Urbanization, Industrialization and Service Industries Agglomeration: Evidence from Panel Data of Chinese Provincial Regions

URBANISATION, INDUSTRIALISATION ET LES INDUSTRIES DE L'AGGLOMERATION:PREUVES TIREES DES DONNEES DES PANEAUX DES REGIONS DE PROVINCES CHINOISE

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Abstract

From a perspective of the historical evolution and logic analysis, urbanization has provided the development of service industries with the carrier and power, while industrialization has laid the foundation and put forward the needs for it. This paper carries out an empirical analysis to test the influence of urbanization and industrialization on service industries agglomeration with panel data of Chinese provincial regions from 2004 to 2009; the results indicate that both of them have significant positive impact on service industries agglomeration.

Key words: Service industries agglomeration; Panel data; Urbanization; Industrialization

Résumé

Du point de vue de l'évolution historique et l'analyse logique, l'urbanisation a fourni le développement des industries de service avec le transporteur et le pouvoir, tandis que l'industrialisation a jeté les bases et mettre en avant les besoins pour elle. Ce document effectue une analyse empirique pour tester l'influence de l'urbanisation et l'industrialisation sur les industries de services d'agglomération avec les données de panel des régions de la province chinoise de 2004 à 2009, les résultats indiquent que les deux ont un impact positif significatif sur les industries de services d'agglomération.

Mots-clés: Les industries des services d'agglomération; Données des paneaux; L'urbanisation; L'industrialisation

INTRODUCTION

Since the 1980s, the transition of the industrial structure from "industrial economy" to "services economy" has become a worldwide trend significantly, and this trend has been expanding from developed countries to developing ones. Service industries have been or been becoming the support of the world economy and governments are also using different ways to speed up the development of service industry, such as service industries agglomeration, services outsourcing, and offshore services. Among them, service industries agglomeration stands out with its unique competitive advantage, such as financial services cluster in New York and London, producer services cluster in product development and technical innovation as for features in Tokyo and so on.

With the continuous deepening of reform and openness, China's economy has maintained high growth and service industries have been developing rapidly, but are still relatively slow compared with developed countries. Although service industries have a major impact on the China's economic development, the service industries agglomeration is just beginning and have been up and coming in some metropolis such as financial services industry cluster in Shanghai, information consultation service industries cluster in Beijing. Nevertheless, the advantages of the development of service industries agglomeration have already become apparent. In general, services-oriented development has become a new pattern

of economic development. That is, when a country, region or organization wants to seek for competitive advantage, service industries agglomeration is an important way to enhance its core competencies.

The new economic geography theory suggests that urbanization is the agglomeration of the economic activity in the space, while service industries are the main bodies of the highly developed urban economy; the industrial economic theory suggests that industrialization process can lay the solid material and technical base for service industries. Therefore, it becomes one of the leading theory problems that how urbanization and industrialization can affect the development of service industries. This paper carries out an empirical analysis to test the influence of urbanization and industrialization on service industries agglomeration with panel data of Chinese provincial regions from 2004 to 2009 in order to provide reference for governments at all levels in China to accelerate the development of service industries.

This paper is structured as follows: Section 2 is theoretical analysis on the influence of urbanization and industrialization on service industries agglomeration; Section 3 uses panel data model to test theoretical analysis; Last section concludes.

1. THEORETICAL ANALYSES

1.1 Urbanization and Service Industries Agglomeration

In the period of service economy, service industries and urbanization have a dependent relationship of interactive development. Service industries, especially of knowledge intensive modern service industries have preferred to agglomerate in cities, which not only helps to speed up urbanization process, but also plays a vital role in ego development

The experience of the development of all countries in the world shows that population concentration is conducive to the development and agglomeration of service industries. The population scale determines the size of potential commodity markets. Since the service goods have non-storability, Most of them are produced and consumed in the same place, so the size of the market is one of primary factors affecting the development of service industries. Urbanization has brought the population concentration, which creates the needs for services. Since the reform and openness, China has experienced a rapid economic development and a large number of rural populations have flocked to the cities, which has caused major changes in economic structure. Expansion of urban scale has brought low transaction costs, high economic efficiency, and contributed to raise the level of services. In developed countries, urbanization has also provided a very important needs basis for the development and agglomeration of service industries, and

it has been promoting the development of the traditional service industries and the formation of the new ones.

1.2 Industrialization and Service Industries Agglomeration

No matter how the industrial structure evolves, service industries have existed in each phase of human economic activities; the traditional living service industries were in the majority before industrialization. With the start of the industrialization, producer services have made great progress, and driven the living service industries to be modernized. Mutual Promotion and influence exists between service industries agglomeration and industrialization. The development of industry provides a large number of surplus labors for service industries agglomeration, specialized division of labor deepening have promoted the transferring from self-service to social service, which has been improving the living service industries and enriching the service products. Meanwhile, service industries have an important reaction to promote industrialization, which has been creating a more favorable environment for industry innovation and development, driving changes in industrial organization and promoting the industrial structure to a higher stage.

At present, China is in the stage when industrialization and urbanization is accelerating to develop; therefore industry and construction industry are the main demand subjects for producer service industries. Thus, the level of industrial development plays an important role in the development of service enterprises. Meanwhile, according to the world experiences, service industries are established on the basis of industrialization. Service industries usually developed rapidly after industrialization reached a certain high level. The regions where industry has a good level of development, have more business opportunities, and are much easier to promote the development of producer service enterprises. Therefore, the level of industrialization is one of important factors to service industries agglomeration.

2. EMPIRICAL TESTS

2.1 Sample Data

We conduct our analysis with panel data of Chinese 31 provincial regions, the period is from year 2004 to year 2009. All the data are drawn from "China Statistical Yearbook".

2.2 Variables

2.2.1 Dependent Variable

The dependent variable we concern is the agglomerating level of service industries. The measurement indicators of industrial agglomeration commonly include industry concentration, location quotient, Hirschman-Hefoyinde index (also called H index), spatial Gini coefficient, the

spatial agglomeration index (also known as E-G index) and so on. In this paper, location quotient is used and is calculated as follows:

$$LQ_{it} = \frac{Z_{it}}{X_{it}}$$ (1)

Where LQ_{it} is is the location quotient of the service industries of region i in year t, Z_{it} is the proportion of the service industries product value of region i to the national service industries product value in year t, X_{it} is the proportion of gross regional product of region i to national gross domestic product in year t. When the location quotient of region i is bigger than 1, it shows that the region's service industries has a higher agglomeration degree, its service sectors have the comparative advantage; When the location quotient is smaller than 1, it shows that the region's industries agglomeration level is below the national level; when the location quotient is 1, it shows that the region's service industries agglomeration level is equal to the national level.

2.2.2 Independent Variables

1st. Level of urbanization. Urbanization is defined by the United Nations as movement of people from rural to urban areas with population growth equating to urban migration. We use the proportion of urban population to total population as measurement indicator, denoted by CITY.

2nd. Industrialization. Industrialization is the process of social and economic change that transforms a human group from an agrarian society into an industrial one. In this process, the proportion of industrial (in particular the manufacturing sector) or the secondary industry output (or income) to GDP (or national income) has continued to rise, and the proportion of industrial employment to the total employment has also continued to rise. We use the ratio of industry product value to primary industry product value as the industrialization indicator, with RIGDP to represent.

2.3 Model Structure and Estimation

We establish panel data models to investigate the effects of urbanization and industrialization on service industries agglomeration. The panel data model has three forms: pooled model, fixed-effect model and random-effect model as follows:

$$LQ_{it} = \alpha_0 + \alpha_1 CITY_{it} + \alpha_2 RIGDP_{it} + \varepsilon_{i,t}$$ (2)

$$LQ_{it} = \alpha_{0t} + \alpha_1 CITY_{it} + \alpha_2 RIGDP_{it} + \varepsilon_{i,t}$$ (3)

$$LQ_{it} = \alpha_0 + \alpha_1 CITY_{it} + \alpha_2 RIGDP_{it} + \varepsilon_{i,t}, \varepsilon_{i,t} = u_t + w_{i,t}$$ (4)

Where α_{0t} in formula (2) reflects the fixed effects of the degree of service industries agglomeration in year t, and u_t in formula (3) reflects the random effects of the degree of service industries agglomeration in year t. They both reflect the differences of the degree of service industries agglomeration because of the time factor.

It involves models selection when using panel data to carry out empirical research, that is the selection of (2) (3) (4) with a given data. The general practice is to make two-two selective tests among them: pooled model versus fixed effects model can be selected with F-test; pooled model versus random effect model can be selected with LM test; fixed-effects model versus random effects model can be selected with Wald test, the test methods can be found in Ye Azhong, Li Zinai (2000)(in Chinese).

2.4 Results

Using the data above, with stata11.0, the pooled model was selected and the estimation results are in Table 1.

Table 1 shows that the model has insufficient ideal goodness of fit, because the coefficient of determination and adjusted coefficient of determination are only about 0.25; From the point of view of the F statistics used to test the overall significance of the model, the equation is highly significant.

Table 1
Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
constant	0.794289	0.052333	15.17763	0.0000
CITY	0.004119	0.127260	3.237060	0.0014
RIGDP	0.004613	0.002105	2.191836	0.0297

R-squared =0.253465	F-statistic=31.06631
Adjusted R-squared=0.245306	Prob(F-statistic) =0.000000

From table 1, we can also conclude that the coefficients of industrialization and urbanization are all positive and significant with T-test at significant level of 0.05; both of them have significant influence on service industries agglomeration, if the proportion of the urban population has number of 1% increment, the increment of the location quotient will be 0.004119, meanwhile, the ratio of industry product value to primary industry product value increases by one percent, the increment of the location quotient will be 0.004613

CONCLUSION

Urbanization, industrialization and service industries are all the focus in the economics profession, and service industries have been playing a vital role in the development of macroeconomics for governments. This paper finds that both urbanization and industrialization have significant positive impact on service industries agglomeration with panel data of Chinese provincial regions, therefore, governments at all levels in China should make policies to speed up the process of urbanization and industrialization in order to promote service industries agglomeration and the final goal is the growth of regional economy.

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