Quantity Theory II

Graduate Macroeconomics I

ECON 309 -- S. Cunningham

The Purpose of the Fed

McCandless and Weber (1995) write:

The Federal Reserve System was established in 1913 to provide an elastic currency, discount commercial credit, and supervise the banking system in the United States.

Congress changed those purposes somewhat with the Employment Act of 1946 and the Full Employment and Balanced Growth Act of 1978. In these acts, Congress instructed the Federal Reserve to:

“maintain long run growth of the monetary and credit aggregates commensurate with the economy’s long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates” (FR Board 1990, p. 6).

Time Series Results

McCandless and Weber analyze time series for 110 countries over 30 years, using M0, M1, and M2 to find:

- **There is a high (almost unity) correlation between the rate of growth of the money supply and the rate of inflation. This holds across three definitions of money and across the full sample of countries and two subsamples.**

- **There is no (long-run) correlation between the growth rates of money and real output. This holds across all definitions of money, but not for a subsample of countries in the Organisation for Economic Cooperation and Development (OECD), where the correlation seems to be positive.**

- **There is no correlation between inflation and real output growth. This finding holds across the full sample and both subsamples.**

Conclusion

- **The results seem to support the quantity theory as identifying correctly the long-run relationships between money, prices, and income.**
  - **Money is neutral with respect to income and income growth.**
  - **Money growth is almost perfectly correlated with inflation.**

Friedman on the Quantity Theory

- First points out the importance of differentiating between real money and nominal money.
- He writes that the QT takes for granted that:
  - The real rather than the nominal quantity of money is what ultimately matters to holders of money.
  - In any given circumstances people wish to hold a fairly definite real quantity of money.

Friedman

- Friedman argues that one way to characterize the Keynesian approach is that it focuses on first-round effects:
  - It focuses primarily on the short-run effect of money on spending flows rather on stocks of assets.
- Friedman points out that no one has provided empirical support for any longer-term effects of changes in the money supply on income or spending.
- Obviously, quantity theories focus on second round effects.

Cambridge Effect

- Friedman then explains the Cambridge Effect as a transmission mechanism.
  - When the money supply is increased, real balances rise, and agents now hold more than optimal balances.
  - Agents reallocate portfolios and make purchases to re-establish optimal balances.
  - As a group, the agents cannot succeed. In a market economy, the only possibility is that prices will rise, and real income will ultimately be unchanged.
  - With higher prices, the real balances return to their previous levels.
  - Optimality is restored.

More Friedman

- Friedman discusses the various versions of the equation of exchange:
  - In the transactions version, the most important thing about money is that it is transferred.
  - In the income version, the most important thing about money is that it is being held. This is more obvious in the Cambridge Cash-Balances version.
    - For the act of purchase to be separated from the act of sale, there must be something that can serve as a temporary abode of purchasing power that everyone will accept in exchange.

More Friedman

- **The transactions version makes it natural to define money as whatever is used as a medium of exchange (like currency and checks).**
- **The income version makes it natural to define money to include temporary abodes of purchasing power, and so includes some time deposits.**

More Friedman

- Friedman goes on to discuss the money supply process and his restatement of the quantity theory. We will discuss this later in the course.
- He also discusses the international transmission mechanism. Changes in relative prices cause changes in the balance of trade.
  - Prices change in response to changes in the quantity of money produced by specie flows.
  - This relates to the LOOP and PPP.
  - This is the monetary theory of the balance of payments.
  - Under flexible exchange rates, the exchange rate changes replace the function of the specie flows, but the result is the same.

Friedman on Keynes

- He argues that Keynes accepted the Quantity Theory but that Keynes argued that under conditions of underemployment, V and k were highly unstable and would passive adjust to offset changes in the money supply. The result was that changes in money could not affect income (GDP).
- Thus monetary policy was useless as a means of restoring full employment.
- Keynes further argued that unemployment was a deeply rooted characteristic of the economy, and not just a result of wage/price rigidity or transitory disturbances.
  - Friedman says this is widely accepted as false. Keynes failed to consider wealth effects on the consumption function.
  - Wage/price rigidity was accepted by neoclassicals as a market defect. To Keynes it was a rational response by agents.

Friedman on Keynes

- **Note that in the Keynesian money transmission mechanism, changes in the money supply cause changes in interest rates. Changes in interest rates change investment (and durable goods choices).**
- **We'll discuss other aspects of Keynes' theory shortly. We will also discuss the rational expectations models and the Phillips Curve in due time.**

Friedman's Empirical Evidence

- He cites numerous studies finding a stable money demand function, involving just a few variables—typically income and interest rates.
- He argues that in most countries, a change in the money supply typically results in a change in the rate of growth of nominal GDP 6-9 months later. At this point the change is primarily in real GDP.
- About 12-18 months later, the change is moving to prices and away from real GDP. By about 2 years later, the change is entirely in prices, with no change in real GDP. (This is not a fixed relationship, and it could take as much as 3-10 years.)
- Velocity tends to rise during expansions and fall during contractions as a result of changes in interest rates and real wealth.

Policy

- **Friedman points out the problems of “serving two masters”—trying to direct monetary policy toward domestic inflation AND toward exchange-rate/trade-balance issues.**
- **Friedman is opposed to activist monetary policy.**