

論文の内容の要旨

論文題目 The Role of Universities and Multinational Firms in Knowledge Spillover in China: An Empirical Study

(中国における知識スピルオーバーに対する大学と多国籍企業の役割に関する実証研究)

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Abstract

This dissertation explores the role of universities and multinational firms in knowledge spillover in China. Promoting university – industry collaboration and internationalization are two important streams throughout the historical development of science and technology (S&T) and innovation policies in China. Therefore, this research is motivated by the belief that local universities and multinational firms' R&D centers are two important knowledge sources of innovation for domestic firms in China. This dissertation aims at answering two fundamental questions (1) how university – industry collaboration networks in China is evolved in different regions in China, and particularly, how university – industry linkages contribute to the innovation and business performance of Chinese ventures? (2) How multinational firms diffuse knowledge, and whether such international knowledge flow generates spillover effects on inventors in China? The net contribution of this dissertation is analyzing the role of universities and multinational firms in knowledge spillover in China by taking the differences of regional

innovation systems into account. The dissertation is structured into six parts:

The first part of this dissertation is an introduction of the whole dissertation. It reviews the historical development of university – industry collaboration policies and internationalization policies in China, and demonstrates the differences of regional innovation systems in Beijing, Shenzhen, and Shanghai by China patent statistics.

The second part of this dissertation studies the evolvement patterns of university – industry collaboration (UIC) network in China’s four representative regions in terms of technology innovation and local economy: Beijing, Shenzhen, Shanghai, and Wuhan. I found that the UIC network in Shanghai resembles that in Beijing, whereas the UIC network in Wuhan is not as developed as those in Beijing and Shanghai, but followed a similar evolvement pattern. In Shenzhen, which has a long industry tradition but a relatively weak university science sector, even though there is a large number of local high-tech firms, number of firms participated in UIC are much smaller as compared with other three cities.

The third part of this dissertation aims to explore the institutional difference between Tsinghua University Science Park (TusPark) in Beijing, and business incubator of Research Institute of Tsinghua University in Shenzhen (RITS), and to examine how the difference leads to different new product performance for tenants. In doing so, we use survey methodology to investigate the innovation sources, university linkages, and innovation outputs of tenants in TusPark and RITS. We found that tenants in RITS rely more on “market-driven” knowledge sources for innovation: including knowledge from customers, suppliers, and competitors. The empirical findings suggest that the technology support provided by RITS and the high dependency on “market-driven” knowledge sources jointly contribute to the better new product performance for tenants in RITS.

The fourth part of this dissertation selects Shanghai, one of the cities in China that attracted a large number of foreign multinational corporation (MNC) R&D centers, to explore whether the geographical proximity to MNCs R&D centers in Shanghai facilitate the international knowledge flow from MNCs to local firms, and whether such knowledge flow contributes to local firms innovation performance. The results suggest that probability of knowledge flow is greater when local firm’s patents are created after MNCs entered Shanghai, and such knowledge flow has a positive impact on local firm’s innovation performance.

The fifth part of this dissertation explores how the geographic proximity and ethnic closeness of U.S. – based inventors to indigenous Chinese inventors affects innovation by the latter inventors

within U.S. subsidiaries in China. The issues are analyzed by using patent inventor data for U.S. Fortune 500 Companies and a Chinese ethnic surname database for identifying ethnic Chinese inventors. The results suggest that for MNCs having a cohesive collaboration network between U.S. headquarter Chinese expatriates and local indigenous Chinese inventors, the positive impact of collaboration with headquarters inventors on innovative performance of indigenous Chinese at subsidiaries in China can be strengthened.

The final part of this dissertation summarizes the findings in this thesis, and draws managerial implications for Chinese entrepreneurs, managers at domestic Chinese firms and at foreign MNCs, as well as policy implications for Chinese government and foreign MNCs home country's government.