

Who's Running Faster on the Track of Technology Upgrade?

-- An Analysis of Chinese Firms' Technological Catching-up Process

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INTRODUCTION

The central topic of this thesis is the impact of the organizational and institutional dimensions of Chinese firms upon their technological learning, which is aimed at technological catching-up. Based on the substantive literature associated with this field, the discussion emphasizes on how they establish their learning systems and correspondingly mobilize and integrate technological knowledge searching, and how Chinese firms generate and accumulate technological knowledge. In other words, the focus is on how organizational and institutional constructions influence Chinese firms' effective learning on technology.

By comparing with the conventional literature related to technological learning of MNEs, I stress that the causes of divergent learning performances among firms lie not only in the differences of strategy implementation, but also more significantly in the differences of their organizational learning systems. In this vein, I suggest the organizational and institutional learning systems frame the learning activities of technological knowledge searching, generation and accumulation. Chinese firms' technological learning should be regarded not only as a purposeful resource-consuming process, but also as an organizational process.

The theoretical contribution of the thesis is supported by its empirical studies on Chinese firms' domestic-based and foreign-based technological collaboration conducted by different institutional and organizational constructs. More active and more effective technological learning to gain the technological capabilities that enable Chinese firms to manage technological and product changes is observed in only a subset of firms (i.e. non-state-owned enterprises). In addition, the results also provide expectations. That is, Chinese firms' technology acquisition methods are following an evolutionary trajectory, and they presented distinct growth patterns during our empirical time window (i.e. 1985 – 2009).

During the past three decades, China's rapid rate of development has been widely acknowledged as a new successful example of industrial "catching-up". Large-scale production capacities have been established in the country, with a result that China is often termed as "the world's factory". Over this period, foreign direct investment (FDI) and the bottom-up model of technological learning have been significantly encouraged by the Chinese government. External sourcing of new capabilities through acquisitions, joint ventures, and purchase contracts helps a firm to

develop new capabilities that both guard against obsolescence and resolve organizational inertia (Capron & Mitchell, 2009).

Nevertheless, around 2004-2005, an important controversy arose among Chinese industrial leaders and policy-makers. The emergence and rapid growth of NSOEs provided a strand of thinking regarding the idea of catching up for the society as a whole. In 2005, “indigenous innovation” and “quality of growth” were put forward by Chinese central government. However, even though Chinese policy-makers have realized the difference between “production capacity” and “technological capability” (Bell & Pavitt, 1993), technological capability does not emerge automatically (some scholars, such as Bell and Pavitt (1993) point out that, in developing countries, the growth of production capacity does not automatically lead to the building of technological capability). The Chinese government has supported a series of projects. However, many of them are confronted with difficulties in attaining rapid industrialized outputs; few of them have achieved their targets of technological innovation until now.

By combining the joint venture/alliance and the merger and acquisition (M&A) information from the SDC dataset (1985-2009), which concerns both the domestic-based and the foreign-based Chinese firms’ technological acquisition¹ activities, I tried to explore the impact of organizational and institutional constructions on firms’ effective learning on technology.

¹ Technological acquisitions consist of OEM contracts, license agreements, technological joint ventures on high-tech activities, and M&As of domestic and foreign companies or departments, which involving acquire skilled workers, managers, equipment and distribution outlets (for example, the purchase of small US Silicon Valley companies).