



A theoretical and empirical study on the impact of local government debt on economic growth

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Abstract— Economists on the connotation and extension of government debt has been different debate, its impact on economic growth has not formed a consistent point of view and method, even some theories on government debt analysis conclusions are very different. The main representative theories are "the harmful theory of public debt" of classical economics school and "the beneficial theory of public debt" represented by Keynesianism. Marxist political economics from the perspective of production relations, the connotation and extension of government debt has been deeply studied and discussed, the government debt as a means of financing, accelerate the original accumulation of capital. Since the founding of The People's Republic of China, in order to meet the needs of economic construction and development in different historical stages, The financing behavior and methods of Local governments in China have been constantly changing and improving in the course of development. Through the method of combining theoretical research and empirical research, this paper studies the relationship between Local government debt and economic growth in China after reviewing the classical economic theories and the development history of local government debt in China, and gives relevant policy suggestions.

Keywords— Political Economy, Local government debt, Economic growth.

I. INTRODUCTION

Economists have always debated the impact of government debt on the economy, and its impact on economic growth has not yet formed a consistent view or approach, and some theories have reached very different conclusions on the analysis of government debt. In the middle of the nineteenth century, the mainstream view of political economy theory on government debt shifted dramatically. Classical political economists, such as Adam Smith and David Ricardo, held a negative view of government debt in the first half of the nineteenth century, believing that it would impede socioeconomic development.

However, in the second half of the nineteenth century, Britain, which had a debt ratio of nearly 300% after the Napoleonic Wars, not only did not suffer a negative economic impact, but also boomed in both manufacturing and finance, and became a global hegemon before World War I. During this time, various perspectives on government debt began to emerge. From the standpoint of production relations, Marxist political economy conducted an in-depth study and discussion on the connotation and extension of government debt, arguing that government debt, as a means of financing, accelerates the primitive accumulation of capital, is an important driving force in the process of

formation and development of the capitalist system, and benefits the bourgeoisie at the expense of the working class. Keynesian theory was gradually developed and perfected after the twentieth century, and the "debt-beneficial theory" advocated by it was adopted as an important guideline for economic reform by many governments. After reflecting on Keynesianism, people later developed the public choice theory. Although various theories from various schools of thought have paid close attention to government debt in recent times, economics still lacks a unified and effective view and approach to studying the impact of government debt on the economy.

II. LITERATURE REVIEW

Many in-depth studies on government debt and economic growth have been conducted recently, but there is no consensus conclusion among different studies, and some are even completely contradictory. In summary, the research on government debt and economic growth can be summarized into three main types of conclusions, namely, the "harmful theory of public debt," "beneficial theory of public debt," and "uncertain theory of public debt."

On the one hand, Greiner (2012) contends that government debt is negatively correlated with economic development, i.e., that increasing government debt impedes local economic development; Hu Wancheng and Zhang Wenjun (2012) contend that increasing local government debt will backfire on the financial system and increase the financial system's systemic risk. Cochrane (2011) contends that excessive government debt can lead to uncertainty in fiscal revenues as well as tax expectations, reducing fiscal revenue stability, after studying fiscal and monetary policies during and after the Great Recession of 2008-2009 using debt valuation equations. According to Chen Jiongjun (2012), the pressure of rigid government debt puts tremendous pressure on the fiscal balance, putting higher demands on the stability of local revenues. Yang, Can-Ming, and Lu, Yuan-Ping (2013) contend that excessive government debt will force the government to increase its tax burden and form a heavy reliance on land finance, resulting in drastic fluctuations in fiscal revenue and destabilizing fiscal revenue; in a follow-up study, Yang, Can-Ming, and Lu (2015) contend that local governments' increasing reliance on land finance and the release of local

debt data to society will have a significant negative impact on the sustainability of local governments. The fiscal revenue's long-term viability suffers significantly. Through their study, Mao Rui et al. (2018) find that the disorderly expansion of government debt can undermine the long-term momentum of China's economic development, and when local government debt disrupts the fiscal balance, it is highly susceptible to systemic financial risks.

Xu, Changsheng, et al. (2016), on the other hand, discovered that land concession revenue, the most important component of local general revenue, positively contributes to local government financing through the mechanism of "debt-infrastructure investment-economic growth" using panel data from 1424 government financing platforms in 255 prefecture-level and above cities in China from 2006 to 2013. Blanchard and Giavazzi (2004) contend that the issuance of public debt by the government to finance public physical capital investment not only promotes economic growth by encouraging public physical capital investment but also strengthens the government's ability to manage the budget and government debt. After studying an endogenous iterative model of two sectors, Jia, Junxue, and Guo, Qingwang (2011) concluded that government debt can promote local economic growth and relieve fiscal pressure. According to Fan Jianyong and Mo Jiawei (2014), local government debt promotes infrastructure support to attract industrial investment, which is conducive to the development of regional industrialization, thus expanding tax revenue sources and stabilizing the region's fiscal revenue. According to DeLone and Summers (2012), the impact of the public debt ratio on the economy is positively correlated in both the short and long term, and government debt contributes to fiscal self-sufficiency in a low-interest rate market environment.

According to some domestic and international studies, the contribution of government debt to local economic development and fiscal stability is proportional to the size of the debt. According to Reinhart and Rogoff (2010), government debt ratios greater than 90% impede local economic growth, but the relationship is not significantly below 90%. Herndon et al. (2013), on the other hand, point out a mathematical error in Reinhart et al. study's in which the growth rate is not significantly different from the previous one when the government debt exceeds 90%.

Checherita-Westphal et al. (2012) demonstrate, using theoretical models, that the level of debt that maximizes economic growth is a function of capital output elasticity and that the level of government debt has an inverted U-shaped relationship with the local economic growth rate. Domestic scholars have also conducted extensive research in related fields, such as Liu Hongzhong et al. (2014), who used a systematic GMM approach based on panel data for 61 countries from 1980 to 2009 to confirm the existence of a nonlinear relationship between government debt levels and local economic growth in both developed and developing countries. Chen Shiyi and Wang Li (2016), Han Jian and Cheng Yudan (2018), and Mao Jie and Huang Chunyuan (2018) all use different proof methods to demonstrate the inverted U-shaped relationship between local government debt and economic growth. However, because of China's vast size and the large differences in government debt rates and economic development levels between the eastern, central, and western regions, the performance of the relationship across regions needs to be further verified.

To summarize, scholars both at home and abroad are currently unable to reach a consensus on government debt, with some studies yielding opposing results. At the moment, it is widely assumed that local debt is highly correlated with regional economic development, but that the relationship is non-linear. There is also a lack of unified standards for the statistical caliber of government debt, and most current studies focus on the national level, consider the fact that, due to China's vast size and the large disparity in economic development among provinces, the structure and quantity of government debt in each province differ significantly. This paper investigates the relationship between government debt and economic growth and its heterogeneous performance across regions from both theoretical and empirical perspectives to better determine the relationship between local government debt and economic growth in different regions and to prevent regional economic risks.

III. HISTORY AND STATUS OF LOCAL GOVERNMENT DEBT DEVELOPMENT IN CHINA

1. History of local government debt development

Following the establishment of New China, to meet the

development needs of economic construction at various historical stages, local government financing behaviors and methods in China have also been groping for stones to cross the river, changing and improving in development, and playing an important role in national economic development at various historical stages. Along with reform and opening, the development mode and governance means of local government debt under the socialist market economy system with Chinese characteristics have been established following the times. On the one hand, continuously enrich and broaden the way local governments act in financing by combining indirect financing primarily through bank loans and indirect financing primarily through bond issuance, and encouraging and stimulating local governments to play a more active role in local economic construction through debt financing. On the other hand, it constantly reviews and improves the development of local government debts, monitors the scale of local government debts, implements relevant policies and regulations as needed, controls the scale of local government debts, constantly controls the risk of government debts from macro policies, and prevents systemic financial risks arising from government debt defaults.

1.1 Exploration and development stage (1949-1993)

Following the establishment of New China in 1949, the country's external environment was beset by internal and external problems, and the internal economy was in desperate need of a hundred things. Both the central and local governments needed funds for economic development to make up for the fiscal deficit and the enormous losses caused by years of war to society and the economy. As the Republic's main heavy industrial base and key economic development area at the time, the central government designated the northeast region as a pilot project and led the way in issuing "northeast production and construction bonds" to expedite the layout and construction of local heavy industries and to recover and develop the economy as quickly as possible. The issuance of public debt in the northeastern region provided valuable experience for the issuance of public debt in the remaining provinces and regions at the time, and the central government then gradually granted the authority to issue public debt in the southern provinces of Anhui, Fujian, and Jiangxi (Guo Yuqing and Mao Jie, 2019). However, due to the lack of an

effective local government debt supervision system at the time, under the fiscal system of "one account for the whole country," a large number of debts accumulated by local governments eventually needed to be repaid by the central government, and the problem of local government debts became a societal concern (Jiang Changqing, 2010). Under the special political circumstances of the time, many local governments borrowed excessively from banks to exceed short-term economic construction targets, and as a result of policy errors and inefficient use of funds, the central government, as the ultimate debt repayer, assumed and repaid a large amount of "off-balance-sheet debt" outside the fiscal system (Zhao, Menghan, 2002). Because of the gradual exposure of such problems, the state stopped financing local governments' debt and issued the Notice of the General Office of the State Council on Temporary Refraining from Issuing Government Bonds in 1985, which explicitly prohibited local governments from issuing bonds for financing.

During this period, the issue of local government debt provided valuable experience and lessons for the future. The first is how to clarify the rights and responsibilities of central and local governments in the use and repayment of local government debt; the second is how the role of the then highly centralized banking and financial system in the financing behavior of local governments changed from a planned economy to a market economy, and the third is how to establish an effective regulatory system to control the scale of local government debt and the risk of government dilution. The central government has been able to continuously improve the development of local government debt by investigating the numerous issues raised above.

1.2. High-speed development stage (1994-2010)

Since the 1994 tax reform, the transfer of financial and administrative powers upward and downward has caused inequality in the financial and administrative powers of local governments, and local governments are more passive in the distribution of financial and administrative powers with the central government, and tax revenues cannot meet public expenditure needs, resulting in an imbalance between local fiscal revenues and expenditures. The Budget Law of 1994 mandates that all levels of local government prepare budgets based on the principles of keeping revenues within the limits of expenditure and balancing income and

expenditures. Due to the previous Circular of the General Office of the State Council on Temporary Refraining from Issuing Government Bonds, which explicitly prohibited local governments from issuing bonds for financing, as well as the constraints of the Budget Law, many local governments chose to establish government financing platform companies to make up for fiscal deficits and promote local economic development. These platform companies serve as white gloves for government financing, handling external financing for local infrastructure development and other government-related projects.

In response to the global financial crisis, the central government launched the "4 trillion" economic stimulus plan in 2008. Because both the central and local governments were unable to come up with large sums of money to stimulate economic development in a short period, the central government assisted local governments in broadening their financing channels through the following measures: First, to develop "on-balance-sheet" financing, the Standing Committee of the 11th National People's Congress heard the Report of the State Council on Arranging the Issuance of Local Government Bonds in 2009, and the Ministry of Finance promulgated the Measures for the Administration of Local Government Bonds in 2009, under which the Ministry of Finance issues local government bonds on behalf of the local government. After the bonds mature, the local treasury will collect the principal and interest and deposit it in the Ministry of Finance's special account, which will repay the bonds on the Ministry's behalf. The first issue of local government bonds Xinjiang Uygur Autonomous Region Government Bonds (Phase I) was officially issued in April 2009. The second goal is to create "off-balance-sheet" financing and encourage local governments to raise funds from financial institutions by establishing government financing platform companies. The Guidance on Further Strengthening Credit Structure Adjustment to Promote Stable and Rapid Development of the National Economy was issued in 2009, and it was proposed for the first time to assist local governments in establishing compliant government investment and financing platforms to attract banking sector credit financing and to broaden local governments' financing channels to support major infrastructure construction projects.

During this time, local governments had a legal basis for self-financing, and they could raise funds through National People's Congress-approved development plans. Along with broadening local government financing channels, it bridged the financial gap for local governments and supported the funding of major state and local infrastructure projects. However, the rapid expansion of local government debt during this period has revealed several issues. First, under the "issuance on behalf of repayment" model, local government bond issues are approved by the central government, and local governments and investors generally believe that the repayment credit of local government bonds is backed by the central government, resulting in excessive debt borrowing in some less developed regions. Second, "off-balance-sheet" financing violates the Guarantee Law, which states that state organs shall not provide debt guarantees; however, in reality, some local governments provide guarantees in the form of supporting documents agreed by the National People's Congress or local government commitment letters, which have some illegal potential. Third, the excessive development of "off-balance sheet" bank financing makes it more difficult for the central government to monitor the debt situation of local governments and results in the actual debt ratio of some local governments exceeding the level required by the central government. Issuing "off-balance sheet" bank financing is not subject to central government approval, and the procedures are simpler and more flexible. Fourth, companies that provide government financing platforms cause an irrational expansion of bank credit assets. Financial institutions also concede that the government has approved the financing of these platforms, lowering lending standards. Finally, the limited credit resources of financial institutions are excessively concentrated on these platforms, putting pressure on manufacturing and small and micro businesses.

In response to the aforementioned issues, the central government issued documents to strengthen the management of local government debts, particularly to limit excessive borrowing by platform companies. The central government intends to improve the management of local government financing platforms through policy and regulatory changes. The central government intends to accelerate the transformation of government functions and

regulate the management of local government financing by improving policies and regulations.

1.3. Transformation and Development Phase (2011 - present)

Based on the credit and legal risks posed by the previous phase's disorderly expansion of "on-balance-sheet" and "off-balance-sheet" financing, the central government began to further regulate and reform local government debt financing in 2011. (Lu Wei et al., 2019). Local governments are encouraged to finance through "on-balance-sheet" financing, and local government debt is integrated into unified fiscal budget management by liberalizing the authority of local debt issuance. Simultaneously, efforts should be increased to resolve the hidden government debt of government financing platforms, and new government-type debts through platform companies should be rigorously implemented, as follows:

Local governments were allowed to issue bonds on their own behalf in 2011 and have the Ministry of Finance repay them within the approved limit. This model was implemented from 2011 to 2013, the scope of the pilot program was expanded and the approved amount increased year after year. With the approval of the State Council, the Ministry of Finance issued the "2014 Local Government Bond Self-Issuance Pilot Program" 2014, which clearly promotes market-oriented bond issuance and further optimizes the management of the bond issuance quota. optimization. The New Budget Law of 2015 fully liberalized local governments' bond-issuance authority, empowered local governments to issue local bonds on their own and include them in budget management, clarified the restrictions on the use of funds raised by local government bonds, and established a local government risk warning and mitigation system. The new Budget Law not only encourages local governments to issue local bonds to replace the stock of high-interest debt, but it also signals for the first time that local governments are responsible for debt repayment and that the central government "does not bail out" local governments' debt-servicing difficulties, breaking the expectation that the central government will "underwrite" the debt. Expectations aimed at promoting the issuance of market-oriented local government bonds.

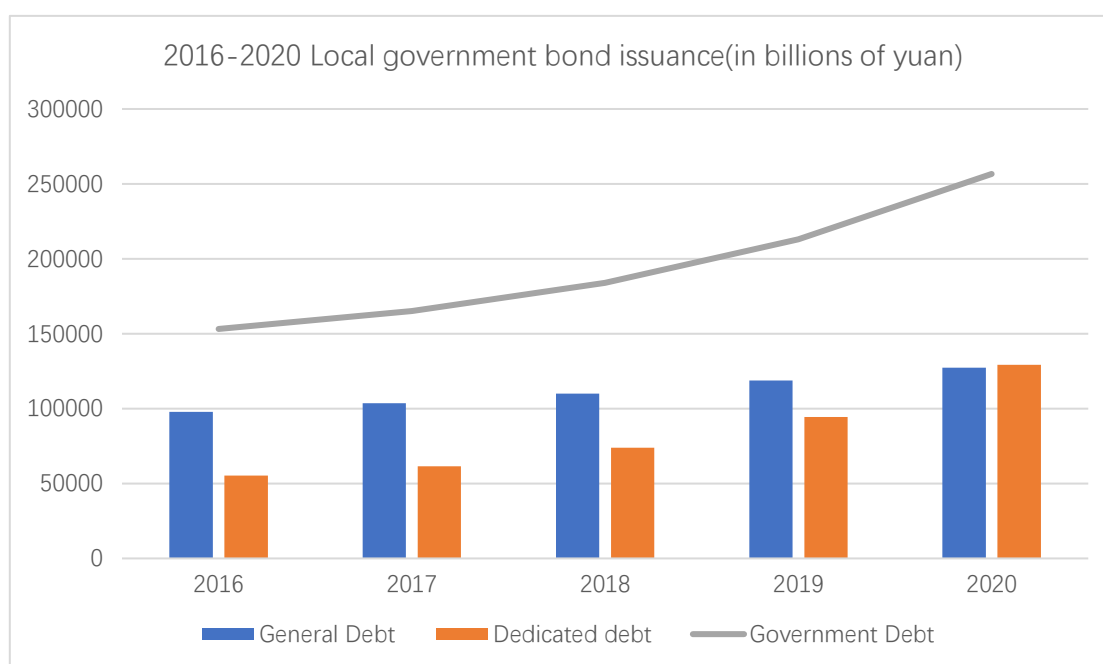


Fig.1 Local government bond issuance, 2016-2020

On the other hand, the management of local government financing platforms will be improved. According to the new Budget Law, local governments can no longer raise debts through local government financing platforms, and existing debts of local government financing platforms must be gradually repaid by 2016. Although the "Notice of the State Council on Issues Related to Strengthening the Management of Local Government Financing Platform Companies" clearly limits platform companies' financing behavior, some banks and other financial institutions "bypass" the platform companies by entrusting loans, trust loans, and other means to provide financing in disguise. Because a large amount of financing must be repaid early on, local governments must urgently develop new financing channels to fill the financial gap, and non-bank financial institutions such as trust companies and securities companies have been involved in platform company financing as channels. According to Ma Wanli (2019), commercial banks used funds raised from wealth management product offerings to disguise loan financing for financing platform companies via bank trusts, bank securities, and interbank cooperation. During this time, banks' non-standard credit business expanded rapidly, and a large portion of bank credit resources was diverted to channel-type non-standard business, increasing the indebtedness of local government financing platforms.

Although the State Council Opinions on Strengthening Local Government Debt Management promulgated in 2014 required local government financing to be done through the issuance of local bonds and the divestiture of government-type functions of financing platform companies. However, the government-social capital cooperation (PPP) model that it advocated for evolved into new financing tools by some local government financing platform companies, and through multi-layer nested transaction structures combined with banks' non-standard loan business, evolved into various investment funds, industrial funds, and other new models to continue to provide financing for platform companies, accumulating local government debt risks. Local governments' implicit debt has been formed through a variety of modes and channels, including government purchases of services beyond the prescribed scope, irregular PPP projects and investment funds disguised as explicit shares and real debts, and so on. In 2017, the Notice on Further Regulating the Debt Raising and Financing Behavior of Local Governments emphasized financing management of financing platform companies and demanded that financing platform companies be transformed into state-owned enterprises operating on a market basis as soon as possible. Conduct market-based financing following the law, and strictly prohibit the use of PPP and other types of methods to conceal debt. The Central

Bank issued the Guidance on Regulating Asset Management Business of Financial Institutions in 2018, in collaboration with the CBRC, the SFC, and the State Administration of Foreign Exchange, which imposes strict restrictions on banks' use of wealth management funds to carry out non-standard business investments through channels, requires transaction structures to eliminate multi-layer nesting and further restricts financing channels for financing platform companies. For the first time, the 2018 Opinions of the Central Committee of the Communist Party of China and the State Council on Preventing and Solving the Risk of Local Government Implicit Debt clearly defined the concept of implicit debt, i.e. debt repaid by local

governments outside of the statutory debt budget, directly or indirectly by committing financial funds, as well as providing guarantees and other initiatives in violation of the law. The "Guidance for Banking and Insurance Institutions to Further Improve the Prevention and Resolution of Local Government Hidden Debt Risks" published in 2021 made it abundantly clear that financing platform companies were not permitted to add new liquidity loans, violate the financial underwriting, or penalize financial institutions for new or false resolutions, and that their access to financing was further constrained

2. Current status of local government debt development

Region	GDP	General public budget revenue	Financial self-sufficiency rate	Local government debt balance	Urban investment interest-bearing debt	Debt Ratio
Jiangsu	99631.5	8802.4	70.0%	14878.4	54774.4	385.8%
Zhejiang	62352.0	7048.0	70.1%	12309.8	30027.4	239.8%
Shandong	71067.5	6526.7	60.8%	13127.5	21273.4	259.2%
Hunan	39752.1	3007.0	37.4%	10174.5	14912.3	418.1%
Sichuan	46615.8	4070.8	39.3%	10577	22334.1	398.9%
Chongqing	23605.8	2134.9	44.0%	5603.7	13948.9	446.1%
Tianjin	14104.3	2410.3	68.7%	4959.3	13293.8	475.2%
Hubei	45828.3	3388.4	42.5%	8040	16784.4	361.7%
Jiangxi	24757.5	2486.5	38.8%	5351	11326.3	332.0%
Anhui	37114.0	3182.5	43.1%	7936.4	11234.8	292.4%
Henan	54259.2	4041.6	39.7%	7909	11801.9	242.7%
Guangdong	107671.1	12651.5	73.1%	11956.6	11134.1	123.1%
Fujian	42395.0	3052.7	59.9%	7032	7614.7	260.5%
Guizhou	16769.3	1767.4	29.8%	9673.4	12804.7	646.2%
Beijing	35371.3	5817.1	82.7%	4964.1	10881.6	197.2%
Yunnan	23223.8	2073.5	30.6%	8108	9757	487.6%
Shaanxi	25793.2	2287.7	40.0%	6532.5	10621.4	413.6%
Guangxi	21237.1	1811.9	31.0%	6354.7	6383.2	362.8%
Hebei	35104.5	3742.7	45.0%	8753.9	4605.8	188.9%
Jilin	11726.8	1116.9	28.4%	4344.8	4337.1	487.1%
Xinjiang	13597.1	1577.3	29.6%	4627.8	3381.2	380.5%
Shanxi	17026.7	2347.6	49.8%	3550	2365.7	167.4%
Shanghai	38155.3	7165.1	87.6%	5722.1	3235.6	93.5%
Gansu	8718.3	850.5	21.5%	3109.8	4854.5	581.5%
Liaoning	24909.5	2652.0	46.0%	8884.4	2829.6	300.9%
Inner	17212.5	2059.7	40.4%	7307	2128.3	349.8%

Mongolia						
Heilongjiang	13612.7	1262.6	25.2%	4748.6	1687.1	392.3%
Ningxia	3748.5	423.6	29.4%	1654.9	885.3	468.7%
Qinghai	2966.0	282.1	15.1%	2102.1	678.4	527.3%
Tibet	1697.8	222.0	10.2%	251.4	444.7	234.1%
Hainan	5308.9	814.1	43.8%	2230.7	108.6	184.2%
Total volume				212775.4	322450.3	

Fig.2 National debt statistics by province, 2019

A clear ladder-type distribution of GDP and fiscal revenues can be seen in the eastern, central, and western regions of China in 2019 after compiling the government finances and debts of every province, autonomous region, and municipality directly under the central government. The eastern provinces have significantly higher GDP or general fiscal revenues than the other provinces in the count. Provinces typically have a fiscal self-sufficiency rate of less than 100%, where the fiscal self-sufficiency rate is calculated as general public budget revenue multiplied by 100% divided by general public budget expenditure. Some western provinces, including Tibet, Qinghai, Guizhou, and other provinces, have a self-sufficiency rate of only 10%, and the government's revenue is heavily dependent on central transfer payments, land financing, and other sources. Greater than the national average self-sufficiency rates are found in eastern coastal provinces like Zhejiang, Jiangsu, and Guangdong. In other words, the more economically developed a region is, the more strongly the total government debt is correlated with GDP and fiscal revenue. The total debt of eastern regions like Jiangsu, Zhejiang, and Shandong is significantly higher than other western regions like Qinghai and Tibet, whether it be government debt balance or interest-bearing platform company debt.

As of the end of 2019, China's local government debt balance was 21.22 trillion yuan, with an 82.9% debt ratio, which is lower than the 90–150% threshold set by the International Monetary Fund. However, since the data only included the government debt balance, there were many public expectations that the government would be responsible for paying off the debt. A significant amount of urban investment company debt, which is based on the public expectation that the government has a moral obligation to repay, is not counted because the data only account for the balance of government debt. If the debt ratio

= (local government debt balance + interest-bearing debt balance of financing platform) * 100% / comprehensive financial resources of local governments according to the full-caliber statistical standard in this paper, China's current local government debt ratios are significantly above the international alert line. In terms of distribution, China's debt ratio shows obvious regional distribution characteristics, with the debt ratio in the southwest region being significantly higher than that in other regions of the country, with some provinces such as Guizhou Province having a debt ratio of over 600%.

IV. LOCAL GOVERNMENT DEBT AND ECONOMIC GROWTH IN POLITICAL ECONOMY PERSPECTIVE

1. Local government debt in the perspective of Marxist political economy

Marx observed that the field of commodity circulation is where debt is formed. "One owner of a commodity sells his existing commodity, while another owner purchases it only as a money substitute or as a money substitute in the future. As a result, the buyer becomes a debtor and the seller a creditor. Here, the circulation of basic commodities gives rise to the concept of creditor or debtor." There are positive and negative aspects to the relationship between creditors and debtors. The modern theory that the more indebted a population is, the richer they become is perfectly logical. On the harmonious side, the combination of debt capital with the two factors of production, labor, and land, can promote the development of production and trade as well as the growth and accumulation of national wealth. From a confrontational standpoint, if debt funds are not effectively used for trade and production, debt cannot be converted into productivity, and money cannot be converted into capital, deriving more money, which in turn cannot pay principal

and interest to creditors on schedule, eventually creating a vicious cycle of debt: "Lending money follows the use of money to buy goods, and with lending comes interest and usury. No legislation since ancient Athens and Rome, which threw the debtor at the mercy of usurious creditors, has been as cruel and unforgivable." Marx claimed that compared to private debt, governmental debt increased at a particular stage of development: "By the time of the workshop crafts, the public credit system, also known as state debt, had spread throughout all of Europe. It originated in Genoa and Venice during the Middle Ages. Whether in autocratic, constitutional, or republican states, the national debt, or state concession, has always left its mark on the capitalist era." The creation of government debt was closely related to production cycles, colonialism, international trade, war, etc., and was regarded by Marx in *Capital* as a significant method of capital accumulation. "In the early days of great industry, the colonial system, the national debt, the high taxes, the protective tariff system, the commercial wars, etc., all these shoots of the true workshop-craft period grew up considerably." He viewed government debt as an alienation of the state, independent of any political system, whether it be a monarchy or a republic, and as a significant form of capitalism in which the government uses debt to convert idle funds into capital and creditors use debt to convert illiquid loans into the highly liquid national debt.

When viewed in terms of its function, government debt serves as a means of financing and quickens the process of capital accumulation, which is a key factor in the creation and expansion of the capitalist system. To close the budget gap, the government issued government bonds, giving investors the chance to take over the nation's wealth. Investors were able to quickly amass wealth by buying government bonds, and "public debt became one of the most powerful means of primitive accumulation." Like a magic wand, it gave unproductive money the ability to reproduce, converting it into capital without the arduous work and risks associated with investing in businesses or even usury. In reality, the state's creditors receive nothing because the money they lend is converted into easily transferable public bonds, which function exactly like cash in their possession." The major role of public debt and the fiscal system that goes with it is the capitalization of wealth and the dispossession of the masses. Government debt is by its very nature a form

of state power's participation in the distribution of social goods, reflecting the exploitative nature of capitalist society. The class of idle profit-eaters that resulted from this was created, and the financiers who served as the government's and the country's middlemen made a fortune each time a significant portion of the national debt fell from the sky into the hands of tax-payers, business owners, and private factory owners." "The national debt is dependent on state revenues to pay the annual interest and other expenses, so the modern tax system becomes a necessary complement to the national debt system," says the workers' community, whose interests are jeopardized. "To finance these payments, the state levies taxes on the working class. By providing guarantees for their oppressors, the people ensure that those who lend money to them will use it to further their oppression of the populace." Marx's theory of public debt is extremely useful for comprehending the nature of the issue.

According to a study of Marxist political economy, government debt generates the national credit system, and the modern tax and fiscal system is an important guarantee for the system's operation. The government responds to fiscal shortfalls and emergency spending by borrowing, and government debt is inextricably linked to fiscal taxation and grows in lockstep. The growing national debt directly increases the tax burden on society as a whole, to the detriment of labor unions. According to Marx, rising public debt encourages capitalist speculation, creating a class of financial aristocrats in which more and more of the accumulated profits are used for speculative activities, resulting in the following effects: First, capitalists' speculative activities lead to lower investments, which leads to an increase in debt, which leads to an increase in industrial concentration, amplifying the tendency of capital monopolies. Second, lower investment means lower employment, which means lower wages, exacerbating the distributional conflict between the financial aristocracy and labor; third, the government will tax corporations, which will hurt real wages because corporations can pass the tax on to commodity prices. To summarize, increasing public debt for capital reproduction provides the capitalist with additional monetary profit. Because the duration of the manufacturing process is largely determined by investment, a decrease in investment makes speculation more profitable. Furthermore, the public debt-to-GDP ratio tends to rise

because a decrease in investment implies a decrease in growth rate, whereas an increase in demand for the national debt implies an increase in its value. Of course, as private investment and government spending increase, the level of employment may rise moderately (Zhang Yu, 2019).

The post-World War II period saw some unprecedented changes in the capitalist economy, particularly strong state intervention, which played an important role in supporting or opposing trade unions, nationalization or privatization, and expansion or reduction of welfare spending. Marxist political economy, in particular, does not explain well how to reduce government debt, and this asymmetry has become a major weakness of the Marxist political economy.

2. Local government debt in the perspective of other political economy

Other political economy theories, in addition to Marxist political economy, have conducted a large number of theoretical and empirical studies on government debt, including the classical economic school, Keynesianism, public choice theory, and so on. They have all discussed the meaning of government debt from various perspectives, such as its relationship to economic growth, tax burden, job creation, and so on. They are primarily divided into two camps: the "harmful theory of public debt," represented by the classical school of economics, and the "beneficial theory of public debt," represented by Keynesianism.

2.1 Classical economic school theory of government debt

Adam Smith, David Ricardo, and John Mueller are the main representatives of the classical school of economics in the study of government debt. In Chapter 3, "On Public Debt," of Volume 5 of *The Wealth of Nations*, Adam Smith argued that budget deficits should not be included in government budget plans and that even if the entire debt were held by domestic investors and used to build the domestic economy, the accumulation of government debt would be "harmful" to the national economy in general. "Harmful," specifically because an increase in government debt will increase the government's future need to repay principal and interest, resulting in an increase in tax revenues, domestic capital flight, and currency devaluation, and a negative impact on the rest of domestic producers, and funds raised by government debt divert resources that could be effectively used by the private sector of the economy to the country's "unpromising" sectors. As a result, Smith

believed that budget deficits could only occur in emergencies, such as war or natural disasters. He argued that governments should have financed wars and respond to natural disasters by increasing debt rather than increasing taxes, which increased the tax burden on private units and reduced private investment, discouraging new capital accumulation and predisposing the country to new economic crises, currency devaluations, job losses, and even national bankruptcies.

Adam Smith distinguished between government debt based on "expectations" and "permanent" debt by summarizing the experience of previous government debt issuances. The former is short-term, and the government's revenue will be sufficient to repay the debt within a few years, whereas the latter is described by Smith as "permanent" debt, which means that the government has no source of repayment and no ability to repay, so the creditor's government bonds will never be repaid, and the government can only pay interest on such "permanent" debt each year. Each year, the government can only pay interest on this "permanent" debt. However, as long as the government can continue to pay the interest, the debt is valid and valuable. If the government cannot achieve "perpetuity" and does not have sufficient security to pay interest, "perpetuity" will be considered worthless, debt will be invalidated, and those who hold such "perpetuity" as a form of wealth will suffer. The owner of this "permanence" as a source of wealth will suffer a loss. Smith emphasized the importance of "When the public debt is increased to a certain extent, I believe there are few instances where it is fully repaid by the public. If the burden on the state's revenue is ever fully discharged, it is always discharged by reversals, sometimes express reversals, frequently false repayments, but never actual reversals."

Although David Ricardo, a follower and opponent of Adam Smith, differed in some of his economic views, they also adhered to the "harmful theory of public debt". Ricardo (1951) stated in his book *"Principles of Political Economy and Taxation"* that the impact of government debt on the economy is not the transfer of interest, but the harm caused by the public debt squeezing the original capital. Furthermore, the government finances government expenditure by raising debt rather than taxation, and the public will pay less tax to pay the interest on public debt,

creating the illusion of economic prosperity and thus a waste of resources. He not only believed that government debt could not produce any economic benefits, and thus the increase in government debt would not reduce the tax burden of society, but also believed that all government debt should be repaid quickly, advocating that the entire debt should be repaid at once by increasing tax revenue in the short term, and eliminating the "unprecedented calamity" through "one categorical effort". "An unprecedented and unparalleled calamity.

As a representative of classical economics, John Mueller fully supports Adam Smith and David Ricardo's views, opposes the issuance of public debt, and believes that the transfer of capital from private business investment to government consumption is detrimental to overall economic efficiency. Based on the public debt theories of the two aforementioned economists, he further develops and extends the classical school of economics' theory of government debt. On the one hand, Muller, like other classical schools of economics, saw public debt as an important means of raising funds for war and other unproductive expenditures and believed that unproductive expenditures would squeeze out productive expenditures and cause national poverty. On the other hand, he distinguishes between the source of public debt and its economic impact. If the public debt is financed by foreign capital or excess domestic swimming capital, the issuance of such government bonds does not affect domestic industry policy, even if they are non-productive expenditures. Instead, it will rapidly increase wealth and resources and promote economic prosperity. In response to the sources and uses of funds and their impact, Mueller presents four scenarios of different situations. The first method is to use public debt for unproductive purposes when the funds come from productive areas, which will hurt the economy. The second type of public debt is financed by domestic and foreign lenders and is used in unproductive areas. Mueller believes that such debt while increasing the debt service burden on future generations can be acceptable if the funds are used properly. The third is that funds originate in the productive sector and are then used in the productive sector, an approach that Mueller believes can go some way toward addressing temporary government spending. The fourth point is that the issuance of government bonds has increased

interest rates, demonstrating that public debt has squeezed private productive capital, whereas the negative impact of public debt is minimal if interest rates do not fluctuate. It can be seen that although Mueller still insists on the "harmful theory of public debt" in general, Mueller's theory of public debt has been expressed in the "neutral theory of public debt".

2.2 Keynesian theory of government debt

Keynesianism emerged at the turn of the twentieth century, based on the ideas in his book "The General Theory of Employment, Interest, and Money" which was refined after the 1930s and accepted as an academic theory by the general public. In general, Keynesianism developed the "public debt is beneficial" theory, which refuted the classical school of economics' "public debt is harmful" theory in several dimensions. It contends that, within reasonable limits, public debt is beneficial to the development of the national economy, and that the issuance of government debt can increase the money supply, stimulate the economy to emerge from the downturn, create new jobs, and create external conditions for economic recovery and prosperity, as well as increase society's overall wealth.

Keynes argues in "The General Theory of Employment, Interest, and Money" that public debt is an important means of compensating for fiscal deficits and addressing a lack of effective demand. The government can increase the money supply by increasing the debt, and the debt funds can be used to increase the consumption and investment demand of the entire society, whether for capital investment or to make up for the budget deficit. In response to the problems of economic recession and sluggish employment in Western countries at the time, Keynes proposed the theory of insufficient effective demand, which stated that the law of diminishing marginal propensity to consume caused insufficient consumption demand, and the law of diminishing marginal utility of capital and interest rates caused insufficient investment demand so that a portion of national income could not be invested in social reproduction, forming the theory of insufficient effective demand. The government can compensate for a lack of social consumption and investment by reintroducing "leaky" resources into social production, balancing aggregate social demand and supply, and promoting stable economic

development by increasing debt. At the same time, Keynes argues against the limits of government debt. He contends that if the government continues to borrow to cover the growing fiscal deficit, it will crowd out the credit resources of other private entities, raising borrowing rates and impeding private investment.

Keynes' theory of public debt has been refined and extended by numerous Keynesian followers. Keynesian economic policy, according to British economist Coddington (1976), has three main characteristics: the advocacy of discretionary and counter-cyclical fiscal policy, the increase in budget deficits, and the fact that government spending does not crowd out private spending. Through his research on Keynesian theory, Alvin Hansen (1939), known as the "American Keynesian," demonstrated that when social productivity reached a certain level, the government gave circulation value to the idle savings of the people through debt, and by investing the collected funds in education and health, the government disguisedly returned the savings to the people, increasing the overall level of social wealth. He extended the Keynesian perspective from the short-term, cyclical, and temporary to the long-term, secular, and permanent, proposing the famous "long-term stagnation theory" that demand may be permanently lacking, so if deficit spending can promote investment in the short term, it can also do so in the long term. According to Kregel (1994), an American post-Keynesian economist, when there is a positive correlation between government spending and national income, the government can adjust fiscal policy and increase inputs throughout the cycle when the economy is in a downward cycle and loses a reliable push to re-establish full employment. Abilene suggests that by examining the asset effects of public debt, public debt can stimulate consumption during depressions and act as a disincentive to inflation during booms. However, Abalena suggests that excessive issuance of public debt can reduce labor and investment intentions, as well as negatively impact social capital accumulation. According to Paul Samson, government debt is both an internal burden that increases consumption and investment and thus social wealth, and an external burden that reduces wealth by sending principal and interest out of the country.

2.3 Public Choice Theory

In the late 1940s, the famous economist James Buchanan

represented public choice theory. The theory transferred the assumption of economic man (or rational man) from economics to politics, arguing that individuals in politics are also self-interested economic men who act to maximize their own interests. It also extends the analysis of economic market transactions to the political sphere (or "political market"), treating people's interactions in the political sphere as "political transactions" and arguing that the political process, like the economic process, is based on transactional motives and behaviors. The exchange of interests is at the heart of politics (Ruan Shouwu, 2009). Many economists, both domestic and international, have used public choice theory to investigate the problem of local government debt. According to Cao, Ping, and Zhou, Qiaohong (2015), local governments have a strong incentive to raise debt to maintain high economic growth and to promote urbanization and industrialization in the face of a massive fiscal gap, but they are constrained by policy constraints and can only disguise hidden financing through platform companies, resulting in a large amount of hidden government debt. According to Li Min (2014), from the standpoint of public choice theory, the contradiction between the interest demands and power distribution of different levels of government has resulted in each local government taking advantage of system loopholes to form a large amount of local government debts through government guarantees and land mortgages. According to Li Zhongyi (2013), in China's highly centralized and unified political system, the liabilities of the next level of government, whether explicit or implicit, direct or contingent, are in some ways the contingent liabilities of the higher level of government.

V. EMPIRICAL ANALYSIS OF THE IMPACT OF LOCAL GOVERNMENT DEBT ON ECONOMIC GROWTH

By reviewing and summarizing different economic schools of thought's understanding of the relationship between government debt and economic growth, it is clear that different economic schools of thought have not formed a unified idea and conclusion on the substantive impact of government debt. Given the complexities of China's phased debt reform and the uncertainty of its impact on future economic growth, this paper will use empirical analysis to

confirm the specific impact of local government debt on Chinese economic growth.

1. Statistical caliber and measurement methods

Regarding the statistical caliber and measurement method of government debt, international reference is usually made to World Bank expert Hannah Prakova's division of fiscal risk matrix method on government debt. Local government debt can be divided into explicit debt and implicit debt in terms of legal compulsion of liabilities. Explicit debt refers to liabilities brought by legal contracts signed by the government, whereas implicit debt refers to underlying moral or expected government liabilities that are not bound by laws or contracts but are based on public expectations and political pressure. Local government debts are classified as direct or contingent debts based on the circumstances under which they arise. Direct debts are debts that do not require a specific event to occur and for which the government is obligated to repay in any case; contingent liabilities are government liabilities that occur as a result of a specific event.

	Direct liabilities		Contingent liabilities
Explicit debt	Direct	visible	Contingent visible debt
Hidden Debt	Direct	hidden	Contingent hidden debt

Fig.3 Fiscal Risk Matrix method

Although the above-mentioned method is commonly used to count and measure local government debts internationally, China has yet to establish a special database on local government debts, and there are differences in the definitions of local government debts, whether direct or contingent, explicit or implicit, among the academic community represented by universities and scientific research, the government represented by the Ministry of Finance and the central bank, and the public. This paper refers to different methods from academia, government, and financial institutions, and sets the statistical caliber based on the basic principle of "full coverage" of local government debt to comprehensively count and measure the total amount of local government debt in China, and to provide a reliable basis for the later measurement. After consulting existing policy documents and related literature, as well as

visiting local governments and financial institutions, this paper divides China's local government debt into two categories: local government bonds and financing platform company debt.

2. Data sources

Local government bonds are classified into two types based on their purpose: new local government bonds and replacement bonds. Both types of local government bonds have been issued since 2015, except the self-issuance and self-repayment pilot phase, and data are obtained from four sources:

- (1) "China Financial Yearbook", "China Financial Yearbook" and the statistical yearbooks of each province in the past years
- (2) National Ministry of Finance and Bureau of Statistics website. Monthly data on the amount of new bonds and replacement bonds nationwide.
- (3) The website of each provincial local government finance department. Annual data on the amount of new bonds and replacement bonds in each province.
- (4) Wind database. All data of bonds such as issue amount, listing time and coupon rate for each local government bond in each province.

Debt accumulated by platform companies set up by local governments for financing through various forms of debt, including short-term borrowings, long-term borrowings, non-current liabilities due within one year, bonds payable, other current liabilities, other non-current liabilities, other payables, long-term payables, and interest-bearing debt of other equity instruments clock. The primary data sources are:

- (1) Data released to the public by the government and regulators.
- (2) The annual audit report, rating report and bond prospectus disclosed by each platform company to the public.
- (3) Public databases such as Wind.

3. Build the model

Combining the above analysis, the following research hypotheses are proposed in this chapter:

Hypothesis 1: Local government debt shows a non-linear inverted U-shaped relationship on economic growth, i.e., the impact of total local government debt on overall economic growth is first promoted and then suppressed.

Hypothesis 2: The impact of local government debt on economic growth is regionally heterogeneous, with differences between the East and the Midwest.

Specifically, the explanatory variables are drawn from the two indicators of GDP growth rate and per capita GDP growth rate, and the explanatory variable total government debt is drawn from the above-mentioned method of government debt statistics, i.e., total local government debt = publicly issued local government bonds + platform company debt. The control variables are set using relevant domestic and foreign literature as the real growth rate of fixed asset investment, unemployment rate, human capital investment, degree of government intervention in the economy, rural resources from which cities can draw, urban population density, general government fiscal expenditure as a proportion of GDP, and the proportion of the jurisdiction's rural population to the total population.

Before testing the nonlinear growth relationship of local government debt on economic growth, we construct a linear relationship model to test it.

$$y_{it} = a_0 + a_1 LocalGovDebt_{it} + \sum a_i x'_{it} + u_i + \varepsilon_{it}$$

(Equation 1)

where y_{it} is the explanatory variable, GDP growth rate and GDP per capita growth rate of the region, respectively, and i and t denote province and year, respectively. x'_{it} denotes other control variables; u_i denotes province fixed effects; and ε_{it} denotes random error terms.

$LocalGovDebt_{it}$ is the core variable of total local government debt, whether its regression coefficient a_1 is positive or negative, and whether it shows a significant relationship, and it is expected that the regression coefficient a_1 varies across regions.

To further verify whether there is an inverted U-shaped relationship between local government debt and economic growth, the quadratic term of local government debt size is added to establish model equation 2.

$$y_{it} = a_0 + a_1 LocalGovDebt_{it} + a_2 LocalGovDebt_{it}^2 + \sum a_i x'_{it} + u_i + \varepsilon_{it}$$

(Equation 2)

If local government debt has an inverted U-shaped impact relationship on economic growth, the regression coefficient

a_2 of the quadratic term of local government debt should be significantly negative.

4. estimation test

Separate estimation tests are performed for equation 1 and equation 2. The LM test corresponds to a concomitant probability of 0.0000 when the explanatory variables include only the primary term of local government debt and both the primary and secondary terms, and therefore, between the "mixed regression" and "random effects" The latter is chosen between the "mixed regression" and "random effects" models. The Hausman test shows that the concomitant probability is 0.0000, so the former is chosen between the "fixed effect" and "random effect" models. In summary, the fixed-effects model is used for the analysis.

5. Measurement results

The empirical results of the linear effect of local government debt on economic growth are shown in Table 1. Columns (1)-(2) of Table 1 show the results of calculations using the full sample of GDP per capita growth rate and GDP growth rate as explanatory variables, and the results show a negative correlation between local government debt and economic growth, passing the significance tests of 10% and 5%, respectively. Table 1's columns (3)-(8) show whether the linear effect of local government debt on economic growth varies by region. The regression coefficients of local government debt are negative but mostly insignificant in the eastern and central regions, using GDP per capita growth rate and GDP growth rate as explanatory variables, respectively. The regression coefficients of local government debt with GDP per capita growth rate and GDP growth rate as explanatory variables are both significantly negative at the 1% significance level for the western region, indicating that each unit increase in local government debt reduces GDP per capita growth rate and GDP growth rate by 6.66% and 8.26%, respectively, and the absolute values of the regression coefficients are much larger than those in the eastern and central region. Although local government debt has a negative linear impact on economic growth overall, there is significant regional heterogeneity in the impact on economic growth in different regions, with local government debt having a significant negative linear correlation with economic growth in the western region and no linear impact on economic growth in the eastern and central regions.

The nonlinear relationship of the impact of local government debt on economic growth is further tested. The empirical results of the nonlinear effects of local government debt on economic growth are shown in Table 2. Columns (1)-(2) of Table 2 show the results of calculations using the full sample of GDP per capita growth rate and GDP growth rate as explanatory variables, and the results show that the coefficients of the quadratic terms of local government debt are all significantly negative and pass the 1% significance level test, indicating that the impact of local government debt on economic growth is inverted U-shaped. (3)-(8) demonstrate whether the inverted U-shaped effect of local government debt on economic growth varies by region. The regression coefficients of the quadratic term of local government debt are significantly negative in the eastern and central regions, and most of them pass the 1% significance level test when GDP per capita growth rate and GDP growth rate are used as explanatory variables, respectively. The regression coefficients of the quadratic term of local government debt are positive and negative for the western region, but they are not significant.

According to the empirical findings, local government debt has an inverted U-shaped impact relationship on overall economic growth. The empirical results of the nonlinear impact show that the linear inhibition relationship of local government debt on overall economic growth is also significant, most likely because the estimated coefficients of

local government debt in the eastern and central regions are negative, but not significantly so, while the estimated coefficients of local government debt in the western region are significantly negative, and thus the estimated coefficients of the impact of local government debt on overall economic growth are significant. When the regression results are compared to the quadratic term of local government debt, and the significance level and regional grouping are taken into account, it is more appropriate to conclude that local government debt has an inverted U-shaped impact on overall economic growth, confirming the hypothesis 1 that the impact of local government debt on economic growth is first promoted and then suppressed. The empirical results of linear and nonlinear effects show that the effects of local government debt on economic growth in the eastern and central regions are consistent with the full sample estimation results, demonstrating an inverted U-shaped effect relationship, whereas the effects of local government debt on economic growth in the western region demonstrate a significant linear inhibition relationship, supporting hypothesis 2. The effects of local government debt on economic growth vary by region, and the efficiency of debt fund use and debt affordability is higher in the eastern and central regions with higher levels of economic development than in the western region.

Table 4-1 Linear estimation results of local government debt affecting economic growth

	Full Sample		Eastern Region		Central Region		Western Region	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	PerGDPRate	GDPRate	PerGDPRate	PerGDPRate	PerGDPRate	PerGDPRate	PerGDPRate	PerGDPRate
LocalGovDebt	-2.7697 [*] (1.5468)	-3.4105 ^{**} (1.5483)	-0.6115 (0.6518)	-1.2188 [*] (0.6153)	-4.3918 (3.1563)	-3.0711 (2.8816)	-6.6649 ^{***} (1.5194)	-8.2642 ^{***} (1.4285)
Inv	0.1849 ^{***} (0.0620)	0.1597 ^{**} (0.0642)	0.0974 (0.0724)	0.0946 (0.0708)	0.1914 (0.1244)	0.1368 (0.1234)	0.1465 ^{**} (0.0523)	0.1183 [*] (0.0535)
Unemp	0.0035 (1.3677)	-0.1770 (1.1241)	-0.4156 (1.5293)	-1.0597 (1.6582)	-1.1690 (1.5622)	-0.1112 (1.2409)	0.3235 (3.0219)	-0.9055 (2.7379)
Student	-3.4852 (2.2906)	-4.1172 ^{**} (1.9647)	2.6478 (3.4416)	1.4652 (2.7764)	-0.8471 (8.3009)	-0.7259 (6.3978)	-6.1696 ^{**} (2.4713)	-4.0592 (3.6241)
Gov	-0.0669 (0.0836)	-0.0983 (0.1130)	-0.4076 ^{***} (0.1136)	-0.4634 ^{***} (0.1049)	-0.6288 (0.6223)	-1.2362 ^{**} (0.5316)	0.0586 (0.0545)	0.0307 (0.0622)
Rural	-0.0058 (0.0290)	-0.0352 (0.0271)	0.1268 [*] (0.0572)	0.0863 [*] (0.0413)	0.0222 (0.1689)	-0.0787 (0.1265)	-0.0719 ^{**} (0.0293)	-0.1023 ^{***} (0.0291)
Popden	-0.0040 (0.0070)	-0.0137 ^{**} (0.0051)	0.0004 (0.0067)	-0.0089 ^{**} (0.0038)	0.0974 (0.1896)	0.0023 (0.1477)	0.0873 ^{**} (0.0293)	0.0316 (0.0385)
Constant	39.2219 ^{**} (17.0854)	53.7855 ^{***} (14.1016)	8.4358 (17.8145)	29.2853 ^{**} (10.7734)	46.2576 (55.0545)	67.8262 [*] (36.3200)	69.8990 ^{***} (18.1795)	92.7653 ^{***} (16.3337)
Observations	403	403	130	130	143	143	130	130
R-squared	0.399	0.416	0.388	0.492	0.460	0.487	0.457	0.438

Note: Estimated parameter t-values in parentheses, ***, **, * indicate significant at the 1%, 5%, and 10% levels, respectively

Source: Authors' compilation based on the results of STATA regression analysis

Table 1 Linearity evaluation results

Table 4-2 Non-linear estimation results of the impact of local government debt on economic growth.

	Full Sample		Eastern Region		Central Region		Western Region	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	PerGDPRrate	GDPRrate	PerGDPRrate	PerGDPRrate	PerGDPRrate	PerGDPRrate	PerGDPRrate	PerGDPRrate
LocalGovDebt	9.8720*** (3.0806)	9.3471** (3.5049)	6.0843* (2.8679)	5.9258** (2.1216)	90.6191*** (17.3811)	95.1883*** (19.0342)	-4.3085 (5.5987)	-9.7139* (4.6250)
LocalGovDebt ²	-0.9408*** (0.2662)	-0.9494*** (0.2956)	-0.5705** (0.2505)	-0.6087*** (0.1853)	-6.0931*** (1.1474)	-6.3014*** (1.2864)	-0.1647 (0.3191)	0.1013 (0.2604)
Inv	0.1725** (0.0629)	0.1472** (0.0665)	0.0911 (0.0733)	0.0879 (0.0722)	0.1293 (0.1094)	0.0726 (0.1179)	0.1443** (0.0521)	0.1197* (0.0543)
Unemp	-0.1399 (1.2869)	-0.3217 (1.0066)	0.3592 (1.3923)	-0.2330 (1.5969)	-2.8933 (1.6086)	-1.8945* (0.8572)	0.2619 (2.9653)	-0.8676 (2.6873)
Student	-2.9088 (2.3772)	-3.5355* (1.9820)	2.6271 (2.9369)	1.4431 (2.2910)	-15.7751* (7.5920)	-16.1643** (6.4916)	-6.3355* (2.8021)	-3.9572 (3.5539)
Gov	-0.1981* (0.1035)	-0.2308* (0.1350)	-0.4569*** (0.1299)	-0.5161*** (0.1290)	-1.2493** (0.4633)	-1.8780*** (0.4603)	0.0375 (0.0603)	0.0437 (0.0701)
Rural	-0.0428 (0.0305)	-0.0725** (0.0311)	0.0441 (0.0716)	-0.0019 (0.0461)	-0.0560 (0.1162)	-0.1595 (0.0968)	-0.0740** (0.0320)	-0.1010*** (0.0283)
Popden	0.0006 (0.0045)	-0.0090*** (0.0030)	0.0027 (0.0047)	-0.0064** (0.0025)	0.1915 (0.1206)	0.0997 (0.0797)	0.0945** (0.0336)	0.0272 (0.0383)
Constant	3.8342 (10.7413)	18.0734* (9.2932)	-7.0425 (11.5122)	12.7796 (9.7975)	-278.9058*** (84.6119)	-268.4550*** (59.0956)	62.9472* (28.6375)	97.0424*** (24.1981)
Observations	403	403	130	130	143	143	130	130
R-squared	0.424	0.442	0.409	0.513	0.546	0.588	0.457	0.438

Note: Estimated parameter t-values in parentheses, ***, **, * indicate significant at the 1%, 5%, and 10% levels, respectively

Source: Authors' compilation based on the results of STATA regression analysis

Table 2 Non-linear evaluation results

VI. CONCLUSIONS AND POLICY RECOMMENDATIONS

The understanding of government debt by various economic schools of thought reveals that there is still a large debate in academia about the specific impact of government debt, and no unified research methodology or consensus conclusions have yet to be formed. Given China's complex historical situation and large regional development differences, the behavior and methods of local government financing in China are also groping for the stones to cross the river, changing and improving over time. Finally, empirical research confirms that there is a nonlinear inverted U-shaped relationship between local government debt and economic growth in China, i.e., it is first promoted and then inhibited, with significant regional heterogeneity.

Based on the preceding conclusions, the following recommendations for relevant policy guidance and concrete implementation are made in this paper: On the one hand, central and local governments should approach the issue of local government debt dialectically; its impact on economic growth is not simply to promote or inhibit, and the key to making the issuance of government debt effectively serve local economic development lies in whether the scale of debt is appropriate; on the other hand, state policies concerning local government debt should fully consider On the other hand, state policies concerning local government

debt should take full account of regional heterogeneity and not take a "one-size-fits-all" approach, and the scale of debt should correspond to the level of economic growth in the region. To maximize the positive role of local government debt in promoting economic growth, the eastern and central regions with higher levels of economic development should keep debt levels within a reasonable range. Due to low debt tolerance, local government debt has a linear inhibitory effect on economic growth in the western region. As a result, relevant government policy decisions should fully consider regional differences in economic development, and uniform standards and policies across the country are not appropriate. Scientific local government debt policies should be developed for various regions to guide them in using local government debt to promote regional economic growth.

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