RIETI-IWEP-CESSA Joint-Workshop

Current Issues in the World Economy: Exchange Rate, Invoice Currency, Price Transmission and Localization

HOW DOES CHINA'S FISCAL POLICY AFFECT THE CHANGES IN CURRENT ACCOUNT AND EXCHANGE RATE?

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Outline

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- Mechanisms Analysis
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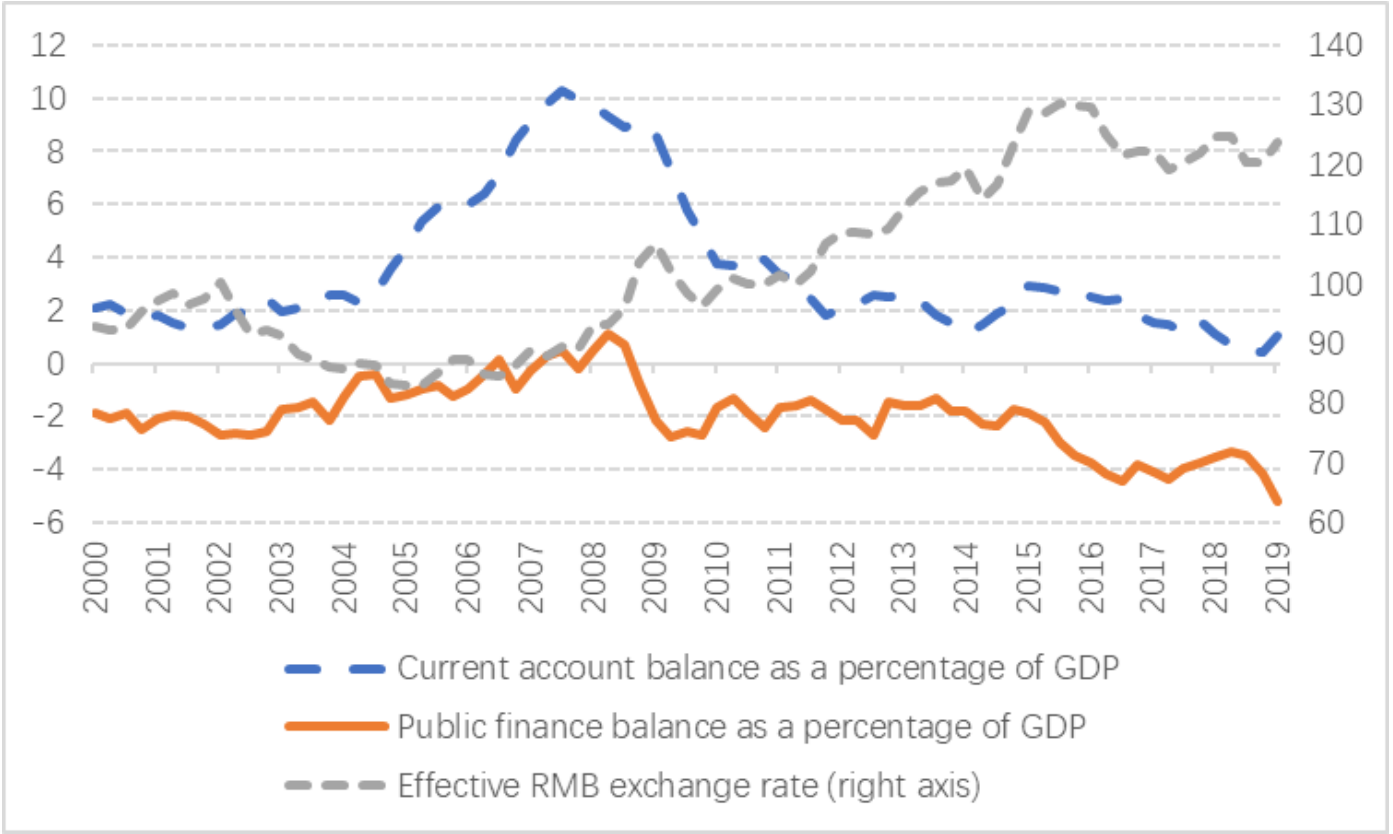
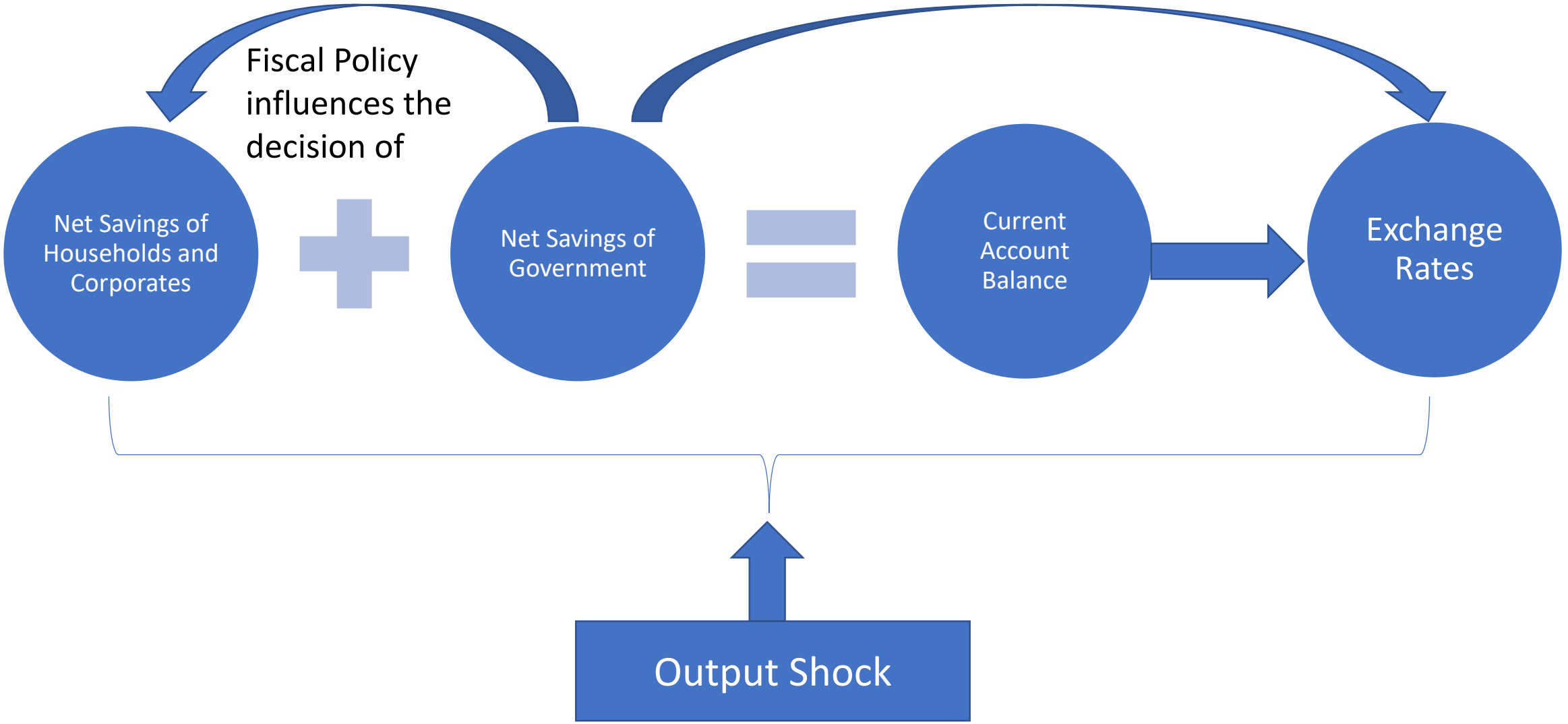
Motivation（1）

- Three important macroeconomic variables has changed significantly in China after the Global Financial Crisis:
  - (1) China's current account balance has gradually declined since the outbreak of GFC and even appeared negative in individual quarters of 2018
  - (2) The two-way fluctuation of the RMB exchange rate has increased significantly
  - (3) China's fiscal policy has continued to strengthen in recent years
    - Four trillion stimulus package
    - The reduction of tax and administration fee policies
    - Fiscal policy will inevitably have an impact on China's external economic conditions



Motivation （2）



This Paper has

- Theoretical implications
  - Although there is plenty of literatures on fiscal policy, current account, and exchange rate, most of them are experiences in developed countries. There is rare evidence about countries like China with large trade volume while has restrictions on capital flows.
  - Chinese fiscal policy is often combined with industrial policies and has strong structural characteristics. This also means that the evidence found in traditional research may not be applicable to China.
  - Therefore, using Chinese data to explore this issue has important supplementary significance in the literature.
- Realistic implications
  - China is increasingly using fiscal policy to boost the economy growth and reform.
  - The ongoing trade negotiation is (to some extent) aimed at RMB exchange rate (currency manipulation in August) and external imbalance ($200 billion additional purchase from the US in the first-round trade deal). While thinking about the possible economic response and policy implementation, analyzing the possible impact of the implementation of adequate fiscal policies on external economic variables will be very helpful.

Literature Review

- Theoretical
  - Early: Mundell-Fleming model (Mundell, 1963; Flemming, 1962)
  - Micro-foundation models: temporary / permanent fiscal expansion, tradable / non-tradable goods and domestic preferences (bias), the impact of savings / investment, pricing to market, different types of fiscal policies (Sachs, 1984; Frenkel and Razin, 1996; Baxter, 1995; Betts and Devereux, 2000)
  - Main ideas: Expansionary fiscal policy will lead to deterioration of the current account and real exchange rate appreciation
- Empirical
  - Methods：VAR，SVAR
  - Result: Expansionary fiscal policy leads to:
    - real exchange rate appreciation (US, Germany, Japan, Canada and UK, Clarida and Gali, 1994)
    - Current account deficit (UK, Ahmed, 1986)
    - Improvements in current account balances and depreciation of real exchange rates (US, Kim and Roubini, 2008)

Data Description

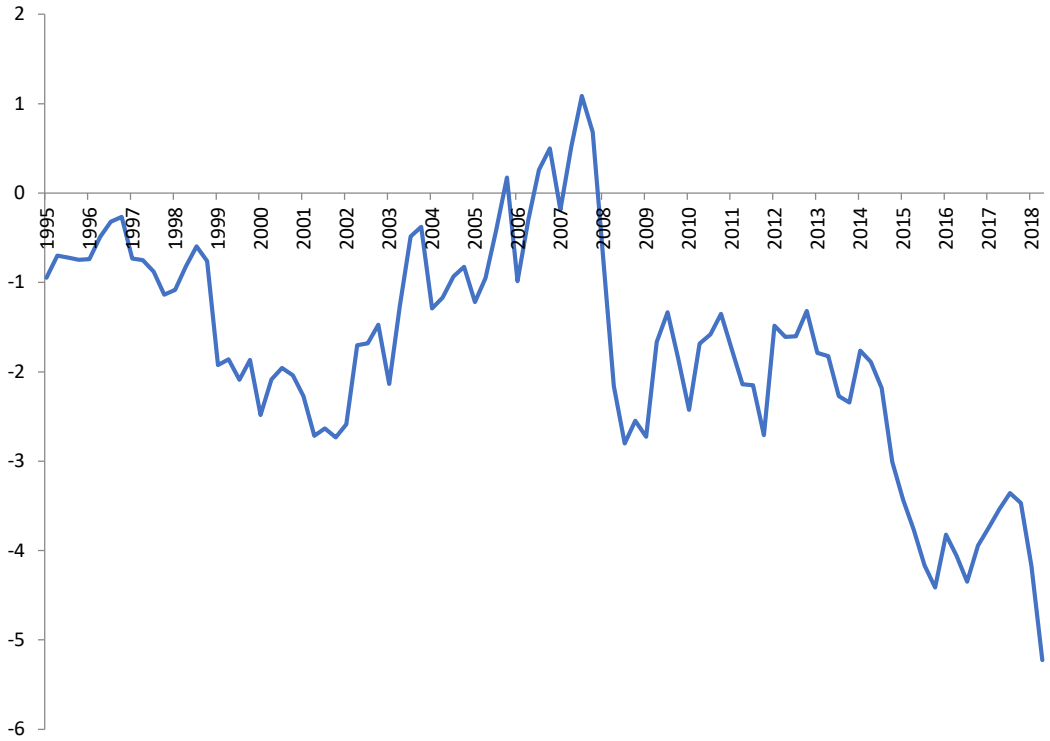
- Variables
  - GDP
  - GOV：general public fiscal balance to GDP, final accounting, without considering the transfer of funds and the use of carry-over balances (trends in the next page)

    - “Four Books” issue
    - One of China's currently unified "four books" in fiscal statistics.
    - Social security accounts are dedicated and will not directly reflect China's government fiscal policy.
    - The proportion of state-owned capital funds is very low.
    - Government funds can reflect the strength of fiscal policy, but the sample period is relatively short (Since June 2011)
    - To check the potential omissions, we compare it with the broader government balance statistics (in Flow of Funds table) and the trends of the two are highly close.

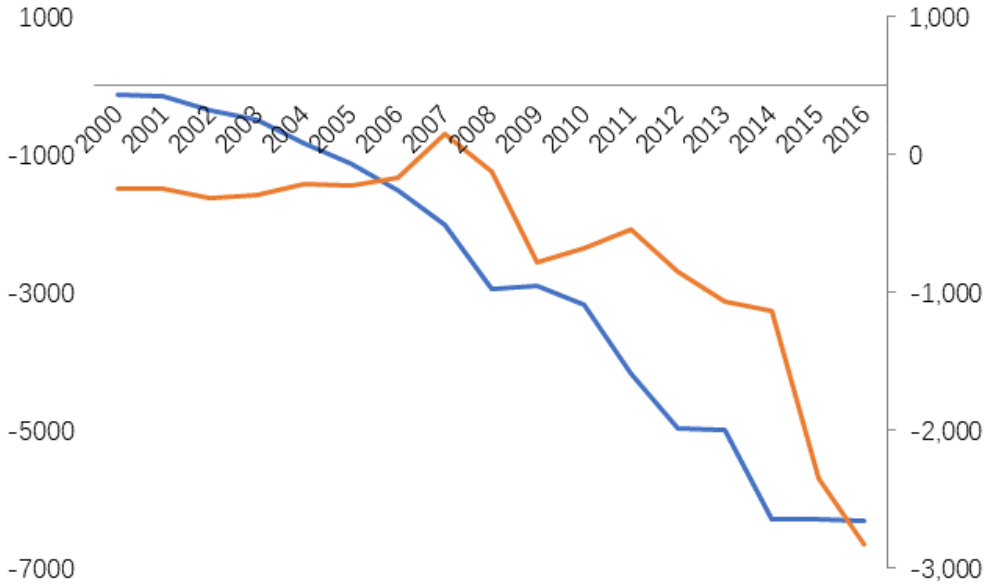
    - Local Government Financing Platforms issue
    - long-term quarterly data is not available（state-owned enterprise investment）
  - CA：current account balance as a percentage of GDP
  - M2：M2/GDP
    - Monetary policy shock
    - A measurement of liquidity
    - A substitute indicator for interest rate
  - REER: RMB real effective exchange rate
- Data adjustment：
  - Seasonal effects: four-quarter trailing sum
  - Take log for GDP and REER

GOV Figures

Chinese government public account deficit (final account, % of GDP)



Comparison of Fiscal Balance and the Difference of Government Savings and Investment



Model setting

Recursive VAR Model

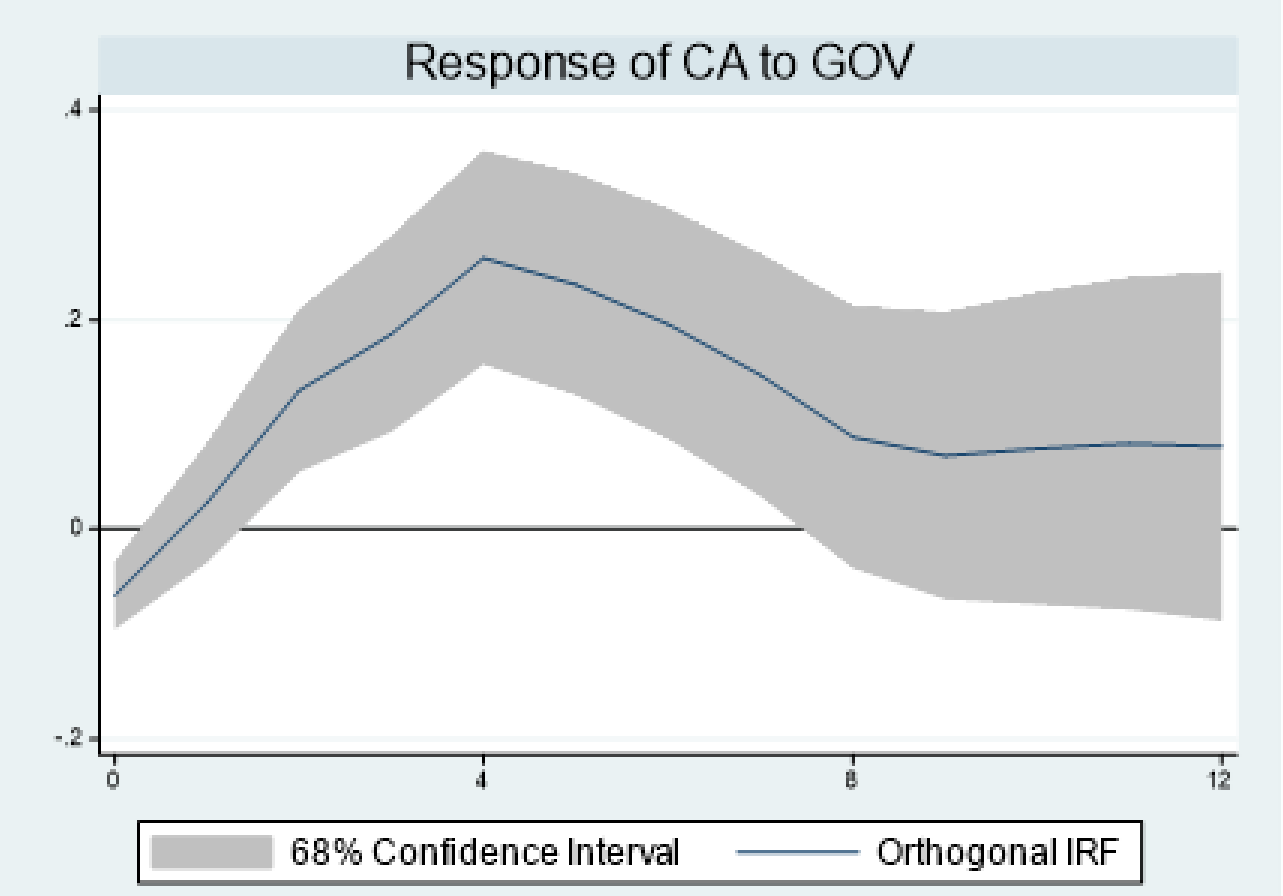
- Since the major macro variables studied in this paper are strongly endogenous, this paper uses the Vector Autoregression (VAR) model proposed by Sims (1980) to study the impact of fiscal shocks on current account and exchange rates.
- Order: GDP, GOV, CA, M2, and REER. Contemporaneously exogenous variables are ordered first (Kim and Roubini, 2008).
- When the model is estimated, the structure we applied assumes that the four variables, GOV, CA, M2, and REER, will be affected by the current and lagged GDP and all lagged variables. Specifically, the identified fiscal shock is conditioned on the current and lagged GDP and all other lagged variables.

Identification scheme

- Sample period: 1998Q1-2019Q1, Small sample adjustments are made.
- Model setting includes constant.
- FPE, AIC, HQIC, and SBIC criterions all support a lag order of 5 quarters in the model (highest 8 lags for the optimal lag order test)
- Due to the existence of unit roots and cointegration, Bayesian inference is used to construct standard errors of impulse response function.
- We set the confidence interval to 68% in the impulse response graph. (The major results remain significant within 95% confidence interval)

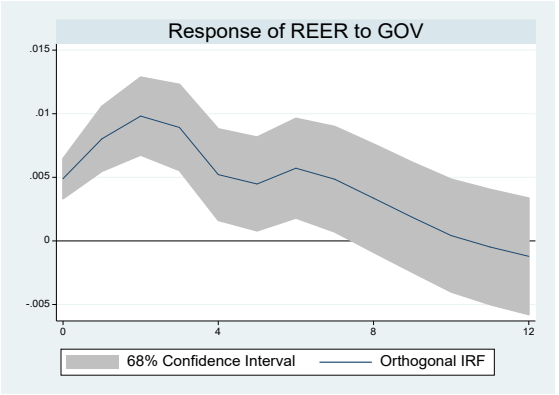
Benchmark Results （Core 1）

- Fiscal policy shock to current account
  - A standard deviation of fiscal shock led to a slight decline of current account balance in the first quarter, but then it showed a positive effect. This effect peaked during the fourth quarter and significantly affected the current account balance (by an increase of about 0.2%). After that, this effect will gradually decrease over time and return to a less significant interval (in the 8th quarter).
  - This means: An expansionary fiscal policy will lead to a 6-quarter consecutive decline of current account balance. And then its effect vanishes.
  - Short-term: “Twin deficit”
  - Long-term: “Ricardo Equivalence”

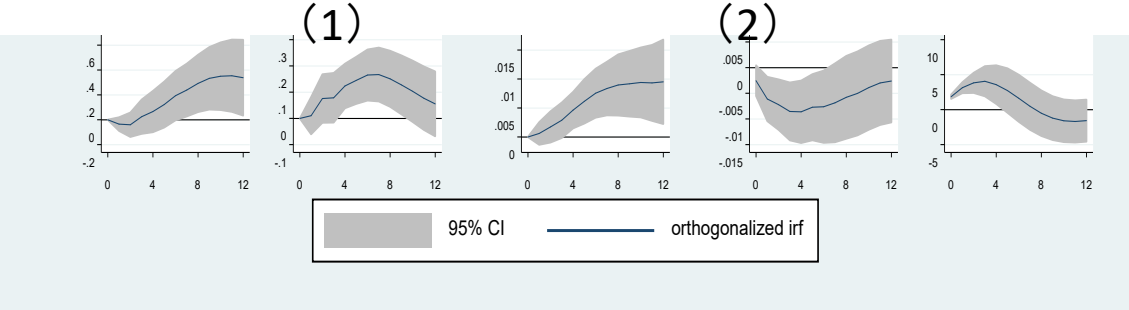


Benchmark Results （Core 2）

- Fiscal policy shock to real exchange rate
  - The impact of a standard deviation fiscal balance will lead the RMB REER to appreciate in the first quarter, and its effect will reach the highest in the second and third quarters, which RMB REER appreciates by about 1% each month. However, over time, the exchange rate effect of fiscal policy will gradually weaken, and was not significant since the 8th quarter.
  - This means: the expansion of China's fiscal deficit brings about the depreciation of the RMB exchange rate in 7 consecutive quarter.
  - Inconsistent with benchmark Mundell-Fleming model, in which fiscal policy will trigger capital inflows and the appreciation of domestic currencies.
  - Possible channels:
    - Capital controls and central bank exchange rate intervention may be one of the reasons(but it is consistent with the US experience)
    - Fiscal expansion will crowd out corporate investment, which in turn will reduce the productivity of enterprises (especially manufacturing enterprises in the tradable sector), which will cause the yuan to depreciate
    - Fiscal expansion will lead to an increase in the overall economic debt, which leads to currency depreciation



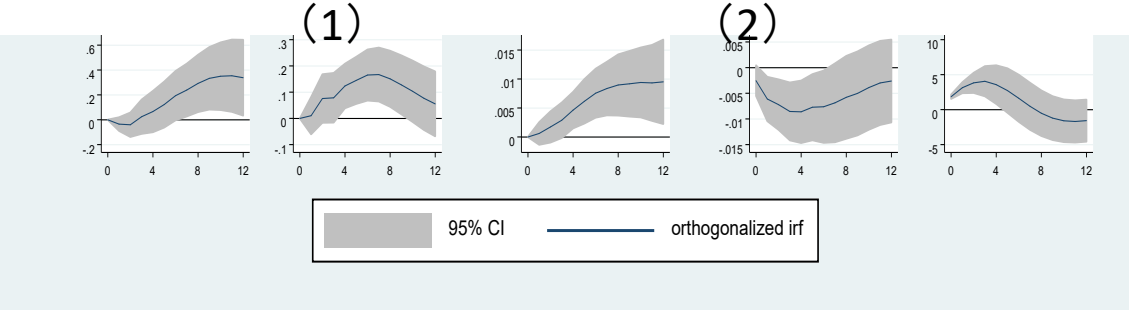
Benchmark Results（Other 1）



（1） Positive output shock will deteriorate the current account balance. This is in line with the expectations of traditional theory: economic growth will drive domestic demand growth, increase imports and reduce the current account surplus. At the same time, this theory is also consistent with the expectations of modern theories represented by real business cycle models (such as Mendoza (1991)) and Backus et al. (1992). Positive and continuous output shocks will lead to rising investment, and this in turn worsened the current account balance.

（2） Positive output shock will bring government fiscal balance to improve at first and then worsen. The short-term impact reflects the automatic stabilizer function of the government budget, which may be related to the countercyclical characteristics of government fiscal policy in the long run.

Benchmark Results（Other 2）



（3） The positive output shock will in generally lead to the appreciation of RMB. Balassa-Samuelson effect (the increase of productivity supporting strong RMB) outweighs the demand effect (increasing demand lead to higher imports which in turn brings the depreciation of domestic currency).

It can be seen from (1), (2) and (3) that the output shocks affect current account balances, government fiscal balance, and exchange rates. Thus, it is necessary to control the output shock to analyze the pure effect of fiscal policy to current account and exchange rates.

The other impulse responses are also broadly consistent with theory.

Robustness Tests

- Selection of lag order
  - In benchmark regression, lag order 5 is selected based on FPE, AIC, HQIC and SBIC. In robustness test, we choose lag order 4 and 6 for regression, to observe whether the results are sensitive to the lag order. The regression results show that the influence of fiscal policy on the current account and exchange rate is consistent with the benchmark study, although the significance of the current account effect has to some extent decreased.
- Variable ordering
  - The estimation results of recursive SVAR models are often affected by variable ordering. Although we followed Kim and Roubini's (2008) and theoretical recommendations to set the variable ordering of the benchmark study, we also considered the fiscal shock as the primary effects of this study in order to ensure the reliability of our conclusions. The results show that the regression results have not changed much. In addition, we also adopted the most traditional VAR regression without considering the current correlation, and the conclusions did not change significantly as well.
- Sample period
  - China ’s local financing platform has developed rapidly since 2009, and this part of the deficit is implicitly considered as a government guarantee, but it is not included in the official deficit. To this end, we use data from 2009 for robustness testing. Another benefit of this sample selection is that the RMB reform started since 2005 and the selection of samples after 2009 also helps to eliminate the influence of intervention factors before the exchange reform. The results show that even if we reduce the sample time interval, the statistical relationships between fiscal policy, current account balance, and exchange rates are basically consistent with the results of benchmark model.

Mechanisms Analysis （1）

- Disaggregated effect of fiscal policy on current account
  - CA Balance =(Household Savings-Household Investment)+(Cooperate Savings-Cooperate Investment)+Government Net Savings
  - CA Balance=(Household Savings+Cooperate Savings-NonGov Investment
  + Government Net Savings

+

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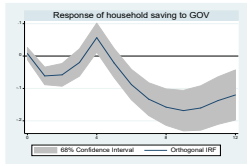
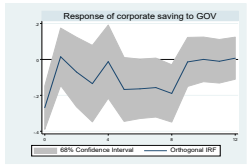
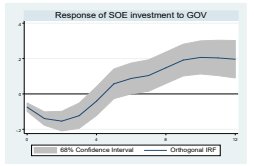


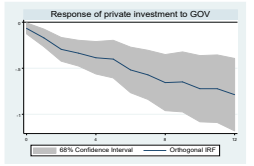




Expansionary fiscal policy promotes SOE investment in the short term and crowd it out in the long term

“Ricardo equivalence”
Expansionary fiscal policy brings rising household savings

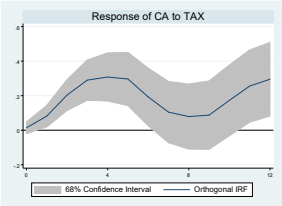
No significant effect

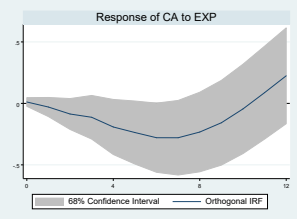


Expansionary fiscal policy promotes private investment

Mechanisms Analysis （2）

- Tax effect and Expenditure effect
  - Theory：
    - Tax cuts can help stimulate business investment and increase business productivity. (Persistent vs temporary tax cuts)
    - Increased fiscal expenditure is more likely to crowd out private investment or increase private savings.
  - Empirical:





Tax cuts will widen current account deficit
Persistent shock

Overall insignificant
Crowd out/ Substitution effect

Conclusion

- The model:
  - Expansionary fiscal policy will bring down the current account balance in the short term (which lasts for about 1 year), but the medium and long-term impact is basically neutral.
  - Expansionary fiscal policy will bring about the depreciation of the real exchange rate of RMB, and the impact last less than 2 years.
- The Mechanism:
  - The impact of fiscal policy on household savings is basically in line with Ricardo's equivalence. There is a trade-off between household savings and government savings.
  - The impact of fiscal policy on investment is different between SOEs and POEs. Expansionary fiscal policy generally promotes the investment of SOE at the beginning and then crowd it out. It promotes investment of POEs.
  - Different expansionary fiscal policies have different effects on current account. Tax cuts will worsen the current account, which indicates that the investment growth effect will exceed the savings growth effect. The impact of increased expenditure on the current account is not significant, reflecting the substitution of government spending and private investment.

Policy Implication

- Policy choice
  - Ideal Policy Combination: Fiscal Policy Expansion + Basically Balanced CA
  - “CA Neutral” fiscal policy
    - Competitive neutrality
    - Increase expenditure

Thank you!