

Discussion: “Money-Financed Fiscal Programs: A Cautionary Tale”

Nora Traum¹

¹HEC Montréal

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
  
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:

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

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**

![Graphs showing comparisons between money-stimulus and fiscal theory models for GDP, Inflation, Real Interest Rate, Real Government Debt, Real Money Balances, and Consumption over time.]
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
Learning scenario has following set-up:

- Let $g_t = g_t^{mf} + g_t^{df}$; shocks to $g$ denoted by $\epsilon_{gt}$
- $g_t^{mf} = \psi u_{gt}$
- 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