Chapter 6

Alliance–Adding Cluster Means Icing on the Cake: The Impact of Geographic Proximity, Regional Location, and Network Structural Characteristics on Firm Innovation Performance in Alliance Innovation Network

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ABSTRACT

For firms, entering industrial cluster means obtaining more opportunities for tacit knowledge transfer and informal communication, while forming strategic alliances can get a wider range of technical cooperation and strategic resources. Using innovation networks in the communication equipment industry of China, based on the impact of network density on innovation performance, we give firms dynamic characteristic in the geographical position to study the impact of regional location and the moderation effect of geographic proximity on the relationship between network density and innovation performance. The results of negative binomial regression method indicate that regional location do not have a significant effect on innovation performance, while geographic proximity has a significant effect on innovation performance, and geographic proximity can positively moderate the impact of network density on innovation performance. Then the authors further analyze some conditions concerning alliances of the Chinese communication equipment industry and offer some related suggestions.

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1. INTRODUCTION

For emerging economic nations which lack rich technology, resources and experience, how to promote firms’ innovation through better development of the relationship network based on co-operation among firms is an issue to solve urgently. Previous researches tried to connect technical defect existing in emerging economic nations with geographic cluster to examine whether there have some relationships between knowledge overflow and firms’ own innovation performance. The empirical results showed that the complexity of the cluster network could not promote cluster firms’ innovation, and this study neglected the embeddedness of individual firms (Fleming, King, & Juda, 2007). Then some researchers combined embeddedness such as location and relationship position in the cluster network with more factors such as the type of relationship and technologic distance to empirically analyze the effect of interaction on innovation (Giuliani & Bell, 2005; Tsai, 2009). These studies considered individual factors while they didn’t take the overall complexity of cluster network into account.

Cluster and alliance are comprehensive reflection of geographic level and relationship level during enterprises’ network development. Generalized innovation network should contain cluster and alliance. In the past two years, scholars linked cluster to alliance to empirically research the embeddedness of individual firms on innovation.

The effect of the two embeddedness localized cluster and participating in international cooperation network on innovation for different countries and different industries, is not exactly the same, so we can’t determine whether it is the alternative or complementary relationship (Kesidou & Romijn, 2008). Some qualitative study also find that the co-operation between firms will not lead to spatial cluster (Fornahl & Brenner, 2009). Then firms in the cluster don’t have a positive effect on innovation, while the effects of the two moderating variables—collaborative research and having a global network—are just on the contrary (Lee, 2009). Conversely, if the local network density increases, the negative impact of establishing a multinational joint venture on local cluster innovation performance will gradually decrease (Mahmood & Zheng, 2009). However, these studies did not focus on the alliance network and did not quantify the geographic effect.

Based on the above analysis, this paper builds a corporate network according to Chinese communication equipment industry, using network indicators to indicate the tightness of associated relationship on the firms’ cooperation. At the same time it endows firm dynamic characteristics of geographical location, which indicates the tightness of associated relationship on firms’ geographical location. This paper studies the dynamic innovation network built by a three-year time window. The innovation lies in the innovation performance perspective is no longer confined to the corporate network characteristics, simultaneously it quantifies the geographical location of firms in the alliance and integrates the alliance innovation network to analyze.

2. THEORY AND HYPOTHESIS

Krugman’s study on new economic geography suggests that spatial aggregation and increasing returns to scale are closely related to each other. And industrial cluster can save cost and centralize industrial areas (Sheng & Wang, 2009). In recent years, Chinese central and local governments increasingly recognize the importance of cluster, forming Beijing’s Zhong guan cun, Shanghai’s Zhang Jiang, Suzhou’s Kun Shan and other high-tech industry clusters.