

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 socio-economic 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.

Keywords: perception of the EU; regional growth; economic convergence; EU regions

Highlights:

- There are large regional disparities in public attitudes towards the EU.
- Regional support for and, particularly, trust in the EU declined following the Great Recession.
- Growth in the region stimulates support for and trust in the EU.
- The impact of growth on attitudes towards the EU is more intense in regions with high levels of income per capita.
- Convergence to the EU average income has a significant effect on support but not in trust in the EU.

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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 emphasise 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, characterised by the socio-economic 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.

1 The first challenge faced by the study is the calculation of aggregate indicators of public
2 attitudes towards the EU for a set of regions in the 28 EU member states. Two traditional
3 indicators are obtained by aggregating the micro-level data from different Eurobarometer
4 surveys: one based on support for the process of integration, as a measure of the view of
5 the current and future benefits of belonging to the EU, and another on trust in the EU,
6 which aims to capture the people's assessment of how the European project is managed.
7 In a second stage, regional data on these indicators is merged with that of regional growth
8 and economic convergence to test the hypothesis of the study.
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10 The results suggest that growth in the region stimulates support for and trust in the EU.
11 Such positive impact of growth remains significant and sizeable after controlling for
12 several economic characteristics of the region. However, the impact of growth on
13 attitudes towards the EU is not the same in all regions. The effect on support and trust is
14 more intense in regions with levels of income per capita above the EU average. In fact,
15 there does not seem to be a significant growth effect on trust in the EU for regions below
16 the EU average income. The evidence also points to noteworthy differences in the impact
17 of economic convergence on the two indicators. Whereas there are significant effects on
18 support of converging / diverging to the EU economic standards, the estimates reject any
19 significant effect in the case of trust in the EU. These results thus confirm the importance
20 of considering different dimensions of public attitudes towards the EU.
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22 The rest of the paper is organized as follows. The related literature on the determinants
23 of public support for the EU and that on the factors behind the Geography of Discontent
24 is briefly summarized in section 2. The dataset and variables used to compute the regional
25 indicators of public attitudes towards the EU are introduced in the third section, which
26 also includes a descriptive analysis of regional disparities in support for and trust in the
27 EU. Section 4 sketches the empirical strategy followed to assess the validity of the
28 hypotheses of the study, whereas the results are discussed in section 5. Finally, section 6
29 concludes.
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31 **2. RELATED LITERATURE**

32 This study draws on two strands of the literature. The first has provided arguments and
33 evidence regarding the determinants of public support for European integration. In brief,
34 it has argued that support for the EU and the citizens' identification with the European
35 project varies with their degree of cognitive mobilization and political awareness, with
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1 social values, and the strength of a national identity (e.g. Gabel, 1998; Hooghe & Marks,
2 2004, 2005). Likewise, this literature has suggested that in forming their opinion about
3 the EU, people follow the cues of the national media and politicians and that, in turn, their
4 attitudes towards the EU are influenced by trust in national institutions (e.g. Gabel, 1998;
5 Clements, 2011). Besides, it has been argued that the citizens' perception of the EU may
6 also be affected by the economic returns of the European integration process. Economic
7 utilitarian theory points out that those individuals who benefit most from integration tend
8 to have a more positive view of the EU (Hooghe & Marks, 2004, 2005; Verhaegen et al,
9 2014). This egotropic vision has a social equivalent (sociotropic), when the people
10 attitudes towards the EU are influenced by the benefit that integration has for the economy
11 of their country (Gabel and Palmer, 1995).

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

55 This study also connects with the recent literature on the Geography of Discontent.
56 Specifically, regarding the arguments linking the rise and spread of populism in general
57 and anti-EU sentiment in particular with the poor economic prospects of declining and
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1 lagging-behind territories (Algan et al, 2017; Los et al., 2017; Rodríguez-Pose, 2018;
2 McCann, 2020). The Geography of Discontent would be associated with the large
3 regional disparities in productivity, having a clear impact on institutional stability and
4 governance. Rodríguez-Pose (2018) argues that the increase and extension of anti-system
5 votes are “the response to long-term economic and industrial declines” and that the
6 reaction has been produced by “the places that don't matter” instead of “the people that
7 don't matter”. In other words, this literature has renewed the interest in the impact of inter-
8 territorial inequality, this time in terms of its influence on the institutional system
9 (McCann, 2020). This is so even in Europe where, although spatial inequalities are
10 moderate compared to other parts of the world, regional differences in growth and, as a
11 result, in future prospects, may be contributing to generating political instability. In this
12 sense, Dijkstra et al. (2020) point to the combination of job loss and decline in labor
13 participation and per capita income in low-productivity regions as geographical elements
14 of the spread of anti-EU sentiment.
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16 Most of the empirical studies in this strand of the literature have considered the impact of
17 economic factors in general and, in particular, of differences in income and their growth
18 on electoral results. Several of them have analyzed the case of the Brexit vote (e.g. Becker
19 et al., 2017), concluding that regional differences in income and GDP per capita are
20 relevant to explain the unequal geographical distribution of the results of the referendum.
21 Similarly, other studies have provided evidence about the contribution of the sub-national
22 economic context in explaining territorial differences in the recent increase in the vote for
23 populist parties. As an example, Essletzbichler et al. (2018) show how the percentages of
24 right-wing populist votes tend to be higher in regions of old industrialization, with high
25 unemployment rates and more intensely affected by the Great Recession. In a pan-
26 European setting, Dijkstra et al. (2020) test the hypothesis that the percentage of votes
27 against European integration is closely related to local economic decline. Their empirical
28 analysis merges sub-national electoral results in EU countries between 2013 and 2018
29 with indicators of population characteristics and different types of long-term territorial
30 decline. Their results confirm the importance of pure geographic factors in explaining the
31 anti-European vote, and the significant impact of long-term economic and industrial
32 decline.
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34 Overall, the empirical studies of the first strand of the literature have considered the effect
35 of the economy on public attitudes towards the EU, but they have done so considering
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1 the economic situation of the country, thus neglecting subnational heterogeneity, and
2 without emphasizing the role of growth in the medium-long term. Conversely, those
3 referring to the second strand have emphasized the role of regional growth, but they have
4 done so by analyzing their impact on the increase in the populist and anti-EU vote.
5 However, although anti-European attitudes and voting for anti-integration parties are
6 undoubtedly related, the evidence shows that such a relationship is far from perfect
7 (Dijkstra et al., 2020). As Lechler (2019) argues, measuring the degree of Euroscepticism
8 based on citizens' attitudes is more comparable across territories and better captures the
9 distinctive nature of anti-EU sentiment. This is so given that in the case of elections,
10 political parties campaign on various platforms. In fact, this study relates closely to that
11 of Lechler (2019) who, using aggregated data for the NUTS 2 regions from
12 Eurobarometer microdata, shows that the regions that have experienced declines in their
13 employment are more likely to show Eurosceptic attitudes.
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25 **3. REGIONAL INDICATORS OF PUBLIC ATTITUDES TOWARDS THE EU**

26 **3.1. Data**

27 The most popular data source for measuring public attitudes towards the EU in the
28 literature is the Eurobarometer survey. The Eurobarometer is conducted since the mid
29 70's on behalf of the European Commission to monitor the public opinion in the EU and
30 its member states, in particular with respect to the perception that citizens have about the
31 EU integration process, its institutions and policies. The Standard Eurobarometer
32 includes a series of 'stable' or 'topical' questions that allow tracking the evolution of
33 public opinion on specific issues. In particular, a group of questions refers to attitudes
34 towards European integration and perception of EU institutions.
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45 As in Capello and Perucca (2018), Smętkowski and Dąbrowski (2019), and Lechler
46 (2019), I combined samples of the Eurobarometer surveys of three consecutive years. In
47 this way, the number of responses by region is expected to be large enough to keep the
48 statistical margins within reasonable limits.¹
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55 ¹ The average number of observations used to compute the indicators in the set of regions used for the
56 analysis is 442.7, whereas in the median region there are 300 observations. In less than 10% of the regions,
57 the number of responses is lower than 100, whereas in the top 25% there are more than 500 responses. In
58 any case, it should be mentioned that some robustness checks were performed to assess the influence of the
59 inclusion of regions with fewer responses. In general, the main conclusions derived from the results
60 remained unaltered when these regions were excluded from the analysis.
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1 The period analysed in this study extends from 2007 to 2016. Although it is possible to
2 calculate indicators of support and trust from the Eurobarometer surveys prior to 2007, I
3 did not make use of this earlier information for two reasons. First, because the questions
4 of interest are available only for the EU member states in the year in which the survey
5 was carried out. To be clear, information for the EU13 countries (those who joined the
6 EU in the last enlargements) was only included starting from the year in which they joined
7 the EU. Second, because changes over time in the definition of the territorial breakdown
8 (NUTS system) makes the comparison of regional aggregate figures from the
9 Eurobarometer survey over longer periods of time rather difficult. On the other hand, the
10 most recent Eurobarometer surveys (from 2017 onwards) were not used in this study
11 because they were not available when the above-mentioned databases were prepared.
12 Considering these circumstances, I defined two subperiods, which include three years
13 each: 2007–2009 and 2014–2016. The first is the period just before the sovereign debt
14 crisis hit a number of European countries and, therefore, before bailout programmes and
15 severe austerity measures were put in place. The second corresponds to the initial phase
16 of recovery, characterized by moderate growth.
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29 It should be noted that for calculating the regional indicators of support and trust I
30 assumed that the degree of support for and trust in the EU in a region does not change
31 dramatically from one year to the next. On the one hand, this allowed me to combine the
32 responses in the surveys of three consecutive years. On the other hand, it led me to
33 consider a window of five years between subperiods in order to maximize differences
34 over time in citizens' perceptions.
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41 The micro-data files of Standard Eurobarometers include the codes of the regions where
42 respondents live. This allowed to calculate the indicators of support and trust for a set of
43 EU regions for the two periods mentioned above. However, changes in the definition of
44 the NUTS system introduced over the analysed period resulted in a decrease in the
45 territorial detail used for some countries (e.g. some regions had to be grouped). In
46 addition, I had to gather responses in regions with a low number of individuals in the
47 sample after adding the responses in the Eurobarometer surveys of three consecutive
48 years. The criteria for grouping regions in this case was geographical proximity. As a
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result, the final set of territorial units is composed by 180 regions, 124 from the EU15 and 56 from the EU13 (see Table A.1 of the Appendix).²

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 questions proxying for support and trust (since not all questions are included in both the spring and autumn editions).³ 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 proportion 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 European Union*”

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 socio-economic 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

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.

1 economic context are expected to lead to differences between regions in the way in which
2 their populations perceive the EU. Moreover, regional asymmetries in the incidence of
3 the crisis, and in responses to the measures promoted by the European institutions, could
4 have caused sudden and sizeable changes in the perceptions of citizens in different
5 regions (Gómez 2015).
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9 Due to the large number of regions, the descriptive analysis is based on the estimation of
10 the shape of the distribution of the regional indicators of support and trust.⁴ To be clear,
11 the density function of each indicator is estimated non-parametrically using the kernel
12 method and the corresponding values for the set of regions. This is done separately for
13 each of the two subperiods considered in the analysis. The comparison of the estimated
14 densities for each subperiod allows to conclude on the evolution of regional disparities in
15 the analysed period.
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19 The densities depicted in the left part of Figure 1 confirm the existence of large regional
20 disparities in the proportion of the region's population that supports the EU. There is a
21 large mass of probability in the 2007–2009 subperiod for low values of the indicator
22 (below 40%) as well as for relatively large values (between 60% and 80%). In other
23 words, the regional distribution of this indicator was rather dispersed at the end of the
24 past decade. The shape of the distribution changed somewhat in the 2014–2016
25 subperiod. However, the null hypothesis of equality of the distributions for the two
26 subperiods cannot be rejected (Kolmogorov-Smirnov test), suggesting that there was
27 stability over the period analysed in the regional distribution of support for the EU.
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31 The same analysis for the trust indicator reveals some important differences. In this case,
32 the estimated densities are shown at the right of Figure 1. It is clearly observed that
33 changes in the degree of trust over the analysed period are more striking than those
34 observed in the case of support for the EU. To be clear, there is a dramatic shift of the
35 distribution to the left, meaning that there was a generalised substantial decrease in trust
36 in the EU, probably fuelled by the impact of the crisis. This is confirmed by the
37 Kolmogorov-Smirnov test, which clearly rejects the null of equality of the regional
38 distributions of trust in the two subperiods.⁵
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⁴ The simple descriptive statistics of the indicators, distinguishing by period, are reported in Table A2 of the Appendix.

⁵ 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.

1 This evidence is complemented with that derived from the choropleth maps in Figure 2.
2 They confirm substantial heterogeneity in the geographical distribution of the two
3 indicators, which goes beyond that corresponding to differences between countries. In
4 fact, regional disparities in support for and trust in the EU are far from negligible within
5 most countries.
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9 Overall, the descriptive evidence confirms that attitudes towards the EU vary widely
10 across EU regions and suggests that regional trust in the EU could have been much more
11 affected by the economic turbulences in the analysed period than support for the European
12 project. Therefore, it seems sensible to assess the impact of regional growth on public
13 attitudes towards the EU using both indicators.
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20 **4. EMPIRICAL STRATEGY**

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22 This section outlines the empirical model designed to test the hypotheses of the study and
23 introduces the indicators used to proxy regional growth, as well as the variables that
24 control regional heterogeneity in attitudes towards the EU.
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28 The hypothesis that individuals living in regions with a more dynamic economy tend to
29 have a more positive perception of the EU is tested using the following specification:
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$$32 \textit{Attitudes_EU}_{it} = \alpha_i + \delta_t + \beta \cdot \textit{growth}_{it-1} + \gamma \cdot \textit{belowEU}_{it-1} \cdot \textit{growth}_{it-1} + \quad (1)$$
$$33 \tau \cdot \textit{belowEU}_{it-1} + Z_{it-1} \cdot \rho + \varepsilon_{it}$$

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37 where *Attitudes_EU* is any of the two regional indicators used in the study, i.e. support
38 for the EU and trust in the EU, and *growth* denotes the indicator of economic growth
39 experienced by the region in a period immediately before the measurement of public
40 attitudes. The subscripts *i* and *t* denote regions and periods, respectively. The
41 specification includes period fixed effects (δ_t) to account for shocks that are common to
42 all regions, and region fixed effects (α_i) to account for unobservable time-invariant
43 regional factors that can affect in a way or another attitudes towards the EU of the region's
44 population. As an alternative specification, country instead of region fixed effects are
45 considered, since some sources of EU sentiment can be driven by country-specific
46 factors.⁶ Meanwhile, *Z* includes a set of controls of the socioeconomic situation in the
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57 ⁶ In their cross-section analysis of the drivers of anti-EU voting, Dijkstra et al. (2020) control for country
58 fixed effects because they argue that European citizens cast their votes in national elections mostly in
59 response to domestic issues. Despite this effect may be not so clear in the case of public attitudes, I also
60 provide results when controlling for country unobserved effects. It should be kept in mind that in that case
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1 region that are likely to determine the degree of support for and trust in the EU, while ε
2 is a well-behaved error term that absorbs unexpected shocks for regions and periods.

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4 The empirical model also includes *belowEU*—a dummy variable that equals one when per
5 capita GDP in the region is below the average level in the EU and zero otherwise⁷—and
6 its interaction with regional growth. In this way the specification allows testing the
7 hypothesis that the effect of regional growth on attitudes varies between regions with per
8 capita income below and above the EU average. To be clear, I hypothesize that sustained
9 growth over the last years would have stimulated a positive perception of the EU with
10 higher intensity in regions with income levels below the average. Therefore, β captures
11 the change in the percentage of the region’s population that support the EU, or trust in the
12 EU, induced by a unitary change in the indicator of growth for the most developed EU
13 regions, while the effect for the less developed is given by $\beta + \gamma$.

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

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31 In a further stage, the specification is slightly modified to account for a more subtle impact
32 of regional growth on public attitudes. Sustained growth in regions below the EU
33 economic standards can be more effective in shaping a positive opinion of their citizens

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58 the estimates exploit only regional variation within each country. I thank an anonymous reviewer for this
59 suggestion.

60 ⁷ The threshold is specific to each of the subperiods under analysis.

1 if it contributes to narrowing the gap with the more developed areas of the Union.
 2 Conversely, as argued in the previous section, people living in regions that were among
 3 the prosperous in the past but have seen the decline of their economies may blame
 4 globalization in general and EU integration in particular for their fortune. In other words,
 5 convergence to the EU average from above may induce a negative perception of the EU.
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 7 The following specification is used to assess this hypothesis:
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$$10 \quad Attitudes_EU_{it} = \alpha_i + \delta_t + \sum_{k=2}^4 \beta_k \cdot Dg_{k,it-1} + Z_{it-1} \cdot \rho + \varepsilon_{it} \quad (2)$$

11 where Dg_k is a set of dummy variables defined based on growth in the region over the
 12 five-year period relative to growth in the entire EU, and its initial gap in GDP per capita
 13 relative to the EU average. Four categories are defined: i) Convergence from above, when
 14 growth in the region was lower than in the EU as a whole and its GDP per capita was
 15 above the EU average; ii) Convergence from below, when the region grew faster than the
 16 EU and its GDP per capita was below the average; iii) Divergence from below, that is the
 17 case of regions that grew less and had lower initial GDP per capita than the EU; and iv)
 18 Divergence from above, which is the category of the most developed regions that grew
 19 faster than the average (omitted category). The significance of the β_k coefficients will
 20 confirm that the effect of regional (relative) growth on public attitudes towards the EU
 21 depends on the initial economic situation of the region.
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35 As has been noticed, the specifications in (1) and (2) include a set of regional variables
 36 (Z) with the aim of controlling for differences across regions and over time in
 37 socioeconomic characteristics that can affect attitudes towards the EU in one way or
 38 another and, simultaneously influence the pace of regional growth. They are the (log)
 39 level of per capita GDP, the percentage of population with tertiary education, the
 40 employment rate, the (log) population density, and the proportion of the population aged
 41 65 and over. I also included the (log) total Structural Fund payments per capita in the
 42 region to account for the effect of the intensity of the EU Cohesion Policy in the region
 43 (Verhaegen et al. 2014; López-Bazo and Royuela 2019), and an index of quality of
 44 government, to take into account regional differences in the quality of local institutions
 45 (Charron et al. 2015).⁸
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57 ⁸ As stressed by an anonymous reviewer, it should be acknowledged that the period under analysis includes
 58 events that could have destabilized politics in Europe, such as the Syrian refugee crisis of 2015-16.
 59 However, they will confound the estimate of the effect of regional growth on attitudes towards the EU only
 60 if the effect of these shocks was asymmetrically distributed in the EU regions and if they were, in a way or
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1 The data source for both regional growth indicators and most control variables is the
2 PERCEIVE regional database (Charron, 2017). The codes of the regions included in this
3 database were used to merge this data with the regional indicators of support for and trust
4 in the EU. The exceptions are the indicators of institutional quality and population aged
5 65 years and over. In the first case the source is the QoG EU Regional Database of The
6 Quality of Government Institute⁹, whereas data for the second comes from the Eurostat
7 regional dataset. It should be noted that the growth indicator and control variables are
8 measured in the year just before the beginning of the periods used to calculate the regional
9 indicators of support and trust. In this way, the risk of reverse causality of the regressors
10 in the empirical model are minimised. The descriptive statistics of the indicators of public
11 attitudes towards the EU, the measures of regional growth, and the control variables are
12 reported in Table A2 of the Appendix. The corresponding correlation matrix is reported
13 in Table 2 of the Online Supplemental Material.
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25 **5. RESULTS**

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27 This section discusses the results of the estimation of the effect of regional economic
28 growth on people's attitudes towards the EU in the European regions.¹⁰ The results of the
29 estimation of the specifications for the regional indicator of support for the EU are
30 summarised in Table 1. For each indicator of regional growth, the table includes the
31 results from a benchmark specification that accounts only for period fixed effects, then
32 those obtained when a separate response of regions above and below the EU average is
33 allowed, and the regional controls and fixed effects are added and, finally, the ones when
34 using country instead of region fixed effects. Column (i) to (iii) correspond to the
35 estimates using the five-year growth of per capita GDP as the variable proxying for
36 regional growth in absolute terms. It is observed that there is a significant positive
37 correlation between the growth in the region and the extent of regional support for the
38 EU. The positive effect of growth is confirmed by the results of the estimation of the
39 specification that controls for observed and unobserved regional heterogeneity, reported
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53 another, related to sustained growth in the past. If this were the case, I assume that the effect of these events
54 is captured by the observed and unobserved region controls.

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

57 ¹⁰ Preliminary evidence on the association between the indicators of public attitudes and regional growth is
58 reported in Figures 1 and 2 of the Online Supplemental Material.
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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.¹¹

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) 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

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.

1 regional characteristics.¹² However, the sizeable and statistically significant difference in
2 the effect of growth on regional support for the EU between the least and most developed
3 regions would be contributing to closing the gap in the extent of support for the EU
4 between the two groups of regions. This would be the case in the likely event that the
5 most developed regions grow at least at a pace similar to that of the least developed.
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9 Although being informative about the effect of absolute and relative regional growth in
10 the least and most developed regions, the previous results do not distinguish between the
11 effect of growth that leads to converge or diverge from the average EU income. To shed
12 some light in this respect, columns (vii) to (ix) report the estimation of the specification
13 that uses the set of dummy variables, defined in section 4, to identify regions that
14 converge or diverged from the EU average, both from above and below the average. The
15 excluded category is “Divergence from above”, that is to say, regions whose per capita
16 GDP is above the EU average and grow faster than the EU as a whole. The estimates in
17 column (vii) suggest that, compared to the group of regions in the excluded category,
18 regional support for the EU is less frequent in regions that converge, both from below and
19 above the average. As predicted by the utilitarian arguments, support is even lower in the
20 least developed regions that grow at a slower pace. This is consistent with the discontent
21 of people caused by the decrease in the relative income levels in these regions,
22 particularly with respect to regions with similar levels of income that grow faster
23 (converged to the EU average). This evidence also agrees with the argument that support
24 for the EU is broader in regions that benefit most from European integration.
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39 In any case, the comparison of these estimated effects with those reported in column (viii)
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41 to misleading conclusions. Once their effects are taken into account, the degree of support
42 for the EU, with respect to the group of regions that diverge from above the EU average,
43 is only lower in regions whose income per capita is above the average but grow less than
44 the EU as a whole. In other words, in comparison to the group of most developed and
45 dynamic regions, support is less extended in stagnant or declining regions that had
46 economic standards above the European average. Conversely, support is more frequent
47 in regions with levels of per capita GDP below the average, regardless of whether they
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58 ¹² Differences in support between regions below and above the EU per capita GDP standards become
59 insignificant when controlling by country fixed effects. This is probably due to the fact that there is a clear
60 country pattern in *belowEU*, which substantially decreases the within-country variability in this variable.
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1 converge or not to the EU average (i.e. grow faster or slower than the EU as a whole).¹³
2 Interestingly, this is so even after controlling for the level of per capita GDP and the
3 amount of structural funds in the region, which are allocated based on relative regional
4 income. Altogether, this evidence confirms that people in regions with income levels
5 below the European average tend to support the EU more than those who live in richer
6 regions. On the other hand, while there are no significant differences between poor
7 regions that converge and diverge to the EU average, this is not the case of rich regions.
8 For this group, the evidence indicates that support is less abundant in regions with low
9 growth, compared to those that move even further away from the EU average income. In
10 fact, as derived from the results in column (ix), this difference in support between the two
11 groups is robust to the inclusion of country fixed effects. However, this is not the case for
12 the ones that had levels of per capita GDP below the EU average, as the estimated
13 difference for these groups turns out not significant when country instead of region fixed
14 effects are added to the specification.
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16 With respect to the estimation of the effect of the regional controls, regardless of the
17 indicator of growth used results suggest that support increases with the amount of
18 structural funds spent in the region. This is consistent with a situation in which citizens
19 perceive the benefits of EU Cohesion Policy in the region and, as a result, they appreciate
20 the role of European institutions in promoting growth and solidarity between people and
21 territories (López-Bazo and Royuela 2019). The evidence also points to more support for
22 the EU in regions with higher employment opportunities, as proxied by the employment
23 rate. However, there seems to be a negative link between support and the degree of
24 development of the region, measured by its per capita GDP. In other words, other things
25 equal, people in worse-off regions tend to support the EU more than citizens in well-off
26 ones. This is consistent with the more positive vision of the EU in the member states of
27 central and eastern Europe, whose income is much lower than in the core European
28 countries (Garry and Tilley 2009). It also agrees with the results in Dijkstra et al. (2020)
29 that concluded that, when long-term economic and industrial decline, low education, and
30 lack of local employment opportunities are taken into consideration, well-off places are
31 more likely to vote for anti-EU parties than places that are worse-off. Similarly, support
32 would be lower in regions with older populations. On the contrary, regional support for
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¹³ 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.

1 the EU does not vary significantly either with the percentage of the region's population
2 with tertiary education or with population density and institutional quality. However, it
3 should be stressed that these estimated effects of the regional factors correspond to the
4 specification that controls for fixed regional effects and, thus exploits variability within
5 the region (that is between subperiods). As deduced from the corresponding columns in
6 Table 1, only the employment rate and population density seem to have a significant
7 contribution when the specification includes country fixed effects (i.e. the estimation
8 exploits within country variation in both subperiods).
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10 Regarding the indicator of trust in the EU, the results of the estimation of the coefficients
11 of the different specifications are reported in Table 2. It is observed that the raw
12 associations between absolute (column i) and relative (column iv) regional growth and
13 trust are somewhat stronger than in the case of support.¹⁴ However, the inclusion of
14 regional controls decreases the estimated effect of interest. The results in column (ii)
15 suggest that an additional percentage point of growth increases trust in the EU by about
16 1.4 percentage points in regions with per capita GDP above the EU average. Meanwhile,
17 the point estimate of the effect is just 0.2 percentage points in the group of regions below
18 the average.¹⁵ As for relative growth, a positive effect of growth on trust is only observed
19 in the group of regions above the average. To be clear, the value of the coefficient of the
20 interaction term in column (v), which captures the differential effect in less developed
21 regions, is similar to that associated with growth in more developed regions but of
22 opposite sign. As a result, it can be said that the evidence points to a negligible effect of
23 relative regional growth on trust in the EU in regions below the average EU income.
24 Interestingly, the impact of growth on trust in the EU becomes insignificant in the
25 specification with country fixed effects. This indicates that within-country variability in
26 regional growth does not correlate with the same type of variability in the degree of
27 regional trust in the EU. It must also be noticed that, by contrast with the case of support,
28 the degree of adjustment of the specifications with region fixed effects and with country
29 fixed effects is very similar. Hence, it may be that the inclusion of the latter type of effects
30 prevents the identification of the impact of regional growth in trust in the EU.
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55 ¹⁴ The difference is statistically significant at 10% and 5% in the case of absolute and relative growth,
56 respectively. The full set of results of the tests of equality of the growth effects across the support and trust
57 equations in the different specifications are reported in Table 3 of the Online Supplemental Material. I thank
58 an anonymous reviewer for this suggestion.

59 ¹⁵ Anyhow, it must be considered that the coefficient of the interaction term is not statistically significant
60 at the usual level, since it is estimated with low precision.
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As in the case of support, columns (vii) to (ix) of Table 2 summarise 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 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 calculated excluding the regions for which the indicators of support and trust were calculated 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 to 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

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 subperiod, 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.

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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.

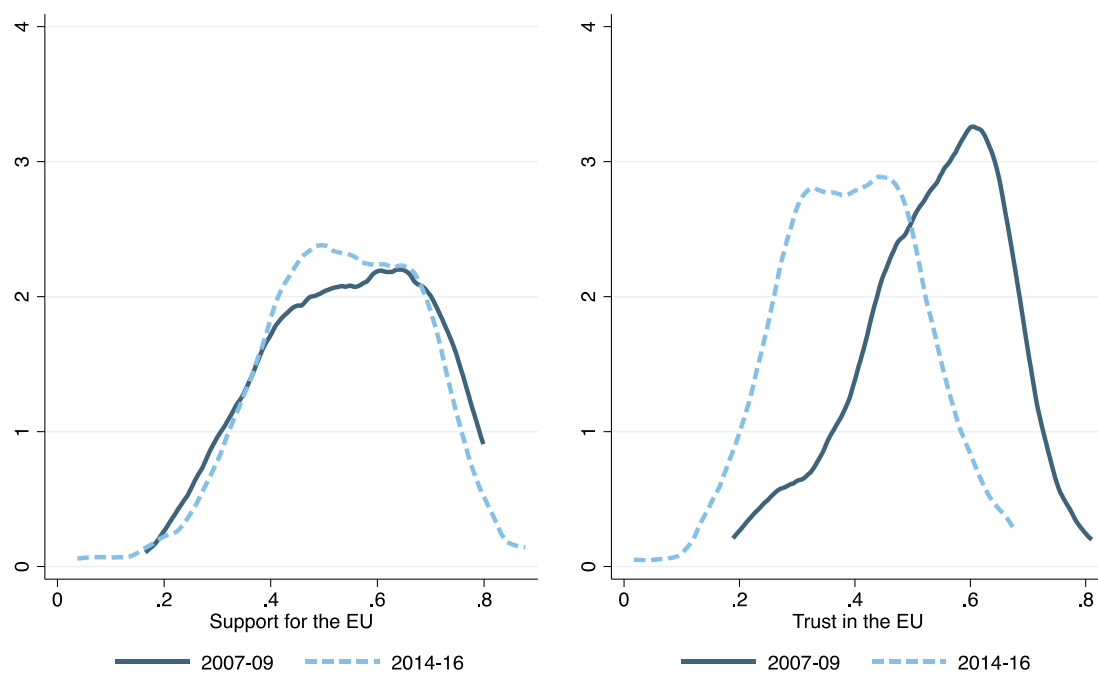
The construction of indicators that proxy the amount of regional support for and trust in the EU has allowed me to test whether economic growth in each region affects the way in which its population perceives the European project. The evidence in the study would confirm the validity of the economic utilitarian argument, in the sense that the regional economic context, particularly the pace of region's 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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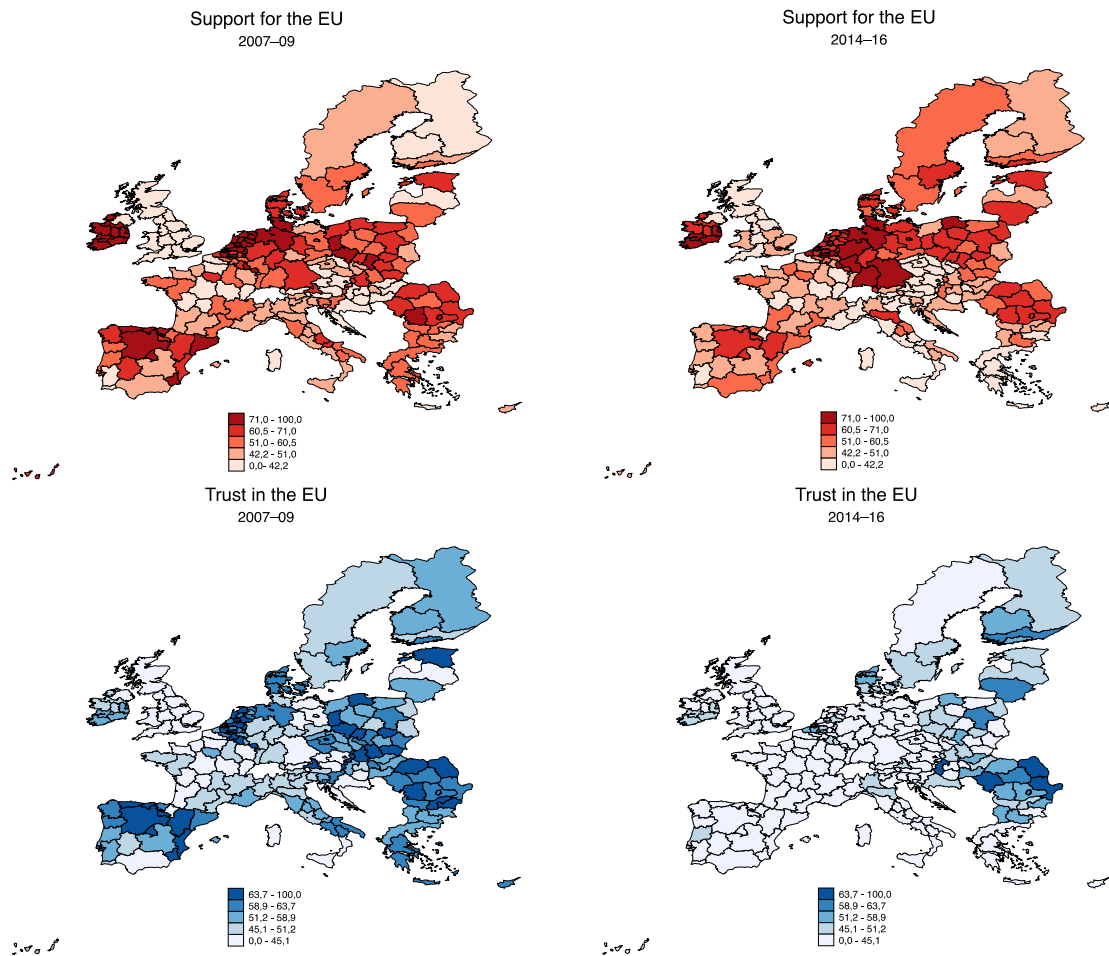
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Figure 1. Distribution of regional attitudes towards the EU.

Note: The y-axis depicts the estimated density for each point in the range of values in the x-axis. Densities are estimated by the kernel method using the values of the regional indicators in each subperiod.

Figure 2. Distribution of public attitudes in the EU.



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

Table 1. Effect of regional growth on support for the EU.

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)
Growth GDPpc	1.656*** (0.364)	2.196*** (0.673)	2.183*** (0.654)						
below EU average GDPpc * Growth GDPpc		-1.122* (0.632)	-1.251* (0.636)						
Change in deviation GDPpc EU				0.281*** (0.067)	0.510*** (0.139)	0.453*** (0.140)			
below EU average GDPpc * Change deviation GDPpc EU					-0.353** (0.161)	-0.317** (0.157)			
Convergence from above							-0.072*** (0.027)	-0.045** (0.017)	-0.056*** (0.015)
Convergence from below							-0.084*** (0.026)	0.077** (0.035)	-0.027 (0.027)
Divergence from below							-0.156*** (0.027)	0.061** (0.028)	-0.032 (0.019)
Structural Fund expenditures pc (log)		0.052*** (0.017)	0.001 (0.010)		0.052*** (0.017)	0.003 (0.009)		0.041** (0.018)	0.003 (0.010)
GDP pc (log)		-0.281** (0.112)	0.007 (0.034)		-0.267** (0.114)	0.006 (0.034)		-0.282*** (0.104)	0.015 (0.034)
Tertiary education		0.001 (0.003)	0.000 (0.001)		0.001 (0.003)	-0.000 (0.001)		0.000 (0.004)	-0.000 (0.001)
Employment rate		0.009*** (0.003)	0.003** (0.002)		0.009*** (0.003)	0.003** (0.001)		0.011*** (0.003)	0.004** (0.002)
Population density (log)		-0.206 (0.253)	0.034*** (0.009)		-0.236 (0.250)	0.034*** (0.009)		-0.172 (0.259)	0.033*** (0.009)
Quality of Government		0.015 (0.032)	0.021 (0.016)		0.015 (0.032)	0.022 (0.016)		0.020 (0.030)	0.020 (0.016)
Population 65 and over		-0.024** (0.011)	-0.000 (0.003)		-0.022* (0.012)	-0.000 (0.003)		-0.023** (0.012)	0.000 (0.003)
below EU average GDPpc		0.130*** (0.033)	0.039 (0.030)		0.093*** (0.024)	-0.002 (0.018)			
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-squared	0.056	0.260	0.716	0.050	0.265	0.717	0.122	0.236	0.714

Notes: 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.

Table 2. Effect of regional growth on trust in the EU.

	(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)
Population 65 and over		-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-squared	0.361	0.697	0.694	0.357	0.701	0.696	0.355	0.694	0.697

Notes: 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) and (viii) is 'Divergence from above'. *** p<0.01, ** p<0.05, * p<0.1.

APPENDIX

Table A1. 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 (Severoiztochen), 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 & Nordjylland
EE (1)	Eesti
ES (15)	Galicia, Principado de Asturias & Cantabria, País Vasco, Comunidad Foral de Navarra & 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 & Alsace, Picardie, Haute-Normandie, Centre, Basse-Normandie, Nord - Pas-de-Calais, Lorraine, Franche-Comté & Bourgogne, Pays de la Loire, Bretagne, Poitou-Charentes & Limousin, Aquitaine, Midi-Pyrénées, Rhône-Alpes & 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 Ελλάδα (Voreia Ellada), Κεντρικη Ελλάδα (Kentriki Ellada) & Αττικη (Attiki), Νησια Αιγαίου, Κρητη (Nisia Aigaiou, Kriti)
HR (2)	Jadranska 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 & Liguria, Lombardia, Abruzzo, Campania, Puglia & Basilicata, Sicilia & Calabria, Sardegna, Veneto & Provincia Autonoma di Bolzano/Bozen, Emilia-Romagna, Toscana, Marche & Umbria, Lazio
LT (1)	Lietuva
LU (1)	Luxembourg
LV (1)	Latvija
MT (1)	Malta
NL (10)	Groningen, Friesland (NL), Drenthe, Overijssel & Flevoland, Gelderland, Utrecht, Noord-Holland, Zuid-Holland, Noord-Brabant & Zeeland, Limburg (NL)
PL (14)	Łódzkie, Mazowieckie, Małopolskie, Śląskie, Lubelskie, Podkarpackie, Świętokrzyskie & Opolskie, Podlaskie, Wielkopolskie, Zachodniopomorskie, Dolnośląskie & 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

Note: Number of regions by country in parenthesis.

Table A2. Descriptive statistics.

	Both periods		2007–2009		2014–2016	
	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	.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 over	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

ONLINE SUPPLEMENTAL MATERIAL

Details on the Eurobarometer surveys used in the study to compute the indicators of public attitudes towards the EU

Data from the Standard Eurobarometer survey is collected twice a year, in spring and autumn, by means of face-to-face interviews to approximately 1,000 individuals, aged 15 years and over, in each country (about 500 interviews in small countries). The samples for the Standard Eurobarometer surveys are new and independently drawn (repeated cross-sections). The statistical margins due to the sampling process are shown to be within acceptable limits for the size of the country samples, i.e. for about 1,000 responses in large countries. Therefore, conclusions derived from responses in the Standard Eurobarometer surveys for the EU as a whole and for every member state are expected to be reliable. However, deviations from real figures in the population increase as the number of observations shrinks. This is important for this study, as it intends to compute indicators of support and trust for the EU regions, while the number of sample observations for each region is rather limited. I tried to overcome this limitation by combining the sample of three consecutive years in each subperiod, using the following editions of the Standard Eurobarometer:

- Period 2007–2009: ZA4530–Eurobarometer 67.2 (spring 2007), ZA4819–Eurobarometer 70.1 (autumn 2008), ZA4994–Eurobarometer 72.4 (autumn 2009)
- Period 2014–2016: ZA5932–Eurobarometer 82.3 (autumn 2014), ZA5998–Eurobarometer 83.3 (spring 2015), ZA6788–Eurobarometer 86.2 (autumn 2016)

Table SM1. Number of individual observations in the Eurobarometer surveys used to compute the indicators.

Region	Observations		Region	Observations		Region	Observations	
	2007-09	2014-16		2007-09	2014-16		2007-09	2014-16
DE1	496	586	DK04	1009	1044	NL42	149	199
DE2	564	574	EE00	3007	3008	PL11	212	212
DE3	244	310	ES11	195	192	PL12	406	410
DE4	277	278	ES12	132	68	PL21	250	279
DE5	22	54	ES21	159	162	PL22	365	358
DE6	68	82	ES22	76	67	PL31	166	181
DE7	273	282	ES24	80	97	PL32	156	195
DE8	190	148	ES30	410	455	PL33	194	166
DE9	383	358	ES41	176	176	PL34	100	104
EL5	1030	1041	ES42	130	102	PL41	268	279
EL6	1802	1831	ES43	80	82	PL42	143	106
EL4	168	144	ES51	490	518	PL51	301	281
SE1	1509	1422	ES52	306	340	PL61	158	182
SE2	1270	1377	ES53	66	68	PL62	110	109
SE3	260	290	ES61	506	515	PL63	171	188
AT11	80	118	ES62	88	96	PT11	1126	1178
AT12	605	698	ES70	126	130	PT15	122	164
AT13	665	800	FI18	723	516	PT16	728	669
AT21	238	155	FI19	831	783	PT17	843	765
AT22	458	328	FR10	520	593	PT18	217	243
AT31	525	480	FR21	155	131	RO11	410	420
AT32	172	184	FR22	93	127	RO12	345	328
AT33	191	207	FR23	88	84	RO21	536	539
AT34	110	119	FR24	128	88	RO22	412	383
BE10	299	374	FR25	88	100	RO31	490	463
BE21	422	569	FR30	195	175	RO32	300	311
BE22	246	256	FR41	129	115	RO41	331	291
BE23	385	391	FR43	159	134	RO42	269	295
BE24	290	220	FR51	166	164	SI03	1640	1637
BE25	341	376	FR52	163	191	SI04	1394	1421
BE31	98	72	FR53	131	100	SK01	300	319
BE32	368	300	FR61	148	171	SK02	1040	1049
BE33	341	265	FR62	121	148	SK03	865	757
BE34	91	86	FR71	381	297	SK04	947	970
BE35	138	128	FR81	132	141	UKC	126	126
BG31	405	362	FR82	248	250	UKD	339	348
BG32	390	357	HR03	1197	889	UKE	259	249
BG33	400	410	HR04	1803	2208	UKF	235	239
BG34	447	442	HU10	840	939	UKG	276	264
BG41	818	871	HU21	317	349	UKH	293	268
BG42	593	639	HU22	326	300	UKI	417	444
CY00	1511	1500	HU23	296	308	UKJ	419	469
CZ01	350	311	HU31	394	357	UKK	257	269
CZ02	371	358	HU32	452	460	UKL	70	146
CZ03	356	386	HU33	406	403	UKM	248	230
CZ04	399	477	IE01	1341	841	UKN	909	914
CZ05	454	376	IE02	1670	2185	FI1B	728	749
CZ06	421	540	LT00	3052	3014	FI1D	778	997
CZ07	362	281	LU00	1513	1513	ITC1	322	313
CZ08	412	351	LV00	3021	3015	ITC4	440	529
DEA	784	799	MT00	1500	1525	ITF1	80	121
DEB	203	228	NL11	131	108	ITF3	311	290
DEC	43	53	NL12	125	123	ITF4	245	284
DED	403	387	NL13	125	107	ITG1	395	325
DEE	237	229	NL21	299	291	ITG2	118	89
DEF	124	122	NL22	353	397	ITH3	337	265
DEG	242	205	NL31	234	233	ITH5	228	257
DK01	837	773	NL32	512	500	ITI1	177	196
DK02	454	504	NL33	588	578	ITI3	158	114
DK03	737	709	NL41	538	492	ITI4	296	282

Note: Some regions combined as indicated in Table A1.

Table SM2. Correlation matrix.

	Support EU	Trust EU	Growth GDPpc	Change dev. GDPpc EU	Conver above	Converg below	Diverg below	Below EU GDPpc	SFpc (log)	GDPpc (log)	Tertiary educ.	Empl. rate	Pop. dens.(log)	QoG	Pop. 65 over
Support EU	1.000														
Trust EU	0.518	1.000													
Growth GDPpc	0.229	0.516	1.000												
Change dev. GDPpc EU	0.226	0.365	0.928	1.000											
Convergence above	0.053	0.001	-0.268	-0.337	1.000										
Convergence below	0.021	0.243	0.610	0.647	-0.380	1.000									
Divergence below	-0.291	-0.301	-0.470	-0.462	-0.329	-0.437	1.000								
Below EU GDPpc	-0.246	-0.040	0.161	0.203	-0.669	0.568	0.492	1.000							
SF pc (log)	-0.155	0.164	0.318	0.357	-0.507	0.669	-0.010	0.638	1.000						
GDP pc (log)	0.217	-0.152	-0.368	-0.381	0.448	-0.664	-0.101	-0.735	-0.660	1.000					
Tertiary education	0.283	-0.177	-0.301	-0.209	0.238	-0.402	-0.041	-0.427	-0.448	0.602	1.000				
Employment rate	0.180	-0.014	0.020	-0.011	0.312	-0.263	-0.300	-0.529	-0.466	0.579	0.400	1.000			
Population dens.(log)	0.278	0.066	-0.160	-0.178	0.379	-0.326	-0.134	-0.438	-0.386	0.523	0.330	0.162	1.000		
Quality of Government	0.169	-0.200	-0.339	-0.403	0.267	-0.488	0.029	-0.446	-0.552	0.647	0.492	0.661	0.158	1.000	
Population 65 over	-0.133	-0.342	-0.323	-0.237	0.063	-0.165	0.104	-0.064	-0.140	0.119	0.003	0.132	-0.162	0.148	1.000

Table SM3. Tests of equality of effects in the support and trust specifications.

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)
Growth GDPpc	3.34 [0.068]	1.34 [0.246]	4.96 [0.026]						
below EU average GDPpc * Growth GDPpc		0.00 [0.975]	0.62 [0.432]						
Change in deviation GDPpc EU				4.32 [0.038]	0.66 [0.416]	3.81 [0.051]			
below EU average GDPpc * Change deviation GDPpc EU					0.07 [0.794]	0.39 [0.534]			
Convergence/divergence from above/below							17.73 [0.000]	5.56 [0.135]	3.05 [0.384]
With controls		44.72 [0.000]	28.26 [0.002]		48.66 [0.000]	31.00 [0.000]		39.44 [0.000]	18.27 [0.051]

Notes: χ^2 statistic and the corresponding p-value in brackets of the test of equality of the corresponding coefficients of the support and trust specifications. The columns correspond to the specifications in Tables 1 and 2 of the main text.

Table SM4. Effect of regional growth on support for and trust in the EU. Estimates using only regions with more than 100 observations to compute the indicators of public attitudes.

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)
SUPPORT FOR THE EU									
Growth GDPpc	1.613*** (0.369)	2.186*** (0.604)	2.120*** (0.584)						
below EU average GDPpc * Growth GDPpc		-0.988 (0.631)	-1.271** (0.603)						
Change in deviation GDPpc EU				0.274*** (0.067)	0.434*** (0.138)	0.388*** (0.125)			
below EU average GDPpc * Change deviation GDPpc EU					-0.240 (0.151)	-0.256* (0.139)			
Convergence from above							-0.060** (0.029)	-0.034* (0.019)	-0.049*** (0.015)
Convergence from below							-0.070** (0.027)	0.076** (0.031)	-0.024 (0.026)
Divergence from below							-0.142*** (0.028)	0.046* (0.026)	-0.031 (0.020)
TRUST IN THE EU									
Growth GDPpc	2.097*** (0.283)	1.111* (0.623)	0.755 (0.581)						
below EU average GDPpc * Growth GDPpc		-0.734 (0.688)	-0.545 (0.602)						
Change in deviation GDPpc EU				0.369*** (0.052)	0.367*** (0.118)	0.189 (0.122)			
below EU average GDPpc * Change deviation GDPpc EU					-0.367** (0.146)	-0.192 (0.140)			
Convergence from above							-0.045** (0.020)	-0.018 (0.018)	-0.038** (0.018)
Convergence from below							0.013 (0.019)	0.053 (0.043)	-0.026 (0.025)
Divergence from below							-0.088*** (0.021)	0.061 (0.040)	-0.026 (0.021)
Controls	NO	YES	YES	NO	YES	YES	NO	YES	YES
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	320	316	316	320	316	316	320	316	316
Number of regions	160	158	158	160	158	158	160	158	158

Notes: 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.

Table SM5. Effect of regional growth on support for and trust in the EU. Growth computed over 3 years.

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)
SUPPORT FOR THE EU									
Growth GDPpc	1.658*** (0.352)	1.486*** (0.511)	1.734*** (0.492)						
below EU average GDPpc * Growth GDPpc		-0.380 (0.435)	-0.539 (0.434)						
Change in deviation GDPpc EU				0.476*** (0.111)	0.768*** (0.213)	0.763*** (0.226)			
below EU average GDPpc * Change deviation GDPpc EU					-0.534* (0.279)	-0.487* (0.264)			
Convergence from above							-0.077*** (0.025)	-0.061*** (0.018)	-0.063*** (0.016)
Convergence from below							-0.092*** (0.026)	0.072** (0.029)	-0.006 (0.024)
Divergence from below							-0.160*** (0.027)	0.036 (0.028)	-0.048** (0.019)
TRUST IN THE EU									
Growth GDPpc	2.191*** (0.312)	1.177** (0.553)	1.065** (0.537)						
below EU average GDPpc * Growth GDPpc		-0.529 (0.471)	-0.511 (0.475)						
Change in deviation GDPpc EU				0.662*** (0.099)	0.749*** (0.225)	0.507** (0.235)			
below EU average GDPpc * Change deviation GDPpc EU					-0.712** (0.277)	-0.419 (0.281)			
Convergence from above							-0.049*** (0.015)	-0.050*** (0.017)	-0.047*** (0.014)
Convergence from below							0.004 (0.017)	0.062 (0.039)	-0.007 (0.025)
Divergence from below							-0.090*** (0.019)	0.024 (0.039)	-0.042* (0.022)
Controls	NO	YES	YES	NO	YES	YES	NO	YES	YES
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

Notes: 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.

Table SM6. Effect of regional growth on support for and trust in the EU. Growth computed over 10 years (only for the period 2014–2016).

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)
SUPPORT FOR THE EU									
Growth GDPpc	2.356*** (0.453)	5.321*** (0.968)	-0.174 (1.650)						
below EU average GDPpc * Growth GDPpc		1.837* (0.979)	0.707 (0.950)						
Change in deviation GDPpc EU				0.191*** (0.037)	0.430*** (0.083)	-0.089 (0.134)			
below EU average GDPpc * Change deviation GDPpc EU					0.200** (0.084)	0.076 (0.072)			
Convergence from above							-0.052 (0.041)	-0.073* (0.039)	-0.020 (0.022)
Convergence from below							-0.088** (0.037)	0.047 (0.061)	0.003 (0.039)
Divergence from below							-0.151*** (0.037)	-0.122*** (0.043)	-0.020 (0.033)
TRUST IN THE EU									
Growth GDPpc	4.058*** (0.354)	2.878*** (0.869)	-0.605 (1.470)						
below EU average GDPpc * Growth GDPpc		1.775** (0.887)	1.342 (1.131)						
Change in deviation GDPpc EU				0.349*** (0.030)	0.240*** (0.069)	-0.043 (0.122)			
below EU average GDPpc * Change deviation GDPpc EU					0.168** (0.071)	0.130 (0.091)			
Convergence from above							-0.015 (0.027)	-0.023 (0.027)	0.006 (0.021)
Convergence from below							0.052** (0.026)	0.049 (0.040)	0.040 (0.038)
Divergence from below							-0.102*** (0.025)	-0.102*** (0.033)	-0.012 (0.029)
Controls	NO	YES	YES	NO	YES	YES	NO	YES	YES
Country FE	NO	NO	YES	NO	NO	YES	NO	NO	YES
Observations	175	173	173	175	173	173	175	173	173

Notes: Cross section estimates using only the second subperiod (2014–2016). Robust standard errors in parenthesis. Omitted category in columns (vii) to (ix) is ‘Divergence from above’. *** p<0.01, ** p<0.05, * p<0.1.

Figure SM1. Public attitudes and indicators of regional growth.

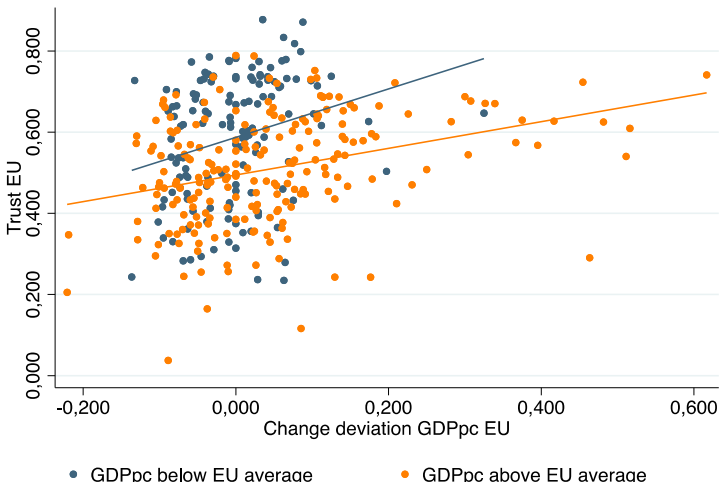
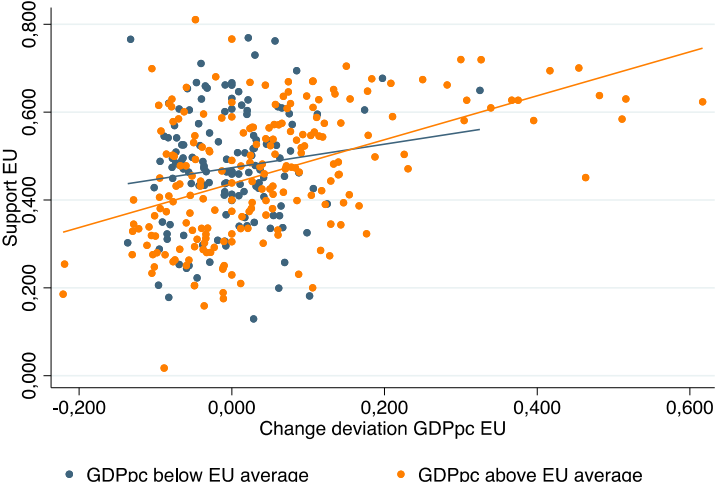
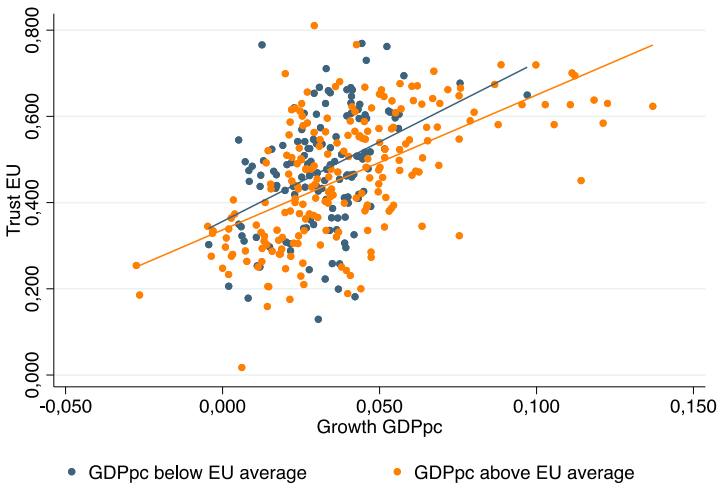
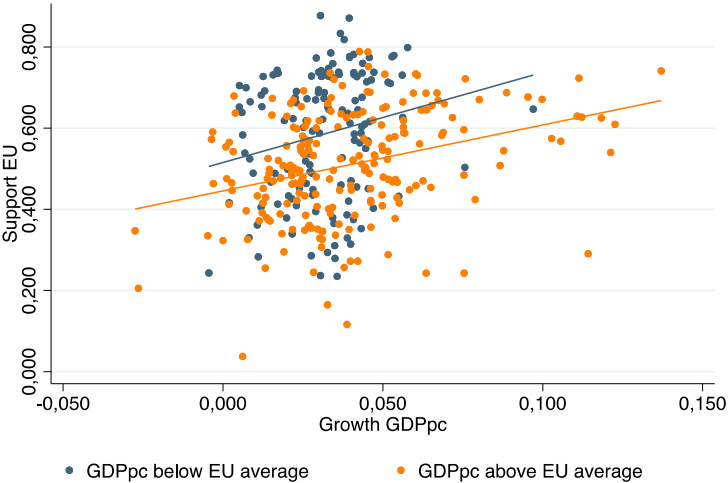
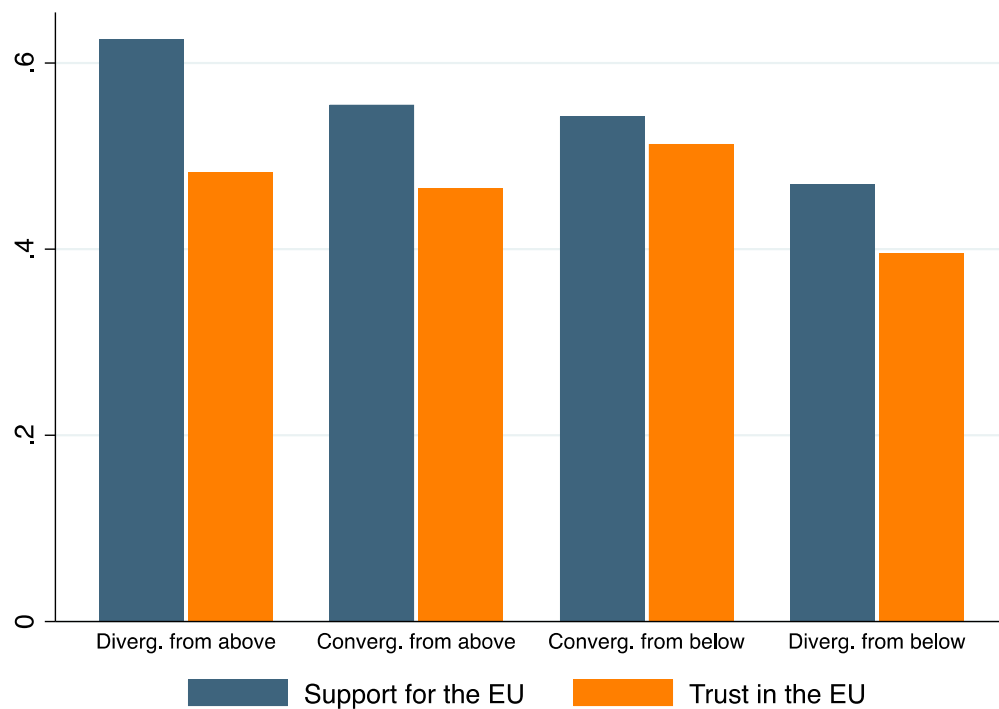


Figure SM2. Public attitudes and type of regional growth paths.



Note: Average of the proportion of population that support / trust in the EU in each group of regions.