Analysis of The Effect of Fiscal Policy on The Upgrading of Industrial Structure

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ABSTRACT

At present, China has entered the stage of high-quality economic development, in order to promote the stable and healthy development of the economy, the transformation and upgrading of China's industrial structure is imminent. In the process of economic development, the government's macro-control has played a non-negligible role, and promoting the strategic adjustment of the economic structure is a necessary prerequisite for promoting high-quality economic development, and its core is the transformation and upgrading of the industrial structure. The upgrading of industrial structure has a positive role in promoting economic development, and the continuous development of industrial structure towards rationalization and upgrading will inevitably drive the healthy and high-quality development of the economy. At present, China has begun to carry out industrial structure transformation, especially through fiscal policy, which is a means of macroeconomic regulation and control. However, the role of fiscal policy in the transformation of industrial structure has not been smooth. In view of this, this paper will focus on the effect of fiscal policy on the upgrading of industrial structure. This paper uses the data of Hubei province from 2007 to 2017 to analyze its utility through dynamic panels, and empirically shows that fiscal policy can significantly promote the development of industrial structure in the direction of upgrading, and has a significant role in promoting the transformation and upgrading of industrial structure, while this role is not lagging behind, and the government should use appropriate fiscal policies to make it play its due role.

Keywords: *Fiscal policy; Industrial structure; Advanced industrial structure*

1. INTRODUCTION

1.1. Background and significance of the topic

Since reform and opening up, our country's economy with the rapid development of demographic dividend, but with the development of economy, our country's labor costs rise, the loss of the demographic dividend makes China's economic development board also gradually exposed, low value-added industries proportion is too large, high value-added industries less, caused our country's industrial structure is not reasonable. The current our country's economy has entered the stage of high quality development from the high speed development, the rapid development of Internet makes a great change of the traditional industries, new opportunities and challenges emerge in endlessly, the third industry headed by services has grown, but the proportion of service industry of our country dimension in economic is still lower than the developed countries and the world's average level.

Hubei province is a big province in central China, known as the thoroughfare of nine provinces. Since reform and opening up, it has an important role that cannot be ignored in the middle of our country. However, there are considerable deficiencies in the industrial structure of Hubei Province. In 2019, the proportion of tertiary industry in Beijing reached 83.5 percent, Shanghai 72.7 percent and Tianjin 63.4 percent. The proportion of tertiary industry in Hubei's GDP was only 50.4 percent, lower than the national average of 53.9 percent. In view of this, this paper takes Hubei Province as the starting point to study, which is not only conducive to providing direct evidence for the relationship between fiscal policy and industrial structure optimization in Hubei Province, but also conducive to putting forward targeted policy suggestions, which is conducive to the healthy, high-speed and stable development of local economy.

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1.2. Review of the literature

The concept of industrial structure in the economic field was first produced in the 1940s. Domestic scholars have their own understanding of industrial structure transformation. Zhou Zhenhua was the first to propose that industrial structure transformation requires industry to have elasticity and vitality. Elasticity is now reasonable in the distribution of production factors Dan, and vitality is reflected in advanced. Tong Youhao believes that industrial structure upgrading is the embodiment of a law in the process of regional economic development, which is jointly determined by the level of productivity and the level of science and technology, and the more high-tech the productivity is, the more developed the structure of industry tends to be advanced [14].

Domestic scholars have searched for the theoretical basis for the intervention of fiscal policy in industrial structure transformation from several perspectives. For the phenomenon of government intervention in industrial restructuring, Dai Peng puts forward economic reproduction theory, government function theory and public goods theory as its theoretical support. By analyzing fiscal policy to support the development of logistics industry [4], Hu Ji-xue argues that public goods theory, externality theory, infant industry protection theory, and developmental state theory are the theoretical bases of fiscal intervention [6]. Lin shows that it is possible for governments in developing countries to lead industrial structural changes by elaborating the theory of "neo-economics", and explores implementable policies to promote economic restructuring and transformation from the perspective of "structural economics".Jianke-Cheng (2014) analyzed that fiscal policy mainly influences the demand structure and the return on investment of enterprises through government expenditure and taxation policies respectively, which further influences the investment structure of enterprises and the transformation of industrial structure [8]. Yan Chengliang constructed a model of industrial structure including fiscal spending, and then analyzed the mechanism of the role of fiscal spending on industrial structural transformation. Jia Jingquan and Yin Lisong also build a theoretical model of industrial structure covering multiple effects based on the same multisectoral model to illustrate the mechanism of the role of fiscal spending on industrial structure [7].

Nutter concluded from a quantitative study of fiscal policy from 1976 to 1999 that both fiscal spending increases and tax reduction policies have positive effects on the growth of the tertiary sector, and tax reduction policies have more significant effects on industrial structure than spending policies. Lichtenstein found that increased government fiscal spending is beneficial to increase market of effective demand, through demand-side reforms and thus promoting the optimization and upgrading of industrial structure. Jianke-Cheng used a dynamic panel model to investigate the mechanism of the role played by fiscal and tax policies in industrial structure upgrading using data from all Chinese provinces from 2004 to 2014, and the results showed that spending policies have a certain inhibitory effect on industrial structure optimization and upgrading, and tax policies have a certain promotional effect on industrial restructuring [1]. Sun Zheng chose the PVAR model to discuss the role of dynamic shocks played by tax policy in emerging industries and showed that tax incentives play a positive role in emerging industries in the long run [13]. Shi, Zhenguo concluded that tax policy acts on industrial structure mainly by affecting labor income, influencing savings, and promoting technological progress. Chen, Mingyi and Wang, Lulu studied the data of Yangtze River Delta region through a systematic GMM model to analyze the impact of income tax and turnover tax on industrial structure optimization and concluded that excessive tax burden will have a suppressive effect on the development of industrial structure optimization.

However, a considerable number of scholars have different views that [2]. Kruger through the study of relevant data of secondary industries in developing countries, shows that the total factor productivity of industries that do not enjoy the corresponding fiscal policy is higher than that of industries that enjoy the fiscal policy. the study of Geyser finds that the current fiscal policy has certain limitations in the advanced industrial structure Spence explores the positive and negative aspects of the role of expenditure policy from the perspective of policy efficiency and lagging effects, and finds that the promotion effect has an unstable phenomenon.

1.3. Literature review

In China, especially after entering the 21st century, the literature on fiscal policies to promote industrial restructuring in China has been emerging. Scholars basically agree on the role of China's fiscal policy on industrial restructuring, that is, they all agree that fiscal policy, as an integral part of the national macro-control policy, plays a certain role in the process of industrial restructuring. Moreover, the tools of fiscal expenditure and taxation used in the process of adjustment can also basically reach a consensus, the tools of fiscal expenditure are mainly government investment, government purchase, transfer payments, etc.; the tools of taxation are mainly reflected in the taxation of fiscal revenue, i.e., the beneficial guidance of resource allocation through tax preferences, promoting the reasonable flow of production factors within and between industries, so as to influence the Industrial structure adjustment [3].

1.4. Research methods

In this paper, the most advanced research methods and models at home and abroad are absorbed as far as possible according to the research object, and the effect of fiscal policy on industrial structure transformation and upgrading in Hubei province is analyzed by combining qualitative analysis with quantitative analysis [11]. This paper analyzes the effect of fiscal policy on industrial structure transformation theoretically and uses econometric model to test the effect of fiscal policy on industrial structure transformation and upgrading in Hubei Province.

The first is to collect and process relevant data. The accuracy of empirical analysis depends to a certain extent on the choice of industrial structure transformation as an explanatory variable, Considering the availability of data, this paper selects the ratio of secondary and tertiary industries as the index of industrial structure upgrading, and measures the optimization index of industrial structure. At the same time, considering that the optimization of industrial structure is a continuous and dynamic process, this paper introduces the first-order lag term of the explained variable when setting the model, establishes the corresponding dynamic panel model, and uses the more efficient system GMM method to estimate.

2. RESEARCH HYPOTHESIS

As an important tool of macro-control, fiscal policy plays a very important role in the transformation of industrial structure. Fiscal policy mainly transmits government intentions through financial revenue and expenditure arrangement, affects the macroeconomic environment, has an effect on micro-economic subjects, changes the supply and demand sides through multiplier effect, output effect, substitution effect and so on, and finally has an impact on the upgrading of industrial structure [9]. The premise that fiscal policy promotes the advanced industrial structure is that fiscal policy influences the transmission mechanism of industrial structure transformation effectively. This part will be divided into fiscal expenditure and tax respectively. Fiscal expenditure has two effects on industrial structure transformation: total and structure.

Based on the above analysis, this paper proposes the following hypotheses:

H1: Fiscal policy can significantly promote the upgrading of industrial structure.

3. DATA SOURCES AND INDICATORS

3.1 Selection of advanced industrial structure indicators

Based on the hysteresis effect and endogeneity of dependent variables that may exist in panel data, a dynamic panel model is established in this paper, and the first-order hysteresis term of explained variable (IND) is introduced into the model. Specifically, the explained variable (IND) is an indicator of the advanced industrial structure, and is the ratio of the output value of the tertiary industry and the secondary industry in Hubei Province. If the IND index shows a rising trend, it means that the industrial structure is evolving towards service-oriented and advanced direction [5].

3.2 Selection of fiscal policy indicators

Fiscal policy is the core explanatory variable of this paper, which is measured by fiscal revenue and fiscal expenditure. Therefore, this paper adds two core explanatory variables "fiscal expenditure (G)" and "fiscal revenue (GR)" into the model. At the same time, considering that the impact of fiscal policy on industrial structure may have a certain lag, the lag order of G and GR is added into the model as a new variable to study whether it has a lag.

3.3 Selection of control variables

Based on the model built by Chen Lu (2021), this paper adds urbanization level (urban), per capita consumption level(consum) and openness degree (Open) into the econometric model to estimate the impact of urbanization level, per capita consumption level and openness degree on the optimization of industrial structure.

3.4 Pre-processing of data sources

Empirical analysis in this chapter are collected from 2007 to 2017 in Hubei province secondary industry output value, the tertiary industry output value, fiscal revenue, fiscal expenditure, ratio of urban population accounted for, residents' consumption level, import and export trade and other indicators to empirical studies of fiscal policy effect on the fundamentals of the industrial structure, the data from the National Bureau of Statistics and statistical yearbook of hubei province.

4. EMPRICAL ANALYSIS

4.1 Regression model construction and analysis

After the correlation analysis of the data, the results show that the correlation coefficients between the important variables in the model reach a significant level,

and the two variables of fiscal policy are significantly positively correlated with the index of industrial structure upgrading, indicating that fiscal policy can have a positive impact on the upgrading of industrial structure.

In order to reduce the negative impact of heteroscedasticity and abnormal terms, all independent variables and explained variables are logarithms, and the regression model established according to the selected model variables is as follows:

$$\ln ind_{it} = \alpha_i + \gamma_1 ln\ ind_{it-1} + \beta_1 ln\ g_{it} + \beta_2 ln\ g_{it-1} + \beta_3 ln\ gr_{it} + \beta_4 ln\ gr_{it-1} + \theta_1 ln\ urban_{it} + \theta_2 ln\ consum_{it} + \theta_3 ln\ 0pen_{it} + \varepsilon_{it}$$

Among them, ind_{it} Represents the ratio of the secondary industry to the tertiary industry in region I in period T, gr_{it} Represents the financial expenditure of region I in period T, gr_{it} Represents the fiscal revenue of region I in period T; $urban_{it}$ Represents the urbanization level of region I in period T; $consum_{it}$ Represents the per capita consumption level of region I in period T; $open_{it}$ Represents the openness degree of region I in period T, ε_{it} As the random error term set for the observed image variables that may exist in the model.

If endogeneity problems exist among model variables, the accuracy and validity of empirical results will be affected. Therefore, this paper first uses the Hausmann test to test endogeneity problems. Prob>Chi2 and greater than 0.1 do not reject the null hypothesis, and there is no endogeneity problem among variables in this paper.

4.2 Calculation results of the model

This paper uses dynamic panel model to empirically analyze the effect of fiscal policies on industrial structure upgrading in Hubei province from 2007 to 2017.The results are shown in Table 1.

Table 1 Dynamic panel regression model

	(1)	(2)	(3)	(4)
VARIABLES	lnind	lnind	lnind	lnind
L.lnind	1.132***	0.111*	1.005***	0.448***
	(0.0733)	(0.073)	(0.148)	(0.073)
lngr	-0.550**	-2.033*	-0.295***	-4.109***
	(0.200)	(0.874)	(0.006)	(0.013)
L.lngr			0.305	-0.534
			(0.339)	(0.926)
lng	0.497*	0.399***	-0.438**	0.693***
	(0.220)	(0.023)	(0.170)	(0.052)
L.lng			-0.132	0.801
			(0.211)	(1.589)
lnconsum		1.924**		3.215
		(0.593)		(3.316)
lnurban		-0.121		0.359
		(1.431)		(1.885)
lnopen		1.681*		3.818
		(0.704)		(4.724)
Constant	-0.593	-5.354	0.230	-10.91
	(0.582)	(4.256)	(0.938)	(12.66)
Observations	10	10	10	10
R-squared	0.937	0.978	0.958	0.984

Robust standard errors in parentheses

*** P <0.01, ** P <0.05, * P <0.1

The empirical results show that: first, variables $\ln ind_{it-1}$ It is significant at the level of 1%, indicating that the first-order lag term of the advanced index of industrial structure has a great influence on the current

value. From the regression results of core explanatory variables, fiscal expenditure variables (ln gr) the current value is significant at the level of 1%, and its regression coefficient is 0.693, indicating that every 1% increase in fiscal expenditure, the advanced level of industrial structure increases by 0.693% in the same period. In addition, the lag first order of this variable is not significant, indicating that fiscal expenditure has a very obvious promoting effect on the upgrading of industrial structure in the same period, but the lag effect is not obvious. Fiscal revenue variable (ln gr) The regression coefficients of current value and lag term are -4.109 and -0.534 respectively, both negative, indicating that fiscal revenue is not conducive to the upgrading of industrial structure. Combined with the significance level of regression coefficient, it can be found that fiscal revenue plays a significant inhibiting effect on the upgrading of industrial structure in the next phase, and has an insignificant effect on the same period, with a very obvious lag effect. The regression coefficients of control variables ln consum, ln urban and ln open were 3.215, 0.359 and 3.818, respectively.

5. CONCLUSION AND SUGGESTIONS

5.1 Conclusion

In this paper, based on the theory of fiscal policy is associated with the fundamentals of the industrial structure, in Hubei province in 2007-2017 data regression, analysis of fiscal policy effect on the fundamentals of the industrial structure, the result shows that fiscal expenditure on the fundamentals of industrial structure has a significant role in promoting, while fiscal revenue to a certain extent has inhibitory effect on the high-grade of industrial structure.

5.2 Countermeasures and suggestions

Based on the conclusions of the above empirical analysis, this paper puts forward the following suggestions:

5.2.1 February We will delegate more power over the allocation of market resources to the market.

Combine delegation of power with regulation, clarify the government's powers and responsibilities, and improve the management and supervision of relevant departments. Following the coordination principle that fiscal policies promote the advanced industrial structure, what the market can do is to give full play to the efficiency of the market's own resource allocation, and the part of the government that fails in the market can intervene timely and appropriately, and reduce the probability of government failure as much as possible. Improve the government's fiscal revenue system and make comprehensive adjustment in combination with China's tax and other revenue policies. For example, we can make full use of the opportunity of national and local tax integration and actively cooperate with the reform of administrative and fiscal rights on the premise of ensuring the stability of fiscal revenue at all levels.

5.2.2 Deepen reform of market allocation of factors of production.

Government should make clear the right of escheatage of property rights and improve relevant laws and regulations. We should match industrial types with land types, deepen the rationalization and efficiency of land use, and improve the corresponding transaction policy regulations. The division of regions and departments should be eliminated to eliminate all factors hindering market fairness, so that factors can be freely allocated and flowed in the market. We should explore the potential of employment expenditure in social security and employment expenditure to improve the quality of labor force and create a human base for the transformation of industrial structure. Both entrepreneurial employment expenditure and training employment expenditure are active employment expenditure. The increase of this part of expenditure will have a positive effect on the improvement of the overall quality of workers [12].

5.2.3 Deepen the reform of state-owned enterprises and oligarchic industries

We will vigorously promote the reform of state-owned enterprises, promote the restructuring, upgrading and optimization of the state-owned economy, accelerate the free market competition and diversification of property rights in industries with monopoly competition, deepen the adjustment of ownership of state-owned enterprises, and encourage the introduction of non-state-owned capital that is well suited to them. We will adhere to the role of "competition neutrality", invite state-owned enterprises to participate in the market liberalization competition, reject the special treatment of state-owned enterprises, ensure the principle of free and fair competition in the market, and all enterprises enjoy the same legal protection and control. We will lower market entry standards for private capital, specify free and equal entry standards for industries not on the negative list, remove unfair regulations and regulations on the non-public sector of the economy, and strengthen property rights protection for all categories of economies [10].

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