ECO 328: The Interaction of Monetary and Fiscal Policy

Before starting Leeper(1991), we begin with some overview on how modern macroeconomics thinks about fiscal policy.

1. Prior to the 1930s, mankind was wandering in the darkness. Then, a new type of primate emerged, remarkable for their intelligence, wit, compassion, and three-point shooting percentage. Surely these were gods? Close, perhaps, but not quite. They were instead the macroeconomists.

2. Many macroeconomics initially advocated for fiscal policy as the primary tool of stabilization policy. This helped motivate programs like the New Deal during the Great Depression. Over subsequent decades, however, the field came to prefer monetary policy as a stabilization tool. This partly reversed around the Global Financial Crisis in 2008 as Central Banks, having cut rates to near zero, ran out of ammunition to further boost the economy.

3. Like expansionary monetary policy, expansionary fiscal policy works by boosting aggregate demand. Considerable effort has been made to quantify the impacts of fiscal policy, usually presented as ether government spending or tax multipliers. Multipliers are derivatives: how does a one unit increase in spending affect output or how does a one unit increase in taxes affect output? The following paper provides a useful summary:

Ramey, Valerie. 2019. "Ten Years After the Financial Crisis: What Have We Learned from the Renaissance in Fiscal Research? ." *Journal of Economic Perspectives*.

There are two main approaches to estimating multipliers. The first uses some of the time-series econometric techniques that we will learn in a few weeks. On average, these produce a government spending multiplier around 0.6-0.7. (makes hand gestures while writing). The other approach is theoretical, using New Keynesian models with fiscal components added in. These generally produce slightly higher estimates. One reason for the wide range of estimates is that the government spending multiplier may be non-linear. We may expect to to be higher, for example, when demand is low and the economy is weak. If an economy is at capacity, however, (where AS is vertical), the fiscal multiplier is unlikely to be positive.

4. Ramey (2019) also discusses tax multipliers. Here, there is a big gap between the time-series and theoretical estimates. The former yields large magnitudes, often near 2.5. The latter yields smaller magnitudes, often around -0.4. Once again, the type of tax change probably matters a great deal. Remey notes that the large tax multiplier estimates are for permanent, not temporary, tex changes.

Leeper (1991):

We now turn our attention to a simple but interesting extension of fiscal policy. The focus of this paper is how monetary and fiscal policy might combine to destabilize the economy.

Leeper begins by setting an optimization problem similar to Gali:

$$Max_{c_t,m_t} E_0[\Sigma_{t=0}^{\infty} log(c_t) + log(m_t)] \tag{1}$$

There are a couple of differences. First, Leeper is eliminating labor supply, we are just setting it equal to one. This is because labor supply is not central to the paper so he is taking it out to make the model simpler. Second, Leeper is working with real variables, $c_t = \frac{C_t}{P_t}$. We could have done this in Gali if we wanted to.

The budget constraint is :

$$c_t + \frac{M_t}{P_t} + \frac{B_t}{P_t} + \tau_t = y + \frac{M_{t-1}}{P_t} + R^{-1}\frac{B_{t-1}}{P_t} \tag{2}$$

Here are some differences with Gali. First, everything is divided by the price level to keep it real. Second, he has called the bond price R^{-1} instead of Q_t. Third, instead of labor income, households magically receive an endowment of income, y. This is not intended to be realistic. It is intended to simplify the model given that there is no labor market. Most importantly, households pay taxes, τ_t.

Household optimization is similar to Gali. We will not go through it, but the equations can be obtained with very similar arguments. It yields two first-order conditions: The first is the Euler/Fisher Equation:

$$\frac{1}{R_t} = E_t[\frac{1}{\Pi_{t+1}}] \tag{3}$$

Note that $R_t = 1 + i_t$ and is thus set by the Central Bank. The second first-order condition is just money demand:

$$m_t = c\frac{R_t}{R_{t-1}} \tag{4}$$

Unlike Gali, there is a government. The government provides government expenditures, g, which are constant. Government expenditures provide no utility to households, which is a limitation of this model. We should not use it to discuss optimal fiscal policy because of this limitation. The government does not need to balance its budget each period. The model thus fits a government like the U.S. Federal government that has a broad ability to borrow.

The government's budget constraint determines the evolution of the national debt.

$$\frac{M_t}{P_t} + \frac{B_t}{P_t} + \tau_t = g + \frac{M_{t-1}}{P_t} + R^{-1}\frac{B_{t-1}}{P_t} \tag{5}$$

Not shown are conditions that require money and debt to stay finite as time goes to infinity.

Policy

The focus of the paper is on active versus passive policy. We start with monetary policy:

$$R_t = \alpha_0 + \alpha\pi_t + \theta_t \tag{6}$$

We focus on the parameter α. If this is roughly greater than one, then monetary policy is said to be "active." This implies an aggressive response to inflation. One example would be FOMC policy since the 1980s which, by most estimates, has exhibited this property. If α is less than one, however, monetary policy is said to be "passive," meaning less concern about inflation. This may, it is not fully settled, represent FOMC policy in the 1970s during the Great Inflation.

Fiscal policy is set by:

$$\tau_t = \gamma_0 + \gamma b_{t-1} + \psi_t \tag{7}$$

An active fiscal policy is one that is relatively unconcerned with the national debt. One simple example would be where $\gamma = 0$; here tax rates have nothing to do with the debt. A passive fiscal policy is responsive to debt and usually occurs where γ is positive and reasonably large. We may think of passive fiscal policy as the norm.

The formal condition for active fiscal policy is more complicated, $|\frac{1}{\beta}\gamma| > 1$.

Results

The most interesting part of the paper is to compare the four different combinations of fiscal and monetary policy. We will refrain from grinding through the linear algebra and will instead focus on the main conclusions:

Active Monetary Policy and Passive Fiscal Policy

We can think of this as the norm in the U.S. since the 1980s. The Federal Reserve is highly responsive to inflation and the fiscal authority (Congress) is at least somewhat responsive to its national debt. Leeper shows that the model has a unique solution which includes:

$$\pi_t \frac{\beta}{\rho_1 - \alpha\beta} \theta_t \tag{8}$$

This is a good outcome. It avoids multiple equilibria which are destabilizing. Inflation instead only depends on an error term and by making α large, the Central Bank can further stabilize inflation. The punchline is that Central Banks should be harsh on curbing inflation. We will see this result again and again.

Passive Monetary Policy and Active Fiscal Policy In this case, the Central Bank does not respond aggressively to inflation and fiscal policy mostly ignores debt. Once again, we get a unique solution:

$$\pi_t = -\frac{1}{\phi_1}\psi_t + \beta\theta_{t-1} \tag{9}$$

Notice that fiscal policy now also affects inflation where fiscal expansions increase inflation. This is sometimes called fiscal dominance.

It us understandable if this seems very abstract. But this combination has been cited as a cause of major policy failures/ Leeper writes:

> Sargent (1982) argues that the European hyperinflations in the 1920's arose from active fiscal and passive monetary policies and were ended by switching to active monetary and passive fiscal policies. In a similar vein, Dornbusch, Sturzenegger, and Wolf (1990) cite endogenous money financing of budget deficits as an important aspect of recent rapid inflations in a number of countries.

Passive Monetary Policy and Passive Fiscal Policy

The basic model of Gali can be thought of as passive fiscal policy because government debt is trivially zero (since the government does not exist). This scenario is thus identical to cases where the Central Bank fails to satisfy the Taylor Principle. Once again, this allows for destabilizing multiple equilibria, possibly capturing the causes of the Great Inflation.

Active Monetary Policy and Active Fiscal Policy

This one is interesting, In this case, there is no solution. In other words, it is impossible for households to make choices that satisfy their first-order conditions. It is hard to say what happens here, but it is likely chaotic, so what follows may be a bit of a cop-out. Fiscal authorities, such as the U.S Congress are generally more powerful than Central Banks. Congress could dissolve the Fed. And although every FOMC member is trained as an elite assassin, it is unlikely that, even working

together, the FOMC could take out all of Congress. So we might expect the Central Bank to switch back to a passive policy, moving teh economy to a fiscally dominate scenario.

Takeawys:

1. Eggnog should be for sale all year, not just during the holidays.

2. This paper provides a first pass on adding fiscal policy to the model. Other papers add other aspects of fiscal policy to connect different or more complex analysis of tax or spending policy.

3. As is often the case, aggressively responding to inflationary pressures is desirable FOMC policy. We will see this result again.

4. Active fiscal policy is risky and can lead to much higher inflation. To get some intuition, suppose that Congress is running large budget deficits with no intention to correct them. To ensure that the public remains willing to lend to the government (in the words of the model, to ensure a solution exists), the Fed must keep interest rates too low to minimize interest payments and to generate revenue for money creation, a classic recipe for inflation. This is an example of passive monetary policy. It is also known as the "fiscal theory of the price level.

Concern about fiscal dominance has become more widespread in the United States as of 2025. This reflects the growing national debt and many policymakers indifference towards it. Nobel Laurate Paul Krugnan in a piece titled: "The Dangers of Fiscal Dominance :How Trump could Zimbabwify America," writes:

> There's a large economics literature on the problem of fiscal dominance. One piece of that literature focuses on an issue that isn't currently on anyone's radar but may well arise at some point: the incentive to inflate away the stock of government debt.
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> In scholarly economics journals this topic is found under the title of the "fiscal theory of the price level." A highly indebted government that, for whatever reason, can neither increase taxes nor cut spending can render itself solvent through inflation. That's because inflation reduces the real value of its debt. A simple way to understand this is to think about the lucky folks who snagged mortgages at 2% back in 2019. Now, in 2025, their wages have probably risen at least in line with consumer prices, which have risen more than 25 percent in the intervening years. So the real cost of the mortgage to them has fallen. Correspondingly, to the issuers of those mortgages, the real asset values of

those mortgages have fallen. France in the 1920s effectively inflated away much of its government debt from World War I.

Could this, or something equivalent, happen here? As I said, never say never with this administration. Stephen Miran, the same economist who wants to become a Fed Governor while keeping his job in the Trump administration, has called for forced conversion of foreign holdings of U.S. debt into "century bonds" that pay no interest for 100 years. That would be a debt default by another name. Inflating away the federal debt would be a milder, less immediately disruptive equivalent.