

## **Analyzing the Spillover Effects of R&D on economic growth considering the European regions context**

Innovation, particularly through R&D activities, is a critical driver of economic growth. However, the benefits of R&D are not confined to the geographical areas where the investment occurs. Spillover effects can significantly enhance the growth prospects of adjacent regions, fostering a more integrated and competitive European economic landscape. Despite the acknowledged importance of these spillover effects, quantifying their magnitude and understanding their mechanisms pose substantial challenges.

The research will utilize a spatial panel data model to analyze the effects of R&D on economic growth considering the European region's context. Spatial econometric techniques will be employed to capture both the direct effects of R&D investments within regions and the indirect spillover effects on neighboring regions. The main variables of interest include R&D investment as a percentage of GDP, GDP per capita growth rates, and control variables such as education level, infrastructure quality, and industry composition. The model will be estimated using data from Eurostat.

The study anticipates finding significant spillover effects of R&D on economic growth, highlighting the importance of regional proximity in the diffusion of innovation. The results are expected to contribute to the literature on economic geography and innovation policy by providing empirical evidence on the spatial dimensions of R&D spillovers. Furthermore, the findings will offer valuable insights for policymakers aiming to enhance regional innovation systems and foster balanced economic development across Europe.