One or Many Cohesion Policies of the European Union? On the Diverging Impacts of Cohesion Policy across Member States

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Abstract

Do regions in all Member States (MSs) of the European Union (EU) benefit from Cohesion Policy? Are regional impacts persistently diversified across countries? In order to answer these questions this paper explores how the impact of the EU Cohesion Policy on growth and employment varies across countries. A spatial Regression Discontinuity Design (RDD) makes it possible estimate distinct but fully comparable impacts for each individual MS both before the Great Recession and during recovery. The results show that Cohesion Policy has exerted a positive and significant EU-wide impact on both regional economic growth and employment. However, regional impacts are not evenly distributed across MSs. Large part of the regional growth bonus generated by Cohesion Policy is concentrated in Germany. Conversely, impacts on regional employment are confined to the United Kingdom. The picture for beneficiary regions in Southern European Member States is less rosy with positive impacts on employment in Italy until the Great Recession and on economic growth in the recovery period in Spain.

1. Introduction

Since the late 1980s Cohesion Policy has been one of the cornerstone policies of the European Union (EU). The asymmetric spatial distribution of the benefits of the process of economic integration became progressively more apparent. At the same time the enlargement of the Union to Greece, Portugal and Spain reinforced the call for collective action in favour of regions whose economic development was significantly below the average of other areas in the EU. An EU-level policy seemed the best possible solution to respond to an EU-wide challenge and act as an internal re-distributive mechanism able to serve the double political purpose of: a) compensating less developed regions for their reduced ability to benefit from the Single Market; b) maintain politically sustainable net contributions to the EU budget for countries (like Spain, Portugal and the UK) gaining limited financial benefits from the Common Agricultural Policy (at the time modelled upon the needs of French and German farmers).

Since the early 1990s, resources allocated to Cohesion Policy have nearly doubled and nowadays, they represent one third of total EU budget. The number of beneficiary regions has increased with the progressive enlargement of the EU to new member states. The set of objectives Cohesion Policy is intended to serve has also increased in the framework of the overarching EU strategy for growth and jobs (Europe 2020) and in response to the Great Recession. The governance of Cohesion Policy has also evolved with a diversified engagement of local, regional, national and EU-level authorities at different stages of the policy design, implementation and evaluation. The complexity of the programmes funded under the Cohesion Policy umbrella has grown exponentially as well as the institutional and managerial capacity needed for the implementation of the corresponding projects.

The increase in budget, spatial and thematic scope and complexity has not always gone in parallel with impact on regional development and employment in beneficiary regions. The existing scholarly and policy literature remains largely inconclusive on the overall impact of Cohesion Policy in less developed regions. Different contributions have shed light on a variety of local, structural and policy pre-conditions that need to be in place for the policy to deliver positive impacts. If there is no agreement on the overall capacity of Cohesion Policy to deliver the expected results – even after the radical changes that followed the Barca Report (2009) – the political sustainability of this entire policy area has been called into question in a changing political environment. The departure of the UK – a net contributor to the EU budget

- from the EU together with the mounting pressure from Euro-skeptic parties in many member states have forced a 360-degree re-consideration of the value added of all EU Policies. Various proposals have been put forward for post-2020 EU policies including an increase in the national co-financing of agricultural subsidies and a re-nationalisation of Cohesion Policy in order to "drop some pan-European policies and 'do less more efficiently'" (Statement by Jean-Claude Juncker, European Commission President[1]);

Increased public and political scrutiny on the returns to national funds transferred to the EU budget as well as changes in the net budget contributions of many Member States make the assessment of the EU-wide nature of Cohesion Policy impacts a key existential factor for this policy area after 2020 as well as a key guiding principle for its reform. Do regions in all Member States benefit from EU Cohesion Policy? Are regional impacts persistently diversified across countries? Does it still make sense to transfer national resources to fund an EU-level regional policy?

These fundamental questions are still unanswered. Most of the existing studies that employ counterfactual techniques in order to net out the causal relation between the policy and its outcomes from any other conditioning factors, conclude that the policy has a positive effect on growth and employment. These same studies also suggest that positive effects are contingent upon a number of local and policy conditions such as funds absorptive capacity, local context, intensity of treatment. However, all these evidence is only valid at the aggregate level for the EU as a whole, with no insights on composition effects and the country-specific nature of the policy impacts and their heterogeneity.

This paper aims to fill this gap by applying counterfactual methods to estimate how the impact of Cohesion Policy varies across countries and to figure out which Member States benefit the most from it.

In particular the paper makes use of a Spatial Regression Discontinuity Design (RDD), which considers the spatial boundaries between Objective 1 regions (treated) and the non-treated regions (*policy-change boundaries*) as threshold for the treatment. Different thresholds can be identified in each country with Objective 1 and non-Objective 1 regions. Therefore, we can construct different (but fully comparable) counterfactual scenarios in different countries and separately reproduce the same identification strategy in each country while preserving EU-wide comparability of the results. In line with the standard RDD assumptions (i.e. spatial units at the threshold are similar in everything except for the

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[1] Financial Times (2017): "Juncker edges away from principle of ever closer union", article by Beesley, A., March 1, 2017, Brussels

treatment and any discontinuity in outcome can be attributed to the treatment) we compare, for each country, the economic outcomes (economic growth and employment) of the NUTS-3 belonging to the treated and to the non-treated regions sharing a *policy-change boundary*. Rather than a single coefficient estimated at EU level (as in previous RDD studies based on the threshold of the 75 percent of the EU average GDP), our Spatial RDD makes it possible to estimate individual and comparable coefficients for Germany, Italy, Spain and UK both before and after the Great Recession.

This makes it possible to estimate how the policy impacts change across key beneficiary countries: by using the Spatial RDD to net out the estimations from any confounding factor influencing the policy's impact within the country, we will attribute the differences in the estimated coefficients across Member States to country-specific aspects related to national-level specificities in the quality of governance and implementation models.

The analysis of the NUTS-3 regions for Germany, Italy, Spain and UK suggests that EU Cohesion Policy works differently in different Member States, with very heterogeneous country-specific impacts. The results show that Cohesion Policy has exerted a positive and significant EU-wide impact on both regional economic growth and employment. However, regional impacts are not evenly distributed across MSs. Large part of the regional growth bonus generated by Cohesion Policy is concentrated in Germany. Conversely, impacts on regional employment are confined to the United Kingdom. The picture for beneficiary regions in Southern European Member States is less rosy with positive impacts on employment in Italy that end with the Great Recession and on growth limited to the recovery period in Spain. National-level macro-institutional factors play a key role in shaping heterogeneous returns from the same territorial policy. These results offer an innovative contribution to the debate on the value added of a supra-national EU-wide approach to the design and implementation of public policies and on the optimal degree of flexibility among Member States (Henke et al 2017). The evidence suggests that the place-based approach popularized by the Barca Report might need to be balanced by a re-consideration of the role of the individual Member States.

2. Existing evidence and gaps in evidence and methods

The relation between EU Cohesion Policy and territorial performance has been studied from different economic perspectives, with different methodologies, with reference to different spatial and temporal scenarios. The literature is now vast but still far from a consensus on the overall impact of the policy on territorial cohesion[2] in particular with reference to what would have happened to the most disadvantaged areas of EU without an EU Cohesion Policy (European Commission, 2014).

The most recent wave of studies on the impacts of EU Cohesion Policy has more directly and convincingly addressed the problem of assessing the impacts of the policy against a suitable counterfactual scenario by adopting treatment effect methods. The policy impacts – for example in terms of economic growth and employment – are netted out from the influence of any other characteristics of the territorial environment in which the policy effect of interest is framed.

Large part of the studies in this stream of research estimated the impact at the EU level concluding that it has been positive on economic growth and employment (Becker et al 2010 and 2013; Pellegrini et al 2013) and on innovation and transport infrastructure (Ferrara et al 2016). Different aspects of the heterogeneity of these impacts have been also investigated, suggesting that impacts depend on the local quality of government (Accetturo et al 2014), on the policy's expenditure intensity (Pellegrini and Cerqua, 2017), on the regional contextual conditions (Bachtrögler et al, 2017) and on the sectorial structure of the local economy (Percoco, 2017).

However, all existing evidence is valid only at the EU aggregated level. All studies leverage the EU-wide eligibility threshold for the assignment of the status of most disadvantaged region[3] (namely Objective 1, Convergence or Less Developed region in the different programming period) that gives access to the large majority of EU Cohesion Policy funds. They compare regions (at the NUTS-2 level) with levels of GDP close to the eligibility threshold. Regions are assumed to be similar in everything except for receiving (for those with a GDP below the threshold) or not (for those with a GDP above the threshold) EU

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[2] A part the first papers that concluded for extreme and opposite results (Cappelen et al. 2003 and Hagen and Mohl 2008 for a success; Boldrin and Canova 2001; Garcia-Mila' and McGuire 2001; de Freitas et al 2003; Dall'Erba and Le Gallo 2007 for a failure) the majority of the papers say that a sort of positive effect does exist, but it is mixed and limited (Bussoletti and Esposti 2004; Bouvet 2009; Puigcerver-Penalver 2004; Montresor et al 2011), or that it depends on different regional level factors (Ederveen et al 2002; Rodriguez-Pose and Fratesi 2004; Percoco, 2005; Mohl and Hagen, 2010; Mancha-Navarro and Garrido-Yserte 2008; Crescenzi and Giua 2016 ; Crescenzi et al 2017).

[3] Regions whose GDP per capita is below 75 percent of the EU average were eligible for the status of Objective 1 (2000-2006 Programming Period), Convergence (2007-2013) or Less Developed regions (2014-2020)

Cohesion Policy funding. This identification strategy, therefore, relies on one single threshold that is associated with a single joint control group composed by all EU regions with similar levels of regional GDP. Regions with a GDP slightly above the 75 percent threshold belonging - for instance - to Italy are compared with regions with a GDP marginally below the same threshold but belonging to Germany, or Spain, or any other EU member state. This approach makes it possible to estimate a single coefficient, capturing the net impact achieved by the policy (treatment) for the most disadvantaged regions in Europe as a whole (i.e. on the joint EU-wide treated group). Therefore, the estimated impact (positive, negative or absent) is the impact achieved by the EU Cohesion Policy for the whole EU.

To the opposite side of the spectrum the existing literature has relied on counterfactual methods in order to estimate the impact of EU Cohesion Policy in one single EU country: Mitze et al (2012) looked at the effect of regional subsidies on labor-productivity growth in Germany, concluding that such policies are effective, but only up to a certain maximum treatment intensity; Bondonio and Greenbaum (2014) focused on firm-level effects in a large Northern Italian region showing that the effects of the programs are increasingly larger the higher the economic value of the incentives and that the most generous incentives come with a much higher cost per each additional new job; Barone et al 2016 looked at the case of Abruzzi (Italy) to study the long term effects of the EU regional policies, concluding that the policies fail to move the treated regions towards a permanently higher GDP growth path; Di Cataldo (2017) studied the impact of EU funding in the U.K.'s most subsidized regions providing evidence of a positive effect of EU Objective 1 funds on the regional labor market and economic performance; Giua (2017) has focused on the Italian *Mezzogiorno* estimating positive effects of the EU regional policies for the regional employment). However, these country-level quantitative case-studies are based on different identification strategies, rely on different measures of output (with different data sources) as well as territorial definitions/spatial units of analysis, thus a priori preventing any comparability of the results across Member States. However, at the same time, these studies have shed light on substantial differences across countries in terms of impacts and on the importance of country-specific factors in conditioning success and failure. Taken together single-country studies suggest that EU-wide aggregated results might average out important differences and mask significant country-level heterogeneity and composition effects.

Therefore, the existing literature is unable to provide final answers to some of the fundamental questions at the very center of the current policy debate: Are regional impacts

persistently diversified across countries? Does it still make sense to transfer national resources to fund an EU-level regional policy?

The empirical strategy able to satisfactorily answer these questions needs to meet three criteria. First – in line with both streams of research reviewed above – it should keep 'confounding factors' under control by means of an appropriate counterfactual. Second it needs to estimate separated impacts for each individual country. Third the estimated coefficient should remain fully comparable reflecting the same identification approach (i.e. differences across countries should not depend upon difference between the control groups).

In order to satisfy these three conditions we need to estimate EU Cohesion Policy impacts on economic growth and employment in the regions of each country separately while relying on the same identification strategy. The solution to this problem comes from a spatial approach to RDD: the geographical distance to the physical boundary between eligible and non-eligible areas is used a forcing variable for the identification of the policy impacts. This spatial approach to the identification of policy impacts has been extensively used in other fields of policy evaluation (Holmes 1998; Black 1999; Gibbons et al 2013; Dell 2010; Menon and Giacomelli 2012; Einio and Overman 2012; Jofre 2014; Papaioannu and Michalopoulos 2014; de Blasio and Poy 2017), although only marginally employed for the analysis of the EU Cohesion Policy evaluation (Giua, 2017 for the case of Italy).

In general, the identification assumptions under the Spatial RDD is that at the cut-off of the distribution (boundary), treated and non-treated observations (spatial units) are similar in everything except for treatment (balancing properties). Spatial RDD analyses normally take two different approaches: border strategies or RDD polynomial specification with spatial forcing variables (distance from the boundary or geographical coordinates). The first approach focuses on the narrowest possible spatial window around the discontinuity (non-parametric approach). The 'as good as random' scenario in which observable (and unobservable) characteristics are smoothly distributed across treated and untreated observations includes only the spatial units that are directly contiguous to the geographical boundary (on both sides) that divides treated and the untreated areas to be compared. Conversely, with the second approach, the treatment and control groups include all spatial units belonging to the treated and the untreated areas respectively, using distance from the eligibility boarder or geographical coordinates as continuous forcing variables as standard in the parametric approach to RDD (Lee and Lemieux, 2010).

This paper leverages the latter approach and use a Spatial RDD approach in order to identify fully comparable country-specific estimates of the regional impacts of EU Cohesion Policy.

3. Empirical strategy

In order to identify comparable national-level effects we look at the spatial structure of EU Cohesion Policy: the same discontinuity (Objective 1 vs. non-Objective 1 regions) is captured by all administrative spatial boundaries between Objective 1 and non-Objective 1 regions (*policy-change boundaries*). Since these boundaries run across each individual country, we can construct separate counterfactual scenarios for each country and estimate the same RDD model in each of them. The *policy-change boundaries* respond all to the same policy discontinuity (they are the thresholds between Objective 1 and non-Objective 1 regions), thus the coefficients that we will estimate are fully comparable.

The *policy-change boundaries* relevant to our analysis are the administrative boundaries between Objective 1 and non-Objective 1 NUTS-2 regions that, for the 2000-2006 policy Programming Period, can be identified in Austria, Belgium, Finland, Germany, Italy, Spain, UK (Figure 1). The analysis necessarily excludes: countries that are entirely eligible for Objective 1 status (e.g., Portugal; Greece), that do not have suitable spatial boundaries (for instance, the only treated areas in France are the *Overseas territories* that do not share any physical border with non-Objective 1 regions) or countries where eligibility is grated at a different spatial scale (for instance, the Flevoland area in the Netherlands).[4]

In line with the spatial RDD literature, for each *policy-change boundary*, the NUTS-3 regions belonging to treated and non-treated regions (NUTS-2) are matched with each other according to the geo coordinates of their centroids (source: Eurostat), i.e. the *forcing variable* in parametric Spatial RDD models.[5]

The policy treatment is represented by the Objective 1 status during the 2000-2006 programming period, which is captured by a dummy that takes value 1 for those NUTS-3 belonging to the Objective 1 NUTS-2 regions (European Commission, 2000).

In order to account for the medium-run nature of the policy impacts, we look at its impact over the 2000-2014. This assessment period is divided into two sub-periods. The first

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[4] In this case also other existing analysis did not do better.

[5] The islands of the involved countries (Canarias, Sardinia, Sicily) are excluded from the analysis.

is the shortest-run possible period to assess the ex-post impact of Cohesion Policy following the end of the programming period in 2006. This first sub-period covers the entire time span of the policy implementation taking into account that expenditure was allowed for up to two additional years after the end of the programming year (and that - indeed - many countries concentrated a significant part of their actual expenditure toward the final years of the programming period – European Commission 2010). Therefore the first sub-period covers that 2000-2010 period (i.e. 2006 plus two years of additional implementation plus a two year time lag to allow for the short-run effects of the policy to emerge). This first sub-period – that aligns our study to other empirical work on the impact of Cohesion Policy - includes the very initial years of the Great Recession offering insights on the capacity of the policy to truly address regional structural resilience factors during the crisis (Crescenzi et al. 2016b).

The second sub-period covers the more medium-run effects of Cohesion Policy by focusing on the 2010-2014 period that also coincides with the recovery phase following the Great Recession. The Great Recession has presented major challenges in particular in the disadvantaged areas of the Union (European Commission, 2014), deserving special attention in the analysis of the policy impacts.

Impacts are analyzed with reference to the main intended outcomes of the policy: regional economic growth and employment. Two dependent variables are considered: i) changes in regional gross value added (as a proxy for economic growth); ii) changes in employees in the manufacturing sector (as a proxy for regional employment).[6] In both cases the variables are expressed in logarithmic growth rates for the two periods of interest. The source of the data is Cambridge Econometrics.

Country-specific impacts are estimated by means of the model specified in Equation (1) in each country-specific scenario for Germany, Italy, Spain and United Kingdom.[7] We run model 1 also for the aggregated sample (estimating an EU wide coefficient) in order to check the coherence of our results with other existing studies.

$$\Delta y_{it} = \beta_0 + \beta_1 Policy_{i,00-06} + Policy_{i,00-06} \sum_{\rho=1}^{3} \gamma \, coord_i + \theta \, border_i + \epsilon_{it}$$

(1)

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[6] By using this disaggregation we can focus on the sector that has been directly targeted by the policy, rather than considering its effect on the whole employment structure, which includes also sectors far away from aim and funding of EU Cohesion Policy (e.g., financial and public sectors). Cambridge Econometrics missing data have been integrated with correspondent data from National Institutes.

[7] We cannot estimate the country-specific models for Austria, Belgium and Finland due to the limited number of 'treated' observations (NUTS-3 belonging to Objective 1 NUTS-2) in the individual samples (only 3 Objective 1 NUTS-3 in Austria, 7 in Belgium and 4 in Finland).

Where '*i*' stands for NUTS-3 region, '*t*' is the temporal window (2000-2010 for the first sub-period; 2010-2014 for the models considering the second sub-period); The dependent variable 'Δy' stands for the logarithmic growth rates in regional gross value added and in manufacturing sector employment. 'Policy' is the Objective 1 dummy. 'Coord' (i.e. longitude and latitude coordinates of the NUTS-3 centroids) is the spatial forcing variable, which takes a polynomial specification (with a polynomial degree of up to order 3 allowed to vary differently on the two sides of the cut-off) and it is also interacted with the treatment dummy (Lee and Lemieux, 2010). In line with the more recent RDD literature, the forcing variable best specification is then selected according to the Akaike Informative Criteria. Finally, the model includes a set of segment dummies ('border'), which matches together the NUTS-3 sharing the same segment of the *policy-change boundary*: also within each country, in fact, our *policy-change boundary* is composed by several segments, separating different regions. This ensures that the selected *policy-change boundary* does not coincide with individual regional boundaries, contributing to minimise the risk that other regional conditions might change in a statistically significant manner at the cut-off together with the treatment.

The balancing properties of the resulting counterfactual scenarios confirm that all observable characteristics (for which data are available at this spatial scale for all regions) are equally distributed across the *policy-change boundary* (Table 1): almost all the coefficients estimated by the regression of the Objective 1 dummy on the cross-border covariates according to the specification selected for model 1 are not significant. This suggests that all regional characteristics - except for the treatment assignment – are smoothly distributed across treated (Objective 1) and non-treated (non-Objective 1) NUTS-3 regions and the discontinuity associated to the *policy-change boundaries* is related exclusively to the treatment. Other concerns that usually apply for RDD analysis (i.e. the hypothesis of non-manipulation around the cut-off[8]) do not affect our estimates: here NUTS-3 belonging to non-treated NUTS-2 can do nothing to be re-assigned to treated NUTS-2 regions.

The quasi-experimental properties of our counterfactual scenarios confirm that the proposed empirical strategy makes it possible to compare NUTS-3 regions that are similar in everything except for being treated (or not). The confounding influence of any unobservable factors that might be correlated to the policy's effect at sub-national level is removed from the estimates by the proposed identification strategy. The estimated impacts, therefore, capture the net effect of the policy on the country-specific performance in terms of regional

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[8] Usually tested with the McCrary Test.

growth and employment, excluding the effects of any unobservable factors related to contextual conditions that might change at sub-national level (within-country heterogeneity). Estimated coefficients can be interpreted as comparable measures of how the policy has been able to promote regional growth and employment in each national context. The variability across countries is a measure of how the impact of the same policy targeting regional growth and employment change across EU Member States (cross-country heterogeneity). The different signs and magnitude of the estimated coefficients can be attributed to the *national level* of heterogeneity mostly associated to the nation-based component of EU Cohesion Policy implementation and to the macroeconomic - institutional characteristics of the individual countries. The variability of these policy implementation and institutional conditions at the regional level is 'netted out' by the identification strategy[9], making it possible to univocally link the observed heterogeneity in impact to national-level (diverging) conditions.

4. One EU Cohesion Policy?

EU Cohesion Policy is implemented in very different ways in different Member States. The way in which financial allocations are turned into projects 'on the ground' is highly heterogeneous across countries. In particular, the composition of expenditure in each programming period is the result of: i) allocation decisions negotiated at the beginning of the programming period by each Member State with the European Commission (the 'Partnership Agreement'); ii) discretional decisions that each member state can carry out during the programming period and iii) the 'demand' of public financial support from local beneficiaries. The combination of these elements leads to the actual composition of expenditure (and corresponding policy interventions) that can lead to highly heterogeneous: i) allocations of resources in terms of number of funded projects (fractionalisation of expenditure); ii) absorption rates; iii) key objectives to be achieved (concentration of expenditure). Table 2 shows how the composition of 2000-2006 expenditure by policy areas changes for the Objective 1 regions in Germany, Italy, Spain and United Kingdom.

The macro-national context in which EU Cohesion Policy projects are selected, funded and implemented are also radically different across Member States. Macro-economic

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[9] This is the reason why a traditional analysis of heterogeneity does not help in our case (we would be forced to interact the policy dummy (=1 for NUTS-3 belonging to Objective 1 regions) to country-level variables.

conditions are very different leading to different national-level approaches to public policies, their implementation and their funding (Table 3 – first section). Institutional conditions and quality of governance are also very different across countries with relevant implications for the quality of policy design, implementation and effectiveness (Table 3 – second section). Different Member States have also very different attitudes towards the EU and its policies with different degrees of acceptance of the associated constraints and opportunities (Table 3 – third section). Many of these aspects have been identified as source of policy's impact heterogeneity at local level by the EU Cohesion policy's evaluations mentioned in Section 2 (see for example Accetturo et al 2014 for the role of Quality of Government, for instance). The empirical analysis that follows will shed light on their influence on the benefits that the regions each country have been able to gain from Cohesion Policy.

5. How does net impact of EU Cohesion Policy differ across Member States? Country – specific estimates.

The coefficients estimated with respect to economic growth and employment reported in Table 4 refer to the 2000-2010 period and capture the more short-run effects, while Table 5 shows the corresponding results computed for the 2010-2014. Cohesion Policy has been one of the primary tools leveraged by the EU in order to support recovery, especially in the most disadvantaged regions. When the impacts of the crisis started to unfold in the EU regions significant funding re-allocations have been allowed by the Commission in order to support the most deprived areas of the Union and, in some cases, in order to compensate for the cut in national expenditure in some key priority areas. Therefore by looking at the impacts of Cohesion Policy on economic growth and employment after 2010, we can get a preliminary indication on the extent to which it has supported recovery in the regions of different Member States.

For each period and dependent variable, the model is estimated both for Europe as a whole (to validate the results of the existing literature) and for each country separately (in order to obtain country-specific impacts).

Overall the baseline whole-EU results are in line with the existing literature confirming the robustness of our approach. We identify a positive effect of the policy on growth: both sign and magnitude of the coefficient (Table 4, panel A) are in line with the estimations in

existing works (Becker et al. 2010 and 2013; Pellegrini et al. 2013), confirming that EU Cohesion Policy produced an overall positive impact by generating a 'growth bonus' in favour of the most disadvantaged regions of the Union. Our results also unveil that a positive impact can be recorded as far as regional employment levels are concerned.[10] Table 4 (Panel B) shows that the support of EU Cohesion Policy to the most disadvantaged regions in Europe involves not only more economic growth but also higher employment levels.

How are these positive impacts distributed across countries? In terms of regional growth Germany is the big winner from EU Cohesion Policy. Our results show that regional benefits in terms of economic growth are concentrated in German regions that drive the whole-EU positive impact (Table 4 – Panel A). This suggests that the positive aggregated impact identified in the existing literature might be the result of a composition effect rather than a genuinely EU-wide effect. The success of Cohesion Policy in Germany can be partially ascribed to the strong alignment between the EU overarching policy framework and the specific needs of German regions delivered by the political leadership of the Country in the key decision-making bodies of the Union (Bachtler et al., 2013; Bulmer, 2014). However, impacts might also be linked to the early emphasis on innovation placed in Germany by EU Cohesion Policy (European Commission, 2005), with more than 15 per cent of resources available for German Objective 1 regions devoted to Research and Technology already in the 2000-2006 period (Table 2), anticipating the more generalized evolution in this direction recorded in the 2007-2013 period. The relative strength of Germany in terms of macro-economic conditions and institutional quality is also likely to have played a role in shaping the returns to Cohesion Policy (Table 3). Even if the positive performance recorded in terms of regional growth is not matched by an equally significant impact on employment levels, returns to structural investment have materialized in the form of higher employment levels in German regions beneficiary of EU Cohesion Policy support vs. non-beneficiary regions in the recovery period post-2010 (Table 5 – Panel B).

The second major winner from EU Cohesion Policy is the United Kingdom. If UK beneficiary regions are not better off in terms of economic growth they show a better performance than non-beneficiary regions in terms of employment levels in both the short-run (Table 4 – panel B) and the medium-run (Table 5 – panel B). In line with the German experience sound national macro-economic and institutional conditions (Table 3) have allowed the policy to achieve (at least in part) its intended objectives in less developed

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[10] Up to now, employment has been granted a weaker attention in the existing literature, and among the papers more methodologically aligned to our own work, Becker et al. (2010) is an exception.

regions. The UK model of regional intervention – in line with the German case – reflects clear, consistent priori decisions on the concentration of resources on a limited set of priority axes. The UK concentrated financial resources in favour of (small) business support (absorbing approximately 50 percent of the total expenditure - Table 4) and 'people', with roughly 250 000 jobs created or safeguarded (European Commission, 2009) as well as the introduction of programs designed to attract employees with desirable skills (ISR, 2011). The positive impact in terms of jobs in the UK beneficiary regions has been achieved by leveraging limited resources: funds earmarked to UK Objective 1 regions account for less than 5 percent of the total funds allocated to Objective 1 regions in Europe (European Commission, 1999), suggesting that intensity of funding is a second order concern when compared to the more macro-national and strategic framework conditions in which territorial policies are implemented. How to replace the role of Cohesion Policy after Brexit is a relevant element of the current political (HM Treasury, 2015) and academic debate in UK (Bachtler and Begg, 2016).

Very different is the experience of Southern European regions in Italy and Spain.

In Italy Cohesion Policy produced a short-term positive impact in the beneficiary regions that materialized only in terms of regional employment (Table 4 – Panel B). However, this positive impact vanished after the crisis. The evidence on the Italian case seems to support the idea of Cohesion Policy working as a means to maintain employment in low-productivity jobs in the *Mezzogiorno*, a model that the Great Depression has made unsustainable. The effects on Objective 1 regions' employment seem to reflect the genesis of short term opportunities, which did not translate into sustainable trends in the medium to long run (Petraglia and Pierucci, 2016). This reflects more fundamental unsupportive national-level framework conditions, with weak institutional conditions (in terms of corruption and rule of law – Table 3) that make it difficult to quickly and effectively translate funds into implemented projects (Balassone and Casadio, 2011). In addition, they lead to a fragmented approach where policy decisions are taken in isolation and with a lack proper coordination likely to severely diminish the impact of any development policy (European Commission, 2010; Pontarollo, 2016). In terms of Cohesion Policy model of intervention Italy shows the highest degree of dispersion of expenditure by policy area (almost 25 percent of the funds are allocated to headings such as technical assistance, tourism and culture as shown in Table 4). Spanish beneficiary regions absorbed almost 30 percent of expenditure in the 2000-2006 period (European Commission, 1999). Nevertheless, at least until the Great Recession- and in contrast to the EU a whole - they have not benefitted from EU Cohesion Policy. There is no

clear evidence of positive returns in terms of growth or employment in the 'treated regions' (Table 4) notwithstanding the conspicuous amount of Community resources invested in the country (Polverari, 2016). A model of policy intervention largely unbalanced towards transport infrastructure (Crescenzi and Rodríguez-Pose, 2012; Crescenzi et al., 2016a) and disconnected from the endemic challenges in terms of skills, youth unemployment and other dimensions of regional development such as social inequalities (Castells-Quintana et al., 2015) are the likely cause of this lack of impact. A positive effect – in sharp contrast with the rest of the Union – emerges in Spanish regions only after the crisis in the Recovery period in terms of higher growth while unemployment problems have remained untouched. The extent to which this 'growth' bonus will materialize in the longer-run remains to be seen.

6. Conclusions

Nowadays EU Cohesion Policy is expected to serve a diversified set of objectives (that include economic growth, competitiveness, employment, social inclusion, environmental sustainability, innovation, etc.). Cohesion Policy is expected to deliver results in all regions of the Union (not only in the most disadvantaged areas) dealing with a hugely diversified set of territorial conditions (whose heterogeneity the progressive enlargement of the EU has further increased).

While the scholarly and policy debates have extensively covered the challenges associated with the interaction between a single unitary Cohesion Policy framework and diversified territorial conditions, more limited has been the attention to the heterogeneity of impacts associated to diverging macro-national conditions and models of implementation. National-level studies have provided relevant insights on the specificities of individual national contexts but they offer limited scope for direct comparison across countries. However, the debate on the future of all EU policies following the decision of the UK to leave the Union has put the role of the nation state back at the centre of the debate. Which policies are better pursued at the EU level? Which ones would be more effective if fully controlled by the individual member states? Answers to these questions with reference to Cohesion Policy call for careful counterfactual assessments of the net impacts of the policy on both growth and employment as well as for clear comparable answers on the distribution of these impacts across member states.

This paper has contributed to these debates by applying an innovative identification strategy to a large sample of NUTS-3 regions in different Member States with heterogeneous national macro-institutional and policy implementation conditions. This empirical strategy has allowed us to estimate – for the first time in the literature - both EU-wide and country-specific fully comparable policy impacts.

Based on this empirical strategy this paper has been to make a two-fold innovative contribution to the existing literature. The first contribution concerns the EU-wide impact of Cohesion Policy on both growth and employment. The second concerns the heterogeneity of these regional impacts across member states, hidden by composition effects in previous studies.

Cohesion Policy has exerted a positive and significant EU-wide impact on both regional economic growth and employment. The positive impact on regional employment has survived the Great Depression and supported less developed regions in the recovery period. However, these positive effects are not evenly distributed across the regions of all member states. Germany is the Member State where large part of the Cohesion Policy regional growth bonus is concentrated. Conversely, impacts on regional employment are largely confined the United Kingdom. The picture for Southern European Member States is much less rosy. Italian beneficiary NUTS-3 have experienced better employment performance but this effected has ended with the Great Depression. Conversely, Spanish beneficiary regions have only benefited from Cohesion Policy in terms of better growth performance during the Recovery phase after the Great Depression with no impacts on employment.

Even if the Barca Report (Barca, 2009) re-centred the debate on Cohesion Policies around the importance of highly localized factors conditioning success and failure, these results show that macro-national factors remain central. Macro-institutional conditions and models of intervention make the difference in terms of impacts over and above the diversity of local conditions. Early strategic decisions – such as the focus on innovation in the German priority axes – have significant long term consequences and are better taken at the national level with more complete information and foresight capabilities as well as more effective coordination. However, while the predicaments of the Barca Report (and the adoption of a bottom-up approach) have resulted in a stronger role (and independence) being given to individual regions in the selection of the tools and in the implementation of the policy, the same is not true for the national level. Implementation mechanisms and rules are the same for all countries (e.g. financial rules, certification, co-financing procedures, project

documentation requirements) and they are then operationalized in different ways in different regions.

Would more flexibility and autonomy given to the Member States reinforce the impacts of Cohesion Policy? The results of this paper suggest that not only models of intervention but also impacts are already highly heterogeneous across countries. A nation-based approach – with better adaptation of the policy to the needs and overarching objectives of each individual Member State – might be the best complement (and indeed a much needed counter-balance) to the current place-based approach. More national-level adaptability and autonomy might be the best response to the calls for a complete re-nationalisation of regional policies. While in post-Brexit Europe territorial cohesion remains an EU-wide public good - requiring EU-wide coordination and financial solidarity – the most effective (and politically viable) approach to its achievement might be premised on a stronger role to be (re)assigned to the Member States.

Tables

Table 1. Balancing properties for the baseline covariates (pre-treatment year)

	Europe	Germany	Italy	Spain	UK
Population Change	0.0001	-0.0001	0.0002	0.0004	-0.0004
	(0.0007)	(0.0001)	(0.0001)	(0.0004)	(0.0003)
Natural Population Growth Rate	-0.0008	-0.0001	0.0008*	0.0001	-0.0001
	(0.0035)	(0.0001)	(0.0003)	(0.0002)	(0.0001)
Migration Rate	-0.0056	0.0002	0.0001	-0.0007	0.0006
	(0.0039)	(0.0003)	(0.0001)	(0.0004)	(0.0009)
Agricultural share	-0.0041	0.0002	0.0001**	0.0001*	-0.0001*
	(0.0034)	(0.0003)	(0.0000)	(0.0000)	(0.0000)
Service share	0.0020	-0.0001	0.0002	0.0001	0.0001
	(0.0012)	(0.0001)	(0.0007)	(0.0005)	(0.0008)
Share of built area	0.0013	-0.0001*	0.0001	-0.0002	-0.0004
	(0.0009)	(0.000)	(0.0001)	(0.0005)	(0.0003)
Vulnerability to climate change	-0.1151	-0.0002	0.0001	0.0001	-0.0005
	(0.0845)	(0.0005)	(0.0001)	(0.0001)	(0.0004)
Photovoltaic	0.0043	-0.0001	0.0002	-0.0001	-0.0000
	(0.0048)	(0.0001)	(0.0006)	(0.0002)	(0.0001)

Note: Variables are selected under the constraint of the data availability at the NUTS-3 level (we include all variables considered by previous studies and by the Cohesion Report, EU Commission 2014). Clustered and robust standard errors. Coefficients estimated by applying model 1 to estimate the effect of the pretreatment value of observables on the treatment dummy. The best polynomial degree of the forcing variable is selected according to the AIC criteria among the nine specifications of model 1 (we estimate the model by considering the polynomial degree of up to degree 3, allowing it to differently vary below and above the cut-off of the forcing variable).

Table 2. Expenditure composition by policy area (share of total expenditure).

	Germany	Italy	Spain	UK
Business support	30.40	30.49	10.36	48.73
Energy, environment and natural resources	10.99	10.84	26.61	1.73
Social infrastructures and human resources	3.38	2.02	5.48	7.60
Research, Technology And IT services	17.71	10.41	8.68	11.87
Transport infrastructures	21.81	22.14	33.42	5.82
Other	15.71	24.10	15.46	24.25

Note: the data refer to the expenditure of the Objective 1 regions during the 2000-2006 period and come from the 'Integrated database of allocations and expenditure for 2000-2006', European Commission http://ec.europa.eu/regional_policy/en/policy/evaluations/data-for-research/

Table 3. Macro-national contextual conditions

	Germany	Italy	Spain	UK
Macro-economic conditions				
Government gross debt (% of GDP)	81%	127%	86%	89%
Administrative Expenditure (% of GDP)	110%	80%	50%	40%
Welfare Expenditure (% of GDP)	29.40%	29.70%	26.10%	27.30%
Long term Unemployment rate (% of unemployed)	41.2%	58.30%	48.40%	27.20%
Quality of Government				
Absence of Corruption (from 0 to 1)	0.82	0.62	0.80	0.80
Human Capital Index (from 0 to 100)	81.55	75.85	72.79	80.04
Attitude towards the EU				
EU is going in the Right Direction (from 0 to 1)	0.57	0.49	0.52	0.40
Trust in the European Union (from 0 to 1)	0.33	0.32	0.22	0.20
Trust in the National Government (from 0 to 1)	0.42	0.15	0.12	0.24

Note: Data refer to the year 2016 and come from the 'The Quality of Government Standard Dataset', University of Gothenburg (http://qog.pol.gu.se/data/datadownloads/qogstandarddata), from the World Economic Forum (http://reports.weforum.org/human-capital-report-2016) and from OECD (https://data.oecd.org/unemp/long-term-unemployment-rate.htm#indicator-chart).

Table 4. Effects of EU Cohesion Policy on economic growth and employment (2000-2010)

	Europe	Germany	Italy	Spain	UK
Panel A - Y: economic growth					
Objective 1	0.0036**	0.0354**	0.0295	0.5078	0.0074
	(0.0011)	(0.0118)	(0.0411)	(0.5907)	(0.0451)
R squared	0.183	0.094	0.195	0.360	0.138
Polynomial degree	3-2	3-1	2-1	2-1	1-1
Observations	779	428	87	44	125
Panel B- Y: employment					
Objective 1	0.0045*	9.7737	40.8626**	-78.82296	50.3325**
	(0.0017)	(4.9094)	(12.8633)	(43.9912)	(16.6211)
R squared	0.300	0.154	0.218	0.510	0.177
Polynomial degree	3-1	3-3	2-3	3-3	3-2
Observations	770	421	87	42	125

Note: clustered and robust standard errors. The best polynomial degree of the forcing variable is selected according to the AIC criteria among the nine specifications of model 1 (we estimate the model by considering the polynomial degree of up to degree 3, allowing it to differently vary below and above the cut-off of the forcing variable).

Table 5. Effect of EU Cohesion Policy on economic growth and employment (2010-2014)

	Europe	**Germany**	**Italy**	**Spain**	**UK**
	Y: economic growth				
Objective 1	-0.0092*	-0.3776	41.1915*	2.2226**	7.6063
	(0.0024)	(0.4297)	(15.6782)	(0.5160)	(5.3399)
R squared	0.325	0.179	0.206	0.264	0.165
Polynomial degree	3-1	3-2	2-3	3-1	3-2
Observations	702	379	87	41	114
	Y: employment				
Objective 1	0.0151*	41.5978**	-3.7066	111.0092	151.7883**
	(0.0069)	(13.2816)	(37.0892)	(212.4177)	(46.6149)
R squared	0.320	0.159	0.634	0.316	0.285
Polynomial degree	3-1	3-3	2-3	3-3	2-2
Observations	697	373	87	42	114

Note: clustered and robust standard errors. The best polynomial degree of the forcing variable is selected according to the AIC criteria among the nine specifications of model 1 (we estimate the model by considering the polynomial degree of up to degree 3, allowing it to differently vary below and above the cut-off of the forcing variable).

Figures

Figure 1. Country-specific counterfactual scenarios.
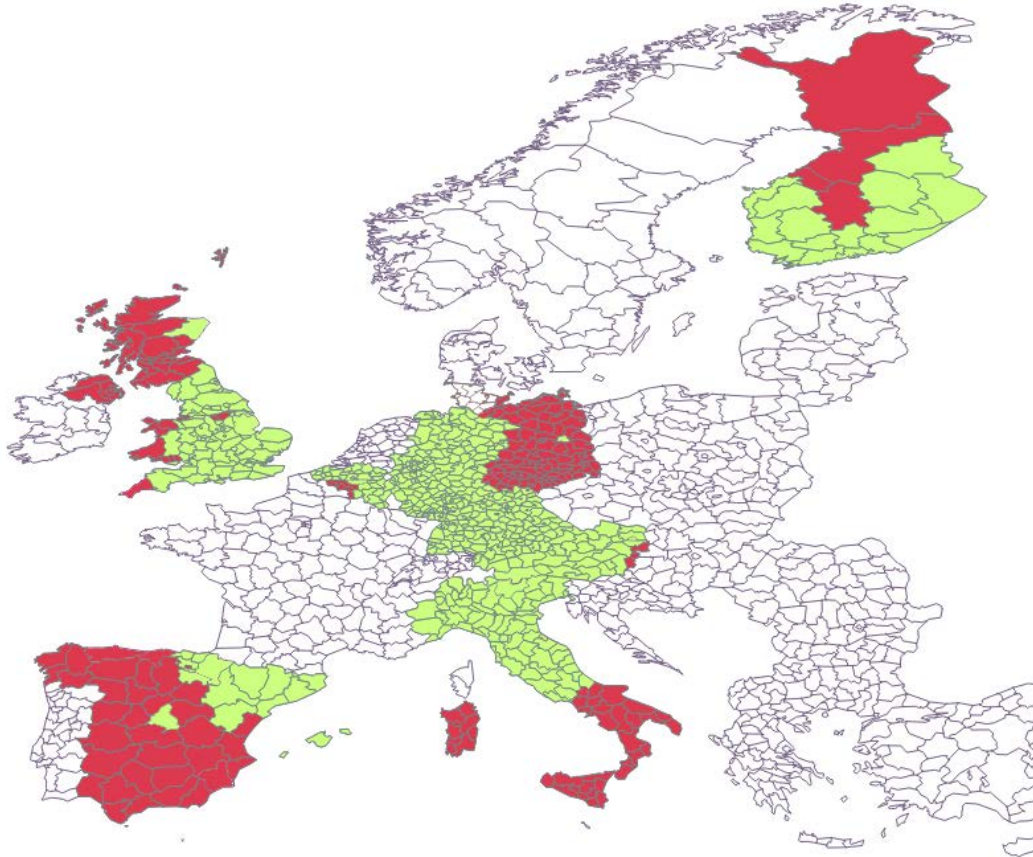
Source: Authors' elaboration on Eurostat and European Commission data.
Note: The maps shows NUTS-3 regions belonging to Objective 1 regions (in red) according
to the 2000-2006 EU Cohesion Policy eligibility criteria (treated group). NUTS-3 regions
forming the counterfactual group are in green.

REFERENCES

Accetturo, A., G. de Blasio, and L. Ricci (2014): "A Tale of an Unwanted Outcome: Transfers and Local Endowments of Trust and Cooperation," Journal of Economic Behavior & Organization, 102, 74–89.

Balassone, F. and P. Casadio (2011): "Le infrastrutture in Italia: dotazione, programmazione, realizzazione," Workshop and Conference Bank of Italy, n.4/2011.

Barca, F. (2009): "An agenda for a reformed Cohesion Policy. Independent Report prepared at the request of Danuta Hubner, the Commissioner for Regional Policy," available at: http://ec.europa.eu/regional_policy/archive/policy/future/pdf/report_barca_v0306.pdf (accessed 05 November 2017).

Barone G., F. David, and G. de Blasio (2016): "Boulevard of broken dreams. The end of EU funding (1997: Abruzzi, Italy)," Regional Science and Urban Economics, 2016, vol. 60, issue C, pages 31-38.

Bachtrögler, J., U. Fratesi, G. Perucca (forthcoming): "The Influence of the local context on the implementation and impact of EU Cohesion Policy," Regional Studies, 2017.

Becker, S. O., P. H. Egger, and M. von Ehrlich (2010): "Going NUTS: The Effect of EU Structural Funds on Regional Performance," Journal of Public Economics, 94(1–2), 578–590.

Becker, S. O., P. H. Egger, and M. von Ehrlich (2013): "Absorptive Capacity and the Growth and Investment Effects of Regional Transfers: A Regression Discontinuity Design with Heterogeneous Treatment Effects," American Economic Journal, 5(4), 29–77.

Black, S. (1999): "Do Better Schools Matter? Parental Valuation of Elementary Education," Quarterly Journal of Economics, 114(2), 577–599.

Bondonio, D. and R. T. Greenbaum (2003): "A Comparative Evaluation of Spatially Targeted Economic Revitalization Programs in the European Union and the United States," ICER Working Papers 03-2003. Turin: International Centre for Economic Research.

Bachtler, J., Mendez, C. and F. Wishlade (2013): *EU Cohesion Policy and European Integration: The Dynamics of EU Budget and Regional Policy Reform*. Farnham: Ashgate, 2013, ISBN 9780754674214.

Bachtler, J., and Begg I. (2016) Cohesion and cohesion policies in the UK: what might Brexit entail? Policy brief drawing on a brainstorming workshop held on 21st March 2016

Bulmer, S. (2014): "Germany and the Eurozone Crisis: Between Hegemony and Domestic Politics," West European Politics Vol. 37(6), pp. 1244-1263.

Castells-Quintana, D., Ramos, R. and V. Royuela (2015): "Income inequality in European Regions: Recent trends and determinants," Review of Regional Research, 35(2), pp. 123-146.

Cerqua, A. and G. Pellegrini (2017): "Are we spending too much to grow? The case of Structural Funds," <u>Journal of Regional Science</u>, forthcoming.

Crescenzi, R. and A. Rodríguez-Pose (2012): "Infrastructure and regional growth in the European Union," <u>Papers in Regional Science</u>, 91, pp. 487–513.

Crescenzi, R. and M. Giua (2016): "The EU Cohesion Policy in context: Does a bottom-up approach work in all regions?", <u>Environment and Planning A</u>, 0(0), pp. 1–18.

Crescenzi, R., Di Cataldo, M. and A. Rodríguez-Pose (2016a): "Government Quality And The Economic Returns Of Transport Infrastructure Investment In European Regions," <u>Journal of Regional Science</u>, Wiley Blackwell, vol. 56(4), pp. 555-582.

Crescenzi R., Luca D., Milio S. (2016b) "<u>Resistance to the crisis in Europe: macroeconomic conditions, regional structural factors and short-term economic performance</u>", <u>Cambridge Journal of Regions, Economy and Society</u>, *9, 13–32,*

Crescenzi, R., U. Fratesi and V. Monastiriotis (2017): "The EU cohesion policy and the factors conditioning success and failure: evidence from 15 regions," <u>Regions Magazine</u>, 305 (1). pp. 4-7. ISSN 1367-3882.

Crescenzi, R. and M. Giua (2017): "Different approaches to the analysis of the EU Cohesion Policy. Leveraging complementarities for evidence-based policy learning," in Bachtler J., Berkowitz P., Hardy S. and Muravska T. (eds) *EU Cohesion Policy. Reassessing performance and direction* (NY: Routledge), pp. 21-32.

Crescenzi, R and A. Rodrìguez-Pose (2011): "Reconciling top-down and bottom-up development policies," <u>Environment and Planning A</u>, 43(4): 773–780.

de Blasio, G. and S. Poy (2017): "The Impact of Local Wage Regulation on Employment: A Border Analysis from Italy in the 1950s," <u>Journal of Regional Science</u>, Vol. 57, Issue 1, pp. 48-74, 2017.

De Castris, M. and G. Pellegrini (2005): "Complementarity and Substitution Among Industrial Incentive Schemes—Measures Targeted to SME Versus Measures Targeted to Large Projects," ERSA Conference Papers, 05, 755.

Dell, M. (2010): "The Persistent Effects of Peru's Mining Mita," <u>Econometrica</u>, 78, 1863–1903.

Di Cataldo, Marco (2017): "The long-term impact of Objective 1 funding on unemployment and labour market disparities: <u>Journal of Regional Science</u>, Vol. 57, Issue 5, 814-839.

Ederveen, S., J. Gorter, R. de Mooij, and R. Nahuis (2002): "Funds and Games. The Economics of European Cohesion Policy," ENEPRI Occasional Paper No. 3, October 2003.

Einio, E. and H. Overman (2012): "The Effects of Spatially Targeted Enterprise Initiatives: Evidence from UK LEGI," ERSA Conference Papers, European Regional Science Association.

European Commission (2005): *Thematic Evaluation of the Structural Funds' Contributions to the Lisbon Strategy*. Brussels.

European Commission (2009): *European Cohesion Policy in the United Kingdom*, available at:
http://ec.europa.eu/regional_policy/sources/docgener/informat/country2009/uk_en.pdf
(accessed 5th November 2017), Brussels.

European Commission (2014): *Investment for jobs and growth: Promoting development and good governance in EU regions and cities*. Sixth report on economic and social cohesion, Brussels.

European Commission (2017): *Reflection paper on the future of EU finances*, Brussels.

Fehrenbacher, D. and B. Pedell (2012): "Disentangling Incentive Effects from Sorting Effects: An Experimental Real-Effort Investigation," Working Paper of the Risk Management and Decision Processes Center. Philadelphia, PA: The Wharton School, University of Pennsylvania.

Ferrara, A. R., P. McCann, G. Pellegrini, D. Stelder and F. Terribile (2016): "Assessing the impacts of Cohesion Policy on EU regions: A non-parametric analysis on interventions promoting research and innovation and transport accessibility," Papers in Regional Science, doi: 10.1111/pirs.12234.

Financial Times (2017): *Juncker edges away from principle of ever closer union*, article by Beesley, A., March 1, 2017, Brussels.

Freedman, M. (2013): "Place-Based Programs and the Geographic Dispersion of Employment," Regional Science and Urban Economics, 53, 1–19.

Giua, M. (2017): "Spatial discontinuity for the impact assessment of the EU Regional policy. The case of the Italian Objective 1 regions," Journal of Regional Science, Vol. 57, Issue 1, pp. 109-131.

Gibbons, S., S. Machin and O. Silva (2013): "Valuing School Quality Using Boundary Discontinuity Regressions," Journal of Urban Economics, 75, 15–28.

HM Treasury (2015): *European Union Finances 2015*, London: Stationery Office

Holmes, T. (1998): "The Effect of State Policies on the Location of Manufacturing: Evidence from State Borders," Journal of Political Economy, 106(4), 667–705.

Institute for Structural Research (2011): Evaluation of Benefits Gained by EU-15 States Resulting from the Implementation of Cohesion Policy in the Visegrad Group Countries, IBS, Warsaw.

Jofre-Monseny, J. (2014): "The Effects of Unemployment Protection on Migration in Lagging Regions," Journal of Urban Economics, 83, 73–86.

Lee, D. and T. Lemieux (2010): "Regression Discontinuity Designs in Economics," Journal of Economic Literature, 48, 281–355.

Menon, C. and S. Giacomelli (2012): "Firm Size and Judicial Efficiency in Italy: Evidence from the Neighbour's Tribunal," SERC Discussion Papers 0108. London: Spatial Economics Research Centre, London School of Economics.

Mitze, T., Paloyo, A. R. and A. Björn (2012): "Quasi-experimental Methods in Empirical Regional Science and Policy Analysis – Is there a Scope for Application?," Ruhr Economic Papers, No. 367, ISBN 978-3-86788-422-8

Mohl, P. and T. Hagen (2010): "Econometric Evaluation of EU Cohesion Policy—A Survey," ZEW—Centre for European Economic Research Discussion Paper No. 09-052. Manheim, Germany: ZEW—Centre for European Economic Research.

OECD (2017): *OECD Employment Outlook 2017*, ISBN: 9789264274877, Paris.

Papaioannou, S. and E. Michalopoulos (2014): "National Institutions and Subnational Development in Africa," The Quarterly Journal of Economics, 129(1), 151–213.

Pellegrini, G., F. Busillo, T. Muccigrosso, O. Tarola, and F. Terribile (2013): "Measuring the Impact of the European Regional Policy on Economic Growth: A Regression Discontinuity Design Approach," Papers in Regional Science, 92(1), 217–233.

Percoco, M. (2005): "The Impact of Structural Funds on the Italian Mezzogiorno, 1994-1999," Région et Développement, 21, 141–152.

Percoco M. (2017). "Impact of European Cohesion Policy on regional growth: Does local economic structure matter?", Regional Studies, 51 (6): 833-843.

Petraglia, C. and E. Pierucci (2016): "Fu vera convergenza? Le politiche di coesione e le periferie dell'Unione," EyesReg, Vol.6, N.1, January 2016.

Polverari, L. (2016): "Cohesion policy in the southern periphery," in: Piattoni, S., Polverari, L. (eds) Handbook on Cohesion Policy in the EU. 2016. Cheltenham, 2016.

Pontarollo, N. (2016): "Does Cohesion Policy affect regional growth? New evidence from a semi-parametric approach," in: Bachtler J., Berkowitz P., Hardy S. and Muravska T. (eds) *EU Cohesion Policy Reassessing performance and direction*. Routledge, 2016.

Rodrìguez-Pose, A. and U. Fratesi (2004): "Between Development and Social Policies: The Impact of European Structural Funds in Objective 1 Regions," Regional Studies, 38(1), 97–113.

Teorell, J. S. Dahlberg, S. Holmberg, B. Rothstein, A. Khomenko and R. Svensson (2016): The Quality of Government Standard Dataset, version Jan16. University of Gothenburg: The Quality of Government Institute, http://www.qog.pol.gu.se doi:10.18157/QoGStdJan16

World Economic Forum (2016): *The Human Capital Report*, available at: http://www3.weforum.org/docs/HCR2016_Main_Report.pdf (accessed 5th November 2017) ISBN 978-1-944835-02-6.