

DISCUSSION: “MONEY-FINANCED FISCAL PROGRAMS: A CAUTIONARY TALE”

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Conference Honoring Charles Carlstrom and Timothy Fuerst
October 19, 2018

SUMMARY

- ▶ Main Issue: how effective is a money-financed fiscal stimulus?



- ▶ Idea: expansionary fiscal policy financed by seignorage revenue → raises inflation
- ▶ Useful in very bad economic situation since more effective than standard, stand-alone monetary and fiscal policy [Buiter (2014), Turner (2015), Gali (2016)]

SUMMARY

- ▶ Analysis
 - ▶ Quantitative analysis in benchmark New Keynesian model
 - ▶ Historical episodes of monetary-fiscal interactions for context
- ▶ Findings:
 1. Map money-financed fiscal stimulus into interest rate rule with **price level target dependent on fiscal stimulus**
 2. Show model predictions significantly dampened if:
 - ▶ **Private agents are unsure how fiscal stimulus is financed** (e.g., monetary and fiscal coordination & communication important)
 - ▶ **Private agents are less forward looking**

MODEL OVERVIEW

- ▶ Monopolistic competition in goods market and (Calvo) price stickiness
- ▶ Labor only adjustable input of production
- ▶ Utility separable in consumption, labor, and (non-interest bearing) real money balances
- ▶ Fiscal authority exogenously chooses G ; adjusts lump-sum taxes to satisfy GBC
- ▶ Monetary authority usually follows Taylor rule but can adjust seigniorage revenue proportionally with G change
 - ▶ Considers exercises when effective lower bound on interest rate does or doesn't bind

MAIN RESULTS: MAPPING MONEY-STIMULUS TO PRICE TARGETING

- ▶ Start with money-financed fiscal stimulus rule:

$$m_y \hat{s}_t = g_y \hat{g}_t, \quad s = \text{real seignorage revenue}$$

- ▶ Combine with money demand function to get interest rate rule:

$$\hat{i}_t = \frac{1}{\phi_i} \left(\hat{p}_t - \hat{p}_t^* + \phi_c \left[\hat{c}_t - \left(\frac{\nu^*}{\nu} \right) \nu_t^* \right] \right)$$

where $\hat{p}_t^* = \hat{p}_{t-1}^* + \frac{g_y}{m_y} \hat{g}_t$

- ▶ Useful way of thinking of policy: instead of regime shift between interest rate and money growth instruments, one Taylor rule for all times

MAIN RESULTS: WHEN IS MONEY-STIMULUS LESS EFFECTIVE?

- ▶ Consider two extensions to benchmark model that significantly lower effectiveness of policy
 1. Private agents unsure how fiscal stimulus is financed
 - ▶ Kalman filtering problem to learn how much of G financed by M
 2. Less forward-looking private behavior [in spirit of Gabaix's Behavioral NK Model]
 - ▶ Less immediate stimulus as agents don't internalize effects

THOUGHTS ON THE PAPER

- ▶ Provides clear explanations of model mechanisms
 - ▶ Nice way of relating money-stimulus to price targeting
- ▶ Demonstrates importance of communication/credibility and design of coordinated monetary-fiscal policy for effective stimulus
- ▶ Comments mainly directed at designing and interpreting monetary-fiscal interactions

1. IMPORTANCE OF THE DESIGN OF THE MONEY-STIMULUS

- ▶ Central bank objective to offset fiscal stimulus:

$$m_y \hat{s}_t = g_y \hat{g}_t$$

where s = real seignorage revenues

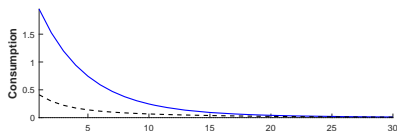
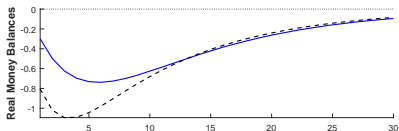
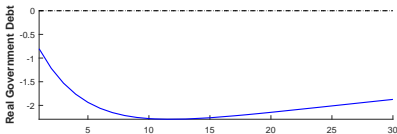
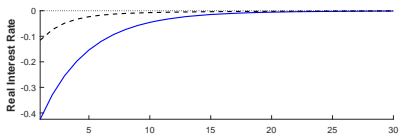
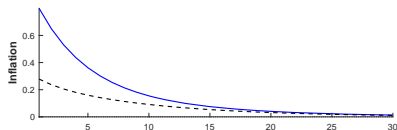
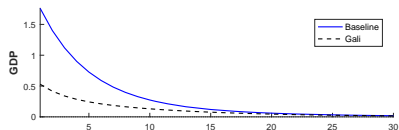
- ▶ Implies government debt can still move with inflation:

$$b_y \hat{b}_t = b_y(1+i)(\hat{b}_{t-1} + \hat{i}_{t-1} - \hat{\pi}_t) - \tau \hat{\tau}_t + g_y \hat{g}_t - m_y \hat{s}_t$$

- ▶ Alternative rule of Gali (2016): CB's objective to keep debt constant:

$$m_y \hat{s}_t = g_y \hat{g}_t + b_y(1+i)(\hat{i}_{t-1} - \hat{\pi}_t)$$

1. IMPORTANCE OF THE DESIGN OF THE MONEY-STIMULUS



- Even more important without Ricardian Equivalence

Fine Print: $\sigma = 1$, $\phi_c = 0$, $\chi = 2$, $\mu = 10$, $\zeta = 0.75$, markup = 1.125, $\beta = 0.995$,
 $\alpha = 0.25$, $g_y = 0.2$, $m_y = 0.4$, $b_y = 1.47$

1. IMPORTANCE OF THE DESIGN OF THE MONEY-STIMULUS

- ▶ Design also impacts equivalent interest rate rule
- ▶ Model silent on practical implementation for Federal Reserve
 - ▶ Borio et al (2016); Kocherlakota (2016) critique: connection to banking, reserves & interest
- ▶ Effects also sensitive to money demand function (as shown in paper)

1(B). IMPORTANCE OF THE DESIGN OF THE MONEY-STIMULUS

- ▶ Why not consider alternative policy where accommodative central bank *does nothing* with fiscal stimulus?

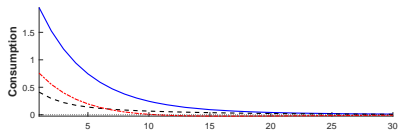
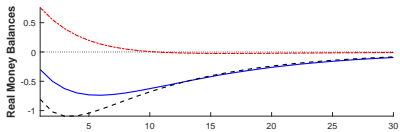
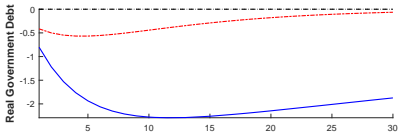
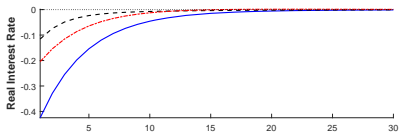
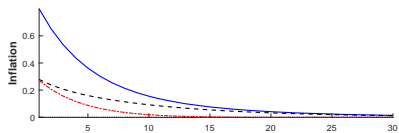
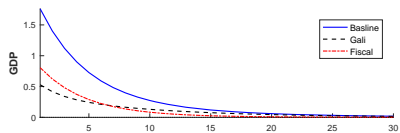
- ▶ $\hat{i}_t = 0$; $\hat{\tau}_t = 0$: no change in targets

- ▶ Alternative financing through prices (inflation) today:

$$\frac{B_t}{P_t} = \sum_{s=0}^{\infty} \left(\prod_{j=0}^s \pi_{t+j+1} (1 + i_{t+j+1})^{-1} \right) \left[\tau_{t+s+1} - g_{t+s+1} + \frac{M_{t+s+1} - M_{t+s}}{P_{t+s+1}} \right]$$

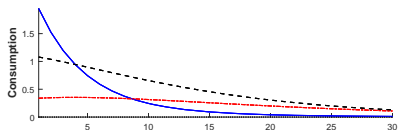
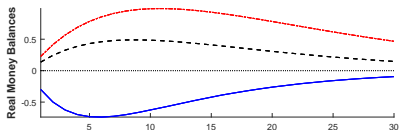
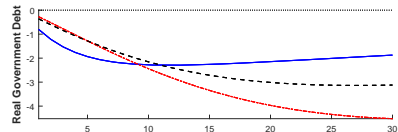
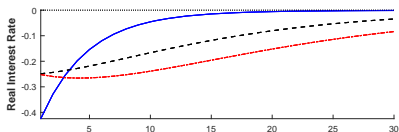
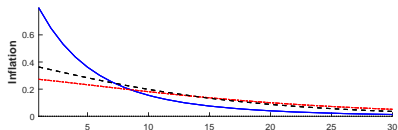
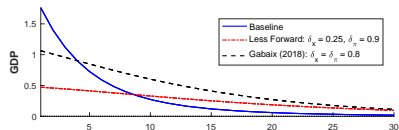
- ▶ Equivalent effects through fiscal theory; see Kocherlakota (2016), Beck-Friis & Willems (2017)

1(B). MONEY-STIMULUS VS. FISCAL THEORY



2. MODELING LESS FORWARD LOOKING BEHAVIOR

- Large sensitivity to degree of forward-looking nature



2. MODELING LESS FORWARD LOOKING BEHAVIOR

- ▶ Paper shows stimulative effects at ZLB depend on type of fiscal stimulus
 1. Money-financed lump-sum transfers have small effect (Ricardian Equivalence holds)
 2. Money-financed government spending increase more effective
- ▶ Tension with conclusions of Gabaix (2018):
 - ▶ *Fiscal stimulus or “helicopter drops of money” are powerful and, indeed, pull the economy out of the zero lower bound.*
 - ▶ Gabaix (2018) breaks RE; less forward-looking agents do not perfectly offset future tax hikes with savings today
- ▶ **Open Question:** results and modeling of agents imperfectly predicting future taxes with nominal debt and endogenous feedback in policy instruments

3. BROADER PICTURE: UNCERTAINTY OF WHAT?

- ▶ Learning scenario has following set-up:
 - ▶ Let $g_t = g_t^{mf} + g_t^{df}$; shocks to g denoted by ϵ_{gt}
 - ▶ $g_t^{mf} = \psi u_{gt}$
 - ▶ Money growth given by:

$$M_t = M_{t-1} + \frac{g_y}{m_y} (g_t^{mf} + \Delta e_{Tt})$$

- ▶ $u_{gt}, \epsilon_{gt}, \epsilon_{Tt}$ uncorrelated
- ▶ Inconsistent with motivation of paper and most historical examples
 - ▶ Only use money-financed stimulus in dire economic situation
- ▶ Regime switching and learning about regime probabilities seems more consistent
[i.e., Bianchi & Melosi (2017)]

3. BROADER PICTURE: UNCERTAINTY OF WHAT?

u_{gt} more likely capturing differing objectives of fiscal authority

► U.S. Example:

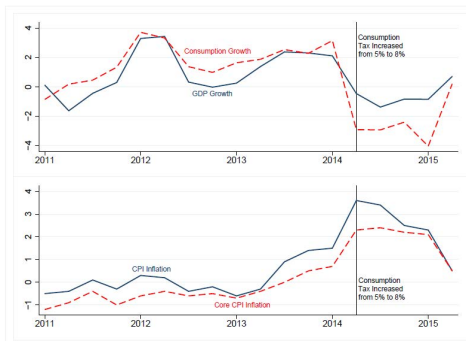
- February 17, 2009: ARRA (over \$800 billion) signed into law by President Obama
- February 23, 2009: "Today I'm pledging to cut the deficit we inherited in half by the end of my first term in office" - *President Obama*, Fiscal Responsibility Summit

3. BROADER PICTURE: UNCERTAINTY OF WHAT?

u_{gt} more likely capturing differing objectives of fiscal authority

► Japan Example:

- April 2014: despite gov. concerns of deflation, consumption tax increased from 5 to 8%



Leeper (2015)

CONCLUSIONS

- ▶ Very nice paper
- ▶ Highlights fragility of policy effectiveness without proper coordination and communication
- ▶ Highlights importance of credible policy being joint monetary-fiscal action