Fiscal Backing for Monetary Policy: What If It Ain’t There?

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Monetary Policy: Bridging Science and Practice, ECB

October 2019
What’s Wrong with These Pictures?

Euro Area Monetary Policy & Inflation

Policy rate, inflation rate & target inflation rate
What’s Wrong with These Pictures?

Swedish Monetary Policy & Inflation

Policy rate, inflation rate & target inflation rate
Many fold increases in central bank balance sheets
What’s Wrong with Inflation?

▸ Does fiscal practice undermine monetary science?

▸ How do the fiscal rules being adopted in Europe interact with monetary policy?

▸ Message from the science:

   For monetary policy to successfully target inflation, fiscal policy must provide “appropriate backing”

▸ Do existing fiscal rules deliver perverse backing?
Intuition

- In formal models, macro policy has two prime objectives
  1. uniquely determine inflation
  2. stabilize government debt

- Inflation-targeting regimes clearly assign tasks
  1. monetary policy determines inflation
  2. fiscal policy stabilizes debt

- These assignments hide a dirty little secret:

  While stabilizing debt, fiscal policy must also back monetary policy
Institutional Designs Deny the Secret

Monetary Policy

Fiscal Policy
Illustrative Model

- Representative household lives forever
  - receives constant endowment of goods, \( y \), each period
  - chooses consumption & bonds to maximize
    \[ E_0 \sum_{t=0}^{\infty} \beta^t u(c_t) \]
  - bonds sell at \( P_t^b \) & pay geometrically decaying coupons of \( \rho^{j-1} \), for a \( j \)-period bond

- Two equilibrium conditions

  **Fisher Equation**
  \[ \frac{1}{R_t} = \beta E_t \frac{1}{\pi_{t+1}} \]

  **Term Structure**
  \[ P_t^b = E_t R_t^{-1} (1 + \rho P_{t+1}^b) \]
Illustrative Model

- Model designed to examine how fiscal policy reacts to monetary policy actions

- Monetary policy: sets short-term interest rate, $R_t$

\[
\frac{1}{R_t} = \frac{1}{R^*} + \alpha \left( \frac{1}{\pi_t} - \frac{1}{\pi^*} \right) + \varepsilon_t
\]

- $\varepsilon_t$: temporary deviation from pure inflation targeting, $\mathbb{E}_t \varepsilon_{t+j} = 0, j > 0$

- positive $\varepsilon_t$ is expansionary monetary policy

- when $\alpha > 0$, above-target inflation brings higher $R_t$

- $\alpha > 1$: the Taylor principle
Fiscal policy: sets primary surplus, $s_t$

\[
Fiscal Policy \quad s_t = s^* + \gamma \left( \frac{P_{t-1}^b B_{t-1}}{P_{t-1}} - b^* \right)
\]

- when $\gamma > 0$, above-target debt bring higher $s_t$
- to return debt to target, surplus must respond enough to cover interest payments & retire some debt
- this requires $\gamma > r$, $r$ is the real interest rate

But notice: fiscal rule entails direct response to price level when $\gamma > 0$

- higher $P_t$ leads to lower $s_{t+1}$
Required Policy Coordination

- Choices of policy parameters, $(\alpha, \gamma)$, determine joint monetary-fiscal regime

- Two distinct policy mixes achieve prime objectives
  1. uniquely determine inflation
  2. stabilize government debt

- I focus only on the conventional inflation-targeting regime
  - monetary policy satisfies Taylor principle, $\alpha > 1$
  - fiscal policy returns debt to target, $\gamma > r$

- Even in this IT regime, fiscal policy must support monetary policy
Equilibrium Inflation

- In this monetary-fiscal regime

\[
\frac{1}{\pi_t} = \frac{1}{\pi^*} - \frac{1}{\alpha \varepsilon_t}
\]

- If no shocks, inflation always on target
- Positive shock—expansion—raises inflation
- Tempting to infer...
  - only monetary policy choices—\(\pi^*, \alpha, \varepsilon_t\)—matter for inflation
  - fiscal policy irrelevant for inflation

Do not submit to temptation
What Is Fiscal Policy Doing?

▶ Full equilibrium requires stable debt
▶ Transitory shock, so bond prices do not change
▶ Debt evolution comes from government’s budget

\[
\frac{P^b B_t}{P_t} + s^* - \gamma b^* = \left[ R^b \left( \frac{1}{\pi^*} - \frac{1}{\alpha \varepsilon_t} \right) - \gamma \right] \frac{P^b_{t-1} B_{t-1}}{P_{t-1}}
\]

▶ Monetary expansion, \( \varepsilon_t > 0 \), raises inflation
  ▶ reduces real debt service, \( R^b / \pi_t \)
  ▶ reduces real value of debt held by the public, \( P^b B_t / P_t \)

▶ Fiscal rule: lower real debt service produces lower future primary surpluses
What Is Fiscal Policy Doing?

A monetary expansion that raises inflation is backed by a fiscal expansion that returns debt to target.

- This fiscal rule achieves two distinct things:
  1. it stabilizes debt
  2. it backs monetary expansion with fiscal expansion

- But don’t have to think in terms of “backing”
- Instead ask: What ensures the bond market clears?
- (We usually apply Walras’ law uncritically)
In this model, demand for nominal bonds is simple:

- demand is homogeneous of degree 1 in $P_t$.
- demand is decreasing in bond price, $P^b_t$.
- bonds derive value from discounted stream of cash flows—primary surpluses.
- nominal demand for the government bond portfolio, $B^d_t$.

\[
B^d_t = \frac{1}{P^b_t} P_t \mathbb{E}_t \sum_{j=1}^{\infty} \beta^j s_{t+j}
\]

\[
= \frac{1}{P^b_t} P_t \mathbb{E}_t PV(S_{t+1})
\]
Bond Market Equilibrium

- Economy initially in equilibrium at price level $P_{t0}$
- Monetary expansion raises inflation for a single period
- Price level is at the permanently higher level $P_{1t}$
Excess bond demand at higher price level monetary policy seeks

At new price level, $CD$ is excess demand for bonds $B^s$ can rise, fall, stay unchanged, depending on $s_t$

Figure drawn for $s_t = 0$
Excess demand for bonds arises for clear reasons.

Monetary expansion reduces the real value of bonds.

If the expected cash flows—surpluses—do not fall...

- the goods cost of a bond has fallen
- but the goods payoff—surpluses—is unchanged
- makes bonds attractive
- individuals substitute out of goods and into bonds
- reduces aggregate demand for goods

Bond market behavior counteracts monetary policy’s aim to raise aggregate demand.
Models resolve this conflict with a convenient, **completely untested** assumption.

Models typically assume $\gamma > r$, so...

Lower real value of debt brings forth lower $\mathbb{E}_t PV(S_{t+1})$.

To reduce bond demand **exactly enough** to clear the bond market at the new higher price level.

This is the magic of Ricardian equivalence.
Future surpluses fall to reduce value of bonds consistent with higher price level.

\[ E_t PV(S_{t+1}) \] falls by exactly enough to eliminate excess demand.

\( B^s \) can rise, fall, stay unchanged, depending on \( s_t \).

Figure drawn for \( s_t = 0 \)
How Have Fiscal Policies Responded to Monetary Ease?

- European fiscal consolidations began as early as 2010 and really kicked in after sovereign debt troubles.
- Governments have adopted aggressive rules that...
  - aim primarily at reducing government debt & running primary surpluses
  - with some provisions for countercyclical actions
- Rules designed primarily to solve **political problems**
  - certainly a legitimate concern
- But may inadvertently create economic problems
European Fiscal Rules

- It is perfectly possible for fiscal policy to stabilize debt, but not back monetary policy.
- Set $\gamma = 0$ in fiscal rule, so $s_t = s^*$.
- This will stabilize debt at
  \[
  \frac{P^b_t B_t}{P_t} = \frac{s^*}{r}
  \]
  
  Nail target $b^*$ by setting target $s^*$ appropriately.
- Only one problem: $P^b_t / P_t$ is fiscally determined.

Monetary policy can choose **timing** of inflation but not entire inflation path.
The essence of fiscal support for monetary policy is that surpluses must respond to the price level.

- A nominal impact induces a real response.

Fiscal rules that react only to real variables will fail to back monetary policy appropriately.

We see this in the euro area, Sweden, & Switzerland.
Euro Area Budget Surpluses

Euro Area: Net Lending & Debt Service (% GDP)

Net lending (+), excluding interest (Primary Surplus)

Net lending (+) (Gross Surplus)

Interest payments

Declining debt service & rising surpluses
Rapidly declining debt service & rapidly rising surpluses
Swedish Government Debt

Swedish Central Government Debt (% GDP)

Including on-lending and assets under management

Now well below the 35% debt anchor
Swedish Budget Surpluses

Primary surplus

Gross surplus

Now well above the 0.33% net lending target
Swiss Government Debt

Swiss Central Government Debt (% GDP)

Surpluses since before the global financial crisis
Swiss Budget Surpluses since before the global financial crisis
European Fiscal Rules

- I’ve read some of the EC’s material on rules
- Fiscal Rule Strength Index...
  - only one criterion is about macroeconomic considerations
  - “resilience to shocks outside control of government”
  - only one of the four components of that criterion might refer to fiscal backing for monetary policy
  - “Are there exclusions from the rule in the form of items that fall outside authorities’ control at least in the short term (e.g. interest payments, unemployment benefits)?”

- Does this permit routine fiscal support for monetary policy?
Designing Fiscal Rules

▶ To answer this question, need richer models

▶ What does fiscal backing look like when...?
  ▶ monetary policy reacts to a range of non-policy shocks?
  ▶ monetary policy is unconventional (e.g., QE)?
  ▶ monetary policy is at the effective lower bound?
  ▶ there is a single monetary authority & many fiscal authorities?
  ▶ the economy is close to its fiscal limit?

▶ Need to address these questions before we design fiscal rules

▶ Need to quantify fiscal backing
Wrap Up

- I am not calling to abandon fiscal rules

- I am calling to design rules with monetary-fiscal interactions in mind

- There is no conflict between rules that... 
  - stabilize debt at sensible levels and
  - ensure fiscal backing for monetary policy
  - possible to address political & economic problems simultaneously

- Key lies in understanding that monetary & fiscal policies necessarily interact

- Denying this fact is religion, not science