Article

The Dynamic Relationship between China's Economic Cycle, Government Debt, and Economic Policy

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Abstract: Economic growth is an integral part of the Sustainable Development Goals (SDGs), especially SDG 8. We combine 10 economic constraints and build a five-variable (structural vector autoregressive) SVAR model based on China's time series data of 1978–2017. The empirical results show: (1) The Chinese government adopted different economic policies at different stages of reform and opening up; (2) From the impulse response results, China's excessively high government debt ratio has begun to inhibit economic growth; (3) In terms of policy selection and coordination, the Chinese government mostly adopts a "discretion" adjustment strategy. In most cases, the fiscal and monetary policies were in the same direction, and the "double expansionary" and "double contractionary" policy coordination may become mainstream; (4) The results of variance decomposition showed that both fiscal and monetary policies can effectively regulate economic growth at the present stage, and the contribution rates of exogenous shocks to the prediction variance of economic growth rate were about 25%.

Keywords: economic policy; government debt; economic cycle; SVAR model

1. Introduction

China's economy has shifted from a rapid growth stage to a high-quality development location. It is essential to correctly analyze the relationship between China's economic cycle, government debt, and economic policy in this particular historical convergence period. As China's economy enters a new normal economic policy [1], there have been some new changes in the three factors of government debt and economic cycle. First, China's economic growth has continued to slow down in terms of domestic conditions. With the overdraft of the domestic demographic dividend, low-end factors cut into the global economy, traditionally relying on the growth of industrial capacity incremental expansion, high-intensity use of resources and large-scale input of production factors is declining. Second, with rapid economic development, the debt ratio of the Chinese government has continued to rise [2–4]. The more implicit local government debt grew even more rapidly. Under the new normal, it is still to be seen whether high government debt inhibits economic growth. Third, from the perspective of the international environment, since the outbreak of the US subprime mortgage crisis in 2008, world economic growth has been weak, local conflicts and turbulence have been frequent, and global problems such as the new COVID-19 pandemic have intensified. Generally speaking, all countries actively

adjust their economic policies to revive their economies. Countries like China and the United States have implemented active economic policies based on Keynesian theory.

In contrast, countries like Britain and Germany have implemented austerity economic policies based on neoclassical theory. The two opposed economic cycle theories all have supporters in real situations. Is China's current *status quo* still suitable for expansionary economic policies? What policy style and policy collocation should be adopted? This is the second issue that this article focuses on.

Much work has been carried out domestically and abroad to analyze the relationship between economic policy, government debt, and the economic cycle. Taylor et al. [5] used the VEC model to examine the relationship between fiscal policy, government debt, and economic growth in the United States in the past 50 years. They found that the two are negatively correlated, and the "discretionary choice" is still valid. Oscar Parkyn et al. [6] used the SVAR model to analyze the economic situation of New Zealand in the past 30 years. They found that there is also a counter-cyclical relationship between the New Zealand government's fiscal policy and economic growth. António Afonso et al. [7] used the SVAR model to compare the selection and matching of economic policies between the United States and the European Union. Some scholars have also proven that government debt has a nonlinear effect on economic growth [8,9]. When a government's debt ratio is low, increasing the debt ratio can promote economic growth, while reducing the debt ratio can accelerate economic recovery when the debt ratio is high [10,11].

Based on historical government policy documents, this article systematically studies the economic cycle since the founding of the People's Republic of China and the economic policy path after reform and opening up. Ten economic constraints were introduced based on the theoretical model, combined with China from 1978 to 2017. A five-variable SVAR model describing the relationship between economic growth, government debt, and economic policy is constructed using time series data from the empirical analysis of China's reform and opening.

The second section systematically studies the economic cycle since the founding of the People's Republic of China and the economic policy path after reform and opening-up based on historical government policy documents. The third section introduces ten economic constraints, combined with China's time-series data from 1978 to 2017, and constructs a five-variable SVAR model that describes the relationship between economic growth, government debt, and economic policy. Response analysis and variance decomposition analyze the quantitative relationship between Chinese government debt, economic growth, and economic policies in the past 40 years of reform and opening up. The fourth section combines economic theory and empirical literature from other countries, summarizes and compares the regression results of the SVAR model, and tentatively puts forward corresponding policy recommendations. The fifth section is the conclusion.

2. Research on the Characteristics of China's Economic Cycle, Economic Policy, and Government Liabilities

The economic cycle refers to the cyclical expansion and contraction experienced by the overall trend of economic development. The business cycle has four characteristics: (1) The business cycle will inevitably form spontaneously in a market economy; (2) The GDP growth rate is usually used to describe the economic cycle; (3) There are considerable differences in different economic cycles, and the duration and scale may vary significantly; and (4) There are two turning points in any economic cycle: peaks and troughs.

Since the founding of the People's Republic of China in 1949, China's economic cycle can be roughly divided into three stages (see Figures 1 and 2): (1) The planned economy period before reform and opening up; (2) The period of rapid economic development from the early stage of reform and opening up to 2012; and (3) The economic slowdown after 2012.
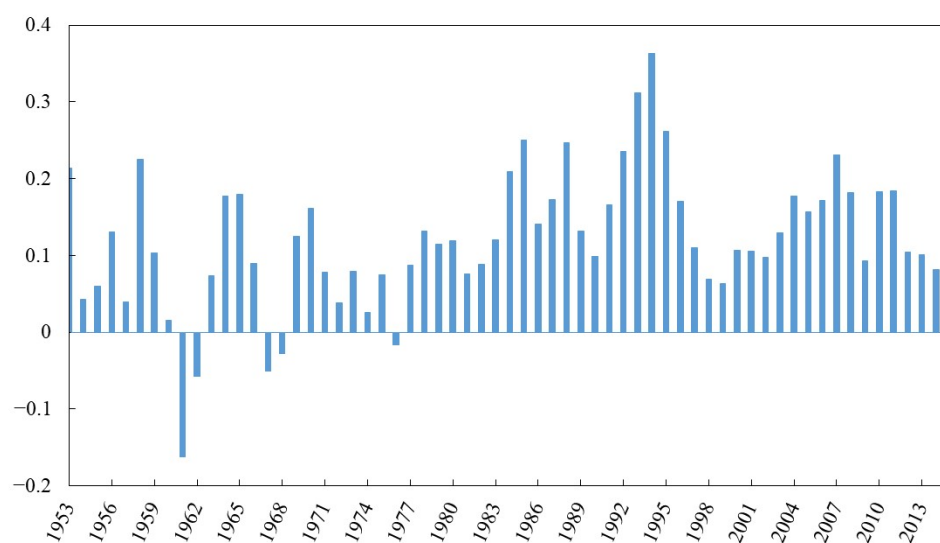
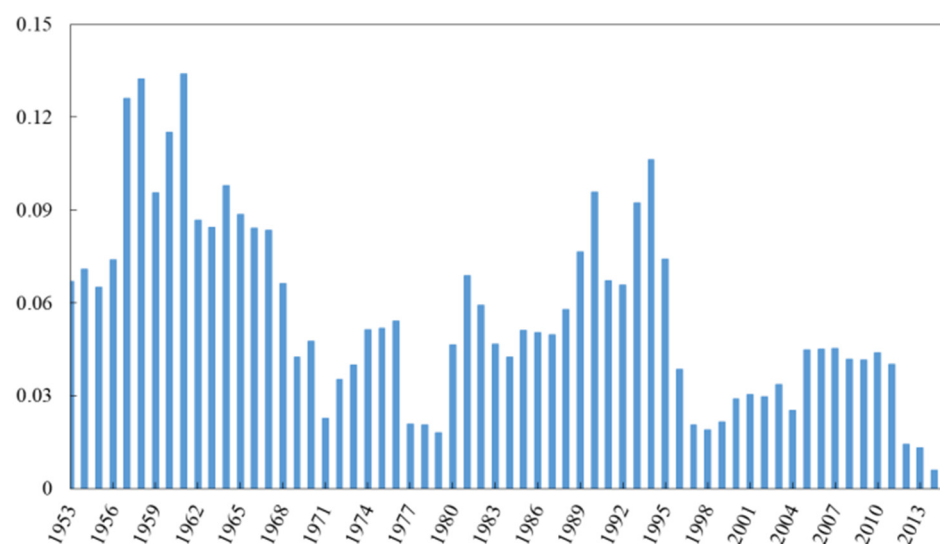**Figure 1.** Year-on-year growth rate of China's annual GDP.

Figure 2. China's annual GDP year-on-year growth rate 5-year mobile standard deviation.

Government debt is usually divided into central government debt and local government debt. Central government debt refers to the public debt issued by the central government. This article is mainly concerned with the behavior of the central government, so the central government debt is primarily discussed in the model.

In the past 40 years, in response to the rapid economic development, the Chinese government's debt ratio has continued to increase, and huge debt principal and interest have continued to accumulate. With the continuous stacking of debts, China's economic growth has begun to slow down. After 2014, the Chinese economy ended more than ten years of rapid growth, and the real GDP growth rate fell below 10%.

Does excessive government debt inhibit economic growth? The academic circle is still inconclusive. Regarding the optimal scale of government debt, Reinhardt et al. [12] analyzed historical data of 12 countries in the past 200 years. They pointed out that when a country's debt reaches 90% of GDP, the public and investors may increase its credit default. The risk is that the government may have a debt crisis, which has led to an increase in national loan interest rates and financing costs and inhibited economic growth. However, considering the complexity between government debt and economic growth, many scholars question the conclusions of Reinhardt et al. [12]. Jayadev et al. [13] pointed out that private and government debt and their mutual influence determine the government's deficit and

the public's expectations of the government, while Reinhardt [12] ignored the impact of private debt on economic growth. Using the European cases, Westphal et al. [9] found a non-linear relationship of debt on growth with a turning point at 90–100% of GDP, with mechanism variables including private saving, public investment and total factor productivity. However, Égert [8] maintained that the negative nonlinear relationship between the ratio of public debt to GDP and economic growth was extremely difficult and sensitive to modeling choices and data coverage. In the rare cases where non-linearity could be detected, negative non-linear correlation worked at extremely low public debt levels (between 20% and 60% of GDP). Spilioti et al. [14] also illustrated a positive and statistically significant impact of debt on GDP growth in Greece. Taylor et al. [5] further stated that even taking into account the possible increase in interest rates, the increase in the primary deficit would still have a strong positive effect on growth.

Based on the above literature, we found that: First, each country pursues different cycle theories and implements related economic policies. The empirical data are not perfect in terms of whether different economic policies have achieved the expected goals and whether expansion or contraction are better or worse. Second, the current empirical studies primarily focus on the impact of fiscal policy on the economic cycle and seldom discuss monetary policy. This phenomenon may be because the central banks of industrial countries, such as the Federal Reserve, are more independent. There are specific differences between the government's goals and the central bank. The government cannot directly formulate monetary policies. But in China, the People's Bank of China (PBC) is an integral part of the central government. Thus, the Chinese government can simultaneously use monetary and fiscal policy to achieve economic goals. Therefore, when analyzing the behavior of the Chinese government, monetary policy should also be considered. Thus, the models and empirical results established will be more complicated. Third, China's economy has entered a new stage of development. Studying the issue of China's economic policy choices enriches macroeconomics and business cycle theory well. Furthermore, it provides other emerging economies with development experience to realize the SDGs, especially SDG 8 (Decent work and economic growth).

3. Empirical Analysis

3.1. Empirical Model Selection and Construction

The time-series data of macro variables have strong autocorrelation. The vector autoregressive model (VAR model) and the structural vector autoregressive model (SVAR model) can better deal with the time series of macroeconomic data. Compared with the VAR model, SVAR, by introducing the synchronization relationship matrix A, identified the relationship initially hidden in the random disturbance term of the VAR model. There is an obvious contemporary relationship among the five variables. Therefore, this article discards the VAR model and chooses to construct the SVAR model [15–19]. The relationship between the economic cycle, government debt, and economic policy in the past two decades, clarifies the current economic stage of China:

$$AY_t = \widetilde{\Gamma_0} + \widetilde{\Gamma_1} Y_{t-1} + \widetilde{\Gamma_2} Y_{t-2} + \cdots + \widetilde{\Gamma_q} Y_{t-q} + \mu_t \tag{1}$$

Suppose $\widetilde{\Gamma_0} = 0$. Cholesky decomposition can be used to simplify the SVAR model into an AB SAVR model that is easy to calculate:

$$
\begin{cases}
A\Gamma(L)Y_t = A\mu_t = \varepsilon_t \\
A\mu_t = Be_t \\
E(e_t) = 0 \\
E(e_t e_t') = I_n
\end{cases}
\tag{2}
$$

$$\Gamma(L) = I_n - \Gamma_1 L - \Gamma_2 L^2 - \cdots - \Gamma_q L^q, \mu_t \sim VGWN(0, \Omega). \text{ Thus,}$$

$$A = \begin{pmatrix} a_{11} & a_{12} & a_{13} & a_{14} & a_{15} \\ a_{21} & a_{22} & a_{23} & a_{24} & a_{25} \\ a_{31} & a_{32} & a_{33} & a_{34} & a_{35} \\ a_{41} & a_{42} & a_{43} & a_{44} & a_{45} \\ a_{51} & a_{52} & a_{53} & a_{54} & a_{55} \end{pmatrix} \tag{3}$$

$$B = \begin{pmatrix} b_{11} & 0 & 0 & 0 & 0 \\ 0 & b_{22} & 0 & 0 & 0 \\ 0 & 0 & b_{33} & 0 & 0 \\ 0 & 0 & 0 & b_{44} & 0 \\ 0 & 0 & 0 & 0 & b_{55} \end{pmatrix} \tag{4}$$

In the formula, matrix A has 25 variables to be measured. To facilitate parameter estimation, it is usually assumed that A is a matrix with a diagonal element of 1, and the remaining 20 parameters need to be estimated. It can be seen from statistics that OLS estimation can only obtain 10 parameters in matrix A, and cannot wholly determine matrix A. For this reason, 10 exogenous short-term economic constraints need to be added. This is the most challenging point in constructing the SVAR model, and it is also the key to the correct setting of the model. This article combines the existing macroeconomic theories while referring to the current literature and research conclusions and adds 10 constraints to matrix A. Please see Table 1 for the detailed explanation of the variables.

Table 1. The main variables of the theoretical model.

Variable Name and Unit	Index Name	Index Description	Calculation Formula (in Period t)
b_t (%)	Government debt ratio	Government debt scale	Central government accumulated debt/nominal GDP$_t$ in period t
g_t (%)	Fiscal deficit ratio	Fiscal policy style	Fiscal deficit/ Nominal GDP$_t$
y_t (%)	Economic growth rate	Business cycle	(Nominal GDP$_t$ − Nominal GDP$_{t-1}$)/Nominal GDP$_{t-1}$
π_t (%)	Inflation rate	Monetary policy style	(CPI$_t$ − CPI$_{t-1}$)/CPI$_{t-1}$
r_t (%)	Real interest rate	Monetary policy style	Annual average real interest rate

Based on the short-term volatility of b_t(government debt), g_t(fiscal policy), y_t (economic growth rate) π_t(inflation rate) and r_t(Real interest rate), this article explores the correlation between the 5 variables over the same period and adds 10 short-term economic constraints:

(1) The synchronization relationship between b_t and g_t, y_t, π_t, r_t

According to economic theory, the relationship between b_t and other variables is:

$$b_{t+1} = \frac{1}{1+y_{t+1}}[(1+r_t)b_t + g_t - \pi_t] \tag{5}$$

It can be seen that there is a time lag in the influence of g_t, π_t, r_t on b_t, and b_t is only affected by y_t in the same period.

At the same time, in reality, government debt has a certain degree of continuity and stability in the short term, and it is less subject to external disturbances [20] (pp. 20–56) [21,22]. In empirical models, government debt is usually used as an independent or exogenous variable. Therefore, this article assumes that b_t will affect g_t, y_t, π_t, r_t in the same period but is not affected by g_t, y_t, π_t, r_t in the same period, that is, add four constraints to matrix A, assuming $a_{12} = a_{13} = a_{14} = a_{15} = 0$.

(2) The synchronization relationship between g_t and y_t, π_t and r_t

In reality, the fiscal policy formulated by the government usually has a period of M years, with strong continuity and relatively little disturbance from the outside

world [23–26]. It will not change as frequently as the economic growth rate y_t, inflation rate π_t, and real interest rate r_t. Therefore, this article assumes that g_t will affect y_t, π_t, and r_t in the same period, but is not affected by y_t, π_t, and r_t in the same period, that is, $a_{23} = a_{24} = a_{25} = 0$.

(3)　The synchronization relationship between y_t, π_t and r_t

After the reform and opening up, especially after the 1990s, the position of monetary policy has been strengthened, and the degree of marketization of benchmark interest rates has gradually increased. The inflation rate π_t and the real interest rate r_t are controlled by the central bank, with low adjustment costs and frequent changes [27–30]. They are more sensitive to the economic environment and are greatly affected by economic fluctuations, while the economic growth rate g_t is relatively stable. In reality, the economic growth rate y_t will affect π_t and r_t in the same period, but the influence of π_t and r_t on y_t has a time lag, that is, $a_{34} = a_{35} = 0$.

(4)　The synchronization relationship between π_t and r_t

As a highly market-oriented macroeconomic variable, the benchmark interest rate r_t is subject to more external disturbances and changes more frequently and violently. In contrast, π_t is more stable as an annual statistic. Therefore, this article assumes that π_t will affect r_t in the same period, but the effect of r_t on π_t has a time lag, $a_{45} = 0$.

Based on the above 10 constraints, matrix A is finally simplified to:

$$A = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ a_{21} & 1 & 0 & 0 & 0 \\ a_{31} & a_{32} & 1 & 0 & 0 \\ a_{41} & a_{42} & a_{43} & 1 & 0 \\ a_{51} & a_{52} & a_{53} & a_{54} & 1 \end{pmatrix} \tag{6}$$

3.2. Data Source

To calculate b_t, g_t, y_t, π_t, r_t, the main variables involved are annual nominal GDP, annual CPI index, annual government expenditure, annual government revenue, total government debt, and annual real interest rate. Among them, the nominal yearly GDP, annual CPI index, annual government fiscal expenditure and fiscal revenue come from the official website of the National Bureau of Statistics of China. This is because the *China Statistical Yearbook* only began to publish the debt balance of the central government after 2005. Considering the data before 2005, this paper uses 1950 as the base period and estimates the cumulative amount of the central government from 1978 to 2004 through the cumulative amount of the difference between the total fiscal debt issuance (100 million yuan) and the debt service expenditure (100 million yuan) in each year. Liabilities, the gaps in total debt issuance and debt service expenditures in some years are filled with 0.

Considering that there may be significant errors in calculating the actual interest rate, this article replaces the real interest rate with the benchmark annual interest rate. The benchmark yearly interest rate is divided into two parts: *China Financial Yearbook* (1995–2006), and expressed in Shanghai Interbank Offered Rate (SHIBOR) from 2006 to 2015. The data comes from *China Statistical Abstract 2013* and *China Financial Yearbook* (1996–2018). In view of the data vacancies in some years, this article uses the previous year's data to fill in.

3.3. Impulse Response Analysis

The impulse response function [31–34] graphically describes a series of responses of the model when the endogenous variables in the time series model are subjected to exogenous shocks (see Figure 3).
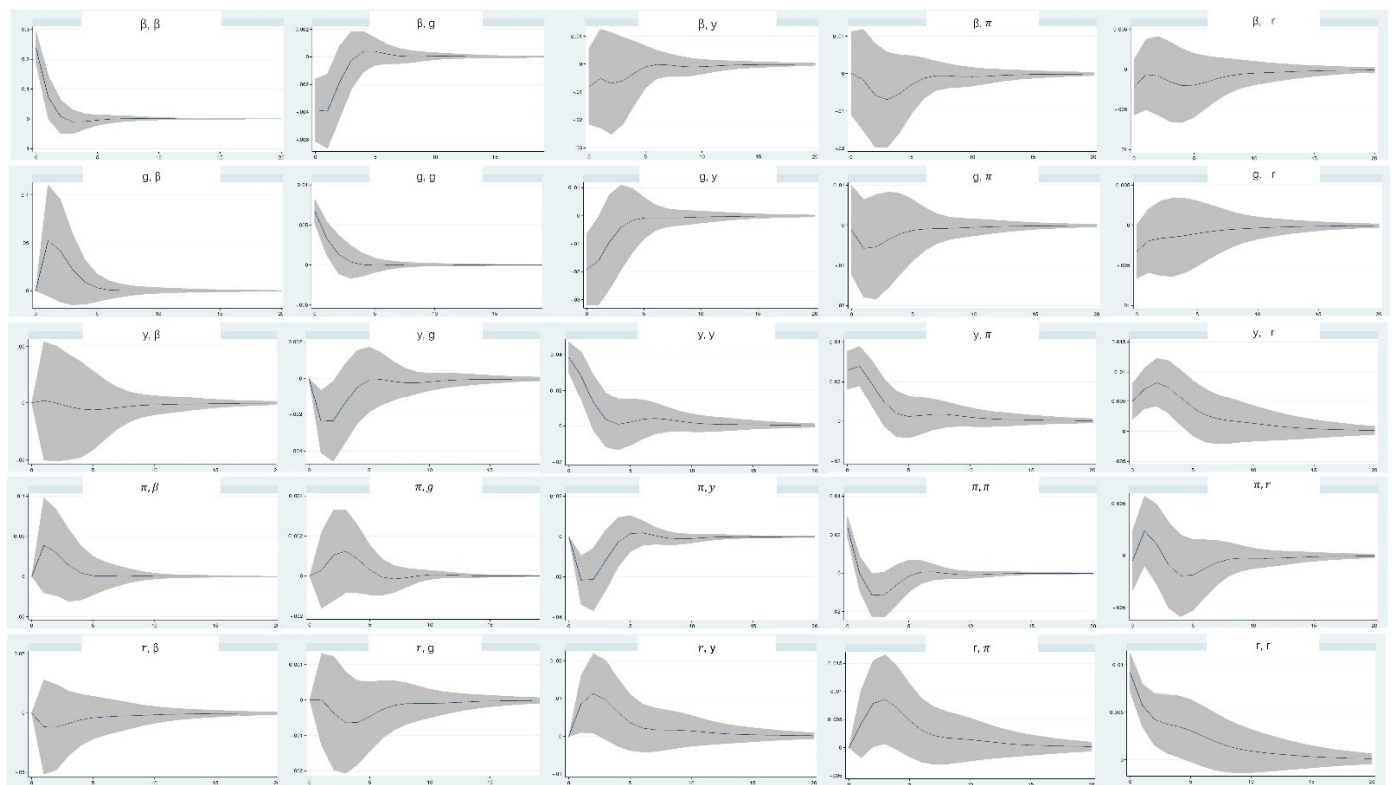
Figure 3. SVAR model impulse response function diagram. Note: The time span of the impulse response graph is 20 periods.

The positive disturbance of b will positively impact b immediately, and will have a negative effect on g, y, and r. β, g, y, and r will return to the steady-state at about the fifth period, when the impact on π appears. When it is stagnant, π first drops and then rises; it then reaches its lowest point in the 3rd period, and adjusts to a steady state in the 7th period. It can be seen from the econometric model that, given the current economic situation in China, investment-driven activity is still an essential part of stimulating economic growth. β will remain stable for some time in the future, and the proportion of government debt in GDP will continue to rise steadily in the next period. β's negative impact on g shows that from the government's point of view, a sudden increase in government debt will prompt the government to formulate fiscal austerity policies to reduce the proportion of fiscal deficits in GDP. This result is in line with reality, and it also shows that the current Chinese government debt has reached a relatively high level. The exogenous positive impact of government debt will have a restraining effect on expansionary fiscal policy; the adverse effects of b on y also show that China's current government debt is already relatively high. A sharp increase in government debt will increase the systemic risk of the economic system and inhibit economic growth. However, the impact of b on π has a time lag. It will still harm π, which indicates that a sudden increase in β will stimulate the government to adopt a tightening monetary policy to reduce the inflation rate. At the same time, the sudden increase in b has increased the government's repayment burden. The government will tend to lower the benchmark interest rate r to ease its repayment pressure. In general, the positive disturbance of b makes the Chinese government tend to adopt contractionary fiscal and monetary policies and emphasize the balance of fiscal revenues and expenditures, lowering the inflation rate while lowering the benchmark interest rate, weakening government investment.

The positive disturbance of g will hurt g, y, and r at the moment, g and y will return to the steady-state at about the 5th period, and r will return to the steady-state at about the 10th period. There is an impact on β, π time lag has a positive effect on β. β reaches its

peak in the 2nd period and falls to a steady state in the 5th period. It harms π. π reaches its lowest value in the second period and falls to a stable condition in the 5th period. The effect of g on β is relatively straightforward. A surge in fiscal deficits will increase government debt and increase b. The sudden increase in the proportion of the current fiscal deficit will increase the government's budgetary pressure. The government will adopt contractionary fiscal and monetary policies to balance fiscal revenues and expenditures. Therefore, g, π, and r declined after the shock. At the same time, it can be seen from the results that under China's current economic conditions, the positive impact of the fiscal deficit ratio g will hurt economic growth y. The sudden increase in the fiscal deficit will increase systemic risks, lower public expectations, and curb economic growth.

The positive disturbance of y will positively impact y, π, and r in the immediate period, and y, π, and r will return to the steady-state at approximately the 10th period. There is a time lag in the impact on g, and g reaches the minimum in the 1st period. It rises to a steady state in the 10th period and has a minor effect on β. When the economic environment is overheated in the short term, the demand for money increases, and y, π, and r rise. Due to the strong continuity of fiscal policy, fiscal expenditure will not increase significantly with the overheating of the economy in the short term. The positive disturbance of y will make GDP multiply in the short term. G is the ratio of fiscal deficit to GDP, decreasing. At the same time, the government debt growth rate β is relatively stable, and short-term economic overheating has little effect on β.

The positive disturbance of π will have a positive effect on π itself immediately, and π will be adjusted to a steady state in the 8th period. There is a time lag in the influence on β, g, y, and r, and β and g will reach their peaks in the 2nd period. R gets the rise in the 4th period, β, g, and r return to the steady-state in the 5th, 10th, and 8th periods, respectively, and y reaches the lowest point in the 2nd period and returns to the steady-state in the 9th period. It can be seen from the results that a sudden increase in the inflation rate will prompt the government to adopt expansionary fiscal and monetary policies, increase investment to increase product supply, and increase β, g, and π. At the same time, the sudden increase in the inflation rate has increased the systemic risks of the economic system and caused currency depreciation. Investors will require a higher rate of return to ensure their returns. The sudden increase of π will harm the economic growth rate y, and the exogenous inflation rate shock will distort the allocation of resources in the financial system and inhibit the enthusiasm for production.

The positive disturbance of r will positively impact itself immediately, and r will return to a steady state in the 20th period. There is a time lag in the impact on β, g, y, and π, and y and π will reach their peaks in the 3rd period, respectively, and return to a steady state in the 12th and 15th periods. B and g reached their lowest points in the 2nd and 4th periods, respectively, and returned to a steady state in the 7th period. The sudden increase in r will attract more funds into the market, increasing the economic growth rate y while increasing the inflation rate π. At this time, the Chinese government will be inclined to use contractionary fiscal policies to reduce b and g in the face of a warming economic environment.

3.4. Variance Decomposition

Variance decomposition [35–38] describes the contribution of exogenous structural shocks to the fluctuation of model variables and indicates the importance of random disturbances of different variables to the model.

Figure 4 depicts the extent to which the exogenous shocks of β, g, y, π, and r affect the prediction variance of each variable in the SVAR model during the eight periods. Among them, the exogenous shock of β has almost all influence on its prediction variance, and the exogenous shock of other variables has virtually no effect on the prediction variance of β. The exogenous impact of g has a greater impact on itself and y. The exogenous impact of y has a higher contribution to the model, and has a greater impact on y, π, and r. The impact on the prediction variance of π and r even exceeds the exogenous impact of π and r. The

exogenous impact of π has a higher contribution to itself and the variance of y prediction. Its impact on the variance of y prediction is the same as that of g. The exogenous impact of r will only have a more significant impact on the variance of its prediction.
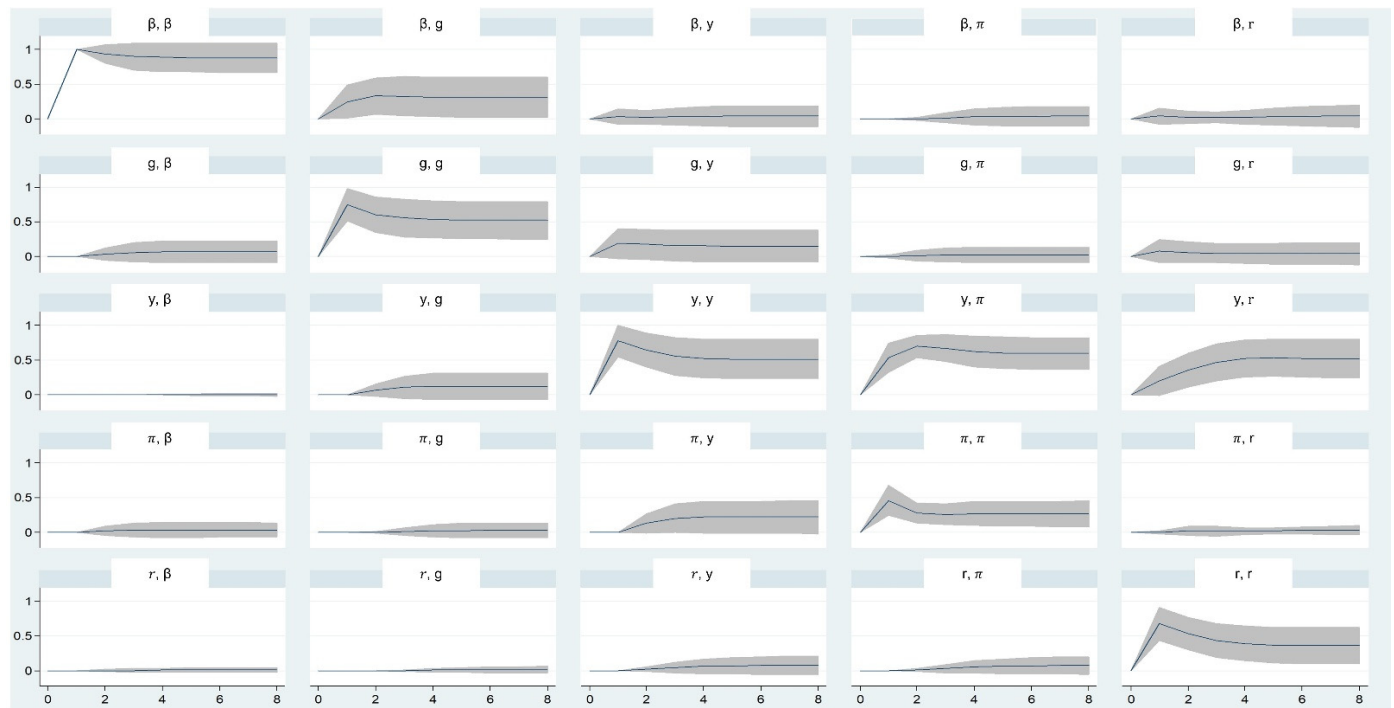

Figure 4. Variance decomposition of SVAR.

It can be seen that basically consistent with the forecast, π and r, which represent the monetary policy, are more susceptible to the economic environment, and the forecast variance is more affected by the exogenous shock of y. The β and g, which represent the fiscal policy, have strong continuity and are greatly influenced. The forecast variance is not affected by the exogenous shock of y. At the same time, fiscal policy and monetary policy have the same impact on y, and their contribution to the forecast variance of y is about 25%. At this stage, both fiscal and monetary policies in China can effectively regulate economic growth and smooth the economic cycle [39–43].

4. Discussion

The Chinese government's investment-driven economic growth model is inseparable from huge liquidity support [44]. However, the research on the relationship between government debt and economic growth has not yet reached a conclusion. In developed countries, government debt is generally considered to crowd out private investment; but in developing countries, government debt investment often exhibits a "crowding-in effect" [45]. The key to determining whether government debt will crowd out private investment is the relative relationship between the rate of return on capital and interest rates [46–48]. If an economy has relatively more investment opportunities and its return on capital is higher than the real interest rate, the growth of government debt will not lead to a "crowding out effect"; otherwise, increasing government debt will crowd out private investment. Capital is scarce in emerging market countries, and their return on capital is higher than that of developed countries. The difference in factor endowments between emerging market countries and developed countries determines the difference in the impact of government debt on economic growth [49–52]. When emerging market countries surpass the current phase of convergence, as the rate of return on capital decreases, government debt will crowd out private investment. The impulse response function shows that the continuous accumulation of Chinese government debt has begun to inhibit

economic growth, consistent with economic theory. The conclusion formed by mainstream monetary banking is that governments should avoid fiscal deficits as much as possible. However, the situation in China is rather unique. The central government's high degree of centralization has led to gradual market-oriented reforms. In contrast, local governments have a high degree of discretion, making up for the market defects caused by excessive control in competition and improving the quality of economic growth. While achieving regional economic growth, the game between local governments has also caused many negative consequences, such as the implicit debt expansion of local governments, which has threatened the development process of China's economy.

Since the mid-1980s, major developed countries have entered an era of high growth and stable inflation that lasted for more than two decades [53,54]. The progress of monetary economic theory has contributed to this [55]. The "New Neoclassical Synthesis" (NNS) uses market friction, sticky prices, and other structural characteristics as the micro-foundations to guide long-term dynamic general equilibrium analysis, which has won wide recognition in academics and decision making [55–58]. Taking inflation as the primary target and adjusting only the short end under specific rules (Taylor's Rule [59]), interest rate instruments have become a currency regulation commonly adopted by significant central bank models. However, under the impact of the 2008 subprime mortgage crisis, the monetary economics theory exposed obvious paradigm flaws, and the monetary policy authorities had to carry out a large number of unprecedented, innovative policy experiments, which provided significant benefits for China's economic policy control. In the context of the CPVID-19 pandemic, climate change, and the U.S. debt crisis, high debt and deflation coexist simultaneously. China must take measures to deal with the risk of "debt-deflation" [60–62]. The experience of the United States and Japan shows that using monetary policy or fiscal policy alone [63–66] to deal with "debt-deflation" requires greater policy strength, and it is easy to fall into the predicament of unsustainable policies. Therefore, the Chinese government mainly adopts the "discretionary" adjustment strategy regarding policy selection and collocation. Based on the lessons learned from previous crises, the PBC has continued to develop the relationship between the central bank and its finances. The PBC has always claimed that implementing monetary policy independently and taking into account multiple goals such as economic development and financial stability can further strengthen the coordination and cooperation between monetary policy and fiscal policies [67]. Fiscal and monetary policies are in the same direction in most cases of SVAR exogenous shocks, and the results of this paper are consistent with the same. When industrialized countries emphasize monetary policy independence, it is usually tricky for monetary authorities and financial departments to act synchronously. China is unique in that both the monetary authority and the financial department are part of the State Council. Under the unified leadership of the State Council, they jointly achieve the policy goals of smoothing economic fluctuations and promoting sustainable and healthy economic development. Judging from the practice of the Chinese government in recent years, it uses what can be deemed a prudent monetary policy to stabilize the money supply in aggregate and to keep the growth rate of money supply and social financing scale matching the nominal economic growth rate. Furthermore, it makes efforts in fiscal policy to ensure support for national vital areas and projects (education, social security, employment, medical and health, infrastructure, etc.) and promote stable economic growth.

In addition, both monetary and fiscal policy regulation as well as control of macroeconomic operations have always been the central issue of macroeconomics [68,69]. Due to the relatively consistent matching of control objects and tools, fiscal and monetary policies naturally overlap. In 2008, the PBC lowered the deposit reserve ratio many times. However, due to the insignificant effect of policy stimulus, the government implemented the "4 trillion" (yuan) rescue plan in November of the same year to curb the economic downturn [70–73]. It also caused overcapacity—problems such as economic downturn, low inflation, and asset price bubbles. The fiscal deficit that has increased year by year means that China's government debt has also increased. In the long run, it is a hidden danger that

restricts economic growth; however, it is subject to structural reasons such as imperfect financial markets in developing countries and is wholly founded on price-based policy control. The system cannot be achieved overnight; therefore, the question of what kind of policy combination should be adopted to quell economic fluctuations has become a major theoretical problem and realistic challenge before the central bank. Balfoussia et al. [74] found that coordinating fiscal policy and monetary policy was essential for maintaining financial stability. Alpanda et al. [75] compared the effectiveness of monetary policy, fiscal policy, and macroprudential supervision in reducing household debt through a Dynamic stochastic general equilibrium (DSGE) model. They found a suitable combination of fiscal policy, monetary policy, and a macroprudential approach to improve welfare and optimize household debt structure. From the variance decomposition results, it can be seen that China's current fiscal and monetary policies can effectively regulate economic growth, and the contribution rate of the two exogenous shocks to the variance of the economic growth forecast is about 25%. This is especially interesting. Neither in the standard neoclassical economics nor the new Keynesian model can fiscal spending have a pulling effect on private consumption. The increase in fiscal expenditure will inevitably increase current or future tax revenue, thereby producing a negative wealth effect and crowding out household consumption. However, under the particular circumstances of the coordination of monetary and fiscal policies in China, the simultaneous expansion of fiscal expenditure and money supply makes fiscal expenditure have a pulling effect on both private consumption and private investment, thus making the total output show a sustained increase. Government investment in infrastructure may also increase the productivity of private firms and may also change fiscal multipliers in the short and long term.

5. Conclusions

The empirical model results show that: (1) The impulse response function leads to the continuous accumulation of Chinese government debt inhibiting economic growth. China needs to be wary of local government debt. (2) Regarding policy selection and collocation, the Chinese government mainly adopts a "discretionary choice" adjustment strategy. This is very different from industrialized countries because both the PBC and the Ministry of Finance are directly under China's State Council. In most cases of SVAR exogenous impact, fiscal and monetary policies are aimed in the same direction. The policy collocation of "double looseness" and "double tightness" may become mainstream. (3) From the results of variance decomposition, it can be seen that both fiscal and monetary policies can effectively regulate economic growth at this stage, and the contribution rate of the two exogenous shocks to the variance of the economic growth forecast is about 25%, which proves that under the particular circumstances of the coordination of monetary and fiscal policies in China, the simultaneous expansion of fiscal expenditure and money supply makes fiscal expenditure have a pulling effect. This may be part of the mystery of China's economy, and it has some implications for emerging economies.

It should be noted that the expansion of fiscal expenditure may lead to the central bank's passive issuance of additional currency. During the economic recession, the central bank will also adopt a loose monetary policy to expand the distribution of money and stimulate economic growth. At this time, fiscal expenditure will grow accordingly. During the COVID-19 pandemic, budgetary and monetary policies need to pay more attention to cooperation and exert joint efforts.

The SDGs promote technological innovation and increase productivity, driving sustainable economic growth. SDG 8 aims to achieve full and productive employment by 2030 and guarantee decent jobs for everyone. It has been nearly two years since the outbreak of the COVID-19 pandemic, whose impact, in 2020, almost shut down the global economy. China has virtually become the only major economy, on a global scale, to achieve positive economic growth; in 2021, the global economy was still racing against the pandemic. The Chinese economy is fighting the pandemic and climate change as well as undertaking carbon emission reduction with good performance. Using monetary and fiscal policies

to make up for the impact of the epidemic and climate change and further increase the potential growth rate of the economy is worthy of summary and in-depth study. We have not yet conducted a discussion under a dynamic general equilibrium framework, which deserves further analysis.

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