

Doctor of Economics

**Dynamics and Motivations of Interorganizational Technology Transfer
Networks**

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Abstract

Interorganizational knowledge and technology transfer are crucial in improving organizations' innovation and economic performance. Interorganizational knowledge and technology transfer form interorganizational networks. Despite scholars' efforts to uncover the dynamics of knowledge and technology transfer networks, we still lack an understanding of how and why new links emerge between organizations, thus promoting the evolution of the network. Taking China as our empirical setting, we aim to uncover and study the evolution of interorganizational knowledge and technology transfer networks. We pay particular attention to the roles of organizations' former collaborations, knowledge base characteristics and specific macro-policies. We use several unique large-scale datasets and adopt quantitative research methods to scrutinize our research questions.

The findings in this thesis point to steadily increasing university knowledge transfer activities and the existence of an increasingly complex yet remarkably efficient network, which is key to overcome the regional differences in economic development. As the studied network evolves, an aggregation phenomenon appears, and oligopolistic communities emerge and rule the network. Key universities take up central positions within the expanding network, which allows them to gain control over knowledge flows and easier access to valuable knowledge.

As for the motivations of network evolution, we find that both former direct and indirect collaborations increase organizations' link strength, but the role of former indirect collaborations is weaker compared with that of former direct collaborations. In addition, both positive effects on enhancing link strength vary in the early, expansion and explosion stages of the Chinese innovation network indicating. When organizations eagerly seek collaborations (i.e., the network enters into the expansion stage), they turn to their trusted partners for repeated collaborations or for recommendations on new reliable organizations. However, when there are more resources (i.e., organizations) with easier access (i.e., more linkages among organizations) available in the network (i.e., during the network explosion stage), then organizations rely less on their local communities, which turns into weakened roles of former direct and indirect collaborations in facilitating collaborations. In addition to network stages, our results also indicate that a complex network structure with an aggregation phenomenon is not only unfavourable for the occurrence of collaborations due to information clustering and inefficient knowledge flows, but also weakens organizations' reliance on local communities by serving as a stronger signalling mechanism.

An organization's knowledge base characteristics also affects its innovation collaboration propensity. Our results show that the discrepancy between universities' fundamental and applied knowledge bases are a driving force of universities' innovation collaborations. The roles of universities' knowledge base width, depth, and concentration vary when they are conducting different types of innovation activities (i.e., original and applied innovation activities). However, universities combining deep fundamental and applied knowledge bases are reluctant to collaborate with others due to the risks of knowledge leakage. We also find the interesting phenomenon that universities tend to concentrate their applied knowledge on their core competitive fields and access other applied knowledge needed in applied innovation activities through collaborating with others.

In China, interorganizational knowledge and technology transfer have been the focus of macro policy support in recent years. Our analysis of China's current two technology transfer tax incentive policies finds that both policies' marginal promoting effects gradually decrease as their stimulus levels increase. Based on our research, we propose feasible suggestions for the Chinese government to optimize these two policies.

Overall, this dissertation provides evidence and insights to the evolution of interorganizational knowledge and technology transfer network. We translate our findings from the Chinese context into practical implications both for universities, enterprises, and policy makers to engage in interorganizational knowledge and technology transfer.