

# The Impact of Different Terrains in The Greater Bay Area on The Local Economy

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**Abstract:** In recent years, the state has deployed regional economic zones such as Xiong'an New Area, Shanghai Metropolitan Cluster and Guangdong-Hong Kong-Macao Bay Area, etc. In order to study the economic radiation effect of the central cities on the surrounding areas, this paper finds the GDP, industrial output value and population density of 11 administrative regions in the Bay Area, and conducts a horizontal comparison to classify their development status into three levels according to the economic data of each city. This is the result of the rapid development of the central cities in the region, which is presumed to be due to the weakening of the economic radiation effect of the central cities as the distance increases. We then study the economic linkage between the central cities and other cities, the radiation mode, and so on, and find that the expansion of capital and the transfer of industry in close proximity are the main reasons. This paper analyzes the principle of economic radiation from the Greater Bay Area, and suggests that the peripheral cities in the region should break the transportation barriers with the central cities, change the mode of sending labor force, and actively introduce industries.

**Keywords:** City cluster, Greater Bay Area, Regional economy, Core circle.

## 1. Introduction

Outline of the Development Plan for the Greater Bay Area of Guangdong, Hong Kong and Macao is issued on February 18, 2019 and it requires all related regions including Guangdong, Hong Kong, Macao and the Great Bay Area and etc. to implement the plan in conjunction with the actual situation. The Great Bay Area has one of the highest GDP per capita and one of the strongest economies in China. However, the development of each region is uneven, and the four seaside cities in the Greater Bay Area - Guangzhou, Shenzhen, Macau and Hong Kong - have rapidly developed into central cities, relying on their natural maritime advantages. Geographically, Foshan, Zhuhai and Dongguan are close to the four central cities, with other cities surrounding the more outer layers.

## 2. Literature Review

Reading the literature, it is understood that Wang, H. elaborated the benefits of metropolitan cluster development strategies and made suggestions such as shifting industries[1]. After collecting data, Xia, Dan, Cai, Xiang, and Wan, Yong found the proportion of government fiscal spending had a significant positive effect on the total factor productivity of the city cluster, while the degree of employment in the core city and the proportion of secondary industry had a negative effect [2]. Baobao Ma pointed out that the influence of policy support on radiation power was not significantly superior compared with other influencing factors; the development of financial industry was the most important influencing factor of radiation power, and the dependence of radiation power on city freight capacity and passenger capacity had significant differences[3]. Based on the perspective of the relationship between the spatial structure and economic performance of urban agglomerations, Xu Fangyan and Fang Yi pointed out that the Greater Bay Area still obeys the monocentric distribution, the core cities are more prominent, and the trend

of monocentricity is still obvious[4].

## 3. Research Hypothesis

Based on the economic situation of these cities, it is conjectured that the spatial structure of Greater Bay Area and its surrounding cities is characterized by a significant "core-semi-fringe-fringe" structure and a three-tier circle structure, where cities close to the center are highly exposed to economic radiation and are prone to rapid development. The following section will verify whether this conjecture is valid based on the comparison of specific economic indicators of each city.

## 4. Hypothetical Argument

Based on the geographical location, the cities are divided into three circles, namely "core-semi-fringe-fringe", of which the specific geographical location is the basis, as explained above. The economic indicators of each sphere are compiled in the following table to compare the development status of cities in each sphere horizontally.

It can be seen that most of the cities in the Greater Bay Area have maintained rapid economic growth from 2000-2022, with Shenzhen and Guangzhou showing the strongest growth, followed by Foshan and Dongguan. Hong Kong had a high level of GDP development in 2000, and was the city with the highest GDP in the Greater Bay Area until 2016, but in 2017, it was overtaken by Shenzhen. Other cities in the Greater Bay Area have also grown economically, but at a slower pace, with Zhaoqing being the city with the lowest GDP in the Bay Area. In addition, an analysis of the industrial sophistication of the cities in the Bay Area shows that Hong Kong and Macau have a higher level of industrial sophistication than other cities in the Bay Area[5].

Here, Foshan City and Jiangmen City are selected as representatives of semi-fringe and fringe regions, respectively, for analysis and comparison. In 2020, Foshan City's total preliminary accounting of regional GDP is 108.17 billion

yuan, up 0.6% from 2019. in 2019, Foshan City's total preliminary accounting of regional GDP is 1,075.102 billion yuan, up 6.9% from the previous year, and per capita gdp reaches 134,000 yuan. in 2020, Jiangmen City achieves a regional GDP of 320.1 billion yuan, an increase of 1.7% over the previous year, and per capita gdp increases to 68,000 yuan.

Data show that the urbanization rate of the core area of the Pearl River Delta reached 86.28% in 2019, which has long been comparable to the level of developed countries and regions. However, the coastal economic zone dominated by eastern and western Guangdong is only 53.33%, and the ecological development zone in northern Guangdong is only 50.80%, lagging behind the national average. The three cities of Guangzhou-Foshan-Zhaoqing (Guangzhou-Foshan-Zhaoqing) form a strong economic circle, with Guangzhou having a developed service industry, Foshan having a strong manufacturing industry, and Zhaoqing having a vast development hinterland with a world-leading GDP scale. The absolute economic linkage between Guangzhou and Foshan is 47,443.53, which is half of the economic linkage between Guangzhou and the Pearl River Delta, and three times of the economic linkage between Foshan and other cities in the Pearl River Delta. In terms of transportation integration, Guangzhou-Foshan has been at the forefront of other cities in the country in terms of co-location. The coverage rate of interconnected traffic between Guangzhou and Foshan is over 70%, with one rail link built between the two cities and two under construction; a total of 27 roads have been built and six roads are under construction. Shenzhen, Dongguan and

Huizhou (Shenzhen-Dongguan-Huizhou) are also competitive, with Shenzhen's technological innovation, Dongguan and Huizhou's high-end manufacturing, together forming the core supply chain of the global manufacturing center. Therefore, the conjecture is valid, that is, close to the central city, subject to radiation influence, rapid economic development. Semi-fringe layer cities rely on geographically advantageous fast transportation networks, forming a networked spatial pattern that is efficiently connected to the central cities. The transfer of industries from central cities to semi-fringe areas optimizes the layout of urban functions, brings into play the advantages of node cities in semi-fringe areas, and accelerates the formation of an orderly division of labor, complementary functions, and efficient and synergistic urban system[6]. In general, compared with the peripheral areas, the semi-peripheral areas are more interconnected with the central cities in terms of infrastructure, sharing of public services, exchange of resources and docking of production factors, and faster economic growth. In addition, the demographic situation is also an important factor in the uneven development of regions. In the "core-semi-periphery-periphery" circle structure, as shown in the figure below, the population of peripheral areas flows to semi-peripheral areas and central areas, leaving a large amount of land and other resources idle, which further hinders the development of cities. The semi-fringe areas also have population outflow, but thanks to the industrial transfer, the problem is less prominent than that of the fringe areas, and there is better resource allocation.

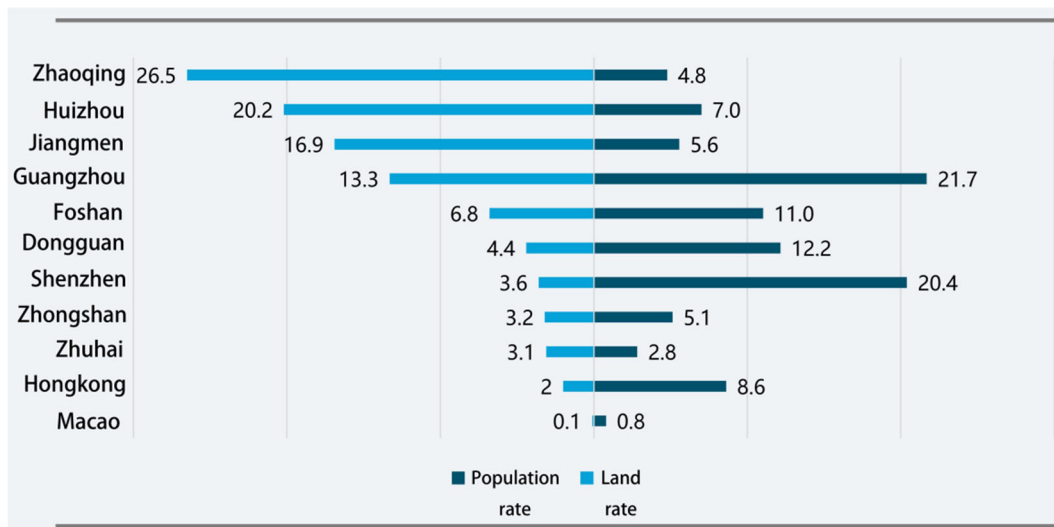


Figure 1. Population and land rate of cities in the Greater Bay Area (Source: National Bureau of Statistics of China, HSBC Intelligent Library)

## 5. Conclusion

The above shows that the urban cluster development strategy better integrates the resources of the areas around the central city, while transferring the market of the central city to the surrounding areas, and promotes the development of the whole circle, and this promotion effect decreases with the distance.

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