

# Effects of Clusters on China's E-Commerce: Evidence from the Junpu Taobao Village

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## Abstract

This study examines competitive advantages and economic effects brought by clustered-based e-commerce in China through analyzing a case of Junpu Taobao Village, a small village where a critical mass of online vendors is concentrated. Backed by the Diamond Model and other cluster theories proposed by Michael E. Porter, this paper finds positive, large, and statistically significant clustering effects in this Taobao Village. These effects generated by online vendor agglomeration shed lights on the sustainable development of E-commerce in China.

**Keywords:** cluster, competitive advantages, e-commerce, Junpu Taobao Village

## 1. Introduction

The vigorous e-commerce market is fueling the expansion and boost of China's retailing industry. By the end of 2012, the online retailing sales has reached 1,300 billion yuan (\$214.88 billion), accounting for 6.3% of that in the total retailing (AliResearch, 2013, p8). As for 2013, the record-breaking "Single's Day" promotion of Alibaba is reported to have generated sales with a worth of 35 billion yuan (\$5.64 billion), far more than that of the so-called Cyber Monday in the United States on November 26th, the day following the Thanksgiving weekend (Zheng Junfa, 2013). The lucrative profit of e-commerce attracts millions of Chinese to engage themselves in e-commerce activities. For instance, the dominant Taobao.com in the consumer-to-consumer (C2C) online marketplace is reported to have 9 million online vendors (Wang Ze & Zhao Gang, 2013).

Agglomeration and external economies can lead to demand and supply conditions that are better in a cluster than in isolation, promoting the growth of incumbent firms as well as attracting the entry of new firms (N. R. Pandit, G. A. S. Cook & P. G. M. Swam, 2001), and the e-commerce is no exception. The most notable cluster of e-commerce in China is the "Taobao Village" dubbed by a prestigious Chinese newspaper. By the end of 2013, 20 Taobao Villages have been detected according to AliResearch, 2013. Geographical clustering of online vendors within a village tends to operate under a favorable environment relative to those who operate in isolation. As a result, the operating pattern of Taobao Village has become crucial not only to the development of regional economy but also to the growth of e-commerce industry in China. To better understand the effects of clustering, this paper empirically examines the impact of clustering of online vendors on industrial performance in China. The illustrative case in this study is the Junpu Taobao Village in Jieyang City, Guangdong Province, China.

## 2. Theoretical Basis

The role of geographical clustering in the growth of enterprises has traditionally been the focus of a range of economists (Marshall, A., 1920; Michael E. Porter, 1998, Mercedes Delgado, et al 2011). In line with Michael E. Porter's definition, this paper defines a cluster as "a geographic concentration of interconnected companies in a particular field in a particular location, whether it is a country, a state or region, or even a city" (Michael E. Porter, 1998; 2000). The most well-known clusters in the globe are, obviously, the Hollywood (entertainment industry), the Wall Street (financial services) and the Silicon Valley (high-tech center).

A range of theories that could account for cluster or agglomeration have been proposed. Positive externality (the benefits associated with the formation of different types of economic agglomerations at particular places) is the financial motivation for industrial cluster (Marshall, 1920, pp. 226–233). This Marshallian externality has been

reexamined and verified by various scholars, who measure the relevance of each of Marshall's three theories on industry agglomeration: (1) agglomeration saves transport costs; (2) agglomeration allows for labor market pooling, and (3) agglomeration facilitates intellectual spillovers (Ellison, Glenn, Edward L. Glaeser & William R. Kerr, 2010). The original factor might be an “accident of history” (Brown & McNaughton, 2002, pp. 3–37) or political initiatives as Michael E. Porter (1998) describes that governments have a great stake in the influence of improving productivity and prosperity in a cluster.

This article is built on the earlier works written by Michael E. Porter and others who investigate the competitive advantage of clustered firms. Michael E. Porter proposes the theory to emphasize the productivity growth as the focus of national strategies, stating that competitive advantage rests on the notion that cheap labor is ubiquitous and natural resources are not necessary for a good economy. The Diamond Model approaches at clusters by analyzing determinants of competitive advantages (see Figure 1).

To be more specific, the decisive elements in Figure 1 are listed as follows:

- 1) Factor conditions: Specialized resources are often specific for an industry and important for its competitiveness. Specific resources can be created to compensate for factor disadvantages;
- 2) Firm strategy, structure and rivalry constitute the second determinant of competitiveness because it creates pressure to innovate in order to upgrade competitiveness;
- 3) Related and supporting industries provide cost-effective inputs, stimulating other companies in the chain to innovate;

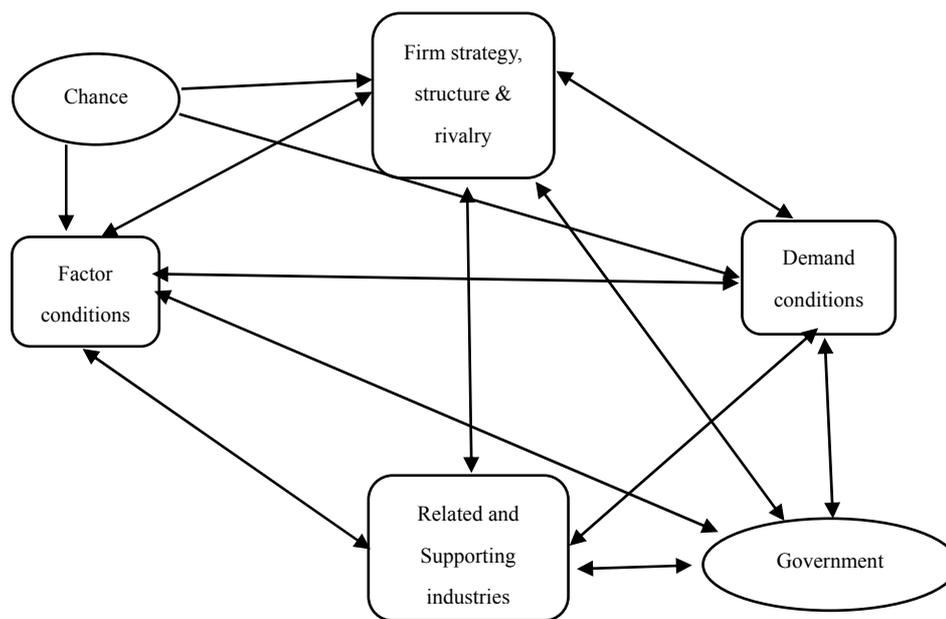


Figure 1. The Porter's Diamond Model

Source: Michael E. Porter (1990).

The Competitive Advantage of Nations. New York: Free Press.

- 4) Demand conditions: Sophisticated buyers pressure firms to innovate faster and to create more advanced products than those of competitors, thus helping companies create competitiveness;
- 5) Government can influence each of the above four determinants of competitiveness, because its interventions can occur at local, regional, national or supranational level;
- 6) Chances are important because they create discontinuities in which some gain competitive position while others lose.

In the realm of clusters of industries, this Diamond Model approach proposes that competitiveness of one company is related to the performance of other companies and other factors tied together in the value-added chain (Traill, Bruce & Eamonn Pitts, 1998). In Porter's later published literature, through examining the

dynamics of co-located groups, he further explains the positive effects of clusters (see Table 1), which are intertwined with the six determinants in the Diamond Model.

As can be seen from Table 1, Michael E. Porter categorizes the impact into four dominant aspects:

1) Cluster-driven agglomerations are sources of productivity and innovation. Within a particular area, the transaction costs are reduced, the creation and flow of information improves and local companies are prone to peer pressure and costumers' specialized needs (Michael E. Porter, 1998).

2) In a given region-industry, there is significant evidence of the positive impact of clusters on entrepreneurship due to the fact that convergence in start-up activity at the region-industry level can facilitate higher growth in new business formation and start-up employment. In such way, strong clusters contribute to start-up firm survival (Mercedes Delgado, Michael E. Porter & Scott Stern, 2011). This positive finding is particularly significant for small and medium sized enterprises (SMEs).

3) In terms of regional economy performance, it is strongly influenced by the strength of local clusters and the vitality as well as plurality of innovation with regional wage differences dominated by the performance of the clusters (Michael E. Porter, 2003).

4) Global sourcing and the rapidly changing technology mitigate local disadvantages but do not create advantages. So global sourcing is normally secondary to a cluster. But proximity in geographic, cultural, and institutional terms allows for better information and many other advantages. New influences of clusters on competition have taken on growing importance in an increasingly complex, knowledge-based, and dynamic economy (Michael E. Porter, 2000).

Table 1. Positive benefits of clusters

Beneficiaries in a cluster	Explanations
Incumbent firms	Stronger productivity and innovation
Start-up firms	Higher growth in new business formation and start-up employment
Regional economy	Increased regional wage, etc.
Local cluster in a global economy	Sustainable competitive advantage

Source: Compiled from Michael E. Porter's published literature.

However, the benefits of clusters are not definite without flaws. To some degree, firms clustered within a single region can lead to congestion and vicious competition in input markets, represented by real estate, skilled labor and capital. In the output market (customers), firms are prone to fight for consumers with strategies like price war, diminishing per-firm sales, profits and growth (N. R. Pandit, et al., 2001). Michael E. Porter (1998) addresses the intense local rivalry by suggesting that, rivalry in fact involves imitation, therefore, product differentiation is to help companies to avoid notorious competitions, price war for instance, with their counterparts.

Based on Michael E. Porter's ideas pertinent to cluster effects, this paper starts to examine whether the findings of the above studies can be applied to explain the booming e-commerce in Junpu Taobao Village, Jieyang, Guangdong Province, China. Then, suggestions on the development of China's e-commerce are put forward accordingly.

### 3. Case Description

#### 3.1 The General Situation of China's E-commerce

Researchers like George T. Haley (2001) once pointed out a range of problems concerning the healthy development of China's e-commerce. For instance, individuals were not well adapted to the impersonal characteristics of internet shopping; there were tremendous uncertainty regarding the government's regulatory posture with respect to e-commerce and a scarcity of qualified personnel as well as financial security would put e-commerce's future in a catastrophe. However, this kind of description is now definitely outdated. The past decade has witnessed China making strides in upgrading its online market.

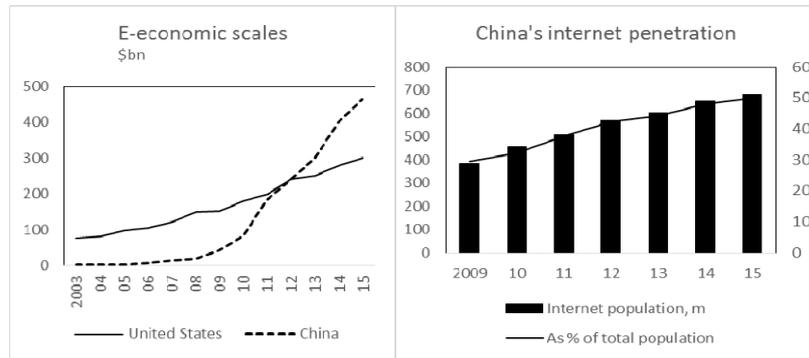


Figure 2. The great expectation of china's e-commerce

Source: Alibaba: The world's greatest bazaar.

Mckinsey Global Institute (MGI) pays its due tribute to China's e-commerce with its report: *China's E-tail Revolution: Online Shopping as a Catalyst for Growth* (2013). Thereby, MGI depicts e-tailing as a powerhouse industry which can be manifested by astonishing data. China has the world's largest online population, with 130 million residential broadband accounts and e-tailing producing more than 190 billion US dollars in 2012 sales. Still, this industry has not been fully exploited as MGI further points out that online sales have a potential to reach \$650 billion by 2020. At that time e-commerce could probably increase China's private consumption by an additional 4 -7%. Moreover, the influential news portal the Economist (2013) also shows empirical figures that in fact there is much room for growth because online penetration in China was 43% in 2012, well below the 70% or higher ratio in developed economies, which can be concluded from Figure 2.

As Figure 2 suggests, by the year 2015, the Internet users in China will have accounted for 50% of the total population, reaching 500 million. With such a huge population and many other favorable catalysts, it is forecast that China's e-commerce sale will surpass that of the United States by almost 200 billion American dollars in 2015. It is also noteworthy that mobile online shoppers are on surge with China becoming the world's biggest market for smartphones. Purchases through mobile phones leapt from 2 billion yuan in 2010 to 53 billion yuan in 2012, accounting for about 4% of total e-commerce. All these data unanimously prove the fact that e-commerce in China is experiencing astonishing growth.

### 3.2 Junpu Taobao Village

The favorable environment in China has greatly powered the formation of Taobao Village. Defined by Aliresearch, Taobao Village refers to a critical mass of online vendors concentrating in a village and doing C2C business through Taobao platform, creating synthetic effects through conspicuous clusters. Junpu Taobao Village, the case in this paper, used to be a small and unknown village with about 2,600 villagers. Yet, over the past two years, it has attracted thousands of e-commerce related labors and has transformed itself into a hotspot for e-commerce startups (Zhang Junjie, 2013).

Junpu Village's history of e-commerce can be dated back to early 2012, when several post-80s Chinese came back to the village with all the experiences and skills needed to run and fund their ventures in the internet world. Before becoming Taobao vendors, these pioneers, in fact, used to be garment wholesalers in Guangzhou, a place where various apparel commodities were abundant and logistics network was well established. Pressed by the ever-increasing overheads and soaring brick-and-mortar rents, they eventually chose to leave Guangzhou and migrated back home, building their virtual business dream through Taobao.com. Some of the pioneers involved their neighbors and relatives into the entrepreneurship as the business grows too big for a single family to operate. These merchants became Junpu's first generation of online vendors. In less than a year, this kind of virtual shops run by such villagers experienced exponential increase in volume and scope. It is reported that, by December 2013, more than 1,400 online shops have been registered by owners in Junpu Village, with a turnover reaching 35 million yuan (\$5.8 million) in September 2013 and a total sales volume peaking at about 15 million yuan (\$2.5million) on the Singles' Day (November 11<sup>th</sup>), hence turning the village into a genuine Taobao Village (Yang Fan, 2013).

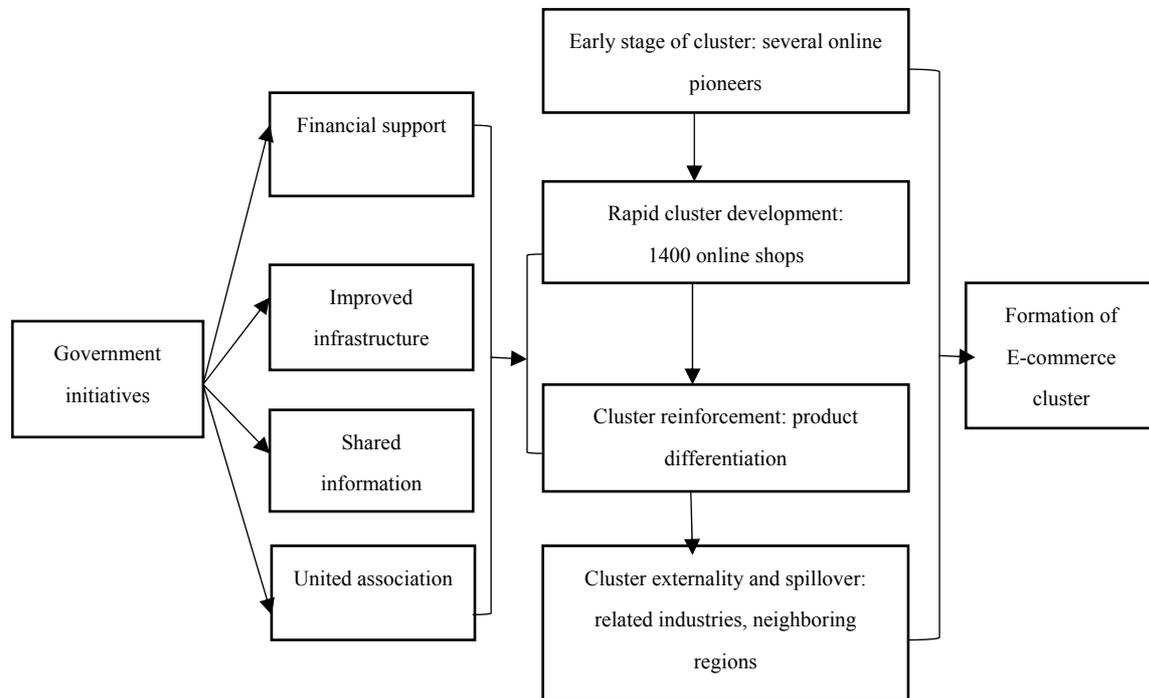


Figure 2. Formation of cluster in Junpu Taobao Village

The success of Junpu Taobao Village cannot be made possible without a series of policy initiatives from the Jieyang municipal government. At the early stage of e-commerce development, vendors were not organized and infrastructure was obsolete. When the municipal authorities acknowledged the rapid emergence of e-commerce in Junpu Village, they started to issue favorable policies, aiming to promote a well-organized cluster. Up to now, subsidized loans amounting to 10 million yuan have been offered to start-ups and incumbent firms and basic infrastructure such as broadband, transportation network has been greatly improved to meet huge demand. Lectures and training for online shoppers are organized and delivered frequently there, creating knowledge spillovers. In addition, an e-commerce association was established for future strategy formulation and development. The formation of cluster in Junpu Taobao Village can be illustrated by Figure 3.

#### 4. Case Analysis

The dynamics of e-commerce cluster in Junpu Village appear to be strikingly competitive which can be testified with the concrete data. In June 2013, before the Visible Hand from the government initiatives to strengthen agglomeration, the sales turnover there was less than 30 million yuan. In October of the same year, this figure has been upgraded to 100 million yuan. Michael E. Porter's Diamond Model is adopted in this section to explain the competitive advantages which have made such a miracle happen.

Factor or input conditions are explained by Michael E. Porter (2000) to include natural resources, human resources, capital resources, physical infrastructure, information infrastructure and scientific as well as technological infrastructure. For start-ups, the most obvious problem is the lack of capital, experience and techniques. But in Junpu Village, huge amount of interest-free or low-interest-rate capital is provided to entrepreneurial vendors. Strong clusters have contributed to knowledge or expertise spillovers in Junpu Village with regular lectures or training programs organized by the government and the association. As a result, these factor inputs are upgraded in efficiency, quality and (ultimately) specialization within the cluster, bringing about the increased productivity to all business activities.

The context for firm strategy and rivalry refers to the rules, incentives, and norms governing the type and intensity of local rivalry (Michael Porter, 2000). Before the cluster was formed, shop vendors usually adopted low-price strategy to attract customers in Junpu Village. But now, with the sheer volume of shops, firms have to transform their marketing schemes. As stated in the literature review, intense rivalry fuels innovation and product differentiation. The emergence and expansion of Junpu Taobao Village cluster is being driven by a mechanistic concern, that is, the desire to offset product constraints (only garments). By clustering, vendors are alert to competition and sustainable development. They have become aware that competitive advantages should

come from innovating instead of imitating others.

Demand conditions of e-commerce are incredibly promising in Junpu Village as customers are not confined within a particular region. Instead, with the Internet, the entire China is connected to the Junpu village. Clusters of linked vendors play a crucial role in giving rise to demand-side advantages as clusters reduce consumer search costs and may result in informational externalities of sophisticated and demanding customers.

The forth and the most prominent competitive advantage of Junpu Village cluster comes from its related and supporting industries. The presence of capable and locally based garment suppliers means that there is no stock risk for vendors. The risk of keeping stock is “transferred to suppliers”. The proximity to their suppliers makes it easier to convince entrepreneurs to open online shops. To be more specific, whenever there is an order from customers, vendors can immediately get the exact stock from garment manufacturers and get it delivered to customers. This sort of seemingly no-risk and no-cost e-commerce pattern greatly reduces vendors’ vulnerability to and demand for transportation and agency services, thus reducing both the direct costs and external diseconomies associated with the traditional stocking system.

The role of government cannot be left out pertinent to creating the competitive advantage for Junpu Village. What the government has done can be best explained by Michael E. Porter’s ideas that “Regional policy should promote specialization, upgrading, and trade among regions. Cluster formation can be encouraged by locating specialized infrastructure and institutions in areas where factor endowments, past industrial activity, or even historical accidents have resulted in concentrations of economic activity” (Michael Porter, 1996, p. 85).

## 5. Discussion

Overall, this paper finds significant and positive clustering effects in the Junpu Taobao Village. In fact, the miracle that Junpu Village created has been the highlight of China’s profound national economic program *Economy Half an Hour*. Figures presented in the program reveal that Junpu Village is so promising that its development pattern can set a good example for e-commerce vendors. Specifically speaking, the village offers a prominent insight that can contribute to the literature on China’s e-commerce development, that is, online vendors co-located with each other have greater competitive advantages than isolated counterparts. This is especially true with e-commerce as it has the largest number of internet start-ups as well as small-and-medium sized enterprises (SMEs). The Junpu Village cluster suggests that, by enjoying the knowledge spillovers and the capital support provided by governments, e-tailing shops are able to improve their chance of survival. Secondly, despite of the fact that online vendors are still using low-price strategy to compete in the virtual business world, it is likely for them to change their business mode from imitating others to innovating autonomously, and to shift from low-investment to high-investment projects when they are clustered within a region. Inter-organizational collaboration and interpersonal networks in a cluster are crucial to productivity growth and risk investment.

Being an eco-friendly tertiary industry, e-commerce ought to be a driving force of domestic consumption, which should be allowed to develop without much intervention. Evidence from Junpu Taobao Village reveals that political initiatives play a crucial role in upgrading logistics infrastructure, expanding investment capital and improving the welfare of rural economy. Since the brick-and-mortar retailing business is still underdeveloped in Tier 3 and Tier 4 cities in China, it is worthwhile to point out that the boost in consumption is even more pronounced in these small-and mid-sized urban as well as rural areas (MGI, 2013), which is also evident in Junpu Village. Thus, governments at all levels should be aware of the effects that e-commerce may exert on regional economy.

## 6. Conclusion

This study is built on the empirical data on regional cluster in China’s e-commerce industry and offers insights into the potential competitive advantages and utility that online vendors perceive from co-related business activities. Through the case study of Junpu Taobao Village, it is safe to conclude that clusters are able to create large external economies and contribute more to the industrial performance and development. Specifically, clustered online vendors can enjoy favorable factor conditions, such as knowledge spillovers and government-subsidized capital. Being confronted with severe local rivalry, firms can avoid suffering from financial loss by adopting the differentiation strategy. More importantly, the well-established related industries can provide online shop owners with risk-free or low risk business opportunities. In addition, clustering can contribute to the rapid sharing of information among the consumers in the village. Therefore, despite the fact that e-commerce can be conducted wherever there is the Internet, the case suggests that clustering of online business activities may be the right developmental pattern for China’s e-commerce. Furthermore, governments at all levels should take initiatives to promote e-commerce agglomeration, as the success of Junpu Taobao

Village implies that favorable political environment can help to remove the obstacles in creating clusters.

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