

Spatial Effects of Innovation Variety and Trade Openness on Innovation Output

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Abstract

The paper analyzes the spatial effects of innovation variety and trade openness on innovation performance using a data set for 30 European countries during 2007-2017. The estimations illustrate the presence of spatial dependencies that affect the mechanisms of knowledge distribution and the magnitude of the effects of the various determinants of innovation. Considering spatial dependence, diversified agglomerations (urbanization economies) can induce important inferences to improve the innovation outputs. So, related innovation activities based on technology fields are a real, constant and significant support for better innovation outcomes. A key role can likewise play the R&D expenditures within the business sector. A high share of engineers and scientists in science and technology also contribute to innovation enhancement, but the general level of tertiary educated labor force do not have a uniform positive effect, contrary to expectations. Regarding the spatial effects, the results are relevant especially concerning the direct effects and less through indirect (spillovers) effects. Including more open services imports can induce a some positive direct influence on the international patent applications. In the empirical assessments, we used spatial econometric procedures that take into account the spatial dependencies, as weights matrices and specific tests prove.

Keywords: patent applications, unrelated and related variety, direct and spillovers effects, export and import openness, diversification and concentration