

Discussion of Dmitriy Sergeyev's:
Optimal Macprudential and Monetary Policy in
a Currency Union

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Praise

- ▶ This is a very thorough exercise.
- ▶ on an important economic topic.

- ▶ Think thoroughly what the frictions are, and spell those out, before jumping to policy conclusions.

What the paper does

- ▶ Build a stylized model of monetary and macroprudential policy:
 - ▶ The central bank controls the price of safe assets (sets the real rate of interest).
 - ▶ Someone sets reserves requirement/wedge between IOR and interest on safe assets.
- ▶ Ask: how should these instruments be set?
- ▶ Do closed-economy case first and, then, do currency union (with/wo coordination).

The planner's problem (first best)

$$\max u(c_0) - v(n_0) + \beta E \{u(c_1 + \underline{c}_1) + \nu u(\underline{c}_1) + \chi_1 g(h_1) - v(n_1)\}$$

s.t.

$$\begin{aligned}c_0 + k_0 + \epsilon \sum_{s \in S} d_1(s_1) &= A_0 n_0, \quad \epsilon \text{ small} \\c_1(s_1) + \underline{c}_1(s_1) &= A_1(s_1) n_1(s_1) \\h_1 &= G(k_0) \\\underline{c}_1(s_1) &\leq d_1(s_1) \\c_0, c_1(s_1), \underline{c}_1(s_1), k_0 &\geq 0\end{aligned}$$

► solution:

- For c $mrs(c, n) = mrt$ in both periods
- $u_c(c_0) = \beta g_h(G(k_0)) G_k(k_0) E \chi_1$
- produce sufficient amount of safe assets to buy desired level of \underline{c} , $c_1 = 0$.

► representative household, competitive markets, lump-sum taxes, central bank Decentralization:

- Friedman rule. Floor system $i_0^R = i_0$.

A constrained planner

$$\max u(c_0) - v(n_0) + \beta E \{u(c_1 + \underline{c}_1) + \nu u(\underline{c}_1) + \chi_1 g(h_1) - v(n_1)\}$$

s.t.

$$\begin{aligned}c_0 + k_0 &= A_0 n_0 \\c_1(s_1) + \underline{c}_1(s_1) &= A_1(s_1) n_1(s_1) \\h_1 &= G(k_0) \\\underline{c}_1(s_1) &\leq d_1 \\d_1 &\leq \min(A_1 X_1) g_h(G(k_0)) G(k_0) \\c_0, c_1(s_1), \underline{c}_1(s_1), k_0 &\geq 0\end{aligned}$$

- ▶ The private sector (!!) provides the money.
- ▶ Private money supply:
 - ▶ not state-contingent.
 - ▶ limited by value of capital in the worst possible state of nature.
- ▶ *take constraint as hard-wired*. Policy does not work to get rid of the constraint directly. Rather, policy targets an externality.

Representative household's problem (Yeoman farmer version)

$$\max u(c_0) - v(n_0) + \beta E \{u(c_1 + \underline{c}_1) + \nu u(\underline{c}_1) + \chi_1 g(h_1) - v(n_1)\}$$

s.t.

$$\begin{aligned}c_0 + k_0 + p_d d_1 &= A_0 n_0 + p_d d_1^s \\c_1(s_1) + \underline{c}_1(s_1) &= A_1(s_1)n_1(s_1) + p_k(s_1)h_1 \\h_1 &= G(k_0) \\\underline{c}_1(s_1) &\leq d_1 \\d_1^s &\leq \min_{s_1} (p_k(s_1))G(k_0) \\c_0, c_1(s_1), \underline{c}_1(s_1), k_0 &\geq 0\end{aligned}$$

- ▶ HH value money (cash good). Can produce money by having capital.
- ▶ However, pecuniary externality: my own decision to build capital reduces the value of other households' capital.

Representative household's problem (Yeoman farmer version)

$$\max u(c_0) - v(n_0) + \beta E \{u(c_1 + \underline{c}_1) + \nu u(\underline{c}_1) + \chi_1 g(h_1) - v(n_1)\}$$

s.t.

$$\begin{aligned}c_0 + k_0 + p_d d_1 &= A_0 n_0 + p_d d_1^s (1 - \tau_{\text{macropru}}) \\c_1(s_1) + \underline{c}_1(s_1) &= A_1(s_1) n_1(s_1) + p_k(s_1) h_1 \\h_1 &= G(k_0) \\\underline{c}_1(s_1) &\leq d_1 \\d_1^s &\leq \min_{s_1} (p_k(s_1)) G(k_0) \\c_0, c_1(s_1), \underline{c}_1(s_1), k_0 &\geq 0\end{aligned}$$

- ▶ Depending on exactly how elastic the equilibrium price $p_k(s_1)$ is, households may under- or over-accumulate capital.
- ▶ Market doesn't price externality, too much capital \Rightarrow Pigouvian macropru tax.

$$\tau_{\text{macropru}} > 0$$

Question 1: Robustness

- ▶ Dmitry assumes demand for capital services sufficiently price elastic.
- ▶ means price not too elastic to capital supply
- ▶ \Rightarrow households over-accumulate capital (relative to **constrained** planner).

- ▶ Since “fire sales” are at the heart of the story: Strictly needed?
- ▶ How would the results be affected otherwise?
- ▶ under-accumulation of capital? Switch in sign of macro-pru tax?

Representative household's problem (markets)

$$\max u(c_0) - v(n_0) + \beta E \{u(c_1 + \underline{c}_1) + \nu u(\underline{c}_1) + \chi_1 g(h_1) - v(n_1)\}$$

s.t.

$$\begin{aligned}c_0 + k_0 + p_d d_1 &= \frac{W_0}{P_0} n_0 + p_d d_1^s (1 - \tau_{\text{macropru}}) + \Gamma_0 \\c_1(s_1) + \underline{c}_1(s_1) &= \frac{W_1}{P_1} n_1(s_1) + d_1 + p_k(s_1) h_1 + \Gamma_1 \\h_1 &= G(k_0) \\ \underline{c}_1(s_1) &\leq d_1 \\ d_1^s &\leq \min_{s_1} (p_k(s_1)) G(k_0) \\ c_0, c_1(s_1), \underline{c}_1(s_1), k_0 &\geq 0\end{aligned}$$

Representative household's problem (markets)

Shut down markets

$$\max u(c_0) - v(n_0) + \beta E \{u(c_1 + \underline{c}_1) + \nu u(\underline{c}_1) + \chi_1 g(h_1) - v(n_1)\}$$

s.t.

$$\begin{aligned}c_0 + k_0 + p_d d_1 &= \frac{W_0}{P_0} n_0 + p_d d_1^s (1 - \tau_{\text{macropru}}) + \Gamma_0 \\c_1(s_1) + \underline{c}_1(s_1) &= \frac{W_1}{P_1} n_1(s_1) + d_1 + p_k(s_1) h_1 + \Gamma_1 \\h_1 &= G(k_0) \\\underline{c}_1(s_1) &\leq d_1 \\d_1^s &\leq \min_{s_1} (p_k(s_1)) G(k_0) \\c_0, c_1(s_1), \underline{c}_1(s_1), k_0 &\geq 0\end{aligned}$$

- ▶ Assumption: firms in period 0 supply goods completely elastically according to demand, P_0 fixed.
- ▶ Wage determined by labor supply only $W_0/P_0 = mrs_0$.
- ▶ Then, mrs_0 need not equal $mrt_0 \Rightarrow$ **labor wedge** $\tau_0^L := 1 - \frac{mrs}{mrt}$.
- ▶ $\tau^L < 0$ if workers work too much (a boom); > 0 if workers work too little (a recession).

Representative household's problem (markets)

Make prices policy instruments

$$\max u(c_0) - v(n_0) + \beta E \{u(c_1 + \underline{c}_1) + \nu u(\underline{c}_1) + \chi_1 g(h_1) - v(n_1)\}$$

s.t.

$$\begin{aligned}c_0 + k_0 + \frac{d_1}{1+i_0} &= \frac{W_0}{P_0} n_0 + \frac{d_1^s}{1+i_0} (1 - \tau_{\text{macropru}}) + \Gamma_0 \\c_1(s_1) + \underline{c}_1(s_1) &= \frac{W_1}{P_1} n_1(s_1) + d_1 + p_k(s_1)h_1 + \Gamma_1 \\h_1 &= G(k_0) \\\underline{c}_1(s_1) &\leq d_1 \\d_1^s &\leq \min_{s_1} (p_k(s_1))G(k_0) \\c_0, c_1(s_1), \underline{c}_1(s_1), k_0 &\geq 0\end{aligned}$$

- ▶ Note: both c_0 and k_0 are aggregate demand, determine hours worked.
- ▶ both monetary policy $1 + i_0$ and macropru can be used to work on the labor wedge.

Results for the closed economy: Proposition 2

- ▶ The optimal policy mix implements

$$\tau_0^L = 0$$

$$\tau_0^b > 0,$$

the more so, the less elastic demand for capital is, and the more value people attach to cash good as opposed to the credit good.

- ▶ $A_0 \downarrow \Rightarrow$ less production of safe asset, shadow value of safe asset rises, more overaccumulation of capital relative to constrained planner.
- ▶ Central bank would *raise macro-pru tax* in temporary slump.

Results for the closed economy: Proposition 3

- ▶ If one of the instruments not set optimally, the other one takes part of the job.
- ▶ Say, monetary policy is such that households work too little (recession), labor wedge positive.
- ▶ Then, macroprudential policy tax is set to a lower value than it otherwise would.
- ▶ Why? “over-accumulation” of capital stimulates demand. That helps close the labor wedge.

Results for the currency union

- ▶ Country-specific macro-pru tax.
- ▶ If countries set macro-pru tax unilaterally, suboptimal.
- ▶ Gains from coordination.
- ▶ Central bank seeks to close average labor wedge.

Question 2:

- ▶ Show that it matters.
- ▶ And if so, what matters most? Steady-state τ_s , or cyclical variation?
- ▶ The paper shows qualitative policy recommendations.
- ▶ Do deviations from optimal policy matter quantitatively?
- ▶ Is the macro fine-tuning over the cycle worth the while?

A couple of unnecessarily provocative remarks I

- ▶ The central bank:
 - ▶ cannot (or does not want to) provide a sufficient amount of risk-free assets (as would a floor system).

- ▶ The government:
 - ▶ cannot (or does not want to) provide debt or use other fiscal instruments.

- ▶ The private sector:
 - ▶ is assumed not to (or not to have incentives to) innovate in terms of payments technology.

A couple of unnecessarily provocative remarks II

- ▶ **The central bank:**
 - ▶ cannot (or does not want to) provide a sufficient amount of risk-free assets (as would a floor system).
 - ▶ is smart enough to implement sophisticated aggregate demand management.
- ▶ **The government:**
 - ▶ cannot (or does not want to) provide debt or use other fiscal instruments.
 - ▶ is sophisticated enough to implement state-dependent capital requirements.
- ▶ **The private sector:**
 - ▶ doesn't (or doesn't have an incentive to) innovate in terms of payments technology.
 - ▶ can produce assets that are completely safe.

Question 3:

- ▶ If all of them are so sophisticated, why can't there be a mechanism that implements the first best?
- ▶ In sum: great, dense paper on an important topic.
- ▶ I look forward to seeing more in the future (that hopefully helps the gov't to be more sophisticated).