

Research on the Influencing Factors of Industrial Structure Optimization: A Case Study of Five Counties in Wenzhou Mountainous Area

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Abstract: This article summarizes and examines existing domestic and international achievements. It analyzes the present industrial structure of five mountainous counties in Wenzhou, based on statistical yearbook data from 2014 to 2021. The study calculates the degree of industrial structure optimization, using the OIS calculation method, and considers the degree of inclusive finance, scientific research expenditure, fiscal expenditure, and transportation level as factors that influence the industrial optimization degree, based on local conditions and literature review. By establishing a panel data regression model, the study concludes that inclusive finance and scientific research expenditure have no significant impact on industrial structure optimization. However, the increase in fiscal expenditure and transportation level can effectively improve the local industrial optimization degree.

Keywords: Inclusive Finance; Industrial Structure; Panel Regression

1. Research background

The rural revitalization strategy, proposed during the 19th National Congress of the Communist Party of China, is a crucial national development plan. Its core objective is to revitalize industries in rural areas by optimizing and adjusting the industrial structure, improving logistics and service systems, attracting social capital investment, comprehensively enhancing rural residents' income levels, and increasing their consumption capacity. Wenzhou, being an economically strong city, has witnessed continuous changes in its industrial structure with the expansion of its economic volume. In 2013, a significant breakthrough was achieved when the tertiary industry became the primary sector, with the service industry playing a crucial supporting role, accounting for 56.4% of the city's GDP. Currently, the widening gap between urban and rural areas has become a major challenge for Wenzhou's economic development. Based on the Wenzhou Statistical Yearbook data for 2021, the land area of the five mountainous counties in Wenzhou constitutes around 66% of the total area, the population is nearly 43%, and the GDP accounts for only 21% of the total, which is lower than the city and even the provincial average. The level of industrial structure development in the five mountainous counties will not only affect the economic growth of this region but also impact the overall economic development quality of Wenzhou. In this context, optimizing the industrial structure will be the most effective approach to reduce the urban-rural gap and ultimately achieve common prosperity.

2. Literature Review

2.1 Factors affecting industrial structure optimization

The factors influencing industrial structure mainly include the following aspects of research: First, the impact of fiscal

expenditures on industrial structure development. Jiang Bingwei and Zheng Suyi (2020) ^[1] found that fiscal expenditures have a significant promoting effect on the optimization and upgrading of industrial structure. However, some scholars believe that this impact is uncertain. Ren Aihua and Liu Huan (2017) ^[2] argue that fiscal policy has different effects on regions with different economic speeds. In areas experiencing economic decline, fiscal expenditures promote industrial structure, while the effect is the opposite in other regions. Second, technological development: Li Jian and Xu Haicheng (2011) ^[3] analyzed the effect of technological development on industrial structure, and the results showed that high-tech scientific and technological development has a significant impact on the adjustment of industrial structure. Lin Chunyan (2016) ^[4] believed that scientific and technological innovation promotes economic development and can enhance the economic strength of enterprises, thus promoting the optimization and upgrading of industrial structure. Third, the level of transportation: Zhang Qiubo, Li Weidong (2019) ^[5], Lin Xiaoyan, Chen Xiaojun, etc. (2010) respectively studied Baoding and the Beijing-Tianjin region and found that the opening of high-speed rail accelerates the development of the tertiary industry. Jiang Huaxiong (2017) found that the impact of high-speed rail on industrial structure is related to the city's main industries. The last factor is the impact of inclusive finance. Zhang Qingjun and Huang Ling (2021) ^[6] verified that the development of digital inclusive finance plays a role in promoting high-quality economic development through this mediating variable. Sun Qian and Xu Zhangyong (2021) studied poor and non-poor counties and found that the development of digital inclusive finance can help non-poor counties transform and upgrade their industrial structure, but its effect on poor counties is not significant.

2.2 Research Overview

Based on existing research, most studies on industrial structure upgrading have focused on provincial or municipal samples, with little discussion on county-level units. However, counties are important links connecting cities and rural areas, and are the main battlefield for the implementation of rural revitalization strategies. Therefore, the issue of industrial structure upgrading in counties is also worthy of attention. In terms of measuring the level of industrial structure development, many scholars use the proportion of the secondary industry or the tertiary industry to measure the level of industrial structure development in a region, which is unreasonable. This paper evaluates the development of the industrial structure in each industry by subdividing labor productivity in each industry, and combines with previous studies to use the development of inclusive finance, the level of scientific research input, and financial support as explanatory variables. Using a fixed effect model, the influencing factors of industrial structure development in five counties in the mountainous area of Wenzhou are analyzed, which is of great significance to improve the industrial development of these five counties.

3. Empirical Analysis

3.1 Calculation of the Dependent Variable

The optimization of industrial structure essentially refers to the greater share of industries with higher labor productivity in the economy, rather than a simple measure of the share of industries. Therefore, the proportion and labor productivity should be considered comprehensively. That is, the optimization of industrial structure is the sum of the product of the proportion and labor productivity of each industry. This article will use this method to measure the degree of industrial structure optimization, and the calculation formula is as follows:

$$OIS = \sum_{i=1}^n \left(\frac{Y_i}{Y} \right) \left(\frac{Y_i}{L_i} \right) \quad (1)$$

In this formula, OIS represents the degree of industrial structure optimization, Y represents the gross domestic product of the region, Y_i and L_i represent the output value and employment of a certain industry, Y_i / Y represents the weight of the industry's proportion, Y_i / L_i represents the labor productivity of the industry. The higher the value of OIS, the higher the labor productivity of various industries in the region, and the higher the degree of industrial structure optimization.

3.2 Data source and indicator selection.

This article selected relevant data from Yongjia County, Pingyang County, Cangnan County, Wencheng County, and Taishun

County in Wenzhou from 2014 to 2021 for research. The data was obtained from the Wenzhou Bureau of Statistics website and the public data of the Peking University Inclusive Finance. Finally, by referring to relevant research results at home and abroad and combining with the actual situation of Wenzhou City, four influencing factors, namely, the degree of inclusive finance, research and development expenditures, fiscal expenditures, and transportation level, were selected as explanatory variables to construct a panel data model and study the influencing factors of industrial structure optimization in the five counties of Wenzhou mountain area. The specific variables are shown in Table 1.

Table 1: Factors Affecting Industrial Structure Optimization

Variable Category	Variable	Variable Name	Variable Definition
Dependent Variable	Y	Level of Industrial Structure Optimization	Calculated as OIS
Independent Variables	X ₁	Degree of Inclusive	Finance Peking University Inclusive Finance Index
	X ₂	R&D Expenditure	R&D expenditure/population
	X ₃	Expenditure Government	expenditure/local GDP
	X ₄	Transportation Level	Total length of roads/population
Control Variables	X ₅	Economic Level	GDP/population
	X ₆	Urbanization Level	Urban population/total population

3.2 Model building

The following step is to use the indicators from the previous section as explanatory variables and use the degree of industrial structure optimization (OIS) as the dependent variable to construct a panel model of the influencing factors of inclusive financial level in five counties of the Wenzhou mountainous area.

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + \varepsilon \quad (2)$$

In the above formula, c is the constant term, $i=(1,2,\dots,6)$ represents the number of variables, $t=(2014,2015,\dots,2021)$ represents the year, β_i is the coefficient of the dependent variable, ε is the model's random error term, which is independently and identically distributed. The main reason for choosing panel data from the five counties in the Wenzhou mountainous area from 2014 to 2021 in this article is that the time span of the sample data is short and the sample size is limited. If time series data or cross-sectional data are adopted, it may lead to large estimation errors and insufficient accuracy. Panel data analyze from both dimensions, making the regression results more credible.

3.3 Panel data regression results

According to the test results of the panel fixed effects model in Table 2, the adjusted R-squared of the model is 0.607, which means that the independent variables in the model can explain 60.7% of the variation in the dependent variable. The equation fitting effect is very good. The empirical results show that, controlling for per capita GDP and urbanization level, the impact of inclusive financial level on industrial structure optimization is not significant, indicating that the role of digital inclusive finance in rural areas is limited and it has little impact on labor productivity. Research and development (R&D) expenditure does not have a significant driving effect on the industrial structure, which may be due to the inefficiency of R&D funds in practical applications, resulting in no substantial changes in the production efficiency of enterprises. The results show that fiscal expenditure and transportation level have a significant positive impact on the industrial structure optimization of enterprises in the five counties in the Wenzhou mountainous area at the 1% level of significance.

Table 2: Regression of Factors Influencing Industrial Structure Optimization.

Variable	OIS
X ₁	0.063
	(1.110)
X ₂	-5.439
	(-1.238)
X ₃	54.175***
	(-3.905)
X ₄	0.004***
	(3.075)
X ₅	1.906*
	(1.906)
X ₆	3.820
	(0.523)
_cons	0.857
	(0.162)
R ²	0.708
Adj. R ²	0.607
N	40

4. Conclusion

This article measures the current state of the industrial structure in five counties of Wenzhou mountainous area through the OIS index, and studies the impact of four factors, including inclusive finance level, transportation level, scientific research expenditure, and fiscal expenditure, on the industrial structure. The following conclusions were drawn through empirical research: Firstly, the impact of the level of inclusive finance on industrial structure optimization is limited, which may be due to the lack of financial knowledge among the main small and micro enterprises in the five counties. Secondly, although scientific research funds have been increasing in recent years, their impact on industrial structure is still insufficient, and enterprises' research departments should make full use of scientific research funds to optimize industrial structure. Thirdly, government financial support can effectively increase enterprise productivity and guide the orderly flow of factors such as labor and capital in industrial structure development, especially in economically underdeveloped areas, where financial support has a greater and more dependent impact on enterprises. Fourthly, the improvement of the highway level can further accelerate the development of wholesale, retail, and tourism industries in mountainous areas, and transportation costs and efficiency of raw materials for the secondary industry or products for the tertiary industry can be improved. Therefore, the improvement of transportation is of great significance for the current optimization of the industrial structure in the mountainous areas.

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