The heterogenous effects of EU's Cohesion Fund

Angelos Alexopoulos

(Athens University of Economics and Business)

Ilias Kostarakos

(European Commission-JRC Sevilla)

Christos Mylonakis

(Athens University of Economics and Business, CEMFI)

Petros Varthalitis

(Athens University of Economics and Business)

Extended Abstract

Recent empirical research has attempted to shed light on the impact that Cohesion policy, the largest investment initiative of the EU, exerts on regional economic performance. To put things into perspective, over the last three decades, almost 960 billion euro have been disbursed to the EU regions for the objectives of cohesion. Specifically, for the ongoing 7-year budget period (the so-called Multiannual Financial Framework) an amount equal to 392 billion has been dedicated to Cohesion policy objectives, making Cohesion policy one of the top spending priorities of the EU. Historically, cohesion-related expenditures have accounted for almost one-third of the EU's budget, effectively making Cohesion policy one of the largest in magnitude redistribution programmes implemented.

Despite the ever-increasing volume of research contributions, the literature has still not reached a consensus regarding the sign of the impact and its (statistical) significance (see, for example the discussion in the recent report of the high-level group on the future of Cohesion policy). Fidrmuc et al. (2024), in an attempt to summarize the reasons behind this apparent lack of consensus mention the following: measurement errors, endogeneity due to omitted variables or reverse causality and, lastly, spillover effects. To this list, we include another important factor: homogeneity of the treatment effects. To be more specific, the vast majority of the literature has assumed that the impact of Cohesion expenditures is identical across all of the regions of the EU, irrespective of the relative position in the distribution of income and other idiosyncratic characteristics like the regional structure of the economy and the local quality of government institutions. However, homogeneity has also been imposed in terms of the impact of the time-varying unobservables, that is, the various shocks that hit the EU economies over the last thirty years. These shocks are symmetric in that they exert an impact across all countries and regions, nonetheless, their effects are markedly heterogeneous both across and within the EU member states.

The aim of this paper is to provide an ex-post evaluation of the regional effects of Cohesion policy, focusing on one of the least studied instruments: the Cohesion Fund. The Cohesion Fund was established and became operational with the 1994-1999 programming period. It is solely available to the (relatively) poorer EU member states, with a view to further enhance cohesion across the EU via funding investment projects related to the environment and transport infrastructure. Overall, the Cohesion Fund has received little attention in the relevant empirical literature, despite the fact that

since its inception it has disbursed a little less than 20% of the total Cohesion policy payments made (an amount equal to almost 190 billion).

The identification of the causal effects of such regional programs has mainly been conducted by relying either on panel data methods related to the Differences-in-Differences approach or by employing a Regression Discontinuity Design (RDD) to assess the impact of the Cohesion policy expenditures by leveraging on the institutional rule that determines whether a region is eligible or not for EU transfers. However, in the analysis of regional policies there are specific issues which require careful consideration. An issue that has received quite a lot of the attention in the literature is the spatial dependence between the local units. Thus, controlling for spatial and, more generally, cross-sectional dependence is crucial when the aim is the evaluation of regional policies. Here, we draw on recent developments from the causal inference and potential outcomes literature and we use interactive fixed effects or factor models Bai (2009) to estimate the regional effects of the Cohesion policy. Accordingly, we account for cross-sectional dependencies that arise not only from geographical factors but also from sector-specific characteristics, such as shocks or other unobservables, which can create dependencies across regions. In particular, our analysis builds on the matrix completion technique implemented in the context of factor models – see Xu (2017) and Athey et al. (2021). Importantly, our identification strategy allows for the estimation of region- and time-specific effects. As such, we are not restricted to the estimation of average treatment effects only, rather, we can provide extensive heterogeneity analysis. Specifically, we can identify regions and time periods where the policy was more (less) effective as well examine the impact of the policy on other variables of interest (e.g. investment). Additionally, we can obtain insights into the shape of the relationship between the (intensity of the) Cohesion Fund payments and regional output.

In order to estimate the causal effects of the Cohesion Fund, we leverage on an institutional characteristic that distinguishes it from the other funds available as part of the Cohesion policy envelope: it is only available to countries which exhibit a level of GNI per capita less than 90\% of the EU average at the time prior to the commencement of the programming period. This implies that we can clearly define two groups of countries/regions: those that are recipients of CF transfers (the treated group) and those that are not (the control group). This distinction is in contrast to the rest of Cohesion policy funds which disburse payments across all EU regions, albeit with the amounts being conditional on the relative income of the region. As a result, analyses that focus on the other funds need to resort to alternative research designs like the fuzzy Research Discontinuity.

Using a novel dataset that covers the entire universe of Cohesion Fund expenditures since its inception we draw, as already mentioned, on recent developments from the causal inference literature in order to estimate region- and time-specific treatment effects. Specifically, we adopt the matrix completion approach, a generalization of the synthetic control method of Abadie et al. (2010) that relaxes some key assumptions of well-established causal inference methods, like the differences-in-differences approach.

We find that, on average, the Cohesion Fund exerts a positive and persistent effect on the level of GVA per capita. The majority of the impact materializes within the first seven years that the region is under treatment. However, the region-specific analysis highlights that the results are quite heterogeneous, with the relatively poorer regions being the ones that exhibit the largest in magnitude effects. Moreover, we uncover a non-linear, inverted U-shaped relationship between the treatment intensity (Cohesion Fund expenditures as a share of output) and the size of the treatment effect. Lastly, our results indicate that –on average- recipients of the Cohesion Fund grew at a faster pace compared to the counterfactual scenario in which they do not receive the funds.