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Determinants for locating research and development activity in Europe



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ABSTRACT

In this paper, we contribute to the literature by analyzing the location determinants of R&D activities in Europe. We do so by studying the location choices of 1281 investment decisions from 2007 to 2012. We used a dataset from the European Observatory IFA. We began by analyzing the location determinants of R&D activities and then studied the co-location phenomena between production and innovation activities at the firm level. The results confirm that the location of innovation activities is more driven by market access, agglomeration forces and skilled labor pools. Furthermore, we demonstrate there is interdependence between the location decisions for innovation and production units at the firm level.

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1. Introduction

“Location preferences of firms have shifted from traditional requirements.” (Dunning, 1998). He demonstrated that location strategies for firms are becoming more and more complex. Thus, an analysis of a specific activity at the firm level is vital in order to simplify the complexity of defining these pull factors.

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Duranton and Puga (2005) define the activity of a firm as a part its value-chain and production stage. In other words, it refers to only one stage of production. Analyzing one stage of production enables us to focus on the factors that affect a certain activity. For Pelegrina and Bolancé (2008), the decision to start up a certain industry or activity in a specified region will depend on its traits and the characteristics of the region. The main reason for an analysis based on a firm's activity is that the activities within a certain firm are very heterogeneous. Each stage of production has its own traits and therefore can have its own determinants. Defever (2002) found that there are different determinants of location for different business activities.

This paper concentrates on the research and development activity of the firms. This activity is an important factor in generating innovation. New theories of economic growth point to the importance of innovation in ensuring growth in the global economy. Therefore, increasing the number of R&D investments becomes essential to ensure the economic growth. R&D activity seems to be a strategic and essential activity. These types of activity enhance the external competitiveness of the economy as it increases the productivity of the firms in the market. A higher level of R&D activities boosts the firms to be involved in price and non price competition by investing in high quality and product differentiation at a moderate price. There is an evidence on the correlation of the R&D activities and the development of total factor productivity (Englander et al., 1988).

José (2008) asserts that, "foreign multinational firms are now seen by most governments as a central actor in national innovation systems and as a catalyst for upgrading in global value chains." For him, it turned into a competition between governments to attract the R&D activities of multinationals. These concerns have a significant effect on the relocation of industries, therefore, that can directly affect real wages and employment. The lack of data and the shortage of rigorous pull factor determinants for these multinationals are an obstacle to developing effective strategies to attract them.

In this paper, we contribute to the literature by analyzing the location determinants of R&D activities in Europe. We do so by studying the location choices of 1281 investment decisions from 2007 to 2012. We used a dataset from the European Observatory IFA. We began by analyzing the location determinants of R&D activities and then we measured the relevance of the coordination costs for R&D investors. The results confirm that the location of innovation activities is more driven by market access, agglomeration forces and skilled labor pools. Furthermore, we demonstrate there is interdependence between the location decisions for innovation and production units at the firm level. The originality of our paper is to demonstrate that at the firm level, the location of innovation activities is sensitive to the prior existence of production sites.

The paper is organized as follows: Section 2 presents the main location patterns for innovation-related investments in Europe. Section 3 sets forth the theoretical model for locating R&D activity. In Section 4, we explain the econometric model. Section 5 describes the data set and the explanatory variables that are introduced in our estimates. Section 6 presents the econometric results and Section 7 contains the conclusion.

2. Main features of R&D investments in Europe

2.1. Firm-level data on location decisions

The data used in this study consist of individual location decisions made by multinational firms in Europe. Each year, the Observatory of the Invest in France Agency (IFA) collects data on the location of tangible investment projects in Europe.

The dataset contains detailed information. For each investment project, the IFA registers the name of the investing firm, the European country of location, the country of origin, the setup date, the sector of activity and the function within the firm. This dataset is compiled from official announcements made by the companies themselves and on the basis of information available in the international economic press and on the Internet (press agencies, websites, etc.).

The European observatory solely relates to Greenfield investments (creation of new entities) and Brownfield investments (expansion of an existing entity). The dataset used in this study covers 2007–

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