Comments on

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Optimal Fiscal and Monetary Policy with Distorting Taxes

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Findings:

- Optimal to have positive nominal interest rates—in contrast to a large literature on the optimality of the Friedman rule.

- Model can rationalize the post 2008 increase in government liabilities without a concomitant increase in inflation or tax rates as a consequence of regulations-induced changes in money demand.

- Money is a ‘zero or negative fiscal cost asset.’ It is valued even if not backed by any primary fiscal surpluses.

- When should the government increase reliance on unbacked deficit finance? Based on numerical results: only when seignorage, $M_t - M_{t-1}$, is excessively negative. (ex: Welfare improving to raise nominal rates when they are super close to zero. But not necessarily welfare improving to move from positive inflation to even more inflation.)

The model: transaction-cost motive for a demand for money

- Household preferences: $E_0 \sum_{t=0}^{\infty} \beta^t U(C_t, L_t)$

- Budget constraint of household

$$C_t(1+s(v_t)) + \frac{B_t + M_t}{P_t} = (1-\tau_t)L_t + \frac{(1+r_{t-1})B_{t-1} + M_{t-1}}{P_t}$$

- Money velocity, $v_t = \frac{P_t C_t}{M_t}$

- $s(v_t)$ transactions costs; in eqm, $v_t^2 s'(v_t) = \frac{r_t}{1+r_t}$

- Sims assumes no satiation, $s(v_t) = \gamma v_t$. $\Rightarrow$ $s(v_t)$ only 0 if $M_t/P_t = \infty$. [Comment: What if there is satiation (ie $s(v_t) = 0$ for $M_t/P_t < \infty$)?]

- Policy problem: exogenous G_t must be financed with distortionary taxes, τ_t, and the inflation tax, $r_t > 0$. What is the optimal policy mix?

Result 1:

- Optimal to have positive nominal interest rates—in contrast to a large literature on the optimality of the Friedman rule.

• This is a well studied problem. Literature extant has shown that the Friedman rule is Ramsey optimal, ie $r_t = 0$ and $\tau_t > 0$.

• Yet, Sims finds opposite:

γ	C	v	L	$\dot{P}/P$	U	τ	σ	$\gamma v/(1+\gamma v)$
0.001	0.69	2.98	0.993	-0.0111	-1.363	0.305	-0.0026	0.003
0.01	0.67	0.98	0.980	-0.0105	-1.375	0.314	-0.0072	0.010
0.1	0.62	0.34	0.944	-0.0086	-1.417	0.335	-0.0160	0.033
1	0.51	0.13	0.874	-0.0040	-1.548	0.361	-0.0159	0.112

TABLE 1. Optimal steady state with $G = .3$, $\beta = .02$

• Why? Because imposes $B_t \geq 0$. (The government issues debt and not assets.) Existing literature has ignored this constraint. When that constraint binds, it may be that $r_t > 0$.

• Could it be that $B_t \geq 0$ and $r_t = 0$? Not in the present paper, because it assumes no satiation, if $r_t = 0$, then $M_t/P_t = \infty$, hence given finite government liabilities, $(M_t + B_t)/P_t < \infty$, it **must be** that $B_t < 0$.

• What if there is satiation? Example: Schmitt-Grohé and Uribe (2004) use discrete time version of Sims model but with satiation, $s(v_t) = Av_t + B/v_t - 2\sqrt{AB}$. At $v_t = \sqrt{B/A}$, $s(v) = 0$.

Model/money demand calibrated/estimated to US 1960 to 1999, with pre-Ramsey reform inflation of 4.2%, real rate of 4%, and debt-to-GDP ratio of 44%.

We do **not** impose $B_t \geq 0$ and find Friedman rule optimal ($r_t = 0$), labor income tax rate about 18%. But it turns out that increase in real balances due to decline in nominal rate (from 8.2 to 0%) is not sufficiently large to drive $B_t < 0$. Specifically: B/GDP falls from 44 to 24 percent as economy adopts $r_t = 0$.

$\Rightarrow$ So in this particular calibration it is optimal to only use the distorting labor income tax and not tax transactions by way of a positive opportunity cost of holding money ($r_t > 0$). The Friedman rule is optimal and we happen to satisfy the **Sims** constraint that $B_t \geq 0$.

Result 2:

- Model can, in principle, rationalize the post 2008 increase in government liabilities without a concomitant increase in inflation or distortionary taxes as a consequence of regulations-induced changes in money demand.

Table 1 of Sims ($B = 0$)

γ	C	v	L	$\dot{P}/P$	U	τ	σ	$\gamma v/(1+\gamma v)$
0.001	0.69	2.98	0.993	-0.0111	-1.363	0.305	-0.0026	0.003
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TABLE 1. Optimal steady state with $G = .3$, $\beta = .02$

implied values of real balances, M/P:

γ	$\frac{M}{P}$
0.001	0.2
0.01	0.7
0.1	1.8
1	3.9

How did the rise in real balances materialize? $M \uparrow$ or $P \downarrow$?

How did the rise in real balances materialize? $M \uparrow$ or $P_0 \downarrow$?

Sims argues that we did not see major changes in G, τ, or P_0

Consider the equilibrium condition:

$$\frac{W_0}{P_0} = \sum_{t=0}^{\infty} X_t \left[(\tau_t L_t - G_t) + m_t \left(\frac{r_t}{1 + r_t} \right) \right] \quad (1)$$

$W_0 = M_{-1} + (1 + r_{-1}) B_{-1} =$ given nominal government liabilities.

$X_t \equiv \beta^t \left(\frac{U_c(C_t, L_t)}{U_c(C_0, L_0)} \right) \left(\frac{1+s(v_0)+v_0 s'(v_0)}{1+s(v_t)+v_t s'(v_t)} \right) =$ discount factor;

$r_t =$ nominal interest rate