Empirical Analysis of Restructuring the Manufacturing in Guangzhou-Based on Dynamic Shift-Share Method

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Abstract

Manufacturing is one of the most important contents on the economical plate in Guangzhou. Accelerating the adjustment of manufacturing structure and promoting its optimization and upgrade are the major strategic tasks to create a new version of economic transformation and upgrade in Guangzhou. In this paper, a single structure-DSSA (Dynamic Shift-Share Analysis) model has been proposed which collect the data from 2001 to 2011. Then we use this model to obtain the differences in data of industrial structure and discuss the dynamic change of manufacturing structure in Guangzhou during this period. Then it provide the conversion of direction and strategic selections which would further accelerate the adjustment of manufacturing structure and promote its optimization and upgrade in the future.

Index terms— dynamic shift-share method; manufacturing; industrial structure; empirical analysis.

1 Introduction

uangzhou is an important manufacturing city in southern China. The manufacturing development not only speeds up the development of industrialization, but also becomes hard nucleus of economic sectors in Guangzhou after the reform and opening in China. However, the changes of economic environment in domestic and overseas lead to a series of problems loom large. Such as the cost of resource and environmental pressure are growing rapidly, structural shortage of labor is increasingly serious, the original labor costs and regional comparative advantage has been disappeared, the low level of industry, the lack of innovation and constraint of resources and environment in economic development. Therefore, it is a matter of Guangzhou's economic future to promoting the adjustment of manufacturing structure further.

On that account, the article attempts to discuss the adjustment problems of manufacturing structure in Guangzhou based on the Dynamic Shift-Share Method. The changes of the manufacturing structure in Guangzhou are chosen as the research objects in this paper. Firstly, the dynamic DSSA econometric model has been introduced and it collects the relevant data during 2001-2011. Secondly, it carries on the quantitative empirical analysis of industrial structure, and then discusses Guangzhou's main dynamic changes of manufacturing structure. Lastly, the transformation with the strategy of speeding up structural adjustment and upgrading the manufacturing structure in the future are given. According to the DSSA model, the article analysis the dynamic data based on Output Value of Main Industrial above the Designated Size. All the data in the article comes from the GUANGZHOU TATISTICAL YEARBOOK ??2002) ??2003) ??2004) ??2005) ??2006) ??2007) ??2008) ??2009) ??2010) ??2011) ??2012). Through preprocessing the data and converting it to constant prices of industrial production in 2001, the article obtains the table of output Value of the main manufacturing industry (table 1). The above empirical analysis shows that remarkable results had been achieved on restructuring work of manufacturing in Guangzhou during 2001-2011. For example, it is mainly represented by the content of manufacturing and categories of leading industry have a fundamental change and the industrial structure has a rationalization and sophistication direction. On the other hand, proportion of advanced manufacturing has risen continually, overall size has increased considerably, and competitiveness has improved rapidly, that showing

a good momentum of development. But these results are just beginnings. For various challenges caused by environmental changes, the rapid growth of the manufacturing has been faced the ceiling limit, and the marginal benefit has begun declined by using the original method of structural adjustment.

2 II. The Change Analysis

Combined the above analysis with the current trend of the development of global manufacturing, it is necessary for manufacturing to convert the direction of industrial restructuring in Guangzhou. This is the only way that we can accelerate the pace of structural adjustment and improve the quality adjustment. According to current stage of economic development in Guangzhou and constraints of various factors, resources and environment, the article indicates that restructuring industry must transforms relying mainly on investment attraction and capital investment into focusing on innovation to improve the efficiency and high of industrial structure. Meanwhile, restructuring industry should promote the Guangzhou manufacturing from a labor-intensive and low value-added type to technology-intensive and high value-added type. According to the basic theory of spatial economics, it is obviously that Guangzhou has geographical advantages for the development of manufacturing industry. At the same time, mercantilist history and the policy of reform and opening making software and hardware environment of Guangzhou manufacturing both taking the lead. This may account for Guangzhou becoming the developed areas of domestic manufacturing from a weak region before the time of reform and opening. Nevertheless, it should be noted that many domestic regions such as Shenzhen, Tianjin, Suzhou, Ningbo, Dalian, and Chongqing are developing rapidly in recent years. The position of manufacturing of Guangzhou had decline relatively in the domestic. The trend of re-industrialization of developed countries and digitalization of global manufacturing promotes Guangzhou to face lots of new challenges. The experience of world's manufacturing notice that excellent environment is the key to the industry rising. In this way, there is still huge room for improvement of Guangzhou, although the country has a comparative advantage in the past.

The formation of "Lewisian turning-point" shows that the demographic dividend of China's economic development is not exist in the future. This also means that the industrial development model of plenty of lowcost labor and various resources inputs is unsustainable. Therefore, the Primer Li Keqiang claimed that economic development should rely on reform dividends. To promote a better and faster future, create a high-level and embeddedness manufacturing and maintain the sustainable development of the manufacturing, the first step of restructuring manufacturing in Guangzhou is consolidating adjustments of foundation. Of cause, the boldness and courage of reform and institutional innovation are essential.

It is necessary to modify various types of hardware and software environment, striving to improve dominant position in the domestic. Specifically, in a hardway, we should increase the investment for transportation, communications, energy, environmental protection, education, culture, municipal, information technology and other infrastructure via introduction of private capital; In the soft aspects, It is a drastic measure to play high value on business environment, investment and financing environment, innovative environment, technology and talent. At the same time, accelerating the transformation of government functions, the reform of approval system, the transition to a service-oriented government are the key to create outstanding environment. In this way, can industrial restructuring achieve excellence result.

ii. Homing on the Higher End of Value Chain, Promoting the Upgrading of Traditional Manufacturing Guangzhou as the Pioneering areas of Chinese modern industrialization was called "millennium city". it contain kinds of traditional manufacturing with long-term advantages such as textiles and garments, food and beverages, light chemical, leather goods, building materials. They have been played a pivotal role in the development of the Guangzhou Economic. However, due to its low value-added, labor-intensive features and the increasingly prominent and environmental pressures, the relative share of these industries are shrinking. Therefore, these traditional manufacturing should not give up but make them stronger promoting its industrial competitiveness and efficiency to improve.

For the above purpose, it is wonderful to make full use of excellent market environment, kinds of factors of production, advantages of information, opened export trade platform and so on upgrading the traditional manufacturing of Guangzhou, based on promoting the policy of "double shift". To be specific, firstly, we should aim at the ends of Smiling Curve and extension of industry value chain to speed up the product technology innovation, cultivate independent brand of product, and strengthen marketing channel construction and network layout. Meanwhile, it is necessary to develop industrial products design, promote the use of advanced technology and especial the information technology to upgrading traditional manufacturing. Thereafter, simplifying the low-level processing and OEM and increasing the product technology content and added value are a proper way to enhance the competitiveness of the traditional manufacturing in Guangzhou.

iii. Strengthen the independent innovation, promoting cluster scale expansion of advanced manufacturing "There are other hills where stones are good for working jade". The experience of the world's advanced manufacturing indicates that innovation and technology attaches great importance to industrial structure adjustment. The Mainly Manufacturing Structural component Curve shows that Guangzhou has stepped in the stage of electronic information, manufacturing equipment manufacturing industry, automobile, etc. as the leading industry. The industry has already become the most important pillar industry in Guangzhou formed a large scale and certain competitive advantage, and its relative share in the manufacturing industry is increasing.

Obviously, it is a correct direction to adjust the manufacturing structure in Guangzhou. In order to further

strengthen the embeddedness and market competitiveness of such industry, we should strive to strengthen the independent innovation, improve innovation resource allocation capabilities, construct the innovation carrier and platform, and improve the regionnal innovation system, promoting advanced manufacturing transform the "made in Guangzhou" into "innovative in Guangzhou".

The advanced manufacturing of Guangzhou has been developing rapidly in recent years. The focus and paths of its development should be planed to further increase its competitive advantage. Moreover, we should promote the expansion of advanced manufacturing cluster start with two points extending the industrial chain and making enterprise bigger and stronger. At the same time, it is important to note that the scale expansion of advanced industry cluster should avoid to become low-level and homogeneity. It is a measure to cultivate lots of giant bibcock enterprise of market competitive advantage forming a batch of high, refined, pointed products and brands which build up a number of high-quality advanced industry cluster. iv. Increase the intensity of support, and accelerate the development of potential strategic emerging industry Under the circumstance of the country promotes the development of strategic emerging industries, in the future, Guangzhou should focus on the national strategy, and pool resources to develop biomedicine, new materials, energy conservation, environmental protection, rail transportation equipment, nuclear power equipment and Marine engineering equipment, etc. Although this type of industry is still in its initial stage at present and the industrial proportion is not high, but upgrading of the industry must be carried out in the long term. Therefore these industries are full of great potential and broad prospects, and are also the direction of the economic development. As far as we can see, these industries will be the pillar industry of national economy in the future. Guangzhou is in the transitional period, so it should vigorously promote the development of emerging industry in order to grab the commanding heights of science and technology.

Based on the above consideration, it is necessary to constantly increase the support to potential strategic emerging industry, so that they can form its scale and competitive advantage as soon as possible. Government should pay attention to complete the system of the industrial policy, and give more discounts to this kind of industry in financial input, taxation, financing, etc. For the enterprises that have more leading ability, outstanding agglomeration features and those projects which have good economic benefit of technology innovation and technological transformation, the government should give more positive guidance and attract this kind of enterprises and projects located in Guangzhou. At the same time, the government can also guide the market demand through government procurement to support the promotion and application of emerging manufacturing product. In addition, the country can encourage to form a cross domain, crossindustry, cross-regional alliance of industry around the strategic emerging industry, promoting the strategic emerging industry of important regional resource configuration optimization and orderly development. [1]

Figure 1:

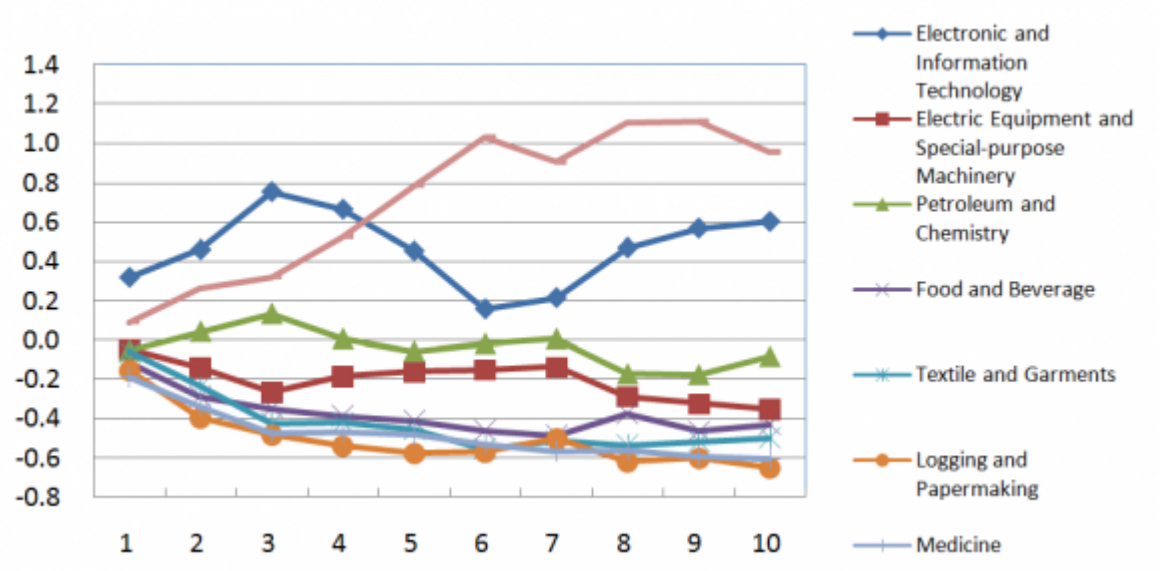

Figure 2:

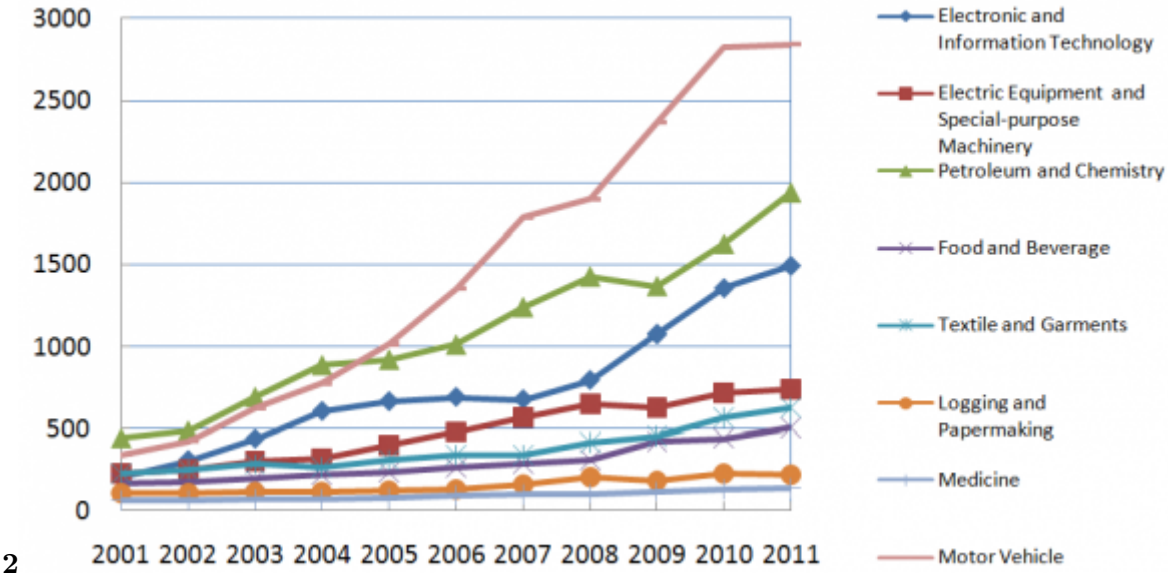

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Figure 3: Figure 2 :

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Output Value	Year	2001	2002	2003	2004	2005
Electronic and Information Technology		206.9297	306.0305	436.3698	607.3858	667.3737 693.35
Electric Equipment and Special-purpose Machinery		222.1659	246.9731	300.8052	316.0689	397.6001 476.34
Petroleum and Chemistry		441.8745	488.7314	693.8331	888.0777	921.5423 1012.9
Food and Beverage		164.7842	172.0396	192.8396	214.3245	233.2436 261.69
Textile and Garments		228.0730	250.6241	284.5794	268.3972	309.8316 341.13
Logging and Papermaking	105.6884	106.0397	109.8935	114.5358		120.2004 130.09
Medicine		61.5681	59.8[illegible]90295			77.5068

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Figure 4: Table 1 :

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Output Value	Year	1					2	3	4	5
Electronic and Information Technology		0.320					0.461	0.753	0.664	0
Electric Special-purpose Machinery Equipment and		-0.047	-0.143	-0.265	-0.185	-0.158	-0.151	-0.138	-0.288	-
Petroleum and Chemistry		-0.053					0.042	0.134	0.007	-0.059
Food and Beverage		-0.115	-0.290	-0.348	-0.388	-0.414	-0.464	-0.487	-0.376	-
Textile and Garments		-0.060	-0.233	-0.424	-0.421	-0.458	-0.556	-0.515	-0.537	-
Logging and Papermaking										
Motor Vehicle		0.091					0.262	0.318	0.527	0

[Note: -0.156 -0.394 -0.485 -0.537 -0.575 -0.572 -0.499 -0.618 -0.602 -0.650 Medicine -0.187 -0.334 -0.473 -0.469 -0.479 -0.528 -0.565 -0.561 -0.591 -0.603 b) Empirical outcome and analyzingWedraw the corresponding curve (as shown in figure1, 2), based on the data in table 1 and table2 for]

Figure 5: Table 2 :

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