KIEL INSTITUTE FOR THE WORLD ECONOMY

# KIEL WORKING PAPER

## Exchanging Money for Love? A Regional Analysis of EU Cohesion Policy on Euroscepticism

No. 2219 April 2022

*Michael Bayerlein and Matthias Diermeier*

Kiel Institute for the World Economy
ISSN 1862–1155

Leibniz Association

KIEL INSTITUTE FOR THE WORLD ECONOMY

# ABSTRACT

# EXCHANGING MONEY FOR LOVE? A REGIONAL ANALYSIS OF EU COHESION POLICY ON EUROSCEPTICISM*

*Michael Bayerlein and Matthias Diermeier*

**This version: April 27, 2022**

In the past, the European Union seems to have been able to tame Euroscepticism through regional 'convergence' funding. After the Eastern enlargement of the Union, however, this relationship needs to be put to the test. Not only have the new member states become the main recipients of EU funding, Eastern Europe has also changed from once being the most integration-friendly region to displaying the most integration-hostile attitudes in the EU. Motivated by this empirical puzzle, we revisit the relationship between structural 'convergence' funding and Euroscepticism and ask where - if at all - is the EU's convergence spending still able to tame Euroscepticism. Most surprisingly, correlation analyses reveal that between 2006 and 2018 larger regional subsidies go along with increasing opposition to EU integration. We can rebut this counterintuitive finding by a Diff-in-Diff approach that reveals an increasing Euroscepticism in Eastern European regions between 2006 and 2014. Nevertheless, also these more advanced models fail to establish a positive relationship between regional funding eligibility and pro-integrationist attitudes. Finally, fuzzy RDD models exploit the funding assignment rule and corroborate that the EU is no longer able to pacify integration-critical regions by their simply increasing 'convergence' funding. Nevertheless, the EU has won support in Eastern Europe where EU investments are perceived (positively). In designing a strategy to win back support for EU integration, Brussels does not need more fiscal capacity but rather has to design 'convergence' funding that is visible as well as clearly attributable to its donor.

Keywords: Euroscepticism, cohesion policy, EU transfers, methodology, regional analysis

JEL classification: D72, F14, H11, I38

**Michael Bayerlein**
Kiel Institute for the World Economy
Kiellinie 66
D-24105 Kiel, Germany
*Email: michael.bayerlein@ifw-kiel.de;*
www.ifw-kiel.de

**Matthias Diermeier**
German Economic Institute (IW)
Konrad-Adenauer-Ufer 21
D-50668, Germany
*Email: diermeier@iwkoeln.de*
www.www.iwkoeln.de



*Acknowledgements: We thank Berthold Busch for his profound advice regarding the set-up of the complex EU funding architecture. We thank the participants of the Workshop "Local Matters: Regional Inequalities in Public Investments" by the Max Planck Institute for the Study of Societies and the German Economic Institute.

# 1 Introduction

For decades European Union (EU) integration constituted a non-issue in many national polities. A "permissive consensus" (Lindberg and Scheingold, 1970, p.62) among the established political players ensured that questions of EU broadening or deepening were sufficiently depoliticized. The deliberate actions to nip integration discussions in the bud inspired Mair to reframe the EU issue from "the sleeping giant" (Van der Eijk and Franklin, 2004, p.47) to "the sedated giant" (Mair, 2007, p.12).

In a nutshell, Mair blames national political elites for the alienation between a bicycle like integration project and a growing scepticism within the European population. In fact, during the past decades different shades of backlashes to European integration have burst out in different political economies. In his now classic essay Paul Taggart describes the different layers of Euroscepticism as "contingent or qualified opposition, as well as [...] outright and unqualified opposition to the process of European integration" (Taggart, 1998, p.366).

Taggart (1998) as well as Taggart and Szczerbiak (2004) and Szczerbiak and Taggart (2008) triggered a vivid scholarly debate about the different characteristics of growing discontent with EU integration and the chances of pro-European forces to counter the hostile anti-EU sentiment (Kopecký and Mudde, 2002; Flood, 2002). Particularly stimulating, Boomgaarden et al. (2011) sketch the different dimensions of Euroscepticism. Among others, they make clear that a key driver of opposition to EU integration originates on utilitarian grounds. Namely, people oppose further integration because they do not perceive the EU's value added to their or their country's economic situation or even believe the EU puts a strain on the local or national economy (see also Kriesi et al., 2006).

Recently, economic reservations against EU membership are especially associated with the public debt crisis in the Eurozone that triggered an outspoken protest against the EU led Troika's crisis 'medicine' in Southern Europe: austerity. The countries were granted access to desperately needed rescue packages but were similarly demanded to significantly restrict their expenditures. Since protest against the subsequent economic slump evolved aligned to the traditional economic dimension of political competition, (Eurosceptic) radical left parties won high election shares by demanding more support for regions in economic crisis (Armingeon, Guthmann, and Weisstanner, 2015; Hobolt, 2015; Manow, 2018; Hutter and Kriesi, 2019).

In this vein, in order to identify policies to address Euroscepticism, zooming in on the economically most deprived regions appears to be a fruitful lever. Dijkstra, Poelman, and Rodríguez-Pose (2020, p. 751) even advice: "fixing the so-called places that don't matter is possibly one of the best ways to start" . Hence, by spending roughly one third of its budget on cohesion policies, the EU seems to have taken the right track to win back support on the national level (EU, 2014a). In line with this intuition, indeed Borin, Macchi, and Mancini (2021) find a pacifying effect of cohesion funding on Eurosceptic attitudes and voting behavior.

Nevertheless, Hooghe and Marks (2018) identify that Euroscepticism evolves on highly heterogeneous "critical junctures" (2018, 109) that trigger different shades of opposition to EU integration. A rather non-economical 'critical juncture' seems to have been experienced in Eastern Europe during the past decade. In contrast to the Southern European rise-up against the EU's austerity regime on the political left, Eastern European opposition against EU integration was rather channeled through identity politics in times of the refugee influx to Europe (Hutter and Kriesi, 2019).[1] As the populist radical

[1] See Diermeier, Frohwein, and Nau (2021) for an overview over the difficulties of the European radical right to achieve policy congruence on economic questions in the European Parliament - even in Eastern Europe.

right altered the course of political competition in several Eastern European EU member states, anti-immigration sentiment and opposition to EU integration have become "twin issues" (Hoeglinger, 2016, p. 59). In contrast to the protest against negative economic implications of EU membership, stark opposition was formed against the putative lax immigration regime as well as against resettlement schemes that would have forced EU member states to accept a certain share of refugee immigrants. In the light of a highly politicized EU issue, due to an extremely salient cultural cleavage, fostering economic development through EU cohesion policies seems less likely to convince Eurosceptics of the advantages of (further) EU integration.

The present contribution takes this intuition as a starting point to extend the growing literature on EU cohesion policies and Euroscepticism. Taking into account that the EU's politicization took place in a different regional setting and with a significantly different route, we ask *where - if at all - is the EU's convergence spending still able to tame Euroscepticism?*

The remainder of this article is structured as follows. The second section gives an overview over the relevant EU cohesion funds and its regional effects that have been identified in the literature. A specific focus is laid on the EU member states from Eastern Europe. The third section presents the different datasets we draw upon and lays out the empirical identification strategy. The fourth section presents our estimation results. The final section concludes.

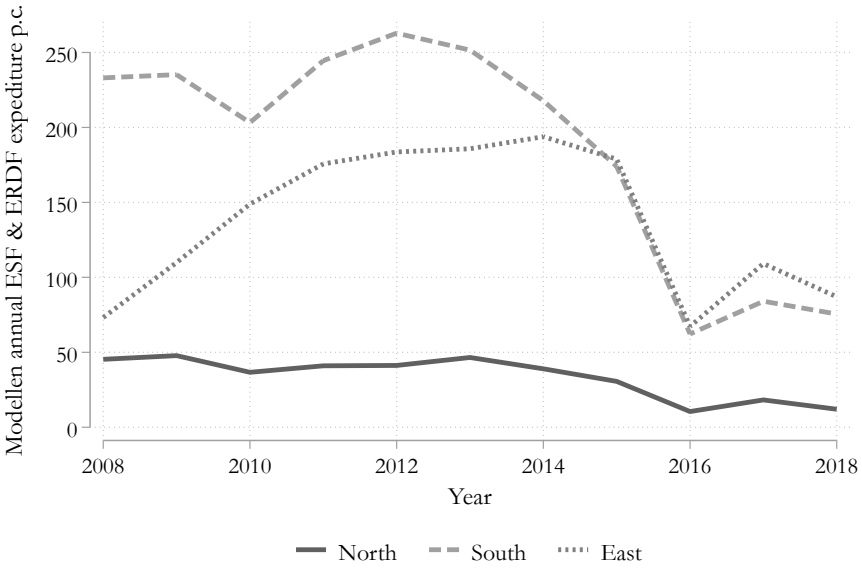
## 2 Literature Review and Empirical Puzzle

Since the first steps of EU integration, the convergence of standards of living has been a main goal of the EU and its predecessor (EEC, 1957; EU, 1992). Accordingly, also the Lisbon Treaty established a focus on especially deprived regions: "particular attention shall be paid to rural areas [and] areas affected by industrial transition [...]" (EU, 2007b). The EU's focus on convergence policy is also reflected in the large share of around one third of its budget that is steered towards this end through the European Regional Development Fund (ERDF), the European Social Fund (ESF) and the Cohesion Fund (CF) (EU, 2014a). What is more, the EU identifies regions (defined as NUTS-2 regions) to be particularly worthy of funding if their GDP per capita in purchasing power standards (PPS) falls below 75 percent of the EU average. These 'less developed regions' qualify for the most generous 'convergence objective' (which was dubbed 'objective-1' in earlier programming periods) that is addressed through regional project funding through the ESF and the ERDF (Heinemann et al., 2009). 'Convergence' funding implies a 85 percent co-financing by the EU and accounts for around 80 percent of the entire EU regional development budget. Although all regions receive some sort of EU funding, the lion share is channeled towards regions below the 75 percent of GDP per capita threshold.

Calculations by Rodríguez-Pose and Dijkstra (2021) show that since 2004 funding of fully eligible regions remained relatively stable around annually 180-200 Euro per capita. In contrast, funding of 'transition' regions slightly above the threshold is subject to significant fluctuations. This is largely due to the changing composition of EU member states over time. Whereas for the multi-annual financial framework (MFF) funding period between 2014 and 2020 the 75 percent threshold was defined based on the EU-27 GDP per capita between 2007 and 2009 (EU, 2013). The reference point in the MFF funding period between 2007 and 2013 has been the average of EU-25 GDP per capita between 2000 and 2002 (EU, 2006). The funding period 2000 to 2006 even related to the GDP per capita of EU-15 (EU, 1999).

Since the EU refrains from immediately withdrawing funding from regions due to decreasing EU

Figure 1: Regional cohesion spending from 2008 to 2018




**Notes:** The figure shows the average EU cohesion fund payments on the NUTS regional level by Northern (solid black), Southern (dashed gray), and Eastern (dotted gray) European regions between 2008 and 2018. The data on payments comes from directly from the (EU, 2020). The values are expressed as a modeled annual per capita payment in current Euros. For details on the sample selection and operationalization see Section 3.

average GDP as more and more low-income member states join the Union, regions that suddenly exceed the 75 percent threshold qualify as 'phasing-out' or 'transition' and remain eligible for a reasonable amount of 'convergence' spending (Heinemann et al., 2009). Even if regions become ineligible for 'convergence' funding they gradually 'phase-in' into the significantly less generous 'competitiveness and employment objective'. Although these regions might no longer suffer from relative economic deprivation with the newly composed EU, their position in comparison to national peers remains unaltered. The fact that their regions no longer receive the full convergence funding could potentially trigger disappointment with the European Union.

In fact, the EU's fifth enlargement in 2004 included - among others - nine Eastern European countries and significantly changed the dynamics within the EU. First, the economic convergence process amplified significantly due to catch-up growth in new member states (Hüther, 2019). Second, the cardinal direction of EU cohesion policy shifted towards the East where the EU's structural funding accounts for up to 60 percent of gross fixed capital investments (Busch and Diermeier, 2019). Whereas the focus lied on Southern European regions beforehand, with very few exceptions most of the Eastern European regions qualified for full funding after their EU accession. Figure 1 depicts the altered geography of EU 'convergence' spending through the ESF and ERDF over the course of past 15 years.[2]

Several studies have exploited this cohesion spending set-up in a fuzzy regression discontinuity design (RDD). Such an identification strategy takes into account both the importance of the 75 percent threshold (eligibility) as well as the actual treatment (including the always taking 'phasing-out' and 'transition' regions). As a first of a whole series of studies Becker, Egger, and Ehrlich (2010) find a positive local average treatment effect of 'objective 1' funding on growth but not on employment

[2]Note that the drop after 2014 is not based on an actual reduction in the real allocation of funds but only rooted in the transition from one funding period to another. This initial delay in the roll-out of the allocated funds in the transition period also existed during the transition between former MFFs.

for the funding periods between 1989 and 2006. These findings are corroborated by Pellegrini et al. (2013) who analyze a similar funding period. Gagliardi and Percoco (2017) add that the respective growth effects are mainly driven by the favorable geography of treated regions. Zooming in on the funding period during the financial crisis between 2007 and 2013, Becker, Egger, and Ehrlich (2018) identify a local positive 'causal' treatment effect of EU regional policy on growth, however, smaller in size in comparison with earlier MFF funding periods. Albanese, Carrieri, and Speziali (2021) employ a comparable empirical RDD set-up, however, they focus on the effect of EU cohesion spending on regional well-being and reject a respective relationship.

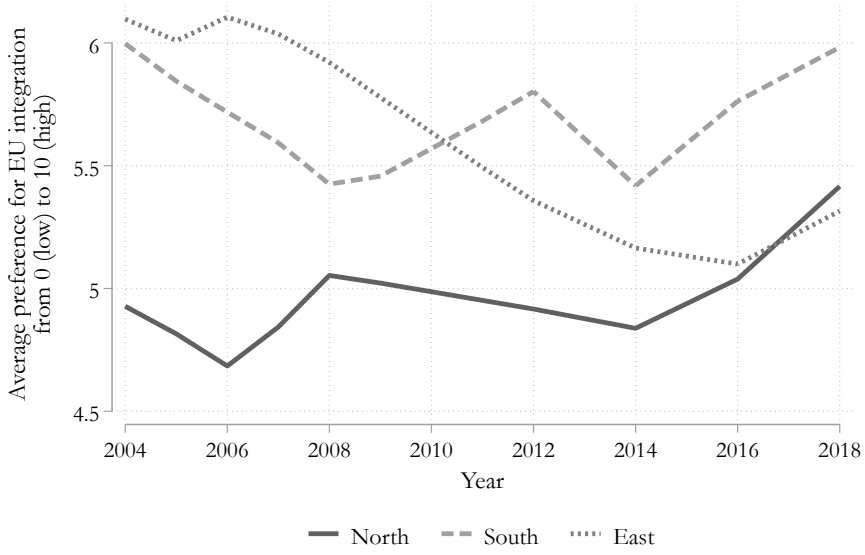
Finally, Borin, Macchi, and Mancini (2021) come closest to our empirical design by exploiting the local 'causal' treatment effect of ESF and ERDF spending on Euroscepticism and support for Eurosceptic parties. Their regressions confirm the expected pacifying effect - namely the EU being able to buy support for integration through 'convergence' spending. However, their sample is restricted to EU-15 countries and excludes the period of intensified refugee migration after 2013. Running multilevel regression analyses for the MFF period from 2007 to 2013, Schraff (2019) detects favorable breeding grounds for Eurosceptic parties in middle income areas that are classified as suffering from "insufficient compensation" (2019, 83) by the EU.

In this context, Rodríguez-Pose and Dijkstra (2021) supply the only study to our knowledge that moves beyond the Euro crisis' MFF period. Building up on the empirical fact that - on the national level - the strong correlation between EU annual regional spending and people's awareness of EU support is heavily driven by Eastern European countries, a comprehensive model of European NUTS-2 regions and the electoral performance of Eurosceptic parties between 2013 and 2018 is run. As a main mechanism, the relationship between higher EU subsidies and lower Eurosceptic vote shares is carved out. Unfortunately, the model employs aggregate cohesion payments over the combined period from 2000 to 2013. Since many Eastern European countries only joined the EU during this period, the models might easily underestimate the relative amount of EU subsidies directed at Eastern Europe in comparison to the regions that were eligible throughout the entire period of observation.

Further, the possible pacifying effect of regional spending is put into question by the prevailing Euroscepticism in Eastern Europe (Hloušek and Kaniok, 2020; Taggart and Szczerbiak, 2004). To shed more light on the development of Euroscepticism in Eastern Europe, Figure 2 plots the average Euroscepticism by European regions. The figure shows that preferences towards further integration have significantly declined since 2004 in Eastern Europe, while other regions have seen no change or even an improvement. Within only a few years, Eastern Europe converged from the most integrationist to the most anti-integrationist region. When the refugee migration went along with electoral success of the EU-critical extreme political right, Euroskepticism had grown in the populations since years. Similarly, the sovereign debt crisis that went along with electoral success of anti-EU policy platforms on the political left had been prevailed by rising Euroskepticism that was eased later on.

In conclusion, a growing literature suggests that the EU manages to pacify reservations to EU integration through 'convergence' spending. However, the main regions of the most recent wave of Euroscepticism mostly fly under the radar. In fact, Eastern Europe has moved into the spotlight of EU 'convergence' funding - at a time when Euroscepticism in non-capital Eastern European areas had grown significantly. Hence, the regions that moved to the top of the list of EU 'convergence' funding also developed the largest resentments against its donor. Interestingly, at least on the country level the main recipient of EU subsidies in Eastern Europe report the highest awareness of cohesion funding (Rodríguez-Pose and Dijkstra, 2021). The following analysis intends to understand this empirical

Figure 2: Regional average Euroscepticism from 2004 to 2018




**Notes:** The figure shows the average Euroscepticism on the NUTS regional level by Northern (solid black), Southern (dashed gray), and Eastern (dotted gray) European regions between 2004 and 2018. The data on Euroscepticism comes from the European Social Survey and the question on whether European unification has gone too far (0) or has to go further (10). For details on the sample selection and operationalization see Section 3.

puzzle and to put the established relationship between subsidies and Euroscepticism to the test.

## 3 Data and identification strategy

In this section, we introduce the data and identification strategy of our analysis. The key aspect of the analysis is to assess the correlation between the eligibility to transfers from the EU's 'convergence' funds as well as the actual amount of payments and the changes in Euroscepticism on the regional level. Additionally, we draw on novel data on the public awareness and perception of transfers from the convergence funds to uncover the relationship between perception of structural funding and changes in the attitudes towards the EU.

The four main variables of our analysis are a region's eligibility to take part in the EU program, the size of the payments to that region, and the average preferences towards EU integration of the citizens as well as the the citizens' awareness and perception of the EU's regional policy. We analyze these four variables in a sample of 128 regions from 23 EU countries between 2006 and 2014 as well as 144 regions between 2014 and 2018. Due to data restrictions, the effect of public perception and awareness can only be analyzed in the period from 2014 to 2018. To estimate the correlations of interest, we run OLS models and introduce a Difference-in-Differences (DiD) approach as well as a Regression Discontinuity Design (RDD). The following sections introduce the data and operationalization in greater detail and provide some first descriptive insights.[3]

### 3.1 Sample

Our analysis covers 23 EU countries between 2006 and 2018. The EU-27 countries not included due to missing observations are Greece, Luxembourg, Malta, and Romania. The unit of analysis is the

[3]See Table A1 for the summary statistics of all main variables.

country specific NUTS-2 regions. Due to data limitations from the European Social Survey (ESS), the analyses cannot be conducted on the NUTS-2 level for all regions in our analysis. While data is available on the NUTS-2 level for 15 of the 23 countries, we follow Borin, Macchi, and Mancini (2021) and analyze an additional four countries on the NUTS-1 level as well as the remaining four member states on the NUTS-0 level.[4].

Since the NUTS classification is subject to continual revision, we have to account for the changes that fall into the period of our analysis. The changes in NUTS classifications are well documented by Eurostat,[5] which enables us to carefully adjust our sample in the light of these changes. While a large portion of the changes does not result in changing borders of NUTS regions, but are mere name changes, regions are occasionally joined or split up. For reasons of inter-time comparability we address the issue of splits and joints by choosing the wider region for the entire period of the analysis. For example, if the NUTS-2 regions A and B are joined in 2012 to become region C, we group regions A and B as C over the entire period of our analysis. Conversely, if region C is split up into A and B, we continue to treat the regions as C. In total, this gives us 128 (2006-2014) and 144 (2014-2018) stable NUTS regions over the course of our analysis.

### 3.2 Euroscepticsm

Euroscepticism in a given region is determined by using data from the European Social Survey (ESS). The ESS is a biennial survey conducted in 25 EU member states. We use the ESS dataset as it contains a rich number of respondents per country (usually more than 1,000) with reference to their NUTS region of residence. To measure Euroscepticism in a given region, we calculate the average responses to the question on EU unification from 0 "unification already gone too far" to 10 "unification go further". Other than the Eurobarometer question on the preferences towards membership in the EU, the ESS question captures Euroscepticism in a broader sense as it includes the total opposition towards the EU as well as disagreement with certain components of European integration. Since the question is not included in all surveys and the survey is only conducted biennially, we use linear interpolation to model missing data. This procedure results in 1,567 region-year observations with data on the average preferences towards EU integration. The average value is 5.28 with a standard deviation of 0.76 ranging from 2.7 to 7.4.

### 3.3 Eligibility

In general, funding eligibility is determined by the share of regional GDP in purchasing power standards and in relation to the EU average (EU, 2013; EU, 2006). Unfortunately, Eurostat provides a very limited data archive with regards to former regional GDP PPS data. Current GDP purchasing power calibrations are carried out on the basis of the EU-27 composition (excluding the UK and including Croatia). In order to rebase the regional data, for the relevant EU-25 composition during the MFF period 2007-2013 Eurostat recommends to create a 'correction factor' by dividing the aggregated EU-25 GDP in Euro from the respective aggregate GDP in purchasing power standards as currently published. Multiplying this correction factor with the regional EU-27 PPS numbers comes the closest possible to the original data that determined the EU's assignment rule. Similarly, for the MFF period 2014-2020 GDP data can be rebased to the relevant purchasing power standards (including the UK,

[4]NUTS-1: Belgium, Germany, France, and Italy. NUTS-0: Cyprus, Estonia, Latvia, and Lithuania

[5]`https://ec.europa.eu/eurostat/web/nuts/history`.

excluding Croatia).[6]

Several regions did not qualify for 'convergence' ESF and ERDF funding according to the assignment rule - due to lying above 75 percent of average GDP per capita during the respective time period -, but were still regarded eligible. This is the case if regions 'phase-out' of the 'convergence objective' as well if exceptions were granted such as for Slovenia.[7] To account for actual eligibility despite putative eligibility due to the assignment rule, an eligibility variable is coded from EU (2007a) and EU (2014b).[8] As our sample consists of NUTS-1 level data for some countries, where some of the respective NUTS-2 subregions are treated whereas others are not, we decide to define eligibility in a narrow way: Only if all NUTS-2 subregions are eligible for funding, the NUTS-1 region is considered eligible.[9]

Using the eligibility variable, we aggregate the changes in the EU unification preferences by EU region and eligibility. NUTS regions eligible for payments from EU funds are considered the treatment group, while regions not eligible form the control group. Figure 3 visualizes the average change in EU unification support by region after the treatment in the MFF between 2007-2013 and the MFF starting in 2014.[10] Around the average change, a 95 percent confidence interval is plotted. Surprisingly, the figure shows a positive difference in Northern and Southern European NUTS regions (decreasing Euroscepticism) and a negative difference in Eastern European NUTS regions (increasing Euroscepticism). The average difference between treated and non-treated NUTS regions is not statistically significant. However, the treated Eastern European states stand out as the negative difference is statistically significant when compared to the treated and non-treated Northern and Southern European regions. This finding is even stronger, when removing the yet to be completed MFF between 2014 and 2018 and only focusing on the period from 2007 to 2013. Eastern European regions that rose to the top of 'covergence objective' recipients became more critical of the EU's feeding hand.

### 3.4 Payments

Finally, the EU (2020) supplies a regionalized NUTS-2 database of payments by various EU funds. What is more, the database is not limited to information concerning the funding that is 'booked' in a specific year but rather models the "real annual expenditure on the ground" (EU, 2020).[11] Since we are interested in the relationship between expenditures and people's attitudes toward the EU, we

[6] Appendix Figure A1 and A2 shows that with minor exceptions this procedure allows to retrieve the original data.

[7] Despite Western Slovenia (NUTS-2 Region SI04) had a PPS GDP per capita of 91 percent of EU average between 2000 and 2002, the region qualified for funding during the 2007-2013 MFF period because the entire country had been considered a single funding unit long since: "Slovenia is pleased to note that the EU noted that the whole territory of Slovenia will be considered as one single region at NUTS 2 level for the period up to the end of 2006, that Slovenia intends to implement one Single Programming Document covering the whole territory of Slovenia for the programming period up to the end of 2006, and that Slovenia will continue discussions on the territorial division ensuring balanced regional development with the Commission in order to review, already being a Member State, its NUTS classification at the end of 2006 at the latest" (EU, 2003, p. 984). Only during the MFF period 2014-2020 Western Slovenia did no longer qualify for the structural funds ESF and ERDF (EU, 2014b).

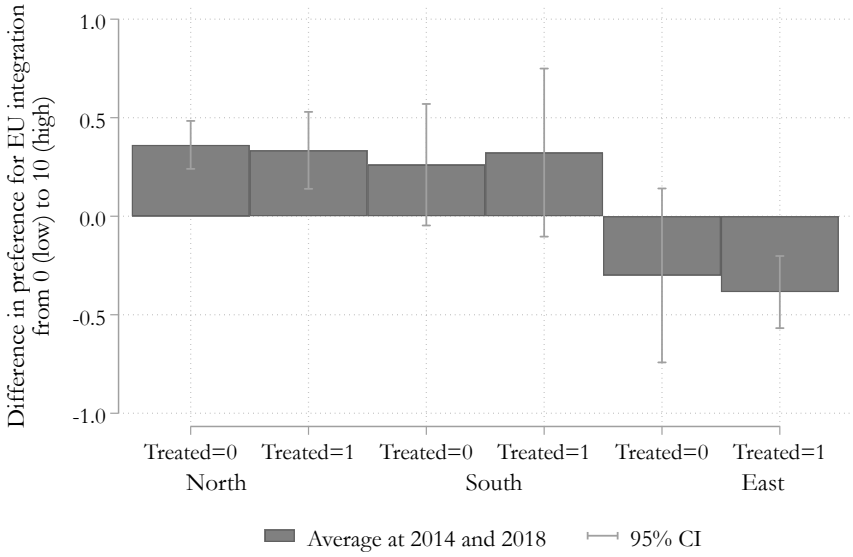
[8] The eligibility variable indicates eligibility both if a region regularly qualifies for funding or if it falls under the 'phasing-out' criteria. What is more, for the MFF period 2014-2020, the EU introduces the category of 'transition regions' with a GDP per capita in PPS falling into the corridor between 75 and 90 percent of EU-27 average. Since the 26 transition regions in our sample receive around half the per capita funding that actually eligible regions obtain, but more than twice the funding of non-eligible regions, we treat 'transition' regions equal to 'phasing-out' regions.

[9] For a robustness check we also employ a wide eligibility definition: Namely, we consider a NUTS-1 region eligible once a single subregion is eligible for funding.

[10] In contrast to Borin, Macchi, and Mancini (2021), who employ the level of Euroscepticism as their dependent variable, we stick to the change of Euroscepticism over a programming period. If at all, we expect a change in EU funding to cause a change of attitudes towards EU integration.

[11] See the University of Bergen's study for the European Commission for a documentation of the employed modeling (EC, 2018).

Figure 3: Regional average change Euroscepticism by cohesion fund treatment




**Notes:** The figure shows the average change in Euroscepticism on the NUTS regional level by Northern, Southern, and Eastern European regions between 2006 and 2014 as well as 2014 and 2018. The data on the eligibility comes directly from the EU (EU, 2013; EU, 2006). The Euroscepticism change data comes from the European Social Survey and the question on whether European unification has gone too far (0) or has to go further (10).

extract the modeled annual payments by the structural funds ESF and ERDF on the NUTS-2 level. If people are supposed to evaluate the EU's regional policy, they are only able to do so after projects have actually been realized.

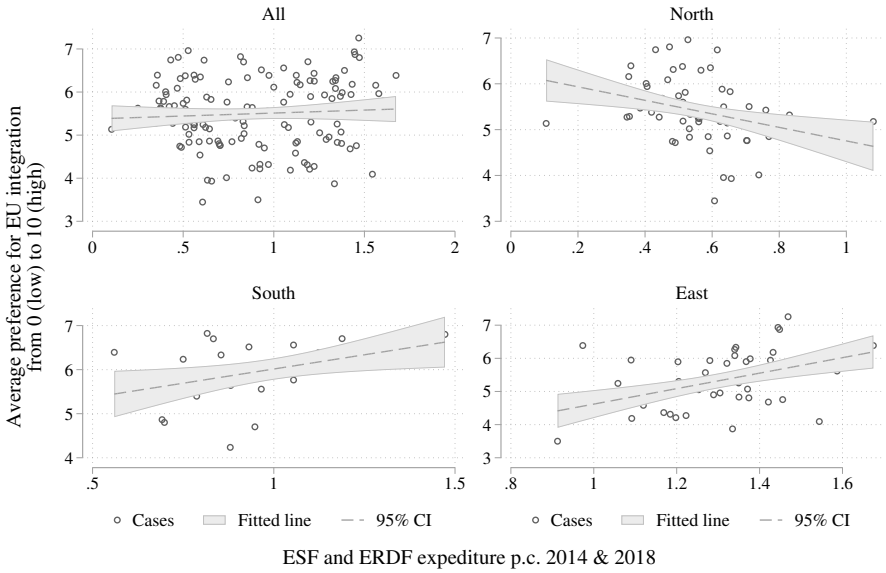
In the previous section, we provided some descriptive evidence on the changes in the public support for further EU unification. We extend this descriptive analysis by plotting the average EU unification preferences against the sum of per capita payments in the program period. Again, we subdivide by the three European regions. The results are displayed in Figure 4. The figure strikingly shows a negative correlation between per capita structural fund payments and the EU unification preferences. We observe that in regions that received the highest amount of payments the preferences towards further EU integration is the lowest.

### 3.5 Assessment and Perception

Moving beyond the analysis of actual funding, we include Flash Eurobarometer survey (European Commission, 2020) data from 2019 on the assessment and perception of payments from the regional development funds. The survey contains four questions of interest to us. First, it asks whether respondents have heard about EU co-financed projects in their area of residency. Second, respondents are asked of which of the two funds they have of. Third, respondents are asked to assess the impact of the funds on their region of residency. Lastly, respondents are asked to evaluate whether they have benefited in their daily live from the ERDF or ESF. These subsequent questions on the regional impact and personal benefits are only asked, if respondents indicated to heave heard about the funds.[12]

[12]The exact wording of the questions is: "Europe provides financial support to regions and cities. Have you heard about any EU co-financed projects to improve the area where you live?" with the read out answers "yes" and "no". "Have you heard about the following funds?" with the read out answers "The European Regional Development Fund (ERDF)", "The Cohesion Fund", "Both", and "Neither". "Taking into consideration all the projects you have heard about, would you say that this support has had a positive or negative impact on the development of your city or region?" with

Figure 4: Regional average Euroscepticism by cohesion fund payments




**Notes:** The figure shows the correlation between the sum of EU cohesion fund payments per capita in the respective program period and the average Euroscepticism on the NUTS regional level by all, Northern, Southern, and Eastern European regions between 2006 and 2014 as well as 2014 and 2018. The data on the EU cohesion fund payments comes directly from the (EU, 2020). The Euroscepticism data comes from the European Social Survey and the question on whether European unification has gone too far (0) or has to go further (10).

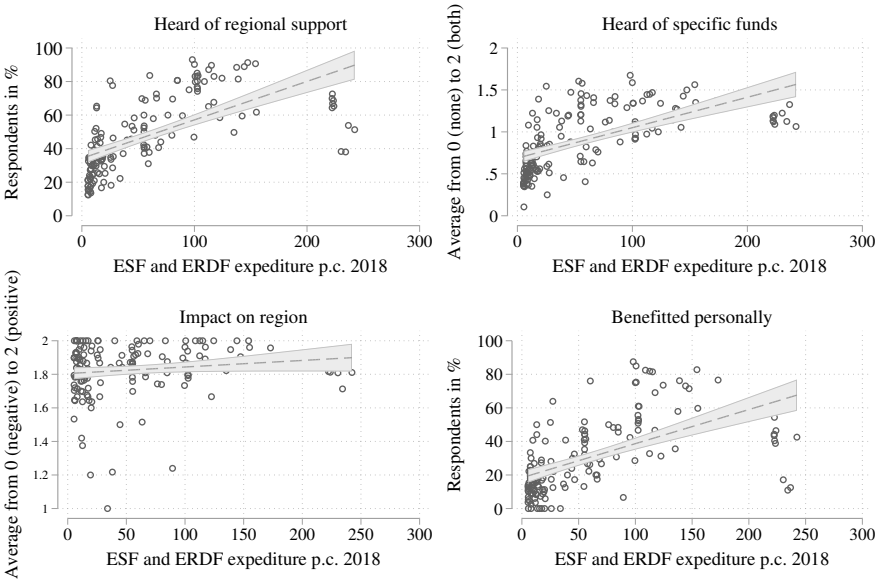
It needs to be noted that the questions are posed in a somewhat biased and suggestive nature. Regarding the question on whether the respondents have heard of the EU co-financed projects, respondents might be inclined to answers with "yes" due to an agreement bias or to not be perceived as uneducated by the interviewer. The same holds for the question on which specific funds that respondents have heard about. The question pretends to test knowledge, but the answers are read out by the interviewer. Hence, it is difficult to assess whether a respondent has really heard of the funds or just pretends to have heard of the funds.

In order to assess whether the survey is really capable of measuring the assessment and perception of the regional development funds, we plot the regional averages of the responses to the four questions against the summed per capita EU cohesion fund payments. The results are displayed in Figure 5. The upper-left panel shows the correlation between payments and the percentage of respondents of have heard about the regional funds. The correlation is positive and statistically significant, suggesting that the answers are contingent on the actual activity in a given region and unlikely to be biased.

A similar pattern emerges regarding to the question on the specific funds that respondents have heard of, which is displayed in the upper-right panel. The variable runs from 0 (none) over 1 (ESF or ERDF) to 2 (both). Again, the figure shows a positive correlation, supporting the validity of the question. In the lower-left corner the question on the regional impact shows a weaker correlation. The responses range from 0 (negative impact) over 1 (no impact) to 2 (positive impact). From this we conclude that findings based on this question have to be interpreted with a grain of salt. Either respondents actually doubt the positive implications of EU funding on their region or the positive evaluation is due to social desirability bias. Lastly, the panel on the lower-right shows a positive

the read out answers "positive" and "negative". "Have you benefited in your daily life from a project funded by the European Regional Development Fund (ERDF) or the Cohesion Fund?" with the read out answers "yes" and "no". All questions can also be answered with the not read out answers "don't know", while the question on the regional impact can also be answered with the not read out answer "no impact".

Figure 5: Regional awareness and perception by cohesion fund payments




**Notes:** The figure shows a correlation between the sum of EU cohesion fund payments per capita in the second program period and the average perception and awareness of the EU convergence funds the NUTS regional level by all, Northern, Southern, and Eastern European regions. The data on the EU cohesion fund payments comes directly from the (EU, 2020). The perception and assessment data comes from the Flash Eurobarometer (European Commission, 2020).

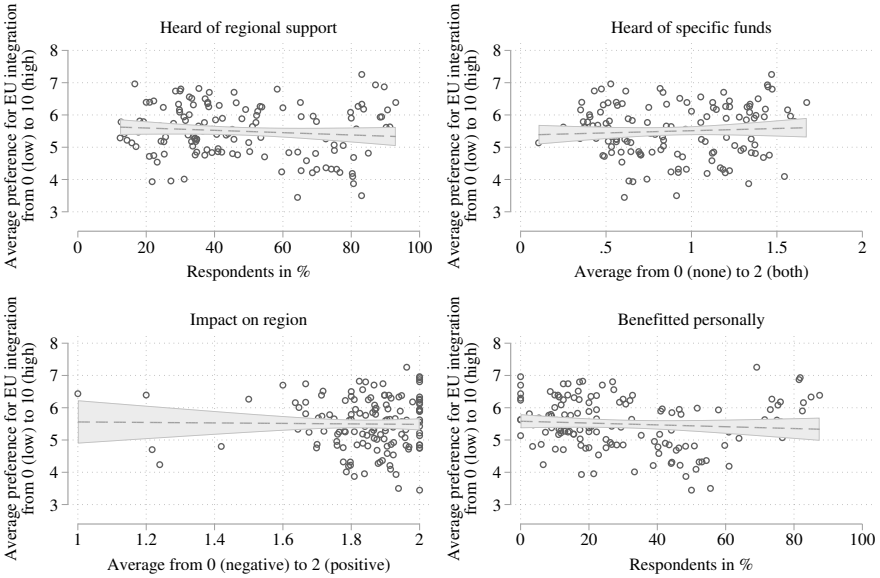
correlation between payments and the percentage of respondents indicating that they have personally benefited from the funds. In total, we are confident that the questions enable a mostly unbiased estimations of the assessment and perception of the regional funds.

Additionally, we plot the data on the perception and assessment of the funds against the average regional preference for EU integration. This descriptive evidence tests for biases due to a possible correlation between survey responses and the general assessment of the EU. This bias could be based on an individuals favorable opinion towards the EU, which motivates respondents to also state the EU's cohesion fund payments were effective. An indication of such a bias would be a positive correlation between, e.g. the assessment of the funds, and attitudes towards the EU. The descriptive results are displayed in Figure 6. The figure shows that all four variables are not significantly correlated with the EU integration preference on the regional level. The findings underscore that the answers to the four questions are not driven by positive evaluations of the EU in general.

The first descriptive insights show that perception and assessment of the funds are positively correlated with actual payments in a respective region. Additionally, the public opinion on the funds is not dependent on EU integration preference. From this we can conclude that the questions are a valid measure of the public opinion on the funds and not a survey artifact.

In sum, the questions on the assessment and perception of the EU cohesion funds surveyed in the 2019 Flash Eurobarometer provide an unique opportunity to include the public opinion on EU funds in the assessment of their effectiveness in combating Euroscepticism. On the one hand, the EU could run large cohesion programs without its citizens noticing or attributing the investments to the EU. On the other hand, citizens could be convinced that their region profited from EU funding without the EU actually realizing significant spending. By interpreting the perception of EU payments we contribute to the discussion whether the EU can win support for its unification by actual investments or by sound communication.

Figure 6: Regional average Euroscepticism by awareness and perception of payments




**Notes:** The figure shows the correlation between the average Euroscepticism on the NUTS regional level and the average perception and awareness of the EU convergence funds the NUTS regional level in the full sample. The Euroscepticism data comes from the European Social Survey and the question on whether European unification has gone too far (0) or has to go further (10). The perception and assessment data comes from the Flash Eurobarometer (European Commission, 2020).

### 3.6 Method

The OLS regression analyses is concerned with the correlation between changes in average EU unification preferences on the regional level and the regional perception and assessment of the convergence fund payments as well as the region specific amount of per capita payments received from the EU 'convergence' funds. Since the variables follow a normal distribution, we employ OLS estimators. We use standard errors clustered countries. Motivated by the above found difference between the three geographical European regions, respective include an interaction terms. The baseline model for the correlation between EU integration preference and the per capita payments is defined by:

$$\Delta EUint_i = \alpha + \beta_1 Payment_i + \beta_2 Region_r + \beta_3 Payment_i * Region_r + \varepsilon,$$

where $\Delta EUint$ is the difference in the EU unification preferences in a given NUTS region ($i$) of a European region ($r$) in a country ($c$). The explanatory variable is the region specific EU cohesion fund payments ($Payment$) received by the region ($i$). We also include an interaction term ($Payment * Region$) with a variable denoting the three European regions ($Region$).

Besides this simple OLS regression analysis, the second set of regression models is concerned with the same correlation analysis but within a DiD approach. Running a DiD analysis is important as it allows us to estimate specific treatment effects by controlling for region and time effects independent of the actual treatment. We calculate the DiD estimator by running an OLS regression with a treatment and a time dummy variable. Since we have two program periods, we calculate two DiD models, one for each period. The time variable is 1 in 2014 and 0 in 2007 for the first analysis, and 1 in 2018 and 0 in 2014 in the second analysis. The treatment variable is 1 if a NUTS region's received payments from the EU cohesion funds in the given period. The treatment effect is determined by the interaction

between the treatment and time dummy variable. For the difference between the three European regions we add an interaction term with the region dummy variable. The model is defined by:

$$EUint_{i,p} = \alpha + \beta_1 Treated_{i,p} + \beta_2 Time_t + \beta_3 Region_r + \beta_4 Treated * Time_{i,p,t} + \beta_5 Treated * Time * Region_{i,p,t,r} + \varepsilon,$$

where $EUint$ is the EU unification preferences in a given NUTS region ($i$) of a European region ($r$) in a country ($c$) at a program period ($p$). The explanatory variables are the treatment ($Treated$) of that NUTS region in a given program period with the time ($Time$) dummy indicating the pre/post treatment time ($t$) as well as the interaction term between both variables ($Treated*Time$). To account for regional differences, we include an additional variable denoting the three EU regions ($Regions$), which we also include in the interaction term ($Treated*Time$). Note that the full model also includes individual interaction terms between the treatment as well as the time variable with the region variable. We excluded these terms in the regression equation for a more parsimonious presentation of equation.

Finally, we employ an RDD estimation technique to control for outliers driving our results as well as endogeneity problems that could arise as the NUTS regions receiving payments might have unobserved structural similarities that correlate with low economic performance and high Euroscepticism. The main RDD assumption is that subjects are unable to manipulate the forcing variable around the cut-off. We follow the numerous studies that employed the EU's 'convergence' assignment rule by arguing a region can hardly manipulate its GDP. Employing an RDD and focusing on the local average treatment effect (LATE) addresses both the outlier and the endogeneity problem. Since some non-eligible NUTS regions are treated, we implement a fuzzy RDD, which accounts for the fact that the cut-off does not mark a sharp distinction for receiving EU cohesion fund payments. The fuzzy RDD is implemented by a two-stage regression where receiving cohesion fund payments, i.e. the treatment, is instrumented in a first-stage regression with:

$$Treatment_{i,p} = \alpha + \beta_1 Eligibility_{i,p} + \beta_2 GDPpcEU_{i,k} + \beta_3 \chi_{i,p} + \varepsilon,$$

where the endogenous treatment variable ($Treatment$) is regressed on the eligibility ($Eligibility$) dummy variable denoting whether a NUTS region ($i$) was eligible for funding in a given period ($p$) as well as on the running variable, the GDP per capita in PPS in percent of the EU's GDP ($GDPpcEU$) in a region ($i$) at the respective assignment period ($k$). Note that, as Borin, Macchi, and Mancini, 2021 point out, $Treatment$ and $Eligibility$ are not collinear as not all regions that receive a treatment are also eligible to receive a treatment. The outcome of the first-stage regression is then included in the second-stage regression. The second-stage model is defined by:

$$Y_{i,p} = \alpha + \beta_1 GDPpcEU_{i,p} + \beta_2 Treatment_{i,p} + \beta_3 \chi^j_{i,p} + \varepsilon,$$

where $Y$ is the value of the local area treatment effect (LATE) for a given NUTS region ($i$) in a program period ($p$). The running variable is represented by GDP per capita in PPS in percent of the EU's GDP ($GDPpcEU$) with the eligibility cut-off at 75 percent. The fuzzy RDD is implemented through the $Treatment$ variable calculated in the first-stage regression. Further, we included $chi$, a vector of control variables, with regional specific dummies. Including the regional dummy variables enable us to calculate the respective LATE in the given EU region (i.e., North, South, and East), as the number of observations does not permit split samples within the RDD approach.

In line with our approach to measure the impact of payments on Euroscepticism, we also apply a DiD model to estimate the correlation between the four variables on perception and assessment of the convergence funds and the preference for EU integration. Since our treatment variables are non-binary, we employ a DiD model with (continuous) treatments. This approach is permissible in DiD set-ups, especially when the treatment effects are homogeneous, i.e. linear across different values of the treatment variable (Callaway, Goodman-Bacon, and Sant'Anna, 2021). We have no reason to assume that this is not the case. Again, the treatment effect is determined by the interaction between the continuous treatment variables and the time dummy variable. The baseline model is defined by:

$$EUint_i = \alpha + \beta_1 Treated_i^j + \beta_2 Time_t + \beta_3 Region_r + \beta_4 Treated * Time_{i,y} + \beta_5 Treated * Time * Region_{i,y,r} + \varepsilon,$$

where $EUint$ is again the EU unification preferences in a given NUTS region ($i$) of a European region ($r$) in a country ($c$). The dynamic treatment variables ($Treated$) are the four region specific variables ($j$) on the perception and assessment of EU cohesion fund payment. The time variable is again given by $Time$ indicating the pre/post treatment time ($t$) as well as the interaction term between both variables ($Treated * Time$). We also estimate the region specific correlation by interacting the interaction term with a variable denoting the three EU regions ($Regions$). Again, we excluded the interaction terms between the treatment as well as the time variable with the region variable from the displayed regression equation.

# 4 Estimation

Our estimation analysis consists of two parts. In a first step, we analyze the correlation between receiving support from the EU cohesion funds and changes in the average preference for EU integration on the regional level. In a second step, we employ data on the public assessment and perception of the EU 'convergence' funding as well as regional EU integration preferences.

## 4.1 Money for love?

The first regression analysis is concerned with analyzing the correlation between payments from the EU 'convergence' funds and changes in EU unification preferences. The results of the regression analysis are displayed in Table 1. The first model reports the coefficient of the payment variable in the full sample across both funding periods without an interaction term. The coefficient is negative and statistically significant indicating a negative correlation between the per capita amount of EU payments and the change in EU unification support over the course of the cohesion programs. Hence, higher EU cohesion fund payments are correlated with a reduction in the average EU unification preferences.

Motivated by the previously discussed differences between EU regions, the second model introduces the interaction term with the three EU regions into the analysis. Including the interaction term leads to several interesting changes in the regression model. First, the previously statistically significant correlation coefficient of the payment variable turns insignificant, indicating the correlation is not statistically significant across the sample regions. Second, the coefficient of the interaction terms between the Southern and Eastern European NUTS regions and the payment variable is also statistically insignificant. This indicates that the payments from the cohesion funds are not systematically

Table 1: OLS regression on funding and Euroscepticism

| | Dependent Variable: Change in EU unification preference | |
|---|---|---|
| | (1) | (2) |
| Payments | -0.302** | -0.142 |
| | (0.14) | (0.12) |
| Payments*South | | 0.063 |
| | | (0.16) |
| Payments*East | | -0.334 |
| | | (0.27) |
| South | | -0.039 |
| | | (0.18) |
| East | | -0.413 |
| | | (0.25) |
| Observations | 272 | 272 |
| R-squared | 0.059 | 0.208 |
| Standard errors in parentheses | | |
| *** p<0.01, ** p<0.05, * p<0.1 | | |

correlated with more negative attitudes towards EU integration in any of the European regions. From this we conclude that - at least- higher EU payments do not go along with increased Euroscepticism in certain regions. Rather, Eastern European regions exhibit high levels of Euroscepticism, irrespective of receiving payments from EU cohesion funds.

Although insightful, the problem with running the simple OLS regression with interaction terms is that we cannot isolate the specific effect of receiving EU cohesion fund payments from other trends prevailing in the given regions. In order to address this issue, we implement a DiD approach to compare the difference in EU unification preferences in treated vs. non-treated regions. The results for the first and second MFF program period are displayed in Table 2. While the coefficient of the treatment and time dummy variable are also of interest, the DiD-treatment effect is determined by the interaction term between treatment and time. Additionally, the second and fourth model include interaction terms with three European regions to determine the specific treatment effects in these regions in the first and second program period.

In the first model, we find a negative and statistically significant treatment effect. This negative treatment effect indicates a negative correlation between the treatment, i.e. receiving payments, and the average support for EU integration, relative to the non-treated regions. The results support our finding from the OLS regressions, which also revealed a negative correlation between regional funding and EU unification preference. Similar to the OLS results, this statistically significant correlation disappears when introducing the geographic interaction term. Interestingly, the only statistically significant interaction term is the one between the time variable and the Southern Europe dummy. Thus, the findings supports the idea that Euroscepticism has increased in Southern Europe between during the sovereign debt crisis between 2006 and 2014 in treated and non-treated regions alike.

The results for the second program period are displayed in the third and fourth model. The treatment effect coefficient is again negative and but only statistically significant at the 0.1 level. Like in the previous analysis for the earlier MFF, the correlation becomes even less statistically significant when introducing the interaction term with the three EU regions. Since we find no statistically significant correlation between the coefficient of the time and treatment interaction term with the region variables and the EU unification preference, we again must conclude that changes in the EU unification preference between treated and non-treated regions are not statistically significant. However, we find a negative and statistically significant correlation between the coefficient of the interaction

Table 2: Diff-in-diff regression on funding and Euroscepticism

| | Dependent Variable: EU unification preference after first and second treatment period | | | |
|---|---|---|---|---|
| | (1) First | (2) First | (3) Second | (4) Second |
| Treated | 0.987** | -0.068 | 0.142 | -0.053 |
| | (0.41) | (0.09) | (0.25) | (0.21) |
| Time | 0.020 | 0.112 | 0.585*** | 0.607*** |
| | (0.19) | (0.23) | (0.10) | (0.10) |
| Treated*Time | -0.710** | 0.094 | -0.322* | -0.149 |
| | (0.29) | (0.23) | (0.17) | (0.20) |
| Treated*Time*South | | 0.280 | | -0.124 |
| | | (0.38) | | (0.50) |
| Treated*Time*East | | -0.417 | | 0.286 |
| | | (0.38) | | (0.31) |
| Treated*South | | -0.502*** | | 0.036 |
| | | (0.17) | | (0.31) |
| Treated*East | | 0.785* | | 0.142 |
| | | (0.39) | | (0.30) |
| Time*South | | -0.368 | | 0.065 |
| | | (0.23) | | (0.26) |
| Time*East | | -0.761* | | -0.579** |
| | | (0.41) | | (0.25) |
| South | | 1.161*** | | 0.577* |
| | | (0.10) | | (0.28) |
| East | | 0.750** | | 0.236 |
| | | (0.28) | | (0.34) |
| Observations | 256 | 256 | 288 | 288 |
| R-squared | 0.208 | 0.389 | 0.087 | 0.178 |
| Standard errors in parentheses<br>*** p<0.01, ** p<0.05, * p<0.1 | | | | |

term between the time variable and the Eastern Europe dummy. Hence, the negative changes in EU unification preference in Southern Europe uncovered over the course of the first program period, become present in Eastern Europe in the second program period that includes the intensified refugee migration to the EU.

The remaining issue with the DiD approach is that we cannot rule out that the eligibility to EU cohesion fund payments is correlated with unobserved factors that also contribute to changes in the EU integration preferences. We address this endogeneity problem by using an RDD approach that calculates the local treatment effect at the treatment cut-off point - i.e. 75 percent of the EU's GDP - and thereby controls for outliers. The results for the RDD concerned with both MFFs are displayed in Table 3. The different models implement quartic polynomial specifications as suggested by Valentim et al. (2021) to model the regressions left and right of the cut-off point. As indicated in the lower part of the table, the models include population weights and dummy variables for the three European regions. The first three models are run with data of the first program period, while the later are run with data on the second period.

Irrespective of the model specification the RDD reports no statistically significant difference between treated and non-treated regions at the cut-off point. Due to the large confidence intervals, the models do not allow inference on the size or sign of the coefficient. A similar picture emerges when focusing on the later program period's RDD regressions. The table again shows no statistically significant treatment effect throughout the different model specifications. The RDD plots for the both program periods underscore the absence of any substantial treatment effect at the cut-off point (see Figure A6). From this follows that we cannot detect any LATE in the first or second program period - be that in the full sample or in the three EU regions.

In sum, the first part of our analysis uncovers a negative and statistically significant correlation between the total amount of EU payments and changes in the support for further EU integration.

Table 3: RDD regression on funding and Euroscepticism

| | Dependent Variable: EU unification preference after first and second treatment period | | | | | |
|---|---|---|---|---|---|---|
| | (1) First | (2) First | (3) First | (4) Second | (5) Second | (6) Second |
| LATE | 4.143 | 0.544 | 0.315 | 24.313 | 12.320 | 12.320 |
| | (4.57) | (1.25) | (0.82) | (32.05) | (21.84) | (21.84) |
| Regions | All | South | East | All | South | East |
| Observations | 128 | 128 | 128 | 144 | 144 | 144 |
| Polynomial | 4 | 4 | 4 | 4 | 4 | 4 |
| Fuzzy Design | Yes | Yes | Yes | Yes | Yes | Yes |
| Population Weights | No | Yes | Yes | No | Yes | Yes |
| Region Control Variables | No | Yes | Yes | No | Yes | Yes |
| Standard errors in parentheses<br>*** p<0.01, ** p<0.05, * p<0.1 | | | | | | |

However, this unexpected finding disappears when applying more advanced and rigorous identification strategies. From the DiD regression we can conclude that this negative trend is mostly carried by a negative time trend in Eastern Europe towards less support of EU integration, which is independent from the actual treatment by the EU 'convergence' funds. This negative time trend also continues during the later program period. Employing an RDD approach, we find no statistically significant treatment effect in either of the MFF periods of analysis. We conclude that neither the size of the payments from the EU cohesion fund nor receiving funds in general has a positive effect on average regional support for further EU integration. On the one hand, this means that a negative correlation between funding and intensified opposition to further EU unification remains a statistical artifact and can be rejected at the cut-off point. On the other hand, our findings also suggest that there is no positive correlation with regions receiving funds - on average - not showing a statistically significant increase in the average EU integration preferences. The EU it seems has been unable to buy support through shifting the focus of its convergence funds to Eastern Europe. In a further step we turn to the question whether at least a positive assessment and perception of EU funding helps securing integration support.

### 4.2 Is love not blind after all?

Possibly, only in regions where investments were particularly visible or marketed more effectively, the EU was able to win the hearts of its citizens. In order to analyze this relationship, we implement a DiD approach to compare the changes in EU unification preferences in regions with varying degrees of perception and assessment of the EU cohesion funds. Since the treatment variables are non-binary, we model a dynamic treatment effect. The results are displayed in Table 4. The dynamic treatment variable in the first model, is represented by the percentage of respondents in a given NUTS region, who heard of the cohesion funds. While the coefficient of the time variable is positive and significant for the reference category (Northern Europe), it is negative and statistically significant in the Eastern European NUTS regions. Most importantly, the treatment effect is only positive and statistically significant for the Eastern European regions.

In the second model, we introduce the variable on the average number of funds that respondents in a given region have heard about as the dynamic treatment. We find no statistically significant treatment effect in the different European regions. In this regression analysis the negative time effect in the Eastern European sample, uncovered in all the previous models, turns out statistically insignificant. Moving from the perception to the assessment of the EU cohesion funds, the third model introduces the

average assessment of the impact of the funds on the respective NUTS region. The findings are similar to the first model, with the treatment effect coefficient reporting positive and statistically significant correlation in the Eastern European NUTS regions. In the last model, we employ the individual benefits assessment of the EU cohesion funds as the dynamic treatment. Again, we find a positive and statistically significant correlation for the Eastern European regions. For the interpretation of the third and fourth model, it is important to again stress the fact that the question on the regional impact of and personal benefit from the EU cohesion funds was only asked if respondents indicated that they heard of the support and the funds. The results of these regressions could therefore be driven by a small subset of respondents from the respective regions, who are blazing supporters of the EU, heard of the measures, and assess there impact in a biased way. However, we also find a positive correlation in the first model, which uses the responses from all the respondents and not only a subset. Based on the findings from the DiD approach, we conclude that the perception and assessment of the EU cohesion funds is indeed positively correlated with positive differences in the EU integration preference in Eastern Europe. In fact, if EU support was sufficiently known and positively assessed in an Eastern European region, support for EU unification preferences did grow over the recent MFF period.

Moving beyond the mere analysis of the statistical significance of the correlation of interest, we additionally assess the substantial relevance. Since we can identify a negative time trend in the EU integration support in Eastern Europe, we are especially interested in how much public perception of the EU cohesion funds has to change in order to compensate for the negative time trend in Euroscepticism. We calculate the marginal effects based on the first model, since the results of the *SupportHeard* treatment are statistically significant and at the same time are based on the responses of the entire sample population and not only the respondents who heard about founds in the first place.

We first calculate the marginal effects for the time trend in the Eastern European regions. Moving from the Northern European reference category to the Eastern European regions, the EU unification preference decreases *ceteris paribus* by 1.2 standard deviations, i.e. 0.986 points. Second, focusing on these Eastern European regions, we find that a 1 standard deviation increase in the percentage of respondents who heard of the EU cohesion funds, i.e. 22.15 percent, is correlated with a 0.64 standard deviation increase in the EU unification preference, i.e. 0.512 points. Based on this, a 1 standard deviation increase in the perception of EU cohesion funds alone, can cut the negative trend of increasing Euroscepticism in Eastern Europe in half. To illustrate the substantial relevance further, Figure 7 plots the marginal effects of the correlation between the percentage of respondents who heard of the EU cohesion funds and the predicted difference in EU unification preferences for Eastern European regions between the 10th and 90th percentile of the independent variable's distribution, as estimated by the DiD regression. The figure shows a positive an substantially relevant correlation between the percentage of respondents who heard of the funds and the predicted difference in the EU integration preference.

In total, our analysis shows that there is no clear and direct correlation between EU cohesion fund payments and changes in the EU integration preference in European NUTS regions. Using advanced causal identification strategies, we are able to rule out the possibility that regions are becoming more Eurosceptic because they are being supported by the EU cohesion funds. Rather, EU cohesion funds payments are simply not able to halt or even reverse the spiraling loss of support for EU unification, especially in Eastern Europe.

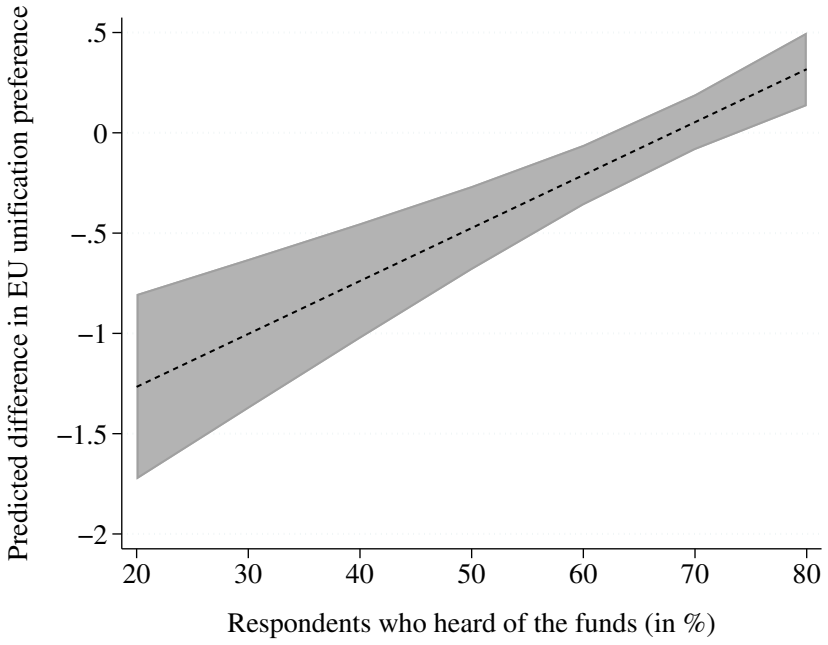
Furthermore, we tested for indirect effects of EU 'convergence' spending on the EU integration

Table 4: Diff-in-diff regression on perception and Euroscepticism

| | Dependent Variable: EU unification preference | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Time | 0.681** | 0.381*** | 0.451 | 0.612*** |
| | (0.27) | (0.07) | (0.60) | (0.08) |
| Time*South | 0.130 | -1.477 | -0.857 | -0.118 |
| | (0.56) | (0.90) | (1.68) | (0.48) |
| Time*East | -2.476*** | -1.058 | -8.108*** | -1.523*** |
| | (0.36) | (0.68) | (2.50) | (0.42) |
| Treatment$_{SupportHeard}$ | -0.669 | | | |
| | (0.57) | | | |
| Time*$Treatment_{SupportHeard}$ | -0.341 | | | |
| | (0.85) | | | |
| Treatment$_{SupportHeard}$*South | -0.974 | | | |
| | (0.67) | | | |
| Treatment$_{SupportHeard}$*East | -0.844 | | | |
| | (1.82) | | | |
| Time*Treatment$_{SupportHeard}$*South | -0.367 | | | |
| | (1.82) | | | |
| Time*Treatment$_{SupportHeard}$*East | 2.981*** | | | |
| | (0.93) | | | |
| Treatment$_{FundsHeard}$ | | -1.832** | | |
| | | (0.69) | | |
| Time*Treatment$_{FundsHeard}$ | | 0.357 | | |
| | | (0.22) | | |
| Treatment$_{FundsHeard}$*South | | 1.500* | | |
| | | (0.78) | | |
| Treatment$_{FundsHeard}$*East | | 3.530*** | | |
| | | (0.93) | | |
| Time*Treatment$_{FundsHeard}$*South | | 1.266 | | |
| | | (0.86) | | |
| Time*Treatment$_{FundsHeard}$*East | | 0.281 | | |
| | | (0.64) | | |
| Treatment$_{ImpactRegion}$ | | | -0.895 | |
| | | | (0.98) | |
| Time*Treatment$_{ImpactRegion}$ | | | 0.068 | |
| | | | (0.32) | |
| Treatment$_{ImpactRegion}$*South | | | 1.260 | |
| | | | (1.01) | |
| Treatment$_{ImpactRegion}$*East | | | 2.800 | |
| | | | (2.21) | |
| Time*Treatment$_{ImpactRegion}$*South | | | 0.478 | |
| | | | (0.95) | |
| Time*Treatment$_{ImpactRegion}$*East | | | 4.063*** | |
| | | | (1.30) | |
| Treatment$_{BenefitPersonal}$ | | | | -2.916** |
| | | | | (1.16) |
| Time*Treatment$_{BenefitPersonal}$ | | | | -0.207 |
| | | | | (0.21) |
| Treatment$_{BenefitPersonal}$*South | | | | 3.898*** |
| | | | | (1.23) |
| Treatment$_{BenefitPersonal}$*East | | | | 3.415** |
| | | | | (1.45) |
| Time*Treatment$_{BenefitPersonal}$*South | | | | 0.309 |
| | | | | (1.90) |
| Time*Treatment$_{BenefitPersonal}$*East | | | | 2.093*** |
| | | | | (0.64) |
| South | 1.148*** | -0.029 | -1.620 | 0.016 |
| | (0.37) | (0.49) | (1.64) | (0.17) |
| East | 1.239 | -2.888*** | -4.935 | -0.439 |
| | (1.23) | (0.95) | (4.21) | (0.63) |
| Observations | 284 | 284 | 284 | 284 |
| R-squared | 0.217 | 0.328 | 0.254 | 0.297 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 7: Marginal effects of EU cohesion fund perception in Eastern Europe




preference. Using data on public perception and assessment of EU cohesion fund payments, we find a positive and statistically significant correlation between people's awareness of regional support and evaluation of this support, and positive changes in the EU unification preference in Eastern European regions. In contrast, we find no respective effect zooming in on the narrower question on having heard of specific funds. Given the fact that our descriptive evidence also uncovers a correlation between the amount of payments from EU cohesion funds and the perception and assessment of these funds, we have reason to belief that there is an indirect link between EU cohesion fund payments and changes in the EU integration preference. This indirect link runs via public knowledge and evaluation of the EU's 'convergence' support, as we find a robust and positive correlation between public opinion on EU support and EU unification preference in the Eastern European NUTS regions.[13] While our analyses nonetheless uncover the general upward trend in Euroscepticism in Eastern Europe, they also show an opposing trend of decreasing Euroscepticism, if only public perception and assessment of the EU cohesion support increases.

## 5 Conclusion

A growing stream of literature has established the link between regional EU 'convergence' funding and restrained skepticism regarding the EU integration process or moderate support for Eurosceptic parties (Borin, Macchi, and Mancini, 2021; Rodríguez-Pose and Dijkstra, 2021; Schraff, 2019). Such a relationship seems plausible as long as Euroscepticism is rooted in economic grounds. Particularly, in an economic slump such as the sovereign debt crisis following the financial meltdown after 2008 when the EU enforced strict austerity measures on Southern European member states - where radical left parties subsequently challenged the EU - a taming effect of EU subsidies on people's views on the

[13] We also ran an additional OLS regression analysis in which we created an interaction term with the payments from the EU cohesion funds and the four different variables on the assessment and perception of these funds by the public (see Table A2). The interaction terms are not statistically significant indicating that the amount of payments received and the assessment and perception of these payments do not reinforce each other.

integration project seem plausible. In fact, Borin, Macchi, and Mancini (2021), whose research design comes closest to ours, establish a respective link by focusing on the EU's funding periods from 2000 to 2013 and limiting their sample to the EU-15. Such a sample selection restricts the analysis mostly to Southern European regions eligible for funding that are meanwhile hit by the economic recession - at least partly related to austerity policies designed in Brussels.

Accounting for the changing composition of the EU that has experienced the expansion of 13 new member states, however, changes the striking intuition behind the EU's taming of its critics. Within only a couple of years after joining the EU, Eastern European countries have changed from the integration process' most favorable advocates to its fiercest critics. This descriptive finding alone questions the robustly established relationship between Euroscepticism and EU regional funding, as during the exact same time period Eastern Europe has become the main recipient of the most generous EU 'convergence' funding - only accessible for regions with a GDP lower than 75 percent of the EU average. Additionally, citizens of Eastern European member states are mostly aware of regional EU support (Rodríguez-Pose and Dijkstra, 2021) and their countries have experienced significant catch-up as they became the driver of economic convergence within the EU (Hüther, 2019).

The present study builds up on the former contributions and intends to solve the empirical puzzle that is constituted by the largest recipients of 'convergence' funds suddenly having become the EU's integration clearest enmity. We contribute to the literature in a twofold way. First, by shifting the focus of analysis away from the EU-15 to the newly composed EU including its Eastern European member states. This sample selection is enabled by taking into account (parts of) the most recent funding period that has started in 2014. It is during the years after 2015, that the EU experienced a sudden and large refugee influx. By and large, the refugee migration increased the salience of the cultural issue against economic questions and might have weakened the significance of economic regional subsidies in influencing political preferences. Second, our research design goes beyond the local treatment effects between regions that are just eligible for funding and those that are not. Since the sharpest loss of confidence in European integration stems from the most deprived regions, the empirical modeling also focuses on "places that don't matter" whose population has actually revolted against economic (mostly) and cultural (partly) deprivation (Rodríguez-Pose, 2018). Third, we take into account the regional difference in the perception and assessment of the EU's 'convergence' policies. Possibly, actual EU investments only convince people where the funding is attributed to Brussels and not claimed by the respective (potentially Euroskeptic) government.

Our empirical identification strategy follows four steps. First, by running OLS regressions we show a surprising statistically significant positive relationship between regional ESF as well as ERDF funding and Euroscepticism. This effect is the strongest in Eastern European member states. However and in contrast to former findings, it also prevails in Southern Europe. Puzzlingly, following the flow of money leads to the strongholds of increasing opposition to EU integration. Second, by employing a DiD model we proof the retrieved correlation is largely caused by an unobserved trend within the regions eligible for funding. We find that the relationship between funding and Euroscepticism is mostly driven by a secularly decreasing support for EU integration between 2007 and 2013 in Eastern European regions. Hence, Euroscepticism has grown in 'left-behind' places but rather related to a certain geographical trend and less to EU funding eligibility. Third, we turn to an RDD model to zoom in on the local average treatment effect between regions just eligible for funding and those just ineligible. Employing this well established empirical set-up, we rule out that our regressions are influenced by an endogenous relationship between regional economic deprivation and Euroscepticism and narrow down the focus of

analysis away from very poor as well as very affluent regions. Nevertheless, we fail to reproduce the formerly established correlation. In both periods under analysis, regions around the cut-off exhibit no statistically significant differences in their opposition to EU integration. Thus, the EU's neatest tool to win back support in deprived places has seemingly become a blunt instrument.

Nonetheless, we also identify rising support for EU integration in Eastern European regions where EU support is particularly well known and appreciated. These effects are strong enough to invert the general Eastern European Euroskepticism. Following our estimation results, we conclude that buying support with pure 'convergence' funding has become out of reach, however, by marketing its investments more efficiently the EU might be able to win back hearts. Rather than actually increasing marketing spending for a specific fund this could mean creating flagship projects that really improve people's living conditions in deprived regions and are clearly attributable to the EU. Our results reveal that people became less Euroskeptic if they have heard of EU support and even less if they or their region profited from respective funding. Still, in countries with openly Eurosceptic governments, such as Poland or Hungary that gladly receive large amounts of 'convergence' funding, Brussel's charm offensive will have a hard time. Such governments try to 'pocket' EU regional investments for their own narratives. The jury is still out on the effect of linking 'convergence' spending to harsh conditions (e.g. rule of law). It has become clear that for the EU there is as much at stake as for national governments: public support.

More can be done to review the robustness of our findings. First and foremost, the empirical set-up can easily be updated once the ESS Round 10 from 2020 is published in November 2022. Covering the entire funding period from 2014 to 2020 will make comparisons between the MFF periods more consistent. Additionally, further research will have to pin down the channel how the EU fostered support in the past and why it failed to do so recently. Possibly, during the past years cultural conflicts have simply dominated economic questions. Since the cultural upheaval follows a "density divide" (Wilkinson, 2019) or even a "geography of discontent" (Dijkstra, Poelman, and Rodríguez-Pose, 2020) it takes place in the economically most deprived regions - that by coincidence receive the lion share of EU subsidies. In this vein, regional economic support falls on deaf ears as Brussels simply provides convergence support and fails to address the identity questions deeply rooted in rural communitarianism.

## References


Albanese, Giuseppe, Vincenzo Carrieri, and Maria Speziali (2021). "Looking for a Star: Evaluating the Effect of the Cohesion Policy on Regional Well-Being". In:

Armingeon, Klaus, Kai Guthmann, and David Weisstanner (2015). "Wie der Euro Europa spaltet. Die Krise der gemeinsamen Währung und die Entfremdung von der Demokratie in der Europäischen Union". In: *Politische Vierteljahresschrift*, pp. 506–531.

Becker, Sascha O, Peter H Egger, and Maximilian von Ehrlich (2010). "Going NUTS: The effect of EU Structural Funds on regional performance". In: *Journal of Public Economics* 94.9-10, pp. 578–590.

— (2018). "Effects of EU regional policy: 1989-2013". In: *Regional Science and Urban Economics* 69, pp. 143–152.

Boomgaarden, Hajo G, Andreas RT Schuck, Matthijs Elenbaas, and Claes H De Vreese (2011). "Mapping EU attitudes: Conceptual and empirical dimensions of Euroscepticism and EU support". In: *European Union Politics* 12.2, pp. 241–266.

Borin, Alessandro, Elisa Macchi, and Michele Mancini (2021). "Eu transfers and euroscepticism: can't buy me love?" In: *Economic Policy* 36.106, pp. 237–286.

Busch, Berthold and Matthias Diermeier (2019). In: *Die Zukunft der Regionen in Deutschland: Zwischen Vielfalt und Gleichwertigkeit*. Institut der deutschen Wirtschaft Medien GmbH. Chap. Kohäsionspolitik der Europäischen Union, pp. 133–149.

Callaway, Brantly, Andrew Goodman-Bacon, and Pedro HC Sant'Anna (2021). "Difference-in-differences with a continuous treatment". In: *arXiv preprint arXiv:2107.02637*. URL: `https://psantanna.com/files/Callaway_Goodman-Bacon_SantAnna_2021.pdf`.

Diermeier, Matthias, Hannah Frohwein, and Aljoscha Nau (2021). "One for one and none for all - The Radical Right in the European Parliament". In: *LSE Europe in Question Discussion Paper Series 167*.

Dijkstra, Lewis, Hugo Poelman, and Andrés Rodríguez-Pose (2020). "The geography of EU discontent". In: *Regional Studies* 54.6, pp. 737–753.

EC (2018). *Regionalisation of ESIF payments 1989-2015*.

EEC (1957). *Treaty on the foundation of the European Community, Rome*.

EU (1992). *Treaty of European Union, Maastricht*.

— (1999). "COUNCIL REGULATION (EC) No 1260/1999 of 21 June 1999". In: *Official Journal of the European Union*. URL: `https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31999R1260&from=FR`.

— (2003). "L236: Annex III". In: *Official Journal of the European Union*. URL: `http://publications.europa.eu/resource/cellar/26d3a8af-048c-40af-a2dd-50af6649926c.0004.01/DOC_1`.

— (2006). "COUNCIL REGULATION (EC) No 1083/2006 of 11 July 2006". In: *Official Journal of the European Union*. URL: `https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32006R1083&from=EN`.

— (2007a). "Cohesion Policy eligibility 2007-2013". In: URL: `https://ec.europa.eu/regional_policy/en/policy/how/is-my-region-covered/2007-2013/`.

— (2007b). "Treaty of Lisbon amending the Treaty on European Union and the Treaty establishing the European Community". In:

EU (2013). "REGULATION (EU) No 1303/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 December 2013". In: *Official Journal of the European Union*. URL: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R1303&from=EN.

— (2014a). *An introduction to EU Cohesion Policy 2014-2020*. URL: https://ec.europa.eu/regional_policy/sources/docgener/informat/basic/basic_2014_en.pdf.

— (2014b). "Structural Funds (ERDF and ESF) eligibility 2014-2020". In: URL: https://ec.europa.eu/regional_policy/sources/graph/poster2014/eu28.pdf.

— (2020). *Historic EU payments - regionalised and modelled*. URL: https://cohesiondata.ec.europa.eu/Other/Historic-EU-payments-regionalised-and-modelled/tc55-7ysv.

European Commission (2020). *Flash Eurobarometer 480 (Citizens' Awareness and Perceptions of EU Regional Policy, June 2019)*. deutsch. uropean Commission, Brussels (2020). Flash Eurobarometer 480 (Citizens' Awareness and Perceptions of EU Regional Policy, June 2019). GESIS Datenarchiv, Köln. ZA7577 Datenfile Version 1.0.0, https://doi.org/10.4232/1.13430. Gesis Datenarchiv. DOI: 10.4232/1.13430. URL: https://search.gesis.org/research_data/ZA7577.

Flood, Chris (2002). "The challenge of Euroscepticism". In: *The European Union Handbook* 2, pp. 73–84.

Gagliardi, Luisa and Marco Percoco (2017). "The impact of European Cohesion Policy in urban and rural regions". In: *Regional Studies* 51.6, pp. 857–868.

Heinemann, Friedrich, Tobias Hagen, Philip Mohl, Steffen Osterloh, and Mark O Sellenthin (2009). *Die Zukunft der EU-Strukturpolitik*. Nomos Verlagsgesellschaft mbH & Co. KG.

Hloušek, Vít and Petr Kaniok (2020). *The European Parliament Election of 2019 in East-Central Europe: Second-Order Euroscepticism*.

Hobolt, Sara B (2015). "The 2014 European Parliament elections: divided in unity". In: *J. Common Mkt. Stud.* 53, p. 6.

Hoeglinger, Dominic (2016). "The politicisation of European integration in domestic election campaigns". In: *West European Politics* 39.1, pp. 44–63.

Hooghe, Liesbet and Gary Marks (2018). "Cleavage theory meets Europe's crises: Lipset, Rokkan, and the transnational cleavage". In: *Journal of European public policy* 25.1, pp. 109–135.

Hüther, Michael (2019). "Das Europa der Regionen: Wie weit trägt das Versprechen auf Konvergenz?" In: *List Forum für Wirtschafts-und Finanzpolitik*. Vol. 45. 2. Springer, pp. 65–95.

Hutter, Swen and Hanspeter Kriesi (2019). "Politicizing Europe in times of crisis". In: *Journal of European Public Policy* 26.7, pp. 996–1017.

Kopecký, Petr and Cas Mudde (2002). "The two sides of Euroscepticism: Party positions on European integration in East Central Europe". In: *European Union Politics* 3.3, pp. 297–326.

Kriesi, Hanspeter, Edgar Grande, Romain Lachat, Martin Dolezal, Simon Bornschier, and Timotheos Frey (2006). "Globalization and the transformation of the national political space: Six European countries compared". In: *European Journal of Political Research* 45.6, pp. 921–956.

Lindberg, Leon and Stuart A Scheingold (1970). *Regional Integration: Theory and Research*. Harvard University Press.

Mair, Peter (2007). "Political opposition and the European Union 1". In: *Government and opposition* 42.1, pp. 1–17.

Manow, Philip (2018). *Die politische ökonomie des populismus*. Suhrkamp Verlag.

Pellegrini, Guido, Flavia Terribile, Ornella Tarola, Teo Muccigrosso, and Federica Busillo (2013). "Measuring the effects of European Regional Policy on economic growth: A regression discontinuity approach". In: *Papers in Regional Science* 92.1, pp. 217–233.

Rodríguez-Pose, Andrés (2018). "The revenge of the places that don't matter (and what to do about it)". In: *Cambridge journal of regions, economy and society* 11.1, pp. 189–209.

Rodríguez-Pose, Andrés and Lewis Dijkstra (2021). "Does cohesion policy reduce EU discontent and Euroscepticism?" In: *Regional Studies* 55.2, pp. 354–369.

Schraff, Dominik (2019). "Regional redistribution and Eurosceptic voting". In: *Journal of European Public Policy* 26.1, pp. 83–105.

Szczerbiak, Aleks and Paul Taggart (2008). "Theorizing party-based Euroscepticism: problems of definition, measurement, and causality". In: *Opposing Europe*, pp. 238–262.

Taggart, Paul (1998). "A touchstone of dissent: Euroscepticism in contemporary Western European party systems". In: *European Journal of Political Research* 33.3, pp. 363–388.

Taggart, Paul and Aleks Szczerbiak (2004). "Contemporary Euroscepticism in the party systems of the European Union candidate states of Central and Eastern Europe". In: *European Journal of Political Research* 43.1, pp. 1–27.

Valentim, Vicente, Ana Ruipérez Núñez, and Elias Dinas (2021). "Regression discontinuity designs: a hands-on guide for practice". In: *Italian Political Science Review/Rivista Italiana di Scienza Politica* 51.2, pp. 250–268.

Van der Eijk, Cees and Mark N Franklin (2004). "Potential for contestation on European matters at national elections in Europe". In: *European integration and political conflict*, pp. 32–50.

Wilkinson, Will (2019). "The density divide: Urbanization, polarization, and populist backlash". In: *Niskanen Center Research Paper*.

# 6 Appendix

Figure A1: Funding period MFF 2007-2013

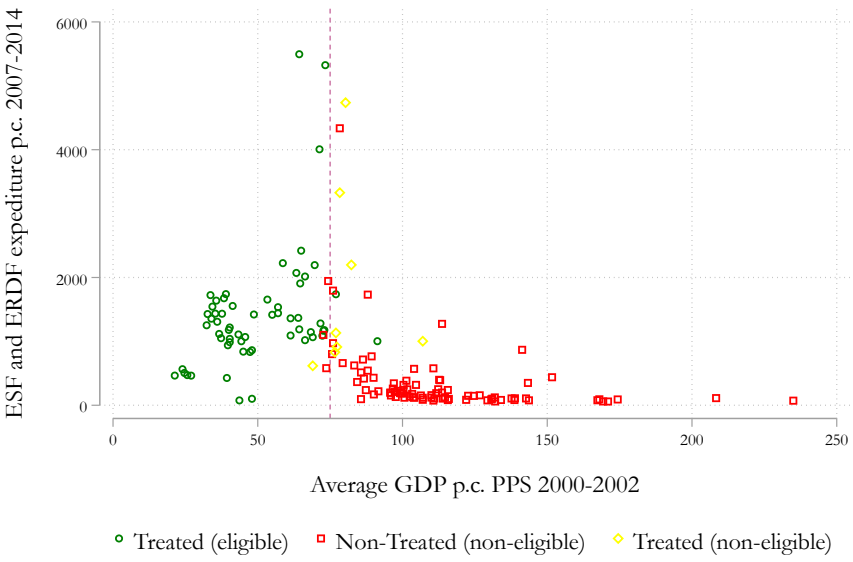



Figure A2: Funding period MFF 2014-2020

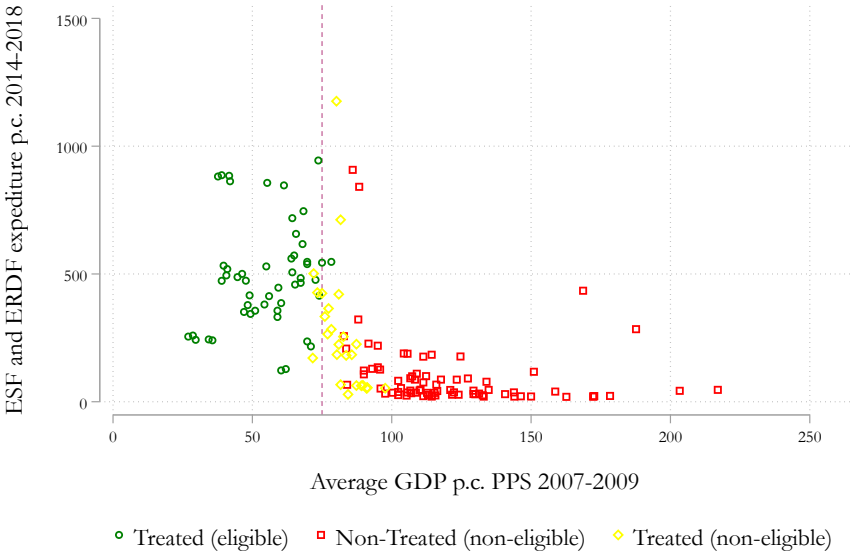


Figure A3: Average Euroscepticism and perception of cohesion funds - North sample

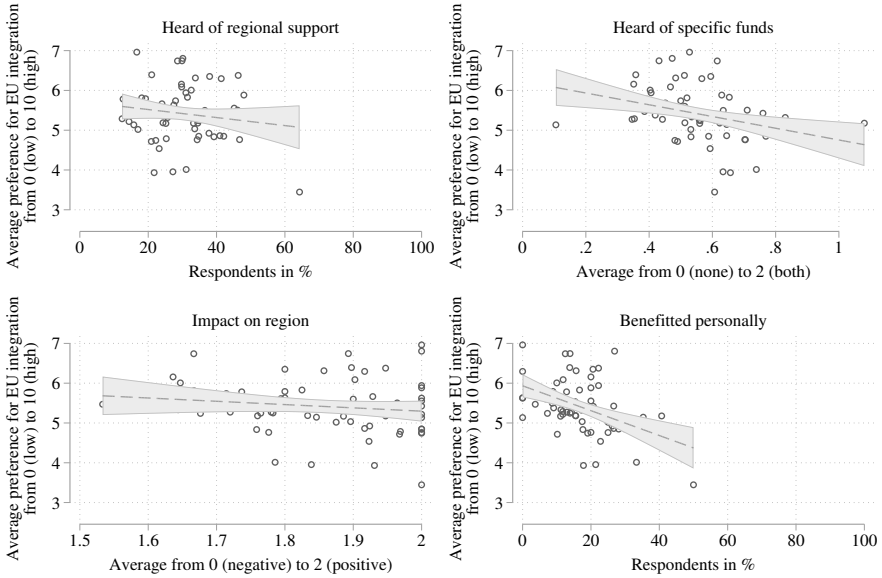



Figure A4: Average Euroscepticism and perception of cohesion funds - South sample

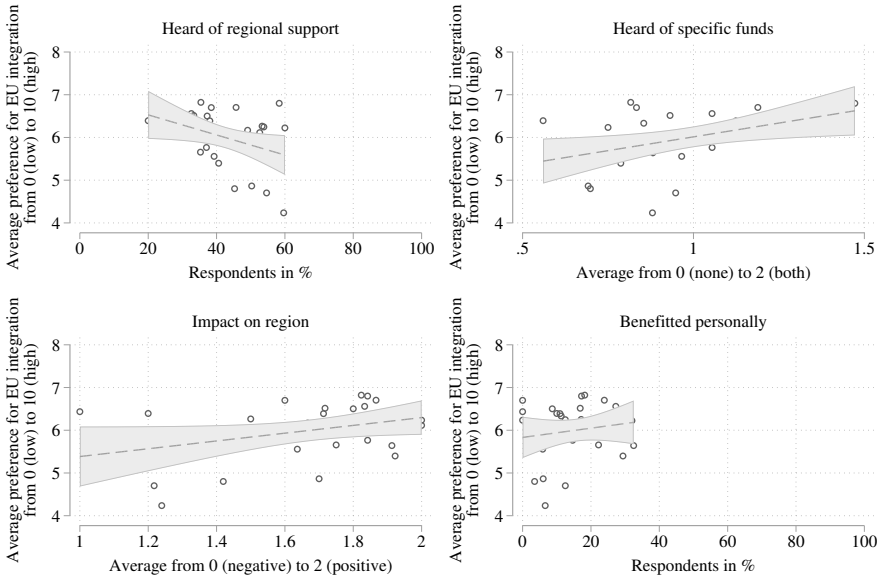


Figure A5: Average Euroscepticism and perception of cohesion funds - East sample

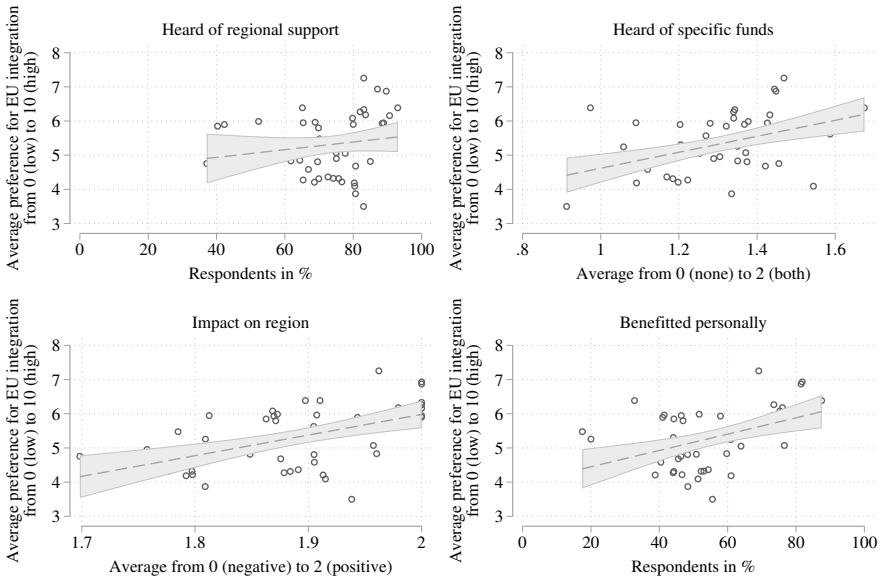



Figure A6: RDD regression plot for both treatment periods

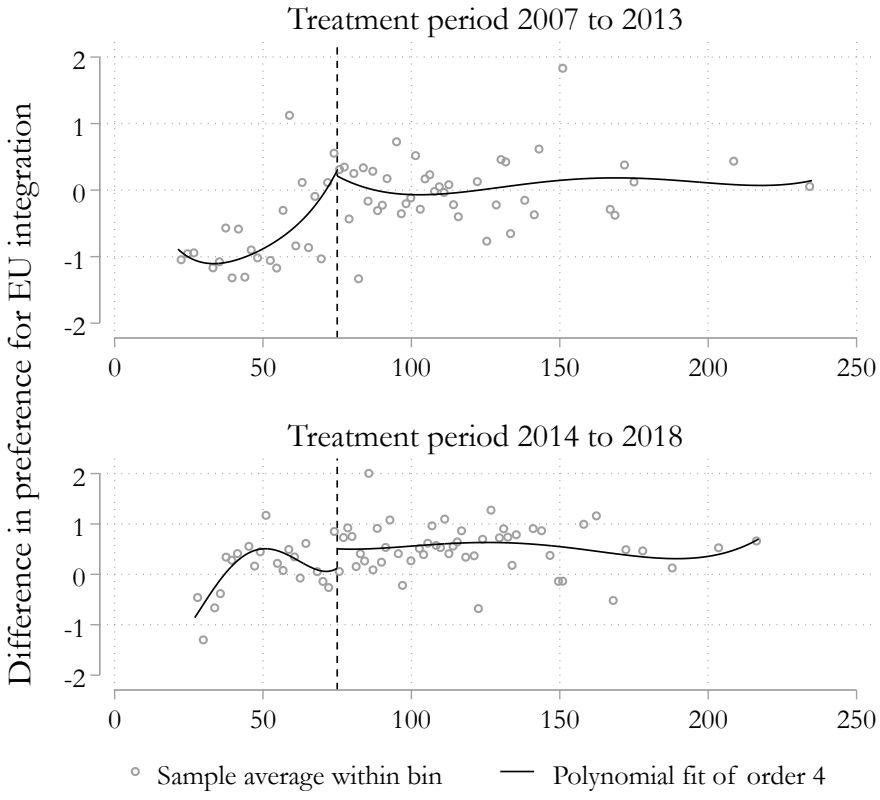


Table A1: Summary statistics of variables

| VARIABLES | (1) Mean | (2) Std. Dev. | (3) Min. | (4) Max. | (5) N |
|---|---|---|---|---|---|
| | Firs program period: 2007-2013 | | | | |
| EU Unification Preference | 5.047 | 0.752 | 2.843 | 6.709 | 128 |
| Change in EU Preference | -0.285 | 0.817 | -2.323 | 1.831 | 128 |
| Cohesion Fund Payments p.c. | 113.8 | 115.9 | 5.398 | 726.9 | 128 |
| GDP p.c. in % of EU | 87.38 | 40.23 | 21.33 | 235 | 128 |
| | Second program period: 2004-2018 | | | | |
| EU Unification Preference | 5.500 | 0.790 | 3.446 | 7.255 | 144 |
| Change in EU Preference | 44.36 | 50.96 | 3.389 | 216.1 | 144 |
| Cohesion Fund Payments p.c. | 93.96 | 37.81 | 27 | 217 | 144 |
| GDP p.c. in % of EU | 0.433 | 0.622 | -1.299 | 2.258 | 144 |
| Heard of Support | 0.474 | 0.228 | 0.124 | 0.930 | 142 |
| Heard of Funds | 0.890 | 0.383 | 0.105 | 1.674 | 142 |
| Impact on Region | 1.832 | 0.168 | 1 | 2 | 142 |
| Benefited Personally | 0.298 | 0.230 | 0 | 0.875 | 142 |

Table A2: OLS regression on payments, perception and Euroscepticism

| | Dependent Variable: EU unification preference | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Payments | 21.592 | -2.937 | 2.742*** | 1.381 |
| | (26.25) | (2.16) | (0.69) | (1.44) |
| Payments*South | -28.073 | 6.604** | -8.809*** | -0.921 |
| | (26.42) | (2.59) | (2.91) | (1.67) |
| Payments*East | 1.155 | 10.351*** | -0.625 | -1.342 |
| | (28.50) | (2.82) | (3.24) | (2.18) |
| ImpactRegion | 0.469 | | | |
| | (0.53) | | | |
| Payments*ImpactRegion | -10.764 | | | |
| | (13.12) | | | |
| ImpactRegion*South | -0.693 | | | |
| | (0.83) | | | |
| ImpactRegion*East | 8.424*** | | | |
| | (2.35) | | | |
| Payments*ImpactRegion*South | 14.522 | | | |
| | (13.24) | | | |
| Payments*ImpactRegion*East | -1.324 | | | |
| | (14.42) | | | |
| SupportHeard | | -1.133 | | |
| | | (0.96) | | |
| Payments*SupportHeard | | 9.777* | | |
| | | (4.99) | | |
| SupportHeard*South | | 1.568 | | |
| | | (1.66) | | |
| SupportHeard*East | | 7.592*** | | |
| | | (1.38) | | |
| Payments*SupportHeard*South | | -16.900*** | | |
| | | (5.50) | | |
| Payments*SupportHeard*East | | -20.819*** | | |
| | | (5.73) | | |
| FundsHeard | | | 0.589 | |
| | | | (0.37) | |
| Payments*FundsHeard | | | -4.097** | |
| | | | (1.77) | |
| FundsHeard*South | | | 0.537 | |
| | | | (1.23) | |
| FundsHeard*East | | | 0.900 | |
| | | | (1.24) | |
| Payments*FundsHeard*South | | | 8.891*** | |
| | | | (3.03) | |
| Payments*FundsHeard*East | | | 2.911 | |
| | | | (3.10) | |
| BenefitPersonal | | | | -0.094 |
| | | | | (0.70) |
| Payments*BenefitPersonal | | | | -3.728 |
| | | | | (8.49) |
| BenefitPersonal*South | | | | 0.424 |
| | | | | (1.42) |
| BenefitPersonal*East | | | | 1.836 |
| | | | | (1.73) |
| Payments*BenefitPersonal*South | | | | 2.196 |
| | | | | (9.59) |
| Payments*BenefitPersonal*East | | | | 4.117 |
| | | | | (9.21) |
| South | 1.251 | -0.657 | -0.623 | -0.139 |
| | (1.45) | (0.44) | (1.27) | (0.39) |
| East | -16.242*** | -5.115*** | -2.291 | -1.495* |
| | (4.30) | (0.66) | (1.68) | (0.83) |
| Observations | 142 | 142 | 142 | 142 |
| R-squared | 0.229 | 0.269 | 0.227 | 0.198 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1