External Knowledge Acquisition Needs a Hand? The Dual Effects of Industry-University Collaborations on High-Tech Firms' Innovation Capability in China

Purpose
Firms have been increasingly investing in external knowledge acquisition to enhance their competitiveness and innovative performance. Among different external partners, universities have become one of the most important ones (Cohen et al., 2002). Collaborating with universities is especially imperative for firms innovating in the technology frontier (Baba et al., 2009). However, the rapid development of industry-university collaboration in some developing countries (e.g., China) has demonstrated some unique characteristics that are different to those presented in developed countries. These unique characteristics urge scholars to re-exam the role of industry-university collaboration for firms' innovation in developing countries. We propose that industry-university collaboration in developing countries has dual roles with regard to firms' innovation capability: 1) to serve as a direct source of knowledge input, i.e. some indigenous technological inventions, and, 2) to facilitate firms’ technological learning with respect to absorbing, adapting and diffusing acquired foreign technologies to local market. The purpose of this paper is to test the effect of these two roles on firms’ innovation.

Research question
How can Chinese industrial firms’ collaboration with universities directly contribute knowledge inputs and at the same time effectively facilitate innovation through external technology acquisition?

Methodology
Our study uses patent counts to measure innovation capability. In line with prior research, we use negative binomial regression model together with a Hausman specification test to determine whether a random- or fixed-effects model should be employed.

Data
We employ a unique dataset on technology in-license from the Chinese Intellectual Property Office (SIPO) in this study. According to the ‘Administration of Record Filing of Technology Licensing’, the SIPO is authorized to fill the records of technology licensing in China. A record contains more valuable information: names of licensor, licensee, and licensed patents, contracting number, date, and license type. So far, the available licensing data to public starts from 2000 to 2009. We limit our sample to those firms who engaged in foreign technology licensing-in activities during 2000 to 2003, which resulted in a sample of 91 Chinese licensee firms in high-tech sector. This period is chosen in order to obtain an appropriate duration that allows learning to take effect. In other words, a 5-year moving window is used to observe the effect of licensing and industry-university collaboration on firms’ innovation capability.

The results show that industry-university collaboration not only has a direct positive effect on but also positively moderate the effect of inward foreign technology licensing on firms’ technology capability.