



The role of social networks and institutional support in cluster formation[☆]

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ABSTRACT

The formation of industrial clusters has rarely been studied, especially in places without any related industries in the first place, largely due to the paucity of information in the incipient stage. Based on primary interviews of all the business owners of a nascent outdoor furniture cluster relocated from the coast to central China, we develop a conceptual framework and dissect the process of cluster formation. The decision of firm entry depends on both *discovery* and *external costs* which vary by the stage of cluster formation. Social networks are more conducive to reducing the *discovery cost* in the incipient stage, while institutional support plays a more prominent role in reducing the increasingly larger *external cost* in the growth stage, which is beyond the capability of individual firms.

1. Introduction

Industrial clusters are ubiquitous in both developed and developing countries (Otsuka & Sonobe, 2011; Schmitz & Nadvi, 1999; Sonobe et al., 2004). The positive agglomeration effects of clusters have been well-documented in the literature (Marshall, 1920; Porter, 1990; Ruan & Zhang, 2009). Given the competitive advantages of clusters, governments across the world have a keen interest in promoting cluster-based development (Greenstone et al., 2010). However, it is a great challenge for governments to create a cluster from scratch (van der Linde, 2003), in particular in developing countries without related industries in the first place. Despite the demand for practical guidance on how to develop a new cluster, the literature on cluster formation is scant, while the limited research mainly focuses on clusters in developed countries (Bresnahan et al., 2001; Feldman, 2001; Feldman & Braunerhjelm, 2006), neglecting developing countries where industrialization is badly needed and clusters could play an important role in the process.

This paper fills this knowledge gap by dissecting the formation process of a nascent outdoor furniture cluster that recently relocated from the coastal region to Pingyu, an impoverished county in Henan, a hinterland province in China. The industry did not exist in Pingyu until 2015 when a return migrant set up the first outdoor furniture factory. In just a few years, 19 outdoor furniture firms have relocated from the coastal area to Pingyu, bringing about 23 accessory suppliers and over 200 processing workshops and generating around 6000 formal jobs and 6000 informal jobs in rural workshops. We interviewed all the outdoor furniture firms and accessory suppliers in the cluster as well as key informants in the government and business associations. This allowed us to map out the social

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network of all the enterprises in the cluster. Because the cluster was newly formed, during the interviews, the key players could vividly recall the details of the relocation process. This contrasts with previous studies on developed countries, which mostly relied on sparse historical data about the incipient stage a long time ago.

Several findings emerge from the in-depth case study and the mapped social network. First, entrepreneurial social networks play an important role in the seedling stage of cluster formation. The first movers in the Pingyu cluster were local entrepreneurs who used to work in outdoor furniture clusters in coastal China. They set up factories back in their hometown to take advantage of the lower local labor costs. Later, after seeing the success of the pioneering firms, the local government appointed one of the first movers as an investment promotion ambassador in the coastal cluster where his previous factory was located. Through his business promotion within the network in the coastal cluster, more firms, most of which do not have a hometown connection, relocated their operations from coastal China to Pingyu. With hindsight, relocating labor-intensive outdoor furniture production from a developed coastal area to a less developed populous hinterland county seems obvious. However, it would have been extremely difficult for local government officials in Pingyu to target this sector for support in advance without seeing the burgeoning seed planted by the return hometown entrepreneurs.

Second, the local government played an instrumental role in fostering cluster formation in the growth stage by helping the nascent industry overcome various emerging bottlenecks. For example, the local government subsidized railway freight costs and constructed ready-to-move-in factory buildings to tackle the problems of high transportation costs and inadequate factory floors.

Building on the insight from the case study, we develop a conceptual framework to explain the varying roles of entrepreneurial social networks and institutional support at different stages of cluster formation. Under our framework, the decision of firm entry depends on two costs, the *discovery cost* and the *external cost*, which vary by the stage of cluster formation. In the seedling stage, the cost for the first movers to identify business opportunities is enormous and full of uncertainty. Entrepreneurial social networks are more effective than the government in discovering business opportunities in the incipient stage. As more followers enter the cluster, some common bottlenecks emerge, which are beyond the capacity of individual firms. At this stage, institutional support is essential for reducing the *external cost* facing the cluster as a whole.

Additionally, this study shows that the outdoor furniture industry cluster can play a key role in promoting rural development by generating local employment opportunities. By 2020, 23 outdoor furniture firms provided 5946 formal jobs, especially women. Furthermore, a dispersed production structure of 144 outdoor furniture workshops across villages provided an additional 6049 part-time local nonfarm jobs for those left-behind population (women and elderly) who could not travel to the county seat for work, significantly reducing rural poverty. This organizational innovation, bringing key steps of production in the supply chain closer to people in remote rural areas, creates a win-win for both the underemployed rural population and the enterprises, which faced rising labor costs in cities and coastal areas. This study highlights the potential and innovations of cluster-based rural industrialization in promoting rural transformation and reducing poverty.

Our paper contributes to the emerging body of literature on industrial policy, particularly place-based industrial policy. Industrial parks or special economic zones are widespread in China and some other countries (Criscuolo et al., 2019; Howell, 2020; Lu et al., 2019; Zheng et al., 2017). Most studies evaluate whether place-based industrial policies work or not (Lu et al., 2019; Wang, 2013; Zheng et al., 2017). By comparison, studies on the process of how to develop a new local industry from scratch are more limited (Zheng et al., 2017). In addition, this strand of literature emphasizes the importance of industrial policy made by the government, mainly ignoring the role of entrepreneurs and their social networks. In this paper, we document the process by which specific local industrial policies came into existence, using the outdoor furniture cluster as a case study. The industry was not planned by the local government. Rather, it was spontaneously pioneered by return migrant entrepreneurs. The local government has facilitated the growth of the cluster by helping to solve emerging bottlenecks facing the nascent industry. Furthermore, we find that the role of industrial policy varies by the stage of cluster formation, and the discovery role of social networks in the early stages should not be overlooked.

Second, our paper speaks to the literature on “flying geese.” The flying geese paradigm normally refers to the relocation patterns of labor-intensive industries from developed economies to latecomer ones due to rising labor costs in the former (Akamatsu, 1962; Kojima, 2000). The pattern of flying geese across countries has been widely observed, notably among the East Asian economies (Chiang, 2008). By comparison, studies on industrial relocation within a country are still scarce (Hanson, 2020). A few studies have provided empirical evidence that labor-intensive manufacturing industries can relocate within a large country with a large regional gap, such as the United States (Crandall, 1993) or China (Ruan & Zhang, 2014). However, there is still a limited understanding of why a particular industry ends up migrating to a specific location. Our paper provides some insight into this question.

Third, our paper contributes to the literature on firm location strategies for agglomeration economies. The presence of specialized suppliers has been regarded as a key consideration for firm location strategies (Alcácer & Chung, 2014; Glaeser & Kerr, 2009; Romanelli & Khessina, 2005). However, in the incipient stage of cluster formation, specialized suppliers are often not yet available. Our paper focuses on the strategies of firm locations in the early stage of agglomeration formation when specialized suppliers are still scarce.

Fourth, our paper touches upon the literature on the role of social capital in development. In an imperfect institutional environment, social capital is often used as a substitute for formal institutions to facilitate information flow (Kimura, 2011), provide trade credit (Ruan & Zhang, 2009), form joint actions (Schmitz, 1995), and overcome commitment problems in closely tied social networks (Greif, 1993). It has been widely documented that foreign direct investments favor locations with strong social connections with the investors, such as hometowns (Bernile et al., 2015; Burchardi et al., 2019; Kuchler et al., 2022; Macchiavello & Morjaria, 2015). Our paper complements this finding by showing that hometown connections also matter for pioneering domestic investment across regions. The relative importance of social networks and institutional support in the cluster formation process varies. While social networks play a crucial role in the early stages, institutional support becomes progressively more important as the cluster develops.

Throughout the entire process of cluster formation, these two elements are complementary to one another.

2. Literature review and conceptual framework

Following the seminal work of Porter (1990), there has been increasing interest in the evolution of industrial clusters (Audretsch & Feldman, 1996; Martin & Sunley, 2011; Menzel & Fornahl, 2010). The literature generally classifies cluster formation into two stages. The incipient stage (or stage 0 \rightarrow 1, as termed by Sonobe et al. (2004)) refers to the emergence of pioneering firms. The success of pioneering firms often attracts many followers to enter. Thus, clusters tend to experience a stage of “quantity expansion” (or stage 1 \rightarrow N as termed by Sonobe et al. (2004)). Existing literature concludes three factors that may have an influence on cluster development: triggering effects (Krugman, 1992), regional prerequisites, and infrastructure by the government (Brenner & Mühlig, 2013; Feldman, 2007; Feldman & Braunerhjelm, 2006; Isaksen, 2016; Perez-Aleman, 2005). As for the emergence of a cluster, the literature highlights the important role of random triggering events. This paper contributes to these studies by proposing a conceptual framework that analyzes the two stages of cluster formation. In particular, we show that social networks play a key role in triggering the formation of the cluster, while institutional support is essential for overcoming infrastructure bottlenecks in the later growth stage.

2.1. The role of entrepreneurial social networks

Social networks are defined as the existing linkages of social relations. This study focuses on three specific types: hometown networks, which consist of people originating from the same locale but now residing elsewhere; personal social relationships, encompassing connections with classmates, friends, former fellow soldiers, and past business partners; and business association networks, formed through formal membership in industry associations. The process of cluster formation is accompanied by an increasing division of labor. However, the fine division of labor in clusters may come at a higher coordination cost among different producers, suppliers, and customers (Becker & Murphy, 1992). Within clusters in developing countries, most transactions are based on relational contracts, which are enforced through private ordering. Social trust embedded in communities can moderate the transaction costs through trust among co-located firms in the absence of formal institutions (Granovetter, 1985). Therefore, social networks are an integral part of cluster formation in developing countries.

Social networks are also a conduit for knowledge transmission (Granovetter, 1985). Knowledge moves more freely within social networks than outside the networks in clusters (Tallman et al., 2004). The advantage of knowledge sharing within a community is particularly important in the genesis stage of cluster formation (Kimura, 2011). When an entrepreneur makes a pioneering investment, it requires frequent adaptations and tinkering with the neighboring environment with an uncertain degree of success (Hausmann & Rodrik, 2003). Once the first movers end up making money after a period of trial and error, they create an information externality, as termed by Rodrik (2008), i.e., others in the social network will notice the profitable business opportunity and likely be induced to follow suit to start a similar business.

A stranger would face enormous challenges as the first mover in an unfamiliar environment. Entrepreneurs with local social ties have a better chance of succeeding in their investment, compared to their counterparts without any local connections. This is because those with local ties can tap their networks for information and help. Therefore, first movers are more likely to be entrepreneurs with social ties to the locale. However, the size of the social network is limited. This means that the number of entries in the same social network cannot increase indefinitely. As a result, the relative role of social networks in fostering firm entries may diminish as clusters grow in size (Hsu & Saxenian, 2000; Li et al., 2012).

2.2. The role of institutional support in overcoming common bottlenecks

One major type of institutional support is place-based industrial policy launched by the government. Yet, its role in jumpstarting a new cluster has been hotly debated in the literature. This debate largely stems from the lack of distinction between different stages of cluster development.

Based on a meta-study of 833 clusters, van der Linde (2003) found that only one of them was planned by conscious government policy. Hausmann and Rodrik (2003) highlight the importance of “self-discovery” in the initial stage of development because of the uncertainty about the degree of success of potential projects. In developing countries, the limited financial resources make it more difficult for governments to face the potential failures of discovery activities. Therefore, Easterly (2006) calls for more searchers rather than planners to discover development opportunities.

As a cluster increases in size, firms in the cluster tend to encounter some common bottlenecks, such as inadequate infrastructure and limited space for industrial land. The bottlenecks increase the production cost of firms. We call the incurred cost resulting from common bottlenecks *external cost*. In this study, external costs are defined as costs that cannot be easily altered through the management of a single firm but are often influenced by the size of the sector in a location. A large concentration of firms in a narrowly defined region can create both positive agglomeration effects and negative congestion effects. When negative congestion effects dominate, external costs rise. Conversely, when positive agglomeration effects dominate, external costs decline.

The *external cost* is relatively insignificant in the incipient stage of cluster formation because the number of firms competing for the limited resources is small. However, it tends to increase as the cluster expands and the demand for infrastructure and other types of public goods goes up. It is beyond the capacity of individual firms to overcome the common bottlenecks. To tackle the challenges, joint actions are often needed (Schmitz & Nadvi, 1999). In most cases, the joint actions are led by local institutions, such as local governments, business associations, or universities. For example, in China, the local government plays an active role in launching joint

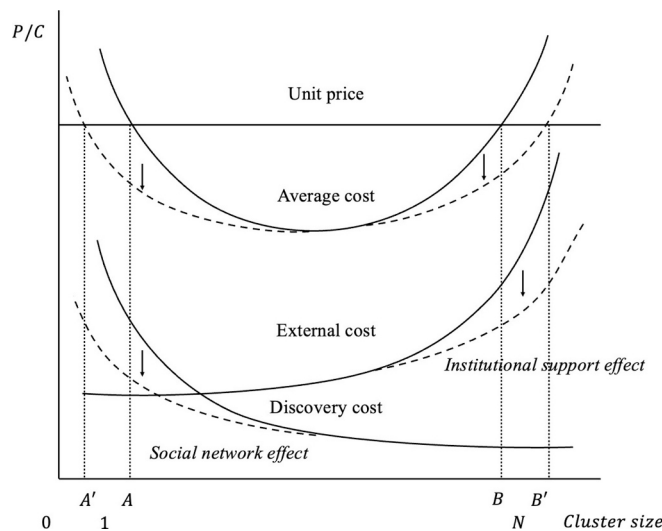


Fig. 1. Conceptual Framework of the Relative Importance of Social Networks and Institutional Support in Different Stages of Cluster Formation.
Notes: External cost refers to the cost outside the firm's reach. The dashed lines are costs that have been reduced.

actions (Zhang & Hu, 2014). Not surprisingly, studies examining the growth experience of successful clusters, which have already overcome the common bottlenecks, tend to find a positive role of institutional support (Feldman & Braunerhjelm, 2006; Porter, 1990). Therefore, when discussing the role of institutional support, it is crucial to consider the stages of cluster formation.

2.3. Conceptual framework

Based on the above discussion, we conceptualize the varying roles of entrepreneurial social networks and institutional support at different stages of cluster formation in Fig. 1. The horizontal axis includes two stages of cluster evolution: $0 \rightarrow 1$ and $1 \rightarrow N$. The vertical axis represents the average cost of a representative new firm entry in relation to cluster size. We assume that firms are price takers. The horizontal line stands for the market unit price of the product produced by the firm. We further assume that all the firms, including new entries and incumbents, have the same operational cost, to simplify our analysis. In so doing, we only count the *discovery cost* and *external cost* as part of the average cost. Under this setting, a firm will not enter the market unless the average cost, the sum of the *discovery* and *external costs*, is below the market price, given the number of incumbents in the cluster.

In this study, our definition of “discovery” is a broader concept, encompassing the process of evaluation and exploitation as outlined in Shane and Venkataraman (2000). The *discovery cost* for the pioneering firm is high. However, for the second mover, the cost is lower (Hoppe, 2000). Thus, the discovery cost declines as the number of firms in a cluster increases. External costs, defined as costs beyond the control of individual enterprises within a geographically concentrated region, rise when congestion diseconomies surpass agglomeration economies. For example, as the number of outdoor furniture enterprises increased, the demand for factories in the county seat rose, driving up industrial land rental costs. This increase is external to any individual outdoor furniture enterprise. Likewise, the absorption of local labor by newly established large manufacturers resulted in higher hiring costs in the county seat. The combination of these two rising external costs (land and labor) in the county seat is a key driver for outsourcing the assembly stage of outdoor furniture production to dispersed village workshops via the “smart housewife” program. As shown in the paper, the local government has played a key role in mitigating these rising external costs by building more readily available factory buildings and initiating the “smart housewife” program. Consequently, we hypothesize that the *external cost* goes up as the cluster size increases.

Consequently, the curve of the total average cost, the sum of *discovery cost* and *external cost*, exhibits a U-shaped pattern in relation to cluster size. The solid curves in Fig. 1 stand for the average cost in the absence of social networks and institutional support. Point A is the break-even point for a new entry. Below point A, which is greater than one, the average cost for a new entry is above the unit price. In other words, it is not profitable for a pioneering firm to enter the market in the first place. Suppose the first mover can tap his social network to lower the *discovery cost* as indicated by the dashed line in Fig. 1. As a result, the left part of the total average cost curve will become flatter (see the dashed line). The break-even point will move leftward from A to A'. Thanks to the help of social networks, the pioneering firm can earn a profit after entering the market. However, the importance of social networks will diminish as more firms enter the cluster. This leads to our first hypothesis.

Hypothesis I. *In the incipient stage of cluster formation ($0 \rightarrow 1$), entrepreneurial social networks can play a significant role in reducing the discovery cost of pioneering firms, and facilitating the entry of first movers. However, the role of social networks in facilitating firm entries diminishes as the cluster grows.*

The success of the first movers conveys information about market opportunity to other potential entries, lowering their *discovery cost*. Given that the average cost is below the unit price for the followers, more firms will enter the market until the cluster size reaches

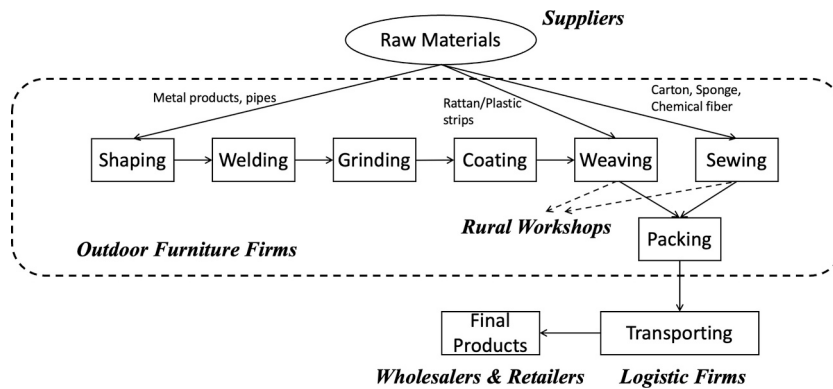


Fig. 2. Supply Chain of the Outdoor Furniture Industry.

Source: Authors' field interviews.

point B. At this point, the *external cost* accounts for a larger share of the total average cost than the *discovery cost*. Since it is hard for an individual firm to lower the *external cost*, institutional support matters more at this stage. The role of institutional support is to lower the *external cost*, as exhibited by the dashed line in the figure. With institutional support, the break-even cluster size, at which the average cost is equal to the unit price, will expand rightward from B to B'. This is our second hypothesis.

Hypothesis II. *In the growth stage of cluster formation ($1 \rightarrow N$), the role of institutional support in reducing the external cost associated with common bottlenecks in a cluster becomes more pronounced.*

Our conceptual framework can explain a well-known case of garment cluster migration from South Korea to Bangladesh (Rhee, 1990). In 1978, Dosh Garment Company in Bangladesh signed a collaborative agreement with Daewoo, a leading garment producer and exporter in South Korea. Dosh sent 130 Bangladeshi workers to Daewoo for half a year of training, while Daewoo managed to capture a profit by selling technical training and marketing services. Dosh mastered the know-how of production, management, and marketing within two years, and 115 Daewoo-trained workers left Dosh to start their businesses or train workers for new start-ups. In this case, the transmission of knowledge from Daewoo to Dosh, and within the network of Daewoo-trained Dosh workers, planted a seed for the whole garment industrial cluster in Bangladesh.

The rapid export growth further induced more policy reforms. For example, the garment sector had to import almost all the intermediate inputs. However, controls on foreign exchange limited many newly established firms from accessing intermediate inputs at world market prices. Other policies included providing trade financing and reducing restrictions on investment licensing. These policies were not envisioned until the government noticed the obstacles to the booming garment sector that created high *external costs* for individual firms. These policies played a critical role in reducing the *external cost* and sustaining the growth of garment exports in Bangladesh after the incipient stage.

This story illustrates the applicability of our conceptual framework in explaining international cluster migration. In this paper, we apply the framework to explain the process of cluster relocation within China.

3. Backgrounds

3.1. Background of the industry

As a subclass of the furniture manufacturing industry, outdoor furniture products can be used in outdoor environments that are humid or exposed to direct sunlight. The category includes rattan outdoor furniture, metal outdoor furniture, tents, swing chairs, outdoor ovens, other outdoor furniture products, and so forth. The main raw materials are rattan, plastic, and metal, which are resistant to corrosion in the outdoor environment; the auxiliary materials include pipe, glass, and so on.

Fig. 2 illustrates the supply chain of the outdoor furniture industry. Suppliers provide raw materials, including metal, rattan, plastic, cardboard, sponge, and synthetic fiber. Outdoor furniture manufacturers process these materials by shaping, welding, grinding, and coating metal to form structure frames, onto which rattan strips are woven. Synthetic fibers are sewn into cushions and pillows, which are subsequently attached to the furniture. Often, weaving and sewing tasks can also be outsourced to rural workshops. Finished products are then packaged and transported by logistics companies, after which wholesalers and retailers distribute them to consumers.

The outdoor furniture industry is largely labor intensive, with wage payments accounting for over 60 % of the total value added. Outdoor furniture products are mainly sold to markets in developed countries. According to industry reports, the total global market of this industry in 2018 was approximately 28 US\$ billion, of which the demand from Europe and the United States accounted for nearly 60 %. In developed countries, outdoor furniture is treated more like consumable goods rather than durable goods, with an average replacement cycle of only 1.48 years (Liang, 2018). In China, domestic residential demand for outdoor furniture products is more subdued than external demand, likely due to limited home space.

Table 1
Development of the Outdoor Furniture Industrial Cluster in Pingyu.

Year	Relocating firms	Suppliers	Rural workshops	Exporting TEUs	Firm employment	Workers in rural workshops
2015	1	0	0	No record	No record	No record
2016	3	0	3	No record	614	91
2017	9	4	21	2710	1412	702
2018	16	11	72	13,728	2648	2552
2019	19	14	129	9152	4217	5241
2020	19	23	144		5946	6049

Source: The Pingyu government.

Notes: The government did not separately tally the exporting quantities in 2017–2018. The sum of exporting quantities in 2017–2018 was 2710 twenty-foot equivalent units (TEUs).

Major outdoor industrial production bases have experienced a global industrial relocation process following the pattern of flying geese, which is primarily driven by changing labor costs. Outdoor furniture products were initially mainly produced in the United States, Italy, and other European countries. In the 1970s and 1980s, production bases were gradually relocated to South Korea, Taiwan, and other places in East Asia (Liang, 2018). In the 1990s, several Taiwan-funded enterprises relocated their factories to Guangdong province, bringing this industry to mainland China and giving birth to an outdoor furniture industrial cluster there. Later, another leading production cluster evolved in Zhejiang province. In combination, clusters in Guangdong and Zhejiang provinces accounted for more than 80 % of the industry's global output value at the peak (Liang, 2018). Owing to rising labor costs and land rents, coastal outdoor furniture clusters have begun to relocate to inland provinces in recent years.

However, it is difficult for coastal firms to discover the right destination in the inland regions. First, the firms face higher logistics costs in the inland areas. Outdoor furniture products are mainly produced for foreign markets. Therefore, products need to be transported to large container seaports, such as Ningbo Port, Qingdao Port, and Guangzhou Port, before being shipped to Europe or North America. Relocating production bases to inland areas means longer transport distances and higher transportation costs.

Second, entrepreneurs are also concerned about the unpredictable business environment in inland provinces. Many local governments in the hinterland have a reputation for reneging on promises, weak property rights protection, and inadequate public services. For example, some outdoor furniture firms that moved to northern Jiangsu Province, Anhui Province, and other inland areas eventually exited due to the adverse local institutional environment. Exploring a suitable region for relocation is costly for innovative entrepreneurs.

3.2. Economic situation in Pingyu

Pingyu County is a county in the southeast of Henan Province, China. It has a total area of 1282 km² and a registered population of one million in 2014. The county is not served by a railway, and the nearest railway station is 80 km to the west. The nearest highway was not completed until 2008. Agriculture and the leather manufacturing industry are the two pillar sectors in Pingyu.

In 2014, agriculture accounted for 23.35 % of the country's gross domestic product (GDP). Leather manufacturing has been a major manufacturing industry in the country over the past two decades, but its role in generating employment is limited because the sector is capital-intensive. In addition, the industry has been subject to increasingly strict environmental regulations in recent years.

Pingyu County is a nationally designated poverty-stricken county in Henan Province, China. In 2015, its GDP per capita was RMB 24,518, which was below the provincial average of RMB 39,123 and the national average of RMB 50,237. Due to the limited local non-agricultural employment opportunities, a large number of people migrated out of the county in search of jobs. Among the county's registered population of one million, around 290,000 people worked outside the county, primarily in the waterproofing construction sector.¹

In early 2015, the idea of developing a new, booming industry in Pingyu was inconceivable. However, starting from scratch, Pingyu has emerged as a new outdoor furniture industrial cluster in less than six years. The first outdoor furniture firm set foot in Pingyu in 2015, and by 2020, the total number of firms in the sector had jumped to 19. As a measure of total exports, the number of twenty-foot equivalent units (TEUs) reached 13,728 in 2019, with each TEU worth about 100,000 RMB (Table 1). Despite being affected by the COVID-19 pandemic in the first half of 2020, the total export volume remained as high as nearly 10,000 TEUs, with a total output value close to 1 billion RMB in 2020.

Many inland counties have similar endowments to Pingyu. So, compared to them, why has Pingyu become the preferred relocation destination for outdoor furniture enterprises from the coastal area? To answer this question, we examine the formation process of the cluster in Pingyu and identify the key driving factors based on comprehensive interviews.

4. Research design

Our case study is based on extensive and in-depth field research. We first became aware of the relocation of outdoor furniture

¹ The statistics come from the website of the Government of Pingyu (<http://www.pingyu.gov.cn/xxgk/detail/content/55a4741e85956c9e4aa44034.html>).

enterprises from the coastal region to Pingyu when conducting another field survey, the Enterprise Survey for Innovation and Entrepreneurship in China (ESIEC), in the summer of 2018. In November 2019 and January 2020, we visited Pingyu again to interview government officials from various departments to learn about the formation process of the outdoor furniture industrial cluster and the role of the local government. In September 2020, we interviewed the owners of four outdoor furniture companies in Zhejiang Province that had invested in Pingyu to understand the reasons for their relocation.

After this preliminary fieldwork, we decided to conduct comprehensive structural interviews on all the outdoor furniture enterprises and accessory suppliers in Pingyu. The local government kindly provided us with a complete list of outdoor furniture companies (including 19 outdoor furniture companies and 23 suppliers) in Pingyu. We recruited and trained four student interviewers from Peking University to assist us in data collection. In March 2021, we visited all the enterprises on the list and interviewed the entrepreneurs. We also interviewed key officials responsible for investment promotion. Appendix Tables A1 and A2 list all the outdoor firm entrepreneurs and supplier owners interviewed and log the details of the interviews. We assigned a code name to each respondent. The code names are used in the main text to protect the privacy of respondents.

For outdoor furniture entrepreneurs whose enterprises moved from the coastal provinces to Pingyu, we mainly asked questions from four aspects. For details, please see Appendix A.

1. The reasons why their enterprises relocated to Pingyu
2. How did they first learn about Pingyu?
3. The reasons why they finally decided to invest in Pingyu
4. Whether they will consider relocating their businesses to another place from Pingyu and why

For the owners of outdoor furniture suppliers that have relocated from coastal regions, we asked them the same set of questions as above. For newly established local suppliers, we only asked them about who helped them or provided them with information when starting their businesses.

For the local officials' interviews, we employed a snowball sampling method. We asked the county head for the list of key local officials responsible for the investment promotion process. We also expanded our list by including key government officials mentioned during our interviews with the entrepreneurs. During the interview, we mainly focused on three questions:

1. How did the outdoor furniture cluster form in Pingyu?
2. What government efforts contributed to the formation of the cluster?
3. What industries or firms had been introduced to Pingyu (at the time of the interview)?

Appendix Table A3 lists all the government officials from different departments that we interviewed, along with the brief sections they answered. To protect their privacy, we assigned a code name to each respondent, which is used in the main text. During the interviews, our interviewers took notes on the main points of the interviewees' answers in a notebook. After the interviews, they typed the answers into the computer. Our team also recorded the interviews with the interviewees' consent and then transcribed the recordings using the *iFlytek* software. We transcribed the key parts of the dialogues and translated these conversations into English, using code names to refer to the names of people and companies that appear in the dialogue.

5. Evolution of the outdoor furniture cluster

In this section, we divide the formation process of the outdoor furniture industrial cluster in Pingyu County into three periods: the antecedent period, the genesis period, and the growth period. First, we document the failures of local industry policy in the antecedent period. Then, we separately describe the roles of entrepreneurial social networks and institutional support in the genesis and growth stages of the cluster's development.

5.1. Antecedent: before 2015

Attracting outside investment to promote local economic development is a major task for local governments in China. Pingyu is no exception. Local officials in Pingyu preferred to target large enterprises from the coastal provinces or overseas for several reasons. First, given time constraints, it is more efficient for local officials to concentrate their resources on attracting a few large investors than many smaller ones. Second, large investment often generates a significant amount of tax revenue, which is critically needed. Third, local officials can showcase large high-profile investment projects to upper-level governments (Interview C10).

Before 2015, Pingyu's government had made extensive efforts to attract large enterprises, but to no avail. Because capital is highly mobile across regions, high-profile large enterprises have significant bargaining power. Amid the intense competition from other locales in inland regions, Pingyu had to offer potential big investors lucrative preferential policies, such as cheap land, tax holidays, and subsidies. Pingyu's government did attract a few investment projects. Table B1 in Appendix B lists the most significant investment projects mentioned in the Annual Government Report of Pingyu from 2010 to 2016. We excluded the newly relocated leather manufacturing firms from the list because the industry has been in Pingyu for decades.

The projects ranged from producing medical devices to electronic products, wooden furniture, shoes, and plastic products. Unfortunately, nearly all of these projects failed for various reasons. For example, the medical device project could not operate normally because many necessary parts were unavailable locally (Interviews C10 and C13). The production of electronics products requires

Table 2

Production Cost Comparison between Pingyu and Zhejiang.

	Pingyu county (in 2015)	Coastal cities in Zhejiang province	Pingyu county (December 2017)
Labor cost (per month)	3000–4000 RMB	5000–6000 RMB	3000–4000 RMB
Rent cost (per square meter a month)	2–3 RMB	10–15 RMB	5 RMB for market price 1 RMB for subsidy price for the first three years
Tax burden	2 %	4 %	2 %
Contribution to employee pension insurance	Exempted for national designated poverty county	Paid	Exempted for national designated poverty county
Transportation cost to the seaport (per TEU)	12,000 RMB for road transport	1500–2000 RMB for road transport	6500 RMB for railway transport market price - 2000 RMB subsidy =4500 RMB

Source: Compiled by the authors based on interviews A2 (Mr. Chen) and C4.

Notes: The tax burden here has a special meaning. Companies can often deduct value-added tax by purchasing assets and obtaining input invoices. To monitor whether a company is evading taxes or not, local tax authorities often calculate the overall tax burden of the firms. If the overall tax burden of a company is lower than a certain threshold in the local tax system, the local tax authorities will investigate if it is evading taxes. This tax rate threshold is 4 % in Zhejiang province. Since Pingyu is located in the inland region and is a nationally designated poverty county, this standard is only 2 %. TEU = twenty-foot equivalent unit.

many intermediate inputs and well-trained technicians. The lack of a local supply of intermediate inputs and technicians became an insurmountable obstacle (Interviews C13 and C14). The six wooden furniture firms all closed after struggling for a few years even though they were labor-intensive. The main reason the firms failed was that their product quality was below par compared with the leading brands in the market (Interview C8).

In hindsight, the reasons for the failures seem obvious. However, it was extremely difficult for a planner to anticipate all the challenges of the new investment projects in advance. The lessons from Pingyu demonstrate that the local government is not in a good position to plant the seeds for a new industry to thrive.

After repeated failures in attracting external investment, the local officials of Pingyu County began to rethink their experience and lessons systematically. They compared Pingyu's endowments with those of other inland regions. Pingyu County lacked railways and waterways, so it did not have a transportation advantage. There are no universities in Pingyu County, making it difficult to attract talent in high-tech industries. Although agriculture is a pillar sector in Pingyu, it is not unique. Many inland counties have a large agriculture sector.

Pingyu can no longer afford to engage in a race-to-the-bottom competition in investment promotions by offering preferential treatment. Pingyu's key comparative advantage lies in its large population and low labor cost. Although nearly 300,000 working-age individuals have migrated out, there are still more than 700,000 people in Pingyu. Most of these people live in villages scattered across the county and lack the technical skills needed for mass industrial production. Therefore, the previous strategy of attracting a few large modern enterprises was doomed to fail.

In addition, after visiting industrial clusters in the coastal area, the local officials realized that industrial clusters are more important to the county than attracting large enterprises. Industrial clusters can create many opportunities for small and medium-sized enterprises through forward and backward linkages. In contrast, a single large enterprise without local linkages generates few spillovers. However, it is more challenging to identify and develop a suitable industrial cluster composed of numerous enterprises than to attract a single large one.

Despite having realized the importance of industrial clusters, the local officials were unclear on how to develop a cluster from the ground up. Building a new industrial cluster through industrial policies is a high-risk proposition that less-developed regions may not be able to afford to undertake.

5.2. Genesis: 2015–2018

5.2.1. Discover the industry

The first pioneer outdoor entrepreneur in Pingyu County was Mr. Liu. Originally from Xincui, a neighboring county, Mr. Liu graduated from middle school and went to work in a Taiwanese outdoor furniture enterprise in Guangdong province. He later established his outdoor furniture enterprise in Zhejiang province. Facing rising labor costs in the coastal area, he began looking for a new place to produce with lower labor costs (as shown in Table 2). He settled in Pingyu, renting a factory building and setting up a new production line in May 2015.²

The second pioneer entrepreneur was Mr. Chen, who is a native of Pingyu County. In his early years, he went to work in an outdoor furniture enterprise in Zhejiang province and later started his own business there. Since 2011, he has been thinking about relocating

² “In 2015, labor costs in Zhejiang were rising rapidly, so I considered returning to Henan. When I arrived in Xincui County, no one paid attention to us. A friend of mine suggested going to Pingyu, where the local government would provide us with any support we needed. I finally returned to Pingyu and founded my company in 2015. I didn't have much foresight. I returned to Henan for two reasons. First, I believed that Henan would have a population dividend for at least ten years. In 2015, the average salary was only about 2000 yuan. Second, I wanted to help my hometown and fellow villagers. I believe that making money and helping others are the true happiness in life.” (Interview with Mr. Liu on 2nd March 2021)

production to cope with rising labor costs. He visited numerous places in China and Vietnam but was still undecided about where to relocate.

In early 2016, during his Chinese New Year visit to his hometown, Mr. Chen discovered that Mr. Liu's had recently established an outdoor furniture enterprise. Due to their common hometown origins and professional relationship, Mr. Chen visited Mr. Liu. Mr. Liu kindly revealed the exact production costs in Pingyu, which convinced Mr. Chen that it would be profitable to relocate production back home. A few months later, Mr. Chen rented a private factory site in Pingyu and began the production of outdoor furniture.

Notably, he did not seek any help from the local government at this stage, as stated below:

The Pingyu government did not offer any preferential policies to me at the time. I rented a place in my hometown and invested without informing the local government. Later, the local officials asked me if I wanted preferential policies, and I said, "I don't need policies, as long as you don't harass me." (Interview with Mr. Chen on 23rd August 2020).

The discovery activities of Mr. Liu and Mr. Chen were the catalysts for the formation of a new local cluster. It is worth mentioning three features of these discovery attempts. First, the two entrepreneurs, not the local officials, discovered that the outdoor furniture industry was viable and profitable in Pingyu. Few people knew about this industry before the discovery attempts, as it is a small subclass industry and not a high-tech one that attracts local officials. Second, their firms are small and medium-sized, not the larger ones that are usually the targets of investment promotion by local governments. Third, the two entrepreneurs did not choose Pingyu randomly. They relocated their production to Pingyu because of their hometown connections. The limited size of their firms made it difficult for them to gather detailed information about every potential location. Therefore, it was natural for the entrepreneurs to try their hometowns. Social networks matter in the early stages of cluster formation.

Additionally, research has shown that entrepreneurs' prior experiences significantly influence the discovery of entrepreneurial opportunities (Shane, 2000; Shepherd et al., 2015; Ucbasaran et al., 2010). Specifically, the prior experiences of the two early entrepreneurs in Zhejiang Province were pivotal in identifying business opportunities and navigating the early stages of cluster development.

5.2.2. Entrepreneurial social network

In 2016, the serendipitous arrival of the two pioneering outdoor furniture enterprises caught the attention of local officials. After learning more directly from Mr. Liu and Mr. Chen, the local officials were convinced that the industry was aligned with Pingyu's comparative advantage and had the potential to be developed into a cluster for several reasons. First, the industry serves the international market, facing significant and stable external demand and potentially rising domestic demand. Second, the industry is labor-intensive, with simple and easy-to-learn skills, which is suitable for the abundant unskilled labor force in Pingyu. Third, a putting-out system can be used to overcome the problem of labor dispersion, as shown by Mr. Liu's and Mr. Chen's companies, which outsourced rattan weaving and sewing production to rural households (Interviews C7 and C10).

However, persuading new investors to invest in Pingyu was challenging for the local government. There were three main challenges. First, entrepreneurs in coastal regions were unfamiliar with Pingyu, except for a few Pingyu natives. It was difficult to communicate the favorable local conditions to potential investors who are not from Pingyu. Second, Henan Province, where Pingyu is located, had a poor reputation in terms of its business environment. Some local governments did not follow the policy commitments that they made during investment promotion, creating a bad reputation for the whole province. Third, although there were a few industrial firms in the leather sector in Pingyu, their linkages to the outdoor furniture industry were weak. Despite several attempts by the local government, no new entrepreneurs were convinced to invest in Pingyu.

To persuade doubtful investors in Zhejiang Province, the local government changed their investment promotion strategies by appointing Mr. Chen as an investment promotion ambassador, titled "the director of the Office of Pingyu County Investment Promotion in Zhejiang Province." Mr. Chen was actively engaged in the investment promotion activities "out of love for his hometown," in his own words (Interview of Mr. Chen on 23rd August 2020).

Mr. Chen's first major achievement was to convince Mr. Wang to set up a factory in Pingyu. Mr. Wang started his career in the outdoor furniture industry in his hometown, Yuyao County, Zhejiang Province, much earlier than Mr. Chen and Mr. Liu. His company, which is about the median size in the Ningbo cluster, is much larger than those of Mr. Liu and Mr. Chen. Mr. Chen once served as a manager in Mr. Wang's company. They formed a good relationship. Mr. Wang generously lent Mr. Chen 8 million RMB as venture capital to help Mr. Chen start his first company in 2009.

At the end of 2016, local officials visited Mr. Wang in Zhejiang Province, thanks to Mr. Chen's introduction. Mr. Wang was concerned about the high transportation costs from Pingyu to the Ningbo Port, as well as the uncertain business environment. To reassure him, the local officials promised to improve the transportation system and provide a good business environment. Mr. Wang set up his factory in Pingyu in late 2016, the third outdoor furniture enterprise in Pingyu. One more enterprise quickly moved to Pingyu under his and Mr. Chen's influence.

Mr. Wang's company is a key member of the Ningbo Leisure Product Industry Association (NLPIA). His company's relocation to Pingyu caught the interest of other association members. Local officials from Pingyu held several business promotion events with the NLPIA through the connections of Mr. Chen and Mr. Wang. The presentations attracted entrepreneurs in the outdoor furniture industry in Zhejiang, some of whom were not NLPIA members.

After the presentations, some prospective entrepreneurs asked Mr. Chen and Mr. Wang about the details of business operations in Pingyu and the credibility of the Pingyu county government. The association also organized several field trips for its members to visit Pingyu.

Seeing is believing. After the field trips, entrepreneurs realized the local business environment was much better than previously

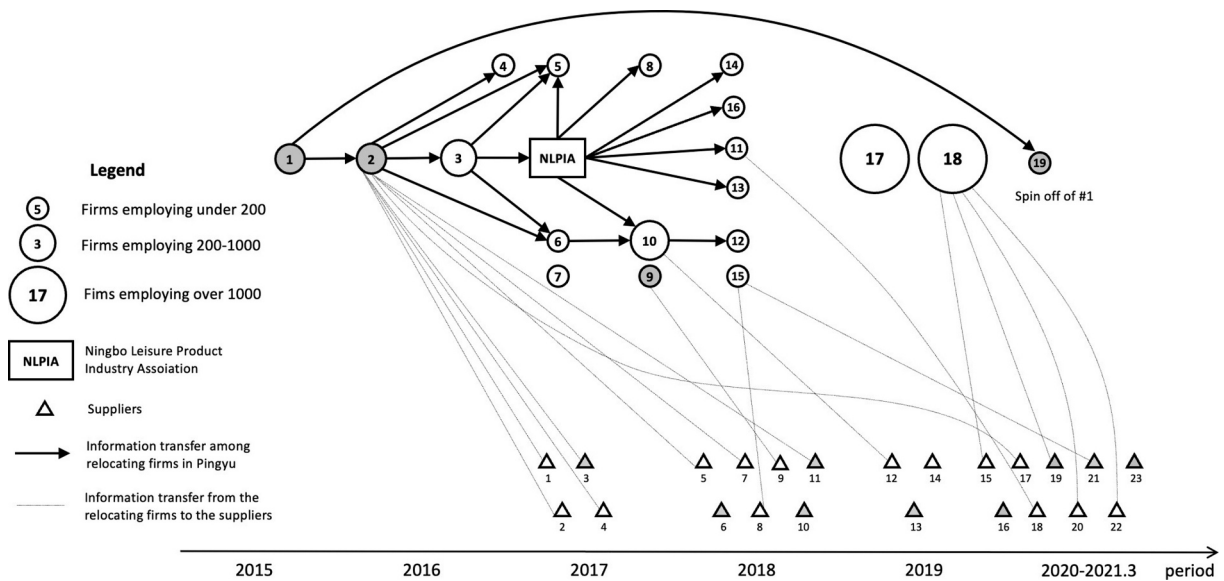


Fig. 3. Effect of Social Networks in the Cluster Evolution Process.

Source: Authors' field interviews.

thought (Interview of Mr. Zhu on 2nd March 2021). Besides transmitting information about Pingyu, the NLPIA played a key role in acting as an intermediary between entrepreneurs and local governments to resolve newly encountered problems as stated by the entrepreneur:

Many of the association members find comfort in being part of a group and making collective investments. If we encounter problems in Pingyu County, we do not go directly to the government for help. Instead, we seek assistance from the association... [For example,] when we wanted to rent a factory building, we approached the association, which assisted us in negotiating with the government. (Interview with Mr. Zhu on 2nd March 2021).

When making relocation decisions, entrepreneurs often had doubts about the local government's commitments. They were uncertain about whether the transportation problem could be solved, or whether factory buildings would be available to new entrants. This commitment problem was especially worse for small and medium-sized firms, which have little bargaining power when directly negotiating with local governments. The NLPIA was the perfect intermediary to deal with the commitment problem. On the one hand, it united many small and medium-sized firms as a group to transmit their requests and negotiate with the government. On the other hand, it made the local government pay attention to attracting smaller firms, which are easier to persuade and more likely to form a cluster.

As shown in Fig. 3, from 2017 to 2018, eight firms relocated their production to Pingyu (Firms A5, A8, A10, A11, A12, A13, A14, and A16). Three of them (Firms A5, A8, and A16) were members of the NLPIA. Even the other five had social ties with members of the NLPIA and were also influenced by the association when they decided to invest in Pingyu. The figure highlights the power of entrepreneurial social networks in firm relocation decisions.

The solid lines in the upper part of Fig. 3 indicate the information flows among the outdoor furniture enterprises set up in Pingyu since 2015. Among the 16 outdoor furniture enterprises that had relocated to Pingyu as of 2018, three of them have hometown ties, as indicated by the gray-filled circles (Firm A1, A2, and A9) in Fig. 3. The remaining 13 do not have direct hometown connections with Pingyu, but 11 of them knew each other in the outdoor furniture clusters in Zhejiang (Firm A3, A4, A5, A6, A8, A10, A11, A12, A13, A14, and A16).³ Altogether, 14 of the 16 relocated enterprises were influenced by either hometown or business social networks. The remaining two enterprises (Firm A7 and A15) moved to Pingyu solely due to the investment promotion efforts of the Pingyu government officials.⁴

Social networks play a crucial role in the development of local supplier networks as well. When the first entrepreneur established a factory in Pingyu, raw materials and intermediate goods had to be sourced from Zhejiang, resulting in elevated costs. However, the second entrepreneur utilized his social networks, including relatives, fellow townspeople, and classmates, to create local sources for intermediate inputs. He formed seven joint venture firms with these network members (four in 2017 and three in 2018), providing

³ Enterprise A12 moved to Pingyu primarily influenced by the owner of enterprise A10 (Interview A12).

⁴ In addition to Ningbo, Pingyu government officials also attended industry exhibitions in other parts of China and overseas. At an industrial exhibition in Guangdong Province, they successfully persuaded an outdoor furniture entrepreneur from Dongguan to invest in Pingyu (Interview A15).

initial investment and shared factory space (Interviews B1, B2, B3, B4, B5, B7, and B11). Mr. Chen sourced plastic bags, bubble films, cartons, and rattans from these suppliers. These suppliers initially mainly provided intermediate inputs for Mr. Chen's firm, but they quickly expanded their client base as more outdoor furniture enterprises moved to Pingyu.

The lower section of Fig. 3 shows how suppliers were formed. The dashed lines indicate the flow of information from the outdoor furniture enterprises to the suppliers, and the gray-filled circles represent enterprises owned by local entrepreneurs (see Table A2 for details). As of March 2021, there were already 23 suppliers in Pingyu, as shown by the triangle symbols in Fig. 3. Most of the suppliers (B1, B2, B3, B4, B5, B7, B8, B9, B11, B12, B15, B17, B18, B19, B20, B21, and B22) are linked to the existing entrepreneurial networks, as indicated by the connected dashed lines. This suggests that pre-existing social networks facilitated the establishment of the suppliers. Among the six suppliers without apparent links with the outdoor furniture enterprises, five (gray-filled triangles) are from the local area (Interviews B6, B10, B14, B16, and B23), and the remaining one moved to Pingyu because "some of the clients have already relocated here" (Interview B14). This confirms Marshall's (1920) insight that information and knowledge about the inner workings of doing business in a cluster are "in the air," making it much easier for local people to enter the market.

The evidence supports our argument that social networks are a powerful conduit for discovering and transmitting business opportunities during the incipient stage of cluster formation. Pingyu government officials cleverly tapped entrepreneurial social networks as a tool for business promotion.

The evidence supports Hypothesis I, which posits that entrepreneurial social networks can significantly reduce the discovery costs of pioneering firms and facilitate the entry of first movers during the incipient stage of cluster formation (0 → 1). Specifically, social networks serve as a powerful conduit for discovering and transmitting business opportunities in this initial stage. For instance, Pingyu government officials effectively utilized entrepreneurial social networks as a tool for business promotion, further reinforcing their pivotal role.

5.3. Growth: 2018-now

5.3.1. Limit of social networks

As the industrial cluster grew, the impact of social networks became less significant. As shown in Fig. 3, apart from the first two investors, only two more investors had hometown ties to Pingyu. Additionally, the potential of NAPLA to attract investors was largely exhausted by the end of 2018. The two largest firms in the industry, Firm No. 17 and Firm No. 18, both stated in interviews on September 4, 2020, that they did not place great importance on social networks when deciding to invest in Pingyu. While social networks can play a role in transmitting information, large firms often have access to many other sources of information, so the information transmitted through social networks is not as important to them as it is to small and medium-sized firms.

As the industrial cluster in Pingyu grew, its reputation became well-known to investors, diluting the need for government officials to promote Pingyu through hometown or entrepreneurial networks. As one government official (C10) stated in an interview on March 9, 2021, "The reputation of Pingyu as an industrial cluster is now well-established, so we no longer need to do much marketing. Instead, we are focused on addressing the new bottlenecks that have emerged, such as the need for better infrastructure and skilled labor."

5.3.2. Overcoming the bottlenecks

Less developed regions like Pingyu often have poor infrastructure, which was one of the main reasons that firms were reluctant to invest there in the first place. As the cluster grows, the lack of public goods becomes an even more binding bottleneck. Individual firms and entrepreneurs cannot overcome this on their own, which calls for institutional support.

At least three bottlenecks emerged as the industrial cluster in Pingyu grew. The first was a shortage of industrial land and factory buildings. Outdoor furniture firms were reluctant to invest in new factory buildings because of the high initial fixed investment. Building new factory buildings was beyond the capability of many small and medium-sized enterprises (SMEs). Instead, they preferred to rent existing buildings. However, the limited availability of existing buildings constrained the cluster's ability to expand.

To address the shortage of industrial land and factory buildings, the local government renovated 600,000 square meters of existing factory buildings and built 400,000 square meters of new standard factory buildings. These buildings were then rented to enterprises in the outdoor furniture industry at a very low price. The rent was only 1 RMB per square meter per month for the first four years, and then it increased to 4 RMB per square meter per month starting in the fifth year. This was significantly lower than the market rent of about 10–15 RMB per square meter per month in Zhejiang province. This policy significantly lowered the capital barrier to entry, enabling more SMEs to relocate to Pingyu.

Due to the land regulations by the central government, the county government could not arbitrarily increase the amount of land used for industry. To address this problem, from 2015 to 2018, Pingyu County reclaimed 1000 acres of industrial land from idle "zombie companies" through negotiation, redemption, and litigation (Interview C14). The high transportation cost was another major challenge. Outdoor furniture products are transported from Pingyu to Ningbo Port by road, with a freight rate of about 12,000 RMB per TEU. The transportation cost accounted for 10%–12% of the total value of the outdoor furniture industry in Pingyu, much higher than 3% in Zhejiang. This high transportation cost was a limiting factor for outdoor furniture enterprises in Pingyu.

To address this problem, the government provided outdoor furniture enterprises with a subsidy of 2000 RMB per TEU. However, given the high freight rate, this subsidy policy was an enormous burden for the government and not financially sustainable. A solution was needed to help lower the high freight rate. One option is to establish sea-rail combined transportation (SRCT). Local officials discussed this possibility with their counterparts in Ningbo Port. The proposed SRCT plan was to transport TEUs directly by special trains from the nearest railway station in Zhumadian. However, the minimum requirement for a special train is 25 freight cars. At the

time, the volume of goods was not enough to support 25 freight cars. To support the SRCT plan, the Pingyu County government decided to subsidize the freight cars when they were under capacity. The first SRCT train started to run in November 2017. Thanks to this arrangement, outdoor furniture can be loaded into TEUs from the factories, transported by trucks to the Zhumadian railway station, and then attached to special trains bound for Ningbo Port (Interviews C4, C6, C7, C9, C10, C11, and C12).

The SRCT plan was not without its challenges. At first, the special train ran only once a week. Even worse, the “special train” stopped at other stations to collect more TEUs to fill the empty cargo containers, which led to longer transportation times (Interview C10). Nevertheless, the SRCT successfully reduced the cost of transportation for Pingyu's outdoor furniture cluster from 12,000 RMB per TEU to 6500 RMB per TEU. The county government also gave each enterprise a logistics subsidy of 2000 RMB per TEU for the first three years, which meant that the outdoor furniture enterprises in Pingyu faced a lower transportation cost than before (see the last row in Table 1).

After the transportation hurdle was removed, the output quickly went up from 2700 TEUs in 2007–2008 to more than 10,000 TEUs in 2019, as shown in Table B1. The once-a-week special train could not meet the rising demand. The local government had to negotiate with China Railway Corporation to increase the frequency to twice a week in 2019. As of 2021, the trains to Ningbo Port were running daily. In addition, a new SRCT line to Qingdao Port⁵ and a land route to Europe via the China-Europe Railway has become available (Interview C12).

Although Pingyu has abundant labor, most of the workers are scattered in the countryside and it is difficult for them to commute to the county seat to work in factories there. As a result, the newly relocated outdoor furniture enterprises in the county seat quickly faced a labor shortage problem. To address this challenge, a putting-out system emerged. The factories in the county seat completed most of the production stages, outsourcing the final assembly step to workshops in the villages. The assembly stage of production conducted in the village workshops is simple yet labor-intensive. With little training, women and the elderly can start working in their village workshops on a piecework basis. The proximity of the workshops and the flexible work schedule allows them to care for their families and land while earning additional income (Interview C2).

As part of a government program, the “smart housewife project,” the county government has built more than 100 village workshops, each with a construction area of about 800–1200 square meters, since 2017. There is also a designated area in each workshop for children to play, making it convenient for women to look after their children while working. The decentralized production system provides women with family obligations and a great opportunity to engage in non-farm activities. The last column of Table 1 shows that more than 6000 workers, mainly composed of the elderly, disabled people, housewives, and farmers in their slack seasons, were working in village workshops by 2020 (Interview C3).

The further development of the outdoor furniture industry in Pingyu is reflected in the relocation of the two largest firms in the industry, Firms No. 17 and No. 18. Firm No. 17, originally located in Huzhou City, Zhejiang Province, is the second largest enterprise in the outdoor furniture industry, next to No. 18, with total revenue of around 6 billion RMB in 2019 (Interview A17). Its executive explained their decision to invest in Pingyu as follows:

The first thing we considered was the convenience of serving our customers. We would not even consider a location if our key customers said they would not place an order there. We had some preliminary discussions with our customers, and they recognized Pingyu and were confident in the quality of the products produced there.

Then we considered the production costs, including local land costs, housing costs, material costs, and transportation costs. Next, we considered the local business environment. We also inspected many other locations. To be honest, Anhui Province, Hunan Province, Jiangxi Province, and Henan Province were all potential destinations for us, and each had its advantages. The local governments in these provinces were also very active in promoting investment.

Pingyu was special because the government had done a lot of work in the early stages of the industrial cluster...The Pingyu government had built an industrial cluster for the entire supply chain. This meant that we could source our materials and components locally, which would save us a lot of time and money.

We also knew the entrepreneurs of Firms No. 1, No. 2, and No. 12 and kept a keen eye on their performance after relocation. They were doing well. It is helpful to have some successful examples to follow. If no pioneering firms were moving forward, it would be very difficult to make such a decision. For a mature and large enterprise, it is necessary to consider all possible situations.

The executive of Firm No. 17 emphasized the importance of existing clusters. He argued that the reputation of an existing cluster makes it easier for customers to recognize and trust it. He also pointed out that the discovery process of existing entrepreneurs helps to reveal the endowments of a region that are suitable for a particular industry. Finally, he emphasized the government's role in “creating” clusters through industrial policies.

The executive of Firm No. 18 also highlights the importance of local institutional support in changing the endowment conditions of Pingyu:

With the SRCT, freight costs have been reduced by half. In addition, the government also provides freight subsidies in the early stages, which has made up for the shortcomings [of high transportation costs]. The factory buildings in Pingyu County are almost free for us, which has reduced our concerns. We have no risk and are willing to try it in the beginning. The government official said that they would provide us with subsidies in the first few years to help the industry get started.

⁵ Related news can be seen on the address: <https://mp.weixin.qq.com/s/MQ8cl7rntIME22B6m7n7Iq>.

Table 3

Major Bottlenecks and the Role of Social Networks and Institutional Support.

Stage	Main bottlenecks	Social networks	Institutional support
Growth 2015–2018	High cost of self- discovery	Returning entrepreneurs started businesses Information transmitted through the hometown network	Local officials tapped the entrepreneurial networks as a tool for business promotion
	Spreading information about the cost of production in Pingyu; Risk of poor institutional environment	Attract investment through entrepreneurs' social networks; Joint action of NLPPIA members	
	Lack of local intermediate input supply	Support the establishment of suppliers through the entrepreneurs' network	
Growth 2018–2021	High transportation cost		Opened the SRCT and provided transport subsidy
	Insufficient factory sites		Constructed new factory sites and rented them to new firms at subsidized rate
	Dispersed labor force		Constructed village workshops and provided subsidies to the operators

Source: Compiled by the authors.**Notes:** NLPPIA = Ningbo Leisure Product Industry Association; SRCT = sea-rail combined transportation.

The local government addressed several common bottlenecks.⁶ First, by reconfiguring previously underutilized factories in industrial parks, it resolved factory space shortage. Second, it has reduced transportation costs through the use of railway transport. Third, it decentralized assembly to village workshops, engaging women and the elderly who cannot travel to county seat to work. These efforts support and validate Hypothesis 2 that institutional support plays a more significant role in reducing external costs during the cluster growth stage ($1 \rightarrow N$).

This study found that entrepreneurship and social networks were crucial in the seed stage of cluster formation. By comparison, the local government's record in attracting pioneering firms in targeted industries was notably dismal. In the later growth stage, however, the local government proved instrumental in addressing emerging bottlenecks, enabling the cluster to flourish. Table 3 summarizes the main bottlenecks in each period and their solutions across each period.

6. Conclusion

The formation of industrial clusters is a complex process that has been studied extensively by economists and geographers. However, the formation of clusters from scratch has rarely been studied, especially in developing countries. This study documents an in-depth case study on the formation of a nascent outdoor furniture cluster in central China. The cluster was not planned; rather, it was started by a few return migrant entrepreneurs who used to work in a leading outdoor furniture cluster in the coastal region.

After observing the success of the pioneering firms, the local government hired one of the entrepreneurs as an ambassador of investment promotion in the coastal cluster. Thanks to his efforts in spreading information and bridging trust between investors and the local government, more firms from the coastal cluster, many of which did not have a hometown connection, relocated their operations to the hinterland county. The relocation of outdoor furniture enterprises in turn boosted the entry of numerous local firms in related industries.

We developed a conceptual framework to illustrate the relative importance of social networks and institutional support at different stages of cluster formation. In the incipient stage, where there is high uncertainty, it would be extremely difficult for governments to select a target industry for cluster development. Instead, it is important to encourage more entrepreneurs to explore new business opportunities. Entrepreneurs with both local social networks and ties to the outside market are more likely to be successful searchers. The success of first movers generates helpful public knowledge about new local business opportunities, lowering the discovery cost of followers and attracting more entries.

As the size of a cluster increases, common bottlenecks often emerge that are beyond the capability of a single firm to address. At this stage, joint actions are needed to overcome these obstacles. Local governments, business associations, or other agencies are more capable of organizing joint actions and lowering the external costs than individual firms.

This study provides valuable insights into the role of entrepreneurship, social networks, and institutional support in the formation of industrial clusters. However, we must add a cautious note that this study is only a case study, and more empirical studies are needed to further test and refine the theory of industrial cluster formation.

This finding also contributes to the top-down versus bottom-up debate. While China's economic rise was driven by extensive government interventions (Cao et al., 1999; Rawski, 1995; Xu, 2011), early industrial policies were largely local. Recently, top-down policies have increased (Chen, 2017; Fang et al., 2024). Local officials' strategic behavior can influence top-down policy outcomes (Wang & Yang, 2021). This study highlights the importance of local knowledge, echoing Hausmann and Rodrik's (2003) "self-discovery" and Easterly's (2006) advocacy for "searchers" over "planners" in development.

Declaration of competing interest

The authors have no relevant financial or non-financial interests to disclose.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.chieco.2025.102403>.

⁶ The Pingyu Outdoor Furniture Association was established in 2018, with its chairman also serving as the head of the County Political Consultative Conference. The Pingyu association plays a key role in helping businesses connect with government departments and other resources, providing financial services, organizing exhibitions, and offering workforce training. The local government has also offered support for market expansion, particularly through events such as exhibitions, which have helped enhance the market presence of local businesses.

Data availability

Data will be made available on request.

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