

# Research on Talent Agglomeration in the Background of Knowledge Economy

Jiao Han\*

College of Information  
Shanxi Agricultural University  
Jin Zhong, China  
hanjiao0324@qq.com

**Abstract**—In the context of the knowledge economy, how cities attract innovative talents is one of the problems facing cities. This paper mainly creates the talent agglomeration index system to measure the talent agglomeration index of 21 cities in the Pearl River Delta region from four aspects: economic index, open tolerance index, innovation investment index and real estate structure index.

**Keywords**—*talent agglomeration ;knowledge economy*

## I. INTRODUCTION

With the subversion of innovation and the digital economy, knowledge-based activities are increasingly becoming a feature of contemporary global markets [1]. In a knowledge-based economy, the main characteristics of productivity are the intangible symbolic values of knowledge generation, knowledge flow, and scientific research, high technology, and artistic output[2]. Productivity is primarily related to innovative ideas generated by educated or skilled workforces, which are considered to be key elements in stimulating regional innovation economic growth. Therefore, how to nurture, attract and retain talent has become a priority for the knowledge economy [3].

As information and communication technologies advance, it is assumed that knowledge workers can settle anywhere they want[4]. However, real cities such as Silicon Valley, Cambridge Science Park and Sophia Antipolis and other examples reveal the opposite[5]. Knowledge-based talents are willing to gather in specific places in the city, share knowledge and public facilities, and they are more willing to face-to-face communication and collide with each other. Everyone who is willing to spend time on thinking and exchange can get certain expected benefits in the exchange of ideas. In the past few decades, many cities around the world have undergone a transition from traditional industrial economic activities to knowledge-based economic activities, achieving sustainable economic development. Urban empiricists and theorists have recently suggested that the generation and exchange of ideas plays an important role in urban development. Theorists suggest that the exchange of ideas should be the main force of urban cohesion. In other words, the reality of urban cohesion is no longer to reduce the cost of goods transportation in the future, but to obtain exchange of ideas[6].

Every talent wants to learn more opportunities, and is willing to pay for it. As the cost of learning and the cost of living increase, people with strong willingness to learn will be attracted by the nominal wages and communication opportunities in big cities. The city's high nominal wages can compensate for the rise in rising prices and rising cost of living, making talents willing to spend more time exchanging ideas and increasing their productivity, leading to different talents gathering in big cities. Talents can be gathered together to exchange ideas, and innovative exchanges can produce innovative activities. And the city exists for innovation. From the first day of the birth of the city, it is not the most comfortable form of life for human beings. But even after the Internet has become widely popular, people are still willing to choose this crowded and stressful lifestyle for the convenience, diversity, efficiency and tolerance of the city. Professor Richard Florida of the University of Toronto wrote in his book *The Rise of the Creative Class*: "Creativity cannot be stocked, contested, and traded like minerals. It must be fully enriched, updated, and maintained, or it will slip away." [7] These convenience, diversity, efficiency and inclusive features ultimately point to the fact that cities are always the most social environment in which innovation is easy to create. However, if cities want to maintain this kind of innovative environment, they need to attract talents and retain talents, so that more talents can be gathered in cities. In the end, it is necessary to continuously optimize the urban real estate structure, and the unique real estate structure in the relationship between innovation elements and elements. Dimensions, real estate functions, and innovative environments all have incomparable advantages, which can provide talents with a convenient, diverse, efficient and inclusive social environment[8].

To sum up, in the context of the knowledge economy, if you want to "lead the phoenix to build a nest", you must realize where these talents are chosen and why? What is the impact of regional talent innovation on regional innovation?

## II. LITERATURE REVIEW

Niusha[9] believes that cities based on the development of knowledge economy not only provide innovative talents with a platform for busy work, but also provide them with high-quality services and provide local unique urban cultural image. The quality of the services provided by these cities is also will strongly influence the choice of innovative talent cities. The

study proposes a multidimensional model as its conceptual framework, and from the background, form, function, atmosphere, impression five general factors or areas of Southeast Asia Singapore's One-North, Europe's Arabianranta Helsinki, North America New York's Manhattan Bridge overpass (DUMBO) Descriptive analysis was conducted with the Macquarie Park Innovation District (MPID) Macquarie Park Innovation Zone in Sydney, Oceania.

Yan Qing [10] mainly studies the influencing factors and influencing mechanisms of high-level talent pooling in Zhejiang from five aspects: economic factors, scientific and technological factors, educational factors, social factors and environmental factors. It believes that living standards, regional economy, scientific and technological environment, social security, Higher education and living environment have positive effects on talent pooling. Basic education and price level have a negative impact on talent pooling. Wang Chong[11] applies gray correlation analysis algorithm to systematically analyze the macroeconomic operation that affects the flow of scientific and technological talents in universities. Five factors including industrial structure, financial input, labor compensation and research environment and their relevance; Su Chu[12] uses gray correlation analysis method to measure economic factors, scientific research factors, regional open factors, social security and human factors, and livable environment The influence of five factors on regional R&D talent concentration is that social security and livable environment are the main factors affecting the concentration of R&D talents in the region. The livable environment mainly uses the per capita urban area, the per capita park green area, and the urban built-up area. Level indicators for research.

Wang Rong and Zhang Zuodi[13] believe that the city's ability to innovate leads to the agglomeration of the population. As the innovative cities are accompanied by better living facilities and more innovative opportunities, as long as the city's immigration income is higher than the migration cost, it is high. Technical talents are willing to continue to gather in the city. As the city's ability to innovate continues to increase, it will attract more talents and form the Matthew effect. Dong Junfang [14] constructed a real estate structure index system consisting of two first-level indicators of economic assets and physical assets, and nine secondary indicators. The study concluded that whether it is the economic assets of real estate or physical assets, the concentration of talents Has a positive effect.

In summary, most scholars at home and abroad are concerned with high-level talents, R&D talents, and university science and technology talents. They mainly distinguish talents according to their years of education and education level, but those who have long years of education may not necessarily be innovative. Talents, people with low levels of education at the beginning of the period do not mean that they cannot engage in innovative work. Therefore, we can see the important influence of the real estate structure on the level of talent accumulation.

Through combing the relevant literature, it is found that there are the following deficiencies: First, the empirical evidence is mostly based on the research at the national and provincial city level, while the concentration of talents in some

provincial cities is not particularly high, and few prefecture-level cities Research on spatial scales; Second, few scholars consider talent pooling based on real estate structure. Therefore, based on these shortcomings, this paper uses data from prefecture-level cities in the Pearl River Delta region with relatively high levels of talent accumulation, and considers talent pooling based on real estate structure.

### III. DETERMINATION OF TALENT ACCUMULATION IN THE PEARL RIVER DELTA REGION

#### A. Establish an Indicator System

Learning from domestic and foreign literature, and considering the authenticity and availability of data, select the calculation indicators of talent agglomeration.

1) *Economic index*: Before Zhang Suodi, Hu Lina, Zhou Liqing[15], Wang Hongling and other scholars have shown that economic factors are not very attractive to talent pooling, so this article only uses the per capita GDP. The GDP per capita is calculated by comparing the GDP achieved during a city accounting period (usually one year) with the resident population (or household registration population) of the city, and the total GDP per capita is a measure of the living standards of the people of each country. a standard.

2) *Open inclusion index*: Knowledge-based talents are willing to choose an open and inclusive social environment to measure the openness of the environment. Florida [7] uses the homosexual index, the Bohemian index, etc., but considering the actual situation in China, the city's open and inclusive main experience is The degree of emphasis of government departments, the implementation of innovative industries requires the support of various government policies, to a certain extent, the support of government departments, the attitude of urban government departments to innovative talents, innovative workers, innovative enterprises, and the creation of an innovative environment. The degree of efficiency of the innovators or innovative enterprises in the government departments can reflect the degree of openness and tolerance of the city to a certain extent.

The total volume of imports and exports reflects the scale of a city in terms of foreign trade. The more total imports and exports, the more frequent the foreign trade transactions of the city. In each foreign trade transaction process, it can communicate with foreign professional and technical personnel, and innovate talents. Willing to gather in such a city.

The net number of household registrations reflects the degree of tolerance of government departments for potential innovative talents. China adopts the user registration system, whether innovative talents can settle in cities, and has certain influence on their children's schooling. Therefore, innovative talents will consider whether they can settle in the choice of cities. This is mentioned in the talent war policies of major cities. As local governments realize the importance of talents in the process of urban development, they have proposed various settlement policies to break the traditional household

registration system. The more the number of household registrations, the more inclusive the city government is, and the innovative talents are willing able to gather in the city.

On the one hand, the urbanization rate index reflects the migration of population from rural to urban areas. What is more important is the change of regional landscape, the transformation of industrial structure, the transformation of production and lifestyle, and the improvement of the social status of the peasant class to a certain extent. Reflecting the overall improvement in the welfare level of urban social groups can reflect the improvement of social inclusion.

3) *Innovation input index*: If the viewpoint of innovative talents is to be converted into output, there must be some innovative investment. Innovative investment requires both the input of innovative talents and the investment of relevant funds. This study mainly selects four indicators of RD activity personnel, number of college students, science and technology expenditure, and education expenditure.

4) *Real estate structure index*: Foreign scholar Brookings [16] believes that almost all innovation areas contain three types of assets (or factors), namely economic assets, tangible assets and network assets (Networking Assets). Because this paper studies the innovative cities of talent pooling in the context of knowledge economy, it draws on Brookings' classification of three unique assets in the innovation region to analyze the real estate structure of the city.

The economic assets defined by Brookings refer to the relevant companies, institutions and organizations that drive, nurture and support the innovation environment. In general, the economic assets of the innovation zone can be divided into three categories, namely, innovation drivers, innovative cultivators, and nearby building facilities. Each innovation zone is made up of unique hybrid innovation drivers. The nearby building facilities are important services for residents and staff of the Innovation Zone, including medical institutions, grocery stores, restaurants, cafes, hotels, bars, local retail centers (such as bookstores, clothing stores and sports). Store) and so on. According to the actual development of China and the authenticity and availability of data, this paper selects the number of ordinary colleges and universities, the number of hospitals, the number of theaters, the number of cultural centers, the number of museums (including art museums), and the six indicators of public libraries. Economic assets.

The tangible assets of the innovation zone defined by Brookings mainly include three types, namely, tangible assets in the public domain, tangible assets in the private sector, and tangible assets in the metropolitan area connected to the innovation zone. The tangible assets of the public domain mainly include places that help people gather in parks, plazas and streets; tangible assets in the private sector mainly refer to privately owned buildings and spaces; tangible assets of metropolitan areas connected to the innovation zone, Mainly refers to the specific investment aimed at eliminating obstacles to relationship establishment and connectivity, including infrastructure construction investment, public transportation investment, etc. According to the actual development of China

and the authenticity and availability of data, this paper selects the park green space to measure tangible assets.

The network assets of the Innovation Zone defined by Brookings can strengthen the trust and cooperation within the innovation zone, within the enterprise and between the industry clusters, provide new discoveries and information and help companies access resources and enter new markets. Since network assets do not involve real estate, it is ignored here to ignore network assets.

## B. Calculation Method

1) *Calculation of index score*: Refer to the index processing method of Zhang Suqiu. For the standard processing of the scores of the original data indicators, the larger the observation value of the original data, the higher the score, and the higher the talent concentration reflected by the indicators.

2) *Determination of weight*: In order to avoid objectivity, the contribution of each subdivision index is calculated according to principal component analysis method. In order to facilitate dynamic analysis, the weights of each year during the sample period are calculated separately. The greater the weight, the higher the importance of the indicator and the higher the impact on the whole. Principal component analysis method calculates the weight of each index, and can use SPSS to analyze the secondary indicators of the screening, and obtain the eigenvalue, the variance contribution rate of each factor, the cumulative variance contribution rate, and the factor score coefficient matrix, which can get the economic index and open tolerance. The contribution coefficient of the index, the innovation input index, and the real estate structure index.

## IV. CONCLUSIONS

The data of each indicator in this paper are derived from "China City Statistical Yearbook" and "Guangdong Province Statistical Yearbook". Very few missing data are obtained by exponential smoothing method. The calculation of weights reveals how various indicators work together to promote the formation of talent pooling.

The economic index, the open and inclusive index, the innovation input index, and the real estate structure index always promote each other. From the measured weight coefficient, it can be seen that in different periods of economic development, the distribution of each index contribution is also constantly changing, indicating different indicators. The relative importance of the different stages is different, which can provide some guidance for the city to decide how to improve the concentration of talents. At certain times, it should focus on developing its important index.

From the distribution of weight coefficient over the years, the results are shown in Table 1, the coefficients of various indicators vary from year to year, indicating that the contribution of each index to talent pooling at different stages varies from year to year and varies from year to year. The

contribution of real estate structure index to talent agglomeration has an increasing trend. The contribution of economic index and open tolerance index to talent agglomeration has a decreasing trend, and the contribution of innovation investment to talent agglomeration is basically consistent.

The real estate structure index contributes 50% to the talent pool and contributes the most, indicating that the real estate structure index is an important factor affecting talent pooling. Among them, education is an effective way to form human capital. Ordinary institutions of higher learning can produce the scale effect of the formation of human assets, and break through the limitations of the profession, and effectively improve the general level of knowledge ; knowledge-based talents not only work in cities, but also live In the city, the hospital's professional medical equipment, a good medical environment can meet the medical needs of these talents, solve the problem of difficult treatment, avoid all kinds of queues, can provide a strong life guarantee for talents. At the same time, hospitals can also target the international medical front, attract medical talents around the major needs of health and disease control, medical science research and medical services, and are important bases for medical science research; museums, cultural centers, public libraries, theaters often hold meetings. , symposiums, exhibitions, public events, they can provide limited public spaces for some informal networks, and can bring together innovative talents from different professions to form a vibrant atmosphere in which talents can Freely speaking and communicating with others, while museums, cultural centers, public libraries, theaters and other assets are often considered in the construction process of buildings and open space allocation functions; and parks can provide a variety of open public spaces, talents I will get tired of my two-point lifestyle in my home. They are looking for diversity, lifestyle diversity, multicultural openness, willingness to go outside, and the park provides good public space and various activities. a group of right people, they However, coincidentally or encounter each other, socialize and organize activities, their innovation is nurtured in such a casual atmosphere. Their creativity may be related to artistic performances, elegant architecture, and even the natural environment of walking and pure heart.

The contribution of economic index to talent agglomeration has a decreasing trend, and it has little contribution to attracting talents, which is consistent with previous research conclusions. The Open Inclusion Index contributes about 15% of talent pooling, and the contribution of the Open Inclusion Index to talent pooling has decreased. This is mainly due to the construction of the Greater Bay Area of Guangdong, Hong Kong and Macao and the active, open and competitive talent introduction policies of the cities.

Opening up is an inherent requirement for the construction of the Greater Bay Area of Guangdong, Hong Kong and Macao, providing an infinite space for promoting the participation of the Greater Bay Area in global competition. The construction of the Dawan District is to build a world-class Bay Area and a world-class city group, and become one of the world's four largest Bay Areas in the New York Bay Area, the San Francisco Bay Area and the Tokyo Bay Area in Japan. The various talent introduction policies introduced by Guangdong Province are more precise and flexible, and comprehensively relax the conditions for urban settlement, so that foreigners can enjoy fair opportunities and equal treatment in all major cities in the Pearl River Delta. More and more talents have arrived in the Pearl River Delta city. After that, I don't want to leave, I am willing to stay here to "take root". The total import and export volume of the cities in the Pearl River Delta has benefited from the construction of the Dawan District, and there are more opportunities to "go out" and "bring in". With the introduction of various talent introduction policies, the traditional household registration system can be broken, and foreigners can Enjoy the same social welfare as local people, provide a certain life logistics support for innovative talents, relieve their worries, and concentrate more on their work, open more innovative products or services to give back to the society; urbanization is to make people's activities from The process of rural clustering into cities, urbanization of cities can make the geographical distance between talents and talents closer, and the relationship is closer. At the same time, face-to-face communication between talents and talents is easier, and talent pooling is promoted. An open and inclusive environment can improve the satisfaction and happiness of talent life and work. The openness and tolerance of the city plays a vital role in the formation of urban talent concentration.

According to the weight of each indicator every year (Table II), we can measure the annual talent concentration of each major city . The calculation results can reflect the relatively small and large trend of talent concentration in the Pearl River Delta region. From the average level, the major cities in the Pearl River Delta There is a rising trend in the concentration of talent pools. Due to the limited data, it is impossible to measure the level of talent pooling in major cities in 2018 and 2019. However, with the construction of Guangdong, Hong Kong, Macao and Dawan District and the introduction of various talent policies introduced by major cities, people from all cities in the Pearl River Delta will More and more agglomeration, especially in Shenzhen, ranked second in the level of talent accumulation in 2017. Observing the data of various indicators, the indicators of economic index, openness and inclusive index, and innovation input index have far exceeded Guangzhou, but ordinary The number of these assets in institutions of higher

TABLE I. WEIGHT OF EACH INDICATOR

year	Economic index	Open Inclusion Index	Innovation Input Index	Real estate structure index
2017	0.04100	0.12152	0.34266	0.49482
2016	0.04478	0.14090	0.33535	0.47897
2015	0.05229	0.15347	0.34918	0.44506
2014	0.06222	0.13851	0.32229	0.47699
2013	0.04387	0.13912	0.31827	0.49874
2012	0.05943	0.17026	0.36913	0.40118
2011	0.04473	0.14742	0.33239	0.47546
2010	0.03697	0.13800	0.33974	0.48529
2009	0.04726	0.15257	0.34629	0.45389
2008	0.04723	0.15385	0.30020	0.49871
2007	0.05023	0.15020	0.33325	0.46632

learning and hospitals is relatively small. However, in recent years, Shenzhen has increased the construction of institutions

of higher learning and hospitals. It also explains the impact of the real estate structure index on urban talent pooling.

TABLE II. PEARL RIVER DELTA CITY CONCENTRATION INDEX

	2017	Rank	2016	Rank	2015	Rank
Guangzhou	4.01955	1	4.18663	1	4.03925	1
Shaoguan	1.45713	6	1.28787	5	0.93395	9
Shenzhen	3.63545	2	3.60888	2	3.67237	2
Zhuhai	0.88854	15	0.86756	13	0.80682	12
Shantou	1.09788	11	0.93837	11	0.78816	13
Foshan	2.0287	3	1.84139	3	1.74412	3
Jiangmen	1.03236	12	0.88772	12	0.64316	15
Zhanjiang	1.65912	4	1.37361	4	0.95284	7
Maoming	0.91921	13	0.71274	15	0.58099	17
Zhaoqing	1.32911	8	1.17762	7	0.93941	8
Huizhou	1.11874	10	0.9927	10	0.88649	11
Meizhou	1.33082	7	1.17309	8	0.89966	10
Shanwei	0.62504	20	0.54866	19	0.38291	21
Heyuan	0.90661	14	0.76695	14	0.58358	16
Yangjiang	0.63471	19	0.54489	20	0.41718	19
Qingyuan	1.50824	5	1.23605	6	0.96627	5
Dongguan	1.14288	9	1.04979	9	1.11094	4
Zhongshan	0.69768	17	0.64241	16	0.73585	14
Chaozhou	0.59608	21	0.48656	21	0.39699	20
Jieyang	0.81306	16	0.63076	17	0.54527	18
Yunfu	0.68996	18	0.60816	18	0.95645	6
average	1.3729		1.21726		1.09441	
	2014	Rank	2013	Rank	2012	Rank
Guangzhou	4.32643	1	4.47564	1	3.74173	1
Shaoguan	1.18524	4	1.31092	4	1.15775	6
Shenzhen	4.13991	2	4.02341	2	3.39847	2
Zhuhai	0.6815	14	0.67662	16	0.73372	13
Shantou	0.90057	12	0.89832	12	0.90161	12
Foshan	1.79034	3	1.72922	3	1.51924	3
Jiangmen	0.90964	11	1.0658	9	0.961	10
Zhanjiang	0.9396	10	1.13727	8	1.00265	8
Maoming	0.68015	15	0.78848	13	0.66225	15
Zhaoqing	1.07746	7	1.17209	7	1.0059	7
Huizhou	0.99152	9	0.95392	11	0.9046	11
Meizhou	1.14407	6	1.24595	5	1.44796	4
Shanwei	0.52201	18	0.53894	19	0.4799	19
Heyuan	0.60135	16	0.77258	14	0.6724	14
Yangjiang	0.33681	21	0.43221	21	0.44035	20
Qingyuan	1.0133	8	1.17834	6	0.99943	9
Dongguan	1.14797	5	1.02492	10	1.25449	5
Zhongshan	0.58579	17	0.55701	18	0.63553	16
Chaozhou	0.40453	20	0.4366	20	0.42701	21
Jieyang	0.71031	13	0.69583	15	0.60035	17
Yunfu	0.43997	19	0.6214	17	0.56553	18
average	1.16802		1.2255		1.11961	
	2011	Rank	2010	Rank	2009	Rank
Guangzhou	3.93239	1	4.00212	1	3.85662	1
Shaoguan	1.28749	5	1.27041	5	1.1487	6
Shenzhen	3.27708	2	3.37703	2	3.39059	2
Zhuhai	0.69288	15	0.6951	16	0.7872	14
Shantou	1.12254	7	1.00169	12	0.97038	11
Foshan	1.36168	4	1.4652	4	1.43662	4
Jiangmen	0.94769	11	1.12168	9	0.96584	12
Zhanjiang	1.04564	10	1.105	10	0.9885	9
Maoming	0.76887	13	0.80806	15	0.78726	13
Zhaoqing	1.24715	6	1.23807	7	1.07416	8

	2017	Rank	2016	Rank	2015	Rank
Huizhou	0.89232	12	0.95514	13	1.11394	7
Meizhou	1.60949	3	1.69551	3	1.45537	3
Shanwei	0.49597	19	0.53259	18	0.46334	19
Heyuan	0.72189	14	1.2617	6	0.69354	16
Yangjiang	0.37906	21	0.40886	21	0.37148	21
Qingyuan	1.08294	9	1.16276	8	0.98221	10
Dongguan	1.11155	8	1.05263	11	1.15881	5
Zhongshan	0.53519	17	0.49223	19	0.52105	18
Chaozhou	0.42424	20	0.42216	20	0.39301	20
Jieyang	0.67239	16	0.83208	14	0.7386	15
Yunfu	0.52986	18	0.64154	17	0.57694	17
average	1.14944		1.21626		1.13686	

#### REFERENCES

- [1] C.Philip., Complex spaces. J.Open Innov.Technol. Mark. Complex. 2017, Vol. 3, pp. 9–32.
- [2] C.Philip, The role of research in regional innovation systems. Int. J. Technol. 2004.
- [3] P.Surabhi., Y.Tan,G.Mirko,2018b. Attributes of successful place making in“knowledge and innovation spaces,” J. Urban Des. vol. 23, pp. 693–711.
- [4] H.Peter., Revisiting the non-place urban realm. Int. Plan. Stud. 1996, vol. 1, pp. 7–15.
- [5] L. Carvalho, W.Van, “Planned knowledge locations in cities,” Int. J. Knowl.Based Dev. 2017, vol. 8, pp. 47–67.
- [6] D.R.Davis, J.I. Dingel. A Spatial Knowledge Economy, [J] American Economic Review,2019, vol. 109(1), pp. 153-170
- [7] R.Florida, “The Rise of the Creative Class,” Revised paperback ed. New York: Basic Books, 2004
- [8] X.Y. Cheng, S.D. Zhang, “The Spatial Structure Characteristics and Optimization Path of Real Estate in Innovative Urban Areas,”[J] Urban Development Research, 2019, vol. 26(02), pp. 9-13+19.
- [9] N,Esmailpoorarabi,T.Yigitcanlar,G.Mirko, “Place quality in innovation clusters: An empirical analysis of global best practices from Singapore, Helsinki, New York, and Sydney,”[J] Cities,2018, vol. 74.
- [10] Q.Yan,Wei L,X.B.Peng, “Influencing Factors of High-level Talents Agglomeration-Taking Zhejiang Province as an Example,”[J] Ergonomics, 2019, vol. 25(02), pp. 66-73.
- [11] C.Wang,“Influencing Factors and Strategy Analysis of University Science and Technology Talents Flow Based on Grey Relational Analysis-Taking Colleges and Universities in Jilin Province as an Example,”[J] Information Science, 2019, vol. 37(05), pp. 47-52.
- [12] C.Su, K.Q.Du, “Influencing Factors of R&D Talent Agglomeration and Its Spatial Spillover Effect under the Background of Innovation Drive—Taking Jiangsu Province as an Example,”[J] Science and Technology Management Research, 2018, vol. 38(24), pp. 96-102.
- [13] R.Wang, S.D.Zhang, “Analysis of the Influence of Urban Innovation Capability on Commercial Housing Price,”[J] Shanghai Economic Research, 2016, vol. 12, pp. 113-119.
- [14] J.F.Dong. Research on the Influence of Urban Real Estate Structure on Talent Agglomeration[D].Shanxi University of Finance and Economics, 2018.
- [15] S.D.Zhang, L.N.Hu, L.Q.Zhou,“Research on the measurement and influence factors of talent concentration in the central city of the metropolitan area [J/OL],” Scientific and technological progress and countermeasures:1-7,2019
- [16] Brookings Institution , “The Rise of Innovation Districts: A New Geography of Innovation in America”, June, 2014.