

Chapter 4

Collaborations in the Open Innovation Era

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ABSTRACT

Although the impact of open innovation on a global scale on the collaboration between universities and foreign industry is clearly important, empirical evidence from the field is lacking. This chapter investigates the collaboration between Hungarian universities and foreign companies in research and development. The chapter attempts to provide a relevant picture of the research-related linkages of Hungarian universities and foreign companies by employing secondary data processed from various data-banks. The analysis suggests that foreign direct investment and foreign companies play major roles in the internationalisation of research during this second decade of the transition process. Assessing the research and technology products which have originated in university-industry collaboration is no easy task. According to experimental measurements and pilot data-bank, there were more joint publications involving foreign than domestic companies, and the citation value per publication was significantly higher with the former. Data-bank also show that developments in new technology in terms of patent figures rarely involved university-owned or co-owned inventions, although there is some evidence there are more patents which are university-related than owned. Domestic invention and the foreign ownership of patents represent one more sign of Hungarian involvement in global innovation in the development of new technologies.

INTRODUCTION

The new wave of internationalisation is a product of corporate research and development (R&D)

activity. The circulation of international knowledge is critical for the development of innovation performance and for the improvement of national competitiveness in the sense that internationalisation widens the access of companies to academic knowledge and research capabilities. In this pro-

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cess, entities in the international business world influence connections between universities and industry on a cross-border basis. An important question facing policy-makers in Science and Technology asks how this kind of internationalisation affects the universities in the academic host country. The contribution - in terms of inventions of universities to innovation and to economic growth may well become outwardly directed. Conversely, however, without such contracts with foreign companies, universities which are not located in an innovative environment have fewer chances to participate in cutting-edge research activities, and any spillover effects may come much later. The ideal balance between inflow (foreign corporate R&D investment) and outflow (the commercial sales of intellectual property or know-how) is a delicate issue for university administrators, for the corporate sphere and for national policy-makers.

In terms of the internationalisation of university-industry linkages, three fields are currently showing ongoing transformation. The first of these is the changing pattern of innovation which affects the ways in which companies outsource R&D and collaborate commercially; the second relates to the enhancement and globalisation of the Third Mission of Higher Education; the third involves the new wave of internationalisation in which companies' related R&D and innovation activities are globalised. At the same time the policies which stimulate FDI are changing, and the new generations of FDI and other policies focus on FDI-led R&D and innovation. (UNCTAD 2001, Kalotay and Filippov 2009, Guimón 2009)

Although the impact of open innovation on collaboration between universities and foreign industry is clearly important, there is a lack of empirical evidence from this field, and this paper attempts to use of the various data sources available and to develop new indicators to analyse Hungarian involvement in the process

The extent of internationalisation, as reflected by foreign ownership, has increased significantly in Hungary over the last decade, and one of

the consequences of internationalisation is the changing pattern of university-industry relations. The context of the internationalisation of the relationship is distinctive, given that the proportion of domestic invention registered by foreign companies amounts to some 60%.

Hungarian universities do collaborate with foreign-owned companies located in the country - as with companies based elsewhere - and international partners play an important role in linking universities and industry, quite apart from the national environment, which we can describe as moderately innovative.

Following an overview of transformation (on the basis of the literature) the paper offers a number of facts about general foreign involvement in Hungarian business R&D activities and outsourcing. For this part of the analysis we use official statistics on business R&D expenditure. The third and fourth parts of the chapter briefly describe the relationships of Hungarian universities and foreign companies. These sections attempt to illustrate the internationalisation of university-industry relationships using secondary processing from various data sources.

Two different types of foreign business are examined. The first of these relates to entities which are partly or totally foreign-owned but registered in Hungary and the second to foreign entities which are not registered in Hungary and which are only involved in investing in and purchasing R&D.

To describe and analyse relationships, the paper employs certain input and output indicators. The third part is devoted to those inputs where innovation input is represented by R&D expenditure and the fourth investigates the output side of the process by means of publications and patent data.

The available data allow some debate on the specifics of the internationalisation of university-industry partnerships in transition economies, and the paper provides a better understanding of how the open innovation model works and how this affects the triple helix model.

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