

Structural Holes Theory: Its Origins and Development

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ABSTRACT: Structural holes theory stems from Ronald S. Burt's famous book *Structural Holes: The Social Structure of Competition*, then its fundamental contents are come from the sociology theory of Georg Simmel. Ronald S. Burt stresses the importance of competition in market, Georg Simmel underlines the coexistence between competition and collaboration. There is intimate relation between structural holes and enterprise's competition advantage. The effectiveness of internal and external structural holes are the necessary condition of promoting enterprise's competitiveness, and valid linkages are sufficient one. The relationship between structural holes and venture capital processing are not be touched on, and is a new research field.

KEY WORD: Structural Holes, Entrepreneurial Orientation, Relationship-Building Orientation, Competitive Advantage

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I. INTRODUCTION

Just as Joseph A. Schumpeter had to be remembered for innovation, Ronald S. Burt must be brought to the scene when it comes to structural holes theory. Professor Ronald S. Burt's *Structural Holes: The Social Structure of Competition* has exerted great influence on the social science field since it was published in 1992. As a professor of sociology and business studies at Columbia University, his works actually refer to sociology, economics and business studies (Zinkhan, 1994), but their influence is far from that, even penetrating into the fields of international politics and religion. In view of this, it is necessary to sort out the cause and effect of structural holes theory.

II. THE SOCIOLOGY OF GEORG SIMMEL

In the history of social science development, there is a phenomenon that the originator of a theory has been forgotten by the academic community for some reasons. For example, the natural rate of unemployment¹. According to Ronald S. Burt, the structural holes theory actually comes directly from the sociology of Georg Simmel, rather than his own unique skills.

According to Ronald S. Burt's definition, structural holes refers to the fact that one or some individuals in the social network have direct contact with some individuals, but do not have direct contact with other individuals, thus the so-called hole appears in the network structure, or there is structural holes between two individuals with non-repetitive network (Burt, pp.18-30). Obviously, individuals or groups in structural holes have the opportunity to make profits. Perhaps Georg Simmel died too early, and the outstanding sociologist is rarely mentioned in the current research literature on structural holes. Israeli scholar Yuval Kalish (2008) directly used Georg Simmel's theory instead of Burt's structural holes theory when analyzing the relationship between Jewish-, Arab-, and Druze-Israelis, although the article also mentioned the relevant literature of Ronald S. Burt. This is probably because Georg Simmel has Jewish ancestry.

Although Georg Simmel did not directly create the word structural holes, there is evidence that this theory originated from Georg Simmel. Judging from the references in Burt's book *Structural Holes: The Social*

¹M. Friedman (1968) won the recognition of his natural rate of unemployment in the economic circle with only one speech, which was later published in the American Economic Review. The concept of optimal unemployment rate put forward by E. S. Phelps (1967) actually precedes M. Friedman. But since M. Friedman is already a famous economist, he has expounded the concept of natural unemployment rate in concise language. E. S. Phelps is a young economist who has just started his career, and he has expounded the optimal unemployment rate in a very professional mathematical and economic language, which is so difficult for ordinary people to understand that the economist has long forgotten him.

Structure of Competition, the earliest was the 1881 edition of *Mathematical Psychics* by the economist F. Y. Edgeworth and *Theory of Economic Development* by J. A. Schumpeter (1912), which has a time intersection with Georg Simmel's writings, but these two are economists, not sociologists. The earliest sociologist's work is Georg Simmel's 1902 publication *The Number of Members as Determining the Sociological Form of the Group* in the American Journal of Sociology.

Judging from the source of Georg Simmel's literature quoted in Burt's book, the first time is in the fourth section of the first chapter of the book, *Third Party Controlling and Profiting*. Although Ronald S. Burt stressed that the word "role" of the third party comes from Georg Simmel, he did not stress the importance of "Triad" as the minimum number of sociological groups and individuals to analyze. In Georg Simmel's view, if the number of sociological analysis units is more than three, it is only a change in the number and cannot change the basic connotation of the "triad" (Simmel, 1955, p.145). This idea is obviously the foundation for the existence of structural holes theory, but Ronald S. Burt obviously did not pay sufficient attention to it in theory.

As a professor of sociology and business, Ronald S. Burt's exposition of the theoretical characteristics of structural holes can be said to be very classic, that is, competition is a problem of relation, which is prominent but invisible, competition is a process, imperfect competition is a problem of freedom and not just a problem of rights (Burt, 1992, pp.3-6). This is a sociological analysis of competitive market economy, but Georg Simmel's Triad is not entirely the same.

Georg Simmel started with "Isolated Individual" and then analyzed Dyad and then Triad. He thinks that the simplest social structure should be the interaction of two factors, but he also thinks that the starting point of sociological analysis should be "isolated individual", because isolation means the special relationship between a person and society. Only isolated individual can choose. Therefore, isolation and freedom exist only as a social relationship.

Starting from the analysis of "isolated individual", Georg Simmel further concluded that the simplest social composition from the perspective of methodology is two factors. This inference actually implies the existence of a third party. Georg Simmel gave an example of trade secrets. The reason why they become confidential is because there is a third party, otherwise they are not classified. Another prominent example is monogamy. On the surface, this is a relationship between two people, in fact it is a relationship between three people, because marriage means that a third party will appear soon. Therefore, Georg Simmel concluded that the simplest sociological analysis should be a triad analysis.

Georg Simmel divided the triad analysis into three types: The Non-Partisan and The Mediator, The Tertius Gaudens, and Divide et Impera. Among these three types, the first and second types of beneficiaries may not only be third parties, but also all three parties. The third type of third party is the absolute profit-maker, while the other two are the absolute loss-makers².

The reason why Georg Simmel's analysis is described in great detail is that Ronald S. Burt may have misread Georg Simmel's theory. Even if Georg Simmel's theory is applied to market analysis, individuals or institutions outside the structural holes may not necessarily be competitive relationships. Perhaps the three are cooperative relations. According to Georg Simmel's theory, the Israeli scholar Yuval Kalish (2008) divided the analysis of the network structure of the triad into two types of Entrepreneurial Orientation and Relationship-Building Orientation, which may be closest to Georg Simmel's original intention.

III. STRUCTURAL HOLES THEORY AND ENTERPRISE COMPETITIVENESS

There is no doubt that the enterprise is closely related to its surrounding social environment. It is not in a vacuum. How to make enterprises in a favorable social position in order to gain and maintain competitive advantages is probably the dream of all entrepreneurs. The emergence of the structural holes theory provides great convenience for the analysis of the latecomers' enterprise behavior.

How did the structural holes appear? Will it change with time? Gordon Walker, Bruce Kogut and Wujian Shan (1997) believe that the social network in the past is the foundation of the social position of enterprises and the premise of forming structural holes. This kind of social network has inertia, which determines the evolution process of enterprise social network. The existence of social networks provides enterprises with the opportunity to act as intermediaries (structural holes), thus enabling enterprises to profit from them. Due to the existence of inertia constraints, these profit opportunities are not only closely related to the structural characteristics of their social networks, but also to their content and node characteristics (Ahuja, 2000). Akbar Zaheer and Giuseppe Soda (2009) believe that structural holes originate from the combination of two complementary forces, this structural constraint and social network opportunity are determined by the past social network structure and location of enterprises.

It can be seen that the structural holes originate from the past social network of the enterprise, which is the prerequisite for the existence of the structural holes in the enterprise. However, due to inertia, the evolution

² Please refer to Simmel (1957) Chapters 3 and 4 for details on this aspect.

of corporate social networks is constrained. The existence of a relationship-oriented structural holes is an example. The existence of this kind of structural holes is not temporary, but long-term, because its existence can benefit all three parties, and is not of the type of "fighting between the snipe and the clam and benefiting the fisherman".

Whether to make full use of external knowledge and technology is an important way for enterprises to obtain competitive advantages. If the enterprise is located in the structural holes of social network, the key to the effective utilization of this position lies in the absorptive capacity of the enterprise, that is, the ability to understand, acquire, use and eventually transform external knowledge and technology into the competitiveness of the enterprise. Ronald S. Burt(2004) noticed this problem earlier. He used the supply chain data of a large US electronics enterprise in 2001 to analyze 673 managers. He found a network of managers within the enterprise. In order to make these networks more transparent, he focused on 89 of them. The study found that the distribution of rewards, performance evaluation, promotion opportunities and good ideas among managers in structural holes is extremely uneven. If a manager obtains relevant good ideas from the society and introduces them into the enterprise, the enterprise should highly award the manager. Due to internal governance problems, these potentially valuable ideas may evaporate within the enterprise.

Marcor Tortoriello(2015)visited 276 scientists, researchers and engineers from a large multinational high-tech enterprise in order to analyze the enterprise's ability to use external knowledge for technological innovation. The study found that the use of external knowledge for internal technological innovation is closely related to the position of individuals in the internal knowledge sharing network of the enterprise. If this person who obtains external knowledge is in the position of multiple structural holes within the enterprise, the possibility of technological innovation based on this will be greater. This further confirms the traditional view that enterprises use external resources for technological innovation, that is, the absorptive capacity of enterprises depends on the absorptive capacity of internal personnel.

Kemp Ayenda, J. Richard Harrison, and Zhiang (John) Lin(2017) have found another way to enrich the theory structural holes theory. The traditional structural holes theory holds that information is scarce. In fact, the information faced by the intermediary is extremely complex and even conflicting. The intermediary in the structural holes must know the existence value of different information through continuous learning, so that it can master which information is useful, rather than analyzing the value of information through prior evaluation. If the intermediary thinks that the discovery of information conflicts with the cultivation of the enterprise's ability, then the enterprise must weigh the two.

Entrepreneurs are a unique social group. The number of this group and the existence of its social network are vital importance to an economy. Therefore, R&D cooperation among enterprises is undoubtedly an important engine for economic growth. Gordon Walker, Bruce Kogut and Wujian Shan(1997) analyzed the U.S. biotechnology industry. Traditionally, this field is one in which technological innovation activities are relatively active, and there are more start-ups. The links between start-up enterprises and between start-up enterprises and giant enterprises are relatively close. It is also very common for large enterprises to get involved in new industrial fields by making strategic investments in start-ups. Therefore, there is no doubt about the existence of structural holes in this field. However, the results of their research are indeed inconceivable. They believe that the structural holes theory is only suitable for the field of marketing and not for a certain field of production. Hans T. W. Frankort(2008) research sample is an IT industry engaged in R&D enterprise from 1975 to 1999. The results of the study show that the cooperators' technological innovation ability depends on their own technological resources and their ability to approach structural holes. Up to now, the research on R&D cooperation and structural holes theory between enterprises is still relatively few, which is a direction worthy of efforts.

IV. VENTURE CAPITALISTS AND STRUCTURAL HOLES

Venture capitalist is a unique role. First, he played the role of a technology intermediary. Use their own social network to set up venture capital funds and then invest in start-up enterprises. After a certain period of time, start-up enterprises will be listed or merged to turn potential entrepreneurs into real entrepreneurs. Secondly, he is a financial intermediary to some extent. Different from the traditional financial intermediary, it mainly adopts equity investment, which is a business that the general financial intermediary is not willing to do. In other words, venture capitalists are the structural holes between the source of funds and the start-up enterprises. It's just that they are cooperative, not competitive.

Venture capital originated in the United States. First, it was only the sporadic behavior of angel investors. Only in the 1940s did specialized venture investors appear. Since the rise of venture capital and the U.S. IT industry was not recognized by the American society until the 1980s, the academic research on venture capital mainly focused on the 1980s and 1990s. Although the follow-up research has not been interrupted, the quantity and quality of the articles are far from the same as those of the same year. According to the field of distribution of the paper, it can be basically divided into these types. The first type is to extend the theory of the

neo-institutional school to the study of venture capital. The second type focuses on the research of venture capital process, such as project selection, evaluation and contract signing. The third type focuses on post-investment supervision. The fourth type focuses on investment project performance. The fifth type focuses on the source of venture capital funds, such as angel investors(Wright and Robbie, 1997). Of course, in addition to the above types, the current mainstream research focuses on specific projects and related industries, such as venture capital and biotechnology³.

V. CONCLUSION

At present, there is little literature on the application of structural holes theory in the field of venture capital. Closer to this research is the analysis of investment banks(Shipilov, 2009) and mutual funds(Aheer and Bell, 2005). This analysis is only one step away from venture capital and structural holes theory.

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³ Please refer to Mike Wright, and Ken Robbie (eds.) (1997), *Venture Capital*, Vermont: Dartmouth Publishing Company.