To be in Ronald Coase (ed.), *China's Economic Transformation*

The Evolution of Chinese Entrepreneurial Firms: Township-Village Enterprises Revisited[*]

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March 2009

Abstract

Township-village enterprises (TVEs) were a major engine of China's rapid rural industrialization in the past three decades. TVEs also played a key role in fostering entrepreneurship and served as a major stepping-stone for institutional changes when legal protections of private property rights were not in place and the state-owned enterprises (SOEs) were slow to react to changing market demand. As private ownership was gradually recognized legally, TVEs lost their edge in competing with private firms. In the past two decades, industrial clusters with a concentration of private entrepreneurial firms coordinated by local governments have emerged rapidly in many areas. The structures of such firms as TVEs and the subsequent clustering modes of production are an outcome of interaction with other local and macro environments. As the environment changes, a firm's organization and organizational structure may change as well.

Keywords: China; cluster; firm theory; industrialization; growth

[*] We thank Professor Ronald Coase for his insightful discussions on an early version of the paper. Comments from participants at the Chicago Conference on China's Economic Transformation held on July 14-18, 2008 at Chicago are gratefully acknowledged. In particularly we thank Belton Fleisher, Harold Demsetz and Ning Wang for their constructive comments and Jin Yang and Lisa Moorman for their research assistance.

1. Introduction

Township-village enterprises (TVEs), rural "collectively owned" entrepreneurial firms, had a great impact on the rise of China in the past three decades. A large body of literature has shown that TVEs were a major engine of China's rapid rural industrialization. TVEs also played a key role in fostering entrepreneurship and served as a major stepping-stone for institutional changes when legal protections of private property rights were not in place and the state-owned enterprises (SOEs) were slow to react to changing market demand (Weitzman and Xu 1994; Che and Qian 1998; Mukherjee and Zhang 2007).

A basic feature of TVEs is the deep involvement of local governments, particularly township governments.[1] At the same time, the institution of the TVE is heterogeneous. The course of TVE development did not follow a one-size-fits-all blueprint. Instead, various models of the TVE emerged and evolved in adaptation to local comparative advantage and constraints. Well-known models include the southern Jiangsu (Sunan) model, the Wenzhou model in Zhejiang province, and the Guangdong model. Despite differences in details, TVEs share the following key characteristics: all were led by entrepreneurs; all had vaguely defined ownership at the incipient stage, reflecting certain institutional constraints (Weitzman and Xu 1994; Li 1996); and all had an intimate relationship with local governments (Qian and Xu 1993; Chang and Wang 1994; Che and Qian 1998).

As private ownership was gradually recognized legally, TVEs lost their edge in competing with private firms. After reaching its peak in the mid-1990s, the sector phased out quickly. Concurrent with the decline of TVEs was the rise of private entrepreneurship firms. In addition to the TVEs' legacies of breeding entrepreneurship and spreading technology know-how, there is a common key factor that was responsible for the spectacular development of the TVEs and, later, of private firms—the local governments. In fact, many of the entrepreneurship firms' origins can be traced to TVEs as many early private firms were spun off from TVEs.

In the past two decades, industrial clusters with a concentration of private entrepreneurial firms coordinated by local governments have emerged rapidly in vast rural areas in coastal provinces. In the clusters, production processes, which are usually integrated within a single firm in developed countries, are segmented into many small "firms," each of them narrowly specialized in one process. Designers, suppliers, manufacturers, and merchants have organized themselves into a dynamic and entrepreneurial network.

[1] A township is the lowest administrative level of government. A township government was called a commune government before 1984. A typical township has a population between 30,000 and 150,000.

Instead of vertical integration, firms in industrial clusters experience a vertical division of labor. This feature of increasing the division of labor fundamentally alters ownership, operation, coordination, finance, and production. For example, with the division of labor, capital barriers to entry have been lowered, enabling more farmers with entrepreneurial talents to participate in the production process. Although a deepening division of labor might incur a higher coordination cost among different parties involved in the transactions, the benefits of industrial clusters might make this entrepreneurial network more efficient than alternative arrangements.

Unlike the TVEs, the small "firms" are privately owned. Similar to the TVE arrangement, local governments, particularly the township governments, have played a central role in facilitating development. A very interesting point here is that many of the functions of local government were transformed after the fall of the TVEs from direct control and management of TVEs to coordination and provision of public goods essential for clustered private firms. We will discuss the trade-offs posed by these institutional arrangements.

The following section discusses the origin and rise of TVEs. Section 3 presents the fall of TVEs and the rise of private firms. Section 4 concludes.

2. The Origin and Rise of TVEs

2.1 Origin of TVEs

Soon after the establishment of the People's Republic of China, the Chinese government transplanted the Soviet model of central planning at full scale in the first five-year plan (1952–1957). Not long after that transplantation of the Soviet model, because of conflicts between the Soviet model and the existing Chinese governance structure, there occurred several major political/economic campaigns that led at great cost to two vast waves of decentralization: the Great Leap Forward in the late 1950s and the Cultural Revolution in the late 1960s. The development of the rural industrial sector before the reforms that began in the late 1970s is partly a consequence of the decentralization waves, which empowered and enabled local governments (Xu 2008), and is partly rooted in entrepreneurial traditions, especially in the coastal areas, that can be traced back through several hundred years of history in the textile industry, the pottery industry, the tea processing industry, and so on.

In the first wave of regional decentralization, people's communes were established in all the rural areas in China. The people's communes played a dual role in the rural areas: they were both the lowest government apparatus and the highest level of the rural

collective system. The commune itself was organized hierarchically—the immediate subordinate units of the commune were brigades, and at the bottom level of the collective hierarchy were production teams. In addition to Mao's policy of encouraging rural industries, the budgets of communes and brigades mainly came from the commune and brigade enterprises (CBEs). All of this gave the communes and brigades strong incentives to set up CBEs.

As part of the People's Commune Campaign and the Great Leap Forward Campaign, in the late 1950s the central government launched a campaign to "run industry by the masses." During these campaigns, CBEs grew rapidly. In 1958, the total employment of CBEs was 18 million and the gross value of CBE products was 6 billion yuan (Table 1). However, during the mass movements, without markets and without rigorous bureaucratic rules, many CBE products were useless except as accounting figures. Following the failure of the Great Leap Forward Campaign, and facing extremely severe shortages of raw materials, the central government decided to shut down most CBEs. From 1960 to 1963, the number of CBEs dropped from 117,000 to 11,000 and the gross output value of CBE products fell from 1.98 billion yuan to 0.42 billion yuan. CBE growth began anew with the recovery of the economy. In the late 1960s, the CBEs had recovered to their late 1950s level (Xu 1995).

The second wave of Chinese regional decentralization occurred in the Cultural Revolution (1966–1976). During that period, a huge amount of resources were decentralized and tens of thousands of small SOEs and collective-owned enterprises (COEs) were set up (Xu 2008). The growth of small local SOEs and urban COEs accumulated human capital and made it easier for the rural sector to boost industrial output both in the form of technology and in terms of producer goods. CBEs have grown quickly since the 1970s, particularly since the mid-1970s. In 1976, at the end of the Cultural Revolution, the CBEs numbered 1.1 million and the gross output of CBEs was 27.2 billion yuan.

2.2 Rise of TVEs and Major TVE Models

The Chinese economic reform started with agriculture in the late 1970s. The essence of the reform was decollectivization of landownership. The most important part of the reform was officially called the household responsibility system (HRS). During the first period of HRS implementation between 1978 and 1984, output in the Chinese agricultural sector increased by more than 61%, and 78% of the increase in productivity in Chinese agriculture in that period was due to changes in HRS reform (McMillan et al. 1989). Lin (1992) reported that the dominant source of growth in agriculture output during 1978–1984 was the change from the production-team system to HRS, which was directly responsible for 49% of the output growth. Moreover, 46% of the output growth

came from increases in inputs. As a result of the agriculture reform's success, the commune system was officially abandoned in 1984. Consequently, all the commune governments were converted into township governments and all the CBEs were officially renamed township-village enterprises, or TVEs. The major function of a township government was transformed from agriculture into managing or setting up TVEs.

Officially, TVEs are collectively owned enterprises located in townships (or villages). All the people in the township or village that "sets up" the TVE own the firm collectively. A township government is regarded as the "representative" of the people in the community, and thus it is the de facto executive owner of the TVEs in the community. Typically the control rights of TVEs are partly delegated to managers through a contract (officially called the management responsibility contract). It was common for employees of a TVE to collectively sign a contract with the executive "owner"—the township government (Weitzman and Xu 1994).

By conventional wisdom, firms with vaguely defined property rights should perform poorly; however, TVE performance was spectacular. Between 1981 and 1990, the total industrial output of TVEs grew at an average annual rate of 28.1%, which doubled that of the national average and more than tripled that of the state sector. With the rapid growth of TVEs, the status of the TVE sector changed from a subsidiary subsector of agriculture to the second largest sector in the national economy. In the nonstate sector, about 80% of the output was produced by TVE and similar cooperatives. The TVE sector outcompeted the state sector in both growth rate and productivity. As a result of the TVE sector's fast growth, the nonstate sector's share of industrial output increased from 22% in 1978 to 47% in 1991, while the state sector's share declined from 78% to 53% in the same period (Qian and Xu 1993). Furthermore, the growth rate of total factor productivity of TVEs was about 10 times that of state enterprises (Weitzman and Xu 1994). TVE development peaked in the mid-1990s, as shown in Table 2. Employment in the TVE sector reached 61 million in 1995. TVEs' share of gross domestic product (GDP) increased from 14.3% in 1980 to 37.5% in 1995 (Table 3). It is no exaggeration that the TVE was the major engine of China's growth and industrialization in the early stages of China's reforms. The productivity of the TVE sector and TVEs' contribution to the national economy in the first stage of the Chinese economic reform is comparable to that of the small and medium-sized enterprises in Japan and South Korea in the postwar era (Xu 1995).

Because of China's vast size, local circumstances varied across its regions, as did the TVE model, which was an organizational response to both the macroeconomic environment and local conditions. The rise of TVEs is illustrated in the rich and colorful regional models of such enterprises. Notably, regions with strong TVE development often have a historical tradition of entrepreneurship and a strong social norm benefiting business activities. For example, the Wenzhou tradition of commerce originated centuries

ago; documentation can be traced back to at least the Song Dynasty (the 11th century). Many of Marco Polo's narratives of wealthy China (the 12th century) were depictions of southern Jiangsu. Entrepreneurs in southern Jiangsu and the Pearl River Delta (Guangdong) region built the earliest private modern industrial centers in China in the 19th century.[2]

Another determining factor of TVE development is the role local government plays in providing protections, allocating resources, coordinating activities, and so on. As the de facto executive owners of the TVEs, local governments had a strong incentive to promote TVE development in their communities. But their method of involvement is not necessarily the same across regions, as the following three models demonstrate.

The "Sunan" model refers to the governance mode of TVEs located in southern Jiangsu province, including the cities of Suzhou, Wuxi, and Changzhou, with a population of 14 million. The most distinctive feature of the Sunan model is the leading role of community government. With the geographic advantage of proximity to Shanghai, which housed a significant number of SOEs, many TVEs were initially established in southern Jiangsu to work on subcontract orders from SOEs in Shanghai. They hired managers and engineers from the Shanghai SOEs, and their entrepreneurial officials moved aggressively in hiring skilled workers and copying technologies from the SOEs. They also adopted more flexible management and incentive structures than the SOEs had. By the 1980s, in southern Jiangsu, community governments developed the largest TVEs (without foreign direct investment, or FDI) in the nation.

In general, TVEs in this region were characteristically large-scale collective processing industries. In the Sunan model, local/community government officials were the leading entrepreneurs. They set up the TVEs, took business risks, were in charge of the TVEs' daily operations, helped obtain credit from state banks, secured land to build factories, won access to raw materials and built marketing channels, sometimes through their connections with SOEs.

As a result of the rapid development of TVEs, more than half of family income in southern Jiangsu came from TVEs and on average at least one member of the local families worked in a TVE. The Sunan model witnessed the golden age of TVE development up to the mid-1990s. As tables 2 and 3 show, from 1980 to 1995 TVE employment in Jiangsu province (most TVEs in the province were located in southern

[2] Interestingly, initial wealth, natural resources, and proximity to industrial centers are not prerequisites for TVE development. For instance, Taizhou and Wenzhou were both poor and remote mountainous regions in Zhejiang province but now are among the richest regions in China due to the development of entrepreneurial firms.

Jiangsu) increased by three-quarters and TVEs' share of GDP enlarged from less than one-third to 60%. In fact, the Sunan model is much more general than it is restricted to southern Jiangsu. Indeed, it is often applied in a more general way to all the TVE developments in which community government plays an essential role in firm decisions, such as those in northern Zhejiang province and those in coastal Shandong province.

The "Guangdong" model refers to the features of TVE development in the Pearl River Delta area. Similar to that in southern Jiangsu, there was also a prereform TVE development in this area with deep direct involvement of community governments. After Shenzhen, Shantou, Zhuhai, and other cities were developed as special economic zones in the early 1980s, TVEs in this area successfully attracted massive investments from overseas diasporas, in particular from Hong Kong and Taiwan, as shown in Table 2, benefiting from their geographical proximity. Thus, the Guangdong model is characterized by a dominant community government presence together with heavy FDI involvement, which also brought in technology, management know-how, and marketing channels in the international market.

The development of TVEs was so overwhelmingly important in local economies in the southern Guangdong area that many local governments transformed themselves into de facto headquarters of TVE conglomerates. The so-called "local corporatism" embodies this feature (Oi 1999). Indeed, local corporatism is a general phenomenon applicable to all TVE developments where community government played dominant roles, as in the Sunan and Guangdong models.

Unlike the Sunan and Guangdong models, the Wenzhou model does not have any geographic advantage in access to SOEs and FDI. The city of Wenzhou, with a population of 7.8 million, is located in the mountainous region in southern Zhejiang province. It was remote from big cities and from any major production or trading centers, had poor transportation systems, and used to be one of the poorest regions in China with limited arable land. With a much less developed state and collective sector and a more isolated environment, and under the prereform political/legal condition that private business was not fully legal, Wenzhou was forced to make more institutional innovations in promoting private ownership and cluster-based production organizations than other regions.

In contrast with the Sunan and Guangdong models, in which local government officials are the key entrepreneurs who take risks and initiatives, the Wenzhou model is a reaction of local government to spontaneous private business development. In Wenzhou, most businesses are driven by private entrepreneurs. The critical role of local government is to provide a favorable business environment, particularly protection. Just as with the other two TVE models, development of the Wenzhou model mirrored TVE development in

many other areas. Indeed, TVE development in Wenzhou's southern neighboring area of Taizhou in Zhejiang province is just as impressive as that in Wenzhou. With a total population of more than 13 million (30% larger than Hungary), Wenzhou and Taizhou together have developed the most dynamic private sector in China and have experienced one of the fastest prolonged growth rates among all Chinese regions.

Although development of private business is the central feature of the Wenzhou model, the constitution of China did not protect private property rights until 2004. Thus, private entrepreneurs in Wenzhou faced questions about how to circumvent ownership risk. This was not only a problem the entrepreneurs needed resolved but was also a great challenge facing the local governments. To avoid direct conflicts with the legal system and with political resistance, many private enterprises resorted to cover-up practices such as attaching themselves to state agents. Local governments in the Wenzhou area, from municipal governments to township governments, not only gave a green light to these practices but also sometimes facilitated them. Some private firms became affiliated with SOEs by paying to use their name, stationery, receipts, account numbers, and so forth. Some other private firms chose to register as collectives with neighborhood or village committees (Tsai 2002; Huang, Zhang, and Zhu 2008). In essence, these "TVEs" were disguised private firms. With the "red hat," the enterprises not only managed to legalize their private enterprises but also gained access to formal financing. Ironically, it was under this kind of "unconstitutional," "red hat" protection from local governments that private business in Wenzhou boomed. Therefore, the Wenzhou model is substantially different from the other two models.

The rapid growth of disguised private firms in Wenzhou caught the attention of the central government. In 1985, top national leaders visited Wenzhou and nodded to the practice of private firms' wearing a "red hat." In 1987, the State Council officially approved Wenzhou as one of the national rural pilot reforms with a focus on TVE institutional building (Zhu 2007). The so-called pilot reform was centered on developing regulatory remedies to allow private business to develop in the absence of constitutional protection of private property rights. In August 1987, an experimental regulation titled Interim Administrative Provisions for Registered Operations was officially issued in Wenzhou. Here, "registered operations" refers to a remedy operation that gives private businesses legal identity and legal status. This regulation protected and encouraged private business when constitutional protection was absent. Under the regulation, private businesses were allowed and encouraged to be affiliated with collectively owned or state-owned enterprises by name, which made private businesses legal and simultaneously independent. Moreover, the regulation helped private businesses by opening up multiple channels, including helping them obtain bank loans, procure raw materials and other inputs, and sell their products, as well as other advantages.

The Wenzhou government initiated another major reform policy, which was aimed at protecting private business by forming so-called “joint-stock cooperative enterprises.” The highlighted word here is “cooperative,” which made the company a legitimate “socialist enterprise” under the legal framework at that time. Indeed, most of the shareholders of these companies were employees of the same firm at the same time. They were peasants who had just left the land to engage in nonagriculture activities and were directly engaged in the firm’s activities. The protection this policy provided was critically important for private businesses to survive and to grow through joint stock and other means of fund-raising.

In summary, TVEs were dynamic production organizations that adapted to the weak legal environment and local comparative advantages early in China’s transition from a planned to a market economy. There are some regional variants in TVE development because of differences among local environments. The TVEs’ governance structures and evolutionary paths depended on many factors, such as inherited institutional arrangements, resource endowments, a location’s comparative advantage, entrepreneurial tradition, and others.

2.3 Explanation of the Rise of TVEs

The rapid growth of TVEs despite their vaguely defined property rights seems to defy the mainstream thinking of development economics (Weitzman and Xu 1994). From a viewpoint based on “standard wisdom,” the governance of these firms appears deficient and should be less productive than private firms with well-defined property rights. However, at the beginning of the period of reform, private ownership was still an ideological taboo, and therefore private firms were not a choice. Under that institutional constraint, TVEs were a more viable production organization choice than SOEs to meet changing market demand.

A critical factor determining the growth of TVEs was Chinese regional decentralization. Indeed, as discussed already, from the very beginning TVE development itself was a direct outcome of regional decentralization. Fierce regional competition since the economic reforms gave subnational government officials, particularly county and township officials, a strong incentive to initiate or support the development of TVEs. It also created strong reasons for local governments to protect the properties of TVEs. Moreover, relatively self-contained subnational economies provided opportunities for TVEs to grow. Many subnational government officials, particularly community government officials, converted themselves into entrepreneurs. In many regions, local governments played profound roles as entrepreneurs in setting up TVEs, taking risks, making investments, and searching for business directions (e.g., Qian and Xu 1993; Chang and Wang 1994; Li 1996; Che and Qian 1998; Chen and Rozelle 1999). Overall,

although the de jure property rights of TVEs were not well defined at the national level, local governments provided de facto protections of property rights as a functional substitute for weak formal property rights. As a result, TVEs benefited from the implicit instrumental protections local governments offered (Zhang 2007).

It is worth mentioning that similar mechanisms are at work today, after the decline of the TVEs, in assisting entrepreneurial firms regardless of ownership. That is, besides the importance of the development of the TVE sector itself, the mechanism that facilitated the TVE sector development provides institutional conditions for the rapid development of the private sector that replaced the TVEs.

The booming TVE sector also benefited from the favorable macroeconomic situation at the time. After the success of rural reforms, farmers' income experienced an unprecedented increase, as did the demand for many daily consumer products. The TVEs could produce a broad range of products. However, because SOEs were accustomed to privileged access to a variety of scarce materials and capital goods through quotas, they were irresponsive to changing market conditions. Without any favorable access to inputs, TVEs had to compete in the marketplace for survival. The dual pricing reform, which immediately followed the successful rural reform, allowed SOEs to sell unused input quotas at market price to the TVEs, which were outside the command economy. Such exchanges not only protected the original privileges of SOEs but also presented TVEs with a window of opportunity to access industrial inputs via market channels and expand their market share.

Although decentralization was a nationwide policy, TVEs were developed better in some regions than others. Therefore, regional decentralization alone is not sufficient to explain the success of TVEs. As a matter of fact, most TVE employees and managers and a substantial number of township-village officials lived in the same community for generations, given that there was almost no migration before the early 1990s. Under certain conditions, close long-term interactions among community members (virtually infinitely repeated overlapping generational relationships) might foster a social norm within the community that may facilitate informal institutions such as TVEs. In contrast, SOEs are not organized based on natural communities, such as villages; many of the informal mechanisms prevailing in TVEs would not function in SOEs. Therefore, region-specific local social norms, such as trust, may be an important factor behind the informal institutions of TVEs, such as implicit contractual relationships between community governments and TVEs and between TVE employees and between TVEs themselves (Weitzman and Xu 1994). This explanation shares the same spirit of the evolutionary repeated game theory of social norms (Axelrod 1984; Fudenberg and Maskin 2008). Empirically it sheds light on substantial regional differences in TVE development that reflect the history of diversified Chinese regional economic development. Once again, the

mechanism of social norms is not unique to TVE development. Indeed, regions with better “trust” and other pro-business social norms enjoyed better development in private business as well, as is discussed later in this paper.

To summarize, TVEs emerged as adaptations to weak legal protections of property rights, expanding market opportunities, and a rich historical and cultural heritage. Their very successful development is not only the process of building up entrepreneurial firms but also the process of creating the conditions under which the private sector would thrive. Contrasting the Chinese TVE model with the painful lessons from most of the privatization programs implemented in countries in central and eastern Europe and the former Soviet Union suggests that privatization requires certain economic, legal, and political conditions. Private ownership cannot survive without legal protections. Private firms cannot be efficient if there is no product market, labor market, or capital market. Therefore, not only is TVE development not an unnecessary detour from a straightforward privatization program but it has helped to create political and economic conditions for private business. This argument is empirically supported by the fact that regions that now boast strong private business development often had strong TVE development in the past.

3. The Decline of TVEs and the Rise of Private Entrepreneur Firms

The decline of the TVE sector is a happy ending. That is, it comes as a result of privatization and further development, rather than of shrinkage of the firms in the TVE sector. To some extent, the decline of the TVEs is a mirror image of the rise of the private firms. A common feature of different regional TVE models is that they were all embedded with a transitional feature when there were no proper political and economic conditions for private business. With the rapid development of both TVEs and private firms since the late 1980s, resistance against and fears over private ownership have gradually vanished. As political attitudes toward private ownership changed, various regulations and laws in favor of better protection of private property were introduced. By 2004, private property ownership was formally recognized by the Chinese constitution. With such an improved institutional environment, TVEs lost ground in the marketplace through competition with private firms despite their previous ability to adapt to weakly protected property rights. Since the late 1990s, a large number of TVEs have been transformed into private firms (Xu 2008).

The sharp decline of employment levels in the TVEs in all the three leading areas and in the nation in the late 1990s (Table 2) and the dramatic decrease of output growth rates of TVEs in the same period (Table 3) reflect the magnitude of privatization of TVEs. The change in Jiangsu province in the late 1990s is particularly impressive in that TVE employment declined by more than half and TVE output declined by about one-quarter. At the same time, private sector employment in Jiangsu province more than doubled and output increased by more than seven times, the fastest expansion in the nation. Interestingly, the Sunan model eventually followed the Wenzhou model in reforming firm governance structures.

In hindsight, it seems natural that all three TVE models should converge to the model dominated by private or shareholding firms; however, at the beginning of the reform, the path of TVE growth was not clear at all. The presence of multiple models created a regional competition for local governments to identify and test the best firm structures for China's unique economic and political situation. In the end, the Wenzhou model prevailed. The massive privatization of TVEs in the late 1990s largely followed the path of the Wenzhou model. To a large extent, the path of TVE development was a discovery process without a predetermined trend.

3.1 The Rise of Entrepreneur Firms in Zhejiang Province

In this section, we focus on entrepreneur firms in Zhejiang province for two reasons. First, the Wenzhou model discussed earlier originated in Zhejiang province, and that model's success illustrates an important facet of the subsequent nationwide TVE privatization.

Second, as a direct outcome of the outstanding development of TVEs, Zhejiang has the largest indigenous private sector of all China's provinces, accounting for more than 60% of the province's output in 2000 (Table 3). Indeed, concerning TVE development in Zhejiang province, when reform had just started, employment in the province's TVE sector was already 13% more than that of the state sector (Table 2). This is the highest in China. Moreover, two of the three major TVE models prevailed in Zhejiang. The Wenzhou model originated in southern Zhejiang, whereas the Sunan model applies to TVE development in northern Zhejiang.

Thanks to the fast growth of TVEs and closely associated private business since the early 1980s, Zhejiang province has become one of the richest provinces in China. With strong local government support, many Zhejiang private businesses expanded rapidly through enlarging scale and integration, and became large corporations or even multinationals, such as China Feiyue Group, which has branches in more than 40 countries and accounts for 50% of the world market share for sewing machines, and Geely Automobile, the first independent Chinese carmaker, which is listed on the Hong Kong Stock Exchange.

At the same time, with local government–provided political and economic infrastructure, small entrepreneurial firms have grown extremely rapidly not only in numbers but also in efficiency. An important efficiency-enhancing trend is that small entrepreneurial firms have become increasingly specialized and clustered. These specialized small firms are linked together by networks of subcontracts where each final product is produced by a collection of many specialized firms. With concentrations of a vast number of small specialized firms, many townships in Zhejiang have become national or international centers of certain products. For example, Datang township makes one-third of the world's socks; 40% of the world's neckties are made in Shengzhou township; more than 70% of the buttons for clothes made in China come from Qiaotou township; Songxia township produces 350 million umbrellas every year (Hessler 2007); and Puyuan township outputs more than 500 million cashmere sweaters per year.[3]

Next we present two in-depth case studies of private entrepreneur firms in Zhejiang province to illustrate the rise of such firms and their intimate connections with TVEs in the past and with local government today.

3.1.1 A Case Study of Puyuan Entrepreneurial Firms[4]

[3] In addition to the salient development of cluster formation in Zhejiang, national statistics indicate a general trend of clustering of small firms. In the period 1995–2004, the industrial location-concentration rate increased by 16%; the number of firms in the top three locations with the highest concentration relative to other areas rose by 41% from 3.28 to 4.64 (Long and Zhang 2008).

[4] This section draws heavily from Ruan and Zhang (2009).

Here we use the Puyuan cashmere production in Zhejiang province to illustrate the operation of entrepreneurial firms and the role of township governments. Puyuan township of Tongxiang county, Zhejiang province, is the largest production/trading center for cashmere sweaters in China with market transaction turnovers topping 10 billion yuan and a business volume amounting to nearly 500 million cashmere sweaters, which accounts for 60% of the national total. As of 2004, more than 3,900 workshops and more than 50,000 people were engaged in the production of cashmere sweaters, and there were more than 6,000 sweater-trading shops, in this township (Ruan and Zhang 2009). One can trace the entrepreneurial tradition in Puyuan back to the 12th century (Song Dynasty) when Pu silk (*Pu-chou*) was invented there and renowned nationwide. Textile industrial clustering is part of a tradition that has been prevalent in this area since the 15th century (Chen 1996). The operation of such textile clusters shares many features with today's Puyuan clusters.

The manufacturing of cashmere in Puyuan started in 1976 when a TVE (called a CBE at that time), the Puyuan Tanhua [Weaving] Production Cooperative, began producing cashmere sweaters. The gross output value of the cooperative soared from 28,000 yuan to 300,000 yuan in just one year, prompting the group to devote all of its production capacity to cashmere sweaters by the end of 1977. This firm's huge success prompted farmers in nearby villages and workers from the township- and village-owned enterprises to set up their own cashmere sweater production workshops.

Meanwhile, market demand for clothes surged exponentially after the success of rural reform in the mid-1980s, and this ever-increasing demand greatly stimulated production. Facing severe credit constraints, most entrepreneurs initially worked at home using a few secondhand weaving machines and sold the sweaters along a main road linking Shanghai and Hangzhou. These small businesses faced the major problem of the lack of a trading place. In April 1988, the township government and the local administration for industry and commerce constructed a cashmere sweater marketplace by investing more than a half million yuan. The marketplace provided space and facilities for shops, storage, and workshops for cashmere merchants and producers. Both local merchants and those from other regions in the province quickly moved into it. The concentration of businesses in the marketplace greatly enhanced productivity by deepening the division of labor. In 1990, the township produced more than 2.8 million sweaters, and approximately 90% of the households in Puyuan township and its peripheral villages were engaged in the production of cashmere sweaters.

By 1992, the old marketplace had exceeded its capacity. Between 1992 and 1994, the local government raised another nearly 100 million yuan and built 11 more marketplaces for intermediate inputs and cashmere sweaters. Once again, the new marketplaces were

very popular and quickly filled with merchants from all around China. The establishment of standard markets for intermediate and final goods enabled small family workshops to easily access raw materials, intermediate inputs, and national markets. Easy market access also lowered transportation and marketing costs, which eased the severity of the credit constraint problem. As a result, the majority of entrepreneurs chose to specialize in only one stage of production—further deepening the division of labor. Cashmere sweater production recorded an explosive growth in this period. As of 1994, Puyuan's sweater production capacity reached as many as 10 million pieces with market sales exceeding 2 billion yuan, making it the largest cashmere sweater production center in China.

By the late 1990s, the large expansion of low-end cashmere sweaters had largely driven prices down. The profit margin for enterprises producing high-quality, brand-name sweaters was much greater, but Puyuan had very few well-known local brands at that time. Thus in 2000, the local government set up an industrial park of 2,245 mu (1 mu = 0.067 hectare) in an attempt to attract well-known cashmere sweater enterprises with famous brands from elsewhere in China. The industrial park also offers favorable policies, such as land, tax, and credit, to brand-name producers. In addition, the local government devised policies to encourage local enterprises with excellent growth potential to settle in the park, expand their production, and establish their brands. Most enterprises in the industrial park are large integrated factories with their own brands.

The township government also took responsibility for maintaining quality by enacting two decrees on the quality of cashmere products. The county quality control bureau set up branch offices in the main marketplaces so as to better enforce quality regulations. Moreover, the provincial-level public notarization agents and inspection companies were invited to set up a quality inspection center in the town to provide quality certification. Furthermore, the government established a human resource development center to train employees of cashmere production firms. Given the high turnover rates for employees in clusters and the fact that most firms are very small, this public training program is essential for maintaining the quality and efficiency of the cluster.

Started from small family businesses, two models evolved in Puyuan: partially integrated firms and completely nonintegrated clusters of small firms (the "putting-out system") (see Figure 1). About one-ninth of all employees in the Puyuan cashmere industry worked in partially integrated firm as of 2007. Most of the partially integrated firms have their own brands or engage in OEM (original equipment manufacturer) production for other manufacturers. Most of them are located in the industrial park and own factory buildings. As shown in the lower part of Figure 1, they purchase yarn from the yarn dealers in the marketplace or from yarn factories directly and complete the weaving process in-house. In a typical case dyeing is not integrated into the firm. They outsource semifinished goods to specialized dyeing factories and finishing factories. After this process, the

products are then ironed, sorted, and packaged inside the factory before being ultimately shipped out to the national market through the logistics center. An integrated firm has an average of more than 2.6 million yuan of fixed assets, about 132 times a typical worker's annual salary. In 2005, there were 121 such integrated firms and more than 20% of their starting capital came from banks. Based on these statistics, it appears that most entrepreneurs with limited capital cannot get involved in the integrated mode of sweater production.

Most small firms or family workshops instead opt to operate in an alternative way within the cluster system, as the upper part of Figure 1 shows. Sweater merchants are leading entrepreneurs in coordinating production processes. These merchants either rent or own shops in the township's designated sweater marketplaces. They often imitate the designs of big companies or emulate designs from fashion magazines, and they make sample sweaters. The sample sweaters displayed in their shops usually bear their own trademarks. As the largest cashmere sweater market in China, many merchants visit the shops in the trading areas of Puyuan.

When receiving orders or after production decisions are made based on expectations of marketing, leading entrepreneurs purchase the raw materials and deliver them to the subcontracting weaving workshops down the production chain. Then, the semifinished goods are sent from weaving workshops to the subcontracting dyeing factories, which in turn pass the goods on to the finishing factories. Printing and ironing workshops receive these goods after the finishing stage. In the end, the products are packaged in the sweater merchants' shops. The main reason the merchants package in their own shops, instead of leaving it to the subcontracting shops, is to inspect quality. If they spot any quality problems, they trace them back to the sources of production and resolve the issue with the responsible party. In this business model, raw materials and intermediate products are frequently transported from one processing point to another by a number of three-wheeler drivers. The most important players in the industrial cluster are the leading entrepreneurs, who coordinate yarn dealers, family weaving workshops, dyeing factories, finishing factories, printing workshops, ironing workshops, and three-wheeler drivers to engage all the production processes. After passing through this large-scale "assembly line," the final products are transported to other markets through the Puyuan logistics center.

Although small firms have many advantages, the lack of a scale economy is a major shortcoming. By forming clusters of small firms and providing centralized infrastructures, the local government handled this problem. Take the ironing process, which requires a large amount of fixed-cost investments, as an example. The local government has located all the ironing workshops in a designated zone of the industrial park, where natural gas is centrally supplied. With greatly reduced fixed costs, setting up small ironing workshops becomes viable. This in turn further deepens the division of labor, which results in a

further reduction in capital requirements.

The capital requirement for specialized small firms engaged in the cluster mode of production is substantially lower than that of integrated firms. For example, the capital cost over labor cost ratios are between 0.25 and 6, whereas the average ratio for integrated firms is substantially higher than 100. This considerably lowered entry barriers, as the upper panel of Figure 1 illustrates. As a result, the small firms engaged in putting-out production account for 72% of total employment (more than 72,000) in the sweater cluster.

3.1.2 A Case Study of the Wenzhou Footwear Cluster[5]

In terms of output quantity, Wenzhou is home to the largest footwear cluster in the world. In 2004, the cluster produced 835 million pairs of shoes. Since the 1970s, Wenzhou has developed a highly specialized and coordinated industrial cluster consisting of thousands of firms involved in various stages of shoemaking (see Figure 2). Over the last few decades, its market share has grown from small into the largest in China.

Wenzhou has a long tradition of shoe-making. At the onset of the reform, almost all shoes in Wenzhou, about a half million pairs annually, were produced by two state-owned factories and eight collectively owned factories (TVEs are collectively owned firms). These firms served as "seed factories," training a large number of technical workers, marketing specialists, and managers, laying the groundwork for the emergence of the Wenzhou shoemaking industry in the subsequent reform era.

Indeed, many private enterprises in the Wenzhou footwear industrial cluster can be traced back in history to one of the collectively owned enterprises. Figure 3 traces the origins of today's major footwear firms. The 19 firms on the left are the original footwear firms of the late 1970s.[6] The firms shown in the boxes in the middle and to the right are today's best-known private footwear firms; their relationships with the original firms are depicted.

As with the development of TVEs, one of the most important factors nurturing the extraordinary growth of the private ownership–based footwear cluster was local government support. However, this time the government support was indirect, via setting up numerous specialized markets. The following is a list of some better-known markets: the Wenzhou "Footwear Capital" Market, the Hetongqiao Footwear Accessories and Ornamental Materials Market, the South Zhejiang Footwear Accessories and Ornamental Materials Market, the Original Leather Market, and the Leather and Footwear Machine Market.

[5] This section draws heavily from Huang, Zhang, and Zhu (2008).

[6] Due to space limitation, the figure lists only 12 firm names.

The specialized markets greatly fostered the development of specialized clusters in the footwear industry. Associated with this development, in Wenzhou a large number of highly specialized small firms operate in this industry. Apart from more than 4,000 footwear factories and workshops, there were also 200 leather enterprises, 380 footwear sole enterprises, 200 footwear machine manufacturers, 168 footwear last factories, 100 footwear accessories and ornamental materials enterprises, 50 footwear design studios, and numerous specialized footwear-related information service agents, training schools, research institutes, family workshops, and so on in 2004.

Specialized clustering effectively decomposed the shoemaking process into many small steps, which lowers both technical and capital barriers to entry. Moreover, it mitigates problems that entrepreneurs face, such as high transaction costs in scattered markets and credit constraints. Thus, it enables a wide range of rural workers, who otherwise would be unable to participate under the traditional factory system, to become entrepreneurs. Concerning the technical barrier to entry, with a fine division of labor, the skill requirement for each individual working within the cluster was substantially lowered. Consequently, entrepreneurs without much skill in shoemaking could enter. According to a survey, more than half of footwear industry entrepreneurs did not have any experience in the industry at the time of starting their firms (Huang, Zhang, and Zhu 2008). With respect to the capital barrier to entry, by dividing the production process into specialized tasks and creating favorable conditions for using trading credits among workshops within a group, clustering greatly reduced fixed costs of production. The minimum investment in the Wenzhou footwear industrial cluster has been lower than a migrant worker's annual salary. Therefore, clustering provides entrepreneurs with a platform on which to test out their luck. Through competition, the best survived and grew their firms into bigger ones.

Another critical role that the local government has played in nurturing the Wenzhou footwear industry is quality control. Under severe price competition, some producers started to use lower-quality raw materials, even fake leathers, in shoe production. In the mid-1980s, Wenzhou shoes were ridiculed as "one-day shoes" for their poor quality. The quality crisis reached its climax in 1987 when a dozen Chinese cities boycotted or banned shoes made in Wenzhou. Facing the crisis, led by the Lucheng district government, the quality bureau and bureau of industrial and commercial administration of Wenzhou established a joint footwear quality control and management office in Lucheng, the core area of the footwear cluster. The office randomly sampled shoes from different producers. It issued quality certificates for those passing the quality check, and producers that failed the test were barred from selling their shoes to other places and posting any commercials. At the same time, the Lucheng District Footwear Industry Association in Wenzhou was established to work with the Wenzhou Quality Control Bureau for quality control. In addition, the government provided various preferential treatments, such as land and tax breaks, to those firms with brand names and reputations for high quality. It also rewarded each firm that won the title of "nationally known brand" with 1 million yuan. With these measures in place, the footwear industry jumped from a vicious cycle of racing to low quality to a virtuous cycle of racing to the top.

3.2 The Boundary of the Firm: The Township Government versus Individual

Entrepreneurs

The preceding examples represent typical industrial clusters that can be observed in many different industries located in numerous places in China, particularly in Zhejiang, Guangdong, Jiangsu, and Shandong. These representative cases pose an interesting challenge to the famous question Coase raised more than seven decades ago: "What is the boundary of the firm?" (Coase 1937). Indeed, if we put all of the employees and facilities of cashmere production in Puyuan together, we may think of Puyuan as a large production cluster of cashmere sweaters with more than 50,000 employees and occupying a 60% share in the Chinese cashmere sweater market. What is the boundary of the firm in the Puyuan production cluster?

The modern firm theory and property rights theory (Williamson 1975; Grossman and Hart 1986; Hart 1995) spell out the costs and benefits of integration. In this theory a firm is a set of assets under common ownership. If many different assets have the same owner, then we have an integrated firm. If they have different owners, then there are many firms, and transactions between them are market transactions. Control rights over assets give the owner power to decide how the assets should be used when unforeseen contingencies occur.

The nonoverlapping distribution of control rights and property rights poses challenges to this theory. Most of the workshops and trading shops in the Puyuan cluster are legally owned by families. Thus, instead of concentrated or integrated ownership, as in a typical corporation, the Puyuan cluster has distributed ownership with thousands of workshop owners and trading shop owners. The most important feature is that although owned separately these workshops are highly coordinated with each other. The typical transactions between upstream workshops and downstream workshops are not based on written contracts, and they are more similar to those within a large firm than those in markets.[7]

The most challenging issue is the control rights of the cluster. To sharpen our analysis, in the following we call the collection of cashmere production clusters within Puyuan a "conglomerate" (or a virtual conglomerate) and call each small firm a workshop of the conglomerate. Let us focus on control rights of strategic issues of the conglomerate. It is interesting to note that except for most of the land and some of the buildings in the industrial park, the township government has no ownership of the assets of almost all the workshops within the conglomerate. Moreover, the township government is not involved

[7] The literature documents some similar challenging phenomena, such as the subcontracting relationship between Japanese carmakers and part makers. For elaborated theoretical discussions on those, see Holmstrom and Milgrom (1998).

in the financing of these workshops. Although unlike that of the typical headquarters of a conglomerate in ownership and financing, the township government takes strategic responsibilities for the overall development of the conglomerate. It coordinates strategic matters within the conglomerate; it regulates quality of all the products within the conglomerate; it guards the security of the assets and production of the conglomerate; and its entrepreneurship determines the overall direction of the business of the conglomerate. All of those things make the township government similar to that of a typical conglomerate headquarters.

Nevertheless, the analogy between this virtual conglomerate and a typical large corporation stops here. The extraordinary development of this conglomerate is an outcome of thousands of individual entrepreneurs and officials of the township government with strong entrepreneurial spirit. The two types of entrepreneurs are complementary to each other in the rapid expansion and evolution of this conglomerate. It is obvious that without individual entrepreneurs the whole development would not exist. However, without the substantial roles of the township government, the production cluster would not evolve into the scale, efficiency, and quality of this virtual conglomerate either.

Although the township government exercises substantial control rights over the strategic issues of the conglomerate, without asset ownership in the workshops, the conglomerate is not fully integrated. As a result, thousands of individual entrepreneurs make decisions bearing personal risks, and they have to coordinate with each other in daily operations. Why not convert this virtual conglomerate into a true conglomerate by integration? What are the costs and benefits of nonintegration?

Perhaps the most obvious consequence of this conglomerate is that its ownership structure accommodates involvement of a large number of entrepreneurs, including official entrepreneurs and individual entrepreneurs, operating simultaneously. Compared with hired employees, entrepreneurs have stronger incentives to work hard, take risks, and take initiates to improve business. Thus, a conglomerate based on collective entrepreneurship may outcompete a fully integrated corporation in areas where constant entrepreneurial actions need to be taken. Two distinctive benefits are derived from the collective entrepreneurship: first, creativities, flexibilities, and adaptabilities come from the large number of entrepreneurs; second, built-in hard budget constraints do not exist in this structure for the individual firms in that the “headquarters” does not have any responsibility for risks taken by individual entrepreneurs.

However, what about the costs of such a large subcontracting network without full integration? The key features of the Puyuan conglomerate are that it is neither fully integrated, due to its distributed ownership structure, nor does it participate in entirely

market transactions, due to the substantial non-price coordination mechanisms within the conglomerate. As discussed above, all the workshops within the conglomerate are highly specialized. Although a high degree of division of labor increases productivity, without full integration, one may worry about transaction costs among the specialized workshops. Surprisingly, it turns out that the transaction costs of nonintegration are well contained in this conglomerate due to its scale, culture, and structure.

First, the township government set up infrastructures to allow all workshops to be concentrated in a few designated areas within a three-kilometer radius of the sweater marketplace. By keeping a large number of small workshops close to each other, the conglomerate reduces transportation costs and helps information transparency substantially. With the close distance and transparency of information, most workshops do not maintain physical stocks. Moreover, because local governments have provided many essential public goods and nearby markets have covered most intermediate inputs, a firm can maintain a small size by just focusing on one stage of production. A firm's structure and size depend on its local environment, in particular the degree of generic public goods provided either by local governments or other firms.

Second, this conglomerate is organized within a community, or as a community with intensively repeated business interactions. Within the community people know each other well and have a social norm of trust. Moreover, there are a large number of workshops that compete fiercely with each other within the community for each specialized task. Thus, the opportunity cost for anyone to break an agreement is high even when the agreement is unwritten. If a workshop cannot ensure its promised delivery schedule and product quality, it will lose both current and potential clients because word spreads quickly in the community. As a result, at equilibrium, almost all transactions between the upstream and downstream workshops are based on oral agreements, and when business disputes arise the court system has very rarely been used (based on field survey results).

Third, based on the close and repeated relationship among workshops within the community, workshops issue trade credits to each other. Particularly, it is most common for the upstream workshops, which are usually larger and have better access to bank loans, to issue trade credits to downstream workshops. Widespread use of trade credits has greatly reduced the financing costs of a majority of workshops. This reduces the capital requirement, thus lowering entry barriers (Ruan and Zhang 2009). As a result, it facilitates the entry of a large number of potential entrepreneurs.

4. Conclusions

Township-village enterprises had a great impact on the rise of China. They served as a

major stepping-stone of institutional change when legal protections of private property rights were not in place. They also filled a market niche for daily goods as incomes rose rapidly along with economic reform, while SOEs were slow to respond.

In essence, TVEs were an organizational response to constraints and opportunities in a location at a particular time. Because of significant regional differences in resource endowment and access to technology and capital, the path of TVE development is shown to be rather heterogeneous. The Sunan model capitalized on proximity to a large number of SOEs in Shanghai, while the Guangdong model relied heavily on FDI from Hong Kong and Taiwan. With much more limited access to SOEs and FDI, the local governments and entrepreneurs in Wenzhou were forced to make more institutional innovations by introducing private ownership and cluster-based production organizations.

TVE development has played a key role in nurturing entrepreneurship, fostering private business (indirectly), spreading management skills, accumulating physical and human capital, technology diffusion, and training skilled workers. In fact, many private entrepreneur firms were spun off directly from TVEs. Recognizing the influences TVEs have had on Chinese entrepreneurship is a key to understanding China's economic development. The market's role in nurturing entrepreneurship is well known in economics; however, the substantial role of local governments in cultivating entrepreneurship is much less studied and much less understood.

An important efficiency-enhancing trend in the Chinese private sector is that small entrepreneurial firms have become increasingly specialized and clustered. These specialized small firms are linked together by networks of subcontracts so that every final product is produced by a collection of many specialized firms. Segmenting a production process into many phases that numerous highly specialized small firms carry out involves more transactions between firms and incurs higher transaction costs between firms. Yet extra benefits often exist within an industrial cluster that offset the additional transaction costs. Repeated interactions among the firms also help reduce the coordination cost of the greater number of transactions associated with the deepening division of labor in a cluster. Moreover, monitoring costs of integrated firms are avoided.

The evolution of TVEs and the subsequent entrepreneurial firms illustrates that economic development is a continual process of overcoming limiting conditions. China, like many developing countries, had abundant labor but limited capital at the inception of its reforms. Moreover, it lacked a sound financial system and formal institutions that the standard development texts regard as preconditions for industrialization. The structures of such firms as TVEs and the subsequent clustering modes of production are organizational responses to these limiting factors. TVEs were created to overcome weak legal protections for property rights. After private property rights were recognized, TVEs

gradually lost ground to private firms.

Even when private ownership is honored, a vast number of entrepreneurs still face credit and technical constraints, as well as institutional constraints, such as contract enforcement. Clustering offers one route through which poor regions like Wenzhou can overcome such constraints. With the availability of many specialized firms and joint public goods in a close neighborhood, firms can specialize in production at a small scale and many entrepreneurs can participate in the nonfarm production process. With massive concentrations of specialized small firms, many townships have become national or international production/trading centers of certain products. This successful industrial cluster development is an outcome of joint efforts of entrepreneurial local officials and entrepreneurial individuals. To a large extent, this is an extension of the institutions of the TVEs in an evolutionary path.

From an evolutionary point of view, a firm is not an organization to be designed and implemented in vacuum. This is even more true when the political, legal, and economic conditions are all evolving from very unfavorable to better. The firm's organizational structure is an outcome of interaction with other local and macro environments. As the environment changes, a firm's organization and organizational structure may change as well. It is possible to create a vast number of small firms with distributed ownership by improving the supporting environment firms face, but it is hard to prescribe the optimal path of firm evolution beforehand. Competitive pressures are a way of eliminating less viable forms of organizational structures.

Overall, both TVEs and clusters have provided an opportunity for many rural entrepreneurs to engage in nonfarm production. The success of China's economic reform lies in the full use of individual talents, which are widely available among common people, and through introducing various institutional and organizational innovations to cope with limiting factors.

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Table 1. Output Growth of CBEs (the predecessor of the TVEs), 1957–1979 (in billion yuan at constant 1980)

Year	Output	Year	Output
1957	2.79	1971	11.1
1958	6.91	1972	13.5
1960	2.17	1973	15.5
1961	2.08	1974	18.5
1962	0.79	1975	23.7
1963	0.40	1976	30.4
1964	0.46	1978	55.0
1965	0.55	1979	61.2

Sources: Chinese Agricultural Yearbook, 1986; Xu (1995).

Table 2. Employment by Ownership in Selected Years (in thousands)

	Year	Total	SOE	FDI	Taiwan, HK, Marco	TVEs	Private Enterprises
Jiangsu							
	1980	2,821.0	402.0			388.6	
	1985	3,263.0	468.8			627.1	114.8
	1990	4,225.0	536.9			672.9	223.2
	1995	4,385.2	576.2	18.0	19.3	668.4	256.3
	2000	4,418.1	411.4	31.4	20.0	295.5	560.2
Zhejiang							
	1980	1,856.4	208.5			234.9	
	1985	2,318.6	240.7			374.8	90.6
	1990	2,554.5	280.9			352.4	143.1
	1995	2,621.5	294.6	12.7	12.4	382.4	413.3
	2000	2,726.1	208.2	13.9	15.9	298.4	582.0
Guangdong							
	1980	2,367.8	563.6			204.9	
	1985	2,731.1	660.8			250.0	152.0
	1990	3,118.1	785.5			337.6	320.7
	1995	3,551.2	565.5	35.8	94.1	569.5	502.6
	2000	3,989.3	425.5	43.0	102.7	507.2	421.1
China							
	1980	42,361.0	8,019.0			3,000.0	
	1985	49,873.0	8,990.0			4,152.1	2,826.9
	1990	64,749.0	10,346.0			4,592.4	4,672.3
	1995	68,065.0	11,261.0	241.0	272.0	6,060.3	6,801.7
	2000	72,085.0	8,101.9	332.0	310.3	3,832.8	8,986.8

Sources: The total and SOE employment for the three provinces are from various issues of the corresponding provincial statistical yearbooks, while the same data at the national level is from *China Statistical Yearbooks*. The employment data for the enterprises owned by foreign, Hong Kong, Marco, and Taiwan come from various issues of *China Statistical Yearbooks*. The employment data for the TVEs and private enterprises are from *China Township and Village Enterprise Statistical Materials, 1978–2002* (TVES/MOA 2003).

Table 3. GDP by Ownership in Selected Years (in billion yuan)

		Total	SOE	TVEs	Private Enterprises
Jiangsu					
	1980	15.1	8.7	4.6	
	1985	30.8	12.7	12.9	1.2
	1990	63.4	21.8	27.9	4.2
	1995	246.8	53.0	147.4	17.7
	2000	384.9	84.1	112.8	131.4
Zhejiang					
	1980	7.4	4.2	2.0	
	1985	17.9	6.6	7.9	1.5
	1990	36.4	11.4	15.7	6.0
	1995	164.6	23.7	69.5	75.0
	2000	294.6	40.7	106.9	177.1
Guangdong					
	1980	9.0	5.3	1.6	
	1985	18.6	10.4	5.1	2.0
	1990	52.3	21.1	14.6	10.3
	1995	244.9	39.2	80.6	26.3
	2000	446.3	103.5	117.1	101.7
China					
	1980	199.7	151.7	28.5	
	1985	344.9	223.7	56.3	21.0
	1990	685.8	374.5	167.3	83.1
	1995	2,495.1	830.7	935.9	523.6
	2000	4,003.4	1,377.8	942.5	1,773.1

Sources: The GDP data for China as a whole for the whole period and SOEs for 1995 and 2000 are from various issues of *China Statistical Yearbooks*. The GDP data for TVEs and private enterprises come from *China Township and Village Enterprise Statistical Materials, 1978–2002* (TVES/MOA 2003). Because the GDP data for SOEs were not available prior to 1995, we calculate them based on the ratio of total GDP to total gross industrial output value and the gross industrial output value of SOEs.

Table 4. Number of Firms and Employment in Puyuan Cashmere Industry, 2005

Type	Firms	Employment
Yarn dealers	250	535
Family weaving workshops	3,518	42,074
Dyeing factories	23	1,150
Finishing factories	42	3,073
Printing workshops	100	500
Ironing workshops	100	318
Sweater shops	5,750	12,133
Transport (independent drivers)	2,000	2,000
Integrated firms	121	8,254
Total	11,905	70,037

Sources: Puyuan Township Statistical Center, Administrative Committee of Puyuan Industrial Park, and Administrative Committee of Puyuan Marketplace.

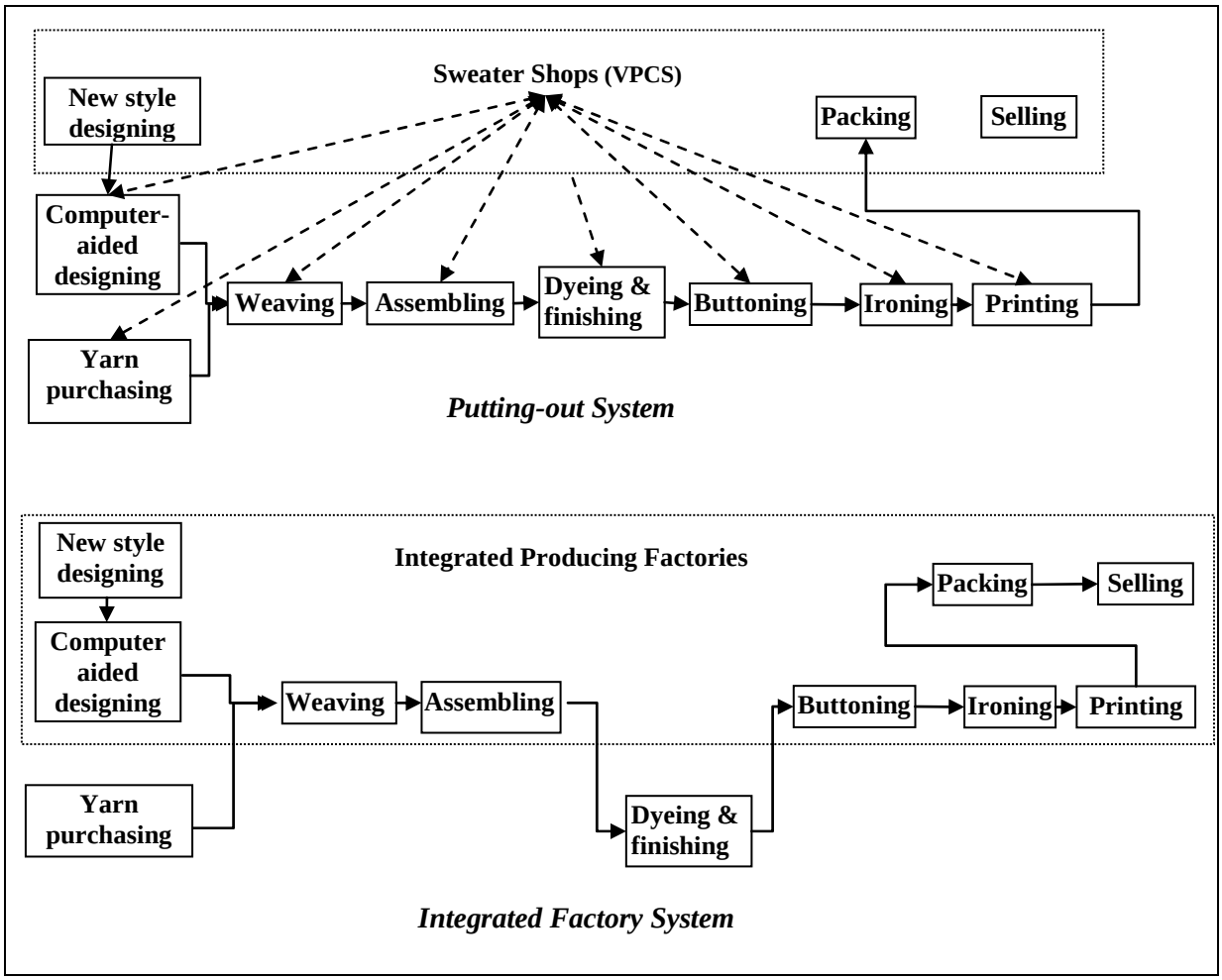

Figure 1. Coordinated cluster of small firms versus integrated firms

Note: The dashed-line chart in the figure represents the production processes of sweater shops. The solid arrows denote the actual flow route of the raw materials and semifinished goods, and the dashed arrows show information exchange among the entities.

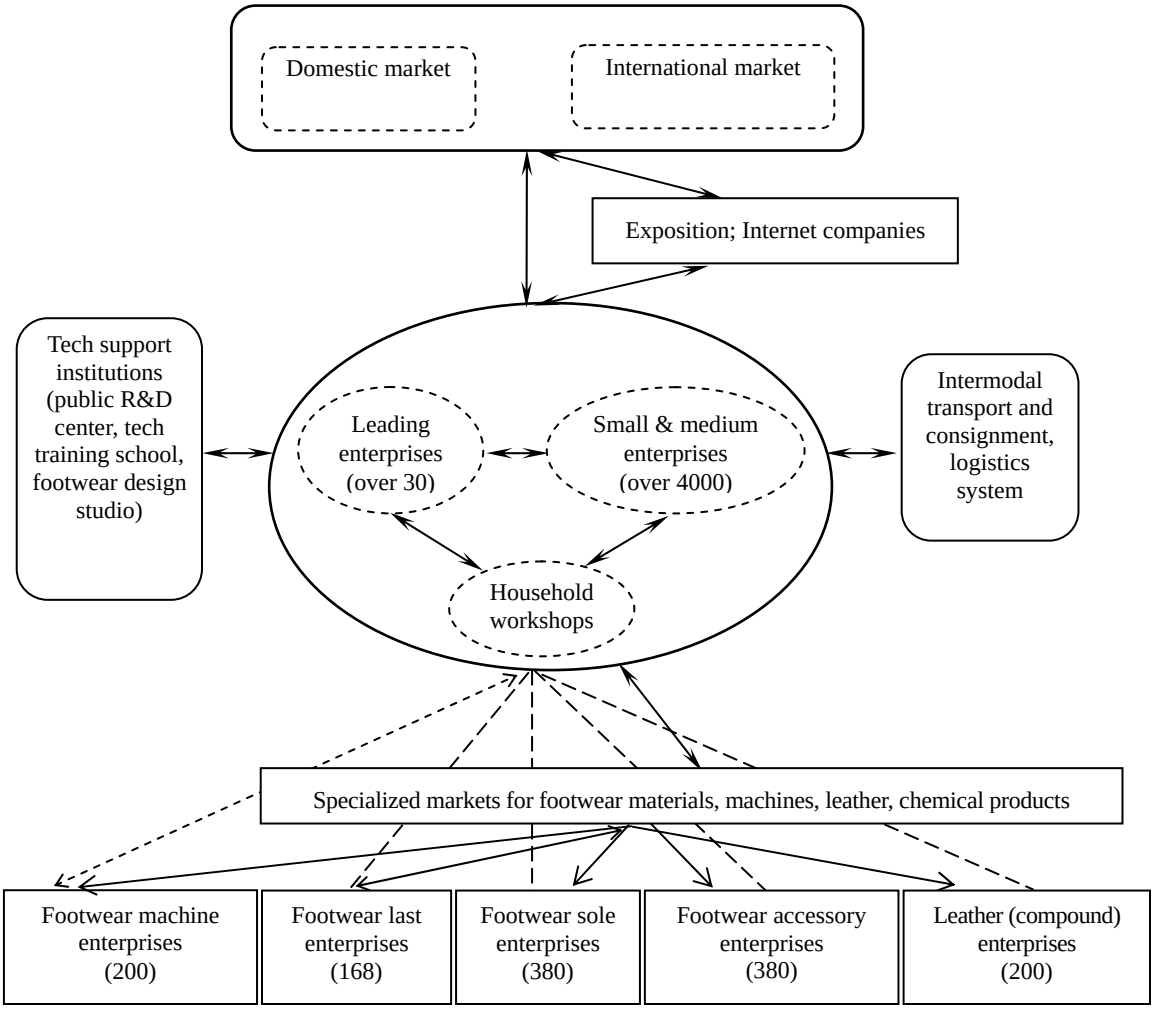

Figure 2. The Wenzhou footwear cluster: Organized small firms
Source: Adapted from Huang, Zhang, and Zhu (2008).

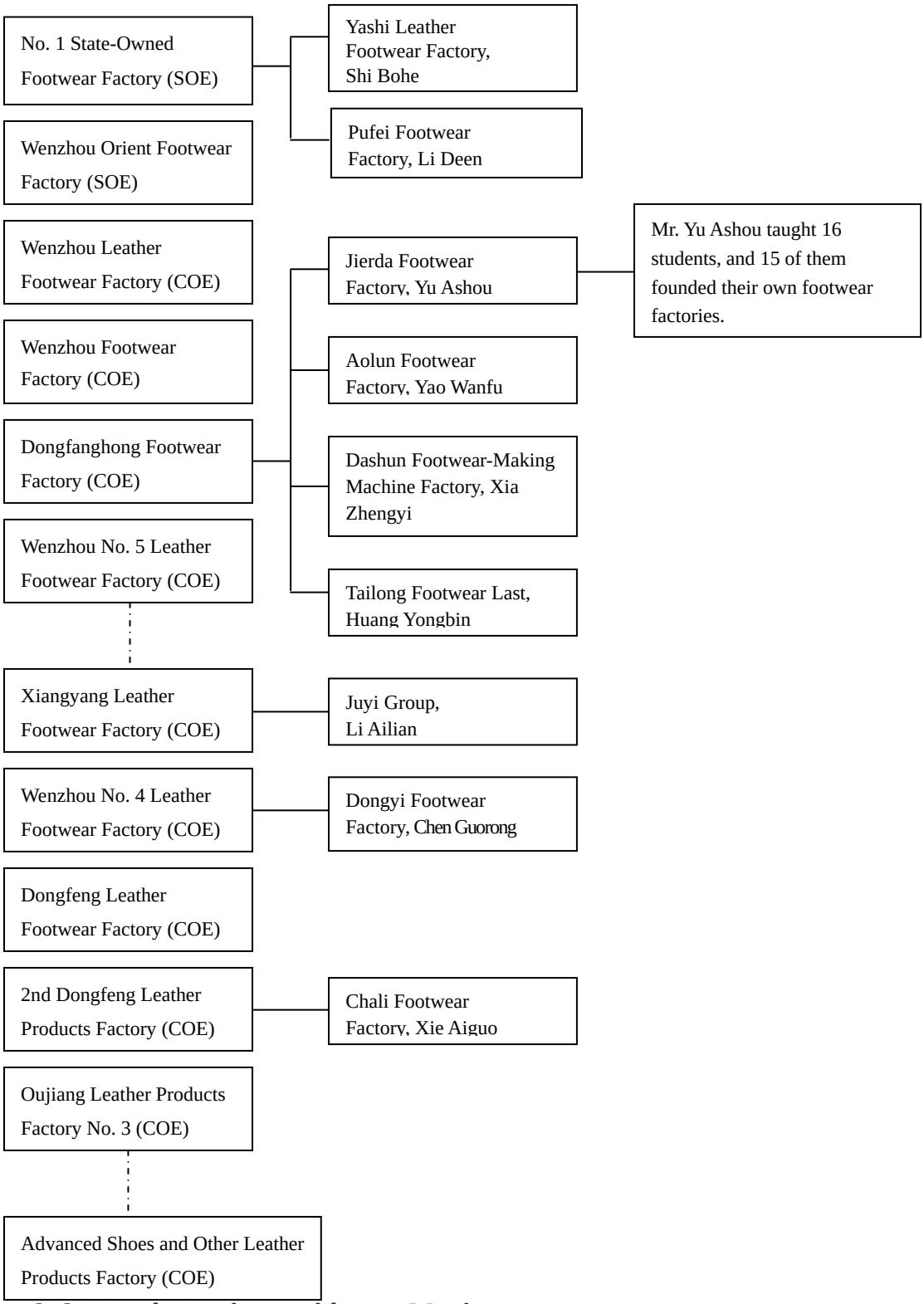

Figure 3. Origins of privately owned firms in Wenzhou

Note: All the firms in the middle and to the right are privately owned. *Source:* Adapted from Huang, Zhang, and Zhu (2008).