

A Study of the Impact of Public Goods Provision on Economic Growth - A Perspective Based on Literature Review

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ABSTRACT

Since reform and opening up, the growth rate of China's public expenditure has exceeded the GDP growth rate. In the "20 National Congress", it is clearly pointed out that to strengthen socialist construction, we should focus on ensuring and improving people's livelihood, and vigorously increase infrastructure construction such as education, health care and culture. All these phenomena show that the government has increased its investment in the supply of public goods, but the social voice and academic research are still focused on the problem of insufficient supply of public goods. On the one hand, the rapid growth of government expenditure, on the other hand, is the severe criticism of the insufficient supply of public goods. The real reason for this phenomenon is the regional difference in the supply of public goods. Therefore, studying the relationship between public goods supply differences and economic growth and convergence in various regions of our country has important theoretical and practical significance to solve the problem of public goods supply in our country's economic growth and narrow the regional development gap. This paper reviews relevant literature from the two aspects of theoretical research on public goods and the correlation between the supply of public goods and economic growth, and explores that the supply of public goods can better grasp the context of economic development, timely explore new models of economic development, and provide continuous driving force for sustainable and healthy economic growth.

KEYWORDS: *supply of public goods; economic growth; Public indication*

1. INTRODUCTION

The problem of economic growth has always been the focus of economic research. Since "mercantilism", economists in different periods have tried to analyze the factors affecting economic growth from different angles, trying to find ways to promote long-term stable economic growth. So far, however, no economist or economic growth theory has been able to fully explain all the factors that affect economic growth. With the increasingly severe structural problems faced by the further development of the economy, the functions of the government in the production and provision of public goods must be further strengthened, which is an inevitable trend of adhering to the market-oriented reform, and the inevitable choice of the government to provide a stable foundation and create more convenient conditions for the development of the national

economy. At the same time, the government should also fully develop the potential of private provision of public goods, appropriately guide private participation in the supply of public goods, improve supply efficiency, and promote economic development. From the perspective of creating long-term development momentum for the national economy, providing citizens with fair public goods can not only improve economic efficiency, but also reduce some inequalities in economic development. From the perspective of macroeconomic regulation and control, government production and provision of public goods should also take into account the task of smoothing the economic cycle and maintaining economic order. The process of resource allocation in the provision of public goods will be a balancing

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process between the long-term and short-term effects of public goods on economic development.

2. Progress of theoretical research on public goods

A. Research on the definition of public goods and its relationship with economic growth

Zhang Wuchang (1988) believes that public goods can not only be completely provided by the government, but some special kinds of public goods can be supplied by the market through reasonable property rights arrangement. The predicament caused by the phenomenon of "free ride" of public goods is not enough to become a sufficient reason for the government to intervene in the economy. The public goods provided by the government should mainly be those public goods which are difficult to be solved by the method of property right definition. Wu Yanmin (2001) believes that the current theory of public goods is incomplete. He classifies public goods into original public goods and formulated public goods. By putting forward the concept of institutional public goods, he can further optimize the theory of public finance. Xiong Jun (2005) believes that the growth of factor inputs and total factor productivity are the two direct factors of economic growth. By modifying and analyzing Solow model to a certain extent, he puts forward an economic growth factor analysis model with strong applicability. Kuang Xianming (2009) analyzed the mechanism of public service promoting economic growth from the perspective of division of labor and micro-level. At the same time, he also built a model of the level of public goods service and the level of division of labor in each region, and analyzed the correlation between them. The conclusion showed that public services can affect economic growth by promoting division of labor. Finally, he suggested that investment should be focused on accelerating the equalization of basic public services. Li Qiang (2010) believes that the supply of public goods plays a direct and indirect role in promoting economic growth. As a part of economic growth, the supply of public goods plays an important role in promoting industrial structure upgrading, reducing economic costs, enhancing environmental protection, forward and backward effect and maintaining sustainable economic development. At the same time, he also pointed out that in some cases, the supply of public goods has a certain degree of restriction on economic growth.

B. Study on efficiency and system of public goods supply

Yan Kun and Wang Jinjie (2000) believe that the government can only decide the supply of public goods, and the government should fully understand

people's preferences when providing public goods. Taxation is an important means for the government to finance public goods, so people's preferences are closely related to the design of tax system. A good tax system design can avoid the phenomenon of "free riding" in the supply of public goods. From the perspective of the government, designing a reasonable tax system is of great significance to the supply of public goods. Zhao Baoting (2006), by studying the efficiency of public goods supply, pointed out that Samuelson's public goods rule cannot be realized through any combination of market mechanism and government mechanism. Through the collation and summary of the existing literature, he explores the solution of the problem of public goods supply in China's economic development from the perspective of definition; He thinks that the definition of public goods should adhere to the unified standard, and strengthen the research on the nature of public goods and supply system, so as to solve the efficiency of public goods supply; Yu Ji (2006) analyzed the development history and current situation of China's rural public goods supply based on the theory of public goods supply. He pointed out in his research that diversified public goods supply modes should be proposed in view of the current situation of China's rural public goods supply. In the process of public goods supply, it is necessary to clarify property rights and management rights, and governments at all levels should fulfill their responsibilities in the supply of public goods, and strive to promote social capital to enter the supply of public goods. He Xuefeng (2023) analyzed the supply level of village public goods based on the source of resources for the construction of public goods, and found that the supply level of village public goods was greatly improved, but there were also widespread problems of resource waste, including misalignment between the supply of public goods and village demand, the objectification of villagers, and the administration of village cadres. In the case of huge regional differences, different village demand for public goods and low standardization of public goods, the current long cycle of transferring resources to rural areas through the central department to build village public goods into a short cycle of endogenous supply of public goods can not only improve the efficiency of village public goods supply, but also improve the efficiency of village public goods supply. Moreover, it can stimulate the inner enthusiasm of farmers to build public goods, and the key link is to change the resources allocated by the state to the village from financial funds to collective resources of the village.

Miao Jianqing and Luo Jianyin (2007) believe that the high efficiency of public goods can promote the

harmonious development of social economy, and the maximum output with minimum input is also the goal we pursue in the supply of public goods. Taking the supply of public goods in Japan as a case study, they studied the marketized supply performance of waste goods disposal in China, discussed the significance of this process to the economic development of our country, and established a performance index to measure the supply of public goods. Wu Yazhuo (2008) revealed and reflected the relative competition in the supply of urban and rural public goods by constructing the theoretical model of the supply of urban and rural public goods. At the same time, the balanced conditions of the allocation of public goods in urban and rural areas are deduced, and the relevant policy suggestions are put forward to further improve the supply of public goods in rural areas. In a typical public goods experiment environment, Zhou Yean and Song Zifeng (2008) investigated the impact of the size of the population covered by public goods, the marginal income of individual investment and public goods, initial endowment and social relations on the voluntary supply of public goods, and verified different explanations for the phenomenon of voluntary supply of public goods. At the same time, by comparing it with the existing similar experimental studies from different countries, we can illustrate some inherent stability of economic individuals' social preferences. This conclusion has important implications for our understanding of various behaviors in economic activities, especially the voluntary supply of public goods. The supply of public goods has four effects on social economic growth, but there are serious deficiencies in the system, input and supply model of the supply of public goods in our country, which leads to the insufficiency of the consumption demand of Chinese residents. In order to increase the consumption of residents and improve the consumption demand of Chinese residents, it is necessary to reform the system, model and structure of the supply of public goods. Only in this way can we promote the consumption of Chinese residents and add new impetus to China's economic growth. Tian Shuying, Hu Hongyan, and Qin Guowei (2018) sorted out the evolution process of ecological restoration system in coal-mining subsidence areas in China and found that fragmentation of ecological restoration system, dislocation of ecological restoration main body system, absence of fund management system, and delayed updating of environmental impact assessment supporting system affected the supply efficiency of local ecological and environmental public goods. The optimization path of ecological restoration system in China's coal mining subsidence area is put forward.

3. The relevant empirical research on the supply of public goods to economic growth

A. Infrastructure perspective

Liu Deshun (1994) analyzed the infrastructure data and economic development index data of 30 provinces and cities in China, and the results showed that there were great differences in infrastructure among different regions in China, and infrastructure also played an important role in regional economic growth. Taking the supply of production factors as the starting point, Lou Hong (2003) analyzed the role of infrastructure stock formed by exogenous investment and endogenous investment on economic growth with the help of economic growth models previously studied, and conducted a reasoning study on its influence mechanism. Fan Guoli and Bai Wei (2004) used Douglas production function and CES production function to estimate the output elasticity of infrastructure capital in China, and their estimated results were 0.187 and 0.423 respectively. They believed that infrastructure had different effects on economic growth in regions with different levels of economic development. Liu Lunwu (2005) made a quantitative analysis of the relationship between infrastructure and economic growth in China's eastern, central and western regions with an error correction model. He believed that infrastructure in China could greatly promote GDP growth. Qin Yan (2005) established a C-D production function model to analyze the relationship between infrastructure investment and economic growth in Jiangsu Province, and concluded that the economic growth of Jiangsu Province was greatly affected by infrastructure investment. Guo Qingwang and Jia Junxue (2006) believe that the output effect of infrastructure is very large, the time lag is short, and each infrastructure has an influence relationship with each other, so understanding the basic characteristics of China's infrastructure is of great significance for the formulation of China's infrastructure investment policy. Based on the panel data of prefecture-level cities from 2011 to 2018, Zhang Jie and Fu Kui (2021) evaluated the innovation-driven effect of information network infrastructure construction by using the "Broadband China" strategy pilot as a natural experiment. The study found that the pilot policy of "Broadband China" strategy significantly promoted the improvement of urban innovation level, and this conclusion remained valid after a series of robustness tests including instrumental variables and propensity score matching. It provides a reference for further promoting the construction of new infrastructure and accelerating the construction of an innovative country.

Zhang Jun, Gao Yuan et al. (2007) used PCA method to measure the changes in infrastructure stock and regional disparities in China since the reform and opening up. At the same time, they also built an econometric model to test the change mode of infrastructure investment that can be explained. And perfect infrastructure system will greatly influence our country economic growth; Tian Zuyin and Wu Na (2007) One of the possible causes of expenditure poverty is the insufficient supply of public goods in education. Empirical studies from around the world have found that economic growth can effectively reduce the poverty rate, and the empirical test results show that education input is of great significance in reducing the poverty rate in China. Luo Yongmin (2010) tested the urban-rural infrastructure and urban-rural income gap in China by combining factor analysis and spatial measurement, and the analysis results showed that the economic effects of urban-rural infrastructure had spatial correlation, and the urban-rural infrastructure difference was the reason for the widening urban-rural income gap. Wei Xiaohai (2010) also tried to analyze the panel data of 29 provinces and cities in China from 1991 to 2006 by using spatial econometric methods. His research results showed that infrastructure and economic growth in China have obvious spatial correlation characteristics, and the development of urbanization and transportation infrastructure can greatly promote China's economic growth. Based on the theory of new economic geography, Wang Liangju and Wang Yongpei (2011) used panel data to analyze the relationship between infrastructure and economic density and labor productivity, and the results showed that infrastructure and economic density could improve labor productivity. Liu Shenglong and Hu Anan Gang (2011) tried to introduce traffic variables into the gravity model and study China's traffic facilities and regional economic integration by using China's transportation data in 2008. Their research results showed that China's provincial trade border was close to that of developed countries, and transportation infrastructure could promote China's regional trade. And can promote the formation of regional economic integration in our country. Fan Xiaoli (2023) took the inter-provincial panel data of China from 2011 to 2020 as a sample, and the research showed that the development of digital finance had a positive promoting effect on the economic growth of all regions in China, and the positive effect of information infrastructure was the most significant, and the degree of economic intervention had a inhibitory effect on regional economic growth. The level of urbanization and the effect of local market are the important reasons for

promoting regional economic growth. He Xiaoyu and Li Bo (2023) used the panel data of Wanjiang cities from 2011 to 2019 to evaluate and identify the policy effect and mechanism of the construction of digital infrastructure on the urban economy of Wanjiang by using the differential method, and found that the construction of digital infrastructure could significantly improve the economic development level of the pilot cities of Wanjiang. It can promote the economic development of Wanjiang city by improving the level of industrial structure rationalization, entrepreneurial activity and innovation level of Wanjiang city.

B. Public expenditure perspective

Zhuang Ziyin and Zou Wei (2003) believe that the adjustment costs in public expenditure mainly include the installation and deployment costs and the loss of social welfare. They analyze spending through time series and cross sections, which have some negative effects on economic growth due to adjustment costs in public spending; Guo Qingwang and Jia Junxue (2006) constructed a two-sector endogenous model of public expenditure and investment, and theoretically explored the long-term effects of public expenditure. At the same time, they used the economic development data of China from 1978 to 2004 to study the relationship between public capital investment in long-term economic growth, and found that public capital has a more significant impact on economic growth in the long run, while the impact is not significant in the short run.

Liang Ruobing and Tang Yun (2008) combined the Tiebout model and the dynamic panel model to test the relationship between housing prices and the supply of public goods in 35 Chinese cities, and the results showed that the supply of public goods obviously promoted the growth of housing prices. Based on the model set by Fujita, Thisse(2002) and Wang Hongguang (2007), Wang (2010) introduced the variable of government public service to analyze the relationship among government public service, industrial agglomeration and economic growth. Through empirical research found. Industrial agglomeration is the main factor of China's economic growth, and human capital has an important impact on industrial agglomeration and economic growth, while government public goods service has a limited role in promoting industrial agglomeration and economic growth. Peng Dingyun, Gao Ping, and Luo Yuan (2011) believe that the endogenous economic growth theory emerging in recent years proves the role of public goods in economic growth. On this basis, they analyzed the effect of public expenditure on economic growth with the data of national public

expenditure and economic growth from 1994 to 2008. Through the analysis of cointegration test, error correction and state space model, it is found that the expenditure of agriculture and education has a promoting effect on economic growth in the short term, while the expenditure of health and social security has a promoting effect on economic growth in the long term. Liang Chao and Wang Susu (2020) studied the long-term impact of the school-withdrawal and school-integration movement implemented from 2001 to 2012 on the distribution adjustment of rural public education goods, constructed a difference-difference model based on the differences in policy intensity of school-withdrawal and school-integration between regions and sample cohort information, and used methods such as propensity score matching to alleviate the problem of sample comparability. It is found that the consolidation of schools is conducive to improving the long-term human capital of rural children and the performance of local educational financial expenditure. Zhang Yihao and Guo Xiaohui (2023) Based on the pilot reform of the division of authority and expenditure responsibility implemented in 2016 in the three specific fields of education, medical and health care and transportation in Shandong Province, they used the differential differential model to empiric-analyze the impact of reform on the supply of public goods and found that the clear division of authority and expenditure responsibility in specific fields could significantly improve the supply level of public goods. Moreover, the reform will significantly reduce the financial pressure on local governments, thereby increasing the level of financial investment in public goods. In particular, the reform will also significantly improve the efficiency of education expenditure. Yao Dongmin, Li Haoyang and Zhang Pengyuan (2023) established a tripartite game model of government, manufacturers and consumers based on the vertical competition framework of the market, analyzed the effectiveness and scope of application of the composite purchasing strategy respectively, and compared the government costs of different composite purchasing strategies. It is found that the compound purchase strategy can effectively protect the demand for public goods under the characteristics of high cost or low preference market structure. The government can reduce the government cost by subsidizing the low quality manufacturers and providing high quality products. Yang Yaqin (2022) used the basic idea of supply and demand equilibrium in economic theory to build a theoretical model of local government public goods supply under limited budget constraints, and analyzed the local public goods supply under tax, transfer payment, general

bond and land transfer as well as the resulting changes in residents' welfare level. It puts forward relevant policy suggestions on improving China's transfer payment system and fund allocation methods, and seeking tax rate balance between promoting economic growth and public goods supply.

4. Summary and policy suggestions

From the current research status of the existing literature, the theoretical research of domestic scholars is relatively weak, and the theoretical models of public goods and economic growth in the existing domestic literature are all extensions and changes based on the research of foreign scholars. In terms of the mechanism of action, there are not many studies by domestic scholars, and there are not many high-level papers on the supply of public goods and the mechanism of economic growth. The main reason is the lack of theoretical research. In terms of empirical research, domestic scholars tend to focus on local research in China, and domestic scholars have carried out relatively comprehensive empirical research on this issue from various angles, and the research method is basically panel data. Although domestic scholars have done a lot of research on this issue, we are surprised to find that there is still no consensus on the relationship between the supply of public goods and economic growth. We believe that this issue will eventually come to a conclusion with the continuous improvement of research methods. Looking at the research results at home and abroad, it can be found that foreign theories and empirical results are relatively rich, but foreign empirical studies are more targeted, and there are few empirical studies using China's economic data as samples. The empirical results of domestic scholars have filled this gap, but the lack of domestic research innovation has restricted the development of empirical research to a certain extent. Therefore, how to find a balance between theory and empirical research is the key to the study of the relationship between the supply of public goods and economic growth.

The qualitative research on the impact of public goods supply on economic growth mainly focuses on the impact of public investment on economic growth. In terms of quantitative research, in terms of infrastructure construction, efficiency of public capital, and institutional construction, the research on the supply of public goods mainly focuses on its economic effect and government public goods services, and analyzes them from the perspective of policies. However, from the perspective of public goods supply, there are few literatures on the impact of changes in public goods supply on economic growth after the expansion of domestic demand three times.

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