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EXTERNAL SOURCES OF URBAN COMPETITIVE ADVANTAGES IN CHINA

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ABSTRACT: Urban competition refers to capacities of cities for attracting, capturing, controlling, dominating and transforming certain resources during urban development, and capacities for wealth creating, life-standard improving and sustainable development maintenance. This paper first analyzes the external sources of urban competitive advantages: the global network-based advantages and the location-based ones. Then with the aid of method of principal component analysis in SPSS 10.0 for Windows, the Chinese urban global and local competitive advantages are explored. The finding is that the global network-and location-based advantages are remarkable for the cities in the eastern China. While for those in the western and the middle regions, affected by much lower regional competitive advantages and lower degrees of urban-regional integration, the urban competitive advantages are deeply influenced and weakened.

KEY WORDS: urban competitiveness; global network-based advantages; location-based advantages; Chinese cities

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The urban competitiveness (UC) depends not only on resources, but also on capacities that cities themselves have. But as a dynamic process, the external environment of cities brings certain "prompting" or "obstructing" for urban competition. Along with the internationalization of economic activity, the technological globalization and the new international labor divisions, the production factors, such as capital, land, labor and technology, have been more crucial and active in urban competition than before. Studies of urban competitive advantages from external environment are thus significant for competitive strategy formulation today (YU, 2004).

This paper first analyzes the sources of urban competitive advantages, that is, the global network-based advantages and the location-based (region-based) advantages, then analyzes the Chinese urban global network- and location-based competitive advantages.

1 GLOBALIZATION AND LOCALIZATION: EXTERNAL ENVIRONMENTS FOR URBAN COMPETITION

Trends of globalization and localization have deeply shaped the world. Scholars usually consider the two tendencies as one part, the so-called "glocalization". Powers of global economy thoroughly shake the current organizations of states and those based on physical spaces. Along with the globalization, the space of flows emerges gradually, which mainly based on global city nodes. Parallel to space of flows is the once dominant space of places based on segments of globalization and regional economic integration (CASTELLS, 1989; AMIN and THRIFT, 1995; STORPER, 1995).

As external competition environments, the space of flows and the space of places provide opportunities and threat as well for UC and urban development. Meanwhile, urban competition also functions on the globalization and localization processes, and imposes influences on levels of spaces (Fig. 1, Fig. 2).

2 GLOBAL NETWORK-BASED COMPETITIVE ADVANTAGES OF CITIES

Since the 1960s, driven by technology innovation and the establishment of transnational finance institutions, the industrial capitalism accelerates the growth of global economy greatly. CASTELLS (1989) argued that technology innovation, especially the information tech-

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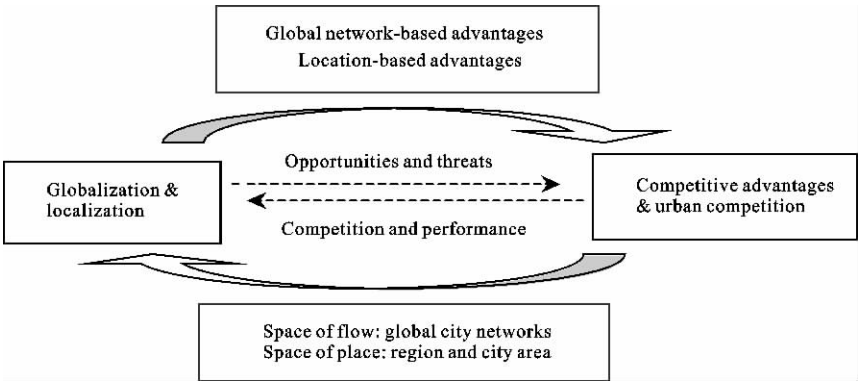

Fig. 1 Relations between urban competition, globalization and localization

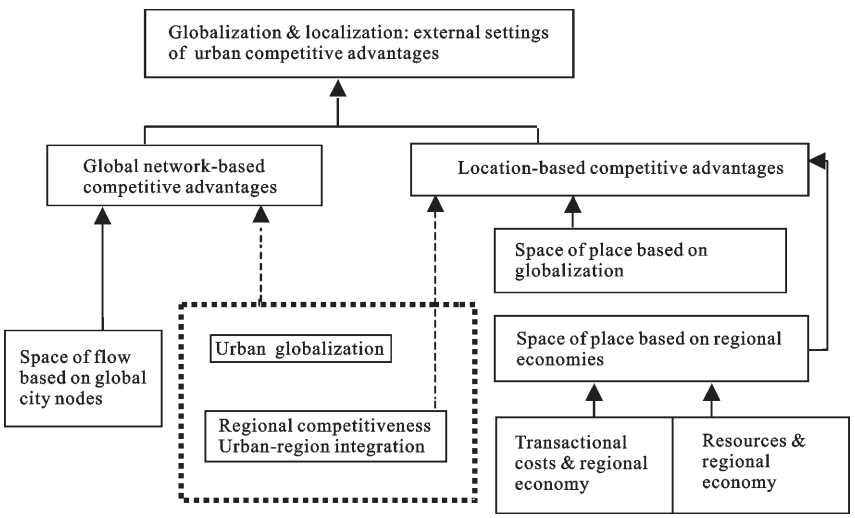

Fig. 2 Structure of the research

nology, reorganizes the society that was once based on physical matters. The inter-dependence of global economy brings forth new relations among economy, states and society in the flexible spatial systems.

2.1 Space of Flow Based on Global City Nodes

CASTELLS (1989) argued that the replacement of space of place by space of flows restructures the capitalism, and a competitive city must be closely attached to the global urban networks or systems.

2.2 Space of Flow and Network-based Urban Competitive Advantages

The space of flows follow rules of networks. The global urban system is composed of certain urban nodes, paths and kinds of flow, the most important of which are the global city nodes, capable of cultivating innovations and dominating other lower level cities in local networks. All of these cities have long developmental history, huge population and spatial sizes. In addition, these nodes are preferred places for multi-national corporations' headquarters, innovation centers or manufacturing bases. For the networks, their features are determined by the spatial and hierarchical relations among global cities. In the dynamic balancing process of spatial network structure caused by competition of global cities the flow acts as balancing strength. Therefore, the power-controlling of flow will determine the ranks and hierarchical positions of cities.

In the information society, cities compete to attract resources collocating worldwide. Resources collocation in the new economy, one of the functions of space of flow with network structures, is neither market-oriented, nor driven by administrative forces or state powers, but through networks.

The unusual functions of space of flow are the rapid and dynamic optimization and collocation capacities for resources worldwide, which hardly can be realized by

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any other organizations. Under contexts of globalization and information technology, the network relation among space of flow provides urban competition with external environments. Those cities acting as major network nodes could have more opportunities to get access to and catch opportunities or resources. By this, competitive advantages can be quickly created and UC can increase as a result.

Subsequently the current urban development is set in the networks along with globalization. Regions with high globalization get rapid economic development and even expand into new field, new networks. While regions, counties and cities with low globalization get far away from the core position and be more peripheral, the polarized economy even fated to end up with regional changes. This kind of competitive advantages from space of flow can be called the global network-based advantages or system-based advantages. In other words, urban competitive advantages have much relevance to the global urban system composed of nodes, paths, and flows.

3 LOCATION-BASED COMPETITIVE ADVANTAGES OF CITIES

3.1 Regional Economy Based on Resources Factors and Transactional Costs

Will the local spatial features and the regional economy end up with rapid capital flow and globalization? Most scholars disprove these views from perspectives of resources factors and regional economies (O'BRIEN, 1990; STORPER, 1995).

(1) Resources factors and regional economy. Resources are major influential factors for regional and urban competitiveness. They are important targets that cities and regions compete for. Along with globalization, certain commodities and capitals will not lose their important effects on the regional development because of some social and institutional particularities.

(2) Transactional costs and regional economy. The essence of institutional economics is theories about transactional costs. Based on the related arguments, the capital globalization could not let the functions of regional economy decay. What the transactional costs care about are not only the product organization, but also the importance of institutions for regional and urban competitions. By providing transaction with frames, institutions determine the transactional costs and transforming costs as well. Different places possess different institutions due to the existence of complicated cultures and social customs. Thus diverse transactional costs appear. Institutions let local units, such as regions and cities, act as key territorial scales for economic development. Many scholars have undertaken related researches on key social and institutional factors determining regional competitive advantages, bringing forward many arguments such as "new-regionalism". AMIN (1995) and THRIFT (1995) argued that globalization depends more and more on the social, cultural and institutional networks embedded in local places. They defined them the "institutional integrity" or "thickness", on which local places could create strong economy in the increasingly competing world.

To sum up, from perspectives of resources and transactional costs, regional functions could not decay as important locations for economic development. On the contrary, the emergency and the completion of knowledge economy will stimulate the economic development based on regions and endogenous resources. What's more, the technology progress and the political transformation also promote local or national breaking away from regulation restrictions and being much more social imposition. The introduction of new free market mechanisms makes the regional economy play more prominent roles as well.

3.2 Space of Place Driven by Regional Economy and Globalization

Compared with the space of flow, the space of place based on regional economy is a kind of physical space, acting as carrier for development. The spread of local spaces is the result of regional competition determined by the comprehensive competitive capacity, the organization and service capacities of core-cities. One of the most significant features of global economy is the existence of essential asymmetry among related nations. In fact, the actual operation and structure of global economy only involves a few economic sections, nations and regional segments. And their corresponding percentages are defined by their positions in the international labor divisions. This kind of segments of globalization provides new opportunities and challenges for urban and regional development. From this point, as a kind of local spatial unit, the segment imposes influences fundamentally on urban competitive advantages within it (LAN and ZHUANG, 2001).

From the above analysis, local spaces, on the one hand, result from regional integration, on the other hand, result from the integrating processes of space of flow as well as those of space of places driven by economic globalization and space of flow.

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3.3 Local Spaces and Location-based Competitive Advantages of Cities

From perspectives of the external competition environment, urban competitive advantages are derived from the global network-based advantages. And the localization makes the UC more rely on location factors relating to the regional competitiveness and the urban-regional integration etc. This could be called the location-based or region-based advantages of urban competition compared with the global network-based ones (WANG, 1999; YU, 2004).

3.3.1 Regional competitiveness

The globalization and localization are the two sides of a coin. UC can be reflected from its globalization degrees, while localization profoundly influences the persistency of urban competitive advantages in the long term. It even determines the function and role of cities in the global city networks or systems. Therefore, as external competitiveness source for cities, the local dimension is also needed analyzed. Only competitive advantages based on local endowments, i.e., the "local basis", are fundamental for urban competing with others. Localization and local spaces make cities greatly rely on regional competitiveness. The essence of regional competitiveness is to integrate and utilize the production factors, then to realize the rational industrial division and cooperation, and to provide the regional economic development with the best environment. As UC and national competitiveness, the regional competitiveness is attributed to competitiveness of locations too, not attributed to the competitiveness of activities, such as industrial competitiveness, product competitiveness.

3.3.2 Urban-regional integration and UC

Besides the regional competitiveness, the urban-regional integration is too important to be ignored for UC analysis. No matter how great the regional competitiveness, once cities break away from their regional settings, the regional competitiveness will be nothing to UC any more. The urban and regional integration involves two aspects, the industrial integration and the spatial integration.

In a word, besides forces of globalization, technology advancement and the linkage to the world, a competitive city should try to attach more importance to local development capacity, and to sustainable regional development (NG *et al*., 2000; WU, 2000).

4 CASE STUDY: EXTERNAL COMPETITIVE ADVANTAGE SOURCES OF CHINESE CITIES

4.1 Ideas and Indicator System

The global economy provides opportunities and threats for competitive cities. However, it also needs to analyze the local dimension. Only advantages on "local basis" are fundamental for cities to compete with others. According to the theoretical frameworks established above, the indicators system to analyze the global network-based advantages and location-based advantages is demonstrated in Table 1 and Table 2.

Table 1 Indicator system of urban global network-based advantages

Indicator	Subdivision indicator	Hypothesis premise
Urban size* (a)	Employee in units (a_1) Individual labors (a_2)	Direct relations between interaction degree of global urban networks and urban sizes
Urban industrial structures (b)	Finance and insurance (b_1) Healthy care and welfare (b_2) Education, cultural activities and broadcasting system (b_3) Technological and research services (b_4)	Direct relations between interaction degree of global urban networks and the employment in the industries
Urban internationalization degree (c)	FDI per capita (c_1) Income from international tourism per capita (c_2) FDI (c_3) Income of International tourism (c_4)	Direct relations between interaction degree of global urban networks and urban internationalization

Note: *Urban size is classed by the criterion of employment population

The data involved are mainly from *Chinese Urban Statistic Yearbook*, *Chinese Statistic Yearbook* and *Chinese Population Statistic Yearbook*.

4.2 Global Network-based Advantages of Chinese Cities

By the aid of SPSS 10.0 for Windows, the globalization degree of Chinese cites (except for the cities in Tibet, Taiwan, Hong Kong and Macao) is analyzed with the method of principal component analysis. Two principal components are picked up, respectively reflecting the urban economic scale, urban internationalization and industrial structure. The result is shown in Table 3 and Fig. 3.

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Table 2 Indicator system of urban location-based advantages

	Main indicator	Theoretical base or hypothesis premise
Regional competitiveness	1) Regional per capita GDP; 2) GDP; 3) GDP per administrative land area	Productivity and production are cores of competitiveness
Urban-regional integration	1) Productivity (product selling income per capita, GDP per capita, GDP per administrative land area, retail/wholesale trade per capita); 2) Services (finance and insurance, technology and research services); 3) Economic size (GDP; product selling incomes); 4) Transportation flows (passenger transport, passenger transport per administrative land area)	Urban-regional integration depends on urban gross economy, productivity, flowing economy and functions of cities to their hinterlands

Table 3 Rotated component matrixes

	Component	
	1	2
Population employed in city proper	0.964	−6.094E−02
FDI	0.781	0.374
Income of international tourisms	0.848	0.268
FDI per capita	0.162	0.810
Income of international tourism per capita	0.147	0.785
Employment of advanced services	0.959	2.710E−02
Percentage of advanced services employment	6.042E−03	0.452

4.3 Location-based Advantages of Chinese Cities

On urban-region integration, there are several cases explored in Italy recently. The finding is that cities can not develop without regional support or context even in the globalization era (DEMATTEIS, 1997).

4.3.1 Regional competitiveness

Taking the provinces, autonomous regions and municipalities as basic regional units, according to Table 2, the regional GDP per capita, GDP, GDP per administrative land area are selected as the evaluation indicators. Through principal component analysis, the result is that Liaoning, Beijing, Tianjin, Shandong, Jiangsu, Shanghai, Zhejiang, Fujian, and Guangdong have the highest regional competitiveness, and Heilongjiang, Jilin, Hebei, Wuhan, Xinjiang, and Hainan have relatively high regional competitiveness. And Shanxi, Henan, Anhui, Jiangxi, and Hunan have low regional competitiveness. Competitiveness in the left regions is the lowest.

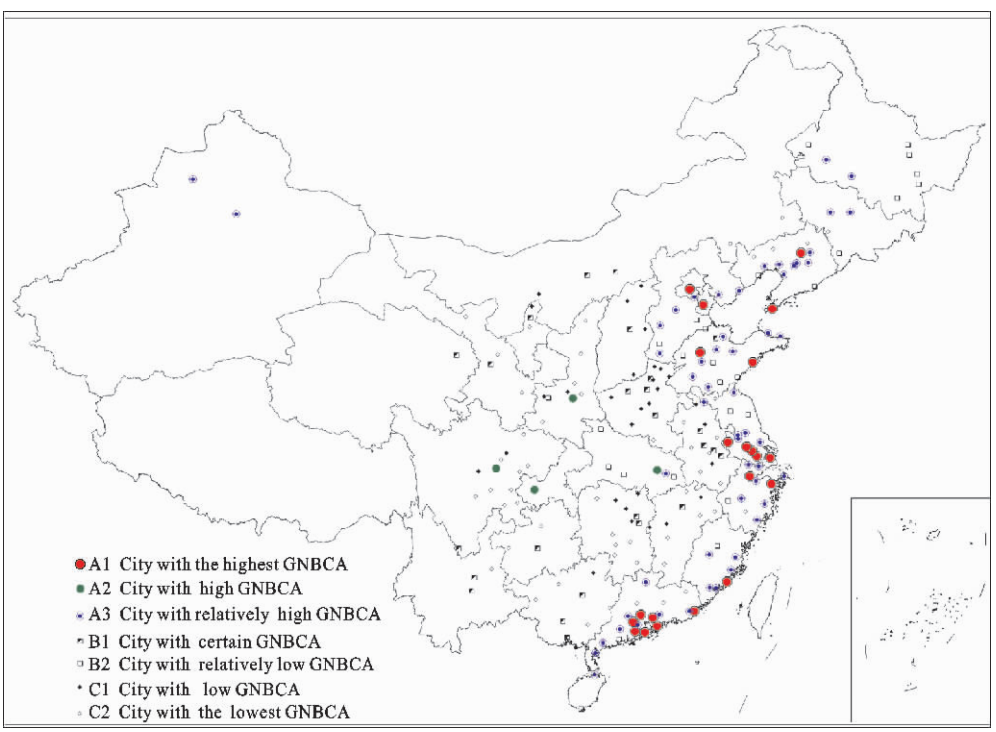

Fig. 3 Global network-based competitive advantages (GNBCA) of Chinese cities
(Tibet, Taiwan, Hong Kong and Macao are not included in this analysis)

4.3.2 Urban-regional integrations

From Table 4, 10 indicators are divided into three

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principal components, the productivity (composed of indicators of product selling income per capita, GDP per capita, GDP, GDP per administrative land area, retail and wholesale trade per capita), productions and services (composed of indicators of GDP in urban administrative areas, the employment in finance and insurances and the research services) and flow economy (composed of indicators of passenger transport, the passenger transport per administrative land area). The integration degree of Chinese cities and regions is demonstrated in Fig. 4 through principal component analysis, and the numerical values in this figure represent the total scores of each city.

Table 4 Rotated component matrixes

	Component		
	Productivity	Services & production	Flow economy
GDP in urban administrative area	0.382	–	6.566E−02
Passenger transport	−5.2E−02	0.634	0.568
Employment of finance and insurance	0.248	0.933	0.101
Employment of research services	3.7E−02	0.835	8.481E−03
Selling income of product	0.562	0.735	7.414E−02
Selling income of product per capita	0.933	5.032E−02	3.790E−02
GDP per capita	0.941	0.145	0.119
GDP per administrative land area	0.819	0.320	0.324
Retail and wholesale per capita	0.825	0.336	0.202
Passenger transport per administrative land area	0.333	−4.199E−02	0.881

4.3.3 Location-based advantages of cities

The regional development usually experiences three stages: the node-pole stage, the node-axes stage and the networks stage. According to economic development level, the urban-region development can be divided into four stages, respectively the low-level equilibrium stages, the concentrated stages, the diffusive stages and the advanced level equilibrium stages. The low level equilibrium stage of regions has the two following features. The first is the loose and isolated economic activities, the closely defined development in small territory scope and without systematic road networks. The second is the urban systems have not been formulated yet. The node-pole stage has the following ones. The first is the emergence of uneven economic development in larger scopes of space. The second is the emergence of node-axes system. The features of the diffusion stage include the more uneven development, the formulation of node-axes systems, and urban systems. While the advance level equilibrium stage of regions has the following characters. The first is the shrinking development gap in a large spatial scope and the relative equilibrium spatial distribution and scale structures of city clusters. The second is the mature of node-axes system with network, equilibrium and poly-centers. According to the relations between regional competitiveness (RC) and urban-regional integration (URI), there are four types of re-

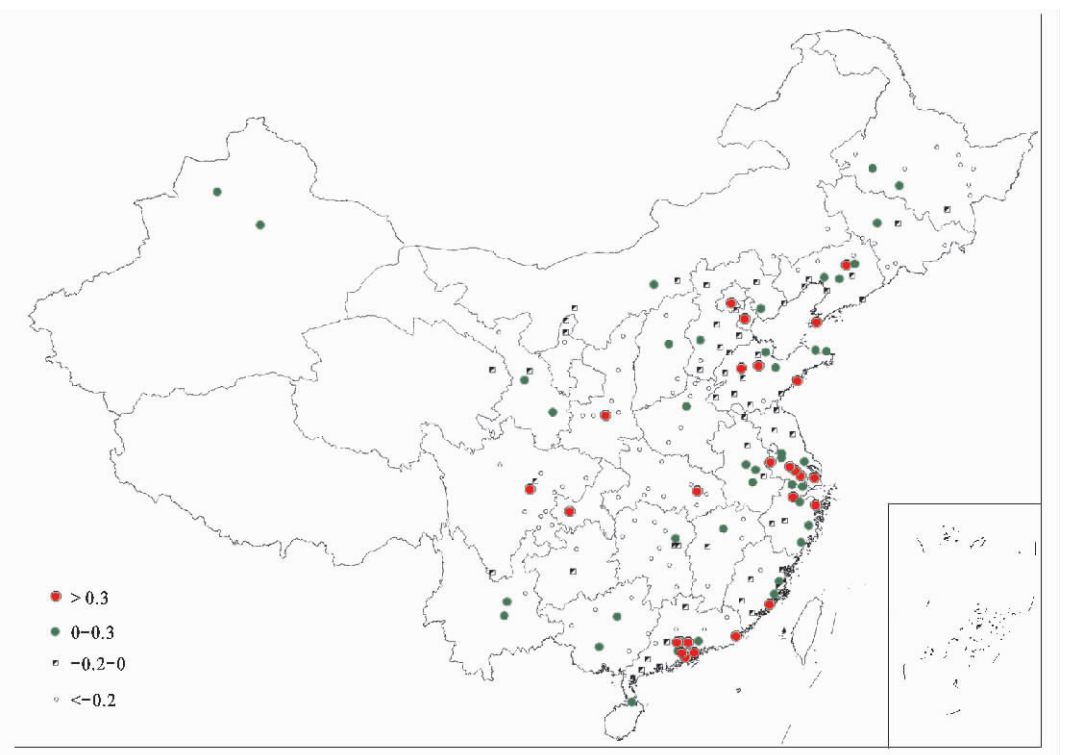

Fig. 4 Integration analysis of Chinese cities and regions
(Tibet, Taiwan, Hong Kong and Macao are not included in this analysis)

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gions (LI and LI, 2002). High-level of RC and URI is the advanced-level equilibrium stage, when the location-based advantage is the most evident. Low-level of RC and URI is the low-level equilibrium stage, when the location-based advantage is the weakest. While high RC with low URI is the concentrated stage, in which, more interactions occur. Low RC with high URI is the diffusion stage, when the location-based competitiveness is the relative stronger. According to Table 5, results of the urban-regional integration analysis and the regional competitiveness analysis come in Fig.5, which demonstrate the location-based advantage of Chinese cities.

Table 5 Matrix of location-based advantage of cities

Urban-regional integration (from high to low)	(i) High level equilibrium stage	(ii) Diffusive stage
	(iii) Concentrated stage	(iv) Low level equilibrium stage
Stages of regional development	Regional competitiveness (from high to low)	

5 CONCLUSIONS

The 20 highest global network-based competitive cities are Beijing, Shanghai, Guangzhou, Tianjin, Shenzhen, Shenyang, Zhuhai, Suzhou, Quanzhou, Xiamen, Wuhan, Dalian, Dongguan, Nanjing, Chongqing, Xi'an, Hangzhou, Harbin, Qingdao and Chengdu. While the 20 cities with highest urban competitive location-based advantage are Shanghai, Beijing, Tianjin, Nanjing, Suzhou, Wuxi, Changzhou, Shenyang, Dalian, Hangzhou, Ningbo, Xiamen, Jinan, Qingdao, Shantou, Guangzhou, Shenzhen, Zhuhai, Foshan and Zhongshan, almost of which are seated in the developed eastern coastal China. While those with the highest global network-based advantages in the middle and western China are all provincial capitals, including Wuhan, Xi'an, Chengdu, Chongqing, etc.

It is not the same for the highest location-based competitive advantage. Cities with the highest location-based advantage are all located in the eastern coastal

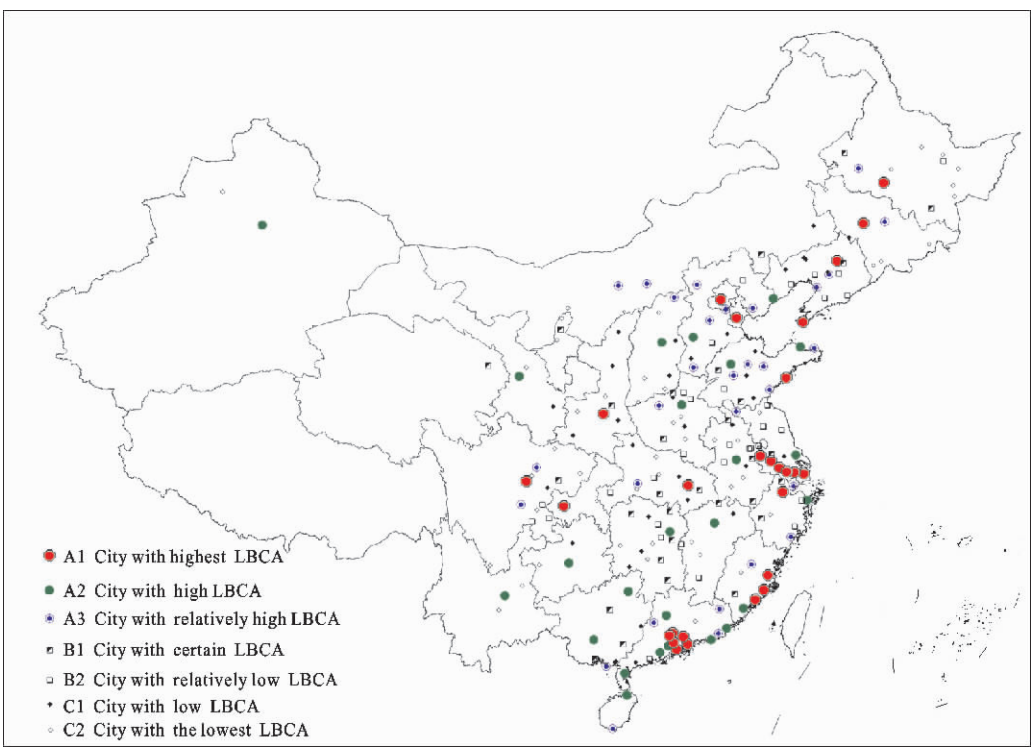

Fig. 5 Location-based competitive advantage (LBCA) of Chinese cities
(Tibet, Taiwan, Hong Kong and Macao are not included in this analysis)

China. What's more, except for Xiamen City, all the others with highest location-based advantages are seated in the extended metropolis regions (EMRs), from the north to the south respectively middle and southern Liaoning Province EMRs, Beijing-Tianjin-Tangshan EMRs, the EMRs along the Jiao-Ji (Qingdao–Jinan) Railway, the Changjiang (Yangtze) Delta EMRs, and the Zhujiang (Pearl) River Delta EMRs.

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To conclude, the spatial features of the global network-based advantages and location-based advantages of cities demonstrate that, the urban competitive advantages in the eastern coastal regions are influenced significantly by forces of glocalization. while in the middle and western China, affected by low regional competitiveness and integration of cities with regions, the urban competitive advantages are much lower than those in the eastern China.

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