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The Research on Transmission Mechanism of Imitative Entrepreneurial Action in Clusters

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Abstract: Based on the combination of “a conceptual model relating perceived uncertainty and motivation to entrepreneurial action” and characters of clusters, this paper discusses the model of corporate entrepreneurship motivation in the context of clusters. According to two key variables (relatedness of information and results of entrepreneurship) which influence the entrepreneurial action of followers in clusters, the paper analyzes the influence of the action of first-entrepreneurship on follower’s entrepreneurial behavior that is, the transmission mechanism of entrepreneurial action. With the case study of Jiande metal appliance cluster and Anji bamboo-industry cluster, we conclude that no matter how the first-entrepreneur acts, imitative entrepreneurship will be the major entrepreneurship in clusters.

Key words: Industrial clusters, corporate entrepreneurship, transmission mechanism, imitative entrepreneur

INTRODUCTION

Chinese Industrial clusters, taking coastal areas as an example, have experienced three stages of development: (1) Agglomeration period (before 1990s), (2) Acceleration period between 1992 and 2008 and (3) Upgrading period. The second stage is symbolized by the former leader, Deng Xiaoping’s ‘Southern Tour Speeches’ and export oriented economy which underpinned the development mode of the country’s traditional industrial clusters characterized by high factor inputs with expansion at low costs, export-oriented business and homogenization competition among enterprises. However, faced with financial crisis, trade protectionism, Energy-saving issues and increasing costs of factors, enterprises within clusters should emphasize more on industrial upgrading.

The past literatures on industrial clusters, internationally and domestically, have agreed on the importance of entrepreneurship as a foundation of upgrading. Elola *et al.* (2012) have analyzed four industrial clusters in the Basque Country to show that the capability of entrepreneurship is a catalyst of industrial cluster upgrading. Dai *et al.* (2012) empirically prove the positive relationship between corporate entrepreneurship and cluster firms’ performances through studies on entrepreneurship behavior of four industrial clusters in Zhejiang Province and confirmed the contributions corporate entrepreneurship makes to industrial clusters upgrading.

ENTREPRENEURSHIP ACTION AND MOTIVATION MODEL

Despite the long history of studies on entrepreneurship, the transmission mechanism on entrepreneurship has scarcely been theorized. Wei *et al.* (2004) proposed the externalities and expansion path of entrepreneurship based on individual level and the latter can be classified into four categories: entrepreneur activities, collaborative alliances, inter-organizational flow of staff and organizational succession. With the development of complexity theory of network, some scholars undertook the corporation transmission mechanism studies on clusters network level and agreed that the heterogeneity among cluster networks can influence the patterns and results of transmission model (Huang and Cai, 2012). Nevertheless, the rationale of how entrepreneurship actions impact others within clusters that is, the transmission mechanism should be more explored.

A conceptual model relating perceived uncertainty and motivation to entrepreneurial action: McMullen and Shepherd (2006) concluded the perceived uncertainty and motivation to entrepreneurship action model which displays two phases (attention stage and evaluation stage) of perceived uncertainty’s effect on entrepreneurship (Fig. 1). In first stage, prior knowledge and personal strategy determine the possibility of

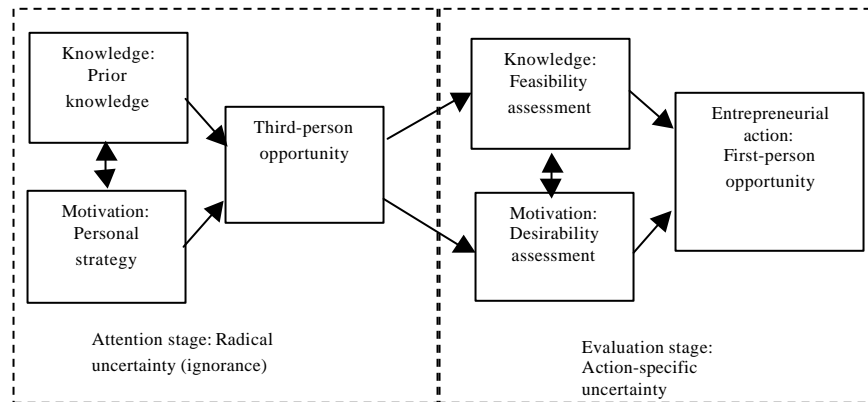


Fig. 1: A conceptual model relating perceived uncertainty and motivation to entrepreneurial action. McMullen and Shepherd (2006), Fig. 3 a conceptual model relating perceived uncertainty and motivation to entrepreneurial action

obtaining the third-person opportunity. The later stage involves evaluation on the probability of employing third person opportunity and expected value of entrepreneurship to decide entrepreneurship action. Although, the model was based on individual level, it can be applied to cluster level as the decision-making of entrepreneurship action within cluster is usually attributed to individuals and studies regarding perceived uncertainty stem from researches on business organizations.

Motivation of entrepreneurial action: Apart from the agglomeration effect of clusters which results in specialization advantages, there exist complicated networks due to geographical and social proximity within clusters. Networks strengthen the trust among enterprises and reduce the transaction costs (Gulati *et al.*, 2000) which in turns enhances the continuity of network relationship, knowledge (especially tacit knowledge) flow and ease of learning (or imitation) (Gordon and Mccann, 2000). First-mover's entrepreneurship within clusters may be occasional but it is likely to be caused by historical culture, industrial transfer and organizational succession. Information regarding the entrepreneurship actions and results can be spread within clusters promptly and further impact other enterprises on entrepreneurship motivations and actions via, the following two stages:

- **Attention stage:** The existence of entrepreneurship opportunity is due to difference in cognition model and prior knowledge between distinctive entrepreneurs (Alvarez and Busenitz, 2001). For the sake of analysis, we regard those who start business

first as first-entrepreneur and those who are influenced later as later entrepreneur. Information about the first entrepreneurs can be rapidly transferred to later entrepreneurs. The latter comprehend the formers' entrepreneurial chance and also the changing opportunity based on cognition model. Those two effects determine the latecomers whether to choose imitative or differential enterprising pattern

- **Evaluation stage:** As the later-entrepreneurs do not participate in the first entrepreneurs' enterprising process, they can only evaluate the opportunity based on the latter's enterprising outcomes; nevertheless, the latecomer may tend to ignore or overestimate some factors, impacting the feasibility assessment of first-person opportunity. The enterprising atmosphere resulted from evolutionary process of clusters may emphasize more on the successful enterprises' value system (Wei, *et al.*, 2004); this, together with bandwagon effect, stimulates firms to take risk while pursuing wealth and therefore increases the expected value the latecomer set on the opportunity

Motivation of entrepreneurial action model: First entrepreneurs can influence later entrepreneurs on motivation to entrepreneurial action through two stages. When combine the two key factor, i.e., relevance of information and outcomes, into McMullen and Shepherd's conceptual model relating perceived uncertainty and motivation to entrepreneurial action, we can work out a new model named as 'conceptual model relating perceived uncertainty and motivation to cluster entrepreneurial action' which is shown in Fig. 2.

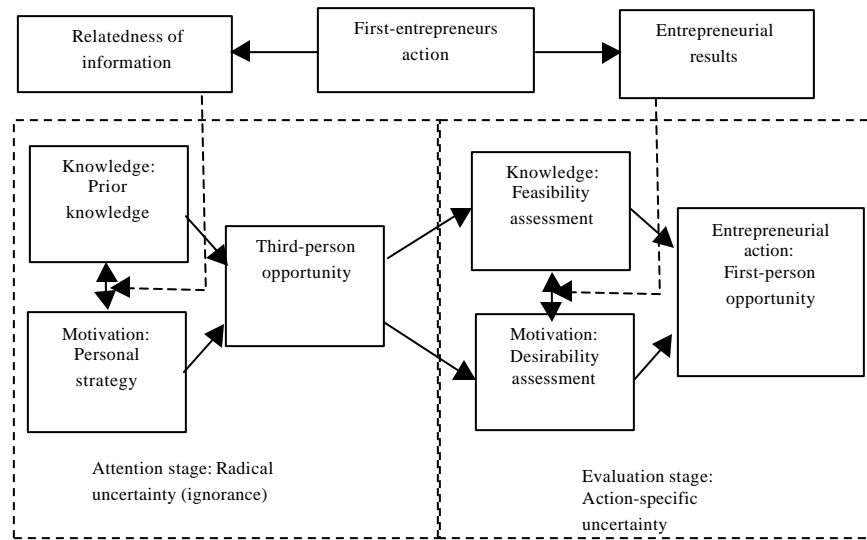


Fig. 2: A conceptual model relating perceived uncertainty and to cluster entrepreneurial action. McMullen and Shepherd (2006), Fig. 3 a conceptual model relating perceived uncertainty and motivation to entrepreneurial action

LATE-ENTREPRENEURSHIPS' ACTIONS AND THE TYPICAL TRANSMISSION MECHANISM

The underlying theory of cluster firms' entrepreneurial motivation indicates two dimensions of first-entrepreneurs' influence on latecomers' action: the relatedness of information and entrepreneurial results. Therefore, three situations of latecomers' actions can be considered: a. entrepreneurial information relatedness influenced and entrepreneurial results not influenced; b. entrepreneurial information relatedness not influenced and entrepreneurial results influenced; c. entrepreneurial information relatedness influenced and entrepreneurial results influenced. There is a fourth situation such that neither first-movers' information relatedness nor their results effects the latecomers but it will not be concerned as we focus on the transmission mechanism.

Entrepreneurship, as has been defined, entails the creation of new business that suggests establishing innovative elements instead of completely copying present business, (Rumelt, 2005) which includes Schumpeterian innovation as well as Kirzner's improvement (Shane, 2012). This suggests two types of enterprising: one that entrepreneurship can be adjustments and imitations based on established models which defined as imitative entrepreneurship; and the other defined as differential enterprising; the essential differences lie on opportunity and path.

Late-entrepreneurs' action based on information relatedness:

With reference to the first situation mentioned above, we assume that first-movers' entrepreneurial results will not change the latecomers' evaluation stage and that the effect of first-mover's action on prior knowledge of latecomers are considered on dynamic level. At time t , a certain first mover's action (K_F^t) has effects on the related knowledge of the later-entrepreneurs (K_L^t). At time $t+1$, K_L^t denotes the latecomers' prior knowledge; hence, there's a relationship between those two variables, or $K_L^t = f(K_F^t)$. However, the features and transfer patterns of knowledge should be paid attention to. For the former one, the high relatedness between knowledge may cause imitative enterprising. The degree of relevance is determined by diversification and breadth. For the latter, external connections may count: weak external connection enhances the expansion and restructure of knowledge and strong connection reinforce the transfer and succession of knowledge. In hub-and-spoke cluster, differences in product and technology exist regardless of the frequent connections between leading firms and peripheral firms (Wei and Gou, 2008; Lieberman and Asaba, 2006; Shafique, 2013). However, in collective initiatives cluster, fierce competition and homogeneity of products and process strengthen the correlation among firms, making it possible for imitative enterprising. Furthermore, the reduction of 2/3 costs compared with innovation and 99%

risk share accelerate the imitation activities. As most traditional clusters are collective initiatives clusters, they incline to imitative enterprising.

Taking the hardware electrical appliance industrial cluster as an example, the industry becomes the pillar contributor in Jiande City's economy after three decades of development. The cluster is formed by hardware screwdrivers industry in Qiantan County and low voltage apparatus industry in Meicheng County. The former accounts for 60% in international market while the latter's enormous production make Jiande the national headquarter of universal sockets manufacturing. Screwdrivers industry emerged from the self-employment business of intensive labor force in agriculture sector. With 46 large scale firms of the total 100 firms and 8000 staff, the industry is a typical collective initiatives and traditional cluster. After Ouya Electronic Appliance Company introduced the energy-saving main control socket into market, increasing number of enterprises within the cluster recognized the potential market it has attracted and began their imitative enterprising; 38% of the cluster companies produced that serials of products up to 2009.

Late-entrepreneurs' action based on entrepreneurial results: With regard to the second situation mentioned at the beginning of section 3, we assume that the first-movers are not influential to the latecomers' prior knowledge and only focus on the first entrepreneurs' effect on the followers through feasibility of enterprising and assessments on expectations. Generally speaking, low assessment on feasibility may jeopardize entrepreneurial action of late- entrepreneurs. In fact, first-movers affect the latecomers in the following two ways: a. promoting risk-sharing by emphasis of successful cases; b. setting demonstration effect through similar opportunity. In other words, imitative enterprising of the latecomers is in nature from the viewpoint of the strength of entrepreneurship. Apart from that, the form of imitative enterprising depends on the evolution process of clusters. At the emerging phase, large market capacity, high feasibility assessment and satisfying expected value contribute to positive imitative enterprising model while in the later stages, market saturation, high fusibility assessment and low expected value lead to negative imitative enterprising model.

Presently, the situation mentioned above is what Zhejiang traditional industry clusters are confronted with during their transforming and upgrading process. Taking bamboo industry cluster in Anji, Zhejiang as an example, the rich endowments of bamboo resources catalyzed cluster's development from 1970s-1980s; the industry

then experienced the aggressive growth period from late-1980s to 2000 and the successive seven years witnessed its maturity. During its development, the products diversified from basketworks, hand crafts and bamboo shoot food products to higher technological categories such as bamboo boards, antioxidant of bamboo leaves and fiber products. Up to the end of 2012, there were 2427 related enterprises with 15 billion yuan (or 2.38 billion USD) total sales revenue, 153 of which reached more than 20 million yuan (or 3.17 million USD) sales revenue. Figure 3 describes the trend of enterprising in aspect of number of enterprises which indicates an initial rapid growth and a negative imitative enterprise in later time. Looking insight into the technology collected bamboo machinery industry, during 2010 and 2012, the patent applied in this industry in Anji accounted for only 29% of that in Zhejiang and 5.76% nationally (Fig. 4). Among those 28 patents, there were only 7 invent patent and most were appearance design patent, implying increasing imitation in the region within the cluster.

Double effects of entrepreneurial relatedness and results on latecomer: In view of transmission outcomes, latecomers' entrepreneurial mode is mainly imitative enterprising, regardless of first-movers' business pattern. Theoretically, differential entrepreneurship occurs when there is low information relatedness, strong cooperation and high expected value among cluster firms. In real world, this happens in high technology clusters, some hub-and-spoke traditional clusters and minority of collective initiatives clusters with enabling atmosphere.

It has been discovered that the information relatedness between latecomers and leading firms becomes higher after the former undertakes imitative entrepreneurship. On the one hand, it intensifies the understanding of enterprising opportunity which the leading firm transmitted and connotation it conveys which makes it more possible for imitative enterprising. On the

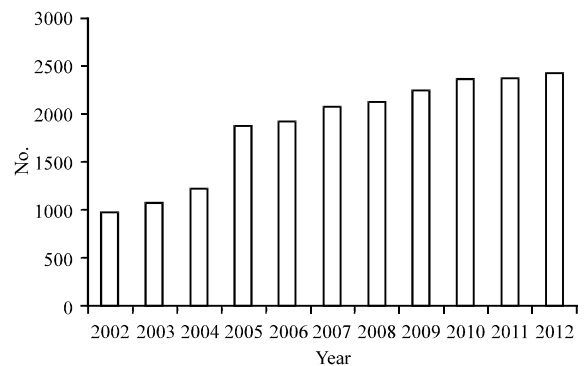


Fig. 3: Number of bamboo companies by Anji (2005-2012)

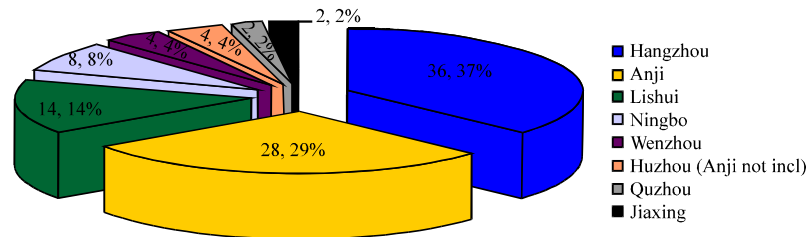


Fig. 4: Accumulated No. of bamboo machinery patents by Zhejiang Province (2010-2012)

other hand, there must exist a flag-ship industry within a cluster according to its definition which means that entrepreneur companies become more related to core industry in ways such as equipments and manufacturing process, thus to some degree locking in the imitative entrepreneurship path.

When considering expectation assessment, as Shane (2012) doubted the validity that entrepreneurial opportunities are always profitable they makes entrepreneurs to elaborate subjective business ideas that contains uncertainty. Imitative entrepreneurship situations make it more efficient for latecomers to evaluate the opportunity and additionally exaggerate the assessment. Furthermore, it may happen, due to cognitive bias that the first movers attribute successful enterprising to their appropriate entrepreneurial action, where s attribute the unsuccessful outcomes to unfavorable external environment instead of internal conditions. This exhibits positive relationship between subjective experiences of successful enterprising and willingness to imitate in companies within clusters.

CONCLUSION

The article combines the “conceptual model relating perceived uncertainty and motivation to entrepreneurial action” and characters of clusters to propose a conceptual model of motivation of cluster companies’ entrepreneurial action. It proved the imitative enterprising as a main approach of entrepreneurial transmission by companies within clusters based on two key variables (relatedness of information and results of entrepreneurship) which influence the entrepreneurial action of followers in clusters.

Researches on imitative enterprising is significantly important to cluster upgrading both in short term and long term view. In short term, imitation promotes financial performance, enhances organizational learning and accelerates cluster agglomeration. In long term, it to some extent promotes the upgrading process. On the other hand, homogenous competitions arise as imitation

prevails in cluster; hence, imitators with low technology may be locked in low end of both industrial chain and value chain. This means that government should emphasize high level imitation and foster leading companies with high techniques at the emergence phase of cluster. At the later stage, heterogeneity and innovation should be advocated.

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