The Importance of Having Good Neighbors

## A new approach to the evaluation of European Regional Policy

July 2023

European Regional Policy (ERP) aims to reduce economic and social disparities between territories, **redistribute wealth** between regions and countries and **stimulate growth in areas lagging behind.** *It is the European Union's policy-pillar and the largest experiment in redistributing incomes between regions and countries in the Western economy.*

Does ERP work? The estimation of the impact remains controversial**, also because the impact is strengthened or weakened depending on the characteristics of the territories financed. The reason? One of the most relevant is the **neighborhood-effect**: as this research reveals**, being surrounded by poor regions negatively affects ERP outcomes**, because (negative) interactions with neighbors decrease the effectiveness of interventions and contribute to increasing inequalities. This is what happens **in many areas of Southern Europe,** where areas with low productivity, high unemployment, low levels of education and low incomes are concentrated. Starting from Italian **Mezzogiorno.

The starting point

European regional policy is based on the Treaty on the Functioning of the European Union (Article 174), and in Italy also from the Italian Constitution (Article 119(5) and Article 3(2)) which require 'special measures' to promote 'harmonic development' and 'remove economic and social imbalances'.

Figure 1– **Heterogeneity in the growth rate of regional GDP** *per capita* **(1999-2007)**
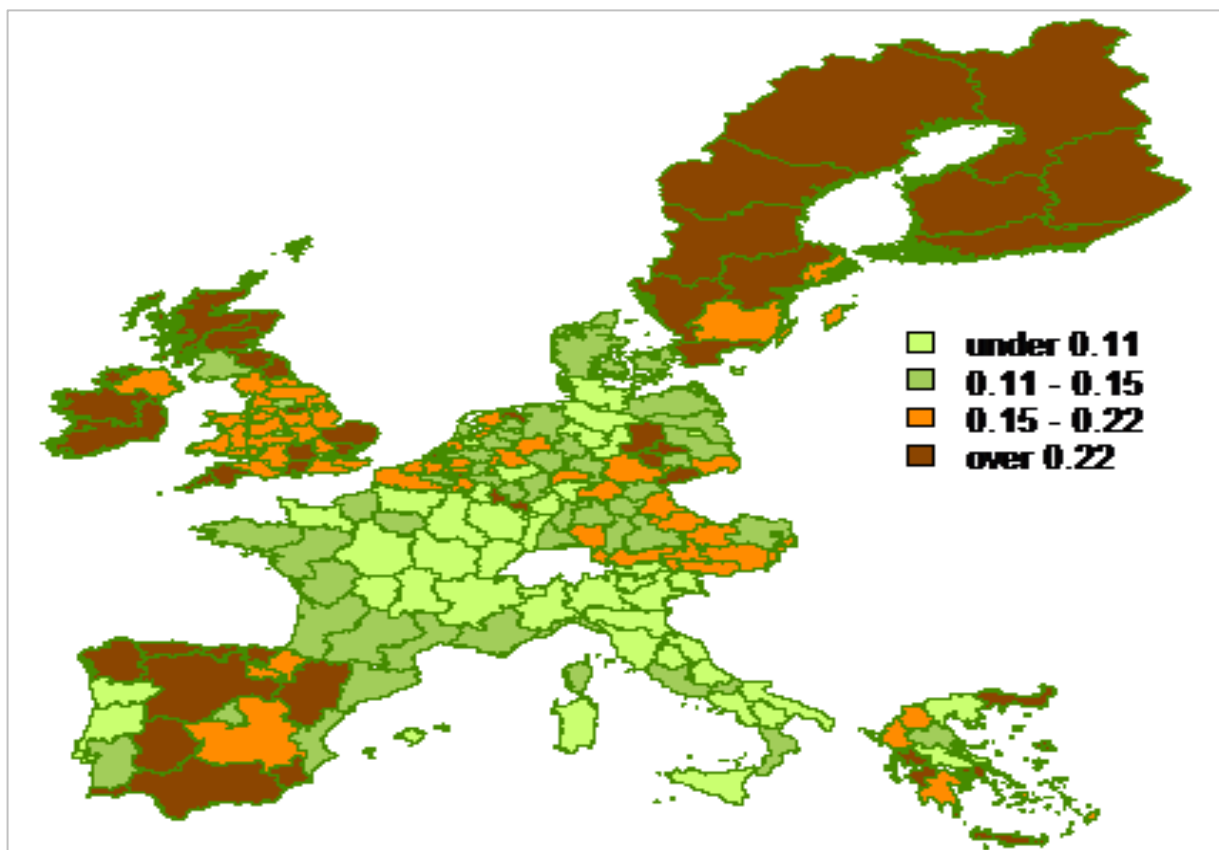
Source: Authors' elaboration on data from the European Commission

Since the 1990s, regional policy has been one of the key policies of the Union. The **resources** available **increased** from around **160 billion ECU initial to** EUR **351 billion (one third of** the EU budget) in the last programming period completed (2014-2020). **Italy has been allocated 44 billion euros, or about 13 %.**

Most of the interventions were devoted to reducing economic and social imbalances by supporting the **development and structural adjustment of regions lagging behind.** These are defined at NUTS-2 level and are identified as regions **with a GDP per capita below 75 % of the European average.**

The **effects** of these regional policies are more evident over a **long period**. The research then assesses the impacts of the policy by focusing on the **results of the 2000-2006 Structural Funds programming cycle**, which covered Europe before enlargement to the East. The heterogeneity of development is evident from **Figure 1** which shows that the growth rates of regions in Europe have been very differentiated in this period.

The framework

Over the **2014-2020** period, European regions lagging behind have received funding of EUR **217 billion**, representing more than half (61.8 %) of the EUR 351 billion spent by the Union through the Structural Funds.

In the face of this financial commitment, the results are still controversial. The main reason is the strong **heterogeneity of the effects**, which is reflected in a differentiated impact of the ERP

on different regions.

There are many **factors** behind this heterogeneity, including for example the **different financial support** received: the most subsidised regions received funds per capita up to 11 times higher than those with low subsidies (Figure 2).

A fundamental element of heterogeneity concerns *spillover* **effects**, i.e., the repercussions

generated by (spacial) interaction between neighboring regions: the economic development of a territory depends not only on local factors, but also on the *performance* of the nearby areas. This explains why in some areas the effects of regional policy are more intense than in others.

ERP in the South of Italy

In the various programming cycles, the regions of the Italian Mezzogiorno have been included in the group of "less developed regions", albeit with some adjustments over time**: Abruzzo** (until 1996), **Molise and Sardinia** (until 2006**), Campania, Puglia, Basilicata, Calabria, and Sicily.** On average, these regions have had, on a *per capita level,* **more than twice as much resources** from the Structural Funds as **in the rest of the country**.

The maximum aid intensity was reached in Calabria, the lowest in Abruzzo.

To learn more: *Spending to grow? Thirty years of EU interventions for depressed areas: the impact of cohesion in Italy and Europe*. http://www.senato.it/4746?dossier=2401

Figure 2 – Regional distribution of structural funds *per capita* (2000-2006).
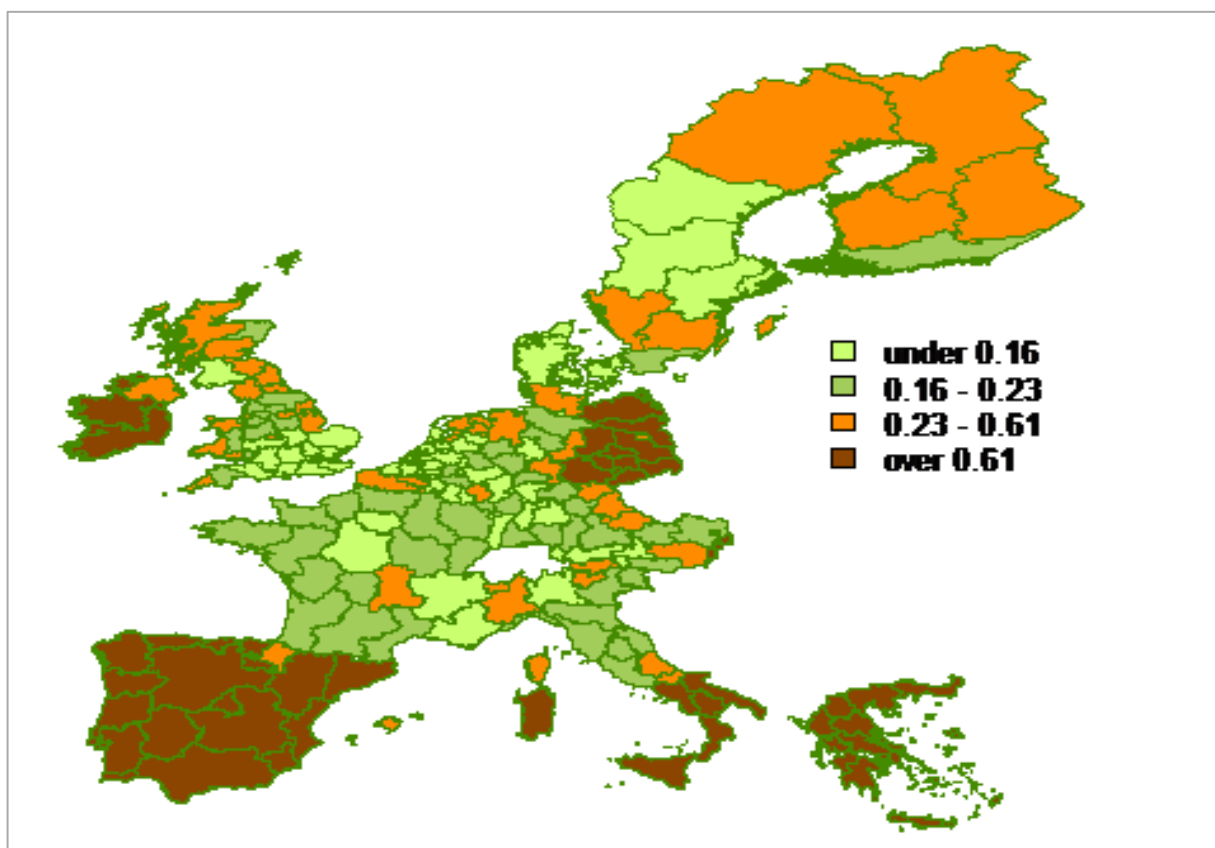
Source: Authors' elaboration on data from the European Commission

Regional *spillovers*. A question of method

The evaluation of European regional policy must, in the opinion of the authors of this study, be based on counterfactual analysis methodologies that take into account the existence of economic and social interactions between regions. The classic evaluation model, known as the counterfactual analysis model, introduced by Rubin (Rubin, 1974), does not respond to this requirement, since it assumes *a priori* the absence of interference, and therefore of *spillover*, between units, be they

persons, enterprises, or territorial areas.

The most recent literature tries to overcome this limitation by proposing models that consider interactions due to the presence of spatial contiguities. Interference, in terms of *spillover* generation, is a determining factor for regional policies because the policy maker defines the policy with the hope of generating positive effects not only on the territories of the intervention but also on the neighboring ones. The size of *spillover* effects is generally linked to spatial proximity and intensity of subsidies. The starting point of this study is based on two central elements for the definition of the analysis methodology:

- the intensity of the treatment, i.e., the amount of financial resources received by the regions;
- the measurement of the contiguity or spatial distance between regions that influences their potential spatial interaction.

These elements are crucial for estimating the impact of policy. The traditional approach that assesses the effect of policies in a counterfactual framework, when the level of treatment is known, is called the *Generalised Propensity Score* or GPS (see Becker, 2012 for the case of Structural Funds). The 'classic' GPS method allows the estimation of a function (dose-response type) where the marginal effect of treatment varies in response to different levels of the same treatment. GPS allows for selection effects between areas but does not take into account *spillover* effects. In the presence of interactions between territories, even a perfect control of the selection effect is not sufficient, however, to avoid errors in estimating the effect of the *policy* (Cerqua and Pellegrini, 2017). So far, no works have been presented in the literature that explicitly address both issues, namely spatial interference between units and continuous treatment, i.e., differentiated intensity for the different areas.

The methodology proposed in this paper extends the *spatial propensity score matching approach* used in De Castris and Pellegrini (2015) to the case of continuous treatment. The idea is to compare the subsidised and not non-subsidized regions with similar *spillover* effects, so that the difference between the results of the two groups of regions identifies the effects of policy net of *spillovers*.

The simplest method is to incorporate *spillover* intensity into GPS estimation. The intensity of *spillovers* is represented by delayed variables in space that represent the value of the phenomenon in the neighboring unit. However, the new approach has a cost: *spillover* effects cannot be estimated directly and simultaneously. It is only possible to derive them indirectly, comparing the results with those of the standard approach.

In detail. The spatial impact of European Regional Policy

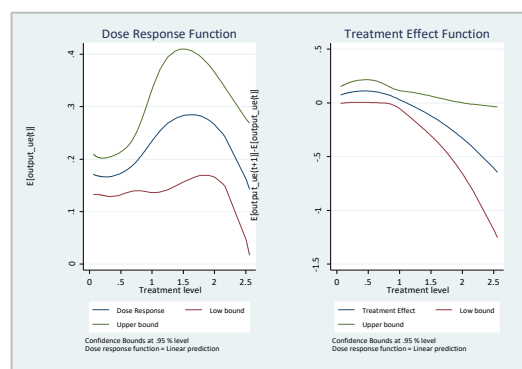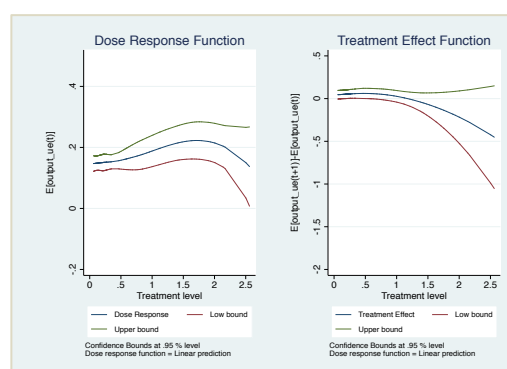**Figure 3 – Estimation without space *spillovers***   **Figure 4 – Estimation with space *spillovers***

Source: Authors' elaboration on data from the European Commission

Literature on ERP has proven (Becker, 2012; Cerqua and Pellegrini, 2018) that **the positive effect on annual GDP growth is not linear**: **by increasing the disbursement of Structural Funds beyond a certain threshold (EUR 340 *per capita*) the impact on the territory is negligible or zero.**

This new analysis on the ERP, confirming the results, adds an important factor explaining the differences in impact: **the presence of space *spillovers*.**

The empirical analysis estimates, using the GPS method, the relationship between financial resources (*per capita* and per year) made available by the ERP in a region (the treatment dose) and the growth of GDP *per capita* of the region itself (the response).

That relationship, called *dose-response function,* is estimated **in the presence and in the absence of spatial interactions**. From this function it is possible to derive the marginal effect of the treatment (the incentive given by the ERP), both before *spillovers* and without *spillovers*. The results show that ***spillovers* make an average positive contribution to growth**, although not always statistically significant.

A problematic neighborhood: Mezzogiorno & Co.

To show the importance of the spatial effects of European Regional Policy, the study presents a simulation of the impact in some low-income regions. The analysis considers for the 2000-2006 programming period, the *Objective 1* regions of four Mediterranean countries: Portugal, Spain, **Italy** and Greece.

In this group, three main *clusters* are identified (Southern Spain and Portugal, Southern Italy, and Southern Greece) characterised by **low-income regions with contiguous low-income areas**.

The analysis focuses on regional growth in the period 1999-2007. The overall effect of regional policy, if assessed without isolating *spillover* effects, amounts to **an increase in growth of 7.2 %**. On the **other hand, growth is higher and equal to 9.5 % if interactions with neighbouring regions (in this case negative) are excluded**.

Therefore, being surrounded by average low-income regions has a negative effect of - 2.3 %, about one third of the total effect of the traditional model.

Conclusions

The impact of European Regional Policy on the growth of the economy **is generally heterogeneous across the various target regions**: the difference is not so much in the sign of effects, which is essentially always positive, but in its intensity.

There are many reasons, such as, for example, the **different amount of funding per capita between regions**: in NUTS-2 regions with a median level of funds *per capita*, regional policy has a greater impact on GDP per capita growth than in NUTS-2 regions receiving a very high level of funds *per capita*.

This work focused on another very important factor in explaining the differences in the impact of the ERP: the presence of space ***spillovers***, which in turn depend on the level of development of neighbouring regions. In other words, **the more a region is surrounded by developed regions, the more the effects of regional policy are strengthened, as they generate positive spillovers.** Unfortunately, this is also true in the reverse case: **in *clusters* of less developed regions, the effects of regional policy are weaker.**

This result is confirmed by the deepening of the analysis for some Mediterranean regions of Europe.

With regard to the main lagging regions in southern Europe, the impact of the ERP is on average positive and tends to reduce disparities with the rest of Europe. However, the net effect of the ERP, excluding interactions with neighbouring regions, is marginally higher than the impact considering these interactions instead. This suggests that space *spillovers* for these regions have a slightly negative impact. The reason is that **these regions are surrounded by other low-income areas**, which generate a lower-than-average *spillover* impact.

Space *spillovers* between regions thus appear to be an important multiplication factor that can increase (or decrease) the average impact of European Regional Policy but also increase (or decrease) the heterogeneity of effects between regions with a different level of GDP *per capita*.

In conclusion, **the positive impact** of European Regional Policy on growth and convergence in Europe **may be mitigated both by an excessive level of transfers** in some (few) regions and **by the presence of negative *spillover* effects** between neighboring regions with low levels of development.

The dossier

It assesses the impact of European regional policy in a counterfactual framework.
It develops an alternative method that takes into account both the direct and indirect spatial effects of neighboring regions, as well as geographical differences in the intensity of funding provided.