The impact of European cohesion policy in urban and rural regions: a regression-discontinuity approach

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Abstract

There is an extensive literature on the impact of the European Cohesion Policy on the economic performance of targeted areas. Despite that, its effectiveness remains controversial. This paper investigates whether the policy has supported the economic performance of the most disadvantaged European areas, and in particular of the “Objective 1” regions, by adopting a Regression Discontinuity Design (RDD) in the context of a Local Average Treatment Effect (LATE) regression. The framework allows to provide reliable empirical evidence on the impact of the policy coupled by novel findings on the spatial heterogeneity emerging within each NUTS2 region. The European Cohesion funds contributed positively to generate economic growth in lagging areas, but their effect is mainly driven by the successful performance of rural areas close to main urban agglomerates. Favourable geography and the progressive suburbanization of the rural landscape create new opportunities for rural areas close to cities boosting the effect of the policy.

Keywords: Regional growth, Cohesion Policy, Urban regions, Rural development.

JEL Classification numbers: E62, H50, R58.
1 Introduction

The role of spatial heterogeneity in terms of economic performance has been traditionally linked to the emergence of urbanization economies. Cities as densely populated areas are supposed to have higher productivity (Ciccone et Hall, 1996), generate more knowledge outcomes (Feldman and Audretsch, 1999, Glaeser et al., 1992), attract knowledgeable individuals benefitting from the accumulation of human capital (Moretti, 2004, Ciccone and Peri, 2006, Duranton, 2007), be more creative and entrepreneurial (Florida, 2002, Audretsch and Feldman, 2004).

Besides that, in a global context in which competitiveness is increasingly reliant on agglomeration economies and accessibility, the role of cities within the economic landscape becomes relevant not only per se but also with respect to the economic performance of regions where these cities are located (McCann and Acs, 2011).

A greater understanding of the evolution of such spatial trends with respect to the challenges and opportunities coming from the current globalization trends is then crucial. More integration, connectivity and increasing interdependence represent a general drifts within the global economy. This tendency is reflected not only by the raise in the mobility of capital and labour, but also by the incentives towards more economic integration pursued by the political agenda of different countries.

Europe has been deeply involved in this process of progressive political and economic integration during the last decades and with the recent inclusion of Croatia the European Union counts 28 member States. In this context the key common principle of solidarity has been translated in the increasing concentration of funds on disadvantaged areas and sectors with the aim of tackling economic, social and territorial disparities.

Which role plays spatial heterogeneity in this context? Do cities and rural areas in disadvantaged areas benefited equally from this increasing policy support?

Despite the relevant attention devoted by scholars and policy makers to the evaluation of policies aimed at tackling structural disadvantages in the case of Europe (Sala I Martin, 1996, Boldrin and Canova, 2001, Midelfart-Knarvik and Overman, 2002, Ederveen et al, 2002, Cappelen et al, 2003, Rodriguez Pose and Fratesi, 2004, Dall’erba and Gallo, 2008, Percoco, 2013), the majority of these studies have focused on the regional dimension without a clear evidence on how the policy impacted on different areas within regions. This approach reflects the idea
that spatial problems in Europe are more regional in nature (Dreider et al., 2001) and the limited attention devoted to urban policy in respect to other countries such as the US (Kasanko et al., 2006); at the same time it misjudges the spatial scale of the potential solutions to these problems.

Underestimating the role that different spatial dynamics may play in engaging new development trends, the existing empirical evidence on the impact of policy initiatives aimed at fostering development in lagging regions has provided a partial view. The lack of attention to the potential heterogeneity in the effectiveness of these programmes at the sub regional level may hide distinctive spatial patterns in particular in the case of emerging economies. This is an extremely relevant issue with respect to urban areas and to the implications associated to their spatial evolution over time.

There are a number of relevant examples on the impact evaluation of policies aimed at tackling structural advantages with a strong focus on the urban dimension in the case of the US (Jargowsky, 1997, 2003). In this context metropolitan areas are traditionally considered a key geographical unit of interest and the availability of data at this level allows accounting for the dimension of the urban agglomerate beyond the administrative boundaries of cities. Available statistics for Europe at city level refer to NUTS 3 units. However NUTS 3 areas are unlikely to account for the whole metro-region agglomeration, which also include the commuter belt around a city. Comparison among the economic performance of NUTS-3 regions is then difficult to interpret, since the difference may be partly artificial. Moreover it may disregard the deep transformation occurred to modern cities that are increasingly characterized by phenomena of suburbanization and progressive transfer of people and economic activities at the edge of the city (Kasango et al., 2006). This is a particularly relevant issue in the case of expanding cities that are likely to experience more variation in their spatial scale.

Following the concept of urbanization as “diffusion process starting from the growing urban centers and affecting the countryside in concentric spheres of differentiated influence” (Antrop, 2004) it is clear that the investigation of the role of cities with respect to programmes aimed at fostering development at broader geographical scales is a much more complex issue.

The effect of policies impacting on the economic performance of disadvantaged regions is likely to be disproportionally reflected by trends experienced by their urban agglomerates. Cities are reasonably able to attract a greater amount of resources, people and economic activ-
ities than dispersed areas and to benefit from density in translating the availability of greater financial resources in development outcomes. At the same time however expanding cities may increasingly experience the transformation of rural areas close to the city center into urban and industrial ones (Antrop, 2000). This implies the emergence of an additional geographical level of interest given that the urban fringe or urbanized rural areas, more than the city center (that is likely to be, in the case of European cities, constrained by historical spatial pattern), may show the greater impact in terms of diversion from its natural trend.

In this vein, the empirical investigation of the impact of any policy programs aimed at fostering development in lagging regions cannot be assessed apart from its implications at the sub-regional level in terms of distribution of emerging benefits. Heterogeneity in terms of territorial responses to significant policy interventions is not a straightforward outcome. Due to the historical characteristics of European cities, suburbs and rural areas close to the city center are likely to be the geographical level more affected by shifts in economic trajectories. This trend is further boosted by novel transportation infrastructures fostering the redistribution of economic activities reflecting the possibility to benefit from agglomeration economies, while taking advantages from a greater availability of cheaper land. Urbanized rural areas at the periphery of the city center are those where changes in economic performance of the region may be more visible and where diversion from the natural trend of the area due to policy interventions more effective.

This paper contributes to the current debate looking at the impact of the European Cohesion Policy on the economic performance of disadvantaged regions (also known as Objective 1) across the European Union with a crucial focus on the potential heterogeneity emerging within each region in terms of capability to take advantage from policy initiatives aimed at fostering development in lagging areas. In this framework the traditional policy evaluation approach is enriched by a greater attention to the effectiveness of the dynamics at play in different spatial contexts within each region. Comparing areas characterized by different degrees of urbanization (cities vs intermediate vs rural areas) and a different degrees of distance from main urban agglomerates (rural areas close to the city vs dispersed rural areas), the analysis underlines distinctive spatial patterns of economic responses to the policy.

Results show that the effect of the policy is particularly evident on rural areas close to main urban agglomerates, suggesting a disproportionate impact on those spatial contexts that can
exploit the benefit of agglomeration economies by integrating with cities.

Both primary urban, intermediate and rural dispersed rural areas are not systematically affected by the European Cohesion Policy. In the former case because city growth in Europe is constrained by a number of historical and architectural heritages, preventing from the possibility to accommodate increasing number of people and economic activities. In the latter because dispersed areas have no capability to attract valuable economic actors.

The remaining of the paper is organized as follows: section 2 discusses the existing literature on the evaluation of the European Cohesion Policy. Section 3 describes the methodological settings of the paper while section 4 presents the data used for the empirical investigation and some related descriptive statistics. Section 5 presents the main results while section 6 concludes.

2 Literature Review

Given the substantial amount of financial resources devoted to cohesion policy and its long lasting implementation period, it is not surprising that an increasing number of studies have addressed the issue of its effectiveness.

The existing literature has often showed conflicting results and no conclusive evidence has been reached so far.

Boldrin and Canova (2001; 2003) popularized the idea that regional policies have scant importance in the process of convergence among European countries since labour is free to move, whereas Ederveen et al. (2002; 2006) find that the effectiveness of EU regional policy, if any, may be reduced by crowding out effects, rent seeking and inappropriate spending.

More recent analyses based on the neo-classical growth theory have confirmed these ambiguous results. Esposti and Bussoletti (2008) find a limited impact of the policy on regional growth when using a first difference generalized method of moments estimator and system generalised method of moments estimator. Rodriguez-Pose and Fratesi (2004) have detected a positive, although limited, impact only for those funds targeted on education and human capital improvement, employing pooled GLS FE estimation covering the period 1989-1999. Puigcerver-Peñalver (2007) using panel data for the same decade, estimates a positive effect of the policy for Objective 1 regions, but only for the years from 1989 to 1993. Aiello and Pupo (2012) focus on Italian regions over the period 1996-2007 and find that structural funds expen-
diture did not significantly reduced productivity differentials between regions. García-Milà and McGuire (2001) using a difference in difference approach and Spanish regional data, find no effect of the grants neither in promoting private investments nor in improving welfare of poorer regions.

By explicitly recognizing the importance of spatial spillovers, Dall’erba and Le Gallo (2008) detect significant local autocorrelation in the form of a "core-periphery" pattern over the years 1989 to 1999. Employing spatial lag models that confirm the presence of convergence, attributing however no role to Cohesion Policy in promoting convergence. As far as the impact of spatial autocorrelation is concerned, Mohl and Hagen (2010) find that spillover effects have a positive impact on regional growth rates, but differently from Dall’erba and Le Gallo (2008), they also find a small but positive impact of the Objective 1 grants on regional growth and no effect or even negative effect of Objective 2 and 3 payments. Interestingly, Le Gallo et al. (2011) estimating a Bayesian model in which each region in the sample has a specific impact of structural funds, found fixed evidence depending on the country of interest.

Very few studies have avoided strict functional form assumptions between structural funds payment and regional growth. Using quasi-experimental methods, Hagen and Mohl (2008) investigate the impact of Structural Funds payments by applying a generalized propensity score and estimating a dose response function. They find that structural funds have a positive, but not statistically significant impact on regional growth. Becker et al. (2010) adopt a regression discontinuity design (RDD) exploiting the fact that the treatment status - whether a region receives Objective 1 transfers - depends on the regional per capita GDP level (set as 75% of the EU per capita GDP in purchasing power parity) and finding a positive and statistically significant effect of Objective 1 transfers on regional growth. Building on that, Becker et al. (2011) implement a new estimation technique in which a RDD is allowed to estimate heterogeneous local effects. The estimation computed through Heterogeneous Local Average Treatment Effect (HLATE), shows that the degree of absorptive capacity (as measured by the quality of regional institutions and by the stock of human capital) is important in explaining differences in outcomes.

What emerges from the existing literature is the extreme heterogeneity in the magnitude and

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1 Results further endorsed by Percoco (2005) focusing on a set of South Italian regions and using a small supply-side computable model and finding that the effect of structural funds in terms of productivity depends on the type of the strategy adopted by the regional government.

2 A similar approach has been undertaken by Busillo et al. (2010).
sign of the results. Although justified in the light of different estimation methods, country of interest of time frame under analysis the lack of conclusive evidence requires a greater attention. Recent studies in particularly have emphasized the role alternative dimensions, such as the quality of local institutions and the availability of indigenous resources, as key precondition to exploit the benefit coming from European funds and to translate these amount of financial resources in positive economic outcomes. This evidence in favour of the role of local absorptive capacities supports the idea that the effectiveness of the policy may be not homogeneously distributed both across and within regions. While explaining the heterogeneity across regions has been at the root of all the existing studies, no attention has been devoted to the latter aspect.

A greater focus on the sub-regional level, the redistribution of the benefits associated to the policy initiative and the spatial scale of development is indeed needed to provide a greater understanding of the effectiveness of such programs and their consequences. In a context in which global competition is increasingly driven by local capabilities to develop distinctive competitive advantages and to attract valuable economic actors (both individual and firms), policies aimed at supporting development in lagging areas are likely to generate heterogeneous outcomes both across and within regions. In both cases there are relevant policy implications because the core-periphery patterns characterizing the geography of development in Europe may be translated at smaller scale in an increasing divergence across different spatial contexts within the same region, opening up novel perspectives on the analysis of the effectiveness and consequences of these policy initiatives.

3 Methodology

The estimation of the impact of the European Cohesion Policy is subject to a number of methodological challenges requiring a careful treatment. In particular a key issue is associated to the endogeneity of the treatment status due to the relationship between Cohesion Policy and targeted areas.

To deal with this issue and to provide an unbiased estimation of the impact of the policy we will adopt for the empirical analysis a fuzzy RDD estimation procedure which is based on a Regression Discontinuity Design (RDD) and a Local Average Treatment Effect (LATE) estimator.
Exploiting the RDD framework we assume the possibility to control for observed as well as unobserved heterogeneity in the estimation of the treatment effect taking advantage from the existence of an eligibility rule for the treatment status based on an observable variable $x^3$. Indeed the principle underlying this strategy is that observations just below and above the threshold are likely to be very similar to each other with respect to both observed and unobserved characteristics except implying that any mean difference in the outcome variable can be attributed to the treatment effect. This average treatment effect (ATE) sacrifices external validity by focusing merely on observations close to the cutoff point.

Regression discontinuity may be sharp if the eligibility rule is strictly adhered so that given the threshold level $x_0$, the probability of treatment $T$ is $P(T=1|x<x_0)=1$ and $P(T=1|x>x_0)=0$. Whenever the rules are not applied sharply, the RDD is said to be fuzzy.

In the context of our estimation we will focus on the effect of Objective 1 transfers, exploiting an eligibility rule attributing the treatment status to all regions with a per capita GDP lower than 75% of EU average. However, due to exception to the general rule and to the application of the treatment status also to regions above the threshold of 75%, we apply a fuzzy RDD to our case.

More formally, let $y_0$ and $y_1$ denote the counterfactual outcomes without and with treatment $T$, let $x$ be the forcing variable and consider the following assumptions:

A1. $E(y_g|T,x) = E(y_g|x)$, $g=0,1$

A2. $E(y_g|x)$, $g=0,1$ is continuous at $x=x_0$

A3. $P(T=1|x)\equiv F(x)$ is discontinuous at $x=x_0$, i.e. the propensity score of the treatment has a discrete jump at $x=x_0$.

In the fuzzy RDD the discontinuity is used as an instrumental variable for treatment status. Following Imbens and Lemieux (2008) the goal is to estimate the parameter $\rho$ on treatment of this form:

$$y_{i,T} = \theta + \rho T_i + f(\tilde{x}_{i,T}) + \eta_i$$

where $y_{i,T}$ is in our case the GDP growth of region $i$ whose treatment status is $T$ (i.e. being Objective 1 or not), $\theta$ is a constant, $\tilde{x}_{i,T}$ is the forcing variable properly normalized. In our case $x_{i,T}$ is per capita GDP at PPS averaged over the years 1996-1998 and is normalized with respect to 75% of the EU average, that is we consider a variable in the form $x_{i,T} - x_0$ so that at $x_{i,T} = x_0$

$^3$It should be mentioned that Dell (2010) has very recently proposed a geographical RDD.
we have that \( \tilde{x}_{i,T} = 0 \) and \( f(\tilde{x}_{i,T}) = 0 \). Consequently, \( \rho \) expresses the impact of the treatment at \( x_{i,T} = x_0 \). The \( f(\tilde{x}_{i,T}) \) term is a \( p \)-th order parametric polynomial whose parameters are allowed to differ on the left and the right of the cut-off point (Angrist and Pischke, 2009) in order to account for non linearity of the relationship between growth and initial GDP and thus be sure that the jump is not due to an unaccounted non-linearity, while distinct sets of parameters allow different trend functions. Lastly \( \eta_i \) is an error term.

Applying OLS estimation to equation (1) would lead to a biased estimate of the treatment effect due to the fuzziness of the treatment variable (Imbens and Lemieux, 2008; Lee and Lemieux, 2010). The treatment dummy \( T \) can be instrumented by a first stage regression which takes either the form:

\[
T_i = \alpha + \beta R_i + f(\tilde{x}_i) + \kappa_i + \epsilon_i
\]

(2)

or

\[
P(T_i = 1) = f(\delta + \zeta R_i + f(\tilde{x}_i) + \xi_i + \nu_i)
\]

(3)

where \( \alpha, \beta, \delta \) and \( \xi_i \) are unknown parameters and \( \epsilon_i \) and \( \nu_i \) are disturbances. The variable \( R_i \) denotes the treatment that the region would have been assigned had the eligibility rule been strictly followed. The fitted values obtained from the first regression will be replaced in equation (1) and an OLS estimate of the second stage equation will unbiasedly estimate the treatment effect.

In order to have a causal interpretation of the 2SLS the instrument \( R_i \) must affect the treatment (Cov(\(R_i, T_i\)) \neq 0), and it must fulfill the exclusion restriction Cov(\(R_i, \eta_i\))=0. Last assumption is that the instrument \( R_i \) is independent of the vector of potential outcomes and potential treatment assignments, formally \([\{y_i(T,R) \forall T, R\}, T_{i,0}, T_{i,1}] \perp \perp R_i\).

The estimation performed exploiting the RDD framework and the local average treatment effect (LATE) estimator will allow us to recover reliable estimates for the relation of interest while ruling out the possibility that results are systematically driven by uncontrolled endogeneity biases.
4 Data and descriptive statistics

In respect to many existing contribution focusing on specific subsample of countries our analysis is aimed at investigate the impact of the European Cohesion Policy extending the spectrum of analysis to the whole European Union. The impact of the policy is addressed with respect to Objective 1 regions. This is not an uncommon approach and it is motivated by a number of relevant considerations. First, the explicit purpose of Objective 1 transfers is to reduce the gap in per capita GDP between "rich" or "non-treated" regions and "poor" or "treated" regions. Second, Objective 1 transfers form the largest part of the expenditures devoted to the Cohesion Policy budget. This implies that referring to Objective 1 regions we may exploit a comparable sample in terms of standard pre-requisite for being qualified as lagging region in Europe and at the same time we are able to focus on the financial bulk of the program that account for the majority of resources spent on this axis by the European Union.

The investigation focuses on structural funds expenditures for the programming period that started in 2000 and ended in 2006. However data for our dependent variable - i.e. Regional GDP - have been collected for the period 1999-2008. The upper bound does not coincide with the end of the programming period because of the $n+2$ rule, which states the obligation to spend the funds allocated annually by the end of the second year following the end of the programming period (i.e. 2006). Main controls collected for a similar time span includes population density, employment rate and the shares of population with secondary and tertiary education.

In the definition of the sample of observed regions that are classifiable as recipient of the European funds some peculiar cases have to be bear in mind. As acknowledged there are a number of exceptions to the 75% threshold. A first group refer to scarcely populated regions in Austria, Finland and Sweden that are considered eligible for funds despite being all above the relevant threshold of 75%. A second sample refers to the outermost regions of France, Portugal and Spain where only the Canaries are above the relevant GDP. Finally the last exception to the 75% rule is the phasing out status - i.e. NUTS2 regions which were granted Objective 1 transfers during the preceding programming period, namely 1994-1999, and whose GDP is higher than the threshold for period the 2000-2006 but still receive Objective 1 payments so that the large flow of funds does not stop abruptly. The presence of these exceptional cases justifies the fuzzy RDD framework applied for the estimation of the impact of the policy.
Data come from Eurostat databases publicly available online and refer to NUTS3 level, even though Objective 1 eligibility is on a NUTS2 basis. A more disaggregate level of observation yields better understanding of the processes triggered by the payments allowing for a more detailed investigation of the impact of the policy when the potential heterogeneity between different areas within each region is accounted for (i.e. distinguishing NUTS 3 in urban, intermediate, rural close to the city and rural dispersed areas). In other words, our unit of observation is the NUTS3 region whereas the treatment was assigned at NUTS2 level. This latter aspect allows also to take advantage from an increasing the number of observations and most of all by the mildly exogeneity of the treatment status based on the fact that some NUTS3 regions with relatively high GDP per capita could have be treated because they belonged to Objective 1 NUTS2 regions while conversely, NUTS3 regions with a GDP per capita below the threshold level could not be treated if they belonged to non-Objective 1 NUTS2 regions.

During the programming period 2000-2006 there were 257 NUTS 2 regions divided into 1233 NUTS 3 regions.\textsuperscript{4}

Table 1 presents summary statistics for per capita GDP in PPP terms at NUTS 3 level by country for the year before Objective 1 status was assigned, namely 1999 for EU-15 and 2003 for EU-10. All the EU-10 countries except Cyprus have an average per capita GDP level below 15,000 euros, while all the EU-15 countries, except Portugal and Greece, had the average GDP above 15,000 euros.

Naive estimates of the impact of Objective 1 transfers can be obtained by combining the results of the two statistics (Table 2). Panel A in Table 2 presents the values of the average GDP before and after the treatment together with its difference, whereas Panel B shows the per capita GDP average growth rate over the years. Each of these statistics is broken-down into recipient and non-recipient NUTS3 regions and different levels of aggregation are considered, namely the entire EU, the old Member States and the new Member States.

[Tables 1 and 2]

Statistics in Panel A show that Objective 1 transfers have had a negative impact on the GDP per capita because all differences increased rather than decreased from 1999 to 2008. It

\textsuperscript{4}With the accession of Bulgaria and Romania on the 1\textsuperscript{st} of January 2007 regions became 271 and 1303 in number respectively.
should be noted that reducing this gap is the explicit aim of the Objective 1 transfers. A failure of the policy therefore seems evident. At the same time, however, the statistics in Panel B show that recipient regions have grown faster than non-recipient regions by more than 1.5% on average, implying that there may have been $\beta$-convergence. Panel B also highlights that both groups of NUTS3 regions of EU-10 have grown faster than the corresponding groups of EU-15. Nonetheless, the difference within EU-10 is negative given the extraordinary performance of non-Objective 1 EU-10 regions. It is however worth to highlight EU-10 results for non-recipient regions may suffer from slight sample bias because there are only two NUTS3 regions that were not eligible, namely Cyprus and Bratislava.

Finally Table 3 presents average cumulative growth rates of NUTS3 regions divided by typologies, i.e. Whole sample, Urban regions, Intermediate regions close to a city, Rural regions close to a city, Rural and remote regions. It emerges that Objective 1 regions have had higher growth rates than the rest of the sample and that rural regions close to a city had the largest average increase.

Despite not implying any causal implication the descriptive evidence provided suggests emergence of spatial heterogeneity in the effectiveness of cohesion policy both across regions and across different typologies of areas. This preliminary results justifies the need of a deeper investigation aimed at investigating these distinctive spatial patterns.

5 Results

As preliminary empirical investigation we refer to the graphical analysis of GDP level around the threshold of 75% defined by the European Union for the eligibility to the status of Objective 1 region. Figures 1-5 plot the outcome variable (i.e. the average growth rate for NUTS3 regions) against the forcing variable (i.e. per capita GDP in PPP for NUTS2 regions). Furthermore, a polynomial in the running variable is added in order to remark the discontinuity. The jump of the outcome variable at the threshold level is evident for all typologies of spatial units across regions. Figure 1 shows the presence of a consistent shift in the growth rate of GDP exactly at the identified threshold for the whole sample of regions providing graphical support for the
effectiveness of the policy. Results remain consistent when the sample is split and the same graphical representation is provided for Urban Regions (Figure 2), Intermediate Regions close to the city (Figure 3), Rural Regions close to the city (Figure 4) and Rural and Remote Regions (Figure 5). In all cases with some degree of variation (in particular intermediate regions seems those less affected), the discontinuity at the threshold seems an evident feature.

This result provides two key considerations. First there is some suggestive evidence of the effectiveness of the policy for both the whole sample and each subsample of areas; second given the evident discontinuity at the threshold, the RDD seems to be a sound approach to disentangle the effectiveness of the Structural Funds in promoting GDP growth in relatively poorer regions of the EU. Despite that it remains to bear in mind that 21 NUTS2 regions, amounting to 59 NUTS3 regions, did not meet the requirements for Objective 1 status but were granted the funds anyway. As previously acknowledged to cope with these characteristic of the policy we will operate in a fuzzy rather than sharp RDD framework ⁵.

Despite graphical representation provides an appealing evidence in favour of the effectiveness of our estimation approach due to the existence of an effective discontinuity in the average growth rate for NUTS3 regions at the relevant threshold identified by the policy it has to be bear in mid that this is only a preliminary supportive finding that need to be tested through more formal estimation procedures to address whether this difference in economic performance is systematic in our sample. To provide more consistent estimates of the impact of the policy a regression analysis is performed following the methodological setting discussed in section 3.

Table 4 reports our 2SLS estimation for the whole sample and different groups of regions and different specifications. Panel A presents the baseline regression where the dependent variable - the average growth rate of GDP over the period under analysis, is related to the treatment status. The Objective 1 status seems to a be significant determinent of the economic performance of NUTS3 regions when the whole sample is taken into account. However when each subsample of NUTS3 areas, classified with respect to their degree of density and their distance from main urban agglomerates. is analysed results are confirmed only for rural regions close to the city while in the other cases, despite positive, the relation remains insignificant. These results are not surprising in the light of the geography of Europe. As discussed there are a number of reasons to support these findings. Urban areas that are traditionally considered the engine of

⁵To be noted is that each point in the figure is the share of NUTS3 regions treated within the bin.
growth within the globalized economy due to their capability to attract successful people and businesses are characterized in Europe by strong historical and architectural heritages that may prevent them from the possibility to accommodate the increasing flows of economic actors and activities. The stability in the spatial dimension of European cities has been widely acknowledged by the existing literature (Antrop, 2000, 2004) and it contributes to explain while the evolution of urban agglomerates in Europe is a much less investigated topic in respect to other contexts such as the US. The natural consequence of such stability in the spatial pattern of urban areas is their progressive expansion towards rural districts close to the city center. The increasing urbanization of the rural landscape is a well known feature in the literature and it is justified on the light of the searching for cheap landing and good connections with the urban core. In the context of our estimation it is reasonable that those areas benefitting more from policy initiatives aimed at fostering development in lagging regions through investments in infrastructures and connectivity (that as acknowledged by Fratesi and Rodriguez Pose, 2004 explains a large part of the EU budget) and human capital formation and business support are also those characterized by a favourable location. Rural areas close to the city center are those experiencing the biggest transformation and the greatest diversion with respect to their natural trend and also those where the effect of the policy is most visible.

To further support the reliability of our results panel B includes controls for country dummies that should account for any distinctive economic pattern at national level. Results remain generally consistent with our previous findings. Finally Panel C account for a number of additional controls that can be considered standard within the existing literature: population density, employment rate and the share of population with secondary and tertiary education as proxy for human capital. Also in this case results remain unchanged. The status of Objective 1 regions - and in its turn the possibility to benefit from the financial resources devoted by the European Union to lagging areas - is a significant determinant at 1% of the economic performance of European NUTS 3 areas when the whole sample of NUTS3 is taken into account. However when the sample is split in its main components a substantial spatial heterogeneity in the impact of the policy emerges. Rural areas close to the city center are those exploiting the greatest benefit in terms of divergence from their natural trend and this feature remains consistent in all specifications.

Results shows that the European Cohesion policy has had a positive impact on economic
development in European regions over the last decade. However this effect has been not ho-

mogeneous within each region and the positive effect has been concentrated in those areas
characterized by favourable locations and greatest growth potentials. Rural areas close to cities
have benefitted from the growth opportunities created by the policy accomodating the increas-
ing demand for available space in the surroundings of main urban agglomerates. Cities and
intermediate areas that were been already characterized by an higher degree of urbanization
have been positively but not sistematically affected by the policy while interestingly the impact
turned to be negative, although not significant, in the case of rural dispersed areas that have
been reasonably affected by processes of progressive out-migration and depletion of the local
economic structure. This empirical evidence emphasizes a relevant further dimension in the
analysis of the impact of the European Cohesion Policy in Europe: distinctive spatial patterns
such as the increasing urbanization and trasformation of the rural landscape are natural counter-
part of the policy because they are the consequence of the distinctive nature urban development
in Europe.

6 Concluding remarks

There has been a large attention devoted by politicians and scholars to the evaluation of the
European Cohesion policy in the last decades. This increasing effort is justified in the light of
a number of reasons. First the principle of solidarity and the aim of supporting development
in lagging areas is a key pillar of the European Union. Second the large amount of resources
devoted to this objective over time and the lack of distinctive upward mobility have casted
doubts on the effectiveness of policy itself.

There is no consensus on the impact of the Cohesion Policy in the European context. The
majority of studies have found no conclusive and robust evidence in favour of the effectiveness
of the policy and those that have supported this latter view have been characterized by a number
of caveat and a more conservative approach.

More recent contributions have emphasized the role of local absorptive capacities in me-
diating the impact of the policy opening the way to a number of considerations regarding the
emergence of spatial heterogeneity that is not considered by requirement in the level of GDP
per capita based on with the eligibility for funds is assigned.
None of these studies however account for the fact that spatial heterogeneity may emerge also within each regions and that the effectiveness of the policy in terms of capability to foster development in lagging areas may be mediated by distinctive spatial patterns at the local level that also impact of the consequence that the policy may have in shaping the geography of economic activities in each region. This is an additional relevant policy issue because it allows to account for both the aggregate direct impact of the policy, in terms of economic performance of the region, and its indirect effect in terms of emergence of distinctive spatial patterns of winners and loosers within each region.

The paper shows that the European Cohesion Policy has been effective in fostering development in lagging areas in Europe however the impact of the policy is strongly heterogenous within each NUTS2 regions. Rural areas close to the city are those that have benefitted most and those driving the positive results on the full sample. These areas have experienced a significant diversion from their natural development trend taking advantage from the phenomenon of urban expansion, the need of available cheaper land in the surroundings of main urban agglomerates and the increasing accessibility of areas at the edge of cities. In this context the impact of a policy stimulating investments in infrastructures, business support and human capital creation has been particularly visible. Rural areas close to city centers were able to satisfy the increasing demand and to accomodate flows of people and business activities while taking advantage from a favourable location close to urban cores. Cities and intermediate regions that have been already involved in this process of urbanization before and that were characterised by stronger constraints in terms of additional available space remained not significant affected: they generally kept the same trends that they would have experienced in the absence of the policy. Finally remote rural areas characterized by weaker economies and sfavourable geography, distant from core urban agglomerates, despite not significantly affected by the policy, show a negative sign suggesting that they were probably characterized by progressive out-migration and further depletion of their economic structure.

More research is needed to understand how policies aimed at fostering development in lagging areas affect each specific territory in terms of redistribution of benefits and costs. Spatial heterogeneity in terms of policy outcomes may generate core-periphery pattens also within regions and at the same time it may call for a greater attention to the management of different
spatial contexts to boosts economic development while preventing phenomenon of excessive suburbanization, depletion of the agricultural environment and sprawl.
7 Bibliography

References


References


