Study on the Strategies for the Transformation and Upgrading of Private Manufacturing Enterprises in the West of China in the New Era

---- Analysis of the Top 500 Manufacturing Industry of Private Enterprises in China

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Abstract. In the new era, Chinese economy has changed from high-speed growth stage to high-quality development stage.The private manufacturing industry has become the important driving force of Chinese economic transformation and upgrading. How to optimize the industrial structure and upgrade the industry is of great significance for realizing the transformation from Chinese manufacturing to Chinese creation, from Chinese speed to Chinese quality, and from a big manufacturing country to a powerful manufacturing country. Based on the data of Chinese top 500 private manufacturing enterprises from 2011 to 2018, this paper studies the two indicators of the number of listed enterprises and the total business income. The development status and characteristics of private manufacturing enterprises in Western China are discussed firstly in this paper. Then, according to the regional characteristics, the development gap and existing problems of private manufacturing enterprises in eastern and western regions are analyzed through empirical research. The results show that from the overall level, the overall scale of private manufacturing enterprises in the western region is growing steadily, the profit level is also growing steadily, and the social contribution continues to increase. However, due to some problems of employment, such as scarce human resources, lack of technological innovation ability, difficult financing, and widening gap with eastern enterprises, the healthy development of enterprises is still significantly affected. Therefore, the difficulties faced by the western private manufacturing enterprises in the process of transformation and upgrading have been studied. The government level and the enterprise level are put forward relevant countermeasures and suggestions by combining the factors affecting the transformation and upgrading of enterprises. To ensure the completeness of Chinese manufacturing system and achieve balanced and coordinated development of the region, we can promote the transformation and upgrading of manufacturing industry in the western region and achieve high-quality regional economic growth.

1. Introduction

It is pointed out in the Report of the Nineteenth National Congress of the Communist Party of China that the economy has changed from the stage of high-speed growth to the stage of high-quality development as socialism with Chinese characteristics has entered a new era, which is the basic characteristics of the economic development at present. It is explicitly required that eight key tasks should be done to promote the high-quality development in the 2017 Central Economic Work Conference. In order to deepen the structural reform on the supply side, it is proposed to “promote the conversion from Chinese manufacturing to Chinese invention and from Chinese speed

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to Chinese quality, as well as constantly move towards a manufacturing power and to develop new momentum, strengthen scientific and technological innovation, push forward the optimization and upgrading of traditional industries, and cultivate a number of leading enterprises with innovation". Private manufacturing enterprises are important players in realizing the goal of "Made in China 2025" in the new era. A major challenge facing private manufacturing enterprises in western regions is to achieve innovative development while improving their qualities and efficiency.Based on the list of China's Top 500 Private Enterprises in Manufacturing Industry over the years, this paper analyzes the problems existing in the transformation and upgrading of the private manufacturing enterprises in western regions, and then puts forward feasible suggestions to clarify the thinking of promoting the high-quality development of the private manufacturing enterprises in western regions in the future.

2. Literature review

Throughout the study of the development of private manufacturing industry in China, the development of private and state-owned manufacturing industry is not in conflict, it has become the consensus of scholars that the relationship between the two is symbiotic development (Hong Gongxiang et al., 2018). In the early days, scholars' research focused on how to draw lessons from the development experience of state-owned manufacturing industry to make the private manufacturing industry turn the predicament into the opportunity. As the economic development condition of our country is becoming more and more mature, the scholars' research of the internal and external environment of the private manufacturing industry has become deeper. In the face of the competitive pressure brought about by internal, industry, region and different policy, the manufacturing industry needs to make appropriate optimization to avoid being eliminated (Meng Ying et al., 2012). In the study of this issue, a lot of achievements have been made, but there is still room for further improvement: Firstly, the development of private manufacturing industry is not yet mature, most of the successful cases of private manufacturing business occur in the eastern developed areas, scholars also focus on the east, there is insufficient research on the western private manufacturing industry. Secondly, the research on the western private manufacturing industry mostly stays in the single theoretical analysis of a western province, and there is room for expansion of the research on the macro comprehensive analysis of the western private manufacturing industry by using the specific data. Thirdly, the new economic era has brought domestic and international dual development opportunities to the western private manufacturing industry, but scholars have focused on the development of the western private manufacturing industry in the domestic market, and the research on the western enterprises to improve the level of opening to the outside world and achieve high-quality cross-border development is not deep enough.

To sum up, most of the previous literature is based on the overall situation of private manufacturing industry, less focused on the perspective of regional differences for analysis, and there is also a lack of comparative research on the top 500 manufacturing industry list of private enterprises in China. Therefore, this paper chooses the private manufacturing industry in the east and west of China as the research object, with the help of the list of the top 500 private manufacturing industries in China, investigates and analyzes the development gap and existing problems of the private manufacturing enterprises in the eastern and western regions from the two indicators of the number and revenue scale of the listed enterprises on the basis of combing the various data, and under the background of the new era and new strategy, it puts forward some suggestions for promoting the optimization and upgrading of the private manufacturing industry in the western region.

3. The Development Status of the Private Manufacturing Enterprises in Western Regions

3.1. Analysis from the Number of Enterprises on the List

3.1.1. The number of enterprises on the list is relatively small, having a large gap with the eastern region.

The number of enterprises in western regions entering the list is relatively small, and the percentage of the top 500 in some years has a downward trend.According to the data in Table 1, during the period from 2011 to 2018, the years with the largest number of enterprises shortlisted were 2013 and 2014, with 45 enterprises, accounting for 9.00% of the top 500 companies.The proportion in 2012 decreased from 8% to 7.2% compared with 2011. From 2014 to 2018, the proportion has been declining, from 9.00% to 6.38%. On the contrary, the proportion of shortlisted enterprises in the eastern region is above 70% in each year with the upward trend. On the whole, the gap between the eastern and western regions is obvious in terms of either the number of shortlisted enterprises or the growth of the proportion.

Table 1 The Number of Enterprises in Eastern and Western Regions Listed in Top 500 Private Enterprises in Manufacturing Industry from 2011 to 2018.

Region		2011	2012	2013	2014	2015	2016	2017	2018
east	quantity	386	323	362	367	234	251	224	266
	proportion of the top 500	77.20%	64.60%	72.40%	73.40%	80.20%	79.18%	79.43%	80.85%
west	quantity	40	36	45	45	25	25	19	21
	proportion of the top 500	8.00%	7.20%	9.00%	9.00%	8.25%	7.89%	6.74%	6.38%
Total		500	500	500	500	303	317	282	329

Note: From 2015 to 2018, there is no direct list of Top 500 Private Enterprises in Manufacturing Industry. Since manufacturing is the main part of the private enterprise in China (accounting for more than 50% each year), the author selects the data of the manufacturing industry from the top 500 private enterprises to replace the data of the top 500 private enterprises in manufacturing industry to obtain the data of these four years.

3.1.2. The overall strength is relatively weak, but enterprises in some provinces such as Sichuan and others have obvious advantages in development.

According to the list from 2011 to 2018, there are only 8 provinces including Sichuan and Chongqing with enterprises on the list. There is no enterprise being shortlisted in Gansu, Guizhou, Tibet and Qinghai. The number of the enterprises on the list is largest in Sichuan Province, with 97 enterprises, higher than that in Hainan Province and Tianjin in the eastern region. Most of the shortlisted enterprises are from Chongqing, Yunnan and Inner Mongolia. Among them, the number of shortlisted enterprises in Chongqing and Inner Mongolia keeps increasing over past three years, while the number is relatively small in Shannxi and Xinjiang, with only about 10 shortlisted enterprises.The above analysis shows that the overall strength of the enterprises in western regions is not strong. There are obvious competitive advantages in Sichuan, followed by Chongqing, while the competitiveness of the enterprises in Guangxi, Shaanxi and Xinjiang are far behind that in other provinces.

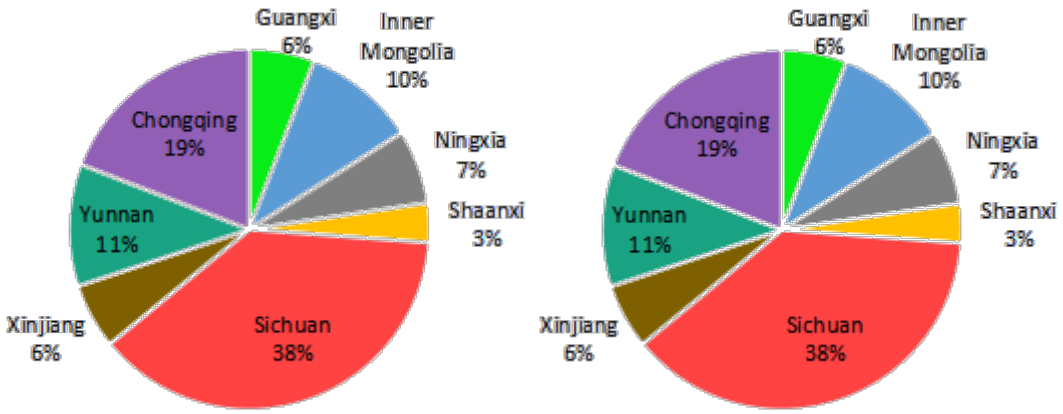

Figure 1 The Number of Enterprises in Western Provinces Listed in Top 500 Private Enterprises in Manufacturing Industry from 2011 to 2018.

3.1.3. The list changes greatly and the sustainability of development needs to be strengthened.

The list is changing greatly, with only 9 companies including Sichuan Chuanwei Group Co., Ltd. listed for 8 consecutive years. From 2011 to 2018, there are 20 enterprises being shortlisted for over 4 times, accounting for 24.39%. The number of enterprises being listed is mainly 1 to 2 times, which has exceeded 50%. Most of the enterprises ranked in the top are listed more than 4 times, while the enterprises ranked in the bottom have weak sustainability. For example, Guangxi Fufeng Group Co., Ltd., ranked 470th in 2011, was on the list only once.

Table 2 The Frequency of Private Enterprises in Western Regions Being Listed in Top 500 Private Enterprises in Manufacturing Industry from 2011 to 2018.

the time of being listed (times)	1	2	3	4	5	6	7	8
the quantity of enterprises	34	11	7	10	2	6	3	9

3.2. Analysis from the Revenue of Enterprises on the List

3.2.1. The income scale is small and its growth is not obvious.

From 2011 to 2018, the operating income of the listed enterprises has an overall upward trend, increasing from 388.356 billion yuan to 842.619 billion yuan with rising income scale, profit level and social contribution. The total income of western enterprises in the past eight years is about 1/12 of that of eastern enterprises with the rising disparity between the income scale of eastern and western enterprises. The proportion of the income of enterprises in western regions each year is between 5.5% and 7.5%, and the change is generally not obvious.

Table 3 The Income Scale of Enterprises in Eastern and Western Regions Listed in Top 500 Private Enterprises in Manufacturing Industry from 2011 to 2018 (a hundred million yuan).

Region		2011	2012	2013	2014	2015	2016	2017	2018
east	quantity	44415.73	49961.51	62845.10	78000.14	75658.76	85155.45	89736.37	128354.34
	proportion of the top 500	82.13%	69.12%	79.07%	81.06%	82.77%	83.83%	84.82%	84.30%
west	quantity	3883.56	4094.97	5907.29	7110.58	6371.97	7239.98	6559.99	8426.19
	proportion of the top 500	7.18%	5.66%	7.43%	7.39%	6.97%	7.13%	6.20%	5.53%
Total		500	500	500	500	303	317	282	329

3.2.2. The revenue range has widened, but there is a lack of large-scale enterprises.

Enterprises in western regions with a total operating income of 10 to 50 billion yuan account for the vast majority. From 2011 to 2014, there were a large number of enterprises with low and

medium incomes while there was no private manufacturing industry with a total income of over 50 billion yuan. From 2015 to 2018, the range of enterprise revenue has been widened, and the companies with total revenue of more than 50 billion yuan have begun to emerge, and gradually increasing. However, the large-scale enterprises with a total income of more than 100 billion yuan have not yet appeared.

Table 4 The Income Structure of Enterprises in Eastern and Western Regions Listed in Top 500 Private Enterprisesin Manufacturing Industry from 2011 to 2018.

Total operating income (100 million yuan)	Quantity of Enterprises															
	2011		2012		2013		2014		2015		2016		2017		2018	
	east	west	east	west	east	west	east	west	east	west	east	west	east	west	east	west
≥1000	3	0	4	0	7	0	11	0	11	0	11	0	13	0	22	0
≥500＜1000	6	0	14	0	10	0	16	0	18	1	26	2	25	4	56	6
≥100＜500	114	15	126	21	155	21	185	23	200	24	213	23	187	15	294	23

3.3. Analysis from the Classification of Enterprises on the List

The listed enterprises in the western regions belong to 22 industries (there are 32 types of manufacturing industries). The top three industries are ferrous metal smelting and calendering industry, nonferrous metal smelting and calendering industry as well as automobile manufacturing industry which are traditional technology manufacturing industries with low added value and high energy consumption. However, sunrise industries such as computer, communication and other electronic equipment manufacturing account for only 0.39%, and even some sunrise industries do not enter the top 500. Although enterprises in western regions cover a wide range of industries, most of them are sunset industries.

3.4 Analysis from industrial structure

Based on the situation of industrial structure in China's Statistical Yearbook from 2011 to 2018, it can be seen that the eastern and western regions have shown different industrial structures in recent years. The tertiary industry in the eastern region accounts for the largest proportion of GDP, followed by the secondary industry, and finally the primary industry. In the western region, the secondary industry is the main industry, the proportion of the tertiary industry in GDP is the second, and the proportion of the first industry in GDP is the least. Compared with the eastern region, the development of the tertiary industry in the western region is slightly inadequate, and there is still room for optimization of its industrial structure. The reason lies in the lack of a powerful strategic dynamic mechanism to promote the optimization of industrial structure in the western region, the original strategic planning pays more attention to the speed of the development of enterprises in the western region, it is urgent to narrow the gap between the scale and revenue of the enterprises in the east and west, and pay a little attention to the coordination and rationality of the internal industrial structure of the enterprises.

4 The Difficulties Faced by the Private Manufacturing Enterprises in Western Regions

4.1. There is a serious shortage of human resources.

Influenced by the traditional concept of employment, fresh graduates give priority to civil servants, public institutions and state-owned enterprises when choosing jobs followed by the

foreign-funded enterprises, and the last is private enterprises. From this point of view, we can see that private enterprises are not very attractive to graduates. Because of the regional disparity in economic development, high-level talents are more inclined to go to the developed areas in the central and eastern regions to pursue better self-development. Since the 1980s, the outflow of talents from the west has been more than twice the inflow, which has led to the imbalance in the structure of human resources in western regions and a relative shortage of high-tech industries and people with complicate skill.

4.2. Lack of scientific and technological innovation capability

According to a survey by Chinese Academy of Social Sciences in 2017, only 31.33% of private enterprises establish the research and development institutions, and 35.18% of them show technological improvement in their products. These show that the overall level of scientific and technological innovation of private enterprises in China is comparatively low, especially in western regions. Innovation investment in western regions has increased from 2011 to 2017, but the proportion of R&D funds in regional GDP is less than 10% each year. The low proportion of innovation subjects and output indicates that the low level of enterprise technology and insufficient investment in innovation are the issues to be solved urgently to improve the creative ability in western regions.

Table 5 Scientific Research Innovation of Enterprises in Western Regions from 2011 to 2017.

Year		2011	2012	2013	2014	2015	2016	2017
Innovation input	R&D/GDP(west)	5.96%	6.46%	6.69%	6.93%	7.08%	7.41%	7.53%
Innovation subjects	R&D personnel of industrial enterprises above designated size (Proportion of West in China)	9.02%	9.33%	9.71%	10.00%	9.59%	9.73%	10.14%
Innovation output	Number of Patents Authorized in China (Proportion of West in China)	8.62%	9.20%	10.73%	11.47%	12.74%	13.27%	11.95%

4.3. It is difficult and costly to obtain financing

Financing is difficult and expensive, which has always been a critical element restricting the development of private economy. According to the research report of the Chinese Academy of Financial Sciences, the average financing scale of private enterprises dropped down from 599 million yuan to 460 million yuan from 2015 to 2017. Compared with the state-owned enterprises, the small and medium-sized private enterprises are short of capital and technological innovation with laggard management system and high risks, which make it difficult for them to get the support of relevant investment departments. The lack of a perfect financial statement system may lead to false accounting information, thus reducing the willingness of investors. In addition, the asymmetry of information has aggravated their financing dilemma.

5 Conclusions and recommendations

The author has a clearer judgment on the present position and future development direction of the western private manufacturing industry through the comparison of the Top 500 list of China's private manufacturing industry in each year. In the context of the new economic era, the thoughts

and actions of the government and enterprises in the western region should be consistent with the central government's strategic understanding and judgment, conform to the optimization direction of private enterprise, promote the private manufacturing industry in the western region to eliminate backward production capacity and change to the ecological direction. Introduce scientific and technological talents for the western region, encourage private manufacturing industries to innovate independently and change to high-tech ones, seize the opportunity of strengthening international cooperation in the new economic era, devote themselves to the construction of “Belt and Road Initiative”, and transform to international development. Under a series of internal and external optimization, the western private manufacturing industry will give full play to its own characteristics, make up for the weakness of the location, and realize the sustainable development of enterprises. The specific recommendations are as follows:

5.1.At the government Level

5.1.1 Strengthen the strategic support in the western region

On the basis of the original policy, the great western development plan will continue to be implemented. Now it has entered the stage of sprint in the development of the western region, the strategic arrangement focuses on cultivating the internal motive force of western economic development, implementing the overall upgrading of economic industrialization, marketization, ecology and professional layout, which provides a policy guarantee for the good development of western private manufacturing industry. In 2017, the new channel of land and sea, a major channel of international trade logistics built in cooperation between the western region of China and ASEAN countries, was opened, this strategic arrangement has benefited cities in the western part of the route, western enterprises need to speed up transformation and upgrading, tap their internal development potential, and seize new opportunities for open up and development. <Report on the work of the Government> in 2019 clearly puts forward that new measures for the development and opening up of the western region should be formulated, and three key points of “great protection”, “great opening” and “high quality” should be established in the next stage of development, it is necessary to perfect the development environment of the western enterprises; the opening level of the western enterprises to the outside world should be improved; talents to work in the western region should be guided; and the western enterprises to create innovation should be encouraged.

5.1.2. Formulate appropriate industrial policies and develop characteristic manufacturing industries

The western regions are relatively vast with different factor endowments and comparative advantages in different countries. It should be led by the government to build a development plan for western regions and characteristic industrial clusters with competitive advantages based on the regional difference. For example, Chongqing is the center of innovation in western regions, Chengdu is the core growth pole for the western development, and Xi 'an is the city of “the belt and road initiative”. Based on these three major central cities, megalopolis and national-level economic and technological development zone, a cooperative, open and regional manufacturing development zone will be built to create a situation in which different regions are developing in a staggered way to make full use of the advantages of resources in different regions, forming mutual support and avoiding building redundant project and vicious competition.

5.2. At the Enterprise Level

5.2.1. Strengthen Information Construction and Boost Transformation and Upgrading with Data Economy

The transformation of manufacturing industry to digitalization, intelligence and service is the general trend of industrial upgrading. The private manufacturing enterprises in western regions should support the information construction and utilize the digital technologies including big data and cloud computing in design, research and development, production and after-sales service. Set up the concept of “taking customers as the center”, and make full use of big data to understand customer needs in order to realize accurate services. Provide remote online services, product life cycle management, and network precision marketing to promote the transformation from production-oriented manufacturing to service-oriented manufacturing.

5.2.2. Continue the Industrial Transfer and Innovative Development

According to the above analysis, the main force to promote the development of manufacturing industry is in the eastern region, no matter from the number of shortlisted enterprises, revenue or industry distribution. At the beginning of the reform and opening up in the last century, the eastern region first undertook the transfer of international manufacturing industry depending on its policies and geographical advantages, and achieved great economic development, which proved that the transformation and upgrading could be achieved by undertaking. At present, the private manufacturing industry in western regions lacks the ability of self-innovation and self-development. The main way to realize the upgrading of western manufacturing industry is to rely on its superior resources to undertake the transfer of manufacturing industry at home and abroad. The industries to be undertaken should have competitive advantages. For example, Inner Mongolia chose 6 industries of agricultural and sideline food, beverage, tobacco, petroleum, chemical raw materials and metal while Sichuan select 6 industries of agricultural and sideline food, beverage, petroleum, chemical raw materials, chemical fiber and metal. At the same time, the cultivation of the self-innovation ability cannot be ignored. Coordinate undertaking and self-development to promote the structural upgrading of the private manufacturing industry in western regions.

5.2.3. Actively Participate in the Construction of “the Belt and Road Initiative” to Improve the Development Quality

“The belt and road initiative” will bring a great opportunity for the private enterprises in western regions. At present, the export commodities are mainly mechanical and electrical products. Sichuan and Guangxi have begun to export high-tech products. The private manufacturing enterprises should seize the construction opportunities brought about by the foreign trade pilot, transformation demonstration bases, Free Trade Area, etc., and “go out” through export, foreign direct investment, international strategic alliances, cross-border mergers and acquisitions, etc. And promote the high-quality development by further expanding the breadth and depth of opening up to the outside world.

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