GEOGRAPHICAL CONCENTRATION OF THE EXPENDITURE ON TECHNOLOGICAL INNOVATION IN SPAIN

Raquel Arévalo Tomé¹, José María Chamorro Rivas²
¹Department of Business, University of Vigo, Vigo, Spain
²Department of Applied Economics, University of Vigo, Vigo, Spain
Email: arevalo@uvigo.es

ABSTRACT

This work studies the geographical concentration of expenditure on technological innovation by Spanish firms. The Spanish National Statistics Institute (INE) and the Spanish Foundation for Science and Technology made the Technological Innovation Panel (PITEC) to analyze the evolution of innovative activities of Spanish firms. Among the large number of variables analyzed by the PITEC since 2014. The data panel shows the distribution of innovation expenditures among the Spanish regions for each of the firms that carries out technological innovation. This paper measures the geographic concentration of the expenditure on technological activities by Spanish industries, with the data provided by the PITEC, and uses these patterns of agglomeration to analyze the importance of the economies of information on the explanation of these patterns.

Keywords: Agglomeration, innovation.

INTRODUCTION

One of the main reasons why firms decide to concentrate the spending on innovation in a given geographical area is the so called economy of agglomeration. These agglomeration economies are spatial external economies among firms, so that firms receive external profits being located close to other firms. This paper analyzes whether the location of innovation expenditures by Spanish industries are concentrated beyond what would be expected if the location was random.

METHODOLOGY AND RESULTS

Ellison and Glaeser (1997) propose a concentration index that allows us to analyze to what extent the natural advantages in a region or the external economies among production plants in the same industry determine the geographic concentration of production plants against a random location. Moreover, Ellison and Glaeser index also propose a coagglomeration index that allows us to analyze if there is a concentration of production plants for firms belonging to a group of industries beyond the own merger between production plants in the same industry. This paper applies these two indices to firms’ expenditures on innovation activities in the Spanish regions.

Moreover, Marshall (1920) noted that there are three reasons that may cause agglomeration economies: information externalities, proximity to customers and suppliers, and labor market pooling. In the analysis of the location of production plants, Ellison, Glaeser and Kerr (2010)
find evidence of the importance of these agglomeration economies targeted by Marshall (1920). They conclude that the importance of these factors, in descending importance, would be the input-output relations, the labor market pooling and the economies of information. In this paper, we also wonder about the importance of these factors pointed out by Marshall in the concentration of innovation expenditures.

One main reason to concentrate the spending on innovation in a geographical area is the ease of access to the flow of ideas between firms in the same industry. Contrasting with the result of Ellison, Glaeser and Kerr (2010), we expect that the information externalities play now a key role when analyzing the location of innovation expenditures. To answer this question, the PITEC provides information on the role that plays for the innovation activities other sources of information such as firms’ internal activities, other firms, universities, etc. and whether there exist cooperation for innovation activities with other firms or (public or private) entities.

REFERENCES