

Research on the Integration Development of Shaanxi Manufacturing Industry and Producer Services

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ABSTRACT

Industrial integration is the key to driving the high-quality development of manufacturing industry and producer services. Manufacturing industry is the pillar of Shaanxi industry, and producer services provide strong support for manufacturing industry. The study found that the integration degree of Shaanxi manufacturing industry and producer services has been continuously improved in recent years. In order to promote the deep integration of the two industries, there are two paths: the extension of manufacturing industry to producer services and the penetration of producer services to manufacturing industry. The research conclusions provided theoretical guidance for industrial development.

Keywords: Integration development, Manufacturing industry, Producer services

1. INTRODUCTION

Manufacturing industry is the main body of the real economy. The high-quality development of manufacturing industry is related to the overall situation of high-quality economic development. The integration of manufacturing industry and producer services is an important way to adapt to industrial reform, enhance the core competitiveness of manufacturing industry and cultivate modern industrial system. In recent years, the government departments have introduced a series of policies to promote the development of industrial integration. The research on industrial integration is also the focus of scholars, especially in the field of manufacturing industry and producer services. The related researches mainly focus on the mechanism analysis [1] and level measurement of industrial integration [2]. Taking Shaanxi Province of China as an example, this paper analysed the current development status of manufacturing industry and producer services, and on this basis, analysed the integration of the two industries, and put forward the integration development paths.

2. PRESENT SITUATION ANALYSIS

2.1. Development status of manufacturing industry

In recent years, Shaanxi industry has developed rap-

idly, as shown in Figure 1. Manufacturing industry is an important part of industry, it has become a pillar industry in Shaanxi Province. According to the statistical data, In 2019, the total output value of manufacturing industry above scale in Shaanxi Province was 1890,723 billion yuan, an increase of 38.1% compared with 2014. Profit for manufacturing industry above scale reached 9.724 billion yuan, up 25.8% from 2014.

The study found that the proportion of different types of manufacturing output value in the total manufacturing output value in Shaanxi Province has changed. The proportion of capital-intensive manufacturing industry decreased from 62.2% to 59.1%, the proportion of labour-intensive manufacturing industry decreased from 22.5% to 21.6%, and the proportion of high-tech manufacturing industry increased from 15.4% to 19.0%, which reflected the continuous optimization of the industrial structure of manufacturing industry [3]. Nevertheless, the unbalanced development of various industries within the manufacturing industry in Shaanxi Province is still its remarkable feature. At present, competitive industrial products in Shaanxi Province are mainly concentrated in the field of energy. Strategic emerging industries and advanced manufacturing industries have not been fully developed, especially the development scale of new generation information technology, biomedicine, new materials and other industries is still small. Compared with other advanced provinces and cities in China, manufacturing industry of Shaanxi has

many outstanding problems, such as "small total amount", insufficient innovation ability, low economic benefits, lack of core technology, low-end industrial chain. There is a huge gap with high-quality development goals.

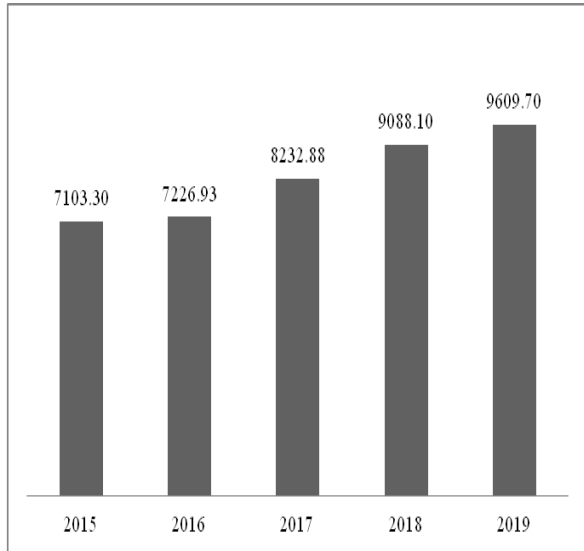


Figure 1 The industrial added value of Shaanxi (Unit: 100 million yuan).

Data source: Shaanxi Statistical Yearbook -2020.

2.2. Development status of producer services

Producer services mainly include wholesale and retail trades, transport, storage and post, information transmission, software and information technology services, financial intermediation, real estate, leasing and business services, and scientific research and technology services. In recent years, producer services in Shaanxi Province have developed rapidly. According to the statistical data, from 2015 to 2019, the value added of producer services in Shaanxi Province increased from 366.393 billion yuan to 647.462 billion yuan, with an increase of 76.42 %. The investment in fixed assets increased from 270.4 billion yuan to 384.555 billion yuan.

From the internal structure of producer services, the various sub-sectors are developing rapidly, such as wholesale & retail trades, transport, storage and post, financial intermediation, as shown in the Figure2 to Figure4. It can be seen from the figure that the scale of producer services in Shaanxi Province has grown steadily. The status of modern producer services is becoming increasingly important, becoming a new driving force for economic growth and strongly supporting the development of manufacturing.

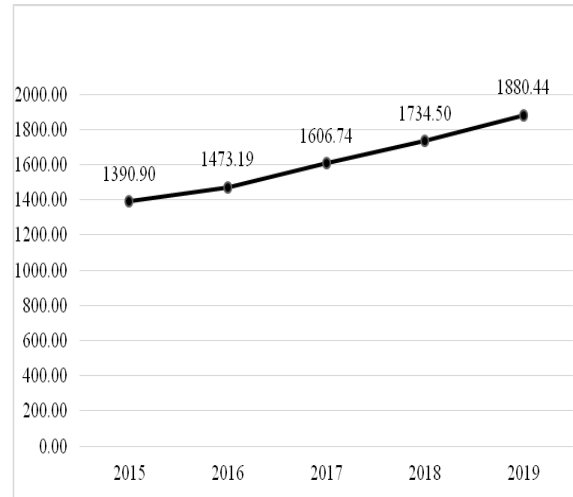


Figure 2 The added value of wholesale & retail trades (Unit: 100 million yuan).

Data source: Shaanxi Statistical Yearbook -2020.

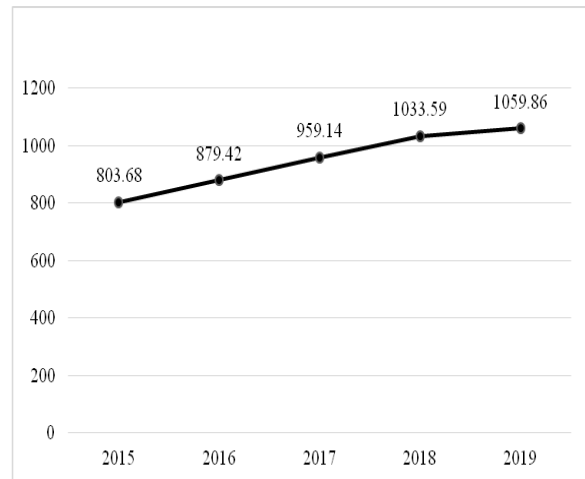


Figure 3 The added value of transport, storage and post (Unit: 100 million yuan).

Data source: Shaanxi Statistical Yearbook -2020.

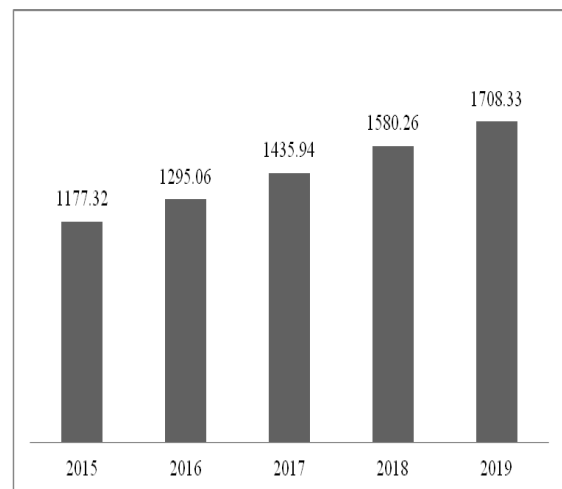


Figure 4 The added value of financial intermediation (Unit: 100 million yuan).

Data source: Shaanxi Statistical Yearbook -2020.

3. INDUSTRIAL INTEGRATION DEGREE ANALYSIS

The idea of industrial integration originated from the concept of technological integration proposed by Rosenberg (1963), the same technology can be adopted between different industries to achieve technology penetration [4]. The measurement methods of industrial integration mainly include coupling coordination degree model and input-output method. Su Y. W. (2020) constructed an industrial integration measurement model using industrial proximity and industrial development reconciliation index to measure the degree of integration. Based on the provincial panel data from 2005 to 2018, the integration level of 31 provinces in China is calculated. The results of Shaanxi Province from 2014 to 2018 is shown in Figure 5 [5].

It can be seen from the figure that the industrial proximity of manufacturing industry and producer services in Shaanxi Province showed a downward trend, from 0.8765 to 0.8307, while the coordinated development index showed an upward trend, from 0.7503 to 0.9195. The industrial integration degree of manufacturing industry and producer services was increasing year by year, from 0.8110 to 0.8739. This was related to the continuous optimization of the internal structure of the manufacturing industry, the gradual increase in the proportion of the output value of the high-tech manufacturing industry, and the rapid development of producer services, which even exceeds the manufacturing industry. The related research found that Industrial integration is an important driving force for the upgrading of manufacturing , which promotes the development of manufacturing through cost effect, agglomeration effect and innovation effect [6].

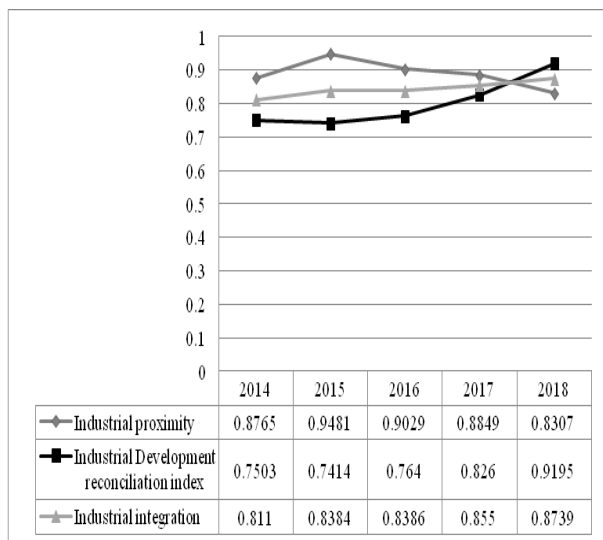


Figure 5 Integration degree of Shaanxi manufacturing industry and producer services. Data source: From reference [5].

4. INTEGRATION DEVELOPMENT PATH

In order to promote the deep integration of manufacturing industry and producer services, this paper proposed the following development paths, as shown in Table 1.

4.1. Extension of manufacturing to producer services

Manufacturing servitization should be accelerated and manufacturing-based service systems should be established. The integration path of input service and output service can be applied. For example, the integration mode based on the improvement of element structure and manufacturing efficiency, or the integration mode based on the improvement of user value and expansion service.

The industrial chain of the manufacturing can be extended to technology research and development, product customization, and achievement transformation to improve the technological content and output value of products. It can be extended to modern service industries such as information services, smart cities and e-commerce, and the market can be expanded to product promotion and after-sales service.

4.2. Penetration of producer services into manufacturing

Producer services closely related to manufacturing industry should be actively developed, and modern service enterprises should rely on data-driven, network operation and other advantages to penetrate into the manufacturing field. Around information technology, modern logistics, industrial design, digital finance and other services, new models and new formats of deep integration with manufacturing industry have been explored. The manufacturing is promoted to high-quality development by innovative production services with high technology and high value-added. Especially with the rapid development of digital technology, the process of digitalization, remoteness, automation and intelligence of producer services is accelerating. In the future, the level of industrial digitalization should be improved to effectively support the high-quality development of manufacturing industry.

Table 1. Integration path and applicable strategies

Integration path	Applicable strategies
manufacturing industry to producer services	Personalized customization service; General integrated general contracting service; Financial leasing services; Life cycle service
producer services to manufacturing industry	Modern logistics service; R&D; Information technology; Digital finance; Supply chain management

5. CONCLUSION

Industrial integration is a new trend of modern industrial development. Promoting the deep integration of manufacturing and producer services is the key to achieving high-quality development of manufacturing industry. In recent years, manufacturing and producer services in Shaanxi Province have developed rapidly, but there are still some problems. It is found that the integration level of producer services and manufacturing in Shaanxi Province is increasing year by year, and the degree of coordinated development among industries is increasing.

In order to build a modern industrial system and promote high-quality economic development, the deep integration of producer services and manufacturing must be promoted in Shaanxi Province. In the future, deep integration can be achieved through two paths. First, manufacturing industry extends to producer services, and manufacturing enterprises are encouraged to carry out corresponding service business, such as Personalized customization service, product life cycle, integrated operation, etc. Second, producer services penetrate into the manufacturing industry, and support the high-quality development of manufacturing industry with modern service system, such as Information technology; Digital finance; Supply chain management, focusing on the development of the logistics industry and the financial industry.

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