Fiscal policy as a stabilization tool. The case for quasi-automatic stabilizers

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The theme of the paper

- Most of the focus of stabilization policy research and practice has been on monetary policy and inflation targeting.
- Too much focus on monetary policy and not enough on fiscal policy.
- There is strong case for quasi-automatic stabilizers.
- We need the same research effort as for monetary policy. The issues are actually more complex.
- After making a general case, this paper explores one such potential quasi-stabilizer: A variable VAT

Starting point. Why the focus on monetary policy?

- Based on the basic model of nominal rigidities as the fundamental distortion.

  One (and a half, due to monopoly power) distortion, one tool.

- If the fundamental distortion is nominal rigidity, and, by implication, the wrong interest rate. Just choose the right one and be done.

  Achieves both inflation stability and natural level of output. Divine coincidence.

- Governance straight forward. Independent central bank. No time consistency issue if you eliminate the monopoly rent.

  No need to use fiscal policy for stabilization. Can be used for distribution, including those induced by movements in interest rates.

When things become more complicated. Other distortions.

- Liquidity constrained consumers (Aiyagari). Extreme form: hand-to-mouth consumers. Then, clearly, monetary policy does not directly affect them.
- Real wage rigidity and commodity price movements. Destroys the divine coincidence.
- Common currency area. Common r, no common r^*, no nominal exchange rate adjustment
- Zero lower bound. Limits the use of r on downside. QE imperfect substitute, with side effects

In each case, fiscal policy, on paper, can do a better job

- Liquidity constraints: Provide transfers to the liquidity constrained consumers. Unemployment benefits.
- Real wage rigidity: Commodity price subsidies to smooth the adjustment. (depends on the source of rigidity).

  Transfers to decrease the real wage demands. Direct commodity subsidies to limit inflation. (Leigh et al)
- Common currency area: Fiscal devaluations. (Farhi et al)
- Zero lower bound: Transfers, intertemporal changes in taxes, etc.

The "on paper" issue

- On paper, fiscal policy has a nearly infinite set of instruments.

  Intra generational, some having primarily income effects, others primarily substitution effects. Intergenerational, through the use of deficits and debt.

  Indeed, several papers showing equivalence between monetary policy and fiscal policy (Farhi et al).

- But three big issues: Governance, decision lags, implementation lags.
  - Governance : May well have a preference for the present. The Debt Bias.
  - Political decision lags: May reflect different constituencies' preferences. Wars of attrition.
    More relevant than for monetary policy: No constituencies to assuage, at least not to the same degree
  - Implementation lags: Harder to change the pattern of spending and tax code than the interest rate.

Automatic and quasi-automatic stabilizers

- Automatic stabilizers: Income tax, profit tax. Unemployment benefits.
- Automatic stabilizers react instantaneously. They do not require knowledge of aggregate variables.
- But their design is accidental. Depend on progressivity, indexation of rates to inflation, etc. They are fairly strong. Estimates.
- Not a good idea to change the existing tax system to increase automatic stabilization. Primarily other goals: 2 of Musgrave's 3 goals. allocation, distribution.
- So introduce quasi-automatic stabilizers, i.e. measures triggered by an observable variable, GDP, unemployment.

What quasi-automatic stabilizers (QA) must satisfy

- Be debt neutral. i.e., have no effect on the debt to GDP ratio in the long run.

  The few quasi-automatic stabilizers (unemployment benefit duration extension when $U > x$) do not satisfy debt neutrality.

  If truly debt neutral, they can be ignored in thinking about debt evolution.

- As much as possible, stabilize $(Y - Y^*)$. (Y^* first best), rather than Y , equivalently $(U - U^*)$, not U

  Automatic stabilizers stabilize Y or U.

- As much as possible act quickly. Rely more on substitution effects, or income effects?

- As much as possible, easy and quick to implement administratively.

The implications of long run debt neutrality for the design of QA

- If stabilizers are asymmetric, will lead to a drift in that component of debt:

$$d = (1 + r - g)d(-1) + e \text{ if } e > 0$$

- If cycles are asymmetric, ("plucking cycles" a la Nakamura) will do the same unless higher in normal times:

  Slumps with prob p.

  If do e in slumps, then need to do $(p/(1-p))(-e)$ in normal times

- Even if stabilizers and cycles are symmetric, still not long-run debt neutral.

$$d = (1 + r - g)d(-1) + e \; -b\, d(-1), b > r - g$$

  If not, even if $r - g = 0$, random walk, no convergence. So need a Bohn-like feedback term.

What quasi-automatic stabilizers?

- A portfolio of stabilizers, each with their own trigger? VAT, ITC, U benefits, etc

  On paper, having identified shocks and distortions, may design the right set

  If the one-distortion model, can replicate the behavior of r^*: VAT, ITC, labor tax (Farhi et al equivalence theorems)

  If additional distortions, if shock affects more firms or more households. ITC versus VAT

- Continuous or discrete with trigger?
- Rely mostly on income or substitution effects?

Will focus on a simple case. One QA: VAT rate. One trigger. U or Y

Which trigger? Unemployment or Output?

Want to respond to $(Y - Y^*)$, not to Y, or to $(U - U^*)$, not to U.

- Theory. In standard model, U^* close to constant, Y^* adjusting to productivity shocks.

  Suggest conditioning on U rather than Y.

- What we can do is separate between transitory and permanent shocks. Blanchard-Quah decomposition.

  Rerun to 2023. Proportion of variance 8 quarters out due to transitory shocks: Y: 10-25%. U 60-80%

- The usual issue: Transitory: Demand? ; Permanent: Supply?.

  Covid as a counterexample. Supply, and mostly transitory.

  Hysteresis and long run effects of demand.

Implications. Choose U rather than Y. But will miss and need to adjust over time.

This may lead to fairly large movements in debt.

How much of an increase in debt if the trigger misreads the signals?

Ignore the Bohn feedback term
$x = a(u–\tilde{u}^*)$ where x is the automatic stabilizer, $a > 0$, and $\tilde{u}^*$ is best guess of u^*

Standard Kalman filter:

$u^* = u^*(-1) + e,\ u = u^* + \eta$
$\tilde{u}^* = \tilde{u}^*(-1) + b(u - \tilde{u}^*(-1))$
So $x = a(1-b)(u - \tilde{u}^*(-1)),\quad b$ a function of the variance of e and η.

Assume $r - g = 0$. Assume that there is a shock to e which is partly interpreted as a cyclical shock.
The effect on the long run debt ratio is given by $\sum x$ (if $r - g = 0$):

$$D(\text{infinity})–D(0) = (a(1-b)/b)e$$

If e shocks are small relative to η shocks, b will be small, and the effect may be quite large.

Turning to the variable VAT

Let have the VAT rate be τ
Go back to the first order condition of an unconstrained consumer:

$$U'(C)/P(1+\tau) = \beta(1+i)U'(C(+1)/(P(+1)(1+\tau(+1)))$$

Assuming constant intertemporal elasticity, constant i and constant P, and rewriting:

$$\Delta C/\bar{C} - \Delta C(+1)/\bar{C} = -\sigma(\Delta\tau - \Delta\tau(+1))$$

Note: Formally: replicate the interest rate path (but just for consumers).

(For liquidity constrained consumers: $\Delta C/\bar{C} = -\Delta\tau$)

A 2% temporary decrease for one year implies a de facto decrease in the rate of 2%: large. If followed by an increase of 2%, then equivalent to 4% decrease

Analytical and implementation issues 1

1. Length? The shorter the stronger.

   One period, fully undone in the next:

   $$\Delta\tau(+1) = -\Delta\tau \Rightarrow \Delta C/\bar{C} = -\sigma\Delta\tau$$

   But strong adverse effect in next period: $\Delta C(+1)/\bar{C} = \sigma\Delta\tau$

   Better? One period, undone over a long period:
   $\Delta C/\bar{C} \approx -(\sigma/2)\Delta\tau$

   Even better? Contingent. In place until the triggering variable crosses the threshold again

2. Role of discretionary policy?

   Are automatic stabilizers a temporary remedy until discretionary policy takes over if needed?

   Depends on source of lags. If decision lags, then QAs can be temporary.

   The evidence on QAs versus discretionary for the US: CBO. Discretionary comes in strongly, but late (exception: Covid).

Analytical and implementation issues 2

Value of σ ? Maybe low for non-durables. Salience may be higher than with respect to interest rate changes.
If limit variable VAT rate to durables, may be substantially higher than 1. (but the increase in demand may be too concentrated)
A simple computation. Assume prices of non durables and durables to be constant, normalized to 1, and the interest rate to be constant, equal to i. No cost of adjustment.

$$\frac{U_{Cnd}}{U_{Cnd}(+1)} = \beta(1+i)\frac{1+\tau_{Cnd}}{1+\tau_{Cnd}(+1)}$$

$$\frac{U_{Cd}}{U_{Cd}(+1)} = \beta(1+i)\frac{(1+\tau_{cd}) - ((1-\delta)/(1+i)(1+\tau_{cd}(+1)}{(1+\tau_{cd}(+1)) - ((1-\delta)/(1+i))(1+\tau_{cd}(+2))}$$

Take a transitory decrease in either τ_{Cnd} or τ_{Cd} of say 3%. Take $\delta = 20\%$, $i = 5\%$, $\bar{\tau} = 20\%$.
For non durables, the after tax price decreases by rougly 3%. For durables, the after tax implicit price decreases by 10.5%.
Effect on durable purchases. If $\delta = 20\%$, 5 times larger. (without adjustment costs, non negativity constraints...)

Analytical and implementation issues 3

1. Evidence

   Cash for clunkers (CARS: Car Allowance Rebate System). Trade-in credit: 12-15%. July 2009 to August 2009.

   Estimated effect (Mian Sufi): 50% more sales for two months. Completely undone soon after.

   French measures: Balladur February 1994 to 1995. Trade-in credit: 6%. Juppe. Sept 1995 to Sept 1996. 5%

   Estimated effect (Adda-Cooper) 9% more sales in 1994, 9% in 2996

   Others: German 2020 temporary 3% VAT cut; (Evidence from dynamic pricing by firms?)

2. Bang for the buck? Basic difference with transfers: Shifting demand across time (true even if Ricardian equivalence)

   If one period, fully undone in the next: $\Delta\text{Revenue}/\bar{C} = (1-\sigma)\Delta\tau$

   So positive revenue effect if $\sigma \geq 1$. ("Multiplier"?) But undone later. Argument for slow adjustment to avoid fiscal revenue backlash.

Analytical and implementation issues 4

1. Effect of VAT changes on consumer prices.

   Implicit assumption: Pre-VAT prices do not change. Correct with constant elasticity demand, but in general?

   IMF study (17 euro countries, 67 items, 1999:1 to 2013:12). 100% for standard rate, 30% for reduced rate (?). No distinction temporary/permanent.

   France: VAT decreases for restaurants.

2. Effect of VAT changes on inflation. Initial sharp decline in actual inflation.

3. VAT changes in the EU, and relation to fiscal devaluations

   If not coordinated, competitiveness implications.

Next step. Simulations. The variable VAT in the NK model

IS relation

$$y = Ey(+1) - \sigma[i - E\pi(+1) - E(\tau(+1) - \tau) - \rho + (z - Ez(+1))]$$

Phillips curve

$$\tilde{\pi} = \pi + (E\tau(+1) - \tau)$$

$$\pi = \beta E\pi(+1) + \kappa(y - y_n)$$

$$y_n = \psi(-\mu - \tau)$$

Quasi-automatic stabilizer

$$\tau = -a_\tau(y - y_n)$$

Interest rate rule (an important assumption: π or $\tilde{\pi}$?)

$$i = \rho + \phi_\pi \pi + \phi_y(y - y_n)$$

Stability and simulations.

Let $\tilde{y}$ be the output gap. The system can be rewritten as:

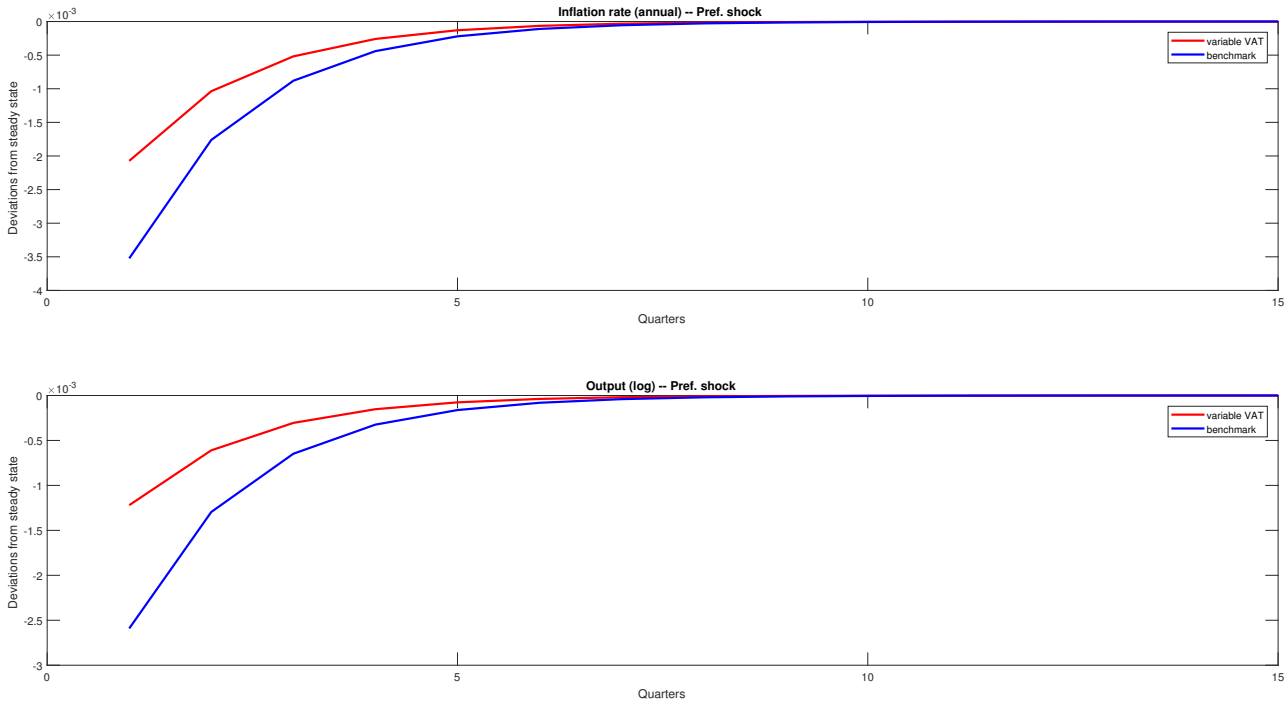
$$\tilde{y} = E\tilde{y}(+1) = \tilde{\sigma}(i - \rho - E\pi(+1)) + (z - Ez(+1)))$$

where $\tilde{\sigma} \equiv \sigma \frac{(1+a_\tau)}{(1+\psi a_\tau)}$, and

$$\pi = \beta E\pi(+1) + \kappa(\tilde{y})$$

The stability condition is given by $\phi_y(1-\beta) + \kappa(\phi_\pi - 1) > 0$, which is independent of $\tilde{\sigma}$ and thus of a_τ.
In words, if the system is unstable under the interest rule, it remains unstable with the variable VAT. (Disappointing) (Should we allow τ to be a function of inflation?)
But $\tilde{\sigma}$ is important, and if the system is stable, a variable VAT decreases the effects of preference (aggregate demand) shocks

Calibration: Standard Gali parameters (in particular $\sigma = 1$). Variable VAT. A 1% output gap leads to a decrease in the VAT rate of 2 percentage points. Preference shock; AR(1), with $\rho = .5$



Many avenues to explore: Anticipation effects, durables, effect on supply shocks, etc. (with Francois Langot)

Conclusions

Need to explore the stabilization role of fiscal policy.

Variable VAT as a quasi-automatic stabilizer.