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Information cost and horizontal division firm clustering

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ABSTRACT

The way of firm clustering of Small and Medium Enterprise is categorized into horizontal division and vertical division, and horizontal division is the most typical category of firm clustering for Small and Medium Enterprise. But extant theories such as transaction cost and transaction relationship have no power to explain why horizontal division firms cluster at first. Considering information as analytical units and borrowing from informational economics, this article finds that: ① information production and information transfer are the main differences between firm cluster and other market organizations; ② firm cluster is one kind of regulation arrangement which can reduce information cost.

KEYWORDS

Small and medium enterprise; Horizontal division; Information cost; Spatial agglomeration.



INTRODUCTION

Spatial clustering of small and medium enterprise is also called firm clustering, and economic geographers discussed firm clustering from different perspectives. Webber argued that several firms cluster not only can increase their revenue but also can reduce their cost. Because firm clustering can not only reduce production cost through large volume purchase, but also can reduce general expenditure by sharing basic infrastructures such as gas pipelines and water pipelines. Krugman suggested that spatial clustering of business activities is determined by the interaction of increasing revenue, transfer cost and demanding factors. Fujita Masaku et al argued that clustering can increase the trade cost of end product but reduce the trade cost of intermediate product, and the effect of the later is larger than that of the former. Scott et al empirically studied both horizontal division firm clustering and vertical division firm clustering, and suggested that the initiation and development of firm clustering was a balance of internal transaction cost and external transaction cost. Yang et al also studied the relationship between division and clustering, and argued that division not only can produce positive networking but also can increase transaction cost. As one special requirement of division networking, spatial clustering can reduce transaction cost and enhance the level of division.

These studies explained the relationship between division and clustering from the perspective of exchange relationship and transaction cost, and they have some limitations. One of them is the ignorance of firm's basic feature that is production. Another limitation is the ignorance of the complexity of firm clustering and its motivation's diversity. If there is only one kind of division that is vertical division, the reason why organization emergence can be explained from the perspective of transaction cost theory and Krugman's economical clustering theory. In fact, firm clustering has at least two kinds: horizontal division and vertical division. And horizontal division is more common. Firm clustering of horizontal division means that all the firms that cluster are similar, and their relationship is competitive not transaction. So, transaction cost theory cannot make a good explanation. But competitive advantage theory may be a new perspective to explain the horizontal division's firm clustering. Storper and Venables argued that horizontal division of firm clustering can produce advantages of information exchange environment because of the formation of regional information buzz field, and information exchange can be pushed by networking. Although competitive advantage theory and information exchange can partly explain horizontal division firm clustering, it still does not answer the question why firms need to cluster. Thus, this article attempts to change the analytical perspective and introduces the concept of information cost into the analysis of horizontal division firm clustering.

INFORMATION COST

In order to analyze firm division and firm clustering, the definition of information must be defined clearly. Information is in the center of market organization, and its typical features include information production, information transfer and information's creditability. As the basic unit, information not only can explain transaction relationship and contract relationship, but also can explain other relationships. Phelps argued that the definition of transaction cost is too random but the definition of information cost is so exact that it has stronger persuasion on the explanation of the industrial relationships. Fang (1992) suggested that the scope of the information cost is very extensive and it included the information cost that generated not only from the interactions between human and nature but also from the interactions among humans; but transaction cost only includes that generated from the interactions among humans. Besides, with the emergence of information intensity of business activity, information cost plays more important role. Thus, this part firstly discussed the features of information and information cost, secondly used the concept of information and information cost as tools to analyze the formation and development of horizontal division clustering.

(1) Information and information cost. Generally, the more information the decision makers own and the more knowledge the decision makers have about the environment, the high possibility the decision succeed and the greater revenue the decision makers make. So, we can conclude that

information has great value. Information is one kind of goods, because it must be paid to get it. But information is not a normal kind of goods but a special kind of goods. As a special kind of goods, it has some new features. Firstly, information is intangible and its price is difficult to decide as that of normal goods. Secondly, information has high cost-in-production but low cost-in-use. For example, a new innovation has large invest cost but low cost-in-use that it is the cost that generated from the copy of the new innovation. Thirdly, different kind of information has different ways to diffuse. Fourthly, because the buyer can decide the quality of the information, and it is very difficult for buyers to make the choice before they get it.

(2) Eternal information demand and cost. The demand for information varies according to purposes and eternal environments. If the market is perfect competition and the information is enough, firms must pay for information searching, bargaining, decision making and executions because of the uncertainty of market. The theory of transaction cost has made an explanation for it. From the perspective of its generation and development, firms demand many kinds of information. Firstly, before the foundation of the firm, investors needs all kinds of information about technique, productive input, market development, and so on. These kinds of information are necessary for the foundation of the new firm but are not put into the scope of transaction cost. Secondly, innovation is one purpose of all firms, which is at least important as production and exchange. So, firms must get all kinds of information about the development of new product, and these costs are not put into the scope of transaction cost either. Thus, the purpose of the demand for information not only reduces the exchange cost and transaction cost, but also reduces the cost of foundation and development.

(3) Eternal information supply and information cost. Every firm not only needs to get information from others but also needs to supply information for others. In order to win in the market, firms must communicate with customers. Firstly, firms must announce the information about their own products, prices, places through advertisement to reduce customers' searching cost. Second, firms must enhance these images through communicating information as product quality. In one word, the supply of these kinds of information has great cost.

(4) Internal information demand-supply and cost. Information gain and diffuse is the basis of all kinds of management. In the activities of plan, organization, leader and control, the flow of information is necessary. Efficiently information transfer is the key of efficiently management, and it is also the basis of firms' operation. So, the development and maintenance of information system is also has great cost.

FIRM CLUSTERING AND INFORMATION COST

The relationships among horizontal division firms are competitive not transaction. So it is really difficult to explain the reason why they cluster from the perspectives such as transaction cost, trade cost of intermediate, transfer cost, and so on. Why do these firms cluster? Firm clustering is not only a regional choice, but also an importance choice for existence. In order to develop better, firms must gain various kinds of resources. And all these resources are related to information cost. See TABLE 1.

(1) Firm foundation and information cost. At the start-up stage of firm clustering, only much less firms cluster together. With the scale development of firm clustering and the increasing of the firms in the clustering, a lot of eternal investors enter and the clustering expands much quickly. For start-up firms, in order to reduce investment risk, they usually need the followed information. Firstly, start-up firms need environmental information such as politician, legal, economic, technique, social culture and market competition. Secondly, the information about the investment area is also need, which includes population, GDP, transformation, weather. Thirdly, start-up firms must collect information about their competitors to create unique business model. Although every firm spends a lot of time and money on collecting information, they still cannot avoid all kinds of risk. Actually, a lot of firms adopt strategies including learning and initiation to reduce investment cost and information searching cost. Learning and initiating from nearest firms are a useful way to reduce information searching cost, and firms in the same cluster give the best examples. From another perspective, firms clustering also can be considered as the

learning of later foundation firms to former foundation firms, which can reduce investment cost and learning cost. This is the first important motivation of the formation of firm clustering.

TABLE 1 : Firm behavior, information cost and clustering efficiency

Firm behavior	Information and cost	Clustering efficiency
Decision	<ul style="list-style-type: none"> ϕ information about politician, economic, legal, technique, social culture, and market competition. ϑ information about market and region ⊖ cost to get these information 	Because a lot of firms cluster together, enterprisers can learn from other firms to reduce searching cost and investment risk.
Sale	<ul style="list-style-type: none"> ϕ Marketing information such about customer, product, advertisement, brand image ϑ The production of these kinds of information need large cost. 	<ul style="list-style-type: none"> ϕ The clustering of many firms is a useful kind of advertisement. ϑ The clustering of many firms can reduce customers' searching cost.
Production	<ul style="list-style-type: none"> ϕ Information about production input, materials. ϑ Information about intermediate organization such as college, research institute, government and finance organization 	Scale economic and information symmetry can reduce information cost and enhance inter-trust.
Innovation	<ul style="list-style-type: none"> ϕ Information about knowledge and new product development trend. ϑ Information production and sharing increase cost. 	Cluster can increase the proportion of information sharing, which can reduce information production cost and information searching cost.

(2) Sale and information cost. Sale is crucial for every firm. In order to increase sale, firms need to collect at least two kinds of information. Customer needs and customer features are the first kind; and information generation and broadcast about product belongs to the second. Usually, firms spend a lot of money on these two kinds of information. Firms clustering makes a lot of firms emerge in the same place which can satisfy all kinds of customer needs because of product diversity. This can increase every product's attractiveness on average. In other hand, because a lot of firms cluster together, customers can contact more firms and products at the same. Even if they don't buy these products, they can tell other potential customers product information which is a useful way to advertise. This can save a lot of money for every firm, which only exist in firms clustering. Especially for the firms that enter the cluster lately, extant firms can make free advertisement for them, which can reduce their cost. All of this cannot be considered as the effect of transaction cost, and it is from the clustering of firms. Transaction cost focus on contract relationships between different firms, but firms clustering focuses on the inter cooperation of different firms but not the contract relationship. So, it can be conclude that clustering can save information cost through reducing customer's searching cost.

(3) Production environment and information cost. It is common that basic infrastructures and support system are important eternal conditions for firms. Usually small and medium enterprises do not have very good basic infrastructures and support system, which is a weakness for them. But firm clustering can overcome this weakness. In other word, firm clustering can supply good basic infrastructures and support system for small and medium enterprises, because firm clustering has at least two functions. Firstly, support service suppliers and firms have interdependent relationships. The development of the support systems depends on its demanders that include all kinds of firms. Firm clustering can produce scale economics which can also increase the revenue of support system. This can enhance the development motivation of support system suppliers. Secondly, because the firms in the same clustering can share techniques, products, organizations, and advertisement, all kinds of intermediate organizations are willing to supply related support service. This can reduce information asymmetry sharply. It is the reduction of information asymmetry that can enhance support service suppliers' internal motivation. Thus, it can conclude that although the relationships between firms clustering and basic infrastructures and intermediate organization can be considered as the scope of transaction, information is still in the center.

(4) Innovation and information cost. The sources of knowledge gain for every firm can be categorized into self accumulation and eternal acquisition. In general, because of human resources limitation, it is difficult for small and medium enterprises to carry out effectively innovation. There are a lot of ways to acquire knowledge for outside, which include books, lectures and database. But firms must pay for these kinds of information. Technical knowledge such as patent can not only acquire from the cooperation with college, but also can get from market exchange. But tacit knowledge such as experiences and tricks cannot get from market exchange because it comes from practices and it is difficult to be coded. But tacit knowledge can get from firm clustering. When a firm becomes one member of the cluster, it can get a lot of information about innovation from observation on other firms, which can reduce searching cost. Further, firms in on cluster can share tacit knowledge with other firms, which can also reduce innovation cost and innovation risk. Therefore, saving information gaining cost is another reason for firm clustering.

CONCLUSION

The proposition of transaction cost theory puts a step forward on the realization of the nature of organization. And it can explain vertical division firm clustering, but cannot explain horizontal division firm clustering for small and medium enterprise. Therefore, horizontal division firm clustering can be explained from the perspective of information cost.

REFERENCES

- [1] A.J.Scott; *Economic Geography*, **62**, 215 (1986).
- [2] S.Christopherson, M.Storper; *Environment and Planning D: Society and Space*, **4**, 305 (1986).
- [3] M.Storper, A.Venables, J.Buzz; *Journal of Economic Geography*, **4**, 351 (2004).
- [4] C.Lawson; *Journal of Economics*, **23**, 151 (1999).
- [5] P.Desrochers; *The Review of Austrian Economics*, **14**, 25 (2001).
- [6] N.A.Phelps; *Transactions of the Institute of British Geographers*, **17**, 35 (1992).
- [7] D.W.Mitchell, C.B.Coles; *Journal of business strategy*, **24**, 15 (2004).