

High densities, congestion, verticality, emphasis on circulation mainly intended as car mobility, and distance from the aesthetic and urban local traditions for sake of the myth of the Western culture which brought a rapid pseudo economic progress, are the key notes of current urbanization in East Asia, and still these appear to drive the view of the city in the near future, though new issues such as ageing society, crisis of wild globalization, ecological problems related to the unstoppable deterioration of natural environment and the inevitable transformation of the current economic model for the years to come may progressively dictate a new urban agenda and new concrete and truly innovative solutions in East Asia and all over the world.

BIBLIOGRAPHIC REFERENCES

- Gregotti, Vittorio. (2009), L'Ultimo Hutong, Skira, Milano.
- Rowe, G. Peter and Kuan, S. (2002), Architectural Encounters with Essence and Form in Modern China, MIT Press, Cambridge.
- Urban, Florian. (2012) Tower and Slab. Histories of Global Mass Housing, Routledge, London & New York.
- Ellin, Nan. (1996), Post-modern Urbanism, Blackwell Publishers, Cambridge & Oxford.
- Lu, Duanfang. (2006), Remaking Chinese Urban Form. Modernity, Scarcity and Space, 1949-2005 Routledge, London & New York.
- Wu, Fulong. (2007) China's Emerging Cities: The Making of New Urbanism, Routledge, London & New York.
- Friedman, John. (2005) China's Urban Transition, The University of Minnesota Press, Minneapolis.
- Gelezeau, Velerie. (2003) Seoul, Ville Geante, Cites Radieuses, CNRS, Paris.
- Ha, Seong-Kyu. (1999) Urban Growth and Housing Development: A Critical Overview, Korea Journal, 39(3), 63-95.
- Koolhaas, Rem and Obrist, Hans U. (2011), Project Japan. Metabolism Talks. Taschen, Cologne.

ID 1476 | RESEARCH ON THE RELATIONSHIP BETWEEN SPACE OF PLACES AND SPACE OF FLOWS - EMPIRICAL ANALYSIS BASED ON GLOBAL SCALE AND LOCAL SCALE

Bowen Chen¹; Jia Geng¹
¹Tongji University
1967114471@qq.com

1 INTRODUCTION

In the process of reform and opening to the outside world and economic globalization, China has taken the initiative to integrate into the world economic system and has become the world's second largest economy. At the same time, the establishment of information and communication networks has greatly accelerated the process of global integration, and promoted the flow of information, knowledge and capital flows among cities all over the world. "Space of flow is constantly manifesting and becoming an important force to promote the world economic structure and the evolution of the urban system. From the original growth pole model to the central hierarchy, and now to the urban network, the development and evolution of the urban system has entered a new era. Since 2000, the research of urban network abroad can be divided into two major directions: enterprise organization and infrastructure. Among them, the former research is more mainstream, this is because the essence of urban network is the economic relationship between cities, and enterprise actors is the starting point of economic relations. In recent years, Chinese scholars have also conducted a series of urban network research based on the space of flow (Tang Zilai, Zhao Miao Xi, 2010; Zhu, Wang de chazon, 2014), and achieved certain results.

In fact, space of flow is not a unique product of globalization. From the origin and development of the city, city area as the economic subject, relying on the foundation to meet the demand for goods and services sectors outside the city to achieve its circulation and accumulation. The economic links between the city is inherent in the space of flow has always been there, just under the influence of globalization, enterprises can realize the function of deeper integration in a wider geographic range (Dicken, 2011), the economic ties are greatly strengthened and obvious, showing a trend of network. The space of flow is the economic network formed by information and capital flow, while the city as the space of place is the pivot or node of the economic network (Tang Zilai, Li Can, et al., 2016), and the two are interdependent. However, the current domestic and foreign academic research are mostly spatial logic expression quantitative description and visualization of city network based on space of flow and rarely consider the space of space and their relationship (Wall, 2009), it is difficult to explain the city regional spatial organization formation and evolution mechanism.

Can space of flow really replace space of place and become the dominant form of global and regional urban system? What is the relationship between space of flow and space of place? Based on the above doubts, this paper tries to construct the theoretical framework and analyze it from the perspective of enterprise organization, along the dual logical main line of space of flow and space of place, and deeply discusses the relationship between them to provide theoretical and empirical basis.

2 SUMMARY OF RELEVANT THEORIES AND STUDIES

2.1 SPACE OF PLACE

The space of place can be traced back to the cultural and geographical traditions of the regional differences opened by Kande, Humboldt and Hertner, where the "region" is a relatively bound, closed, and entity. Exploratory field surveys can explain in depth the differences between regions or regions. Based on the space of place of urban-regional studies, a number of important research results have been formed. For example, since 1980s, foreign scholars have come up with concepts such as world cities (Friedmann, 1986), global cities (Sassen, 1991), and global cities (Scott, 2001). These studies focus on cities or regions with geographical features, emphasizing the evolution of the attributes of cities or regions within the context of Globalization. In parallel with this, Chinese scholars since 80s began research on city or city group system, the majority of city size, population and economic attribute index based on the analysis of spatial organization of the city or city group system using qualitative and quantitative methods (Yao Shi plan, 1992; Wang Guanxian, Wei Qing, et al, 2003; Zhao Yinghui, 2010).

In the age of globalization, the space of place still has irreplaceable value. Space of place is rooted in the specific region, the one and only, the day-to-day activities of human beings (Michael, 2005), used to describe the difference in economic activities and the process of global, geographical space (Derek, Ron, etc., 2009). This geographical space is of great significance for the social organization process, especially for the production organization of enterprises (Dicken, Thrift, 1992). On one hand, the regional factor endowments of different space of place is different, is able to provide the geographical proximity, economic agglomeration, knowledge spillover, institutional thickness and other specific conditions, effects of location selection and the growth path of the enterprise. On the other hand, in the process of production organization, enterprises are reshaping the attributes of space of place. Therefore, the study from the perspective of enterprise organization under the city should not only focus on economic ties, but also must pay attention to the geographical space and attributes (Knoben, 2008), the traditional logic of the inheritance and development of the space of place.

2.2 SPACE OF FLOW

Space of flow first appeared in the Castell's "information city" (1989), and later in "the rise of network society" (1996) described in detail the "space of flow" concept, that the city no longer rely on its own things, but through the "through" through "the East West to get and the accumulation of wealth (Castells, 1996). In the space of flow logic, with regional or local features of the space of flow of the importance in the global city network tends to weaken, the city is become out of the zone, to the place of the node (Hill, Kim, 2000; Smith, 2014).

Space of flow concept, to a certain extent, the subversion of the traditional based on local spatial logic, greatly promoted the world city system and global city network research. Some scholars even propose "the death of distance" (Cairncross, 1997), "the end of geography" (O'Brien, 1992). These statements are not without foundation. For the production organization of the enterprise, the technological progress makes the capital under the control of the enterprise get rid of "the shackles of distance" because of "high mobility", and is no longer bound to a "place". For people's activities, people no longer need to be crowded in the narrow geographical space, and all social activities can be extended geographically. This means that local economic and social activities have lost their grounding in a particular place, and that the traditional space of place has been replaced by the new space of flow (Castells, 1989). Accordingly, in the process of economic globalization, the research on urban system has shifted to the quantitative calculation and visualization of the information flow, capital flow and network structure represented by urban nodes. With GaWC as the typical representative, of city network to the internal network based has been widely used, although criticized by some scholars, but it is still the most convincing quantitative research framework. As for enterprises and enterprises outside the network research, as data acquisition is difficult, mainly for a particular area of case studies, yet universal promotion.

2.3 COUPLING OF FIELD SPACE AND FLOW SPACE

Space of flow provides a new perspective and tool city network logic support on the city system under the background of globalization, however, the "hypothesis localization" is gradually challenged and questioned (Smith, Doel, 2011). Some scholars believe that, in addition to a small number of the most top tier Global City, more of the city in order to cope with the increasingly fierce global competition, better embedding efficiency of economic network, not only from the development of the region, but to strengthen the joint development and the region, forming a new space organization unit of economic globalization -- "global city area" (Scott, 2001). Thus, a "global city region" as a whole with local characteristics and advantages of the space of place into the global city network, there are complex networks on the other hand, the internal space of flow, as Castell's view, space of flow is folded into the space of place (Castells, 1999).

Bathelt put forward the "local buzz and global pipeline" model in specific geographical space in the relationship between enterprise agglomeration behavior and knowledge network formation, with convenient and frequent flow of information, knowledge communication, cooperation and competition between many closely related enterprises, the formation of rooted in the "local buzz". At the same time, the process of globalization to promote enterprises to expand the market, seek knowledge and increase profits, prompting global non adjacent geographical space to start communication through transnational and trans regional strategy, the formation of the global pipeline across geographical restrictions" (Bathelt, Malmberg, etc., 2004; Barthelt, 2007). In essence, "local buzz" and "global pipeline" occur in space of place and space of flow respectively.

Therefore, the localization logic of space of place is not opposite to the logic of space of place. As Halbert and Rutherford pointed out, space of place and space of flow are not separable in the analysis. Space of flow can shape the space of space, and the space of place can also form space of flow (Halbert, Rutherford, 2010).

3 THEORETICAL FRAMEWORK

According to the theory and research above, under the background of globalization, the single dimension of space of flow under the logic of city network research is not thorough interpretation of city regional spatial organization formation and evolution, but also should be combined with the "flow" generation, operation environment, specific space of place to conduct a comprehensive analysis in order to get understanding, close to the real world. In view of this, the continuation of space of space and space of flow coupling logic, attempts to construct a "spatial-behavior-process" framework. According to the logical level of "space-behavior-process" (Table 1), the following assumptions are proposed: First, dialectical unification: space of place and space of flow are relative concepts, nested and concomitant with each other; Spatial agglomeration: multi location enterprise actor in the region, to promote the space of flow and space of place cooperative space reconstruction aggregation and dispersion; Action process: space of place can

influence the generation of space of flow, and space of flow can in turn reshape the attributes of space of place and be affected by specific social processes.

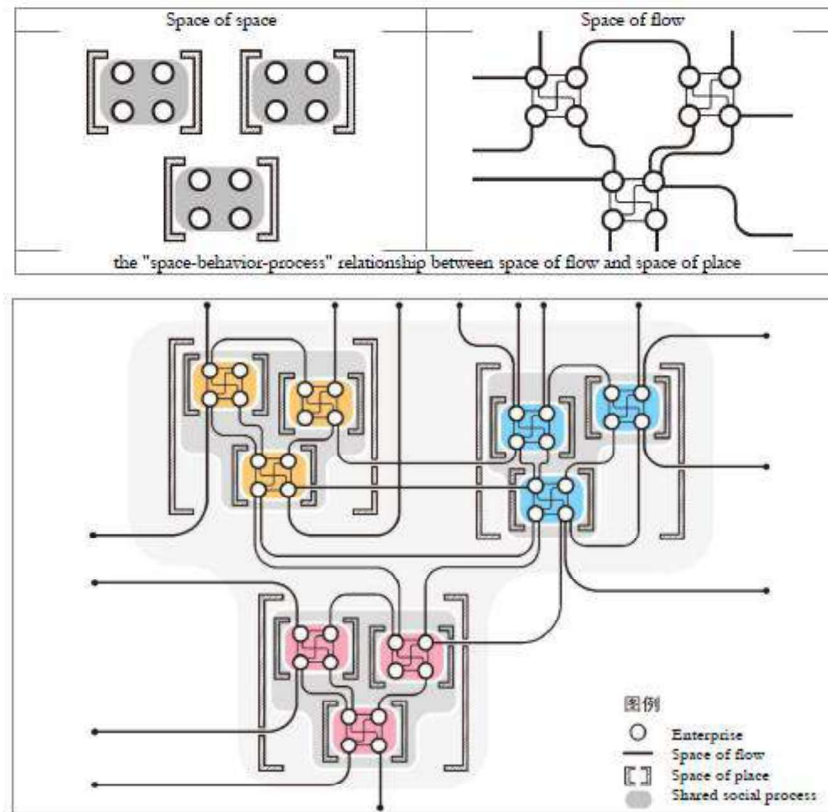


Table 1 - Framework to explain relationship between space of flows and space of places

In the following, we will discuss the relationship between space of flow and space of place and verify the hypothesis based on the perspective of enterprise organization and the combination of global scale and local scale. According to the above, the enterprise organization contains three kinds of relations, namely the enterprise, the enterprise and the enterprise external (Yeung, 1994), but some scholars have pointed out that the internal relation between flow than with other enterprises (Taylor, Hoyler, etc, 2001), considering the data available for this study, this paper mainly refers to the internal connection.

4 EMPIRICAL ANALYSIS AT THE GLOBAL SCALE

4.1 DATA AND METHODS

The related research pointed out that the analysis can start from the four dimensions of global scale city system: capital and capital control center service center, headquarters agglomeration and network related degree, outward radiation degree and agglomeration, within the central city and the gateway city (Tang Zilai, Li Can, et al, 2015). Taking into account the modern manufacturing industry developing city has an important position and the production service industry is relatively mature, the industry wide capital control from the perspective of analysis may have more explanatory power. Therefore, the paper selects Forbes's 2000 industry wide company's headquarters concentration degree (2014) and the Fortune 500, whole industry company's network correlation degree (2010) as the main data of the empirical analysis: the concentration degree of headquarters is used to describe the characteristics of space of place, using the algorithms of Taylor et al (Taylor, NI, et al., 2011); The network association degree is used to characterize the feature of space of flow, using the algorithms of Alderson et al (Alderson, Beckfield, et al., 2010). Among them, the degree of network correlation is composed of the degree of extraversion and the degree of inward clustering. The greater the number of corporate headquarters in the cities, and the more

branches that are sent by the headquarters, the higher the extraversion of the city; The greater the number of branches of a multinational corporation, the greater the city's introversion. The calculation is as follows:

$$O_i = \sum_{j=1}^k T_{ij} \quad (j = 1, 2, 3, \dots, n; j \neq i) \quad (1)$$

$$I_i = \sum_{j=1}^k T_{ji} \quad (j = 1, 2, 3, \dots, n; j \neq i) \quad (2)$$

$$N_{ij} = T_{ij} + T_{ji} \quad (3)$$

$$N_i = I_i + O_i \quad (4)$$

T_{ij} is the number of corporate headquarters in the city of i , branches in the city of j ; T_{ji} is the number of corporate headquarters in the city of j , branches in the city of i ; O_i is calculated, said corporate headquarters in the city of i , branch structure in the region of all other city the number of enterprises; I_i into, said the branches in the city of i , headquartered in the region all the other city the number of enterprises; N_{ij} between the city i and city j network connection; N_i city i network correlation degree, and the correlation degree of city network is i and all other areas of the city.

To the whole industry company headquarters agglomeration characterization space of place features, with the network association city to characterize the degree of space of flow characteristic, correlation and difference analysis of the two on a global scale.

4.2 RESULT

On construction of headquarters agglomeration degree and network correlation, outward radiation degree and two yuan a cluster within the linearity of the regression equation, the coefficient of determination R^2 were 0.571 and 0.492, the regression model of F test P value was 0, with statistical significance of the model. The residuals of the unary linear regression are further aggregated to represent the difference between the predicted and actual values. On the whole, the headquarters of the city agglomeration has significant positive correlation between the degree of association with the network, means that the company headquarters industry highly concentrated space of place is often corresponds with the other city is widely related to space of flow; a network correlation degree and out degree also has a certain positive correlation. But this positive correlation is weaker than the former. Some cities all over the world have high penetration and high output, and some cities in the world do not fully match their penetration and output. Specifically, the Shanghai headquarters of the standardized residuals associated with the degree of agglomeration of large network means, far greater than the concentration degree of Shanghai headquarters network related to this conclusion, and some scholars (Tang Zilai, Li Can, and other similar, 2015). The reason, in the company's headquarters in Shanghai agglomeration and no advantage, less local headquarters of multinational companies, the lack of control force field space ", but by promoting the reform of market economy and by 2001 Chinese the chance of joining WTO, to attract the modern manufacturing industry and producer service industry foreign direct investment, has been the development of agglomeration a large number of branch offices of multinational companies, greatly enhance the " flow space "penetration, so network correlation is also increasing.

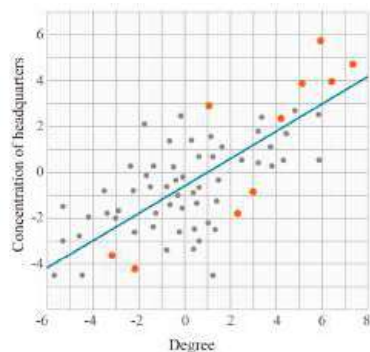


Figure 1 - Scatter plot of headquarters index and degree

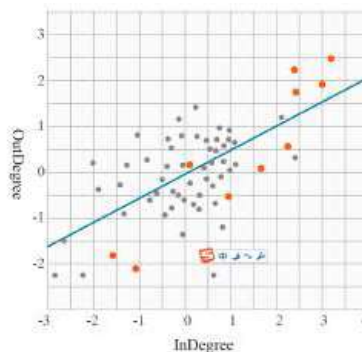


Figure 2 - Scatter plot of outdegree and indegree

In contrast, the concentration of the headquarters in Beijing is much higher than that in Shanghai, but the network relevance is slightly lower than that in Shanghai, which is similar to the conclusions of some scholars (Tang Zilai, Li Can, et al., 2015). The possible reason is that, in the context of a particular national system, Beijing gathered a large number of state-owned enterprises (Tang Zilai, Li Can, etc, 2016), has a broad and powerful control force in the country, but multinational state-owned enterprises index is not high, big but not strong, leading to "flow space" is not a high; at the same time, the development of foreign manufacturing industry in Beijing Tianjin Hebei region is relatively backward in the Yangtze River Delta, Beijing branch to attract multinational companies slightly lower than Shanghai, leading to more general network penetration, so the overall association degree of no obvious advantage.

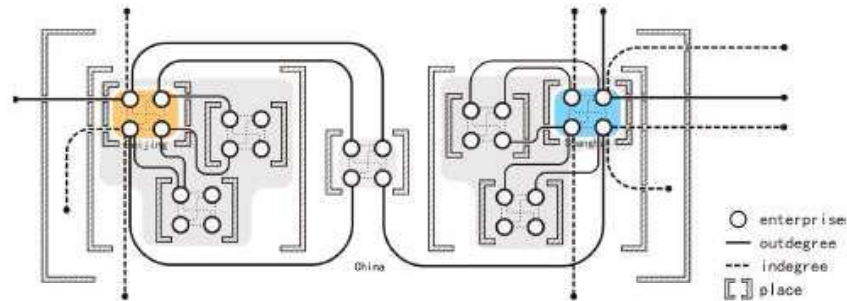


Figure 2 - Relationship between space of places and space of spaces in global scale

To some extent, the empirical analysis in the global scale reflects the interaction of space of place and space of flow and the influence of social process: (1) space of flow can reshape space of place. Although the Shanghai headquarters less local multinationals, space of place property is not strong, but the policy opportunities and make full use of the rules of market economy, by actively attracting foreign direct investment to construct a high penetration and low degree of space of flow, also created a branch of multinational companies highly concentrated space of place. Presenting a "gateway city"; the space of place can affect the space of flow countries affected by institutional factors, state-owned enterprises in Beijing headquarters are highly centralized, with space of place advantage, but this advantage has not been fully played, the local state-owned enterprises foreign force. The force is also more general for foreign multinational companies, resulting in the space of flow space is mainly confined in the country, and the degrees are in general, both center city and the door Characteristics of households and cities.

5 EMPIRICAL ANALYSIS AT THE LOCAL SCALE

5.1 DATA AND METHODS

The research scope of local scale under the selection of core areas in the Yangtze River Delta, including Shanghai, Hangzhou, Nanjing, Ningbo, Suzhou, Taizhou, Wuxi, Wenzhou, Shaoxing, Jiaxing, Nantong, Changzhou, Yangzhou, Zhenjiang, Huzhou, Taizhou, Zhoushan and other 17 cities. The main source of data for the second national census of basic units (as of December 2001), the second national economic census (as of December 2008), the third national economic census (as of December 2013) of the enterprise information. Through the establishment of enterprise information database, SQL statement is used to screen out the matching relationship between the head office and the branch. At the same time, because of the large amount of data, referring to the existing scholars based on the industry category division value added (Tang Zilai, Zhao Miao Xi, 2010) and simplified enterprise into the low-end manufacturing industry, high-end manufacturing and producer services in three categories, which enhance the value of successive segments.

5.2 RESULT

5.2.1 CHANGING TREND OF SPACE OF PLACE

From 2001 to 2013, the spatial density of enterprises in three value regions of 17 prefecture level cities in the Yangtze River Delta region increased significantly, but the growth rate was different. Calculate the density growth rate to characterize the magnitude of the change. For the low-end manufacturing enterprises and high-end manufacturing enterprises, the growth rate of the larger is mainly Nantong, Yangzhou, Taizhou, Suzhou, Taizhou, Hangzhou and other cities, and the outskirts of the city and suburban growth is greater than the center of the city, with significant diffusion trend. For the life of service enterprises, the growth rate of the larger for Shanghai, Suzhou, Nanjing, Ningbo, Hangzhou, Nantong and other cities, and the city center area increased more than the rural and suburban, has significant agglomeration trend.

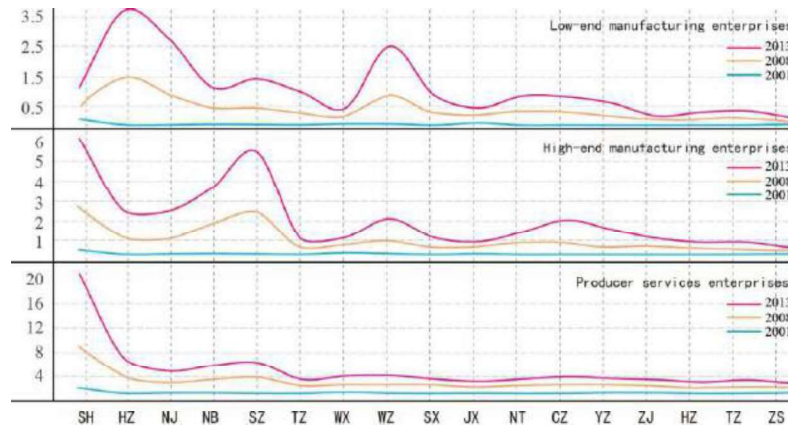


Figure 3 - 2001-2013 spatial density of enterprise in different value chain sections

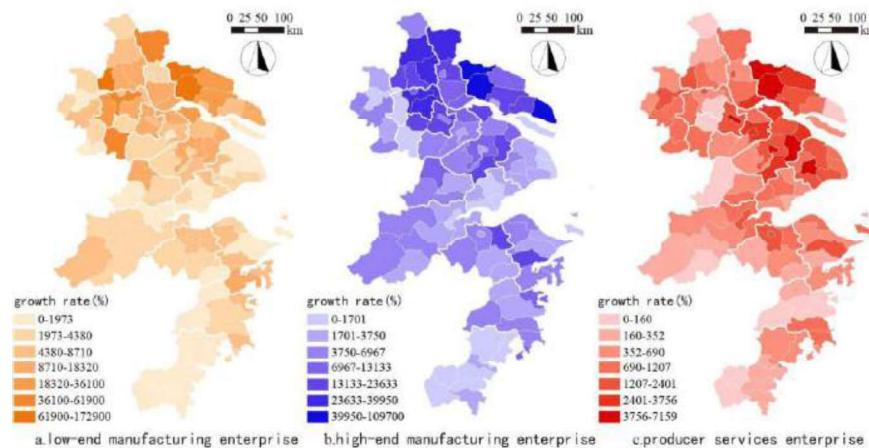


Figure 4 - 2001-2013 spatial density of enterprise in different value chain sections

5.2.2 CHANGING TREND OF SPACE OF FLOW

Using the former formula (1), (2) and (3) to calculate the penetration, the degree of dissolution and the degree of point of the 17 cities, the following results are obtained. From 2001 to 2013, the penetration and output of each city have been remarkably improved, and the economic ties among the cities have become increasingly close. The space of flow in the Yangtze River Delta has been constantly manifested in the process of globalization.

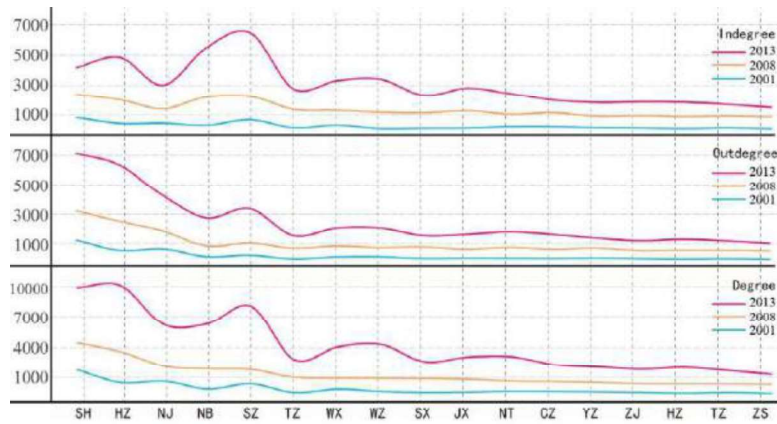


Figure 5 - Changes in indegree, outdegree and degree of cities from 2001 to 2013

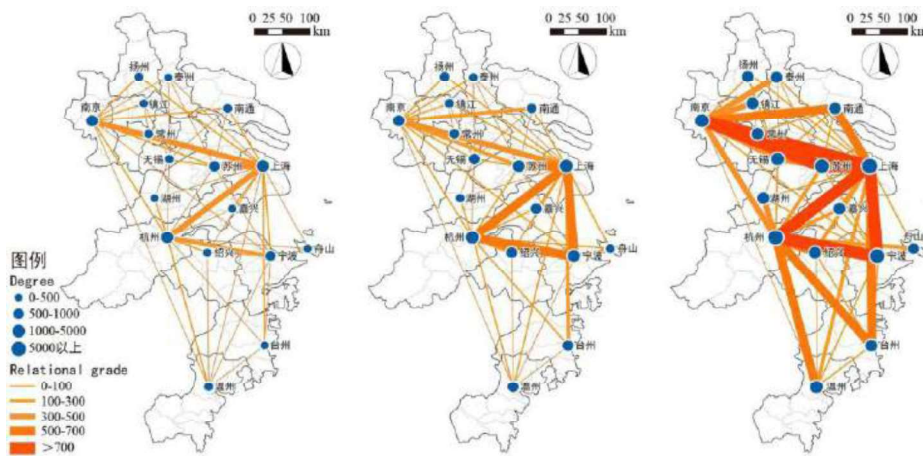


Figure 6 - Corporate networks of YRD from 2001 to 2013

From 2001 to 2013, the spatial pattern of the network in the Yangtze River Delta became obvious, based on the enterprise related urban network. The city between the space of flow experienced from no to have, from weak to strong development process. This is similar to the findings of other scholars (Cheng Li, Zhang Yishuai, et al, 2016). However, the barrier of the administrative division boundary to the space of flow has not been completely eliminated. That is, for the cities between Jiangsu and Zhejiang, there is no obvious change except for the network relevancy between Nanjing and Hangzhou. At the same time, the evolution of space of flow also shows the characteristics of agglomeration, mainly embodied in the "Z" corridor of Nanjing - Shanghai - Hangzhou - Ningbo, especially along the Shanghai Nanjing plain. Therefore, strengthening the economic ties within the enterprise is spatially selective, non equilibrium selection of space of place to the development of agglomeration space of flow, produce large flow of "corridor", city network skeleton structure increased branch differentiation. This change is synergistic with the strengthening of the "core periphery" pattern of space of place.

5.2.3 RELATIONSHIP BETWEEN SPACE OF PLACE AND SPACE OF FLOW

Linear regression analysis was conducted on the spatial density, penetration and yield of enterprises in different value periods under two time sections in 2001 and 2013. The regression model, F test, P value is 0, the model has statistical significance.

(1) Relationship between spatial density and penetration in low-end manufacturing enterprises

There is a positive correlation between the spatial density and penetration of low-end manufacturing enterprises, but the correlation between the spatial density and the degree of output is not significant. The space of place with more low-end manufacturing enterprises often corresponds to a higher degree of

space of flow. To a certain extent, it reflects the law of enterprise spatial organization based on the value section, and also confirms the spatial diffusion of the enterprises in the low price region of the Yangtze River delta. From the micro perspective of enterprise organization, industry value chain link not only has low labor intensive, capital intensive features, also usually enter the area of non core city or suburban areas to form branches. Although the level of economic development in these areas is not high, but local governments actively create supporting facilities, preferential policies, skilled workers and other rich conditions to attract more developed regions, the headquarters of the company's branches settled. Therefore, the space of place and the space of flow of enterprise agglomeration in low value areas are gradually formed. Compared with 2001 and 2013, the positive relationship between the two is more significant as time goes on. Visible based on spatial economic structure the value chain is the formation and significant, further confirms the conclusion of existing research (Tang Lai, Zhao Miao Xi, 2010).

(2) Relationship between spatial density and penetration in high-end manufacturing enterprises

Different from the low-end manufacturing industry, high-end manufacturing industry penetration, density and spatial correlation degree reached a significant level, and the degree of positive correlation. The space of place with more high-end manufacturing enterprises often corresponds to the higher and higher degree of the space of flow. This reflects, to some extent, the higher value segment attributes of the high-end manufacturing sector relative to the low-end manufacturing sector. The high-end manufacturing enterprises demand higher level of technology, human resources, system environment and so on. Both the headquarter and the branch are more likely to gather in the space of place of the value zone, share the agglomeration economy and overflow the knowledge. When the gathering of high-end manufacturing company in the form of regional headquarters in the core city or city center, will be formed and strengthened high value section of the space of place, and through the branches sent professional to the surrounding area, resulting in high degree of space of space. And when it is gathered in the form of a branch in a specific space of place, it produces a higher degree of space of flow. Therefore, the spatial density of high-end manufacturing industry is positively related to penetration and output, and the trend of agglomeration of headquarters companies in space of place is stronger, leading to a positive correlation with the degree of output.

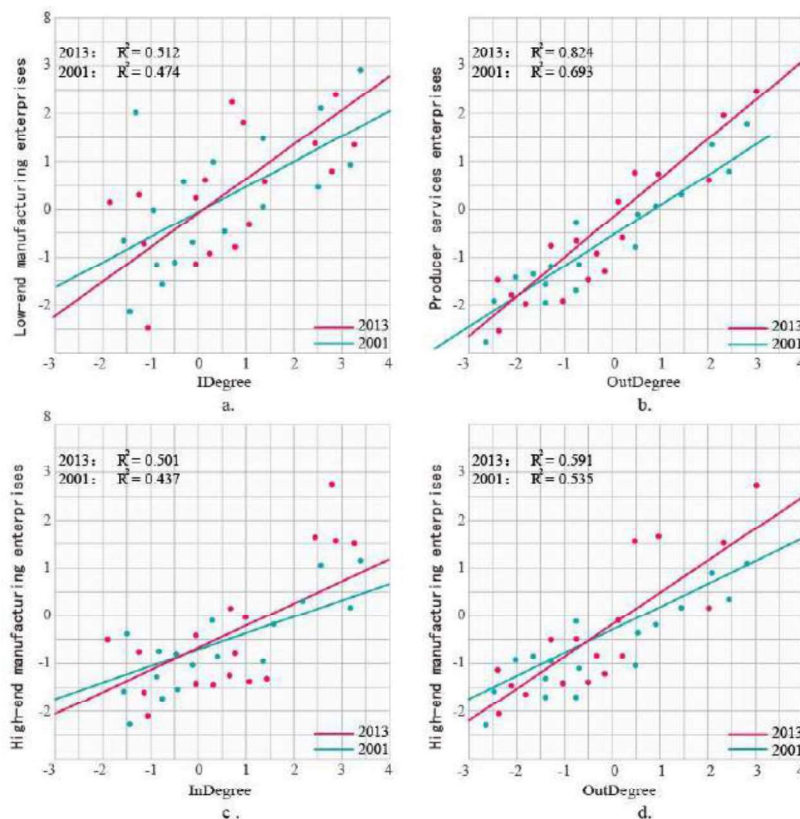


Figure 7 - Scatter plot of corporate spatial density and outdegree, indegree in 2001 and 2013

(3) Relationship between spatial density and penetration in producer service enterprises

Compared with the high-end manufacturing industry, the spatial density of producer services has a stronger positive correlation with penetration, while the correlation with the degree of output is not significant. The space of place with more production service enterprises corresponds to the higher degree of space of flow.

This is in relation to the highest value segment of producer services. Although some scholars believe that the producer service enterprise's location is not completely follow the other company headquarters location (Sassen, 1991), but in order to provide more efficient services, based on geographic proximity "face to face" is very necessary. Therefore, the two are still closely related in the space of place. At the same time, the production service enterprise itself is more inclined to the headquarters of Companies in the form of agglomeration in the region of CBD, continue to form and strengthen the high value section of the space of place, and sent branches to the surrounding areas, derived from the height of the space of flow. Over time, the high value section of the space of place and high degree of spatial interaction evolution, will exacerbate the region space of place core periphery pattern and alienation space of flow of the skeleton branch structure. It further confirms the conclusion that the high-end core agglomeration of the regional core city and the strengthening of the "Z" corridor.

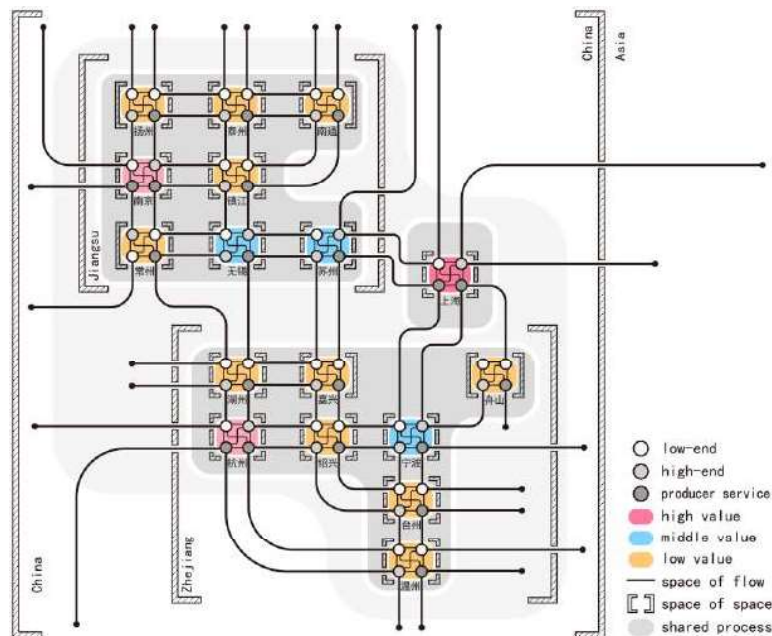


Figure 8 - Scatter plot of corporate spatial density and outdegree, indegree in 2001 and 2013

In the positive local scale to a certain extent reflects the space of place and space of flow the dialectical unification relations and spatial agglomeration behavior: (1) the space of place and space of flow is a relative concept, the two forms in different spatial scales will change. On the one hand, the Yangtze River Delta as a whole space of place in the global city region competition, on the other hand, the Yangtze River Delta from the second level of the space of place and space of flow, formed a relatively complete and mature city network, and with a reconstruction of the change of internal time. (2) the multiple choice of enterprise actors in the region promotes the coordinated evolution of space of place and space of flow. Gather different value chain enterprises in the area of some of the space of place, and selectively and some other space of place to establish economic relations within the enterprise, the unbalanced accumulation and diffusion result, space of place of the "core periphery" pattern and space of flow skeleton branches structure was strengthened, the two is the process of collaborative behavior of enterprises.

6 CONCLUSION

Space of place and space of flow are dialectically unified and concomitant. The two forms change in different spatial scales. As an empirical local scale, the Yangtze River Delta as a frontier area location and economic development, both as a whole space of place to participate in the global city region competition, and its own space by secondary and space of flow, has a relatively complete and mature city network, and with the reconstruction of the change of internal time. From this point of view, both now and in the future, space of flow will not replace space of place. The two will only change with the spatial scale of information and traffic technology innovation.

The space of place and space of flow in the collaborative process of agglomeration and diffusion, the result is the space of place of the "core periphery" pattern and space of flow and skeleton branches in strengthening structure. The common internal cause is the multi location choice of enterprise actors in different value areas. The space of place in the high-value sector is more likely to attract headquarters companies to gather, and through the branches sent to the surrounding areas, the space of flow of higher degree is derived. The space of place in low value areas is more likely to attract branches to gather, and to produce highly penetrating spaces of flow. Therefore, the space of place, which is mainly made up of low-end manufacturing industry, often has a high degree of space of flow, and the space of place, which is mainly composed of production services, often has a high degree of space of flow. Of course, the empirical analysis at the global scale also shows that for the top and highest value segments of global cities, the flow space will be both highly penetrating and extremely high.

The interaction between space of place and space of flow is influenced by specific social process. The empirical, as a global scale, on the one hand, the flow space can reshape field space, Shanghai by grasping the reform and opening up and joining the WTO the opportunity to vigorously attract foreign investment, to construct a high penetration space of flow, to obtain higher concentration degree, and shaping the multinational affiliates of highly concentrated space of place; on the other hand, the space of place can affect the space of flow, Beijing affected by institutional factors, although the space of place headquarters of state-owned enterprises are highly centralized, but the external force is insufficient, space of flow of a sort, a low degree of outward radiation. Obviously, the interaction between the two is the influence of specific social processes in different places, which leads to great difference in the function, path and form of space of place and space of flow. In addition, the empirical analysis of local scale reflects the influence of social process to a certain extent. For example, the cities between Jiangsu and Zhejiang, in addition to the network correlation between Hangzhou and Nanjing have increased, the other has not changed significantly. Even in the deepening of market economy reform today, the boundaries defined by administrative divisions still hinder the process of space of place and space of flow to some extent.

There are still some shortcomings in this paper. Due to the huge amount of data, the industry based on the value range is roughly classified, and the low-end manufacturing and high-end manufacturing industry may be subjective. The space of place property is a complex concept, this paper uses spatial density characterization section of the enterprise value of different field space property, simplified, ignoring the enterprise scale, and the value of other attributes. The linear regression used in this paper simply reveals the correlation, and the interpretation of residuals and outliers needs more case based discussions. These deficiencies need to be improved in subsequent studies.

BIBLIOGRAPHIC REFERENCES

- [1] Alderson A.S, Beckfield J, Sprague-Jones J. Intercity relations and globalization: the evolution of the global urban hierarchy[J]. *Urban Studies*, 2010, 9(47): 1899-1923.
- [2] Barthelt H. Buzz and pipeline dynamics: toward a knowledge-based multiplier model of clusters[J]. *Geography Compass*, 2007, 6(1): 1282-1298.
- [3] Bathelt H, Malmberg A, Maskell P. Clusters and knowledge: local buzz, global pipelines and the process of knowledge creation[J]. *Druid Working Papers*, 2004, 1(28): 31-56.
- [4] Cairncross F. *The death of distance*[M]. Cambridge MA: Harvard Business School Press. 1997.
- [5] Castells M. *The rise of network society*[M]. Oxford: Blackwell. 1996.
- [6] Castells M. *The informational city*[M]. Oxford: Blackwell. 1989.

- [7] Castells Manuel. Grassrooting the space of flows[J]. *Urban Geography*, 1999, 20(4): 294-302.
- [8] CHENG Yao, ZHANG Yishuai, ZHAO Min. The Spatial Self-Organization and Planning Agendas of the Yangtze River Delta City Cluster: Spatial Analysis Based on Enterprise Connectivity[J]. *Urban Planning Forum*, 2016(4): 22-29.
- [9] Derek Gregory, Ron Johnston, Geraldine Pratt. *The Dictionary of Human Geography (fifth edition)* [M]. Oxford UK: Blackwell Publishers Ltd, 2009.
- [10] Dicken P. *Global shift: mapping the changing contours of the world economy (sixth edition)* [M]. New York: Guilford Press, 2011.
- [11] Dicken P, Thrift N. The organization of production and the production of organization: why business enterprises matter in the study of geographical industrialization[J]. *Transactions of the Institute of British Geographers*, 1992, 3(17): 297-291.
- [12] Friedmann J. The world city hypothesis[J]. *Development and Change*, 1986, 1(17): 69-83.
- [13] Hill RC, Kim JW. Global cities and developmental states: New York, Tokyo and Seoul[J]. *Urban Studies*, 2000, 12(37): 2167-2195.
- [14] Knoblen J. The effect of spatial mobility on the performance of firms[J]. *Economic Geography*, 2008, 2(84): 157-183.
- [15] Michael Pacione. *Urban geography*[M]. New York: Routledge, 2005.
- [16] O' Brien R. *Global financial integration: the end of geography*[M]. New York: Royal Institute of International Affairs, 1992.
- [17] NING Yuemin, YAN Zhongmin. The uneven development and spatial diffusion of Chinese central cities[J]. *Acta Geographica Sinica*, 1993(2): 97-104.
- [18] Sassen S. *The global city: New York, London, Tokyo*[M]. Princeton: Princeton University Press, 1991.
- [19] Scott AJ. *Global city-regions: trend, theory, policy*[M]. Oxford: Oxford University Press, 2001.
- [20] Smith RG. Beyond the global city concept and the myth of "command and control"[J]. *International Journal of Urban and Regional Research*, 2014, 1(38): 98-115.
- [21] Smith RG, Doel MA. Questioning the theoretical basis of current global-city research: structures, networks and actor-networks[J]. *International Journal of Urban and Regional Research*, 2011, 1(35): 24-39.
- [22] Taylor P. J, Hoyler M, Walker D. R. F. A new mapping of the world for the new Millennium[J]. *The Geographical Journal*, 2001, 3(167): 213-222.
- [23] TANG Zilai, LI Can, LI Tao. Interpretation of China's Urban Hierarchy from the perspective of global capital system[J]. *Urban Planning Forum*, 2016(03): 11-20.
- [24] TANG Zilai, LI Can, XIAO Yang, et al. An analysis of the linkage between the world economic pattern and the world urban system[J]. *Urban Planning Forum*, 2015(01): 1-9.
- [25] TANG Zilai, ZHAO Miaoxi. Economic Globalization and Transformation of Urban System in the Yangtze River Delta Region: Interlocking Network and Value-added Hierarchy[J]. *Urban Planning Forum*, 2010(1): 29-34.
- [26] Wall RS. The relative importance of Randstad cities comparative worldwide corporate networks[J]. *Tijdschrift Voor Economische En Sociale Geografie*, 2009, 2(100): 250-259.
- [27] WANG Guanxian, WEI Qingquan, CAI Xiaobo. The character analyse of Pearl River Delta's spatial differentiation in 1990's[J]. *Economic Geography*, 2003(1): 18-22.
- [29] Yeung H. W. Critical reviews of geographical perspective on business organization and the organization of production: towards a network approach[J]. *Progress in Human Geography*, 1994, 4(18): 460-490.
- [32] ZHU Chasong, WANG De, LUO Zhendong. Centrality and power: a method of analyzing city network spatial structure[J]. *Urban Planning Forum*, 2014(04): 24-30.