In this group of regions, an extra percentage point of growth of the region per capita GDP with respect to that in the EU increases support, on average, by 0.51 percentage points. However, it is observed that the coefficient of the interaction term is negative and statistically significant, meaning that the effect of relative growth on support in the less developed regions is much lower than that in the most developed. To be clear, an extra point of growth raises support in the former group by just 0.16 percentage points. As can be observed in column (vi), this result is robust to the inclusion of country fixed effects.

Overall, the results based on both indicators of regional growth suggest that the pace of growth affects positively the extent of regional support for the EU. They also point to an important difference in the effect between European regions above and below the average income per capita. In fact, the influence of regional growth on EU support seems to be much more intense in the most developed European regions than in the least developed ones. Interestingly, as derived from the estimation of the coefficient associated to belowEU, support for the EU is more frequent in regions with per capita GDP below the EU average (13.0 and 9.3 percentage points higher on average, respectively in the specifications of columns ii and v) even after controlling for differences in growth and regional characteristics. However, the sizeable and statistically significant difference in the effect of growth on regional support for the EU between the least and most developed regions would be contributing to closing the gap in the extent of support for the EU between the two groups of regions. This would be the case in the likely event that the most developed regions grow at least at a pace similar to that of the least developed.

Although being informative about the effect of absolute and relative regional growth in the least and most developed regions, the previous results do not distinguish between the effect of growth that leads to converge or diverge from the average EU income. To shed some light in this respect, columns (vii) to (ix) report the estimation of the specification that uses the set of dummy variables, defined in Sect. 4, to identify regions that converge or diverged from the EU average, both from above and below the average. The excluded category is ‘Divergence from above’, that is to say, regions whose per capita GDP is above the EU average and grow faster than the EU as a whole. The estimates in column (vii) suggest that, compared to the group of regions in the excluded category, regional support for the EU is less frequent in regions that converge, both from below and above the average. As predicted by the utilitarian arguments, support is even lower in the least developed regions that grow at a slower pace. This is consistent with the discontent of people caused by

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12 Differences in support between regions below and above the EU per capita GDP standards become insignificant when controlling by country fixed effects. This is probably due to the fact that there is a clear country pattern in belowEU, which substantially decreases the within-country variability in this variable.
the decrease in the relative income levels in these regions, particularly with respect to regions with similar levels of income that grow faster (converged to the EU average). This evidence also agrees with the argument that support for the EU is broader in regions that benefit most from European integration.

In any case, the comparison of these estimated effects with those reported in column (viii) reveals that the omission of the regional controls in the baseline specification could lead to misleading conclusions. Once their effects are taken into account, the degree of support for the EU, with respect to the group of regions that diverge from above the EU average, is only lower in regions whose income per capita is above the average but grow less than the EU as a whole. In other words, in comparison to the group of most developed and dynamic regions, support is less extended in stagnant or declining regions that had economic standards above the European average. Conversely, support is more frequent in regions with levels of per capita GDP below the average, regardless of whether they converge or not to the EU average (i.e. grow faster or slower than the EU as a whole).Interestingly, this is so even after controlling for the level of per capita GDP and the amount of structural funds in the region, which are allocated based on relative regional income. Altogether, this evidence confirms that people in regions with income levels below the European average tend to support the EU more than those who live in richer regions. On the other hand, while there are no significant differences between poor regions that converge and diverge to the EU average, this is not the case for rich regions. For this group, the evidence indicates that support is less abundant in regions with low growth, compared to those that move even further away from the EU average income. In fact, as derived from the results in column (ix), this difference in support between the two groups is robust to the inclusion of country fixed effects. However, this is not the case for the ones that had levels of per capita GDP below the EU average, as the estimated difference for these groups turns out not significant when country instead of region fixed effects are added to the specification.

With respect to the estimation of the effect of the regional controls, regardless of the indicator of growth used results suggest that support increases with the amount of structural funds spent in the region. This is consistent with a situation in which citizens perceive the benefits of EU Cohesion Policy in the region and, as a result, they appreciate the role of European institutions in promoting growth and solidarity between people and territories (López-Bazo and Royuela 2019). The evidence also points to more support for the EU in regions with higher employment opportunities, as proxied by the employment rate. However, there seems to be a negative link between support and the degree of development of the region, measured by its per capita GDP. In other words, other things equal, people in worse-off regions tend to support the EU more than citizens in well-off ones. This is consistent with the more positive vision of the EU in the member states of Central and Eastern Europe, whose income is much lower than in the core European countries (Garry and Tilley 2009).

Note that these results can, symmetrically, be interpreted in terms of decrease in support. In that case, the positive coefficient for the groups with below-average income is interpreted as a lower decrease in support among the regions in these groups compared to the ones that diverged from above the average.
It also agrees with the results in Dijkstra et al. (2020) that concluded that, when long-term economic and industrial decline, low education and lack of local employment opportunities are taken into consideration, well-off places are more likely to vote for anti-EU parties than places that are worse-off. Similarly, support would be lower in regions with older populations. On the contrary, regional support for the EU does not vary significantly either with the percentage of the region’s population with tertiary education or with population density and institutional quality. However, it should be stressed that these estimated effects of the regional factors correspond to the specification that controls for fixed regional effects and, thus exploits variability within the region (that is between subperiods). As deduced from the corresponding columns in Table 1, only the employment rate and population density seem to have a significant contribution when the specification includes country fixed effects (i.e. the estimation exploits within-country variation in both subperiods).

Regarding the indicator of trust in the EU, the results of the estimation of the coefficients of the different specifications are reported in Table 2. It is observed that the raw associations between absolute (column i) and relative (column iv) regional growth and trust are somewhat stronger than in the case of support. However, the inclusion of regional controls decreases the estimated effect of interest. The results in column (ii) suggest that an additional percentage point of growth increases trust in the EU by about 1.4% points in regions with per capita GDP above the EU average. Meanwhile, the point estimate of the effect is just 0.2% points in the group of regions below the average. As for relative growth, a positive effect of growth on trust is only observed in the group of regions above the average. To be clear, the value of the coefficient of the interaction term in column (v), which captures the differential effect in less developed regions, is similar to that associated with growth in more developed regions but of opposite sign. As a result, it can be said that the evidence points to a negligible effect of relative regional growth on trust in the EU in regions below the average EU income. Interestingly, the impact of growth on trust in the EU becomes insignificant in the specification with country fixed effects. This indicates that within-country variability in regional growth does not correlate with the same type of variability in the degree of regional trust in the EU. It must also be noticed that, by contrast with the case of support, the degree of adjustment of the specifications with region fixed effects and with country fixed effects is very similar. Hence, it may be that the inclusion of the latter type of effects prevents the identification of the impact of regional growth in trust in the EU.

As in the case of support, columns (vii) to (ix) of Table 2 summarize the results of the effect of the region’s convergence/divergence pattern. It can be observed that there are some significant raw differences in the degree of trust between regions that diverge from above the EU average (the omitted category) and those that grow less

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14 The difference is statistically significant at 10% and 5% in the case of absolute and relative growth, respectively. The full set of results of the tests of equality of the growth effects across the support and trust equations in the different specifications are reported in Table 3 of the Online Supplemental Material. I thank an anonymous reviewer for this suggestion.

15 Anyhow, it must be considered that the coefficient of the interaction term is not statistically significant at the usual level, since it is estimated with low precision.
|                  | (i)     | (ii)    | (iii)   | (iv)    | (v)     | (vi)    | (vii)   | (viii)  | (ix)    |
|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Growth GDPpc     | 2.120***| 1.361** | 0.837   |         |         |         |         |         |         |
|                  | (0.281) | (0.644) | (0.626) |         |         |         |         |         |         |
| Below EU average GDPpc * Growth GDPpc | −1.144 | −0.790 |         |         |         |         |         |         |         |
|                  | (0.695) | (0.624) |         |         |         |         |         |         |         |
| Change in deviation GDPpc EU |         |         |         | 0.375***| 0.377***| 0.204   |         |         |         |
|                  |         |         |         | (0.052) | (0.116) | (0.124) |         |         |         |
| Below EU average GDPpc * Change deviation GDPpc EU |         |         | −0.399***| −0.234* |         |         |         |         |         |
|                  |         |         |         | (0.142) | (0.141) |         |         |         |         |
| Convergence from above |         | −0.045**| −0.020 | −0.033* |         |         |         |         |         |
|                  |         | (0.018) | (0.017) | (0.018) |         |         |         |         |         |
| Convergence from below | 0.013 | 0.049 | −0.030 |         |         |         |         |         |         |
|                  | (0.018) | (0.040) | (0.025) |         |         |         |         |         |         |
| Divergence from below | −0.091***| 0.066* | −0.019 |         |         |         |         |         |         |
|                  | (0.020) | (0.037) | (0.024) |         |         |         |         |         |         |
| Structural Fund expenditures pc (log) | 0.075***| 0.027***| 0.073***| 0.028***|         |         | 0.071***| 0.029***|         |
|                  | (0.020) | (0.010) | (0.020) | (0.010) |         |         | (0.019) | (0.011) |         |
| GDPpc (log)      | −0.068 | 0.025 | −0.065 | 0.023 | −0.035 | 0.026 |         |         |         |
|                  | (0.126) | (0.041) | (0.126) | (0.041) |         |         | (0.122) | (0.042) |         |
| Tertiary education | 0.006* | 0.001 | 0.005* | 0.001 | 0.004 | 0.000 |         |         |         |
|                  | (0.003) | (0.001) | (0.003) | (0.001) |         |         | (0.003) | (0.001) |         |
| Employment rate  | 0.005* | 0.004**| 0.005* | 0.004**| 0.006**| 0.004**|         |         |         |
|                  | (0.003) | (0.001) | (0.003) | (0.001) |         |         | (0.003) | (0.001) |         |
| Population density (log) | −0.019 | 0.028**| −0.041 | 0.028**| 0.004 | 0.028**|         |         |         |
|                  | (0.274) | (0.011) | (0.272) | (0.011) |         |         | (0.277) | (0.011) |         |
| Quality of Government | 0.022 | 0.010 | 0.024 | 0.010 | 0.021 | 0.010 |         |         |         |
|                  | (0.029) | (0.016) | (0.029) | (0.015) |         |         | (0.028) | (0.016) |         |
Table 2 (continued)

| Population 65 and over | (i) | (ii) | (iii) | (iv) | (v) | (vi) | (vii) | (viii) | (ix) |
|------------------------|-----|------|-------|------|-----|------|-------|--------|-----|
|                        | −0.002 | 0.000 | 0.002 | 0.001 | −0.001 | 0.001 |
|                        | (0.011) | (0.003) | (0.011) | (0.003) | (0.011) | (0.003) |
| below EU average GDPpc | 0.110*** | 0.022 | 0.075** | −0.003 |
|                        | (0.041) | (0.026) | (0.034) | (0.019) |
| Region FE              | No | Yes | No | No | Yes | No | No | Yes | No |
| Country FE             | No | No | Yes | No | No | Yes | No | No | Yes |
| Period FE              | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations           | 350 | 346 | 346 | 350 | 346 | 346 | 350 | 346 | 346 |
| Number of regions      | 175 | 173 | 173 | 175 | 173 | 173 | 175 | 173 | 173 |
| \( R^2 \)              | 0.361 | 0.697 | 0.694 | 0.357 | 0.701 | 0.696 | 0.355 | 0.694 | 0.697 |

The dependent variable is the percentage of population that trust in the EU in each region. Robust standard errors clustered by region in parenthesis. Omitted category in columns (vii) to (ix) is ‘Divergence from above’

***\( p < 0.01 \); **\( p < 0.05 \); *\( p < 0.1 \)
than the EU as a whole (either being above or below the average). However, after
the inclusion of regional controls (column viii of Table 2), there are no significant
differences in trust in the EU between the groups of regions defined in terms of their
pace of growth and initial position in the distribution of GDP per capita. The same
applies in the case of controlling for country instead of region fixed effects.16

Summing up, the estimates in Table 2 suggest that regional growth has only a
minor impact on trust in the EU in regions whose level of income is below the EU
average. They also indicate that the degree of trust in the region is not affected by the
convergence or divergence of the regional economy towards the European average.
This is in sharp contrast with the evidence found for the effect of regional growth
and convergence in the degree of support for the EU and could be explained by the
greater influence of country factors in the change in the degree of citizens trust in
the EU during the period analysed.

Finally, it is worth mentioning that the effect of growth on attitudes was also cal-
culated excluding the regions for which the indicators of support and trust were cal-
culated with less than 100 observations in either or both subperiods, as well as when
using 3-year and 10-year growth rates. As can be seen in Tables 4–6 of the Online
Supplemental Material, in general, the main conclusions remain unchanged. If
something, it can be said that the different impact of growth on the attitudes between
the less developed and more developed regions is clearer when growth is defined
over a period of five years instead of in a shorter period. This is consistent with
the assumption that what matters is not the short-term evolution but the sustained
growth pattern.17

6 Conclusions

This study has provided novel evidence on regional disparities in public attitudes
towards the EU and how they have evolved in the period that followed the sovereign
debt crisis in Europe. On the one hand, it has provided evidence on the amount of
regional disparities in the indicators of support for and trust in the EU and how they
evolved after the Great Recession. On the other hand, it has shown that turbulences
caused by the crisis had a stronger effect on the regional distribution of trust in the
EU than on that of support for the Union.

The construction of indicators that proxy the amount of regional support for and
trust in the EU has allowed me to test whether economic growth in each region
affects the way in which its population perceives the European project. The evi-
dence in the study would confirm the validity of the economic utilitarian argument,
in the sense that the regional economic context, particularly the pace of region’s

16 It is worth noting that the coefficients of ‘divergence from below’ and ‘convergence from above’ in
columns vii and ix, respectively, are only marginally significant.

17 The results using the 10-year growth were only obtained using the information for the second subpe-
riod, since homogeneous data on regional per capita GDP have only been available since 2000. This can
probably explain some of the differences with the results for the 5-year growth.
growth, would be shaping the way in which the inhabitants in the region form their vision of Europe and its institutions. However, the results indicate that this mechanism associated to the economic evolution of the region may be mostly working for regions above a certain level of economic development. To be precise, the impact of growth (absolute and relative) on the extent of regional support for the EU would be stronger in regions with per capita GDP above the EU average. In fact, some estimates suggest that growth would have a negligible effect in regions whose per capita GDP is below the EU average.

This evidence is consistent with a situation in which people in regions with poor economic performance feel that they are ‘left-behind’ and, as a result, are more receptive to anti-system messages. In the case of Europe, such people’s discontent would result in less support for the EU and fewer trust in its institutions, since they are perceived as key elements of the establishment. All in all, the results of this study line up with recent arguments of the ‘geography of discontent’ literature that connect the economic stagnation and social decline of lagging places with populist and anti-EU political options.

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Appendix

See Tables 3, and 4.

Table 3  List of regions used in the analysis

| Country | Regions |
|---------|---------|
| AT (9)  | Burgenland, Niederösterreich, Wien, Kärnten, Steiermark, Oberösterreich, Salzburg, Tirol, Vorarlberg |
| BE (11) | Bruxelles-Capitale/Brussels, Hoofdstedelijk Gewest, Prov. Antwerpen, Prov. Limburg (BE), Prov. Oost-Vlaanderen, Prov. Vlaams-Brabant, Prov. West-Vlaanderen, Prov. Brabant Wallon, Prov. Hainaut, Prov. Liège, Prov. Luxembourg (BE), Prov. Namur |
| BG (6)  | Северозападен (Severozapaden), Северен централен (Severen tsentralen), Североизточен (Severozapaden), Югоизточен (Yugoiztochen), Югозападен (Yugozapaden), Южен централен (Yuzhen tsentralen) |
| CY (1)  | Κύπρος (Kypros) |
| CZ (8)  | Praha, Střední Čechy, Jihozápad, Severozápad, Severovýchod, Jihovýchod, Střední Morava, Moravskoslezsko |
| DE (16) | Baden-Württemberg, Bayern, Berlin, Brandenburg, Bremen, Hamburg, Hessen, Mecklenburg-Vorpommern, Niedersachsen, Nordrhein-Westfalen, Rheinland-Pfalz, Saarland, Sachsen, Sachsen-Anhalt, Schleswig-Holstein, Thüringen |
| DK (4)  | Hovedstaden, Sjælland, Syddanmark, Midtjylland and Nordjylland |
| EE (1)  | Eesti |
Table 3 (continued)

| Country | Regions |
|---------|---------|
| ES (15) | Galicia, Principado de Asturias and Cantabria, País Vasco, Comunidad Foral de Navarra and La Rioja, Aragón, Comunidad de Madrid, Castilla y León, Castilla-La Mancha, Extremadura, Catalunya, Comunidad Valenciana, Illes Balears, Andalucía, Región de Murcia, Canarias |
| FI (4)  | Etelä-Suomi, Länsi-Suomi, Helsinki-Uusimaa, Pohjois- ja Itä-Suomi |
| FR (17) | Île de France, Champagne-Ardenne and Alsace, Picardie, Haute-Normandie, Centre, Basse-Normandie, Nord—Pas-de-Calais, Lorraine, Franche-Comté and Bourgogne, Pays de la Loire, Bretagne, Poitou—Charentes and Limousin, Aquitaine, Midi-Pyrénées, Rhône-Alpes and Auvergne, Languedoc-Roussillon, Provence-Alpes-Côte d’Azur |
| GB (12) | North East (England), North West (England), Yorkshire and the Humber, East Midlands (England), West Midlands (England), East of England, London, South East (England), South West (England), Wales, Scotland, Northern Ireland |
| GR (3)  | Βορεια Ελλαδα (Voreia Ellada), Κεντρικη Ελλαδα (Kentriki Ellada) and Attikη (Attiki), Νησια Αιγαιου, Κρητη (Nisia Aigaiou, Kriti) |
| HR (2)  | Jadranjska Hrvatska, Kontinentalna Hrvatska |
| HU (7)  | Közép-Magyarország, Közép-Dunántúl, Nyugat-Dunántúl, Dél-Dunántúl, Észak-Magyarország, Észak-Alföld, Dél-Alföld |
| IE (2)  | Border and Midland and Western, Southern and Eastern |
| IT (12) | Piemonte and Liguria, Lombardia, Abruzzo, Campania, Puglia and Basilicata, Sicilia and Calabria, Sardegna, Veneto and Provincia Autonoma di Bolzano/Bozen, Emilia-Romagna, Toscana, Marche and Umbria, Lazio |
| LT (1)  | Lietuva |
| LU (1)  | Luxembourg |
| LV (1)  | Latvija |
| MT (1)  | Malta |
| NL (10) | Groningen, Friesland (NL), Drenthe, Overijssel and Flevoland, Gelderland, Utrecht, Noord-Holland, Zuid-Holland, Noord-Brabant and Zeeland, Limburg (NL) |
| PL (14) | Łódzkie, Mazowieckie, Małopolskie, Śląskie, Lubelskie, Podkarpackie, Świętokrzyskie and Opolskie, Podlaskie, Wielkopolskie, Zachodniopomorskie Dolnośląskie and Lubuskie, Kujawsko-pomorskie, Warmińsko-mazurskie, Pomorskie |
| PT (5)  | Norte, Algarve, Centro (PT), Área Metropolitana de Lisboa, Alentejo |
| RO (8)  | Nord-Vest, Centru, Nord-Est, Sud-Est, Sud—Muntenia, București—Ilfov, Sud-Vest Oltenia, Vest |
| SE (3)  | Östra Sverige, Södra Sverige, Norra Sverige |
| SI (2)  | Vzhodna Slovenija, Zahodna Slovenija |
| SK (4)  | Bratislavský kraj, Západné Slovensko, Stredné Slovensko, Východné, Slovensko |

Number of regions by country in parenthesis
Table 4  Descriptive statistics

|                              | Both periods | 2007–2009 | Mean  | S.D | Mean  | S.D | Mean  | S.D |
|------------------------------|-------------|-----------|-------|-----|-------|-----|-------|-----|
| Indicators of public attitudes |             |           |       |     |       |     |       |     |
| Support for the EU           | 0.539       | 0.149     | 0.545 | 0.150 | 0.534 | 0.147 |
| Trust in the EU              | 0.464       | 0.142     | 0.537 | 0.125 | 0.391 | 0.118 |
| Indicators of regional growth|             |           |       |     |       |     |       |     |
| Growth GDP per capita        | 0.036       | 0.024     | 0.047 | 0.024 | 0.026 | 0.017 |
| Change in deviation GDP per capita EU | 0.027 | 0.117  | 0.040 | 0.139 | 0.015 | 0.088 |
| Divergence from above        | 0.168       | 0.020     | 0.133 | 0.026 | 0.202 | 0.031 |
| Convergence from above       | 0.223       | 0.022     | 0.272 | 0.034 | 0.173 | 0.029 |
| Convergence from below       | 0.335       | 0.025     | 0.353 | 0.036 | 0.318 | 0.035 |
| Divergence from below        | 0.275       | 0.024     | 0.243 | 0.033 | 0.306 | 0.035 |
| Controls                     |             |           |       |     |       |     |       |     |
| Structural Fund expenditures per capita (log) | 4.064 | 1.261 | 4.004 | 1.198 | 4.123 | 1.322 |
| GDP per capita (log)         | 10.041      | 0.424     | 9.999 | 0.449 | 10.082 | 0.395 |
| Tertiary education           | 0.256       | 0.093     | 0.227 | 0.085 | 0.285 | 0.092 |
| Employment rate              | 0.648       | 0.073     | 0.649 | 0.070 | 0.646 | 0.076 |
| Population density (log)     | 5.062       | 1.084     | 5.055 | 1.078 | 5.068 | 1.094 |
| Quality of Government Index  | 0.007       | 0.992     | 0.006 | 1.004 | 0.008 | 0.983 |
| Population 65 and overss     | 0.175       | 0.029     | 0.166 | 0.028 | 0.184 | 0.028 |
| Below EU average GDP per capita | 0.610 | 0.026 | 0.595 | 0.037 | 0.624 | 0.037 |

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