

## **Macroeconomic Stabilization**

### A. Inflation and Exchange Rates

1. Inflation – Deterioration in the value of the domestic currency. Affects the buying power of domestic goods.
2. Exchange Rate – Deterioration/enhancement in the value of the domestic currency relative to foreign currency. Affects the buying power of foreign goods.

### B. Inflation is Endemic in Economies, but more so in EFMs

#### 1. The Inflationary Bias of Central Banks/Governments

- a. Model of Inflation Bias to Increase Output – To please political constituents?
  - (1) Assume a labor market in which workers contract for a given nominal wage ( $W$ ) based on expectations of prices ( $P^e$ ). At this expected real wage rate ( $W/P^e$ ), labor supply is assumed to be perfectly elastic (this doesn't really matter, but is easier to deal with).
  - (2) Assume labor demand is based solely on the MPL, which is set equal to the real wage rate ( $W/P$ ) – this latter condition results in profit maximization of the firm(s).
  - (3) If the central bank's policy is not transparent and if knowledge of the actual price level (rate of inflation) is costly, then the central bank has an incentive to announce a zero inflation policy and inflate by printing money.
  - (4) This policy will drive  $P$  up and  $W/P$  down, increasing the quantity of labor demanded (if  $W/P$  is graphed on the vertical axis - or increasing the demand for labor if  $W/P^e$  is graphed).
- b. Central banks, under the pressure of the Fiscal Authority, may wish to collect seignorage – inflationary finance. If tax increases are very unpopular and/or if tax collection system is not efficient.
- c. Monetary Overhang and EFM's – most prices were understated during government control resulting in shortages and forced savings. These savings are then released on the market, which cannot produce goods as quickly as demanded (especially since market forces to divert resources takes time). The result is an inflation that lasts until the overhang is eliminated. Sometimes this price deregulation is phased in to prevent hyperinflation.

- C. Although an inflationary policy can produce short-run benefits, the Inflationary Bias can cause Output to be Inefficiently Low over an intermediate or long-run period, since inflation causes,
1. Inefficient Decisions => wasted or misappropriated resources
  2. Less Financial Intermediation – Saving and Borrowing => decrease in investment expenditures.
  3. Redistribution of income
- D. Policy can bring down inflation, but it may produce a large decrease in GDP, which may last until a low-inflation policy is believed. Thus, a credible policy may allow inflation to fall with a low cost - in term of lost output.
- E. **Credibility and Inflation** - Knowing that the Inflation Bias exists, the Central Bank will have a credibility problem with the public. The Public will not believe the announced good intentions of the public. (If the public does not already realize this from the past, they will learn it eventually)
1. Inflationary Expectations will be higher than inflation
  2. This will cause output to be below the full employment rate
  3. This will cause an inefficient allocation of resources – as people make expenditures to avoid a high inflation
- F. If the Central Bank/Fiscal authority is serious about keeping inflation low, they need to consider the following in designing policy to combat inflation:
1. Policy should have a firm link to inflation (must be a theoretical – or empirical - link)
  2. Policy should be easy for the public to understand (transparency)
  3. Easy to view how policy is being implemented (transparency)
- Such a Policy will **build credibility** and allow inflation to fall rapidly and stay low. Lets look at the theoretical links and whether they can practically build a good anti-inflation policy.
- G. **Nominal Anchors** – conducting monetary policy so as to anchor (or set) the price or the rate of inflation.

Examples of Nominal Anchors (and their Benefits and Costs)

### 1. **Money Supply Targeting**

Theory – Quantity Theory of Money

Function of Money: Medium of Exchange

Equation of Exchange -  $MV = PY$

Quantity Theory

#### Assumptions

- V is constant in the short run
- Y is constant in the short run

#### Implication

$\Delta M^S$  causes a proportional  $\Delta P$  in the short run

#### Modern Quantity Theory of Money

$$\Delta M/M + \Delta V/V = \Delta P/P + \Delta Y/Y$$

#### Assumptions

- V grows at a constant rate in the long run
- Y grows at a constant rate in the long run

#### Implication

$\Delta M^S/M$  determines the inflation rate in the long run

#### Problems:

- Definition of money should be medium of exchange money, which is hard to measure. Most monetary aggregates contain some savings component that is constantly changing - causes instability of velocity
- Asset innovation – related to the above
- Unstable velocity of money because of other variables changing (e.g. credit card use)
- Money multiplier must be stable or predictable, since the central banks really only controls the monetary base. In EFMs this control may be difficult.
- Because of the above problems, transparency, in terms of what the central bank is up to with inflation, is not good.

⇒ In theory use of the money supply is ideal, but in practice it is a disaster (exception – Bundesbank)

## 2. Real Interest Rate Targeting

#### Keynesian Theory of Money Demand

Explaining Interest Rate Movements: Liquidity Preference Theory (or Keynesian Theory of Money Demand).

This theory introduces money as an asset that is held along with bonds. It is important because it shows the interaction of bonds and money

and therefore explains the effect of money on bond yields (i.e. interest rates).

Assumptions:

- a. Financial wealth is held in money and bonds only.
- b. Money is used to buy G&S, but pays no interest.
- c. Bonds pay interest, but may not be used to buy G&S.

Price (or value) of holding money is in terms of the forgone transportation and transactions costs of converting bonds to money. The cost (opportunity cost) of holding money is in terms of the forgone interest rate on bonds. At the margin (i.e. for the last dollar held in either money or bonds), the benefit of holding money should be equal to the cost. Then the cost (or interest rate) is a proxy for the price of money held as a store of value.

In quantity of money and interest rate space (i.e. M/R space), money demand is an inverse function of interest rates on bonds.

Since money is ultimately held for buying G&S, the price of G&S (P) and income (or output)(Y) effect the demand for money directly. Thus,

$$M^D = f(R, Y, P)$$

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Again,  $\Delta R$  causes a change in the quantity demanded of money (i.e. a movement along the bond demand curve.  $\Delta Y$  or  $\Delta P$  cause a change in the demand of money (i.e. a shift in the demand for money).

*The Short Run Effect:* For simplicity, we assume  $M^S$  is exogenous (i.e. it just increases or decreases for some reason (e.g. whenever the Fed wants to change it). Again, R changes to equilibrate any ES or ED. A(n) decrease (increase) in the money supply causes an ED (ES) for money. Money holders decrease (increase) the demand for bonds causing an ES (ED) for bonds. This decreases (increases) the price of bonds and increases (decreases) interest rates. This “LIQUIDITY EFFECT” is Short-Run since P and Y are constant.

New stuff on Real Interest Rate Gap

- a. Long-run real interest rate
- b. Short-run real rate that is partially manipulated by the central bank.
- c. Gap is an indicator of tight or loose monetary policy and therefore an indicator of whether there is inflationary pressure or not.

References:

Neiss and Kerr, Bank of England (2001)

3. Nominal GDP (Forget it)

Like using inflation, since you assume that real GDP grows at a constant rate in the long-run (or you can predict real GDP growth)  
Problem: GDP figure are not often available

References:

Boston Fed:

Richmond Fed:

4. **Inflation Targeting**

Target Inflation Directly

Requirements:

- a. Accurate forecasts of inflation a couple of quarters ahead
- b. Accurate knowledge of the MTM
- c. Ability of the Central Bank to Hit the inflation targets. Usually there is a contract with the Fiscal Authority and incentives. These recognize that the central bank can achieve its inflation target only if the fiscal authority behaves itself. Also, the contract may punish the Central Bank President if targets are not met.
- d. Transparency of the Central Bank operating procedures and how they are linked to the inflation target. Usually Central Banks put out a bulletin with a lot of detailed information on the MTM and forecasts. This recognizes that achieving an inflation target means aligning the public's inflationary expectations with those of the central bank.
- e. Compute a core inflation rate and then set a target deviation from that core. The core inflation rate contains that part of inflation that the central bank has no control over.
- f. Problems: In EFMs, inflation forecasting and knowledge of the MTM are fuzzy. Core inflation is often difficult to measure. MTM governments cannot seem to get past trying to fool the public – manipulate targets in hopes of influencing inflation expectations.

References:

Mishkin, Frederic, New York Fed and Colombia University.

5. **Exchange Rate Targeting – Peg or Crawling Peg Exchange Rate**

- a. Peg currency to that of a country with a low inflation rate.  
Thus, you cannot print money any faster than the rate that it is printed in the country you peg to. This means you lose all control of monetary policy to do anything other than keep the inflation rate down – unless the country with the stable currency abandons its low inflation policy.
- b. Crawling Peg is essentially the same – only you have a rate of inflation that is higher than the country you are pegging to, but you are slowly bringing that inflation rate down by a series of successive appreciations of your currency. That is, you slowly decrease the growth rate of your money supply. This is argued to be useful in countries where the expected inflation rate is engrained in the public's mind and pegging would not change their minds quickly without a severe and long recession (e.g. the US from 1979-1991).
- c. Credibility and Transparency:
  - (1) ER target is easy to view/monitor whether the central bank is abiding by it (as opposed to a money supply target – in which it is not that clear if it has been hit, or a target that takes awhile to view – inflation target).
  - (2) Credibility: Greater signal transparency encourages the public to put more weight on the signal and less on past behavior.
  - (3) Lag time for viewing is zero
  - (4) ER is very controllable by the central bank – not so with money supply or interest rates or inflation.
  - (5) Inflation outcome from a peg is fairly predictable – unlike with money (if velocity is volatile) or interest rates (if the interest sensitivity of expenditures may be unpredictable)
  - (6) Fiscal Policy and an ER Peg (Might think that without inflation the fiscal authority is constrained from inflationary finance - but pegging does not always limit government spending):  
ER peg forces discipline on the Fiscal Authority – kind of: in the case of Argentina, they borrowed internationally until they couldn't anymore. Then, they did not cut the deficits after the international creditors refused to rollover debt. This led to speculation that the central bank would be forced to

finance the deficit, which would cause abandonment of the peg.

Interconnection between monetary and fiscal policies.

With a Peg and Big Deficits – The increase in the budget deficit will mean increases in interest rates, but the central bank will not be under pressure to monetize these deficits since its goal is pegging the exchange rate. But eventually they will have to print money to monetize the deficit. Thus, with a peg, this will not have to occur immediately. Inflation occurs when the deficit is financed – in the future (i.e., there is an inter-temporal budget constraint). The peg will then have to be abandoned. I.e., money will have to be printed and this will devalue the currency in the future. But inflation will not occur until the peg is abandoned.

Since the inflation cost is borne tomorrow, a pegged regime may encourage larger budget deficits and more pressure for the central bank to monetize them.

With a Float and Big Deficits – The increase in the budget deficit will mean increases in interest rates. Without a policy that restricts their behavior in the short-run, the central bank will be under immediate pressure to finance them. The inflation is borne immediately. The currency will be devalued.

The inflationary implications of the deficit will be realized in the short-run. This makes it more difficult to run deficits, since politicians will bear the burden sooner.

#### References:

Moreno, Ramon, "Pegging and Stabilization Policy in Developing Countries," *Economic Review*, Federal Reserve Bank of San Francisco, 2001, pp. 17-29. Reading #134 on my website