

Research on the Impact of Fiscal Expenditure and Technological Innovation on High Quality Economic Development

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Abstract: This paper studies the impact of fiscal expenditure and technological innovation on high-quality economic development. Firstly, propose research questions, sort out relevant theories, and put forward research hypotheses; Secondly, establish an indicator system for the level of technological innovation and high-quality economic development, and use entropy method and principal component analysis to measure the relevant level of Anhui Province; Thirdly, measure and analyze the fiscal expenditure, technological innovation, and high-quality economic development level of Anhui Province; Then use spatial econometric models and mediation models for empirical analysis to explore the mediation and spatial spillover effects of impact and technological innovation; Finally, propose countermeasures and suggestions. The research methods include literature analysis, theoretical analysis, and econometric analysis, using Stata software to measure and analyze the data. takes China's eight input-output tables from 2013 to 2022 as the research data, introduces the influence coefficient, sensitivity coefficient and corresponding weighted linkages to measure the national economic impact of the information industry, and empirically explores the development of the information industry. It also analyzes the skewness, kurtosis and change trend of weighted and unweighted industrial linkages. Finally, it compares the impact of competitive model and non-competitive model on the measurement of information industry linkages.

Keywords: Fiscal expenditure, Technological innovation, High-quality economic development.

1. Introduction

Fiscal expenditure, as an important means for the government to regulate economic and social development, plays an indispensable role in promoting high-quality economic growth. On the one hand, through precise and effective fiscal expenditures, the government can directly invest in key areas such as infrastructure construction, education, scientific research, and healthcare, laying a solid foundation for long-term economic and social development. The investment in these fields can not only improve the quality of life of the people, but also enhance the overall competitiveness and innovation capability of the country, thereby promoting the economy to move towards higher quality and more sustainable directions. On the other hand, fiscal expenditure can promote balanced and coordinated economic development by optimizing resource allocation and regulating income distribution.

As a powerful tool for the government to promote economic and social development, fiscal expenditure can effectively stimulate the innovation vitality of the whole society, accelerate the transformation and application of scientific and technological achievements, and become a powerful engine for high-quality economic development by increasing investment in scientific and technological innovation. On the one hand, fiscal expenditure provides necessary financial support, and policy guarantees for technological innovation. The government guides enterprises, universities, and research institutions to increase innovation investment, conduct cutting-edge technology research, and tackle key core technologies through various means such as establishing research and development special funds, providing research and development subsidies, and tax

incentives. These investments not only enhance the country's technological innovation capabilities, but also promote the coordinated development of the upstream and downstream of the industrial chain, injecting new momentum into economic transformation and upgrading. On the other hand, technological innovation has effectively promoted the optimization of economic structure and industrial upgrading by improving production efficiency, reducing production costs, and stimulating emerging industries. The widespread application of technological innovation achievements has revitalized traditional industries and promoted the vigorous development of emerging industries, providing sustained impetus for economic growth.

Domestic and foreign scholars have conducted extensive research on the relationship between fiscal expenditure and high-quality economic development, from theoretical analysis to empirical research.

Research on the relationship between fiscal expenditure and high-quality economic development abroad: Goldsmith (2008) [1] divided government expenditure into two parts: public consumption and public investment, and demonstrated its long-term economic performance. He believed that fiscal consumption expenditure is beneficial in the short term, and as the scale of fiscal investment expands, the level of economic development continues to improve; Menyah and Rufael (2013) [2] conducted an empirical study on Ethiopia using cointegration analysis and pointed out that the increase in government spending is an important reason for economic growth; Helmi Hamdi and Rashid Sbia (2013) [3] analyzed the relationship between government revenue, expenditure, and economic growth in Portugal, Italy, Ireland, Greece, and Spain based on annual data from 1995 to 2009, and pointed out that fiscal revenue, fiscal expenditure, and GDP exhibit

different correlations with significant individual differences; Piabuo (2017) [4] obtained relevant data from five countries and conducted analysis, and the results showed that health expenditure significantly promoted economic growth; Abderrahim Chibi, Sidi Mohamed Chekouri, and Mohamed Benbouziane (2019) [5] combined relevant data from Algeria and used the MSVAR model to analyze the role of fiscal policy. The results showed that in the short term, both government spending and revenue multipliers were small, and the impact of fiscal policy shocks was greater during economic downturns than during expansions, and the impact of government spending was greater than that of public revenue during economic downturns. Chukwuemeka Nwamoo (2020) [6] studied the impact of fiscal policy on Nigeria's economic growth based on annual time series data from 1981 to 2018, and found that both current and capital expenditures hinder economic growth in both the short and long term. Beyene S.D and Kotosz B (2021) [7] used the Johnson cointegration test to examine the impact of fiscal and monetary policies on Ethiopia's economic growth from 1981 to 2008. The study showed that, compared to monetary policy, expanding fiscal spending can significantly promote economic growth.

Research on Fiscal Expenditure and High Quality Economic Development in China: From the perspective of empirical analysis methods, Chen Gao and Wang Chaocai (2014) [8] used the Ram two sector production function method, Chen Hanbo (2021) [9] used the dynamic spatial Durbin model, Wu Ruijun and Hao Zhichao (2021) [10] used the System Generalized Method of Moments (System GMM), and Guo Lu and Li Yuanyuan (2021) [11] used cointegration and regression analysis to empirically analyze the positive effect of fiscal expenditure on economic growth. From the perspective of fiscal expenditure structure classification, Zhao Chibei (2014) [12] analyzed relevant data from Yunnan Province from 1994 to 2012 and found that fiscal expenditures such as education, healthcare, social security, and employment are difficult to play a driving role in economic growth; Xu Tao and Sarula (2019) [13] collected and analyzed relevant economic data in China from 2007 to 2017, and found that social service expenditures have always been beneficial to economic growth, while general service expenditures are only beneficial to economic growth in the central region; Zhang Bo and Zhang Fangping (2021) [14] used time series data from 1998 to 2019 in China to conduct error correction model analysis on fiscal education expenditure and economic growth, and concluded that fiscal education expenditure promotes high-quality economic development; Yu Yang (2020) [15], Jiang Qing, Fang Yan (2020) [16], and Chen Ying (2021) [17] analyzed the impact of fiscal support for agriculture policies on the performance of rural economic development, and concluded that with the increase of fiscal support for agriculture expenditure, significant economic growth results are achieved, and fiscal support for agriculture significantly promotes the development of agricultural economy. Li Cuilan (2021) [18] conducted an analysis on the effect of fiscal expenditure based on regional economic development differences in Guangdong Province, and believed that infrastructure construction investment and public service expenditure are difficult to improve the quality of regional economic development; Yan Ting, Fan Sikai, Wang Jia (2021) [19] conducted an analysis based on relevant data from Liaoning from 2006 to 2018 and found that expanding fiscal and livelihood expenditures can

drive economic growth, but in the long run, this growth is difficult to sustain. From the perspective of fiscal decentralization: Yang Zhi'an and Qiu Guoqing (2019) [20] empirically analyzed how fiscal decentralization affects economic development based on relevant data from 2000 to 2017, combined with GMM estimation method. The results showed that with the further development of fiscal decentralization, high-quality economic development is hindered to varying degrees; Xie Guogen, Zhang Ling, Zhao Chunyan (2021) [21], Zhang Teng, Jiang Fuxin, Wei Zhentao (2021) [22] used spatial econometric models to analyze the economic role of fiscal decentralization from a spatial geographic perspective, pointing out that the promoting effect of fiscal decentralization on economic development cannot be ignored.

2. Theoretical Model

2.1. Benchmark Regression Model

In order to examine the impact of fiscal expenditure on high-quality economic development from a mathematical perspective, this paper establishes a benchmark regression model, and the specific model is as follows:

$$Hqd_{it} = \alpha_1 + \beta_1 GE_{it} + \lambda_1 C_{it} + \mu_i + \eta_t + \varepsilon_{it} \quad (1)$$

2.2. Mediating Effect Model

To further reveal the mechanism of fiscal expenditure promoting high-quality economic development, drawing on existing research, a mediation effect model is constructed based on equation (1). The specific model is as follows:

$$Tech_{it} = \alpha_2 + \beta_2 GE_{it} + \gamma_2 C_{it} + \mu_i + \eta_t + \varepsilon_{it} \quad (2)$$

$$Hqd_{it} = \alpha_3 + \beta_3 GE_{it} + \lambda_3 Tech_{it} + \varphi C_{it} + \mu_i + \eta_t + \varepsilon_{it} \quad (3)$$

Among them, $Tech_{it}$ represents the selected mediator variable, technological innovation; α_2 , α_3 represents the intercept term; β_2 , β_3 represents the coefficient of the core explanatory variable; γ_2 , φ represents the coefficient of the control variable; λ_3 represents the coefficient of the mediator variable.

3. Empirical Analysis

3.1. Benchmark Regression

Table 1 shows the regression results of fiscal expenditure on the high-quality economic development of Anhui Province. Model 1 only considers the core explanatory variable fiscal expenditure, excluding the effects of fixed effects and control variables. The results show that the coefficient of fiscal expenditure is significantly positive. A series of control variables were included in Model 2 to comprehensively consider other factors that may affect high-quality economic development. Time fixed effects were introduced in Model 3 to control for potential interference factors caused by time trends. Individual fixed effects were introduced in Model 4 to control for interference factors that may arise due to individual characteristics. In these three extended models, there was no substantial change in the coefficients and significance of fiscal expenditure. In Model 5, the most comprehensive model setting was adopted, and dual fixed effects and control variables were introduced. The coefficient of fiscal expenditure was 0.112 and significant at the 1% level, indicating that fiscal expenditure can promote high-quality economic development. Hypothesis 1 was validated. The

reason for this is that fiscal expenditure can directly increase the total social demand, stimulate economic activity through government purchases and transfer payments, and drive the development of related industries, thereby promoting economic growth. At the same time, the investment of fiscal expenditure in infrastructure, education, technology and other fields can enhance the production efficiency of social capital, improve the quality of labor force and innovation capability. The improvement of infrastructure has improved the investment environment and attracted more private

investment, while investment in education and technology has promoted technological progress and industrial upgrading, providing sustained impetus for economic growth. In addition, fiscal expenditure has also increased residents' consumption ability and enterprises' investment willingness by improving public services and social security systems. The improvement of public service level enhances the quality of life and happiness of the people, promotes the increase of consumption and investment, and thus promotes stable economic growth.

Table 1. Benchmark Regression Results

Variable	(1)	(2)	(3)	(4)	(5)
	Hqd	Hqd	Hqd	Hqd	Hqd
GE	0.112*** (4.116)	0.081*** (2.762)	0.106** (2.512)	0.086*** (2.803)	0.110** (2.081)
Constant term	0.073*** (2.691)	0.325* (1.851)	0.535*** (3.156)	0.876*** (3.420)	0.667** (2.223)
Sample size	160	160	160	160	160
Control variable	No	Yes	Yes	Yes	Yes
R ²	0.097	0.692	0.896	0.720	0.900
Individual fixed	No	No	No	No	Yes
Time fixed	No	No	No	No	Yes

Note: ***, **, * respectively indicate significance at the 1%, 5%, and 10% levels, with t-values in parentheses; Same below.

3.2. Intermediary Effect

The results of Model 2 in Table 2 show that fiscal expenditure has a significant positive impact on technological innovation, indicating that fiscal expenditure promotes the development of technological innovation. The results of Model 3 show that even after incorporating technological innovation into the regression model, the coefficient of fiscal expenditure remains significantly positive, indicating that technological innovation plays a mediating role in promoting high-quality economic development through fiscal expenditure. Hypothesis 2 has been validated. The reason behind this is that technological innovation, by improving production efficiency and resource allocation efficiency, can not only improve production processes and procedures, reduce production costs, but also promote the optimization and upgrading of industrial structure, and enhance overall economic benefits. With the continuous advancement of technology, some traditional industries are gradually declining, while emerging industries are flourishing, such as information technology, artificial intelligence, new energy, etc. These emerging industries have the characteristics of high added value and high growth, and have become important forces driving economic growth. In addition, technological innovation has also promoted the optimization and transformation of the economic structure, promoted the technological transformation and upgraded of traditional industries, and improved the competitiveness of traditional industries. At the same time, it has also promoted the development of emerging industries, optimized the economic structure, and improved the overall quality and competitiveness of the economy.

Table 2. Regression Results of Mediating Effect

Variable	(1)	(2)	(3)
	Hqd	Tech	Hqd
GE	0.110** (2.081)	0.047*** (2.853)	0.102** (1.990)
Tech			0.046*** (2.780)
Constant term	0.667** (2.223)	0.538* (1.801)	0.551* (1.866)
Sample size	160	160	160
R ²	0.900	0.903	0.906
Individual fixed	Yes	Yes	Yes
Time fixed	Yes	Yes	Yes

3.3. Heterogeneity Analysis

In order to explore the heterogeneity of the impact of fiscal expenditure on high-quality economic development in different regions, this paper, referring to the practice of Zhang Wei et al, divides Anhui Province into northern Anhui (Bengbu, Huainan, Huaibei, Fuyang, Suzhou, Bozhou), central Anhui (Hefei, Anqing, Chuzhou, Lu'an) and southern Anhui (Wuhu, Ma'anshan, Tongling, Mount Huangshan, Chizhou, Xuancheng). According to Table 3, in terms of promoting high-quality economic development through fiscal expenditure, the central and southern regions of Anhui have shown a promoting effect, while the northern region of Anhui has shown a restraining effect. Hypothesis 3 has been verified. The reason for this is that the economic foundation of the central and southern regions of Anhui is relatively good. For example, in the central region of Anhui, Hefei, as the provincial capital city, has a relatively complete industrial system and high technological innovation capabilities. Fiscal expenditure can play an important role in supporting technological innovation and industrial upgrading. Fiscal expenditures in the central and southern regions of Anhui are more used to support public service areas such as education, healthcare, and technology. Investment in these areas can

improve human resource quality, enhance innovation capabilities, and provide strong support for high-quality economic development. Meanwhile, expenditures in these areas also contribute to improving people's livelihoods, enhancing social stability, and creating a better social environment for economic development. However, the economic foundation of the northern Anhui region is relatively weak, and fiscal expenditures may be overly concentrated in traditional areas, while neglecting the long-term support for high-quality economic development in areas such as technological innovation, education, and healthcare. The unreasonable expenditure structure may lead to resource misallocation and inhibit the potential for high-quality economic development. In addition, the population density in northern Anhui is high and resources are relatively scarce, which increases the construction and operation costs of public service facilities and puts greater pressure on fiscal expenditure. The limited and non-renewable nature of resources also limits the role of fiscal expenditure in promoting sustainable economic development.

Table 3. Heterogeneity Regression Results

Variable	Northern Anhui	Central Anhui	Southern Anhui
GE	-0.209*	0.188	0.075
	(-1.72)	(1.15)	(1.05)
Constant term	1.052	-0.841	1.943***
	(1.64)	(-0.64)	(3.39)
Sample size	60	40	60
R ²	0.572	0.973	0.937
Individual fixed	Yes	Yes	Yes
Fixed time	Yes	Yes	Yes

4. Spatial Effect Analysis

4.1. Spatial Correlation Test

Before selecting and testing spatial econometric models, it is necessary to separately determine whether there is spatial correlation between the dependent variable and the explanatory variable. If the spatial correlation is significant, it is necessary to conduct spatial econometric model analysis. This article uses the mainstream spatial correlation test method - Moran's I - to determine whether there is spatial correlation between fiscal expenditure and high-quality economic development. The value of Moran's index I ranges from [-1, 1]. The larger the value, the stronger the correlation. When Moran's index approaches 1, it indicates a strong spatial positive correlation between variables. When Moran's index approaches 0, it indicates that there is no correlation between variables in different regions. Positive or negative values indicate a positive or negative correlation. The calculation formula for Moran's index is as follows:

$$I = \frac{\sum_{i=1}^n \sum_{j=1}^n w_{ij} (x_i - \bar{x})(x_j - \bar{x})}{(x_i - \bar{x})^2} \quad (4)$$

Among them, w_{ij} represents the spatial weight matrix; x_i represents the observed value of variable x in region i ($i = 1, 2, 3, \dots, n$); x_j represents the observed value of variable x in region j ($j = 1, 2, 3, \dots, n$); \bar{x} represents the mean of the variable. In order to determine the spatial correlation characteristics between high-quality economic development and fiscal expenditure, Stata18.0 was used to calculate its

global Moran index.

According to Table 4, under the economic distance matrix, the Moran's index results for high-quality economic development are significantly positive, indicating that there is a global spatial positive correlation for high-quality economic development. The Moran's index of fiscal expenditure is significantly positive for all years except 2020, indicating that there is also a global spatial positive correlation in fiscal expenditure. Therefore, it is necessary to explore the impact mechanism of fiscal expenditure on the level of high-quality economic development from a spatial dimension.

Table 4. Global Moran Index Value

Year	High quality economic development			Fiscal expenditure		
	I	Z	P-value	I	Z	P-value
2013	0.296	2.673	0.007	0.303	2.442	0.015
2014	0.173	1.809	0.070	0.266	2.205	0.028
2015	0.183	1.876	0.061	0.197	1.653	0.098
2016	0.171	1.852	0.064	0.336	2.515	0.012
2017	0.230	2.277	0.023	0.301	2.316	0.021
2018	0.250	2.460	0.014	0.215	1.776	0.076
2019	0.287	2.674	0.007	0.212	1.748	0.080
2020	0.289	2.403	0.016	0.169	1.484	0.138
2021	0.328	2.886	0.004	0.260	2.064	0.039
2022	0.223	2.028	0.043	0.269	2.094	0.036

4.2. Analysis of Spatial Spillover Effects

To further investigate the spatial spillover effects of fiscal expenditure on high-quality economic development in the spatial Durbin model, this study further analyzes the direct, indirect, and overall effects of fiscal expenditure on high-quality economic development in various regions. According to Table 5, the coefficient of the direct effect of fiscal expenditure is 0.080, and it has passed the significance test at the 5% level, indicating that financial technology will significantly promote high-quality economic development in the local area; The coefficient of the indirect effect of fiscal expenditure is 0.087, indicating that there is a positive spatial spillover effect of fiscal expenditure on the high-quality economic development of surrounding areas, but it is not significant. The fiscal expenditure not only promotes the high-quality economic development of the region, but also plays a promoting role in the high-quality economic development of surrounding cities. Hypothesis 4 is verified. In recent years, Anhui Province has attached great importance to the guiding role of fiscal expenditure in regional economic development. By improving the system and mechanism of urban-rural coordinated expenditure, the efficiency of urban-rural coordinated expenditure has been enhanced, and the high-quality development of regional economy has been promoted. For example, Anhui has increased its financial support for regions such as northern and southern Anhui, promoting industrial upgrading and infrastructure construction in these areas, and narrowing the regional development gap. In addition, Anhui actively undertakes the industrial transfer from Jiangsu, Zhejiang, and Shanghai, vigorously introduces advanced technology and talents, accelerates the transformation and upgrading of local traditional industries, and vigorously cultivates emerging industries. These measures not only enhance the level and quality of economic development in the region, but also drive

the economic development of surrounding areas through the extension of industrial and supply chains.

Table 5. Decomposition of Spatial Spillover Effects

	Direct effect	Indirect effect	Total effect
Variable	Hqd	Hqd	Hqd
GE	0.080**	0.087*	0.168**
	(2.00)	(1.82)	(2.27)
IS	-0.279***	0.522***	0.243
	(-2.70)	(2.60)	(1.15)
Inv	-0.731*	2.258**	1.527
	(-1.75)	(2.28)	(1.53)
Open	0.335***	-1.782***	-1.446***
	(3.05)	(-8.92)	(-8.31)
Cost	-0.144*	0.299*	0.155
	(-1.83)	(1.74)	(0.97)
HC	0.579	0.774	1.353
	(0.79)	(0.55)	(0.96)
Fin	0.038**	-0.064**	-0.027
	(2.44)	(-2.46)	(-1.20)
Urb	-0.295**	-0.271	-0.566**
	(-2.36)	(-1.25)	(-2.29)

5. Conclusion and Suggestions

5.1. Conclusion

Based on a systematic analysis of the theoretical mechanisms and research hypotheses of the impact of fiscal expenditure and technological innovation on high-quality economic development, this article explores the promoting role and spatial spillover effects of fiscal expenditure and technological innovation on high-quality economic development, the mediating effect of technological innovation in the impact of fiscal expenditure on high-quality economic development, and the impact of changes in fiscal expenditure structure and scale on the driving force of technological innovation on high-quality economic development.

Guided by the new development concept, a comprehensive index of high-quality economic development is constructed. The efficiency level of scientific and technological innovation is analyzed from the perspectives of input and output, and the level of fiscal expenditure is measured from the perspectives of fiscal expenditure structure and scale. Panel data from various prefecture level cities in Anhui Province are used as research samples, and benchmark regression models, mediation effect models, and spatial econometric models are used for comparative research from different perspectives. The following conclusions are drawn:

Both fiscal expenditure and technological innovation promote high-quality economic development, and they have a positive spillover effect on surrounding areas, that is, fiscal expenditure and technological innovation significantly promote high-quality economic development in the local area while also actively promoting high-quality economic development in surrounding areas.

Technological innovation has a positive partial mediating effect on the impact of fiscal expenditure on high-quality economic development. While fiscal expenditure affects the high-quality development of the economy, it also promotes the improvement of scientific and technological innovation level, thereby promoting the high-quality development of the

economy. Fiscal expenditure affects the level of scientific and technological innovation by influencing the support for scientific and technological activities, and the improvement of scientific and technological innovation efficiency promotes enterprises to establish more efficient production systems, thus becoming the driving force and source of economic development, and promoting high-quality economic development.

In the process of driving high-quality economic development through technological innovation, the impact of different types of fiscal expenditure structures varies. All fiscal expenditure coefficients are significantly positive, indicating that various fiscal expenditures significantly promote high-quality economic development. Among them, environmental protection expenditure has the strongest effect, while the other four expenditures have relatively weaker effects, and the effects of different types of fiscal expenditures vary. With the continuous improvement of technological innovation level, except for general public service expenditure, the promoting effect of the other four expenditures on high-quality economic development has gradually increased, while the promoting effect of general public service expenditure has gradually weakened or even had a restraining effect. A scientifically reasonable fiscal expenditure structure can maximize resource utilization efficiency and promote high-quality economic development.

5.2. Suggestions

Based on the above three research conclusions, the following policy recommendations are proposed in a targeted manner from the aspects of leveraging fiscal expenditure functions, improving technological innovation efficiency, optimizing expenditure structure, and adjusting expenditure scale:

5.2.1. Give full play to the guarantee and support functions of fiscal expenditure

Firstly, a comprehensive victory has been achieved in the poverty alleviation campaign in 2021, and the fiscal work mechanism has gradually shifted from poverty alleviation to rural revitalization. Local governments should prioritize the function of fiscal security, give full play to the inclusiveness, safety net, and public nature of public finance, tilt more towards the cause of agriculture, rural areas, and farmers, implement precise drip irrigation, promote rural revitalization more efficiently, achieve shared development, and improve the quality of economic development. Secondly, optimize fiscal supply, strengthen countercyclical support for key areas, focus on emerging industry operators, continuously increase support, not only make good use of various fiscal subsidies and tax incentives, but also promote the linkage and use of financial instruments such as banks, insurance, and futures, lead various financial factors, continuously optimize and improve fiscal supply capacity, achieve further development of fiscal expenditure, and thus play a spillover role at a more efficient level to promote high-quality economic development.

5.2.2. Improve the efficiency of technological innovation

Firstly, we should focus on supporting high-tech fields, moderately expand the input-output scale of specific fields, enhance the ability to support scientific and technological innovation, continuously apply new technologies, new materials, new energy and other achievements to production activities, promote the rapid development of the real economy with advanced manufacturing as the core, and achieve economic transformation and development. Secondly,

optimize the allocation of scientific and technological resources in various fields, regions, and research institutions, attach importance to the allocation of scientific and technological resources in the central and western regions, increase regional synergy of scientific and technological resources, and comprehensively improve the quality of enterprise innovation activities. Finally, we should motivate all innovation entities, fully mobilize the enthusiasm of scientific researchers to invest in scientific research, ensure the welfare and social status of R&D personnel, create policy conditions and team environment for positive innovation for R&D personnel, encourage and cultivate the output of high-quality scientific and technological achievements, and pay more attention to quality on the basis of the continuous increase in the quantity of scientific and technological output.

5.2.3. Accelerate the adjustment and optimization of fiscal expenditure structure

Firstly, local governments should focus on environmental protection and make it a key focus of fiscal expenditure, continuously expand the scale of environmental protection expenditure, establish a long-term investment guarantee mechanism, improve environmental pollution and quality through environmental protection expenditure, give full play to the guiding role of fiscal policies in environmental protection, and emphasize the role of environmental indicators in performance evaluation to ensure green and sustainable development in various regions. Secondly, we will continue to increase spending on the livelihood sector, focus on improving population quality and human capital levels, shape talent advantages, implement the innovation driven development strategy, and provide support for high-quality economic development. Finally, excessive expansion of public service expenditures can easily lead to waste of social resources and greatly affect the improvement of economic development quality. Governments at all levels should moderately reduce general expenditures and improve resource utilization efficiency through streamlining administration and delegating power, promoting institutional reform, and improving institutional mechanisms.

5.2.4. Adjust the scale of fiscal expenditure according to the actual development situation

According to the threshold model estimation results, the scale of fiscal expenditure shows an N-shaped impact trend in the process of driving high-quality economic development through technological innovation. That is, as the scale of fiscal expenditure continues to expand, technological innovation exhibits an impact trend of first promoting, then inhibiting, and finally restoring its promoting effect on high-quality economic development. For regions where the expenditure scale is in the first stage of development, the fiscal expenditure scale is relatively small but has a good momentum of gradually expanding, which has a significant promoting effect on high-quality economic development. Local governments should continue to maintain the expansion of fiscal expenditure scale in various fields, increase the scale of fiscal subsidies and fiscal loans, and be prepared to enter the second stage of development at any time, actively adjust the expenditure structure, and improve resource utilization efficiency. For regions in the second stage of development, it is necessary to strengthen the coordination of fiscal resources, shift the focus of expenditures to areas such as people's livelihood, ecological civilization, infrastructure, and innovation, improve the accuracy of expenditures, achieve synchronized and coordinated development in various fields,

and moderately expand the total scale of fiscal expenditures according to the stage of economic and social development, and formulate scale adjustment policies that are suitable for the actual development situation. For regions in the third stage of development in terms of expenditure scale, it is necessary to maintain stable and sustainable growth of fiscal expenditure, actively adjust the expenditure structure according to the economic development situation, achieve efficient allocation of fiscal resources, and strengthen fiscal expenditure management to avoid unnecessary risks caused by blind expansion.

From the perspective of linkages measurement, the role of electronic products and information service industry in the national economic industry is very different. Specifically, the influence and sensitivity of Electronic products on the national economy are higher than that of information service industry. Taking the measurement data of 2018 as an example, in 2018, the influence and sensitivity of information manufacturing industry reached the first and 12th positions respectively in the ranking of 42 includes, and also ranked the sixth and 16th after scale weighting. As for the information service industry, the influence coefficient and sensitivity coefficient rank 31st and 30th, basically at the lower middle level. The impact of the information service industry on the national economy is far less than that of the manufacturing industry, but after weighting, the influence coefficient and sensitivity coefficient rise by leaps and bounds, ranking 12th and 11th, ranking among the upper middle level.

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