Discussion of
“Optimal Mix of Monetary, Macroprudential and Fiscal Policies”
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Motivation

Goal of this project: Study interaction between macroprudential, monetary and fiscal policy within a rich quantitative model
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Key underlying questions:

- Should monetary policy be used to target financial stability?
- How does the use of macroprudential policy affect optimal conduct of monetary policy?
- Should fiscal policy be used to manage financial stability?
Figure 1. Financial Stability Framework and Macroprudential Policy

IMF (2011)
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Key Features of the Analysis

- Small open economy with nominal and real rigidities, partial pass-through, deviations from UIP
- Amplification through balance sheets constraints on banks, impatient households, firms
  - Spreads depending on networth of borrowers, which in turn depend on aggregate variables ⇒ Pecuniary externalities:
    - Agg. demand extern. (Schmitt-Grohe and Uribe, 2013)
- Various policies: LTV’s, capital req., Taylor rule, gov. exp.
- Computationally feasible approach: Loss Function penalizing deviations from output gap and inflation target
My Discussion

- Based on the authors’ slides!
- Provide an analytic example of Ramsey optimal fiscal and macroprudential policies (based on Bianchi-Ottonello, 2015)
  - How exactly is fiscal policy useful to deal with financial stability (when government debt is not at the heart of the problem)?
  - Hopefully, illustrates subtle mechanism that might be going on in Alpanda-Cateau-Takamura
- Other comments
Elements of the Model

- Small open economy with a currency peg
- Two sectors: tradable and non-tradable
- Output: $y^N = zh^\alpha$, $y^T$ endowment
- Exogenous stochastic wage in units of tradables $w_t$
- Infinite supply of labor $\Rightarrow$ always unemployment if $w_t > 0$
- Credit constraint $b_{t+1} \leq \kappa(p^N_t h^\alpha_t + y^T_t)$
- Government budget constraint $g^T_t + p^N_t g^N_t = T_t$

**Key results:** Dual role for fiscal policy: output gap & financial stability
Model

Representative household

\[ \mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t u(C). \]

\[ C = [\theta c^{-\phi} + (1 - \theta)g^{-\phi}]^{-1/\phi} \]

private consumption \( c \) and public consumption \( g \) are given by

\[ c = [\omega_c(c^T)^{-\mu} + (1 - \omega_c)(c^N)^{-\mu}]^{-1/\mu} \]

\[ g = [\omega_g(g^T)^{-\mu_g} + (1 - \omega_g)(g^N)^{-\mu_g}]^{-1/\mu_g} \]
HH budget constraint:

\[ b_{t+1} + c_t^T + p_t^N c_t^N = b_t(1 + r) + y_t^T + z h^\alpha - w_t h_t + w_t n_t - T_t, \]

HH credit constraint:

\[ b_{t+1} \geq -\kappa (y_t^T + z h^\alpha - w_t h_t + w_t n_t) \]

FOC:

\[ p_t^N = \frac{1 - \omega}{\omega} \left( \frac{c_t^T}{c_t^N} \right)^{\mu+1} \]

\[ z \alpha h^{\alpha-1} = w \]

\[ u_T(t) = \beta R_t \mathbb{E}_t u_T(t + 1) + \mu_t \]

Market clearing

\[ c_t^N + g_t^N = z \alpha h^\alpha \]
Optimal Government’s Problem

Policy instruments:

- $g^T, g^N$ for macro-financial stabilization reasons
- Tax on borrowing: to reduce overborrowing

$$V(b, w) = \max_{(p^N, c^T, c^N, b', h)} u(C(c^T, zh^\alpha - g^N), G(g^T, g^N)) + \beta \mathbb{E} V(b', w')$$

$$c^T + \frac{b'}{R} = b + y^T + g^T$$

$$\alpha p^N zh^{\alpha-1} \geq w$$

$$\frac{b'}{R} \geq -\kappa (y^T + p^N zh^\alpha)$$

$$p^N = \left(\frac{c^T}{zh^\alpha - g^N}\right)^{\mu+1}$$
Optimal Government’s Problem

Policy instruments:

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\[
V(b, w) = \max_{(p^N, c^T, c^N, b', h)} u(C(c^T, zh^\alpha - g^N), G(g^T, g^N)) + \beta \mathbb{E} V(b', w')
\]

\[
c^T + \frac{b'}{R} = b + y^T + g^T
\]

\[
\alpha p^N zh^{\alpha - 1} \geq w
\]

\[
\frac{b'}{R} \geq -\kappa (y^T + p^N zh^\alpha)
\]

\[
p^N = \left( \frac{c^T}{zh^\alpha - g^N} \right)^{\mu + 1}
\]
Optimal Government’s Problem

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V(b, w) = \max_{(p^N, c^T, c^N, b', h)} u(C(c^T, zh^\alpha - g^N), G(g^T, g^N)) + \beta \mathbb{E}V(b', w')
\]

\[
c^T + \frac{b'}{R} = b + y^T + g^T (\lambda)
\]

\[
\alpha p^N zh^{\alpha-1} \geq w (\zeta)
\]

\[
\frac{b'}{R} \geq -\kappa (y^T + p^N zh^\alpha) (\mu)
\]

\[
p^N = \left( \frac{c^T}{zh^\alpha - g^N} \right)^{\mu+1} (\xi)
\]
**Dual Role for Fiscal Policy**

\[
p^N : \quad \mu k z h^\alpha \quad + \quad \alpha z h^{\alpha-1}
\]

Higher \(p^N\) relaxes credit constraint  
Higher \(p^N\) reduces unemployment

\[
g^N : \quad u_{g^N} + \xi (\mu + 1) \left( \frac{c^T}{zh^\alpha - g^N} \right)^{\mu+1} (zh^\alpha - g^N) = u_{c^N}
\]

GE benefits of \(g^N\)

\[
g^T : \quad u_{g^T} = \lambda
\]

\[
c^T : \quad u_{c^T} = \lambda
\]
Dual Role for Fiscal Policy

$p^N : \mu k z h^\alpha + \alpha z h^{\alpha-1} = \xi$

Higher $p^N$ relaxes credit constraint
Higher $p^N$ reduces unemployment

$g^N : u_{gN} + \xi(\mu + 1) \left( \frac{c^T}{zh^\alpha - g^N} \right)^{\mu+1} (zh^\alpha - g^N) = u_{cN}$

GE benefits of $g^N$

$g^T : u_{gT} = \lambda$

$c^T : u_{cT} = \lambda$

In Alpanda-Cateau-Takamura spreads depend on networth, which in turn depends on price of non-tradables. Are these effects there?
Comment on Loss Function

- Output gap may not be the correct welfare measure
  - Without nominal rigidities, output gap is zero
  - ..but still scope for policy due to pecuniary externalities and incomplete markets
- Target credit gap?
Use of Monetary Policy for Financial Stability

- Macroprudential policy seem to be superior than monetary policy to target financial stability
- What in the model calls for the use of monetary policy?
- May be useful to incorporate leakages from macroprudential policy leading to imperfect “passthrough” from macroprudential policy (Bengui and Bianchi 2014)
  - One way would be to model to model stochastic deviations from target LTV.
Channels of Monetary Policy

- Changes in the real interest rates and aggregate demand?
- Changes in real wages, asset prices, exchange rates?
- Redistribution?
Conclusions

- Very relevant policy analysis

- Suggestion: complement analysis with smaller scale model to understand better transmission mechanisms, interaction between policies and welfare analysis