

# How Economic Affect the Spatial Distribution of Multinational Hotels?

## — Empirical Analysis Based on Panel Data of Guangdong-Hong Kong-Macao Greater Bay Area

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**Abstract:** With the development of economic globalization, the multinational operation of hotels has also developed rapidly. Since the reform and opening up, China has succeeded in obtaining a sustained and rapid economic growth, marked increase in the overall national strength. As one of the most open and dynamic economic regions in China, the Guangdong-Hong Kong-Macao Greater Bay Area (the GBA) has attracted large amount of investment from multinational hotels by virtue of its good location and developed economy. Taking five multinational hotels in the GBA as the research sample, this paper collects second-hand data through the official government website. The spatial distribution characteristics and economic influencing factors of multinational hotels among 11 cities in the GBA have been analyzed by using mapping software, Stata 15.0 and other analysis tools.

**Key words:** multinational hotels, spatial distribution, spatial econometric model, the Guangdong-Hong Kong-Macao Greater Bay Area

**JEL codes:** L8, R3

### 1. Introduction

Since the 1990s, economic globalization has become an important trend of world economic development. With the deepening of economic globalization, multinational operation has become a critical business development strategy of enterprises. Undoubtedly, the hotel industry is also a member of the wave of multinational operation. Scholars believe that hotel multinational operation has become the norm (Zhang et al., 2015; Wang et al., 2018), which is of great benefit (Chen et al., 2015). In recent years, China's comprehensive national strength has been continually enhanced and its economy has developed rapidly, which have made it the first choice for multinational hotels to expand overseas. According to Wu et al. (2018), China has planned to build more than 300 million international hotel rooms as of July 2017, which leded it to the first incremental hotel market in Asia. On the one hand, the operation of multinational hotels is an important foundation and guarantee for the development of modern

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service industry in cities. Its development may affect the frequency and diffusion of regional economic activities (Jiang et al., 2011). On the other hand, the location selection of multinational hotels is not arbitrary, which is closely related to the economic development of the city (Wang et al., 2018). How economic affect the spatial distribution of multinational hotels is an urgent practical problem to be solved. As China's newly planned world-class urban agglomeration, the Guangdong-Hong Kong-Macao Greater Bay Area (the GBA) is one of the most open and dynamic economic regions. With its good location, it will become the main choice for multinational hotels to enter the Chinese market. Therefore, taking the GBA as the research object, this paper intends to explore the spatial distribution characteristics of multinational hotels and its economic influencing factors.

## **2. Literature Review**

Multinational hotels refer to the business consortium formed by joint operation using unified standards of operation and management and service quality. Generally, it owns, operates and manages two or more hotels in its own country or around the world. There are great differences in the research progress and content of multinational hotels at home and abroad. Specifically, research about multinational hotels is of limited number and have started late in China. The main reason is that China's economy and diplomacy was underdeveloped in the early stage which leads to few of multinational hotels.

Location selection is not only the core issue of hotel external expansion, but also the core proposition of urban economics. It is considered to be the key factor to determine the success of the hotel in the future (Luo & Yang, 2011). Some research on the spatial distribution of hotels have been carried out. In terms of research objects, scholars mainly focus on the spatial distribution of star hotels, luxury hotels and budget hotels. In terms of research tools, most of them use panel data to construct fixed effect model or random effect model to test influencing factors. As to the research conclusion, a large number of studies have confirmed the significant impact of economic indicators such as GDP per capital, number of inbound tourists, foreign direct investment on the spatial distribution of hotels (Zhang et al., 2012). But there are still some problems of the previous studies. The first one is the limitation of the research object. The problem of uneven spatial distribution of multinational hotels has been serious for a long time, while the existing research pays less attention to it. Secondly, existing research about the impact of economic on hotel scale is not thorough enough. Single-factor indicator such as gross national product (Assaf et al., 2015) and gross national income (Zhang & Zhang, 2015) are used to measure the economic development, ignoring that economic development of a region is a complex phenomenon and may be affected by various factors. Merely using a certain indicator to explain the economic is not scientific and convincing enough.

To bridge the research gap, this study aims to take the 11 cities from the GBA as the research objects, and explore the impact of economic on the spatial distribution of multinational hotels by using panel data. Specific objectives of the study are as follows: Firstly, collecting statistics published on official websites and constructing the longitudinal master files. Secondly, applying the Lorenz curve to analyze the spatial distribution characteristics of multinational hotels. Thirdly, considering the practical experience and following the previous recommendation, this study constructs a measurement of economic. Fourth, discussing how economic affects the spatial distribution of multinational hotels by using Stata 15.0.

### 3. Methodology

#### 3.1 Guangdong-Hong Kong-Macao Greater Bay Area

Guangdong-Hong Kong-Macao Greater Bay Area (the GBA), located in south China, includes Hong Kong, Macao and other 9 cities (Guangzhou city, Shenzhen city, Zhuhai city, Foshan city, Huizhou city, Dongguan city, Zhongshan city, Jiangmen city and Zhaoqing city) in Guangdong province. Located along the coast of China, the GBA has the vast hinterland of the Pan Pearl River Delta region. With the unique location, its economic strength is leading in the country. Coupled with its global business network, the GBA has attracted a large amount of foreign investment, such as multinational hotel groups.

#### 3.2 Variable of Economic

Studies have confirmed the relationship between economic and spatial distribution of multinational hotels (Zhang et al., 2006; Zeng & Lu, 2017). On the one hand, the establishment of a hotel requires long-term fixed investment and a large amount of funds (Song & Ko, 2017), it needs to located in economically developed regions. On the other hand, people tend to have a higher level of consumption in advanced economies, resulting in a greater demand for hotel rooms, which is conducive to the future development of the hotel. Therefore, the regional economic may be an important factor affecting the spatial distribution of multinational hotels. Economic variables have different measurement indicators academically. For example, Assaf et al. (2015) measured the economic with a single indicator of GDP per capital, while Zhang et al. (2015) measured it with multiple indicators includes GDP per capital, GNI per capital such as GDP, per capita GDP, per capita GNI and consumption expenditure per capita. According to the previous research, six variables are used to measure the economic, they are productivity, consumption, investment, diplomacy, tourism and transportation. The measurement indicators of each variable are shown in Table 1.

#### 3.3 Data Collection

*HOTELS* is the most professional, authoritative and influential journal in the global hotel industry, which ranks the hotels according to the number of rooms every year (Zhang et al., 2015). According to the global hotel rankings published by *HOTELS*, five multinational hotel groups are found to rank the top five in the world from 2014 to 2019, they are Marriott International Group, intercontinental hotel group, Hilton Wyndham Hotel Group and Accor hotel group. Considering that some of the top hotel groups have not entered the market of the GBA, such as Oyo rooms in India. This paper only takes the above five multinational hotels as the research sample. Then, investigated the numbers of the five multinational hotels among 11 cities in the GBA through Ctrip. As of March 31, 2021, 183 samples of multinational hotels were finally obtained.

**Table 1 The Indicators of the Economic Development**

| Variable    | Item                              | unit               |
|-------------|-----------------------------------|--------------------|
| Production  | GDP Per Capital (GDPP)            | USD                |
| Consumption | GNI Per Capital (GNIP)            | USD                |
|             | Population at the Year-end (POP)  | 10000 persons      |
| Investment  | Foreign Direct Investment (FDI)   | USD 10000          |
| Diplomacy   | Total Exports and Imports (EAI)   | USD 100 million    |
| Tourism     | Number of Overnight Tourists (OT) | 10000 person-times |
| Traffic     | Freight Traffic (FT)              | 10000 tons         |

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|                      |                                         |                    |
|----------------------|-----------------------------------------|--------------------|
|                      | Passenger Traffic (PT)                  | 10000 person-times |
| Spatial Distribution | The Number of Multinational Hotels (MH) | Unit               |

*Notes:* The panel data of nine cities in the Pearl River Delta comes from the STATS.GD.GOV.CN. The panel data of Hong Kong and Macao comes from the Hong Kong Census and Statistics Department, and the Macao Statistics and Census Service. The GDP Per Capital of the Hong Kong Special Administrative Region and the Macao Special Administrative Region are labeled as “Regional GDP”. Foreign Direct Investment are labeled as “Inward Direct Investment at end of the year”. The Number of Overnight Tourists is labeled as “Overnight Visitor Arrivals”. The scale of multinational hotels is calculated by the number of hotels owned by Marriott, Intercontinental, Hilton, Wyndham, and Accor. The high-end hotels of STATS.GD.GOV.CN and Macao Special Administrative Region are labeled as “Five Star Hotels” and “Four Star Hotels”, and labeled as “High Tariff A” and “High Tariff B” by Hong Kong Census and Statistics Department. The mid-end hotels are labeled as “Three Star Hotels” by STATS.GD.GOV.CN and Macao Statistics and Census Service, and labeled as “Medium Tariff” by Hong Kong Census and Statistics Department. The panel data is calculated using currency conversion rates of 100 HKD = 82.85 RMB, 100 MOP = 80.32 RMB, and 100 USD = 643.55 RMB.

## 4. Results

### 4.1 The Spatial Distribution Characteristics of Multinational Hotels in the GBA

(1) Multinational hotels are mainly distributed in the central and eastern of the GBA. This paper visualizes the spatial distribution data of multinational hotels in the GBA in 2000, 2010 and 2019, which are shown in Figure 1, Figure 2 and Figure 3.

① Multinational hotels are mainly located in the first-tier cities of Guangzhou and Shenzhen, and mainly distributed in the central and eastern of the GBA at present.

② The Huizhou City have made great progress in the expansion of multinational hotels for the past 20 years. This paper believes that the main reasons for this phenomenon can be summarized into three points: Firstly, Huizhou City borders by Guangzhou and Shenzhen, which are developed first-tier cities. The unique geographical location creates a huge tourist market in Huizhou City. Secondly, is the development of industry. since the reform and opening up, Huizhou has established the strategy of “Industry Sets Up the City”, which has attracted a large number of enterprises at home and abroad to invest and set up factories (Li, 2014). It offers a huge business guest market for hotels; Thirdly, Huizhou is not only a famous national historical and cultural city, with rich historical and cultural tourism resources, but also rich marine resources. It is the most important settlement and distribution center of Hakka people, which can attract a large number of visitors.

③ Some mainland cities like Guangzhou, Shenzhen and Foshan have developed rapidly in recent years, which weaken the comparative advantage of Hong Kong.

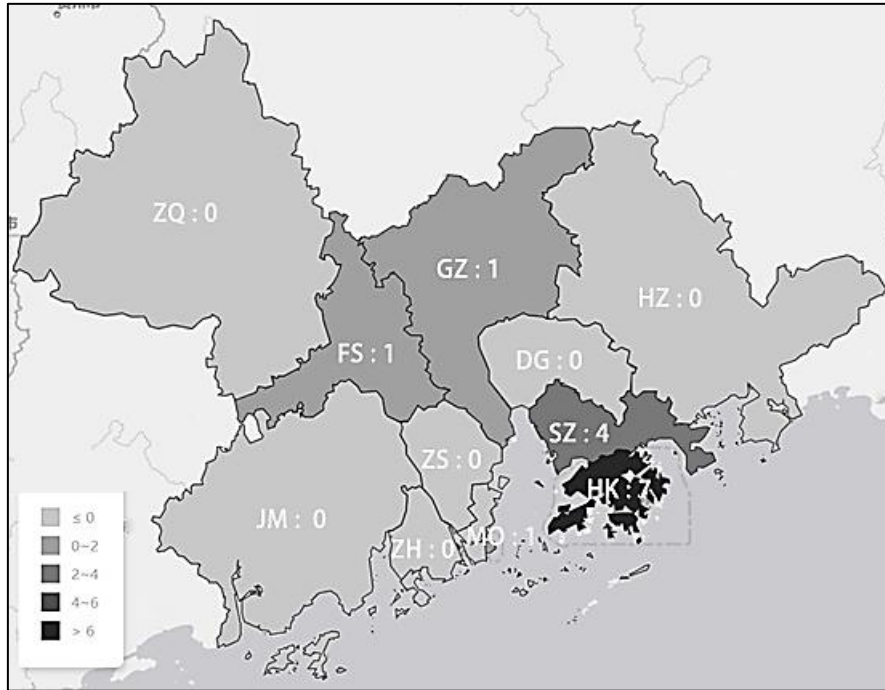
④ Located in the west of the GBA, Zhaoqing City and Jiangmen City are difficult to attract investment from multinational hotels.

(2) The spatial distribution of multinational hotels is significantly concentrated and weakening year by year. Lorenz curve proposed by the Austrian statistician Lorenz (1905) is used to analyze the concentration of the spatial distribution of multinational hotels. Lorentz curve was initially used to describe the distribution of national income. Then more and more researchers apply it to measure fairness in other fields. For example, Wen (2004) used the Lorenz curve to explore the spatial concentration of star hotels in China. Based on the spatial distribution data of multinational hotels in the GBA from 2000 to 2019, this paper draws five groups of Lorentz curves respectively. The bending degree of Lorentz curve and its distance from the diagonal can explain the spatial concentration of multinational hotels. As Figure 4 shows:

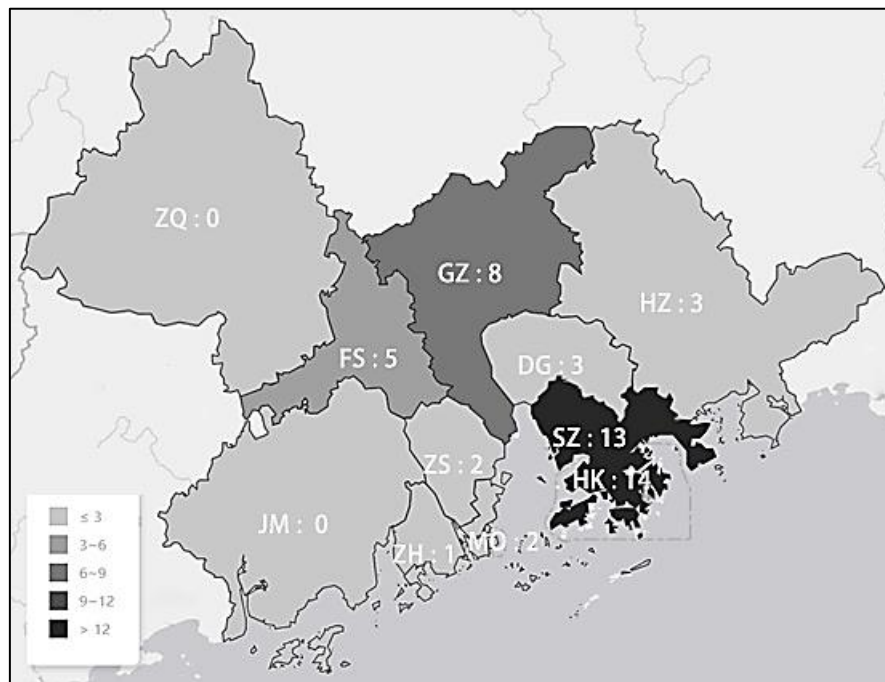
① The spatial distribution of multinational hotels in the GBA is highly centralized. In 2000, 93% of multinational hotels were located in Hong Kong, Macao, Guangzhou and Shenzhen. Until 2019, the four cities still

occupied the main body of investment from multinational hotels in the GBA (Cumulative Distribution Rate = 58.60%).

⑦ The concentration trend of multinational hotels is weakening year by year. The Lorentz curve is closer and closer to the diagonal and the bending degree decreases year by year.



**Figure 1** Distribution of Multinational Hotels in the GBA in 2000



**Figure 2** Distribution of Multinational Hotels in the GBA in 2010

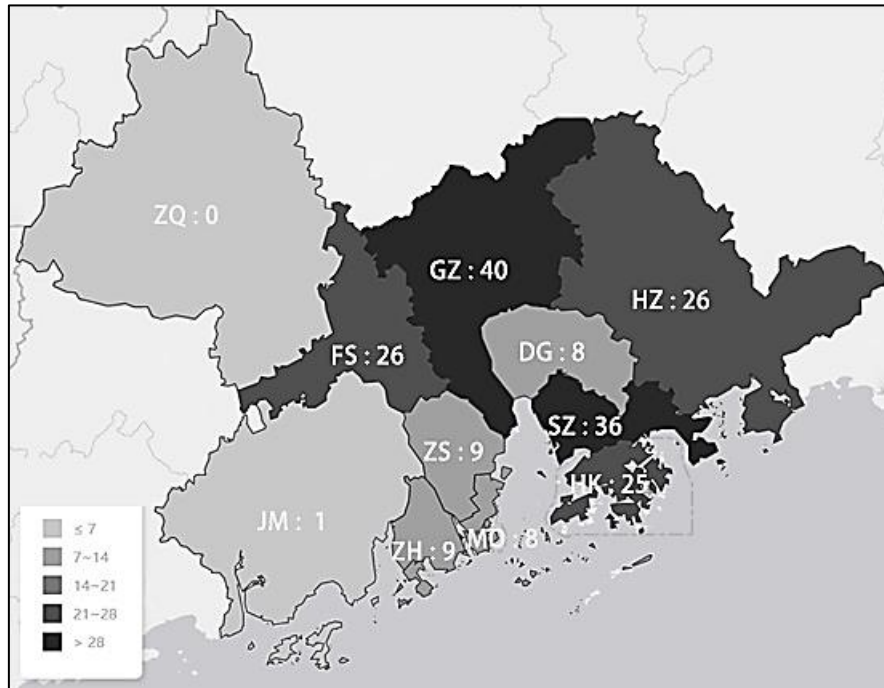


Figure 3 Distribution of Multinational Hotels in the GBA in 2019

Note: “HK” = Hong Kong, “MO” = Macao, “GZ” = Guangzhou, “SZ” = Shenzhen, “ZH” = Zhuhai, “FS” = Foshan, “HZ” = Huizhou, “DG” = Dongguan, “ZS” = Zhongshan, “JM” = Jiangmen, “ZQ” = Zhaoqing.

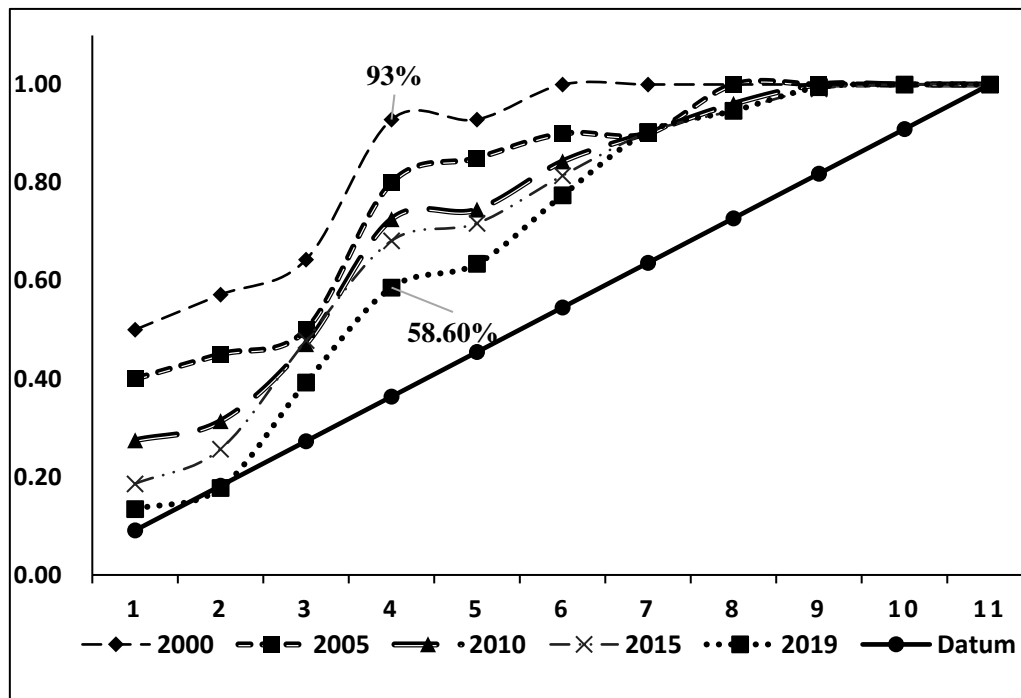


Figure 4 The Lorenz Curve of Multinational Hotels in 2000, 2005, 2010, 2015 and 2019

Note: “1” = Hong Kong, “2” = Macao, “3” = Guangzhou, “4” = Shenzhen, “5” = Zhuhai, “6” = Foshan, “7” = Huizhou, “8” = Dongguan, “9” = Zhongshan, “10” = Jiangmen, “11” = Zhaoqing.

#### 4.2 The Relationship Between Economic and Spatial Distribution of Multinational Hotels in the GBA

Table 2 shows the result of correlation analysis by Stata 15.0 software, which shows that all indicators used to measure productivity, consumption, investment, diplomacy, tourism and traffic are significantly correlated with the spatial distribution of multinational hotels. In order to test the influence of each economic variable. They are putted into the model in turn. The result is shown in Table 3.

**Table 2 The Result of Correlation Analysis**

| Item                                               | MH       | PGDP     | PGNI     | POP      | FDI      | EAI      | OT       | FT       | PT    |
|----------------------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|-------|
| MH                                                 | 1.000    |          |          |          |          |          |          |          |       |
| GDPP                                               | 0.914*** | 1.000    |          |          |          |          |          |          |       |
| GNIP                                               | 0.649*** | 0.497*** | 1.000    |          |          |          |          |          |       |
| POP                                                | 0.652*** | 0.734*** | 0.404*** | 1.000    |          |          |          |          |       |
| FDI                                                | 0.606*** | 0.789*** | 0.082    | 0.398*** | 1.000    |          |          |          |       |
| EAI                                                | 0.616*** | 0.500*** | 0.507*** | 0.555*** | 0.077    | 1.000    |          |          |       |
| OT                                                 | 0.822*** | 0.797*** | 0.678*** | 0.753*** | 0.379*** | 0.654*** | 1.000    |          |       |
| FT                                                 | 0.656*** | 0.567*** | 0.523*** | 0.640*** | 0.068    | 0.743*** | 0.750*** | 1.000    |       |
| PT                                                 | 0.667*** | 0.676*** | 0.401*** | 0.706*** | 0.249*** | 0.669*** | 0.840*** | 0.874*** | 1.000 |
| Note: * $p < 0.1$ , ** $p < 0.05$ , *** $p < 0.01$ |          |          |          |          |          |          |          |          |       |

GDPP is firstly entering Model 1 to measure productivity. The regression coefficient of this index is positive and significant, which means that multinational hotels prefer to be located in cities with high GDP. The reason is that the higher GDP usually imply the better situation of economy and the more frequent economic activities which may lead to a greater demand of hotels.

Both GNIP and POP are entering Model 2 to measure consumption. The regression coefficients of these two indicators are positive and significant. It shows that multinational hotels attach great importance to the spending power of consumers when expanding. The hotel industry is a market-oriented investment. The demand potential and market scale are the key factors for the success of investment. In order to maximize profits, multinational hotels may prefer to locate in cities with strong spending power.

Model 3 introduces FDI to measure investment, and the regression coefficient of this index in the model is positive and significant. High concentration of foreign capital usually means a high degree of openness, which can effectively reduce transaction costs and attract more foreign direct investment (Lee et al., 2014; Chen et al., 2015). Zhang and Zhang (2015) believe that the large scale of foreign investment is likely to bring a large number of business passengers, which may make it more attractive for multinational hotels expansion.

Model 4 introduces the EAI to measure diplomacy, and the regression coefficient of this index is positive and significant. The developed foreign economy usually means more preferential foreign policy, which are undoubtedly important for the future development of multinational hotels. Thus, decision maker may prefer cities with developed foreign economy.

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OT is entering Model 5 to measure tourism, and the regression coefficient of this index is positive and significant. Some researchers believe that hotels should be located where tourists are (Assaf et al., 2014). Because strong growth in tourism can promote the development of related industries, such as hotel industry, such as hotels (Balaguer and Manuel, 2002). Tourists are the main consumers of a hotel. In order to achieve long-term development, multinational hotels need to be located in areas with sufficient tourists, so as to ensure a certain occupancy rate and realize revenue. Thus, cities with high overnight tourists can be favored by multinational hotels.

Both FT and PT are entering Model 6 to measure traffic. The regression coefficients of these two indexes are positive and significant. Because infrastructure is the foundation of any industry to develop. It is also a key factor for hotels' location. In addition. The weak transportation and the poor accessibility are likely to arouse customer dissatisfaction, which may be detrimental to the future operation and development of multinational hotels. According to this, multinational hotels tend to expand in cities with large transportation capacity.

**Table 3 Economic Influencing Factors of Spatial Distribution of Multinational Hotels in the GBA**

| Variable       |      | Model 1             | Model 2             | Model 3             | Model 4             | Model 5             | Model 6             | Model 7              |
|----------------|------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|----------------------|
| Production     | GDPP | 0.002***<br>(0.000) |                     |                     |                     |                     |                     | 0.001***<br>(0.0002) |
| Consumption    | GNIP |                     | 0.176***<br>(0.027) |                     |                     |                     |                     | 0.085***<br>(0.030)  |
|                | POP  |                     | 4.062***<br>(0.331) |                     |                     |                     |                     | -0.386<br>(0.526)    |
| Investment     | FDI  |                     |                     | 0.105***<br>(0.009) |                     |                     |                     | 0.015<br>(0.031)     |
| Diplomacy      | EAI  |                     |                     |                     | 0.400***<br>(0.039) |                     |                     | 0.021***<br>(0.006)  |
| Tourism        | OT   |                     |                     |                     |                     | 0.006***<br>(0.000) |                     | 0.0003<br>(0.0006)   |
| Traffic        | FT   |                     |                     |                     |                     |                     | 0.224***<br>(0.032) | 0.069***<br>(0.024)  |
|                | PT   |                     |                     |                     |                     |                     | 0.084***<br>(0.017) | -0.011<br>(0.012)    |
| Constant       |      | -2.041              | -21.012             | 0.718               | 3.386               | -4.004              | -0.631              | -2.034               |
| R <sup>2</sup> |      | 0.8345              | 0.4947              | 0.3668              | 0.3798              | 0.6756              | 0.4664              | 0.9085               |
| Hausman test   |      | 0.0000              | 0.0000              | 0.0004              | 0.6904              | 0.0153              | 0.4621              | 0.897                |
| Model          |      | FE                  | FE                  | FE                  | FE                  | FE                  | FE                  | FE                   |

Note: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ ; Standard Deviations of estimated coefficients in parentheses.

## 5. Conclusion

The analysis of panel data of 11 cities in the GBA show that: (1) The spatial distribution of multinational hotels in the GBA is unbalanced, mainly concentrated in the central and eastern cities, such as Guangzhou City and Shenzhen City. However, with the development of other cities, the concentration of spatial distribution of multinational hotels is weakening year by year. (2) The spatial distribution of multinational hotels is a complex phenomenon, which is closely related to the economy of a city. This paper carries out regression analysis by using Stata 15.0 software, which finds that economic variables such as productivity, consumption, investment, diplomacy, tourism and traffic have a significantly positive impact on the spatial distribution of multinational hotels.



The spatial distribution of multinational hotel is a complicated problem, which is affected by complex economic factors. And it is difficult to comprehensively explain this problem through single indicator. There are still deficiencies of this paper. For example, some of economic variables are only measured by a single index, which can't explain the variable comprehensive enough; The sample size is insufficient. Only five multinational hotels are taken into the research, resulting in the lack of persuasion of the analysis results. These still need to be continuously improved in the future research.

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