



Industrial cluster, government agency and entrepreneurial development

Entrepreneurial
development

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A case study of Wenzhou City, Zhejiang Province

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Abstract

Purpose – The purpose of the paper is to explore why the entrepreneurial activities are agglomerative in a cluster and to investigate the government agencies' functions in the industry cluster that can construct favourable environment for entrepreneurial development.

Design/methodology/approach – The case study method is chosen to collect in-depth data to investigate the research domain, and the detailed case of the industrial cluster in Wenzhou, China is selected. The empirical data for the analysis are derived from in-depth interviews with entrepreneurs in private and public organizations. Statistical data and historical documents are also collected to increase the understanding of the regional conditions, as well as for comparison with and triangulation of the research theme.

Findings – It was found that in Wenzhou, four major groups of government agencies which perform the functions of investment, research & innovation, industrial information and supporting service, were generated along with the development of the industrial clusters; and it was found that initial capital, technology support and human capital are the critical resources those institutes had tried to provide to facilitate the entrepreneurial activities in the local clusters.

Originality/value – The paper enriches our understanding about how entrepreneurship is promoted and cultivated in industrial clusters under the social-economic environment in China and sheds light on the Chinese entrepreneurial process in the local industrial clusters.

Keywords China, Entrepreneurialism, Government policy, Business support services, Industrial cluster, Incubation system, Entrepreneurship, Wenzhou

Paper type Research paper



1. Introduction

In the past few decades, the industrial cluster has aroused huge attention both from policy makers and scholars. Porter (1998a, b, p. 197) defined the industrial cluster as the geographic concentration of interconnected companies, specialized suppliers, service providers, firms in related industries and associated institutions. Since then, a large number of researches have studied the cluster's effects on regional development and even built up a framework for government to design clusters and industrial zones as regional development policy (European Commission, 2003; Krugman, 1991; Feser and Bergman, 2000; Benneworth and Henry, 2004; Wolfe and Gertler, 2004). Moreover, new entrepreneurial firms are attracted to clusters for their agglomeration of skilled personnel, availability of risk capital, favourable market, reduced transaction costs and regional competitiveness, such as regional prestige and priorities (Krugman, 1991; Storper, 1997). Entrepreneurship is observed to be enhanced in some regions with strong clusters (Sternberg and Litzenberger, 2004; Feldman and Francis, 2004; Glaeser *et al.*, 2010). Entrepreneurship of a region is argued to explain the superior performance of the well-developed cluster, such as Silicon Valley (Saxenian, 1996). Since the 1990s, the research about the interrelations between the industrial cluster and entrepreneurship has been put forward from various perspectives, such as network effect (Whittington *et al.*, 2009), regional innovation system (Sørensen, 2007), technology transfers efficiency (Lowe and Feldman, 2008) and new firm creation process (Feldman, 2001).

Along with the trend of globalization, the rapid development of manufacturing clusters in China and other Southeast Asian countries had been promoted for its low-cost labor and available resources (Lee *et al.*, 2001). Although there have been extensive studies investigating industrial cluster and entrepreneurship, it is not clear, whether such research will have any bearing on entrepreneurs and clusters operating in former centrally-planned economies undergoing transition toward market-driven economies, such as the People's Republic of China (PRC). In these transition economies, property rights are not well protected and there is a lack of substantial discretion over the allocation of resources. Meanwhile, as these transition economies move toward market-based economies, improved knowledge about entrepreneurship, as well as regional development mode, have become more important both for theory and practice. Yet despite the political and economic importance of the Chinese transition economy, the recent management theorists have rarely considered relevant issues that have emerged during the transition, by taking its social context into account and the empirical researches in such area is also rare. Based on this, the paper considers factors including associated institutions and government agencies in the cluster and attempts to enrich our understanding about how entrepreneurship is promoted and cultivated in the industrial clusters under the social-economic environment in China; and try to shed light on the Chinese entrepreneurial process in the local industrial clusters.

Lee's *et al.* (2001) research base on Korean technological start-up companies, found that the firms' external networks, such as collaboration with universities or research institutes, participation in industrial associations and financial and nonfinancial support from commercial banks and the Korean Government, do not directly affect the firms performance, but its interaction with the firms' internal technological and financial capabilities have a statistically significant influence on the firms' performance (Lee *et al.*, 2001). Entrepreneurial researches from the embeddedness perspective also emphasized the importance of institutions and government support

during the entrepreneurial process (Spicer *et al.*, 2000; Jack and Anderson, 2002; Kenney and Goe, 2004). As for the non-profit organizations and service institutional associations, the behaviour of associated institutions and government agencies are planned systematically with the purpose of supporting the entrepreneurs and their firms. However, it is interesting to see whether and how the needs of entrepreneurs are identified and satisfied by these players. We believe one way of doing this is to identify the function of each player in the entrepreneurial supporting process, and discuss how they can interact with each other to enable the industrial cluster systematically to develop well as the entrepreneurship incubator that provides a favourable environment for the entrepreneurship growth.

This research follows the case study method which allows the researchers to “investigate a contemporary phenomenon within its real life context that are not clearly evident” (Yin, 2003, p. 13). It mainly focused on the investigations about “how the major players of the industrial cluster support the entrepreneur’s incubation and new firm’s growth systematically”. By taking Wenzhou as a case example, the major players that are identified in this study include government agencies, industrial associations, etc.

2. Theoretical framework

2.1 *Entrepreneurial environment and entrepreneur growth*

Entrepreneurs were seen as intimately tied, through their social relationships, to a broader network of actors and the contextual environment (Hoang and Antoncic, 2003). It became the task of scholars to examine the concept of entrepreneurial environment, and the entrepreneur’s embeddedness during their entrepreneurial process. Many scholars referred environmental factors as a reasonable starting point to analyze the growth of entrepreneurs. Austin *et al.* (2006) defined entrepreneurial environments as the factors that were out of the control of entrepreneurs, but will affect the business success or failure; these environments include: the macroeconomic environment, taxation, regulation structure, and social political environment. Wong *et al.* (1994) conducted an empirical study about the entrepreneurs in Singapore and found that external factors, such as government support, the availability of technology and financial and labor market situations had greater impact on the entrepreneurs than internal factors. Bloodgood’s *et al.* (1995) research addressed that the entrepreneurial intention is the result of the coactions of the environmental factors and the entrepreneur’s characteristics and suggested considering the socio-cultural and economic environment to understand the business entrepreneurs. Other researchers also focus on the institutes and organizations that related to these environmental factors. Stinchcombe (2000) reckoned that the low survival rate of new enterprises is related to the shortage of initial resources and weak connection with the agents and institutes that could provide such resources. Carsrud and Johnson (1989) found that social linkage had deep influence on the new business development process. Larson (1992) further reveals its effect on entrepreneurship, and Hansen (1995) noted that social embeddedness can influence entrepreneurship because it helps the entrepreneur identify social resources, an essential step to founding organizations and access to more resources and support during the entrepreneurial process.

As discussed above, the relevant entrepreneurial environment and embeddedness literature distinguishes between person-related and environment-related determinants if one searches for theoretical explanations for an individual’s decision to start a new firm.

The environmental factors also include regional factors, especially in a region with clusters, a number of which are of particular interest for the purposes of this paper.

2.2 Industrial cluster and entrepreneurial activities

The start-up entrepreneurs often easily obtain the necessary resources and get their own capability improvement in the industrial clusters where the entrepreneurship opportunities are focused, the resources are rich and entrepreneurial atmosphere is strong (Yang, 2005). According to Porter (1998a, b) and Porter *et al.* (2000), an industrial cluster is the geographic concentration of interconnected companies, specialized suppliers, service providers, firms in related industries and associated institutions (Porter, 1998a, b, p. 197). Industrial clusters are widely considered to be an important means to promote regional innovation, entrepreneurship and high-tech industries (Swann and Prevezer, 1996; Bergeron *et al.*, 2004). However, the location proximity of firms and institutions in a cluster only creates the potential for economic value and does not necessarily ensure its realization (Porter, 1998a, b). For a residing firm to access important resources and information in a cluster and realize the potential economic benefits offered by the cluster, the firm has to be connected locally (Owen-Smith and Powell, 2004; Porter, 1998a, b).

Pouder and St John's (1996) analysis insisted that the increasing of the entrepreneurial activities rate during the early period of the industry cluster is because the cluster can be seen as an incubator for enterprises, while the crowding effect, imitate behaviour and the convergence of manager's minds in the later period of the industrial cluster resulted in the lower rates of entrepreneurship activities. Thereafter, debate about whether it is beneficial for a firm to locate in the cluster has been discussed in various studies. Present researches show inconsistent results concerning whether new firms are positively affected, not affected, or even negatively affected by locating in a cluster (Rocha, 2004). A number of studies have found that clusters enhance the probability of entry, survival, and growth of new firms (Beaudry and Swann, 2001; Peter and Vertinsky, 2006; Rosenthal and Strange, 2005), new product innovation (Deeds *et al.*, 1997), revenue growth (Canina *et al.*, 2005) and survival (Folta *et al.*, 2006; Sorenson and Audia, 2000; Stuart and Sorenson, 2003). Other studies indicate that locating in a cluster decreases the survival chances of new firms (Sorenson and Audia, 2000).

Despite the inconsistent research result of clusters' effect on new ventures at firm level, few studies have systematically investigated the effect of clusters on the growth of entrepreneurs at the individual-specific level, and in-depth qualitative exploration is even more rare. However, as noted by Walcott (2002), it is the power of individuals, rather than the agglomeration effects, that affects innovation and development. Moreover, a case study of Oxfordshire found that the expertise of talented individuals could be translated in the fastest growing high-tech economy in the UK (Smith *et al.*, 2005). Therefore, to understand the factors for entrepreneurial growth at the individual level would be more valuable, which could assist policy makers and decision makers to plan courses of action that meet the interests of entrepreneurs, industrial clusters and societies, at both organizational and civic levels (Rosenblatt and Sheaffer, 2001).

2.3 Institutional network in the cluster

Science parks (SP) and business incubators (BI) have been established throughout the world as the motor to industrial cluster formation as well as entrepreneurial activities. The concept of BIs had evolved continuously since the 1970s, from the "low-costs pace

and management training provider to entrepreneurs” (Barrow, 2001) to the collaborative service providers, offering consultancy, networking and access to venture capital (European Commission, 2002; Lalkaka and Bishop, 1996) that focus on the provision of a rich network through which a BI can engage in collaborations. Industrial clusters are planned and promoted in the certain location to encourage entrepreneurship and regional development. Researchers and policy makers try to seek the reasons for cluster development from successful stories. Based on the case analysis of Silicon Valley, Lee insisted that:

[...] all the resources includes people, firms and institutions – their networks and modes of interaction that high-tech entrepreneurial firms need to survive and thrive have grown organically over time, which make silicon valley become the habitat of entrepreneurship and innovation (Lee *et al.*, 2001, p. 4).

Similarly, Saxenian (1996) pointed out that Silicon Valley is not only distinguished by the concentration of skilled labor and firms, but also by a variety of regional institutions – including Stanford University, trade associations, and myriad specialized consulting, market research, public relations and venture capital firms. These regional institutions provide technical, financial, and networking services that firms usually cannot afford individually and allow these firms to continue to innovate (Saxenian, 2000).

Based on the empirical investigation about 73 bio-tech new ventures in Sweden, Ohio and Massachusetts, Rickne (2001) studies the resource requirements of the new ventures, the actors that could provides such resources (Universities and research institutes, financial institution, related enterprise, intermediate agencies) and the function of these actors. Table I indicates the relationship between resources, environmental actors and their functions (Rickne, 2000, 2001). Chinese scholars Cai *et al.* (2007) did similar research in China, and also concluded that the entrepreneurial environmental actors include government departments, intermediate agencies, university and research institutes, related enterprise and financial institutes, etc.

As discussed in the previous section, entrepreneur growth needs to be explored both from person-related and environment-related determinants, especially in the regions with clusters, where the environmental actors are neighboured with each other and function well to encourage entrepreneurial potential and facilitate entrepreneur success. The above theories about the industrial cluster, entrepreneurial environment and their functions is a good starting point to understand entrepreneur growth, however it is short on specifics, and the process of how the environmental factors affect the entrepreneurs in their venture-creating procedure under a certain context, is like a static opaque black box. The proposed theoretical framework in this paper is dynamic and tries to explain entrepreneur development in a cluster context that has increasingly become knowledge intensive and human resource driven. The proposed theoretical framework is shown in Figure 1.

3. Method and data

With the purpose to explore the questions:

[...] what are the major parties’ functions in the industry cluster that can construct effective incubation environment to enhance the entrepreneurs’ growth? And how do these parties promote the entrepreneurial activities in the industrial cluster?

Actors	Function	
University and research institutes	Human resource training Produce and disclose knowledge and technology	Including the technique staff, management personnel and entrepreneurs (1) The enterprise purchase patent from universities or research institutes (2) The enterprise cooperate with universities or research institutes to develop new products (3) Spin off from universities or research institutes set by the professors or researchers (Powers and McDougall, 2005)
Related enterprises	Innovate and diffusion the technology opportunities Provide industrial related information	(1) R&D cooperation between enterprise (2) The technique staff of big enterprise establish his own business (Rickne, 2000, 2001) Direct or indirect information disclose to the other enterprises (Rickne, 2000, 2001)
Financial institutes Intermediate agencies	Provide capital for new ventures Provide the information and service to facilitate the acquisition of resources for new ventures	Bank or venture capital Recruitment agencies, technology transfer agency, consultant agency, etc.
Government department	Establish the supportive policies to ensure the growth of new ventures	Tax, investment, high-tech industry promotion, etc.
Individuals	Provide capital and non-capital supports to entrepreneurs	The capital, information and emotional support from family members, relatives and friends

Table I.
The actors of entrepreneurial environment and their functions

Source: Rickne (2000, 2001)

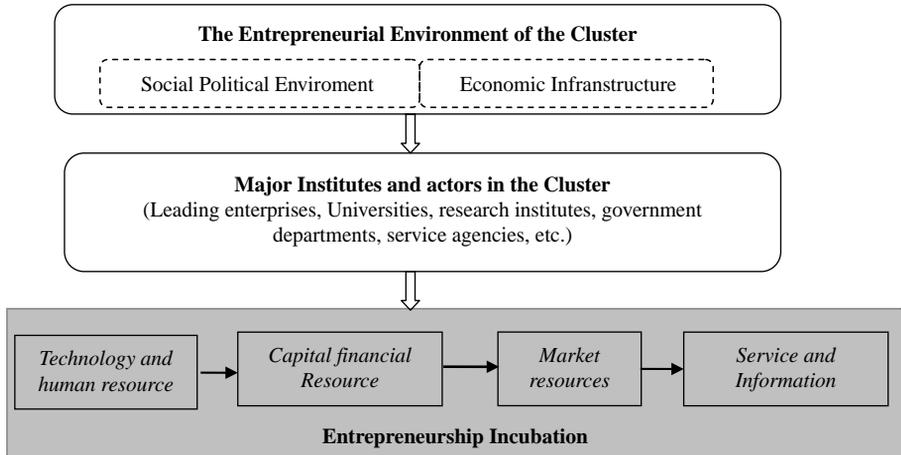


Figure 1.
The theoretical framework of cluster incubation system

The case study method is chosen to collect as much in-depth data to investigate the contemporary phenomenon within its real life context (Yin, 2003, p. 13). Advocated by Beccattini's (1989) research to apply industrial cluster as a unit of analysis, industrial clusters have been studied by the authors as an entity. We chose one specific location of Wenzhou and selected three typical clusters there that have developed into a satisfactory entrepreneurial environment in China. We believe the relevance of doing so is not simply a question of scientific rigour, but also according to the social-political demand. The industrial clusters in Wenzhou have played an important role in enhancing the entrepreneurial activities in the local region and promoted the regional development in the past several decades. Our interviews are conducted with several entrepreneurs, who had started their own business in the clusters. Statistical data and historical documents are also collected to increase the understanding of the regional conditions, as well as for comparison with and triangulation of the research theme.

3.1 Data collection strategy

The empirical data for the analysis is derived from various sources: historical documents, statistical data, in-depth interviews and open-ended questionnaires survey. Guided by the theoretical framework, the historical documents and statistical data regarding the development and institutional environment of the industrial cluster in Wenzhou were collected from the archive and statistical reports. Based on this second-hand data analysis, three typical clusters in Wenzhou were selected for the in-depth investigation by collecting data through structured and unstructured interviews, as well as the open-ended questionnaire survey.

The interviews were conducted during the period from May to July 2009. This process can be divided into two stages of unstructured interview and structured interview. In the stage of unstructured interview, the interviews were mostly based on free conversations, with the purpose of getting a general understanding of the research topic and the interviewee. From the result of the unstructured interview, the basic understanding about the major parties in the industrial cluster in Wenzhou was generated, which become the basis for the structured interview.

Structured interview helps to collect logical and clear information about the research topic, in order to strongly support the analysis and conclusion. At this stage, questions for each interviewee are more or less the same, and two types of structured interviews were applied in this research: standardized and non-standardized. In the non-standardized type of interview, the questions are designed with the purpose of enabling the interviewee to answer freely and provide detailed information about the process of how various parties in the typical industrial clusters of Wenzhou promote the entrepreneurial activities of the interviewees; the interview guideline is shown in Table II.

The selection of the interviewees was mainly based on their entrepreneurial experience and tries to follow the criteria of demographic distribution. The interviewees are mainly selected from the top management team or founders of the enterprise and five interviewees are selected from three enterprises from each sample industrial cluster, with the age range between 25 and 55 years old, and one female entrepreneur included. The aim of the interview is to understand the support and resources provided by each kind of organization and institute in the industrial cluster to facilitate their entrepreneurial activities.

Basic information	<p>Could you please introduce your enterprise in general, such as the date of establishment, the industrial area, the operation situations, etc.? Could you please describe your experience of starting the business in detail?</p>
Industrial cluster and entrepreneurship	<p>What kinds of local resources (i.e. entrepreneurial environment, opportunities, human resources, capital, and new product/innovation information, etc.) are important for your entrepreneurial activities? Can you get these resources from the local parts? Where and how? Does the local government set any policies that support your entrepreneurship activities? How much do these policies help you? Will your enterprise intend to cooperate with other enterprises to influence the government decisions? Do the industrial associations organize the communication activities regularly? Do they provide any kinds of useful information, service or services? What and how? Do you or your enterprise have any formal or informal contact with the universities or research institutes? Can those universities or institutes provide any valuable support for you? Are there any other kinds of actors or factors provide useful resources for your entrepreneurial activities or positively promote your capabilities</p>

Table II.
The guideline of the interview questions

After the structured interviews, the standardized interview questions was revised, and five items of family, preferential policies of the government, social network, other successful entrepreneur, potential customers and suppliers were added into the optional basket, as suggested by the interviews, and questions regarding their experience of receiving the support from these organizations were also adopted from the structures interviews. The revised open-ended questionnaire was published on the survey web site and delivered by the interviewees to their friends or business partners who are also entrepreneurs in the local region of Wenzhou. In total, 300 question formats were delivered and 128 valid answers were collected, with the return rate of 42.7 percent.

3.2 The entrepreneurial tradition of Wenzhou and its industrial clusters

Seen from the industrial cluster development process in developed countries, there is a common conclusion that the industrial clusters were usually developed in the institutional infrastructure that promotes private economy and free market competition system. In China, the government-political systems and its centrally-planned economic system is different from the Western developed countries, which may influence the characteristics of the industrial cluster, and the cluster that can enjoy a reasonable period of growth under the preferred institutional environment is rare, as the private economy had only enjoyed a very short period of development after the open-up policy. In order to research on the entrepreneurial process inside the industrial cluster, it is important to choose the well-developed industrial cluster with an early stage development of private business in China. And seen from the historical documents record, the local government of Wenzhou is the pioneer in China to promote the private economy, as shown in the six events in Table III.

As seen in Table III, the private economy was encouraged both by the local government and the companies. This is rooted in the regional culture that highly values entrepreneurship and creative thinking. With this tradition, Wenzhou enjoyed

Year	Business environment changes event	Remark
1980	The “Report about rectification, registration, certification application procedure of the privately or individually-owned business” was published by the Industrial and Commercial Bureau of Wenzhou, which enable the successful application of 1,844 licenses of private or individually-owned business	Among the first of legally registered private business in China
1987	“The Provisional Measures for the Regulation of Private Enterprise in Wenzhou” (Wenzhou Municipality Nr.[87]279) was established, which was consist of 22 items regarding the legal personality, business scope, property relation, labor-management relation, tax regulation, as well as other rights and obligations of the private enterprises	The first locally regulation regarding the private business
1990	The Qiaodunmen Beer Factory in Wenzhou is the first joint-equity cooperative enterprise in China, their enterprise regulation become the draft of “The Standard Charter of Peasant Joint-Equity Cooperative Enterprise” issued by the Ministry of Agriculture	The first joint-equity cooperative enterprise in China
1994	The local government of Wenzhou host a public meeting, with the topic to promote the importance of product quality in the major enterprises, and issued the “implementation of the measure to enhance the quality in Wenzhou”, with the a serious plans to develop the product quality of “made in Wenzhou” into the average level in eight years till 2000 “The Yangzi River Electric Co. Ltd” was established by the merger of 15 SMEs in Leqing of Wenzhou. As insisted by some scholars, the establishment of this company provides practical experience and guidance for SMEs to select a mode of cooperatively development (<i>Zhejiang Daily</i> , 1996)	The first government level regulation the concern about product quality The first formal company limited by share was also established in Wenzhou
1998	The committee of the Communist Party of China was established in “Chint Group”, a non-public enterprise	The first practice of the combination of private economy with the communist political system

Source: SinaNews (2004)

Table III.
The milestones
of Wenzhou
business evolution

rapid growth since the Chinese government implemented its “open-door” policy in 1978. Most significant among these are the relative decline in state-owned enterprises (SOEs) and the marked increase in the numbers of small business. Table IV shows the industrial economic structure of 2009 that indicate the number of various companies and the value they created in 2009.

The rapid development of private business and individually-owned business leads to the tremendous development of the regional economy, as well as rising income levels. In the year 2009, the per capita of GDP in Wenzhou had reached \$31,555,

Table IV.
The industrial economic
structure of 2009

	Number of enterprise	Total industrial output value	
		Value (billion Yuan)	Percentage
Total	146,096	537.71	100.0
State-owned business	35	19.57	3.7
Collectively-owned business	321	2.37	0.5
Enterprise with joint-stock	2,957	16.59	3.1
Limited liability company	1,256	67.42	12.5
Company limited by share	207	23.78	4.4
Private enterprise	26,581	263.03	48.9
Foreign-invested enterprises	563	29.15	5.4
Individually-owned business	114,163	115.76	21.3
Other kinds	11	0.03	0.0

Source: Wenzhou Municipal Bureau of Statistics (2010)

with the average annual increasing rate of 13.6 percent, which is equal to a medium-developed country (Figure 2). Income levels are also highly increased during this period, as shown in Figure 3, the urban per capital disposable income of Wenzhou increased from ¥187 in 1958 to ¥26,172 in 2008. As evaluated by the China Bureau of Statistical in 2006, the urban per capita disposable income of Wenzhou is among the top three in China in 2006, as shown in Figure 3.

Davidsson (1995) studied six groups of regions in Sweden and found that the formation of new, independent firms is important for the development of regional economic well-being, as measured by income-growth. Carree *et al.* (2002) insisted that there is a U-shaped relationship between the level of per capita income and the rate of self-employment (business ownership) in the labor force, and this hypothesis is supported by the multiple-equation regression analysis of data for 23 OECD countries in

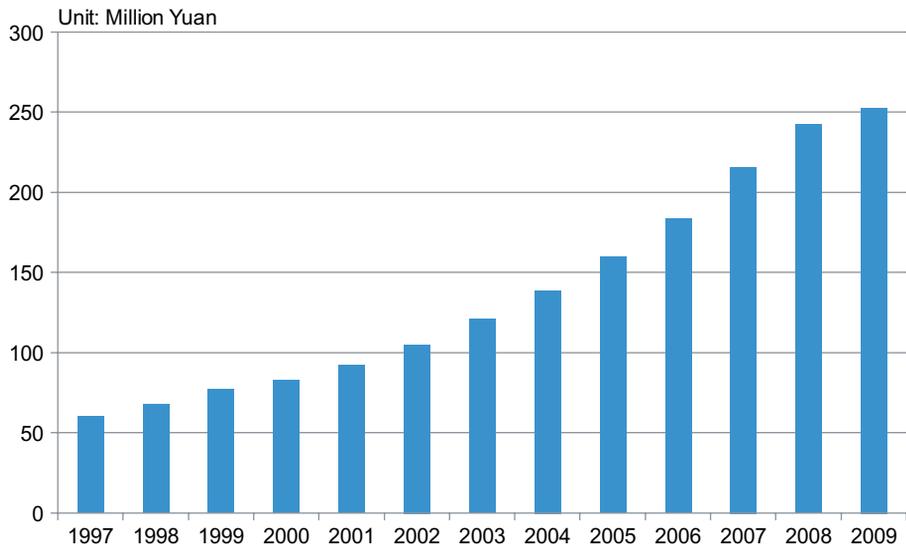


Figure 2.
The GDP of the city of
Wenzhou (1997-2009)

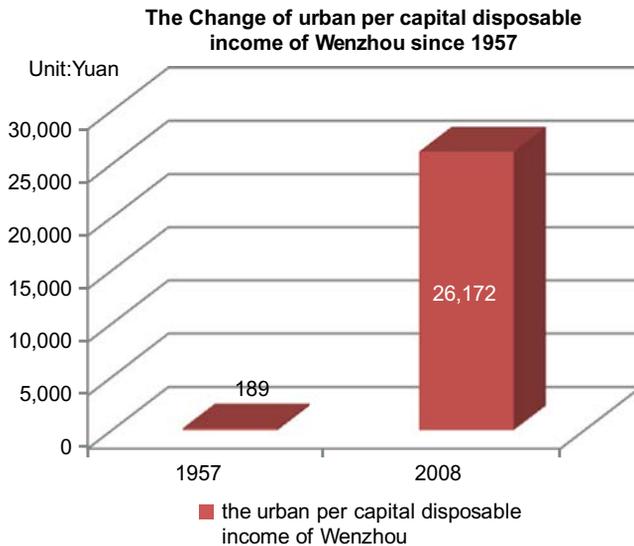


Figure 3.
The change of urban per capital disposable income of Wenzhou since 1957

the period 1976-1996. Therefore, it can be assumed that the entrepreneurial activities are developed in Wenzhou, as well as its per capita income increase (Figure 4).

The development of the private small-or-medium size enterprises (SMEs) in Wenzhou also enjoyed the benefits of specialized production and relies on the industrial cluster effects and professional markets, which promote the growth of regional competitiveness. For instance, a very simple product such as glasses can be segmented

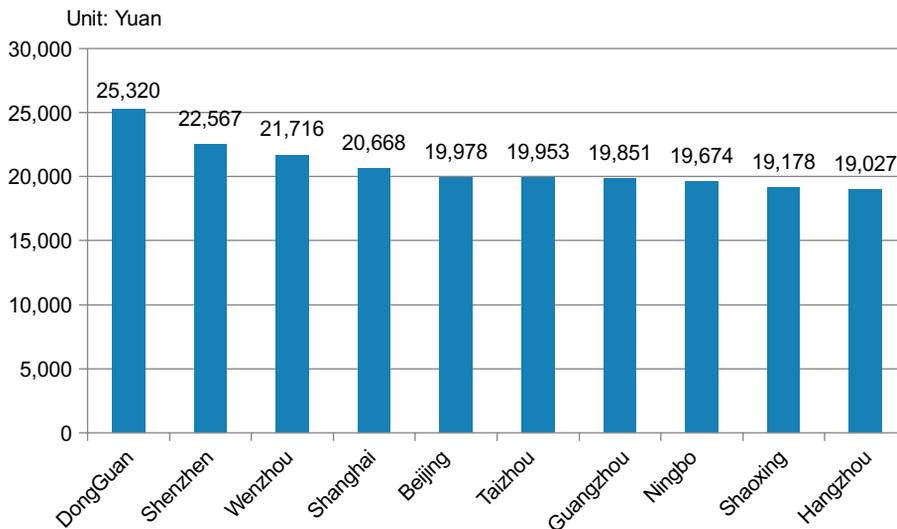


Figure 4.
The top ten of Chinese town on the urban per capital disposable income in 2006

Source: The China Bureau of Statistical

into frames, lens, electroplating and other accessories that are manufactured in several different firms in Wenzhou. By doing this, the technique requirements become easier, the investment is lower, and it becomes easier to start such a business. Therefore, the enthusiasm of starting a business in Wenzhou is higher, and the amount of SMEs is large, which lead to the dramatic development of the local economy and the formation of various industrial clusters. As seen from Table V, there are seven major clusters formed in the city of Wenzhou in 2002 which have the annual turnover of more than ¥6 billion per year.

Since 2000s, along with the globalization and international industrial transfer, the SMEs in the cluster had entered the international markets, owing to its labor cost advantages and professional production base, which has promoted the manufacturing industry of Wenzhou to a better stage, as shown in Table VI.

According to the income situation of various industries of Wenzhou in 2008, as shown in Table VII, we selected three clusters for the next step in-depth investigation. One is the leather and footwear industry cluster, which has the highest location quotation, and largest number of enterprises with a big contribution to tax in 2008 and the recent years; the second one is the industry cluster of electrical machinery and equipment with the highest increasing rate of 23.12 percent in total sales revenue; the third one is the glasses manufacture industry cluster which was listed in the top five large industrial clusters but shows a negative increasing rate in its revenue.

Table V.
The data about industrial clusters in Wenzhou

Industrial sector	Index			Overall LQ	
	LQ ₁	LQ ₂	LQ ₃	Score	Rank
Manufacture of leather and footwear products	10.36	6.4	4.82	7.19	1
Manufacture of plastic products	4.34	3.43	2.21	3.33	1
Manufacture of electrical machinery and equipment	3.32	2.53	2.14	2.66	3
Manufacture of instruments and office, culture, electrical appliances	2.5	3.62	3.53	3.22	4
Manufacture of textile and garment, footwear	3.77	2.16	1.72	2.55	4
Printing and record medium reproduction	2.93	1.86	2.1	2.3	8
Manufacture of general equipment	1.8	1.35	1.39	1.51	13

Table VI.
Export classification

Index	2009 (million dollars)	Percentage increased than past year
Total export	10.936	-8.1
#General trade	10.197	-9.2
Processing trade	0.728	8.8
#Footwear	2.754	0.1
Garment	1.295	5.4
Synthetic leather	0.302	7.5
Glasses	0.523	-8.4
Lighter	0.096	-5.6
Electronic machinery	4.210	-15.2

Source: Wenzhou Municipal Bureau of Statistics (2010)

Industry name	Entre.nr.	Total sales revenue			Total amount of tax paid		
		2008	2007	Increasing rate (%)	2008	2007	Increasing rate (%)
Manufacture of leatherwear products	2,690	617,457	600,256	2.87	36,819	30,166	22.06
Manufacture of textile and garment	2,136	347,598	323,258	7.53	19,632	16,238	20.90
Manufacture of electrical machinery and equipment	5,767	1,129,955	917,783	23.12	44,524	33,203	34.10
Manufacture of glasses	722	120,833	127,652	-5.34	6,822	5,389	26.59
Printing	2,233	172,850	151,911	13.78	8,431	6,987	20.67

Note: Date: March 2008; unit: ¥10 million
Source: Wenzhou Municipal Bureau of Statistics

Table VII.
The income of key industries in Wenzhou

Moreover, as suggested by the Association of the Female Entrepreneurs, most of the female entrepreneurs are engaged in the industry of glasses manufacture and the related business activities.

We conducted face-to-face interviews with entrepreneurs in the three major industrial clusters in Wenzhou, including the leather industrial cluster, glasses industrial cluster and the low-voltage apparatus industrial cluster.

4. Data analysis and proposition statement

In analyzing the content of the interviews, the following issues were identified as being the main parties of the industrial incubation systems: R&D parties that provide the technology and human resource; investment parties that provide the capital and finance resources; service parties that provide the information and environmental resource; and industrial parties that provide the market and industrial resources.

The following presentation of findings will follow those themes. First, it will explain the identification of functional institutes and organizations in the industrial cluster incubation systems. Then, the group members of each functional party will be interpreted, based on the interview data.

4.1 The most important entrepreneurial resource provider in the cluster

In the standardized interview, fixed answers are expected (yes/no questions or multiple choices, like survey). During the standardized interview, the interviewees were asked to reflect on the period when they started to establish their enterprise, and rank the importance of the support or resources and organizations in the optional basket, and identify the three most important ones. The optional basket was identified according to the industrial cluster structure and left an open-ended blanket for the interviewees to add the options according to their experience, 12 items were listed in the optional basket, including education training institution, the accounting firm, legal consultation institutions, government's preferential policy or project funding, recruitment agencies, intermediary service agencies, industry association, property services (lease) intermediary, incubators, mass media promotion agency, central or local economic development agencies, investment institutions, and management consulting organization. The answers from the standardized interviews served as the basis

to develop the questions in the non-standardized interviews and the questionnaire survey in the final stage.

The results of the open-up question were processed to identify the most functional parties in the industrial cluster in cultivating entrepreneur growth. The calculating method is shown as below.

Given that, the total score is A, the frequency is T, the weight value of the select options order is W, number of participants is N. The formula is:

$$A = \frac{\sum T \times W}{N}$$

Seen from the statistical results, universities and research institutes play an important role. Moreover, the government policy, industrial associations, investment institutes and social networks also considered to be very important in the development process of the entrepreneurs. The five actors on the top, with the scores above 5 and the detailed results are shown in Figure 5.

4.2 The talent and technology resources providers

4.2.1 University. The universities and research institutes played a very important role during the whole entrepreneurial process. According to the face-to-face interviews, we learned that the universities in Wenzhou not only perform the function of higher education, but also organized a lot of non-degree training courses or public lectures for the entrepreneurs in Wenzhou, in cooperation with the government agencies or industrial associations. The training mainly focused on business and management courses, which provides a platform for the managers or entrepreneurs to enhance their knowledge. Besides the formal education provided by the universities, there is also a well developed vocational training network, consisting of the public or private training organizations, and which provides training in the fields of computer science,

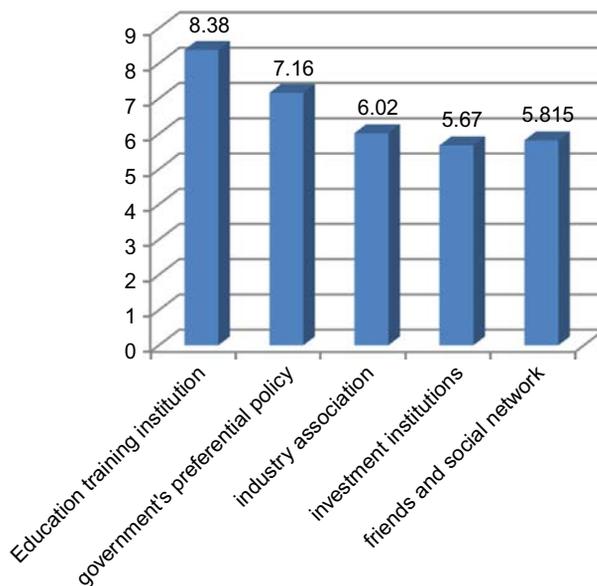


Figure 5.
The importance of the surrounding parties

IT, foreign languages, accounting, etc. Entrepreneurial education and training is important in entrepreneurial activities; well-educated and highly skilled entrepreneurs are the guarantees to ensure entrepreneurial success. In the view of the entrepreneurs in Wenzhou, the practical vocational training is much more useful than the higher education:

[...] There are a lot of training courses organized by the University or other professional training institutes for the entrepreneurs, when I started my own business, I realized there are lots of management knowledge I need to learn, I choose to take this part-time course from the university even when I am so busy with my company, because I feel I need the knowledge they provides. Moreover, I am also the technological development personnel in my company; I need to know the core business part of my enterprise [...] And during the study, I can get to know some professors who can give me some advises for developing my business, I also would like to find a partner or hire some capability personnel to develop my business together from the university, I think I can meet someone during the courses.

As stated by one of the young entrepreneurs who started his business two years after graduation, with a major in computer science, the universities not only provide him with knowledge and technology, but also a good place to search for human capital:

[...] When I go to negotiate business with my customers from all over the world, I feel the language is so important, but it is really hard for me to learn a new language now, I choose to hire some professional translator [...] I feel it is not hard to find the suitable personnel here, there are university graduates, and the personnel with the professional training licensee are also very good, I do not only believe in the degrees, practical skills are much more important when I choose an employee.

As stated by one of the entrepreneurs who was born in 1970s, as it is impossible and time consuming to take the courses in the universities or training courses, he would choose to hire someone with the required skills, and the universities served as the human resource provider.

Moreover, entrepreneurship education in Wenzhou is also progressing very well. To take the Wenzhou University as an example, entrepreneurial education is its distinguishing feature. The student entrepreneurial park in Wenzhou University was established in November 2007, covering 1,400 m² and which can involve more than 40 entrepreneurial teams. It can be divided into three areas: IT information service, art and design and combined service. There had been 36 entrepreneurship teams from 12 schools settled in the entrepreneurship park for the first time. The student entrepreneurial team only needs to pay a little rent. This kind of student entrepreneurial practice platform enables the students start their business with low investment, low risk and a high success rate. At present, there had been 59 teams or offices in this park, with 45 of them registered. Since 2003, almost 500 students had participated in the entrepreneurial activities, and the total income accounts reached nearly 2 million. With the purpose of solving the conflicts between entrepreneurial activities and the studies, the university also set the policy that the entrepreneurial activities can be transformed as credits, but this policy was questioned by most professors. During the interview with the student entrepreneurs, most of them consider that the student entrepreneurial park had provided useful aid in providing the working area, encouraging the entrepreneurial spirit and assisting the business registration.

However, the innovation and technology support the enterprises could gain from the university is lacking. As some of the entrepreneurs said, they had not tried to establish cooperation with local universities in Wenzhou in the areas of technological innovation, because the core technologies they need are not well developed in the those local universities. According to the analysis of “China City Competitiveness Report”, in the competitiveness of science and technology, Wenzhou ranked 36th in 50 cities, among them, the scientific and technological strength index, scientific and technological innovation ability index and the index of technology transformation was ranked at 39, 31 and 37, which have a larger gap to the cities of Beijing and Shanghai, or even similar cities. The technology base is rather weak in Wenzhou, which could not provide effective support of scientific and technological strength. There are only six universities in Wenzhou and except for the two universities of Wenzhou University and Wenzhou Medical College, the rest are colleges; and the index of technology researchers, patent number, the number of papers published and other indicators are very poor. This leads to insufficient supply of advanced production factors and a low level of innovation. This is one of the reasons that Wenzhou is hard to transform from the labor intensive industry to knowledge intensive industry.

4.2.2 *Leading enterprise.* Beside the technology and human resources provided by the universities, the large and leading firms in the cluster also serve as the technology and human resources provider:

[. . .] This is not the purpose of the large firms to provide technology support, but they usually need to seek for other manufacture firms when they have big orders and do not have enough manufacturing lines to finish it in the required deadline; they will deliver parts of the orders to other small firms with the technology support to help them meets the requirements of the customers [. . .].

As stated by one of the interviewees, the technology diffusion sometimes happens during the business cooperation between large and small firms:

[. . .] I sometimes hire technology personnel from the large firm to manage the core part of my business. But it is not the usual way, our company need to pay some fees to become the beneficiary and get support from the large firms in various ways [. . .]. As in the beginning stage the capital is limited for us to carry on the R&D activities, we will seek to cooperate with big firms [. . .].

Moreover, some entrepreneurs themselves used to be technological or market personnel of the large firms, when they became familiar with the industry and then tried to start their own business, or maybe hired some important personnel from the large firms. In this way, the tactic knowledge spillover from the large firms by human resource transfers:

[. . .] I had been worked as the program manager in another E-business company for two years, after several projects, I feel I can start my own business in this field, I design a program by myself and right now I am working on developing it and searching for business cooperation with large firm to enlarge the market for this system because I do not have so much money to invest on the R&D and marketing [. . .].

As stated by one of the interviewees, the basic technology to start his enterprise came from his previous job, and he would like to develop it with large firms to do the R&D activities.

Above all, we have ascertained that in order for the rapid development of the industrial clusters, R&D resources are rather important, and the connections between entrepreneurial

firms and the surrounding research universities, research institutes as well as big firms help them to cultivate their R&D capabilities. Therefore, we raise the following proposition:

- P1.* The universities, research institutes and the leading firms in the cluster played the important role in providing technology and human resource in cultivating entrepreneurship activities.

4.3 The capital and investment resource providers

4.3.1 Family and friends. Investing and financing is very hard for small business companies around world and even more so in China. In Wenzhou, the first amount of investment mostly comes from their personal savings or collected from their social networks, such as relatives, friends and neighbors. Timmons (1999) reckoned that the demand for capital is different during the companies' different growing stages; the growth of a small enterprise can be based on finding the internal sources of funds, such as their savings, capital of their friends and relatives:

[...] It is hard and even impossible to get any investment from the bank in the beginning, as we have nothing in the starting stage, you can only get some investment from your own saving, or from the friends, relatives or neighbors who know you well and trust you [...].

My sister lends me money to start my business, because she trusts that I can organize it well, and she would like to support me with my favourite business [...].

[...] they know you are very intelligent and believe you can be successful in the near future, if you have found a business opportunities and present to your neighbors, you can collect as much as you need in a short time. This is the special case in Wenzhou, people are rich and they have strong trust with "Wenzhou-ness" [...].

As stated by most of the employees, private capital collected from their personal social networks is a very important source of investment, especially in the beginning stage.

4.3.2 Bank, venture capital and other financial organizations. However, during its growing process, there will be a transformation process for the enterprise from internal financing to external financing. Bank and venture capital are also very active in Wenzhou, and Wenzhou Chamber of Commerce (WCC) has a branch in each province in China that plays an important role in organizing the investment and financing sources.

According to the interview, we find that nongovernmental chamber of commerce can be a trust middleman between bank/venture capital and new entrepreneurs, which can decrease the loan risk for banks and help new ventures to improve their financing and investing:

[...] with the support of WCC, we can get the investment from bank or other venture capital in a more efficient way. Personal credit is very important in this process, If you are failed with one investment, it will become a hard time that no one will invest in your business, as you lose your personal credit in WCC, each party including the investor and the entrepreneurs will be very careful when sending out or receiving the investment, the role of WCC are very helpful to set this trust in the beginning [...].

Here, we have Bank of Wenzhou, which is very helpful for the investment and development of my enterprise; with the national bank, the procedure is too complicate, sometimes, the business chance is timely, when you have finished the procedure, the chances had been lost [...]. With the local banks I do not need to worry about that.

As stated by the interviewees, the efficiency of getting the investment is very important. Therefore, the local bank and WCC play important roles in lowering the risk of loan and improving the entrepreneurs financing and investing capability. From the analysis above, we formulate the following proposition:

- P2. The family and friends, bank and financial organization and venture capital played the important role in providing the capital and financial resource in cultivating entrepreneurial activities.

4.4 The supportive service and information providers

4.4.1 Government. Some scholars had indicated that the entrepreneurial activities are strongly influenced by the government (Georgellis and Wall, 2006; Keuschnigg and Nielsen, 2003) which reflects on their policy-setting activities. The policies that related to the entrepreneurial activities mainly include three aspects: the human resource policy; technological policy; and financial economic policy. The human policy mainly regards the entrepreneurial cultivation and training of professional talents; technological policy was setting to ensure the effective utilization of new technology or the cooperation between enterprises and research institutes or universities regarding patent purchase and technology transfer, i.e. government had set policies supporting university and research institutes' R&D activities and develops the intellectual protection policies, etc. Government may also establish policies that can guarantee the sufficient and efficient capital supply for the new enterprises, for instance, the enterprise innovation funding policy, credit and guarantee policies.

The local government in Wenzhou had played an important role in the industrial cluster development and the entrepreneurial activities: they not only creatively developed the policy environment for the entrepreneurial activities, but also designed the industrial development plans according to regional industrial characters. For instance, the private economy has been very active in Wenzhou since the 1980s and family enterprises have become important parts in the regional industrial system. The local government of Wenzhou set a serious of regulations to facilitate the development of private enterprises and family business and encouraged them to change into share-issuing enterprises. Since the 1990s, entrepreneurial activities have become even more popular. The local government of Wenzhou established several policies to promote the large firms' secondary entrepreneurial activity and the SMEs' development.

Wenzhou's economic development is dominated by the private economy, which led to the relationship between the government and enterprises not being controlled by the government. When the local government policy restricts the development of an enterprise, they will choose to be "relocated". According to the statistical record of Wenzhou Federation of Industry, more than 2,000 of their member enterprises, from ten different kinds of industries, had relocated outside to other cities in 2002, among which 250 of them had fully relocated the whole enterprise. As seen from the World Bank's report on 23 Chinese cities in 2003, the government administration is inefficient in Wenzhou and the informal cost of the enterprise in Wenzhou took a rather large percentage of the revenues (Figure 6). Therefore, since 2005, the government had paid attention to solving this problem. For instance, the local government of Wenzhou issued the document "A number of suggestions on further promotion of non-public economic development" in 2005, in which the government set the plan to encourage non-public economy entry into the infrastructure industries; to assist in establishing

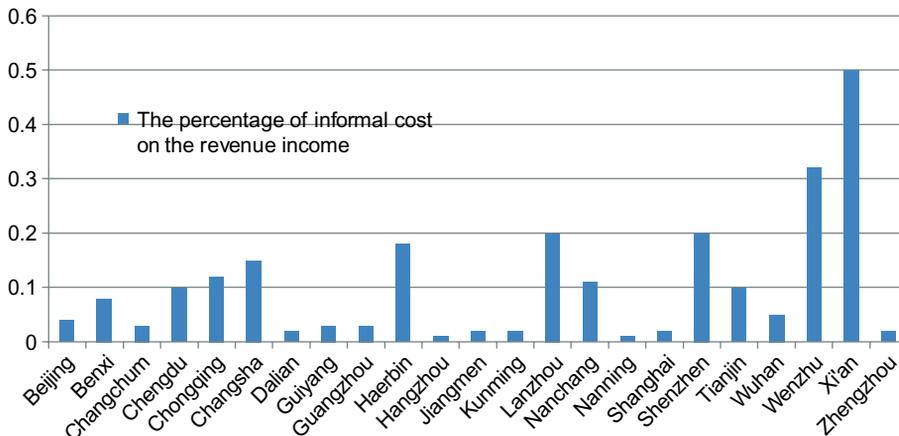


Figure 6.
The investigation of the
enterprise informal cost of
23 Chinese cities

Source: Dollar *et al.* (2003)

a private bank in Wenzhou; organizing a training program for SMEs and putting effort into the regulation of enterprise reputation[1].

4.4.2 Industrial associations. Industry association is the communication agent between the government and enterprises, the development of the industry association in Wenzhou is the best in China. The municipal government of Wenzhou appointed the special functions to the industry association to manage the product quality of its subordinate enterprises and conduct the qualification examination of the enterprise outside the association, which effectively protect the healthy development of the industry. In the aspects of expanding the market, when other parties outside the provinces come to Wenzhou to seek the investment opportunities, the industrial associations will invite the entrepreneurs, and help them to develop the market information. They can also help to set a harmonious relationship between the government and the enterprises, as well as coordinating the relationship between enterprises.

Moreover, the industrial association has expanded their influence into the non-economical area. For instance, in 2002, the case of Wenzhou lighter industry responding to the litigation of EU anti-dumping was the first successful case of a Chinese enterprise facing European anti-dumping litigation, which is overcome under the operating of the smoking set industry association of Wenzhou. Various kinds of the industrial associations organize training activities regularly, which not only promote the development of the industrial cluster, but also promote the enhancement of the entrepreneurs' vocational skills and professional capabilities.

Most of the interviewees had joined at least one industrial association; they feel the activities organized by the industrial association are helpful:

[...] They usually organized some lectures or other social activities every month, it is a good chance to know other persons who are also engaged in this industrial, although there are not so many professional knowledge or market information we can exchange, but it is better to know more persons. [...] We need to pay some membership fees, but I think it worth it.

4.4.3 Intermediate agencies. In this paper, the intermediate agency mainly includes the consultant agencies, technology transfer agencies, recruitment agencies and financial

service institutes, etc. The service and information provided by these agencies, guaranteed and facilitated the acquisition of human, technological, capital and other kinds of necessary resources.

In Wenzhou, many enterprises are engaged in international business, they get orders from all over the worlds, and the products are mostly exported to European countries, America, etc. Therefore, the trade service agency and financial service agencies are rather important to them:

[...] Most of our orders come from the trade companies, they do not have the factory, but they have contact with the foreign customers. [...] Sometimes we pay for the translation service from the agencies, but not usually hire the translators from them; we do not really need them in the production stage [...].

[...] Financial, accounting service are also important, it is hard to hire such kinds of professional personnel as our enterprise is small, we can find some agencies to do this part of business [...].

Compared to other Chinese cities, Wenzhou had set up an almost complete industrial association network, comprising large numbers and with almost complete functions.

Above all, the government departments, especially local government, and the industrial associations, as well as the various intermediate agencies, served as the information and environmental resource providers, which we named the service parties. Therefore, we get the third proposition:

P3. The local government, and the industrial associations, as well as the various intermediate agencies in the cluster played the important role in providing necessary services in cultivating the entrepreneurship activities.

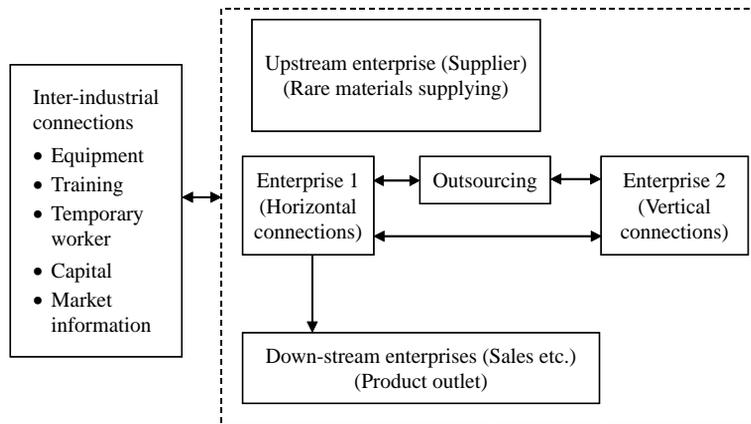
4.5 The supply and market resource provider

The advantage of industrial cluster mostly reflects on its agglomeration economy, which is also the industrial information and market resources that can be provided to new entrepreneurs. The relevant enterprises in the clusters mainly benefit the new firms in two ways. First, the large firms may provide the knowledge and technology spillover opportunities during the R&D activities cooperation between each other and the talent flow from large firms to new enterprises (Rickne, 2000, 2001). Moreover, the market information can also be spillover to the related firms by the transactional or other forms of contact (Rickne, 2001, 2002).

Visser, E.J. (1996) and Visser, L. (2000) researched on the relationship between firms and other outside related organizations along the value chain and divided these connections into five types: upward connection, backward connection, inter-industrial connection, horizontal connection and vertical connection, as shown in Figure 7.

In the cluster, the approximation of supplier, customers and other related industry facilitate the entrepreneurs' access to the rare materials, machinery, equipment and market information, as well as other kinds of product or labor related sources:

[...] I can find the required materials in the local place, which can save the transportation cost, there are many skilled personnel who are familiar with this industry, they used to work in the large firms, I do not need to provide training for them, this is very important for my companies, as we are in the starting stage, we cannot afford so much fees. It is good that we



Source: Visser (1996)

Figure 7.
The connection between
enterprises

can get access here, because there are so many enterprises in the same business. [...] Yes, there are competitions, but I feel there are much more benefits to locate in this area in our starting stage [...].

As indicated from the literature and proved by the interviewees, large leading firms, and the supplies and demand markets, can provide beginner entrepreneurs with the industrial operation resources and market information which are of benefit to them. We named these organizations as the industrial party:

P4. Large leading firms, the supplies and demand markets in the cluster played the important role in providing industrial resource in cultivating the entrepreneurship activities.

5. Discussion and conclusion: Wenzhou model of industrial cluster

According to the empirical investigation in the industrial cluster and the entrepreneurial activities in Wenzhou, we found that four major groups which perform the functions of investment, research and innovation, industrial information and supporting service, were generated along with the development of the industrial clusters. They not only promoted the industrial cluster development, but also provided the capital resources, technological resources, human resources, industrial resources and market resources to cultivate the entrepreneurial activities, which make clusters become a favourite platform for entrepreneurs' growth and entrepreneurial activities development. Feldman (2001) had reckoned that the development of social and institutional network is positively related to the growth of entrepreneurial capability of the talents in the clusters. In this study, we found that initial capital, technology support and human capital are the critical resources those institutes had tried to provide to satisfy the potential entrepreneurs' needs, with the purpose of facilitating the entrepreneurial activities in the local areas.

As seen from the Wenzhou case, the resources provided by the industrial cluster to its enterprises and entrepreneurs are rich, mainly including the following eight aspects:

- (1) the industrial resources formed by the enterprises cooperation between the upstream enterprises and downstream enterprises in the industrial chain, this the crucial resources provided by the industrial cluster;
- (2) the technological resources provided by the universities and research institutes in the industrial cluster;
- (3) the human resource build of various skilled workers provided by the universities and vocational training agencies, as well as the professional manager team;
- (4) the credit and risk capital investment provided by the financial institutions give the enterprise rapid financing capability for capital resources;
- (5) the regional brand, marketing network and market channel shared by the enterprises in the industrial cluster formed the market resource;
- (6) the information resourced provided by the intermediary organizations;
- (7) the political resource provided by the government, such as the preference policies; and
- (8) the environmental resources, including the “hardware” conditions, such as natural climate, infrastructures, airport, docks, etc. as well as the “software” conditions, i.e. regional culture, entrepreneurship, cooperation spirit and trust mechanism.

These eight kinds of resources can be divided into two categories: first, the direct resource for entrepreneur growth, such as the capital resource, technological resources, human resources and market resource; and second, the indirect resources, including the remaining four kinds of resources which indirectly affect entrepreneur growth. Compared with the non-cluster area, the resources in the industrial cluster can be provided as the basis for incubating the enterprises and the potential entrepreneurs.

Figure 8 shows a schematic that incorporates the above idea. It displays the conceptual framework of the “industrial cluster development system in Wenzhou”, which depicts the interdependent relationship among each resource provider which is linked together as a system by resource flows. They not only promoted the industrial cluster development, but also provided the capital resources, technological resources, human resources, industrial resources and market resources. On the other hand, along with the enterprise development and the entrepreneurs’ growth, the industrial cluster innovation and development process will be encouraged, and the entrepreneurs themselves become the resources provider, which can provide capital resources, human resources, technological resources, market resources, informational resources and influence the construction of environmental resources and political resources; the exchange of resources inside and outside the industrial cluster formed the industrial cluster entrepreneurial incubation system.

During the industrial cluster development process, the agglomerations of the enterprises promote the regional development and relevant industrial enhancement, which formed the entrepreneurial incubation system, including the government department, research universities and the supportive service industry. Based on the empirical research in Wenzhou, we found that the entrepreneurial incubation system consists of four parties: investment, R&D, service and industries. The investment parties mainly include the banks or financial organizations, friends and family support

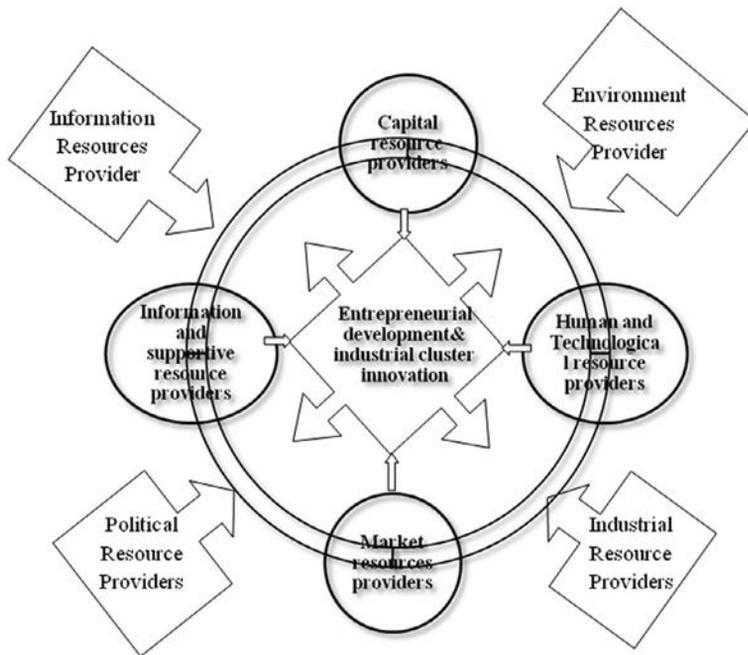


Figure 8.
Model of the industrial
cluster development
system in Wenzhou

and venture capital firms, which mainly provide the capital or financing resources. The R&D parties mainly refer to the universities and research institutes, and also include the R&D departments of the large leading firms and technology agency, which provide the technological resources and HR for entrepreneurial activities. The industrial parties include the leading industries, suppliers and demand markets, which provide product information, market information and industrial information. The service parties include the relevant government department, industrial associations and various intermediate agencies, which provide information and environmental resources. Each organization and party cooperate with each other to provide various resources to promote the entrepreneurial activities and incubate the potential entrepreneurs. And on the other hand, the entrepreneurial activities will promote the development of each party and enhance the incubation environment, to form a better condition and generally more resources for entrepreneurial development and cultivation of potential entrepreneurs.

6. Limitation and future research

The propositions and conclusions that we have drawn in this paper are built on few case studies only and, therefore, may not be seen as representative. Nevertheless, they offer guidance for future research. The propositions we have built offer a good starting point for testing and extension. Proposition testing should involve tests based on quantitative, data from multiple new ventures located in the clusters. As institutional issues are mentioned in this study, proposition extension should be based on further deep-level case analyses on a cross-nation level. More specifically, those analyses should not only deal with one specific cluster in a certain country, but should also extend the focus on developing countries with a different institutional environment. Using cross country

data as an object of analysis seems to be a promising way for future research to take, as most research in international business is centered on entrepreneurship, especially when focusing on emerging markets such as China where data on high-tech new ventures is scarce or even missing. In addition, and to gather more data, such research should focus on a broad level of high-tech industries. This is needed for extending our knowledge to the origins of learning and capability building by applying a micro-foundation to derive findings and insights (Roth and Kostova, 2003).

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Note

1. www.zjol.com.cn (accessed 19 May 2005).

References

- Austin, J., Stevenson, H. and Wei-Skillern, J. (2006), "Social and commercial entrepreneurship: same, different, or both?", *Entrepreneurship Theory & Practice*, Vol. 301, pp. 1-22.
- Barrow, C. (2001), *Incubators: A Realist's Guide to the World's New Business Accelerators*, Wiley, Chichester.
- Baudry, C. and Swann, P. (2001), "Growth in industrial clusters: a bird's eye view of the United Kingdom", Stanford Institute for Economic Policy Research, Discussion Paper 00-38.
- Beccattini, G. (1989), "Sectors and/or districts: some remarks on the conceptual foundations of industrial economics", in Goodman, E., Bamford, J. and Saynor, P. (Eds), *Small Firms and Industrial Districts in Italy*, Routledge, London, pp. 123-135.
- Benneworth, P. and Henry, N. (2004), "Where is the value added in the cluster approach? Hermeneutic theorising, economic geography and clusters as a multiperspectival approach", *Urban Studies*, Vol. 41 No. 5, pp. 1011-1023.
- Bergeron, F., Raymond, L. and Rivard, S. (2004), "Ideal patterns of strategic alignment and business performance", *Information & Management*, Vol. 418, pp. 1003-1020.
- Bloodgood, J.M., Sapienza, H.J. and Carsrud, A.L. (1995), "The dynamics of new business start-ups: person, context, and process", in Katz, J.A. and Brockhaus, R.H. (Eds), *Advances in Entrepreneurship, Firm Emergence, and Growth*, JAI Press, Greenwich, CT.
- Cai, L., Cui, J. and Liu, J. (2007), "Entrepreneurial environment and network structure: the concept, system and analysis framework", *Modernization of Management*, No. 3, pp. 26-28.
- Canina, L., Enz, C.A. and Harrison, J.S. (2005), "Agglomeration effects and strategic orientations: evidence from the US lodging industry", *Academy of Management Journal*, Vol. 48 No. 4, pp. 565-581.
- Carree, M., van Stel, A., Thurik, R. and Wennekers, S. (2002), "Economic development and business ownership: an analysis using data of 23 OECD countries in the period 1976-1996", *Small Business Economics*, Vol. 19, pp. 271-290.

-
- Carsrud, A.L. and Johnson, R.W. (1989), "Entrepreneurship: a social psychological perspective", *Entrepreneurship & Regional Development*, Vol. 1 No. 1, pp. 21-31.
- Davidsson, P. (1995), "Determinants of entrepreneurial intentions", paper presented at RENT IX Conference, Piacenza Italy, 23-24 November.
- Deeds, D., DeCarolus, D. and Coombs, J. (1997), "The impact of firm specific capabilities on the amount of capital raised in an initial public offering: evidence from the biotechnology industry", *Journal of Business Venturing*, Vol. 12 No. 1, pp. 31-46.
- Dollar, D., Shi, A., Wang, S. and Xu, L.C. (2003), World Bank, available at: www.worldbank.org.cn/Chinese/
- European Commission (2002), *European Competitiveness Report 2002*, European Commission, Brussels.
- European Commission (2003), *European Competitiveness Report 2003*, European Commission, Brussels.
- Feldman, M.P. (2001), "The entrepreneurial event revisited: firm formation in a regional context", *Industrial and Corporate Change*, Vol. 10 No. 4, pp. 861-891.
- Feldman, M.P. and Francis, J.L. (2004), "Homegrown solutions: fostering cluster formation", *Economic Development Quarterly*, Vol. 18 No. 2, pp. 127-137.
- Feser, E.J. and Bergman, E.M. (2000), "National industry cluster templates: a framework for applied regional cluster analysis", *Regional Studies*, Vol. 34 No. 1, pp. 1-19.
- Folta, T.B., Cooper, A.C. and Baik, Y.-S. (2006), "Geographic cluster size and firm performance", *Journal of Business Venturing*, Vol. 21, pp. 217-242.
- Georgellis, Y. and Wall, H.J. (2006), "Entrepreneurship and the policy environment", *Review, Federal Reserve Bank of St Louis*, March, pp. 95-112.
- Glaeser, E.L., Kerr William, R. and Ponzetto Giacomo, A.M. (2010), "Clusters of entrepreneurship", *Journal of Urban Economics*, Vol. 67 No. 1, pp. 150-168.
- Hansen, E.L. (1995), "Entrepreneurial networks and new organization growth", *Entrepreneurship: Theory and Practice*, Vol. 19 No. 4, pp. 7-19.
- Hoang, H. and Antoncic, B. (2003), "Network-based research in entrepreneurship: a critical review", *Journal of Business Venturing*, Vol. 18, pp. 165-187.
- Jack, S. and Anderson, A.R. (2002), "The effects of embeddedness upon the entrepreneurial process", *Journal of Business Venturing*, Vol. 17, pp. 1-22.
- Kenney, M. and Goe, W.R. (2004), "The role of social embeddedness in professorial entrepreneurship: a comparison of electrical engineering and computer science at UC Berkeley and Stanford", *Research Policy*, Vol. 33 No. 5, pp. 691-707.
- Keuschnigg, C. and Nielsen, S.B. (2003), "Taxes and venture capital support", *Review of Finance*, Vol. 7 No. 3, pp. 515-539.
- Krugman, P. (1991), "Increasing returns and economic geography", *Journal of Political Economy*, Vol. 3, pp. 651-667.
- Lalkaka, R. and Bishop, J. (1996), *Business Incubators in Economic Development*, UNDP-UNIDO-OAS, New York, NY.
- Larson, A. (1992), "Network dyads in entrepreneurial settings: a study of the governance of exchange processes", *Administrative Science Quarterly*, Vol. 37, pp. 76-104.
- Lee, C., Lee, K. and Pennings, J.M. (2001), "Internal capabilities, external networks, and performance: a study on technology-based ventures", *Strategic Management Journal*, Vol. 22 Nos 6/7, pp. 615-640.

- Lowea, N. and Feldman, M. (2008), "Constructing entrepreneurial advantage: consensus building, technological uncertainty and emerging industries", *Cambridge Journal of Regional Economy and Society*, Vol. 1 No. 2, pp. 265-284.
- Owen-Smith, J. and Powell, W.W. (2004), "Knowledge networks as channels and conduits: the effects of formal structure in the Boston biotechnology community", *Organization Science*, Vol. 15 No. 1, pp. 5-21.
- Peter, A. and Vertinsky, I. (2006), "The determinants of survival of de novo entrants in clusters and dispersal", working paper, Tuck School of Business, Dartmouth College, 20 September.
- Porter, M.E. (1998a), "Clusters and the new economies of competition", *Harvard Business Review*, Vol. 6, pp. 77-90.
- Porter, M.E. (1998b), *The Competitiveness Advantage of Nations*, The Free Press, New York, NY.
- Porter, M.E., Hirotaka, T. and Sakakibara, M. (2000), *Can Japan Compete?*, Macmillan, Basingstoke.
- Pouder, R. and St John, C.H. (1996), "Hot spots and blind spots: geographical clusters of firms and innovation", *The Academy of Management Review*, Vol. 21 No. 4, pp. 1192-1225.
- Powers, J.B. and McDougall, P. (2005), "University start-up formation and technology licensing with firms that go public: a resource based view of academic entrepreneurship", *Journal of Business Venturing*, Vol. 20 No. 3, pp. 291-311.
- Rickne, A. (2000), "New technology-based firms and industrial dynamics evidence from the technological system of biomaterials in Sweden, Ohio and Massachusetts", PhD dissertation, Chalmers University of Technology, Göteborg.
- Rickne, A. (2001), *Assessing the Functionality of an Innovation System*, Chalmers University of Technology, Göteborg.
- Rickne, A. (2002), "New technological systems in the bio industries", in Carlsson, B. (Ed.), *Regional Characteristics and Performance: Evidence from Biomaterials Firms*, Kluwer Academic, Boston, MA, pp. 145-185.
- Rocha, H.O. (2004), "Entrepreneurship and development: the role of clusters", *A Literature Review, Small Business Economics*, Vol. 23, pp. 363-400.
- Rosenblatt, Z. and Sheaffer, Z. (2001), "Brain drain in declining organizations: toward a research agenda", *Journal of Organizational Behavior*, Vol. 22 No. 4, pp. 409-424.
- Rosenthal, S.S. and Strange, W.C. (2005), "The geography of entrepreneurship in the New York metropolitan area", working paper, Department of Economics, Syracuse University, Syracuse, NY, 7 April.
- Roth, K. and Kostova, T. (2003), "Organizational coping with institutional upheaval in transition economies", *Journal of World Business*, Vol. 38 No. 4, pp. 314-330.
- Saxenian, A. (1996), *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*, Harvard Business School Press, Boston, MA.
- Saxenian, A. (2000), *Regional Advantage*, Harvard University Press, Cambridge.
- SinaNews (2004), "The non-public economic development in Wenzhou: the position highlighted by six first", available at: www.sina.com.cn (accessed November 2010).
- Smith, H.L., Glasson, J. and Chadwick, A. (2005), "The geography of talent: entrepreneurship and local economic development in Oxfordshire", *Entrepreneurship & Regional Development*, Vol. 17, pp. 449-478.
- Sørensen, J.B. (2007), "Bureaucracy and entrepreneurship: workplace effects on entrepreneurial entry", *Administrative Science Quarterly*, Vol. 52 No. 3, pp. 387-412.

- Sorenson, O. and Audia, P.G. (2000), "The social structure of entrepreneurial activity: geographic concentration of footwear production in the United States, 1940-1989", *American Journal of Sociology*, Vol. 106, pp. 424-462.
- Spicer, A., McDermott, G.A. and Kogut, B. (2000), "Entrepreneurship and privatization in Central Europe: the tenuous balance between destruction and creation", *Academy of Management Review*, Vol. 25 No. 3, pp. 630-649.
- Sternberg, R. and Litzenger, T. (2004), "Regional clusters in Germany – their geography and their relevance for entrepreneurial activities", *European Planning Studies*, Vol. 12 No. 6, pp. 767-791.
- Stinchcombe, A.L. (2000), "Social structure and organizations", *Advances in Strategic Management*, Vol. 17, pp. 229-259.
- Storper, M. (1997), *The Regional World: Territorial Development in a Global Economy*, Guilford Press, New York, NY.
- Stuart, T.E. and Sorenson, O. (2003), "Liquidity events and the geographic distribution of entrepreneurial activity", *Administrative Science Quarterly*, Vol. 48, pp. 175-201.
- Swann, P. and Prevezer, M. (1996), "A comparison of the dynamics of industrial clustering in computing and biotechnology", *Research Policy*, Vol. 25, pp. 1139-1157.
- Timmons, J.A. (1999), *New Venture Creation*, Irwin McGraw-Hill, London.
- Visser, E.J. (1996), "Local sources of competitiveness: spatial clustering and organisational dynamics in small-scale clothing in Lima, Peru", PhD dissertation, University of Amsterdam.
- Visser, L. (2000), "The role of the institute in helping the distance learner to be successful and the role of the learner in helping the institute to be successful", EADL Documents.
- Walcott, S.M. (2002), "Analyzing an innovative environment: San Diego as a Bioscience Beachhead", *Economic Development Quarterly*, Vol. 16, pp. 99-114.
- Wenzhou Municipal Bureau of Statistics (2010), available at: www.wenzhou.gov.cn/index.html (accessed November 2010).
- Whittington, K.B., Owen-Smith, J. and Powell, W.W. (2009), "Networks, propinquity, and innovation in knowledge-intensive industries", *Administrative Science*, Vol. 54 No. 1, pp. 90-122.
- Wolfe, D.A. and Gertler, M.S. (2004), "Clusters from the inside and out: local dynamics and global linkages", *Urban Studies*, Vol. 41 No. 5, pp. 1071-1093.
- Wong, S.Y., Wong, C.L.-Y., Kwan, R.Y.-K. and Gansham, V.C. (1994), "A conceptual model for depicting the relationship between entrepreneurship and the environmental factors in Singapore", *Journal of Enterprising Culture*, Vol. 1 No. 4, pp. 449-472.
- Yang, J. (2005), "Industrial cluster development mechanism based on the entrepreneurial perspective", PhD dissertation, Nanjing University of Technology.
- Yin, R.K. (2003), *Case Study Research, Design and Methods*, Sage, London.
- Zhejiang Daily (1996), "Revelation of Yangtze phenomenon", August.

Further reading

- Anderson, A.R. and Jack, S.L. (2002), "The articulation of entrepreneurial social capital: content and process", *Entrepreneurship & Regional Development*, Vol. 14 No. 3, pp. 193-210.
- Feldman, M. and Audretsch, D. (1999), "Innovation in cities: science-based diversity, specialisation, and localised competition", *European Economic Review*, Vol. 40, p. 429.

Feldman, M.P. and Ronzio, C.R. (2001), "Closing the innovative loop: moving from the laboratory to the shop floor in biotechnology manufacturing", *Entrepreneurship & Regional Development*, Vol. 13 No. 1, pp. 1-16.

Feldman, M.P., Francis, J. and Bercovitz, J. (2005), "Creating a cluster while building a firm: entrepreneurs and the formation of industrial clusters", *Regional Studies*, Vol. 39 No. 1, pp. 129-141.

Pengfei, N. (2005), *China City Competitiveness Report*, available at: www.doc88.com/p389943769559.html (accessed 10 October 2011).

Udell, G. (1990), "Academe and the goose that lays its golden eggs", *Business Horizon*, Vol. 33 No. 2, pp. 29-37.

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