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Development Potential and New Opportunities for Node Cities in GBA: A Case Study of Foshan

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Development Potential and New Opportunities for Node Cities in GBA: A Case Study of Foshan

Chi Zhang* Xuyao Zhang† Jingwei Zhou ‡

May 2022

Abstract

The Greater Bay Area (GBA) consists of 11 cities around the Pearl River Delta. The development plan aims to promote regional integration and build a world-class city cluster. As a neighbour to Guangzhou, Foshan could leverage its geographical advantage to boost its social-economic development. This paper discusses two of its key policy initiatives— industrial upgrading and "Guangzhou-Foshan Urban Integration". The findings suggest that Foshan has gained more opportunities and unleashed more potential under the GBA development plan. In addition, Foshan has attracted a significant number of greenfield FDI projects in the retail sector after 2017. This paper attributes such a boom to two factors: 1) the construction of rail transit and 2) population growth.

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1 Introduction to Foshan City

The Greater Bay Area consists of the nine Pearl River Delta (PRD) cities and two Special Administrative Regions (SARs)— Hong Kong and Macau. While most research is focused on the four core cities, namely Guangzhou, Shenzhen, Hong Kong and Macau, few studies have discussed the opportunities and development potential of the node cities.[1] This paper aims to introduce one of the well-developed cities — Foshan and examine the boom of retail sector greenfield FDI in the city.

Foshan is located in the hinterland of the PRD Metropolitan Region and is a neighbour to the province's capital (Guangzhou city). It is an important interchange connecting Guangzhou and the western part of Guangdong Province. The city's total area is 3,797.79 square kilometres, and the total population reaches 9,498,863, according to the 2020 population census.

Figure 1: Location of Foshan in GBA

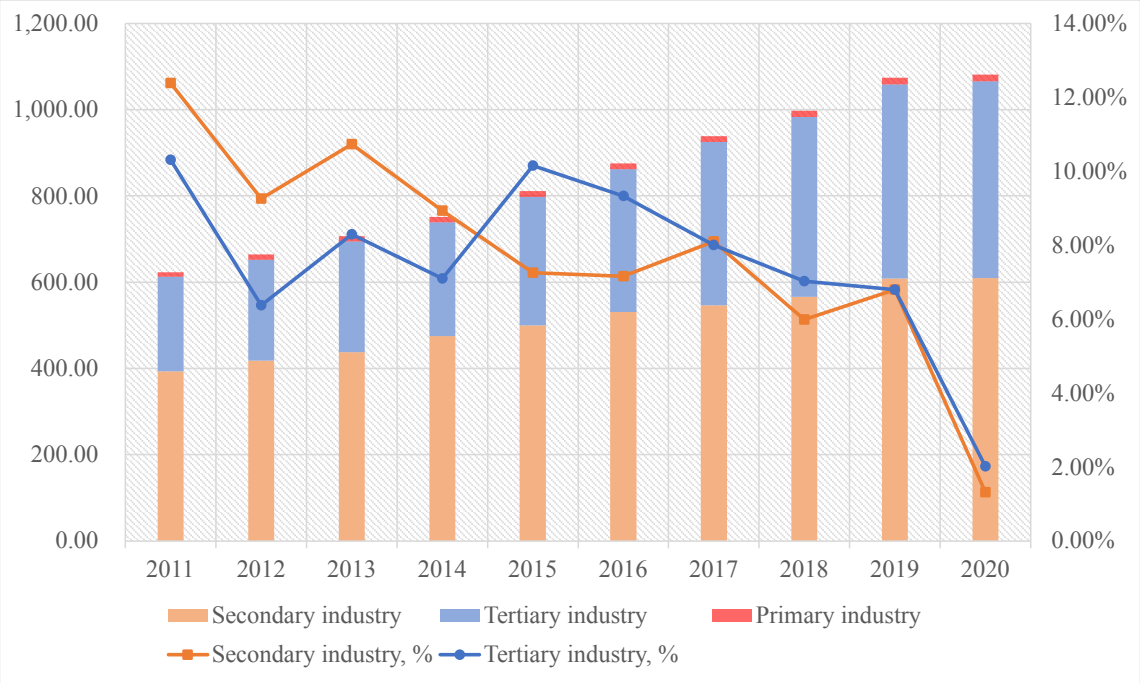
Source: Asia Competitiveness Institute (ACI)

As shown in figure 2, the Gross Domestic Product (GDP) of Foshan reached

[1]The node cities are Zhuhai, Foshan, Huizhou, Dongguan, Zhongshan, Jiangmen and Zhaoqing.

RMB 1,081.65 billion in 2020, ranking 17^{th} in China and 1^{st} among the node cities in GBA. Foshan has long been a manufacturing-based city. Its economy is dominated by secondary industry, which contributes RMB 609,529.67 million to its GDP, ranking 6^{th} in China. On the other hand, tertiary industry has been catching momentum. The contribution of tertiary industry to GDP increased from 35.2% in 2011 to 42.1% in 2020. Before the COVID-19 pandemic, all three sectors in Foshan had maintained considerably high growth rates, with an average of 4.92%, 5.52%, and 10.78%, respectively.

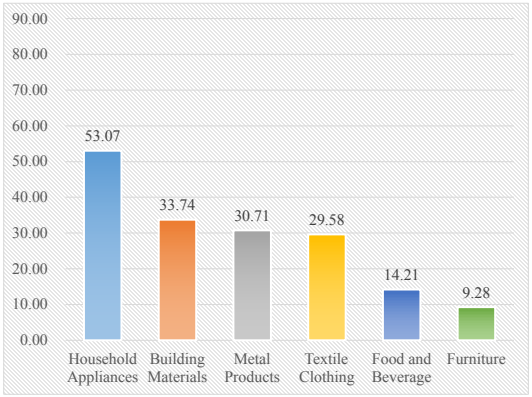
Figure 2: GDP (RMB billion) and GDP Growth Rate (%) in Foshan



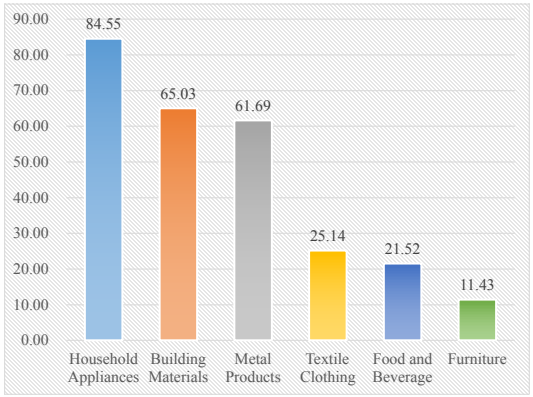
Source: ACI based on information retrieved from Foshan Statistical Yearbook 2011-2020

The traditional advantageous industries in Foshan include the Manufacture of Household Appliances, Building Materials, Metal Products, Textile Clothing, Food and Beverage, and Furniture. The shares of these industries were relatively stable between 2011 and 2020. The Manufacture of Household Appliances accounted for around a third of the value-added of the traditionally advantageous industries (Figure 3 a and b). The growth rate of these industries fluctuated from 2011 to 2020. Textile clothing and furniture industries were severely affected by COVID-19, as seen by the sharp drop in the growth rate in 2020 (Figure 3 c).

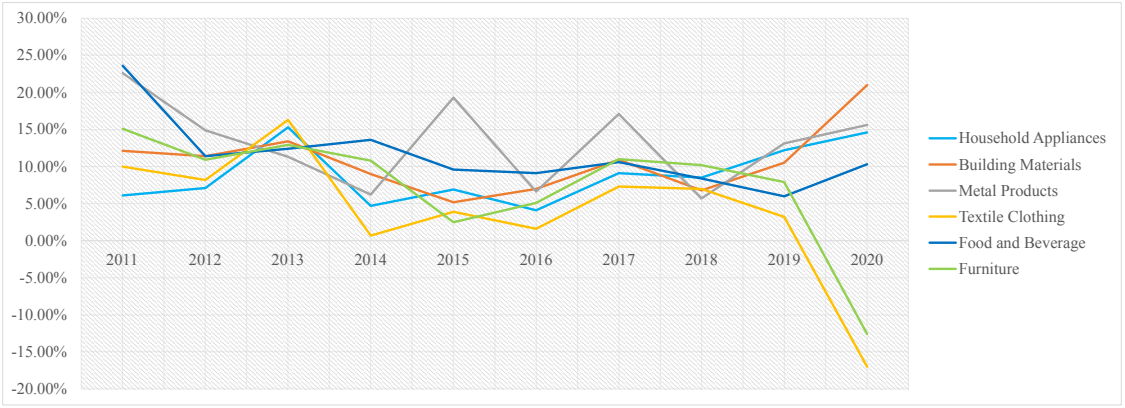
Figure 3: Value-added (RMB billion) and Growth Rate (%) of Traditional Advantageous Industries in Foshan



(a) Value-added by Industry, 2011



(b) Value-added by Industry, 2020

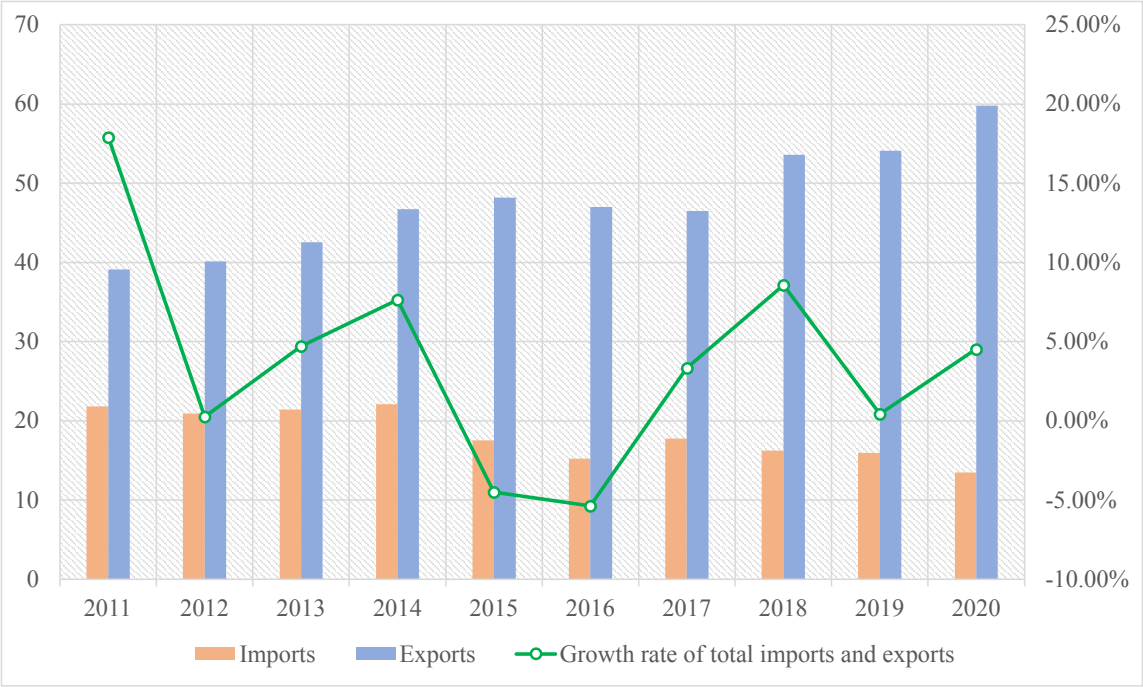


(c) Growth Rate, 2011 - 2020

Source: ACI based on information retrieved from Foshan National Economic and Social Development Statistical Bulletin 2010-2020

Foshan also has a strong connection to the international market, ranking 1^{st} and 2^{nd} among GBA node cities in port cargo throughput and exports in 2020. The cargo throughput reached 92.85 million tons, and total exports were RMB 413.12 billion (accounting for 3.4% of Guangdong's exports). The household appliance, textile clothing and furniture industries were the main contributors to export earnings, accounting for RMB 63.11 billion, 42.03 billion and 24.94 billion, respectively.[2] During the past decade, Foshan has witnessed a surge in its trade surplus. It is worth noting that Foshan's exports grew while imports showed a downward trend (See figure 4).

Figure 4: Imports, Exports (USD billion) and Growth Rate of Total Imports and Exports (%) in Foshan



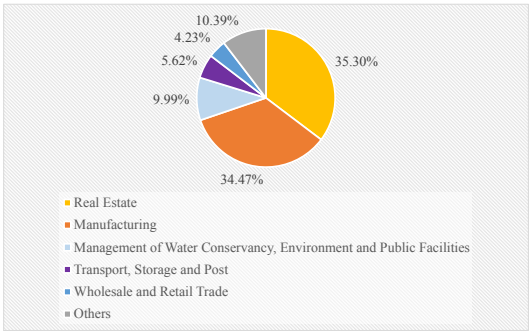
Source: ACI based on information retrieved from Foshan Statistical Yearbook 2011-2020

90% of fixed-asset investment in Foshan is concentrated in five areas, including real estate, manufacturing, management of water conservancy, environment and public facilities, transport, storage and post, and wholesale and retail trade. In 2020,

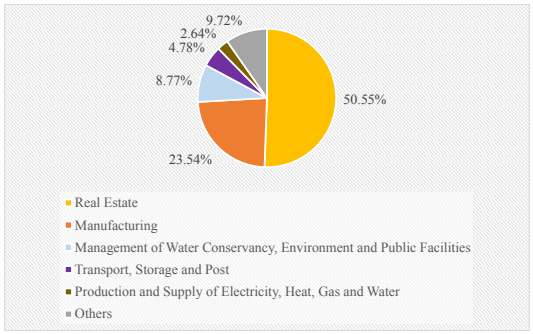
[2]Data is from Foshan National Economic and Social Development Statistical Bulletin 2020 and Foshan Statistical Yearbook 2020.

fixed asset investments in real estate reached RMB 241.91 billion.[3] From 2011 to 2020, the share of real estate increased by almost 15%, while the share in manufacturing has dropped by 12% (Figure 5 a and b). This structural change is also reflected in Figure 5 c. All sectors experienced stable growth, except for the manufacturing industry, which began to fall after 2018.

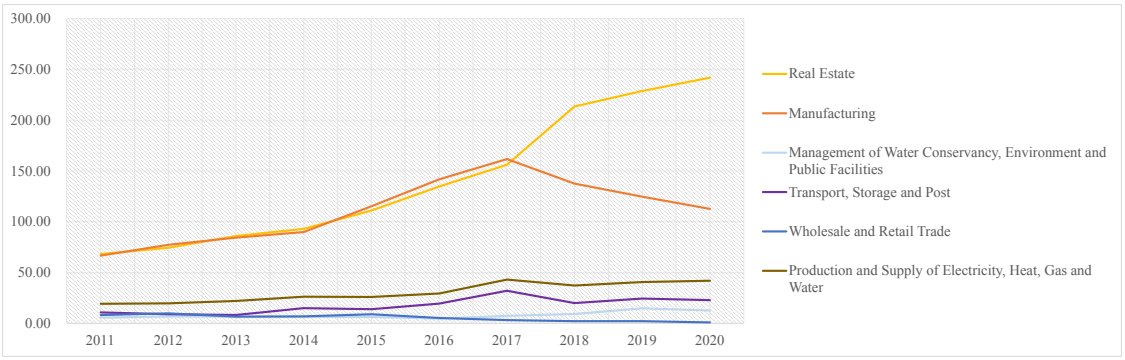
Figure 5: Share (%) and Amount (RMB billion) of Investment in Fixed Asset by Sector in Foshan



(a) Share by Sector, 2011



(b) Share by Sector, 2020



(c) Amount of investment in fixed assets, 2011 - 2020

Source: ACI based on information retrieved from Foshan Statistical Yearbook 2011-2020

After introducing the GBA Framework Agreement, Foshan witnessed a surge in foreign direct investment in 2018.[4] During 2011 and 2017, the average annual number of FDI contracts was around 200, and the contracted foreign capital was

[3]Data is from Foshan National Economic and Social Development Statistical Bulletin 2011-2020.

[4]The Framework Agreement on Deepening Guangdong-Hong Kong-Macao Co-operation in the Development of the Bay Area was on 1^{st} July 2017, by the Chief Executive of the Hong Kong Special

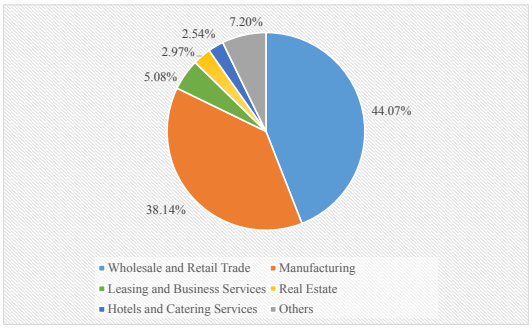
around USD 3 million. From 2018 to 2020, the two measures went up to 751 and USD 8,675 million, respectively (Figure 6 c and Figure 7 c).

The top five sectors in attracting FDI have also changed before and after signing the GBA Framework Agreement. From 2011 to 2017, the top five industries by the average annual number of contracts were wholesale and retail trade, manufacturing, leasing and business services, real estate, and hotels and catering services (Figure 6 a). After the GBA announcement, the FDI share in wholesale and retail trade and manufacturing decreased significantly, while the share in leasing and business services increased by 15%. There are also more projects in scientific research, technical services and geological exploration, and culture, sports and entertainment sectors (Figure 6 b). The change in the contracted value is of a similar pattern as the number of contracts (Figure 7).

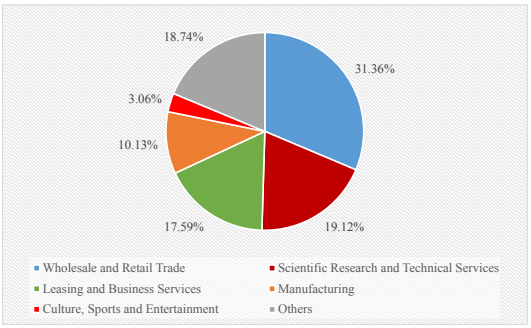
An interesting observation is that FDI and Domestic Investment displayed different patterns during the period of study. In particular, fixed assets investment has become more concentrated over the years. From 2011 to 2020, the proportion of investment received by the top sector (i.e. real estate sector) goes up from 35.3% to 50.5%. On the other hand, FDI has become more diversified. The leading sector (i.e. leasing and business services sector) only takes up 28.6% of all FDI invested in 2020, down from 56.5% (i.e. manufacturing sector) in 2011.

Administrative Region, Chief Executive of the Macau Special Administrative Region, Chairman of the National Development and Reform Commission, and Governor of Guangdong Province, witnessed by President Xi Jinping.

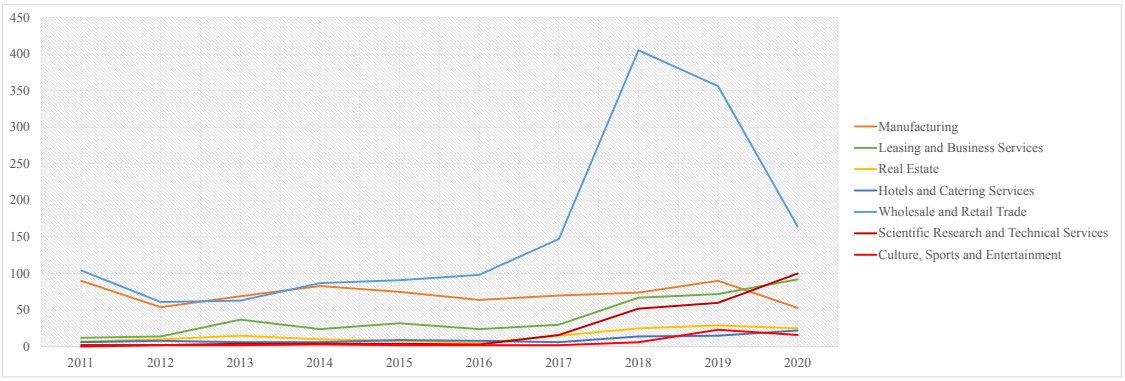
Figure 6: Share (%) and Number of FDI Contracts by Sector in Foshan



(a) Share by Sector, 2011 - 2017



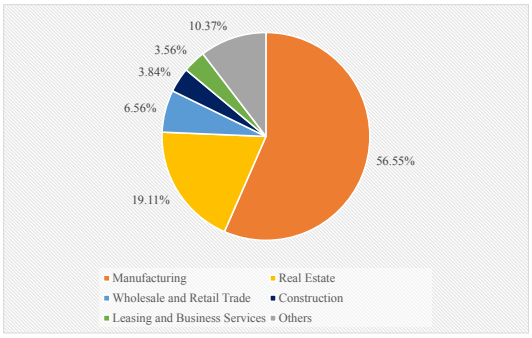
(b) Share by Sector, 2018 - 2020



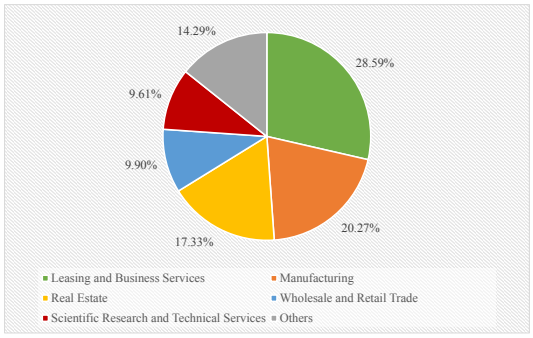
(c) Number of FDI Contracts, 2011 - 2020

Source: ACI based on information retrieved from Foshan Statistical Yearbook 2011-2020

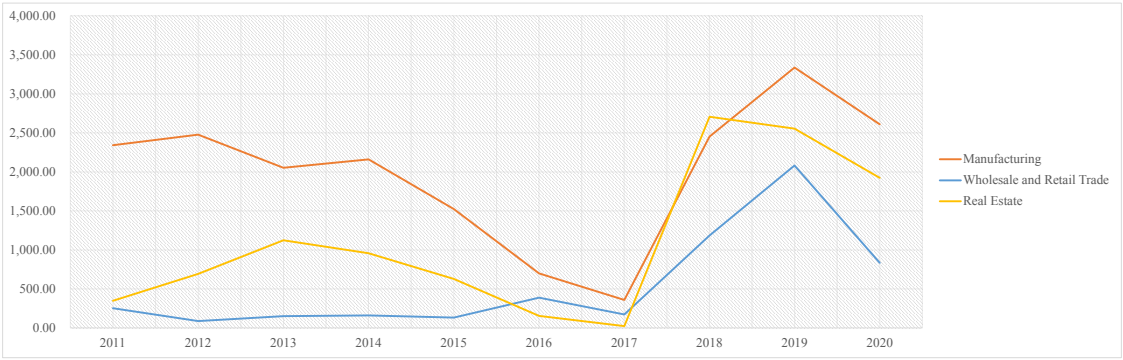
Figure 7: Share (%) and Amount (USD million) of Contracted Foreign Capital in Foshan



(a) Share by Sector, 2011 - 2017



(b) Share by Sector, 2018 - 2020



(c) Contracted Foreign Capital in Selected Sectors, 2011 - 2020

Source: ACI based on information retrieved from Foshan Statistical Yearbook 2011-2020

2 New Opportunities under GBA

The development of GBA aims to create a competitive urban agglomeration of 11 cities around the Lingding Channel in the southern coastal region of China. The focus is to promote deeper regional integration and foster regional specialisation through urban cooperation. As highlighted in the GBA Outline Development Plan, Foshan is positioned as a manufacturing hub and expected to develop a cluster of advanced industries to compete internationally.[5] Leveraging the national development plan, the Foshan government reinforces its existing programs for industrial upgrading and regional integration.

In 2008, Foshan proposed a guideline to transform its traditional industries into modern industries. This guideline emphasised the development of "advanced manufacturing", including the manufacture of advanced equipment, petrochemicals and high-tech equipment such as medicines, computers, office equipment, medical equipment, instruments and meters. These industries have achieved considerable growth, as shown in Figure 8.

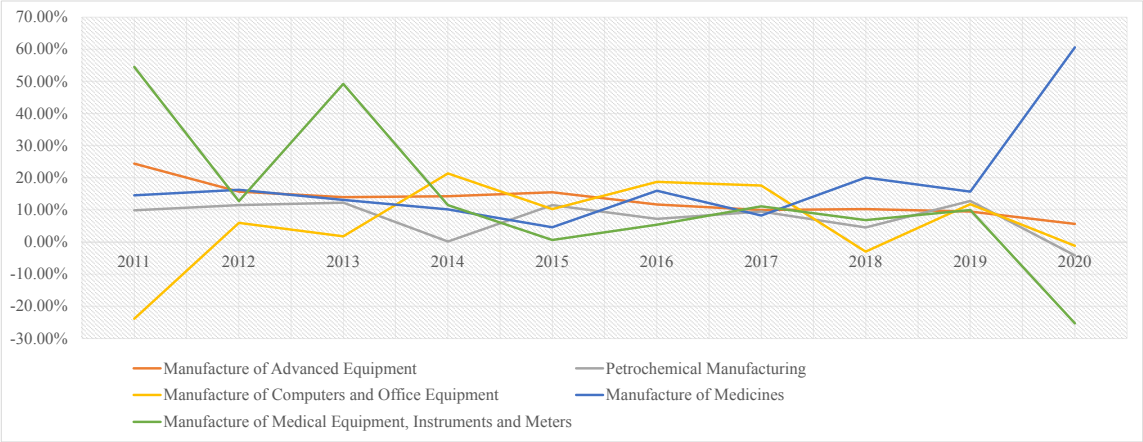
The Advanced Equipment industry experienced significant advancement in 2020, because of the GBA's objective of promoting regional specialisation. For example, a large number of automobile manufacturing enterprises have moved out of Guangzhou and settled in Foshan, forming the Foshan Nanhai Automobile Industry Base. The output value of the base has reached RMB 100 billion in 2020.[6] On the other hand, automobile R&D and services activities are still conducted in Guangzhou. The two cities have formed a complementary and cooperative relationship in this production chain. They are also working together to build a new energy vehicle industry and an intelligent driving vehicle industry with higher added value.

The GBA strategy also accelerated the "Guangzhou-Foshan Urban Integration". In 2009, Guangzhou and Foshan signed a framework agreement on integration, starting with industrial collaboration, urban planning, environmental protection and transportation infrastructure construction. The landmark project funded by the local governments is the Guangzhou-Foshan Metro. The 21.5-kilometre rail transit route greatly facilitates transportation between the two cities. In 2020, around 1.6 million people commuted every morning via this railway, creating a phenomenon called "Guangzhou-Foshan migratory birds". Around 60% of the "migratory birds"

[5]The Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area was released in 2019. It stipulates a short-term plan to 2022 and a long-term project to 2035

[6]"Nanhai: Building a platform for government-enterprise interaction and promoting the docking of the 100 billion auto industry chain", Nanhaitoday, 20 December, 2021. `https://nanhaitoday.com/nhxww/articles/2021/12/20/b5b9e077addb4313912526d9593ceb7e.html` accessed on 20 April 2022.

Figure 8: Growth Rate (%) of Value-added of Modern Industries in Foshan



Source: ACI based on information retrieved from Foshan National Economic and Social Development Statistical Bulletin 2010-2020

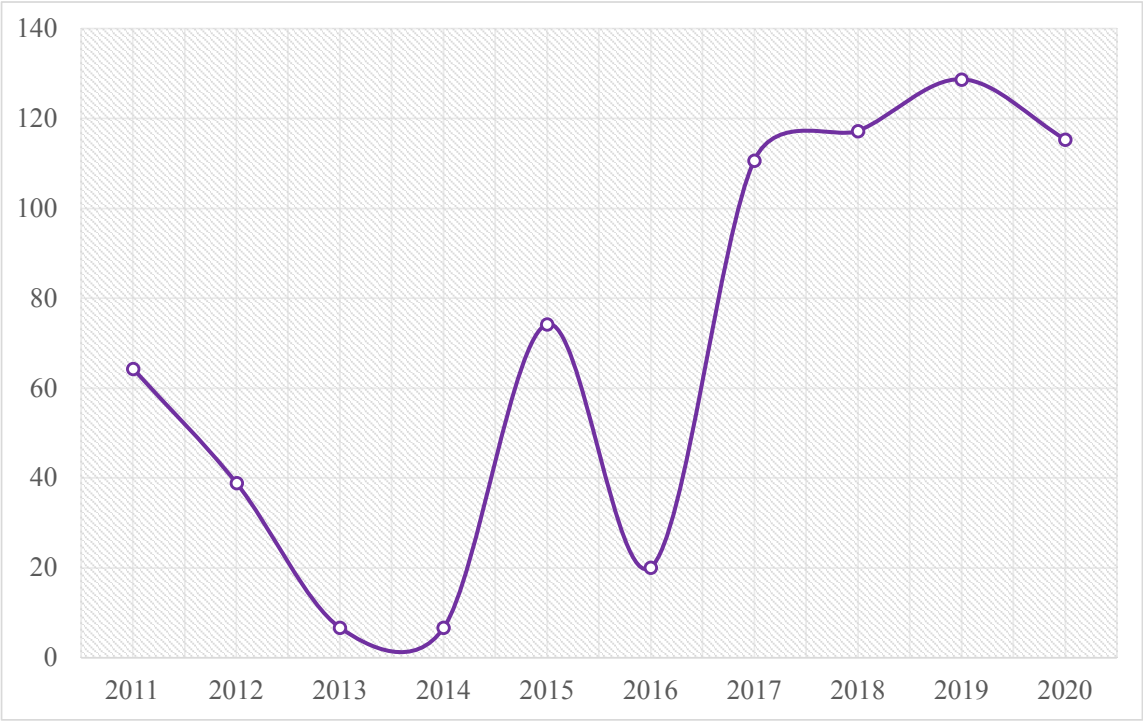
reside in Foshan, while 40% stay in Guangzhou[7]. The GBA development plan has provided more support and guidance to the Foshan government. The rail transit plan after 2017 has witnessed significant advancement. The mileage of three new routes under construction is expected to reach 113.7 kilometres (Figure 9). Another 14 routes with a total length of 562 kilometres are also written in the government development plan. As of today, the transportation time between the two cities has been shortened to about an hour, which greatly facilitates business exchanges and labour flow.

In addition to infrastructure connectivity, medical care, social insurance, and education are also undergoing extensive development. With the advancement of the GBA strategy, 38 designated hospitals (30 from Guangzhou and eight from Foshan) have shared the general medical insurance for residents in the two cities[8]. These hospitals are mainly located at the junction of the two cities. The two governments plan to expand the list in the future. The two cities have also planned to jointly build

[7]Population Development Plan for Nanhai District, Foshan City (2021-2030). `http://www.nanhai.gov.cn/gkmlpt/content/5/5231/mpost_5231210.html#1977` accessed on 20 April 2022

[8]Information from List of medical institutions designated for medical insurance services by Guangzhou Municipal Medical Security Bureau — `http://www.gz.gov.cn/zfjg/gzsylbzj/ybfw/content/post_6905351.html` and List of medical institutions designated for medical insurance services by Foshan Social Insurance Fund Administration — `http://fssi.foshan.gov.cn/bmfw/ddyljgcx_1097064/` accessed on 20 April 2022.

Figure 9: Length of Urban Rail Transit System under Construction (Kilometre)

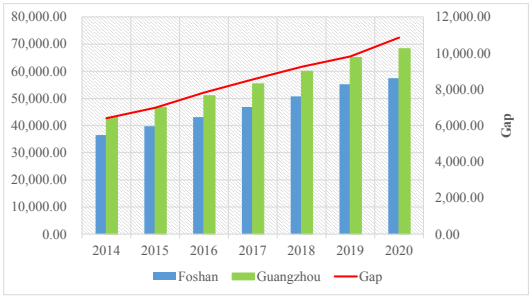


Source: ACI based on information retrieved from China Urban Construction Statistical Yearbook 2011-2020

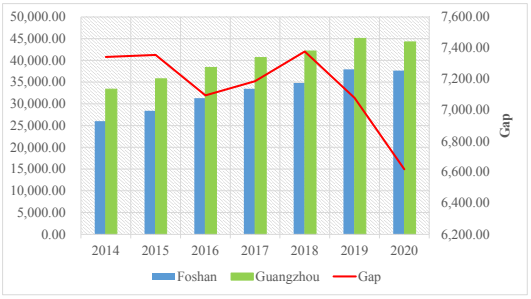
primary and secondary schools in their three Cooperation Demonstration Zones.[9]

The achievement of regional integration in Foshan can also be reflected by the convergence of Guangzhou and Foshan's consumption patterns over time, as shown in Figure 10. Even though the per capita disposable income gap between Foshan and Guangzhou is widening, the per capita consumption spending gap between the two cities is shrinking, especially in medical care and housing.

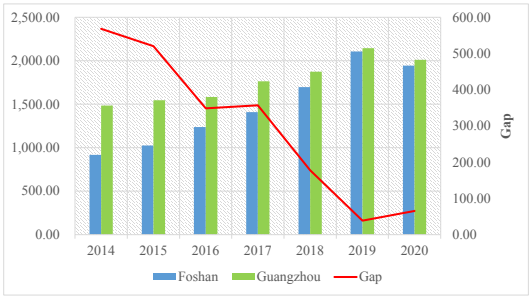
Figure 10: Performance in Citizen Income and Expenditure in Foshan and Guangzhou (Per Capita, RMB))



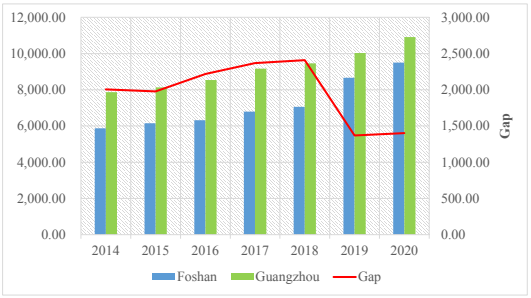
(a) Disposable Income



(b) Total Consumption Expenditure



(c) Health Care and Medical Services Expenditure



(d) Health Care and Medical Services Expenditure

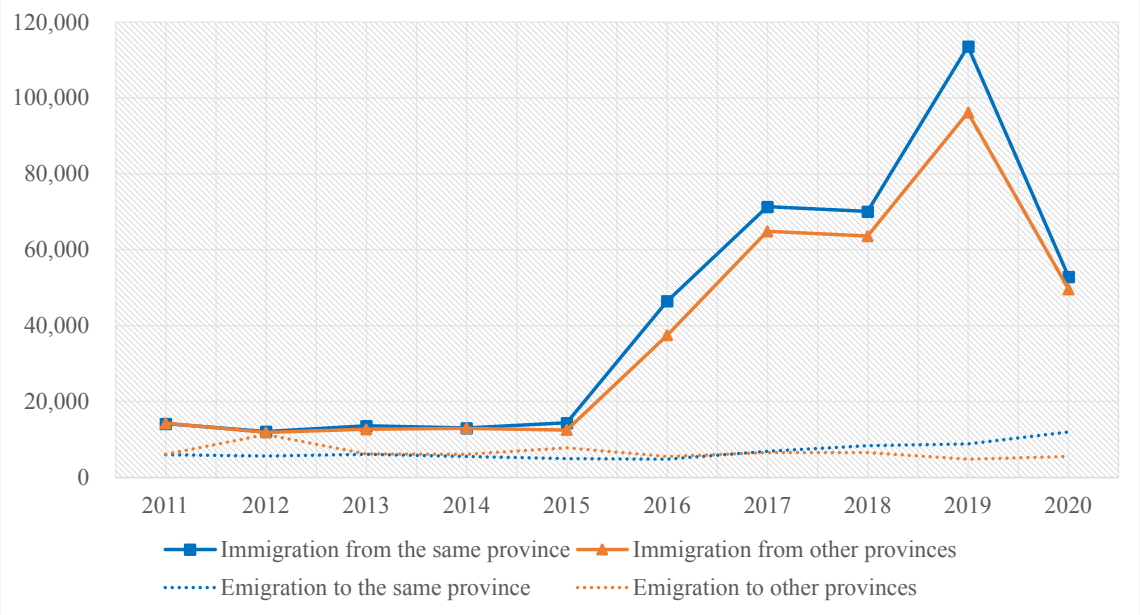
Source: ACI based on information retrieved from Foshan Statistical Yearbook 2011-2020 and Guangzhou Statistical Yearbook 2011-2020.

Notes: Due to the change of statistical calibre, the data before 2014 is not comparable with that after.

[9]The Integration of Guangzhou and Foshan Plan under the 13th Five-Year Plan of China (2016) and The Integration of Guangzhou and Foshan Plan under the 14th Five-Year Plan of China (Exposure Draft, 2021).

As Foshan catches up with Guangzhou in living standards, it attracts a large inflow of immigration. From 2010 to 2020, Foshan's population has grown from 7.15 million to 9.5 million, a growth rate of 32.03%, higher than the provincial average of 20.81%. As shown in Figure 11, the population started to grow in 2016 and reached its peak in 2019. More than half of the immigrants are from other cities in Guangdong Province, while the rest are from the other provinces. The population moving out of Foshan has been relatively stable since 2011, with an average of 10,000 people every year.

Figure 11: Migration in Foshan



Source: ACI based on information retrieved from Foshan Statistical Yearbook 2011-2020

3 Greenfield FDI Boom in the Retail Sector

After the GBA announcement, a significant amount of greenfield FDI flowed to Foshan, as the government introduced a series of favourable policies. For instance, the new investment attraction policy reduces the time for new enterprises to apply for business licenses to four working days. The cross-border financing restriction has also been lifted.

Most of the greenfield projects are in the retail sector. From 2014 to 2017, there were only seven retail FDI projects in Foshan, including shoe stores, clothing stores and jewellery stores. The number of projects raised to 68 after 2018. The new shops are extended to cosmetics, chocolate and watches. Such an increase may be attributed to the speedy return of the retail sector. The significant population growth and transportation development have also unleashed Foshan's retail potential.

In this section, we analyse Foshan's retail potential based on the seminal model of Reilly (1931) followed by Huff (1964), Sheppard et al. (1992) and Davis (2006). The model has been widely applied to analyse business location decisions. The key factors determining retail potential are population size and transportation cost to retail centres. This study would focus on city-level analysis to explore retail sector greenfield FDI in the nine cities in GBA following the classic Huff Model.

From the Orbis dataset, we obtained project-level data on capital expenditure and jobs created for greenfield FDI in the nine cities from 2014 to 2019. Population and length of rail transit data are from Guangdong Statistical Yearbook and China Urban Construction Statistical Yearbook, respectively. The year coverage is from 2015 to 2020. Table 1 displays the data summary statistics.

Table 1: Summary Statistics of the Variables

	Unit	**Obs**	**Mean**	**SD**	**Min**	**Max**
	(1)	(2)	(3)	(4)	(5)	(6)
Number	1	54	4.06	8.31	0.00	37.00
Jobs created	1	54	252.76	519.64	0.00	2,429.00
Capital expenditure	mn USD	54	782.07	1,333.72	0.00	5,708.00
Population	million	54	6.77	4.02	1.61	15.31
Rail transit	100 km	54	1.48	2.36	0.00	8.30
Population (lag 20)	million	54	2.69	1.77	0.61	6.81

Source: ACI based on Data from ORBIS, Guangdong Statistical Yearbook (1994-2020) and China Urban Construction Statistical Yearbook (2015-2020).

The empirical model of this study is as follows:

$$\ln(Y_{jt}) = \beta_1 + \beta_2 \ln(population_{jt}) + \beta_3 \ln(rail_{jt}) + \delta_j + \gamma_t + \epsilon_{jt}, \quad (1)$$

$$\ln(population_{jt}) = \theta_1 + \theta_2 \ln(population_{jt-20}) + \theta_3 \ln(rail_{jt}) + \delta_j + \gamma_t + \nu_{jt}, \quad (2)$$

where $\ln(Y_{jt})$ is the log of retail FDI projects, capital expenditures or jobs created in the city j in year t. We control for year and city fixed effects in all regressions.

Two explanatory variables of our interest are population size and convenience of transportation. The latter is proxied by the length of rail transit (both completed and under construction) within the city. The intuition is that the longer the subway and light rail length, the shorter the time is needed to commute between two locations.

Potential endogeneity problem in the regression is that larger population size will attract more retail projects, and the convenience of shopping (i.e. more retail projects) will attract more immigrants. Thus, this study employs a two-stage least square approach, using historical population data (lag of 20 years) as an instrumental variable to address this endogeneity concern.

Table 2 shows the regression results. Population size and commuting convenience provide a good explanation for changes in the number of retail FDI projects and job creation. One percentage point increase in population or the length of rail transit can lead to an increase of 8.622% or 2.103% in the number of projects, respectively. Their impact on job creation is very similar (8.242% and 2.134%). However, the impact on capital expenditure is minimal.

Table 2: Results

	Number		**Capital expenditure**		**Job created**	
	OLS	**IV**	**OLS**	**IV**	**OLS**	**IV**
	(1)	(2)	(3)	(4)	(5)	(6)
Population	4.235	8.622**	-1.109	18.629*	5.107	8.242**
	(3.895)	(2.647)	(12.826)	(9.251)	(3.293)	(2.877)
Rail	2.488***	2.103***	3.331	1.580	2.409***	2.134***
	(0.285)	(0.504)	(1.755)	(2.035)	(0.895)	(0.535)
Observations	54	54	54	54	54	54
R-squared	0.882	0.385	0.416	-0.066	0.882	0.406
Number of id	9	9	9	9	9	9
City	Y	Y	Y	Y	Y	Y
Year	Y	Y	Y	Y	Y	Y
IV	N	Y	N	Y	N	Y

Note: Standard errors are clustered at the city and year level in parentheses.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

This study reveals that retail sector FDI in the PRD region is driven by consumption potential. The boom in Foshan is supported by rapid population growth and better infrastructure development. With the implementation of the GBA development plan, foreign firms see the growth potential of Foshan, thus increasing the investment in retail sectors.

4 Conclusion

As the 17^{th} largest city in China (in terms of GDP in 2020), Foshan has demonstrated its potential in consumption and international activities. The GBA development plan offers new opportunities for Foshan, especially in the integration process with Guangzhou. On the one hand, Foshan has rapidly propelled rail transit construction connecting to Guangzhou. It has also expanded its cooperation with Guangzhou in education, medical care and other fields. On the other hand, Foshan actively absorbs the manufacturing industries transferred from Guangzhou and other cities and builds industrial parks to exert the effect of agglomeration and economies of scale. These measures effectively increased the number of urban migrants coming to Foshan each year.

Greenfield FDI in Foshan has also grown rapidly. The increase in consumption potential from the improvement of population and transportation convenience explains the boom of greenfield FDI projects in the retail sector. However, the empirical study is conducted at the city level due to data availability. A future analysis using individual-level data in Foshan city may further strengthen our research findings.

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