Available online at www.sciencedirect.com
SCIENCE DIRECT®
Journal of MACROECONOMICS
ELSEVIER
Journal of Macroeconomics 26 (2004) 281–285
www.elsevier.com/locate/econbase

Discussion

Comments on "Fiscal and monetary policy interactions: Empirical evidence on optimal policy using a structural new-Keynesian model"

Carlo A. Favero *

Innocenzo Gasparini Institute for Economic Research (IGIER), Università Bocconi, Via Salasco 5, Milan 20136, Italy
CEPR, London, UK
Available online 25 January 2004

1. The objective

The objective of this paper is the empirical assessment of strategic complementarity or substitutability of fiscal and monetary policy.

I believe that the most relevant issue on the interaction between monetary and fiscal policies is the amount of coordination among the authorities necessary for each authority to reach its own goals. In a recent paper Sims (2003) has stressed that a prerequisite for central bank to control inflation is appropriate coordination with or backup by fiscal policy and that the nature of the required coordination depends on whether and how central bank independence from fiscal authorities has been implemented. The importance of the coordination between monetary and fiscal authorities to achieve inflation stabilization has been originally strongly emphasized in by Sargent and Wallace (1981) who illustrated how an undisciplined fiscal policy may exert pressures on the monetary authority to sooner or later monetize the deficit. A different stream of the literature, usually categorized as the fiscal theory of the price level (FTPL), puts at the center stage the role of the (monetary and fiscal) QTR *policy mix* in determining the joint dynamics of inflation and output. According to this view, the strong anti-inflationary policy pursued in the US with the onset of the Volcker–Greenspan regime would not have sufficed to successfully moderate inflation without the fiscal adjustment that characterized the US economic policy throughout the nineties. While the argument pursued in several contributions of

* Tel.: +39-02-58363306.
E-mail address: carlo.favero@uni-bocconi.it (C.A. Favero).

0164-0704/$ - see front matter
doi:10.1016/j.jmacro.2003.11.005

the FTPL is reminiscent of the unpleasant monetaristic arithmetic of Sargent and Wallace (SW), it contains a much stronger implication. In SW's context, the rate of inflation depends exclusively on monetary growth. In the strongly unpleasant view of the FTPL (see e.g., Woodford, 1996) independently of the anti-inflationary stance of the monetary authority the goal of price stability cannot be reached if the primary deficit fluctuates unpredictably. And even worse so, the more aggressive against inflation the monetary authority the larger is the volatility in the price level. Loyo (1999) has developed a model in the tradition of the FTPL, to highlight the limits to inflation targeting in Brazil. In Loyo's model a recent episode of high inflation in Brazil is linked to an aggressive inflation targeting policy not appropriately backed up by the behaviour of the fiscal authorities. Aggressive higher interest rates cause the outside financial wealth of private agents to grow faster in nominal terms: this results in higher inflation. If the central bank responds by raising nominal rates, so that real interest rates increase as well, then a vicious circle might arise. Leeper (1991) stresses the importance of a match between monetary and fiscal policy to insure a unique rational expectations equilibrium.

Current analysis of US monetary policy generally acknowledges that 1979 marks the beginning of a new policy regime characterized by a strong anti-inflationary stance. [1] It is claimed that the new policy regime has been successful in taming inflation. However, this literature has analyzed monetary policy in complete isolation. The interesting question is if the change of behaviour of monetary policy has been matched by a structural change in the fiscal reaction function and to what extent the inflation outcome has been determined by the joint behaviour of the fiscal and monetary authorities.

The empirical evaluation of the importance of interactions between monetary and fiscal authorities in determining macroeconomic outcomes requires two main ingredients: the identification of different monetary and fiscal regimes, and the explicit inclusion in the macroeconomic model used of what John Taylor has labelled as the most straightforward and direct connection between monetary policy and fiscal policy: the government budget constraint.

None of these ingredients are considered in this paper.

2. The methodology

The following model is estimated, by classical statistical methods (GMM) over the sample period 1970–2001:

$$y_t = \frac{\lambda}{1+\lambda} y_{t-1} + \frac{1}{1+\lambda} E_t y_{t+1} + - \frac{1-\lambda}{(1+\lambda)\rho} \left(\frac{C^{SS}}{Y^{SS}} \right) \tau_t + \left(\frac{G^{SS}}{Y^{SS}} \right) g_t + - \frac{\lambda}{1+\lambda} \left(\frac{G^{SS}}{Y^{SS}} \right) g_{t-1} - \frac{1}{1+\lambda} \left(\frac{G^{SS}}{Y^{SS}} \right) E_t g_{t+1} + u_{1t},$$

[1] Empirical investigations of the Fed's reaction function confirm this discontinuity. See the widely cited work of Clarida et al. (2000). Cogley and Sargent (2001) also relate the conquest of US inflation to a different behaviour of the monetary policy authority under the Volcker and Greenspan tenures.

$$\pi_t = \frac{\gamma}{\xi + \gamma(1-\xi(1-\beta))}\pi_{t+1} + \frac{\beta\xi}{\xi + \gamma(1-\xi(1-\beta))}E_t\pi_{t+1} + \frac{(1-\gamma)(1-\xi)(1-\gamma\xi)}{[\xi + \gamma(1-\xi(1-\beta))]\left[1+\frac{\alpha}{1-\alpha}\theta\right]}s_t + u_{2t},$$

$$s_t = w_t + n_t - y_t,$$

$$w_t = f(\pi_{t-1}),$$

$$n_t = g(y_t),$$

$$i_t = \phi_0 + \phi_1 E_t\pi_{t+1} + \phi_2 y_t + \phi_3 i_{t-1} + u_{3t},$$

$$g_t = \delta_0 + \delta_1 g_{t-1} + \delta_2 y_t + \delta_3 y_{t-1} + \delta_3 \mathrm{BD}_{t-4} + u_{4t},$$

$$\tau_t = \varphi_0 + \varphi_1\tau_{t-1} + \varphi_2 y_{t-1} + \varphi_3 \mathrm{BD}_{t-4} + u_{5t},$$

where y_t is de-trended output, π_t is de-meaned inflation, w_t are wages, n_t is de-trended employment, i_t are the de-meaned policy rates, g_t is de-trended government expenditure, τ_t are de-trended government receipts and BD is the budget deficit to GDP ratio. ρ is the coefficient of relative risk aversion, λ captures habit persistence in consumption, β is the discount factor, γ is the proportion of firms indexing prices to lagged inflation, $(1-\xi)$ is the proportion of firms adjusting their prices in any given period. The exact functional form for f and g cannot be reconstructed from the paper. The model is closed by pairing structural demand and supply functions, with reaction functions for the fiscal and monetary authorities and some simple ad hoc specification for the wage and employment processes. While the parameters in the demand and supply functions are structural, the same cannot be said of the parameters in the reactions functions and preferences of the policy makers are not identified.

As already mentioned in the previous section there is no allowance for different fiscal and monetary policy regimes.

Inflation and nominal policy rates are de-meaned. A simple look at Fig. 1 which reports the federal fund target and CPI inflation suggests that multiple regimes might have occurred and simply de-meaning the series could be misleading.

There is also a more subtle implications of de-meaning. The adopted specification of aggregate demand implies that the long-run equilibrium real interest rate is determined by the fiscal policy stance. This should also be reflected in the reaction function of the central bank: convergence of the model requires that the equilibrium real rate in the Taylor type reaction function coincides with the one determined along the demand curve. This restriction cannot be explicitly imposed because the de-meaned real rate is zero and de-trending of output and fiscal policy variables generates the required consistency. However, as a consequence of this choice, the empirical model has nothing to say about real interest rates.

The specification for the monetary policy reaction function implies that the long-run response of policy rates to expected inflation is not significantly different from one. Model allowing for multiple regimes (see, for example, Clarida et al., 2000) have

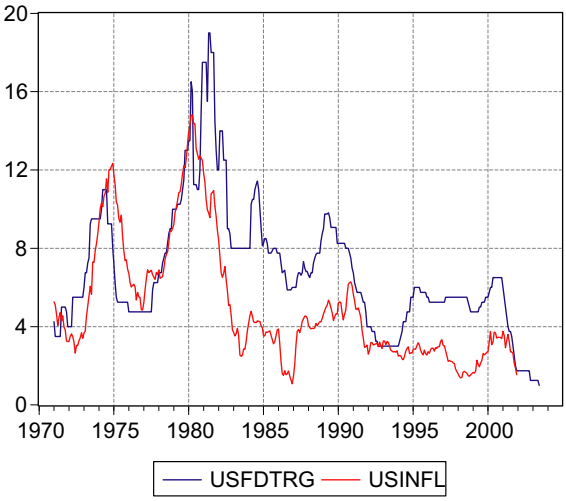

Fig. 1. US federal funds target and US CPI annual inflation.

found a coefficient significantly smaller than one in the pre-1979 sample and a coefficient significantly higher than one in the post-1979 sample.

The specification of the fiscal reaction function is meant to capture an output stabilization motive and a debt stabilization motive in the objective function of the policy-makers. The natural variable to capture the debt stabilization motive is the debt to GDP ratio and not the deficit to GDP ratio (see Bohn, 1998). The authors justify their choice on terms of better statistical fit, but again this could be very well due to the choice of imposing a single policy regime. Moreover, I do not clearly understand how the variable BD is treated in the dynamic simulation. Simulating dynamically the model gives de-trended government expenditures, government receipts and output. The variable BD is defined as the ratio of government deficit to GDP. I suspect that BD is constructed by adding up the trend component (which is exogenous) to the simulated series. However, if the trend component is dominant, BD becomes a kind of exogenous variable in all the different simulations. The authors do not consider the debt–deficit dynamics explicitly, however, report in Fig. 1 the simulated debt to GDP dynamics to show that it matches that of the actual data. Again, I believe that, as for the deficit to GDP ratio, this is a by-product of using de-trended series in the model and then adding back the trend to reconstruct the desired ratios.

Finally, there is very little discussion of identification of the model. I find this somewhat surprising as the empirical exercise is based on the simulation of the impact of different shocks labelled as structural. In particular, the model does not impose the usual block recursivity assumption for monetary policy. In fact, monetary policy reacts to the current state of the economy, but, differently from the usual identifying assumption that it takes some time for macroeconomic variable to respond to monetary policy, the output gap respond to contemporaneous monetary policy.

Similarly, there is no discussion of identification of fiscal policy shocks.

3. The results

The main results of the paper are that the strategic complementarity or substitutability of fiscal and monetary policy depends crucially on the types of shocks hitting the economy, and that countercyclical fiscal policy can be welfare-reducing if fiscal and monetary policy rules are inertial and not coordinated.

The first result is obtained by dynamic simulation. This conclusion could be strengthened by a more careful discussion of identification of shocks and by some evaluation of the structural stability of parameters in the reaction functions of monetary and fiscal authorities. Interestingly, the parameters in the demand and supply equations, being structural, would not be affected by changes in the parameters of the policy reaction functions. This is one of the main strength of this paper, which I think it should be further exploited.

The second result is obtained by comparing the value of the loss function for the monetary policy maker delivered by optimal monetary policy paired with endogenous and exogenous fiscal policy. The importance of the outcome that pairing optimal monetary policy with exogenous fiscal policy does better than pairing optimal monetary policy with endogenous fiscal policy could be limited by the fact that the adopted fiscal policy is not optimal and the metric to judge welfare is the loss function of the monetary policy maker.

References

Bohn, H., 1998. The behaviour of US public debt and deficits. Quarterly Journal of Economics 113, 949–963.

Clarida, R., Gali, J., Gertler, M., 2000. Monetary policy rules and macroeconomic stability: Evidence and some theory. Quarterly Journal of Economics 115 (1), 147–180.

Cogley, T., Sargent, T.J., 2001. Evolving post-World War II US inflation dynamic. In: Paper Presented at the 2001 NBER Macro Annual Conference. Available from <www.stanford.edu/symbol/~sargent>.

Leeper, E.M., 1991. Equilibria under 'Active' and 'Passive' monetary and fiscal. Journal of Monetary Economics 27, 129–147.

Loyo, E., 1999. Tight money paradox on the loose: A fiscalist hyperinflation. J.F. Kennedy School of Government, Harvard University, Mimeo.

Sims, C.A., 2003. Implication of rational inattention. Available <http://www.princeton.edu/~sims/>.

Sargent, T.J., Wallace, N., 1981. Some unpleasant monetaristic arithmetic. Federal Reserve Bank of Minneapolis Quarterly Review 1, 1–17.

Woodford, M., 1996. Control of the public debt: A requirement for price stability? NBER Working Paper no. 5684.