EU Cohesion Policy and Regional Economic Development: A Regression Discontinuity Analysis

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Long Abstract

The European Union's Cohesion Policy (CP) is a central component of the Union's strategy to foster balanced development among its member states, particularly in less developed regions. Its main funding sources— the European Regional Development Fund (ERDF) and the European Social Fund (ESF)—enable strategic investments in infrastructure, innovation, skills development, and environmental sustainability. While the ERDF, which holds the larger share of CP resources, focuses its efforts on supporting innovation, small and medium-sized enterprises, and information and communication technologies (ICTs), the ESF focuses on improving employability, strengthening human capital, and fostering social inclusion. CP ultimately contributes to the European Union's broader economic and social cohesion objectives through these targeted initiatives.

Scholars have widely analyzed the cohesion policy and its impact on regional economic performance, employing various methodological frameworks. Early contributions were mainly based on growth regressions and showed heterogeneous results depending on data characteristics and regressor selection, as Dall'Erba and Fang (2017) highlighted in their meta-analysis. However, most recently, economic literature has focused on properly assessing the causal impact of funds allocated through CP on regional development, mainly employing the Regression Discontinuity Design (RDD). RDD is indeed particularly suitable for the evaluation of CP, as its structure allows the identification of a specific cutoff that is determinant for funding allocation. CP's budget is, in fact, mainly dedicated to less developed regions, defined as "Objective 1 regions", whose per capita GDP is below 75% of the EU average.

Some recent contributions, including the analyses by Becker et al. (2013) and Bachtrögler et al. (2020), have highlighted the important role of regional contextual factors, such as human and territorial capital, and the quality of local institutions, in the efficacy of the policy. Among recent studies, Cerqua and Pellegrini (2018) have analyzed policy's impacts for the period 1994-2006, extending the RDD methodology to properly take into account the intensity of the treatment, which in this context refers to the amount of financing received. This methodological extension is particularly useful for the evaluation of the policy since the allocation of financing is highly heterogeneous, even among Objective 1 regions.

Despite these important findings, there remains a gap in the literature: previous analyses have largely neglected the role of other sources of regional capital accumulation, as widely discussed by Aresu et al. (2024). This oversight is particularly noteworthy considering that the total CP funds account for a minimal part of total regional investments; ERDF and ESF, which are directly allocated following the EU regional classification, only accounted for 0.64% of Europe's total gross fixed capital formation in 2022. Moreover, the share of CP's funds on regional investments varies considerably across EU regions. For example, it reaches 12.15% in the Acores while being as low as 0.03% in South Finland.

This contribution evaluates the impact of Cohesion Policy (CP) on regional Gross Domestic Product (GDP) growth from 2008 to 2023, explicitly accounting for other sources of regional investments to address a key gap in the literature. We adopt the innovative framework based on the

RDD proposed by Cerqua and Pellegrini (2018), incorporating both CP's regional classification and the heterogeneous distribution of funding across territories.

Notably, CP investments from different programming periods often overlap in intermediary years because of the "n+2" (and more recently "n+3" for the 2014–2020 period) rule, which grants regions additional time to utilize allocated resources beyond the nominal conclusion of the programming cycle. As a result, expenditures rarely align neatly with theoretical programming timelines, underscoring the need for alternative approaches that capture the actual flow of funds rather than relying exclusively on formal timelines.

Differently from previous contributions, our empirical strategy addresses this challenge by measuring treatment intensity in terms of total annual expenditures, thus taking advantage of the regionalized and annualized data provided by the Directorate-General for Regional and Urban Policy of the European Commission (EC 2024). Moreover, we move beyond using programming periods as a time reference. Instead, we disaggregate the overall time span in three different sub-periods —2008–2013, 2013–2018, and 2018–2023—thereby capturing relevant economic phases and global events. The first subperiod coincides with the global financial crisis, providing insights into how CP might mitigate adverse shocks during periods of economic downturn. The second subperiod primarily reflects the recovery phase, during which regions navigated the aftermath of recessionary pressures. The final subperiod encompasses the onset of the COVID-19 pandemic, thus enabling an examination of how CP investments may have bolstered regional resilience in the face of an unprecedented global health and economic crisis.

Importantly, the analysis is carried out by considering regional classification and annual average CP expenditures for the previous four years. This design allows us to address the temporal gap between the moment funds are disbursed, the completion of funded projects, and their observable impact on economic performance. By using this lag structure, we capture medium- to long-term effects rather than focusing solely on immediate or short-run impacts.

Coherently with Becker et al. (2013) and Bachtrögler et al. (2020), the analysis includes a set of intangible contextual factors: human capital, measured as the share of people aged 25-64 with a tertiary education level; technological capital, proxied as per capita regional R&D expenditure; institutional quality, for which we employ the European Government Quality Index (EQUI) developed by the University of Gothenburg and adequately extended following Charron et al. (2014); and population density to account for potential agglomeration externalities.