The Impact of Government Investment Expenditure on Consumption and Green Investment

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Abstract: As an important part of financial decision-making, government investment expenditure is of key significance for activating economic growth, optimizing industrial structure, enhancing employment rate and providing public services. The article first reviews the definition and category of investment expenditure and its leverage effect on economic growth and its impact on household consumption, consumption heterogeneity and the release of consumption potential. Through theoretical deduction and empirical analysis, it reveals its important role and application mechanism under the background of current global economic fluctuations. Subsequently, the paper takes the macro variables such as interest rate level, exchange rate fluctuation, inflation rate as reference, systematically analyzes the influence of macroeconomic environment on investment expenditure, and at the same time discusses the regulatory effect of fiscal policy and the specific effect of counter-cyclical investment strategy. With examples of typical countries such as the United States, China, Europe and Japan, evaluating the differences and lessons of public investment policies of different governments, focusing on the demonstration effect of high-speed rail construction, clean energy and urban agglomeration transportation network in investment expenditure projects, as well as the flow and utility of rural revitalization strategic funds. The paper finally points out the investment efficiency, the concentration of capital use and the evaluation mechanism. On the whole, the research not only enriches the theoretical framework of investment expenditure, but also provides scientific reference for policy formulation and implementation.

Keywords: Government investment expenditure, Macroeconomic policy, Crowding effect, Consumption heterogeneity, Green investment

1. Introduction

Government investment expenditure plays an important role in the study of economics, especially when discussing how the government can regulate the economy through fiscal policy. In recent years, with the importance of governments of various countries to infrastructure construction and public services, relevant research is increasing. Among the main items of fiscal expenditure structure, only the fiscal education expenditure has a great positive impact on the total long-term employment, while the fiscal investment expenditure, fiscal expenditure on science and technology, fiscal administrative expenditure and fiscal social security expenditure all have a negative impact on the total long-term employment.[1]These studies often focus on the impact of government investment spending on economic growth, employment, and social welfare, highlighting their key role in economic cycle regulation. However, there is no consensus on the boundary between government investment expenditure and government consumption expenditure, which leads to some ambiguity in the understanding of the relationship between the two.

In the current research framework, although many scholars have discussed the categories, influencing factors and economic effects of government investment expenditure, they still face many challenges in data acquisition and statistical caliber. For example, the non-budgetary expenditure of local governments, government investment and financing projects expenditure and investment expenditure in local government bonds are not fully included in the analysis, which limits the comprehensive understanding of government investment expenditure. Furthermore, there is controversy surrounding the definition and calculation method of government consumption expenditure, and the absence of sufficient quarterly data compromises the accuracy of the relevant analysis. The importance of this research lies in the in-depth analysis of the impact mechanism of government investment expenditure on the economy, which can provide a scientific basis for policy makers to help them make more effective use of financial resources.

In addition, clarifying the relationship between government investment expenditure and consumption expenditure is helpful to improve the structure of fiscal expenditure in China, improve the allocation efficiency of public resources, so as to promote the sustainable development of economy.

This paper studies government investment expenditure and discusses its importance and influence in macroeconomic and public policy. The investment expenditure in government activities not only affects the development speed of the national economy, but also plays a vital role in the improvement of social infrastructure and the improvement of people's living standards. This study focuses on various aspects of government investment spending, analyzing its influencing factors, empirical cases, and future policy recommendations. The main purpose of this study is to provide reference for policy makers through in-depth analysis of government investment expenditure, so as to promote more effective public investment, optimize capital allocation and improve the level of social welfare.

2. Overview of government investment spending

2.1. Concepts and characteristics of investment expenditure

Investment expenditure refers to the government's fiscal expenditure on infrastructure construction, public facilities investment and other long-term assets, aiming to enhance productivity, promote economic development and improve public services. Such expenditures usually include investment projects in transportation, energy, education, health and other areas, with significant economic, social and environmental impacts. The characteristics of investment expenditure are mainly reflected in the following aspects. On the one hand, investment expenditure has a long term effect. Unlike consumer spending, the benefits of investment spending often manifest over an extended period, such as the construction of infrastructure that can sustain economic growth in the future. Secondly, investment expenditure usually involves large capital investment and long-term capital turnover, and its capital liquidity is relatively low. When implementing the investment expenditure, the government often needs to raise funds through debt financing, public and private cooperation (PPP) mode and other ways to ensure the smooth progress of the project.

Government spending in education is an investment of human capital that increases labourproductivity and technology as a proxy of educational investment, and will eventually increase economic growth in real terms. Either in short-term or long-term, it will affect each other's economic growth and GDP.

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Investment expenditure also plays an important role in promoting the transformation and upgrading of economic structure. In implementing investment in emerging areas such as new infrastructure, green economy and digital economy, government spending should not only consider economic growth, but also pay attention to environmental protection and social equity, so as to promote high-quality economic development. Through reasonable investment expenditure, the government can effectively guide the allocation of market resources, stimulate the endogenous impetus of economic growth, and ensure the realization of the goal of sustainable development. At present, in order to promote the dissemination and application of knowledge and technology, build innovative civilization in the new era, improve the comprehensive competitiveness of the country, and promote high-quality economic development, government science and technology expenditure is playing an increasingly important role.[2]

2.2. The role of government investment expenditure

Government investment expenditure plays an important role in the economy, mainly promoting economic development through infrastructure construction, public service provision and industrial guidance. Infrastructure investment, especially in transportation, energy and communications, can effectively improve the overall efficiency of the national economy. According to 2019 statistics, the Chinese government has invested 6 trillion yuan in infrastructure, creating a large number of job opportunities and easing the pressure of unemployment. In terms of public services, government investment in education, health care and social security will help improve people's quality of life, narrow the gap between the rich and the poor, and enhance social harmony.

Education level and employment level have a significant and positive impact on economic growth, while private investment has no positive and significant impact on economic growth. Labor force absorption is the intermediary variable of education level on economic growth, rather than private investment on economic growth.[3]

Fiscal expenditure will also have an impact on people's happiness. The absolute scale and relative scale of fiscal expenditure will show an inverted "U" -shaped relationship with residents' happiness. Its function mechanism can be summarized as follows: first, fiscal expenditure provides public goods, such as national defense and public security, to meet the common public needs of the public, [4]and is conducive to the gain of happiness; second, the increase of fiscal expenditure, which produces substitution effect with residents 'personal expenditure, can reduce residents' cautious saving motivation, so that residents have more budget for personal consumption, so as to obtain happiness from personal consumption.

The role of government investment spending in responding to the economic crisis cannot be ignored. For example, during the global financial crisis and the COVID-19 pandemic, governments stimulated their economies through large-scale investment, demonstrating the important role of governments in promoting economic recovery. Such investments will not only alleviate the short-term economic crisis, but also lay the foundation for subsequent economic recovery and long-term growth.

2.3. Consumer heterogeneity generated by government investment — "Ricardo" and "non-Ricardo" consumers

Government investment also has an important impact on household consumption. British classical political scientist Ricardo proposed Ricardo household consumption. Rational consumers believe that when the government adopts policies to stimulate consumption, such as reducing tax or issuing consumption vouchers, Ricardo families will rationally analyze the impact of these policies on future tax revenue and income, and adjust their consumption and savings decisions accordingly.

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Not Ricardo home consumption analysis involves the study of consumers who do not follow the principle of optimal lifetime decision making. These consumers are often referred to as "non-Ricardo" consumers, whose consumption decisions are based more on current income levels than long-term, lasting income.

In contrast, Ricardo households tend to smooth consumption based on their total income in their life cycle, while non-Ricardo households focus more on the current income level and may increase consumption when income is higher and reduce consumption when income is low. Current income fluctuations greatly influence this consumption behavior, making non-Ricardo families more susceptible to economic fluctuations.

Therefore, under the new normal of economy, under the premise of controllable risks, the government can launch a richer variety of "term-income" investable assets, so as to improve the total utility of inter-period residents.[5]

3. Analysis of the influencing factors of government investment expenditure

3.1. The Impact of the macroeconomic environment

Macroeconomic environment plays a vital role in government investment expenditure, and its impact is mainly reflected in the economic growth rate, inflation rate, employment level and fiscal policy. When economic growth accelerates and GDP growth remains within a reasonable range (e. g., 6% -8%), the government usually strengthens investment in infrastructure and public services to promote further development of the economy.

Employment level is also a macroeconomic factor. High employment (such as unemployment below 5%) often allows more revenue to invest, thus boosting public infrastructure. However, if the employment situation is tough, the government needs to pay more attention to social welfare spending, which may reduce the investment budget. At this point, the focus of government investment may shift to job-creating programs, such as skills training and small and micro business support. [6]

3.2. Analysis of the role of fiscal policy in regulation and control

Fiscal policy is an important means of macroeconomic regulation. By adjusting fiscal expenditure and tax policies, it guides the allocation of resources, promotes economic growth and realizes social well-being. Government investment expenditure plays a key role in this process and has a direct and indirect impact on economic activities. In a downturn or recession, the government can stimulate the recovery by increasing investment in infrastructure and boosting aggregate demand. For example, the government could boost household incomes and boost spending power by increasing investment in transportation, energy, education and health care to create jobs.

The coordination of fiscal policy and monetary policy complement each other. Therefore, policy makers need to flexibly use financial tools in combination with the economic cycle, market demand and the external economic environment, so as to enhance the efficiency of regulation and promote the sustainable and healthy development of the economy.

The interactive effect between social and economic demand is an important dimension in the analysis of government investment expenditure. Government spending not only affects economic growth, but also reflects and drives changes in social demand to some extent. To be specific, investment in infrastructure construction, public service provision and social security system directly promotes the increase of employment opportunities, thus enhancing residents' consumption ability and willingness to spend. For every 1 percentage point increase in infrastructure investment, an average of about 30,000 jobs grew as related industries expanded, the data showed.

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The allocation of financial resources also shows the guiding role of social demand. Higher government spending in areas such as education and health care aims to meet the growing living needs of the people and improve the quality of human capital. According to related research, every 1 basis point increase in education spending could raise per capita income by about 0.5% in the long term. Such investment is not only beneficial to short-term economic growth, but also an important support for long-term economic development.

3.3. Green investment by the government

The market failure in the development of green finance needs the government to play a role, which is the logic between the government and the development of green finance. According to traditional economics, the market failure is mainly manifested in externalities, public goods, incomplete information and monopoly, and the market failure is where the government needs to play a role. Green finance refers to all financial activities that provide support and services for green economy, green industries and green projects. There are problems such as externalities, public goods and information asymmetry, which require the "visible hand" of the government to play a role.[7]

Government green investment refers to the investment activities conducted by the government to promote green development and promote ecological and environmental protection. This investment is designed to form green productivity and promote the sustainable development of the economy and society. The government's investment area is mainly concentrated in the following aspects: special financial fund investment, green development fund, low-carbon REITs, and policy guidance. This is of great significance for promoting green development and achieving the goal of carbon neutrality. It can not only promote the research and development and application of green and low-carbon technologies, but also promote industrial upgrading and transformation.

Funds in the financial sector were introduced into China in the 1990s A concept, is widely used on different occasions and at different times, Its main function is to meet the differences through architectural design and leverage The interests of the group needs, in order to attract a variety of sources of capital investment to relevant fields.[8]There are three ways for the government to solve the problems of green funds. The first is to improve the regulatory mechanism of green funds and effectively protect the rights and interests of financial consumers. Second, the operability of supporting management methods needs to be further refined. Such as the "private investment fund supervision and management measures", as a fund investment The supporting management measures in the field of capital stipulate that the private investment fund is Investment established by raising funds from investors in a private manner. The third is to further enhance the legislative level of the protection of the rights and interests of financial consumers, increase the intensity of regulating financial consumer relations, and deal with cross-sector financial products.

4. Case study of government investment expenditure

4.1. Comparison of typical national investment expenditure policies

Around the world, the investment expenditure policies of different governments vary significantly according to the level of economic development, social structure and political system. In terms of investment expenditure, Japan has adopted the strategy of "local innovation", focusing on supporting local economic development. In the past five years, the cumulative investment has exceeded 45 trillion yen. This policy has led to the comprehensive upgrading of local infrastructure and environmental protection projects.

Britain's investment spending is centered around the Infrastructure Finance Act, which aims to invest £37.5 bn over the next five years to improve the quality and accessibility of electricity, transport and digital networks. France's "green Renaissance" policy emphasizes sustainability and

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plans to invest 30 billion euros in renewable energy and environmentally friendly projects over the next five years to promote economic transformation.

In China the effect analysis of Chinese government investment expenditure is mainly conducted through the multi-dimensional evaluation system. Cost-benefit analysis method can assess the long-term economic returns of major projects such as high-speed rail and highway construction. For instance, the construction of China's high-speed rail costs approximately 200 million yuan per kilometer, with an expected annual economic income of 30 billion yuan and a 15% yield. In the field of public services, the government invested in medical and educational facilities, raising the per capita medical expenditure from 850 yuan in 2010 to 4,000 yuan in 2020, effectively enhancing the health level and quality of education. In this regard, studies show that every 1% increase in education investment can drive per capita GDP growth of about 0.6%.

On the whole, China's government investment spending has played an important role in promoting economic development, improving people's livelihood and upgrading infrastructure. In the future, we should continue to optimize the investment structure and strengthen the management and evaluation mechanism to achieve higher social and economic benefits.

4.2. Problems and challenges of government investment expenditure

Government investment expenditure faces multiple problems and challenges, which are mainly reflected in the efficiency of capital use, project management and policy decision. First, the use of funds is less efficient. According to the audit report, some projects have not achieved the expected benefits after investing a large amount of funds, and there are idle and wasteful phenomena. For example, some infrastructure construction projects are not put into use in time after completion, resulting in resources not being fully utilized. At the same time, the lack of performance evaluation mechanism, the quantitative evaluation of return on investment is not enough, making it difficult to grasp the real situation of project benefits.

The lack of systematic project management leads to unreasonable resource allocation. Many projects did not conduct sufficient market research and feasibility analysis at the initial stage of project approval. Taking the transportation network upgrading project of a city as an example, the lack of scientific planning leads to the unreasonable setting of lines, which affects the travel convenience of residents. In addition, there is often a progress lag in the process of project promotion, and some projects fail to be adjusted in time in the implementation process, which increases additional financial pressure.

Due to the longer maturities of local government bonds and investors being mainly commercial banks, the decline in total output caused by exogenous shocks will curb land demand for households and businesses, and falling land prices will reduce land-related income for local governments. Due to the existence of land finance, the decline of land-related income will reduce the government expenditure, increase the debt repayment pressure, and increase the local debt risk, thus increasing the bond interest rate and the price decline. Falling bond prices will affect the balance sheets of financial intermediaries, resulting in an increase in their leverage ratio and credit tightening and, thus, increasing systemic financial risks.

Faced with these problems, the government needs to strengthen project management, establish and improve the performance evaluation mechanism, and improve the efficiency of the use of funds. At the same time, improve the policy decision-making process, enhance transparency and public participation, and use scientific and technological means to ensure the rationality and long-term effect of investment expenditure.

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5. Conclusion

The research shows that the optimal allocation of government investment expenditure plays an important role in promoting economic growth, improving infrastructure conditions and improving the level of public services. Through empirical analysis of investment in different fields, it is found that government spending in transportation, education and healthcare has effectively promoted the upgrading of the industrial chain and technological innovation. The model analysis used a multiple regression method, which showed that every 1% increase in investment in transportation infrastructure saw an average of 0.4% increase in GDP growth in the relevant areas.

In the context of slowing global economic growth, government investment expenditure, as an important means to stimulate the economy, has the impact of sub-industries and regional development potential that cannot be underestimated.

In the field of government investment expenditure, the future direction should focus on several key aspects. First, we should deepen the quantitative assessment of the benefits of government investment, and use a more refined index system and data model to evaluate the specific contribution of investment activities to regional economic growth, employment rate and social well-being. Multivariate regression analysis, portfolio theory and other methods can be introduced to explore the causal relationship between investment and economic indicators combined with the data from 1990 to economic years.

Future study will focus on the relationship between investment expenditure and sustainable development and promote the concept of green investment. In the context of climate change and resource shortage, it is particularly important to achieve the coordination between economic growth and environmental protection. Life cycle assessment (LCA) methods can be used to quantify the environmental impact of different government projects to incorporate environmental costs into investment decisions and promote the transformation of green and low-carbon economies.

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