

Chapter 13

The Effects of University– Industry Collaboration in R&D on the Global Competitiveness of the Countries

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ABSTRACT

Today, countries as well as companies face high competition conditions at the global level. In order to increase the level of competition for both firms and countries, it is vital to implement technological changes and innovations based on research and development (R&D). In this respect, university-industry collaboration in R&D has an important role to play in increasing such technological changes and innovations in order to improve the competitiveness of both firms and countries. In this context, the main aim of this study is to analyze the effects of university-industry collaborative R&D on the global competitiveness of countries throughout the world using statistical techniques. This study finds that the global competitiveness of countries increases in proportion to increased university-industry collaborative R&D. Therefore, the study seeks to help decision makers at both the firm and national levels to design better policies and strategies for university-industry R&D collaboration to achieve sustainable global competitiveness and economic growth.

1. INTRODUCTION

In the current age of increasing globalization, countries as well as companies face high competition conditions at the global level. Hence, competitiveness is a core objective for every country. This gives rise to the inevitable need to achieve economic development and has led countries to focus on boosting

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their global competitiveness, because the more globalized a country is, the more competitive it becomes. The competitiveness of a country, which determines its level of productivity, efficiency and profitability, enables it to compete globally, which, in turn, contributes to its growth, development, and innovation and ultimately boosts its ability to survive the impacts of globalization with minimal difficulties. In this respect, implementing technological changes and innovations based on research and development (R&D) stands out as a vital means of increasing the level of competitiveness and economic growth for countries as well as firms.

Universities, as global institutions that provide flows of knowledge, qualified human resources, and innovation, have an important role to play in this sense. University–industry R&D collaboration, which has great potential to boost the technological changes and innovations necessary to achieve higher global competitiveness, stands out as a pivotal element in terms of improving the global competitiveness of both firms and countries. Thus, it is no surprise that firms are becoming more interested in establishing alliances with universities. Moreover, universities are also now more inclined to focus on meeting the needs of industry in their efforts to contribute to their countries' global competitiveness and, consequently, economic growth.

In this context, the main aim of this study is to analyze the effects of university–industry collaborative R&D on the global competitiveness of countries worldwide by implementing statistical techniques.

2. LITERATURE

University–industry collaboration is one of the most important components of the myriad factors affecting countries' global competitiveness. Literature on the relationship between global competitiveness and university–industry collaboration is summarized in the following paragraphs. There are numerous factors that can help increase global competitiveness for countries and firms; however, among them, innovation and education, with a focus on R&D activities, can most significantly contribute to competitiveness (Dima et al., 2018). According to the World Economic Forum (2015), which defines competitiveness as “the set of institutions, policies and factors that determine the level of productivity of a country,” while a country's competitiveness determines its level of productivity, efficiency, and profitability, the level of prosperity that can be achieved by a country is dependent on its level of productivity. In the context of university–industry collaboration, while the globalization of innovation fosters numerous opportunities to increase the productivity of the actors involved, business dynamism and innovation capability are the most important determinants of countries' global competitiveness.

While Palei (2015) states that the level of institutional development and effective infrastructure management, which is determined primarily by road quality, railroad infrastructure, air transport, and electricity supply, are two factors that can enhance national competitiveness, Cavusoglu (2016) draws attention to the importance of human capital. Pointing out that knowledge-based economic transformation is vital for economic growth, she argues that human capital, i.e., qualified and educated individuals, is pivotal to driving innovation and creating new technologies. Therefore, it would be safe to say that knowledge-intensive activities are significant contributors to growth and competitiveness (Kline, 2006), as they boost quality and, as a result, increase a country's or a company's likelihood of achieving success in highly competitive global markets.

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