

Development Position of Dongguan City Under the Vision of Guangdong-Hong Kong-Macao Greater Bay Area*

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Abstract—A healthy and orderly regional economy should have a certain and clear urban functional orientation. Cities in the region should develop their most advantageous industries according to their own resources and conditions. The development of Guangdong-Hong Kong-Macao Greater Bay Area needs to emphasize on the integration among cities, which requires deepening the cooperation among Chinese mainland, Hong Kong and Macao, optimizing and upgrading the industry and promoting cluster development. As a city close to Guangzhou and Shenzhen, Dongguan's manufacturing base is good and the manufacturing system is complete. It should give full play to its comparative advantages. Dongguan should consider more about the transformation of innovative creative achievements from Guangzhou, Shenzhen and Hong Kong to form specific products and economies of scale. Based on the biggest fundamental and practical aspects of manufacturing, Dongguan should focus on the advanced manufacturing industry with strong linkages between development and innovation to build an advanced center of Guangdong-Hong Kong-Macao Area.

Keywords—Guangdong-Hong Kong-Macao; development; position; advanced manufacturing industry

I. INTRODUCTION

During the "Thirteenth Five-Year Plan" period in Guangdong Province, it was a crucial period for efforts to build an important "window" and "demonstration zone" for demonstrating Xi Jinping's new era of socialism with Chinese characteristics. It is necessary to basically form a modern economic system and to build Guangdong-Hong Kong-Macao Greater Bay Area into a world-class bay area and a world-class city group. The construction of Guangdong-Hong Kong-Macao Greater Bay Area is a major strategic opportunity for Dongguan to implement leapfrog development. The construction of the Guangdong-Hong Kong-Macao Greater Bay Area will achieve a multilateral cooperation mechanism across regions under different systems, bringing regional economies. Based on its comparative advantages, Dongguan will cooperate more closely with Guangdong and Shenzhen to obtain more

*Project: Major scientific research projects of universities in Guangdong Province (2015GXJK163), Phased results of the philosophy and social science planning project in Dongguan (2018ZD05).

cooperation benefits.

II. OVERVIEW OF GUANGDONG-HONG KONG-MACAO GREATER BAY AREA

Guangdong-Hong Kong-Macao Greater Bay Area^{1,2} is located in the Pearl River Delta and consists of 9 cities (Zhaoqing, Foshan, Guangzhou, Dongguan, Shenzhen, Huizhou, Zhongshan, Zhuhai, Jiangmen) and 2 special administrative regions (Hong Kong, Macau). The total land area is about 56,000 square kilometers, which is larger than the total area of the three economic zones of New York, San Francisco and Tokyo. At the end of 2017, the population of 11 cities reached 69.341 million, and the sum of GDP exceeded 10 trillion yuan for the first time, reaching 10.13 trillion yuan, equivalent to US\$1,499.8 billion (converted according to the 2017 average exchange rate) (see "Table I" for details). Guangdong-Hong Kong-Macao Greater Bay Area accounted for 12.5% of China's total GDP, with only 0.6% of the country's total land area. In 2017, the total GDP of Guangdong-Hong Kong-Macao Greater Bay Area exceeded the San Francisco Bay Area, got close to the New York Bay Area, which was far behind the Tokyo Bay Area. But it was slightly lower than the 11th largest economy in the world. Port container throughput is 4.5 times that of total of the other three major Bay Areas (Tokyo Bay Area, New York Bay Area, San Francisco Bay Area). iMedia Research predicted in 2016 that Guangdong-Hong Kong-Macao Greater Bay Area would be expected to surpass the Tokyo Bay Area within five years and become the world's No. 1 Bay Area. The total economic volume will reach RMB 14.76 trillion in 2022.

¹ The Planning of the Guangdong-Hong Kong-Macao Greater Bay Area Is Just Around the Corner, with Regional GDP Exceeding 10 Trillion [EB/OL]. http://www.sohu.com/a/240283311_689373.

² World's Frist Publish of Chinese and English Image Promo of Guangdong-Hong Kong-Macao Greater Bay Area_Sohu Finance_sohu.com [EB/OL]. http://www.sohu.com/a/215550161_100001885.

TABLE I. COMPARISON OF BASIC ECONOMIC DATA OF CITIES IN GUANGDONG-HONG KONG-MACAO GREATER BAY AREA IN 2017

Project City	Permanent resident population	Square (km ²)	GDP (RMB 100 million yuan)	GDP growing rate
Hong Kong	718.26	1104	22174.44 *	3.80%
Macao	65.31	33	3274.02 +	9.10%
Guangzhou	1449.84	7434	21503.15	7.00%
Shenzhen	1252.83	1997	22438.39	8.80%
Dongguan	834.25	2465	7582.12	8.10%
Huizhou	477.7	12000	3830.58	7.60%
Foshan	765.67	3875	9549.6	8.50%
Zhaoqing	411.54	15000	2200.61	5.20%
Jiangmen	456.17	9504	2690.25	8.10%
Zhongshan	326	1784	3450.31	6.60%
Zhuhai	176.54	1711	2564.73	9.20%

^a. Source of data: mainly from the statistical bulletins of the 2017 National Economic and Social Development of the cities.

^b. Note: * According to the Hong Kong dollar against the RMB exchange rate of the intermediate price of 0.8328 at the end of the year on December 31;

^c. Note: +According to the end of December 31, the Macau dollar against the RMB exchange rate of 0.81 at the end of the year on December 31.

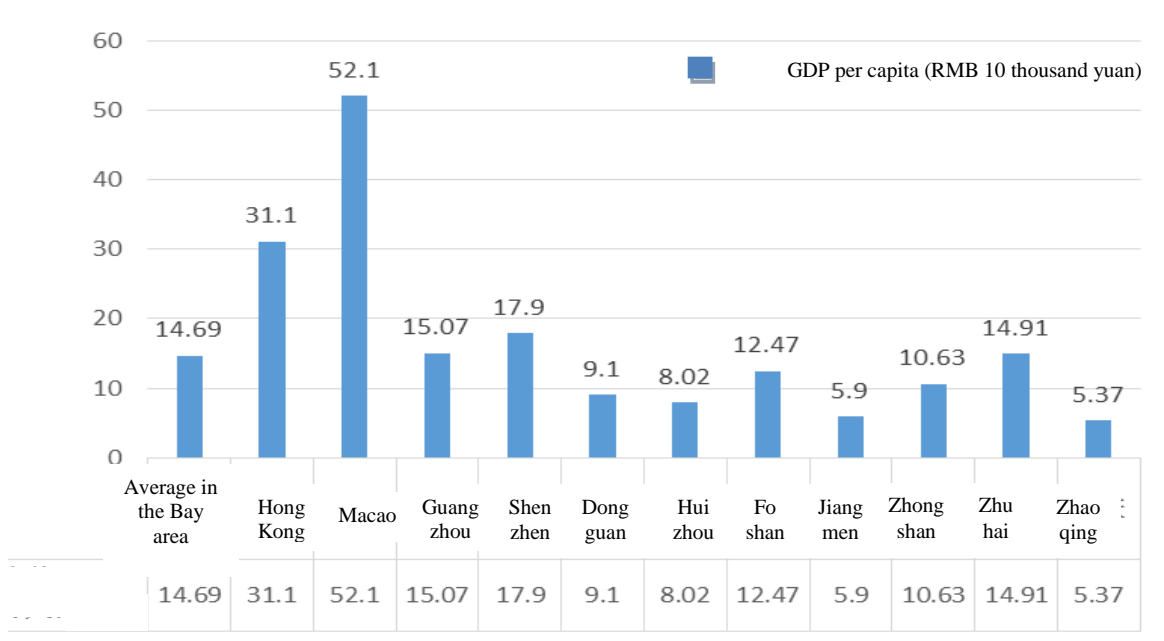


Fig. 1. Comparison of GDP per capita in the cities of Guangdong-Hong Kong-Macao Greater Bay Area in 2017.

^a. Source: Statistical Bulletin from 2017, NetEase Finance.

In terms of GDP per capita, the per capita GDP of Guangdong, Hong Kong and Macau in 2017 was RMB 146,900, or about US\$ 21,800, equivalent to about half of the Tokyo Bay Area, one-third of the Bay Area in New York, and one-fifth of the San Francisco Bay Area. The development in the Bay Area is unbalanced. The per capita GDP of Macao, Hong Kong, Shenzhen and Guangzhou is RMB 521,000 (US\$77,100), 311,000 (US\$46,000), 179,000 (US\$26,500) and 148,000 (US\$2,1900) respectively, ranking in the forefront.³ Macau, the No.1 GDP per capita in

the Bay Area, is nearly ten times the last in Zhaoqing. The per capita GDP of Dongguan is only 91,000, which is far lower than the average per capita GDP of the Bay Area of 146,900 yuan (see “Fig. 1”).

Compared with the Bay Areas such as Bohai Bay, Jiaozhou Bay, Hangzhou Bay and Beibu Gulf, Guangdong-Hong Kong-Macao Greater Bay Area is the most dynamic, open, and innovative region in mainland China, attracting the largest number of migrants. In the future, it will be built into the most important demonstration area for the organic

³ The Planning of the Guangdong-Hong Kong-Macao Greater Bay Area Is Just Around the Corner, with Regional GDP Exceeding 10

Trillion_ce.cn-National Economic Gateway [EB/OL]. http://www.ce.cn/xwzx/gnsz/zixun/201806/04/t20180604_29331660.shtml.

integration of China's advanced manufacturing industry and modern service industry, and a Bay Area community with a relatively complete industry, rich layers, and coordinated gradients. Moreover, it is close to the coastal countries along the Maritime Silk Road and is a key node in the "One Belt, One Road" strategy. Guangdong-Hong Kong-Macao Greater Bay Area meets the countries and regions along the "Belt and Road" and actively participates in international competition and cooperation to enhance the status and function of Guangdong, Hong Kong and Macao in the national economic development and opening up. Guangdong-Hong Kong-Macao Greater Bay Area is expected to become the world's new growth engine and the world's first economic zone.

III. ADVANTAGES OF THE GEOGRAPHICAL CENTER OF DONGGUAN IN GUANGDONG-HONG KONG-MACAO GREATER BAY AREA

Geographically, Dongguan is located in the core area of Guangdong-Hong Kong-Macao Greater Bay Area. It is at the east of Guangzhou with rich science and education sources and fruitful cultural sources. It is located at northwest of Shenzhen-Hong Kong with innovation and vitality. In recent years, Guangzhou has developed rapidly to the south and Shenzhen has expanded to the north. Dongguan, which is sandwiched between Hong Kong, Shenzhen and Guangzhou, undoubtedly has the spillover effect brought by the development of first-tier cities on both sides. It is the preferred place for the industrial transfer of the three major first-tier cities and the project landing. The cost of doing business and the cost of living in Dongguan are relatively low. With the planning and construction of the Guangdong-Hong Kong-Macao Greater Bay Area, the infrastructure will be further interconnected, which is conducive to undertaking the transformation of innovative and creative achievements and industrialization projects in Guangzhou, Shenzhen and Hong Kong. The construction of the Guangzhou-Shenzhen Science and Technology Innovation Corridor will further connect Guangzhou-Dongguan-Shenzhen-Hong Kong, and Dongguan will develop rapidly under the rapid development of Guangzhou and Shenzhen.

IV. THE BASIS FOR THE DEVELOPMENT OF ADVANCED MANUFACTURING IN DONGGUAN

Compared with China's central and western regions and most regions of Southeast Asia, after more than 30 years of reform and opening up, Dongguan has formed a processing and manufacturing tradition and a solid manufacturing base with a sound manufacturing system and a mature supporting urban industry. Compared with Guangzhou and Shenzhen, Dongguan has relatively low production factor costs, supporting costs and living costs, which is conducive to attracting projects and talents. At the same time, Dongguan City complied with the great situation of deepening reforms throughout the country, vigorously carried out reforms, and intensified the reform of commercial systems, project investment, and foreign service management. In China, it took the lead in forming a systematic follow-up supervision model for commercial systems, taking the lead in

implementing the "multi-certification joint venture" for foreign investment, taking the lead in launching the project investment construction and direct reform, and is releasing the reform dividend. A number of policy dividends have been won through the approval of the country's new urbanization pilot cities and the pioneering pilot projects such as the national-level deep integration and intelligent manufacturing pilot zone.

V. COMPARATIVE ADVANTAGES OF DEVELOPING ADVANCED MANUFACTURING INDUSTRY IN DONGGUAN OF GUANGDONG-HONG KONG-MACAO GREATER BAY AREA

A. *Guangzhou-Shenzhen Port Should Build a World-class City of the Future and De-manufacturing*

A healthy and orderly regional economic sector should have a clear and clear urban functional orientation. Cities in the region should develop their most advantageous industries according to their own resources and conditions, which is beneficial to the efficient use of resources and to the complementary development of each city of the region.

As the first-line cities besides Dongguan, Guangzhou, Shenzhen and Hong Kong should be committed to the development of their first-city function development and seek to be the world-class future cities. Shenzhen, the innovation capital of China's Silicon Valley, has accounted for more than 4% of GDP in social research and study in the past five years, and its research activities and intensity can be compared to Israel and South Korea. The effective invention patent has a maintenance rate of over 85% for more than 5 years, ranking first in China. The number of PCT international patent applications has ranked first in China for 15 consecutive years. The number of PCT international patents in Shenzhen has been ranking the first in China for 16 consecutive years, and it accounts for half of the number in China. As a test field and window for national reform and opening up, it has a policy dividend of first-in-first-trial. Therefore, Shenzhen should gather in the technical research of major projects for the development of the whole country, develop innovative economy and science and technology finance supporting the innovation economy, seek international innovation centers, science and technology financial centers, establish an internationalized Bay Area city, and build a world "Silicon Valley". Guangzhou's colleges and universities are rich in resources and have a profound humanistic heritage. At the end of 2017, there were 50 academicians in Guangzhou, including 19 academicians of the Chinese Academy of Sciences, 22 academicians of the Chinese Academy of Engineering, and 9 academicians of foreign and overseas institutions. There are 18 national engineering technology research centers, 25 state-level enterprise technology centers, and 19 national key laboratories. There are 946 provincial engineering technology research centers, 2,624 municipal R&D institutions, 213 provincial key laboratories and 156 municipal key laboratories, as well as 6 national and provincial university science parks. It should focus on basic research fields, strive to overcome scientific problems and

build scientific research centers and research results transfer centers in southern China.

Dongguan, as the "world factory" where Guangzhou is on its left and Shenzhen is on its right, in the past five years, its total social R&D investment accounted for 2%-2.5% of GDP, which is roughly half of that in Shenzhen. In some years, it was even lower than the provincial level or the whole country level. The number of patent applications, the number of invention patent applications, the number of patent grants, and the number of invention patents, the index of innovation results is roughly half of that in Shenzhen. The PCT international patent is even more incomparable. There is no way to compare science and education resources with Guangzhou. Regardless of whether it is based on the principle of cost-effectiveness or from the perspective of regional coordinated development, Dongguan, which is close to Guangzhou, Shenzhen and Hong Kong, should be different from Guangzhou's or Shenzhen's city function development orientation. More consideration should be given to undertake the transformation of innovative and creative achievements in Hong Kong, Shenzhen and Guangzhou to form specific products and economies of scale, and develop and innovate advanced manufacturing with close links. At the same time, Dongguan has complete supporting facilities and high-level basic education and medical service. Compared with Shenzhen and Guangzhou, various living costs and business costs are much lower. It has the effect of "squatting" and is also a very favorable condition for the development of manufacturing. Huawei gradually moved its manufacturing and R&D departments in Shenzhen to Songshan Lake in Dongguan. The main reason is that Dongguan is close to Shenzhen and Hong Kong, and Shenzhen's high cost of living and Dongguan's low living and operating costs.

B. Compared with Foshan, Each Has Its Own Merits, Dongguan Should Vigorously Develop Advanced Manufacturing Industries with Comparative Advantages

Both Dongguan and Foshan are manufacturing centers and manufacture famous cities in Guangdong. The total GDP of the two is roughly equal. In recent years, the total economic volume of Foshan has been ranked third in

Guangdong Province, and Dongguan is ranked fourth in the next. The location advantage of Foshan is lying in Guangzhou, but the location advantage of Dongguan is more obvious. Dongguan is bordered by Guangzhou in the west and Shenzhen and Hong Kong in the southeast. It is in the middle of the Golden Corridor of Guangzhou-Shenzhen-Hong Kong. Dongguan has become the only prefecture-level city in Guangdong being included in the Guangzhou-Shenzhen Science and Technology Innovation Corridor. It has both spillover effects from Guangzhou and radiation effect from Shenzhen and Hong Kong. Dongguan can make full use of the advantages of transportation resources in Guangzhou, Shenzhen and Hong Kong to reduce travel costs. The resources of innovation, financial capital, education talents and market services in Guangzhou, Shenzhen and Hong Kong can also be seamlessly connected and shared.

Dongguan and Foshan have their own advantages in manufacturing. Foshan's ceramics and home appliances are developing well. Dongguan has obvious advantages in high-end electronic information manufacturing such as communications. The added value of advanced manufacturing (new caliber) in Foshan in 2017 increased by 9.2% over the previous year, the high-end electronic information manufacturing industry grew by 17.2%, the added value of high-tech manufacturing enterprises above designated size increased by 15.8%, and the electronics and communication equipment manufacturing industry increased by 16.6%. But Dongguan developed faster. The added value of Dongguan's advanced manufacturing industry increased by 13.7% compared with the previous year, the high-end electronic information manufacturing industry increased by 18.2%, the added value of high-tech manufacturing enterprises above designated size increased by 15%, and the electronics and communication equipment manufacturing industry increased by 17.4% ("Fig. 2"). The advanced manufacturing structure of Dongguan is better. In Dongguan, the added value of advanced manufacturing above designated size in the above-scale industries accounted for 23.29% of GDP, which is higher than that of Foshan (20.69%). About the industrial added value of high-tech manufacturing enterprises above designated size accounted for the proportion of GDP, Dongguan (16.73%) is much higher than Foshan (4.57%).

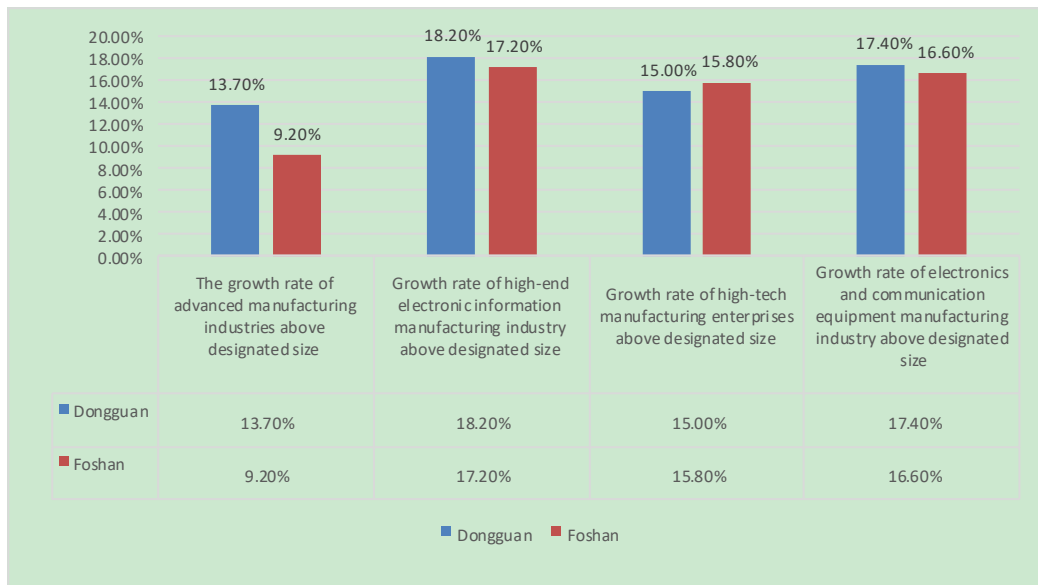


Fig. 2. Comparison of the growth rate of advanced manufacturing in Dongguan and Foshan in 2017.

C. Zhuhai and Zhongshan, Which Are Separated by the Pearl River Estuary from Shenzhen and Hong Kong, Are Not as Good as the Neighbor Dongguan

A certain amount of economic volume is the basis for the development of advanced manufacturing. Zhuhai has developed rapidly in recent years. In 2017, Zhuhai's GDP

growth rate was 9.2%, which was higher than Dongguan City (8.1%), but GDP (256.473 billion yuan) was still only 33.8% of Dongguan (758.212 billion yuan). Zhongshan's GDP in 2017 was 345.031 billion yuan, only 45.5% of Dongguan with a year-on-year growth rate of 6.6%, which was still lower than the provincial average of 7.5% growth rate (see "Fig. 3").

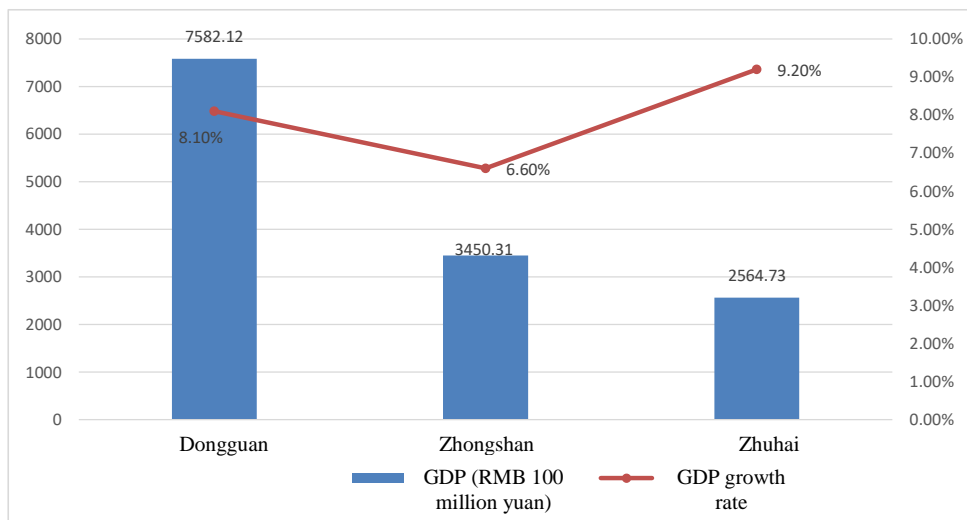


Fig. 3. Comparison of GDP and growth rate of Zhongshan Zhuhai in Dongguan in 2017.

In terms of sub-sectors, Dongguan (13.7%) is lower than Zhuhai (15.2%) in terms of growth rate of advanced manufacturing industries above designated size in 2017, far higher than Zhongshan (3.2%). In terms of growth rate of advanced equipment manufacturing industry, Dongguan,

Zhuhai and Zhongshan were respectively 18.6%, 13.4%, and 8.3%. In the growth rate of electronics and communication equipment manufacturing, Dongguan was 17.4% and Zhuhai was 16.7% ("Fig. 4").

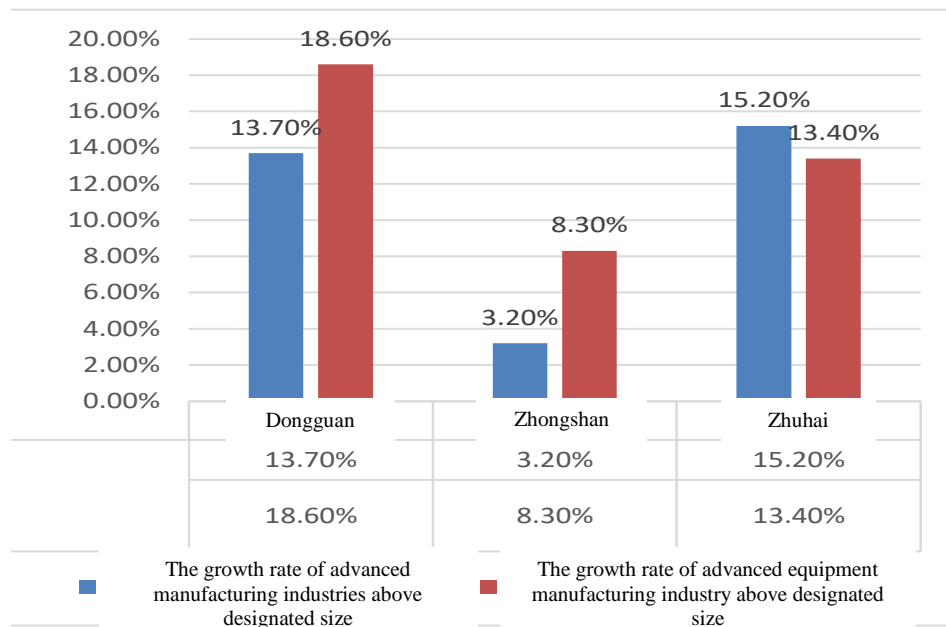


Fig. 4. Comparison of the growth rate of advanced manufacturing in Zhuhai, Zhongshan, and Dongguan in 2017.

Although the development of Dongguan in recent years is not smooth, the transformation and upgrading is difficult, Dongguan has established a strong market in the manufacturing industry. After more than 30 years of development since the reform and opening up, compared with Zhuhai and Zhongshan, the manufacturing system is relatively complete and the categories are more comprehensive, and the talents of engineers and technicians are more abundant. These are also advantages in developing advanced manufacturing.

As the Hong Kong-Zhuhai-Macao Bridge being opened soon, Zhuhai will be connected to Hong Kong through the Hong Kong-Zhuhai-Macao Bridge. The Shenzhen-Zhongshan Link will also be connected to Shenzhen and Zhongshan. Zhuhai and Zhongshan will more directly accept radiation from Hong Kong and Shenzhen as well as accepting the projects landing. But far away from a Pearl River estuary, it is difficult to compare with Dongguan only by one bridge. Dongguan and Shenzhen are bordered, and Dongguan, Shenzhen and Hong Kong have more convenient and extensive interconnection.

D. Compared with Huizhou, Zhaoqing and Jiangmen, the Location Advantage of Dongguan Is obvious, and the Manufacturing Base Is Good

From the perspective of manufacturing, compared with Huizhou, Zhaoqing and Jiangmen, Dongguan has a complete manufacturing system, a complete industrial manufacturing chain and a strong manufacturing base. From the point of view of location advantages, Dongguan is located in the center of Guangdong-Hong Kong-Macao Greater Bay Area. It is closer to Guangzhou-Shenzhen-Hong Kong and has closer links. It is more conducive to taking over the spillover

^a. Source: Statistical Communique of 2017 Municipalities

effect from Guangzhou-Shenzhen-Hong Kong and undertaking projects landing.

In terms of economic volume, the official statistics of the government in 2017 showed that the total GDP of Dongguan was 758.122 billion yuan, Huizhou was 383.508 billion, Zhaoqing was 220.061 billion, and Jiangmen was 269.03 billion. Dongguan was roughly twice that of Huizhou, 3.45 times that of Zhaoqing, and 2.82 times that of Jiangmen (see “Fig. 5” for details).

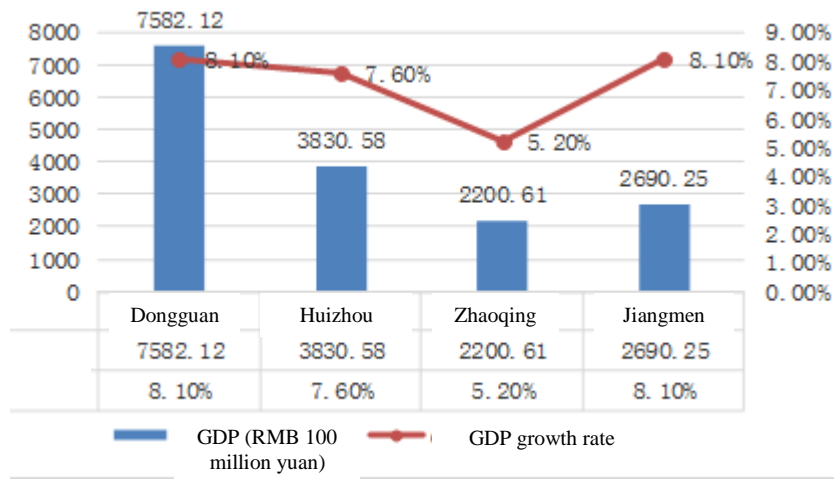


Fig. 5. Dongguan Huizhou Zhaoqing Jiangmen GDP and growth rate comparison in 2017.

From the perspective of the growth rate of added value of advanced manufacturing in 2017, Dongguan, Huizhou, Zhaoqing and Jiangmen were 13.7%, 16.4%, 4.4% and 13% respectively. Dongguan was higher than Jiangmen and far higher than Zhaoqing. From the growth rate of advanced

^a Source: Statistical Bulletin of each city in 2017

equipment manufacturing in 2017, Dongguan, Huizhou, Zhaoqing and Jiangmen were 18.6%, 3.23%, 7.1% and 13.8% respectively. Dongguan is much higher than Huizhou, Zhaoqing and Jiangmen ("Fig. 6").

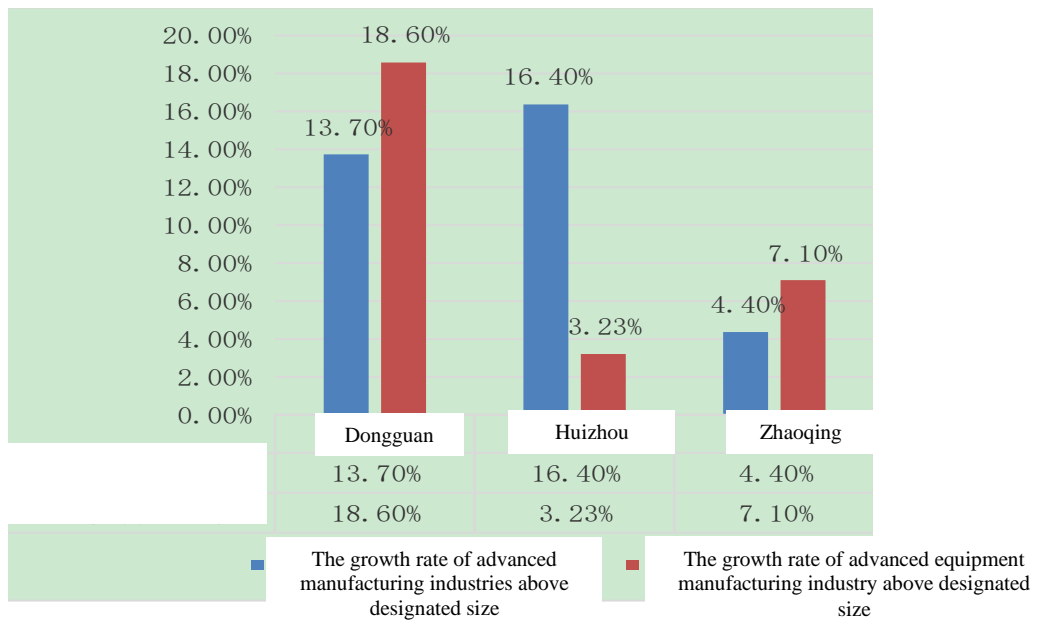


Fig. 6. Comparison of the growth rate of advanced manufacturing in Dongguan, Huizhou, Zhaoqing and Jiangmen in 2017.

^a Source: Huizhou 2017 Yearbook and 2017 City Statistical Bulletin

VI. CONCLUSION

Dongguan is located in the core area of Guangdong-Hong Kong-Macao Greater Bay Area, with Guangzhou on the left and Shenzhen-Hong Kong on the right. The geographical advantage is outstanding. Guangzhou, Shengzhen and Hong Kong should be committed to

developing into an international scientific research center, a science and technology innovation center, a scientific and technological achievements transfer center, a financial center, and an industrial revolutionary source, with de-manufacturing and transferring specific manufacturing projects to surrounding cities. Dongguan is a powerful city with a strong manufacturing industry, a sound economic foundation, a strong manufacturing base, and a complete

manufacturing system. It should give full play to its comparative advantages and position itself in the development of advanced manufacturing.

Manufacturing is the lifeblood and foundation of Dongguan. It was, it is, and it will be for a long time in the future. Dongguan's development orientation as an advanced manufacturing center in the Bay Area is not only a continuation of the development model of Hong Kong's "front store" and Dongguan "back factory", but also meets the requirements of the overall coordinated development of the new Guangdong-Hong Kong-Macao Greater Bay Area. The construction of Guangdong-Hong Kong-Macao Greater Bay Area needs to emphasize the integration of cities, focus on the deepening cooperation among the mainland, Hong Kong and Macao, optimize and upgrade the industry and launch cluster development. As an important member of the Guangdong-Hong Kong-Macao Greater Bay Area, Dongguan should focus on the development of advanced manufacturing industry based on the largest fundamental and practical situation of manufacturing industry on the basis of consultation and development with Guangzhou, Shengzhen and Hong Kong.

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