

Comment On Fixed and Float Exchange Rate Regimes

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ABSTRACT

The theory of exchange rate regimes does not provide clear cut preference as to which regimes should be preferred. Fixed and floating exchange rate regimes each has its own advantages and disadvantages. Under fixed exchange rates, the country's export and service sector are stable because the businessmen need not worry about the fluctuation of the currency, and thereby influencing the amount of profit made. Moreover, without worry about the fluctuation of the value of the currency, businessmen can make beautiful enterprise to do business. The implication is that it creates much-needed jobs and revenue for the country. In this paper we will prove theoretically that in short, fixed exchange rates can provide greater insulation of output in the face of nominal shocks. At the same time, floating exchange rates are better at absorbing real shocks.

Keywords: Exchange rate, inflation, Lucas type of supply function, domestic credit, money supply, international reserves.

1. Introduction

Under fixed exchange rates, a monetary expansion will lower interest rates. This will cause capital outflows, which will shrink the money supply and subsequent loss of foreign reserves. In contrast, under a floating regime, the outflow of capital will depreciate the exchange rate. This will stimulate output and greater increase in export trade.

In the case of fiscal expansion, under floating regime, domestic interest rate will be raised. This will cause of capital inflow, appreciating exchange rate and damping export, thereby causing trade imbalance. For the case of fixed regime, the central bank is committed to buy foreign exchange. This will cause inflow and thereby induces an automatic monetary accommodation of the fiscal expansion, augmenting its effect.

In practice, floating regime does not always augment with anatomy in monetary policy. This is because when the exchange rate goes up, the country will lose its competitiveness in export. When the exchange rate goes down, the country will find it hard to service external debt. Thus, the advantages of having flexible exchange rates may be largely illusory. On the other hand, under fixed regime, there is likely to be at least some scope for an independent monetary policy.

When the capital is relatively immobile, fixed exchange rates can provide better insulation of output or rather export against shocks to aggregate demand. On the other hand, under high capital mobility, floating exchange rates can do better job to insulate the output.

With respect to positive shock to the economy, fixed exchange rate can lead to higher imports and this leads to a loss of reserves through trade deficit. However, by contrast, under floating regime, the trade deficit depreciates the exchange rate and thereby increases exports. This leads to amplification of the shock to aggregate demand. When interest rate rises, this will depress aggregate demand and imports. Under fixed exchange rate, this leads to an increase in reserves. This is due to two reasons: First, there is a larger capital inflow in response to higher interest rate. Second, there is a lower imports under low capital mobility. While under floating regime, higher interest rate will lead to appreciation of exchange rate.

Adopting an exchange rate peg implies that the country concerned surrenders the nominal exchange rate as an adjustment tool. However, this loss of adjustment tool is not that serious if other mechanisms are available like wage and price flexibility and fiscal transfer systems. In contrast, fixed exchange rate can reduce uncertainty and thereby increase trade integration. This makes the case for pegging and monetary union ambiguous.

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Pegged exchange rates were seen as providing a potential nominal anchor, lowering inflationary expectations and helping the central bank to achieve its inflation objective. In an open economy, pegging the nominal exchange rate to a low inflation country provides an alternative pre-commitment device. But the peg itself does not eliminate the underlying incentive to create inflation surprises. Adopting a hard peg can provide higher degree of credibility, making it easier for the central bank to achieve and maintain low inflation.

2. Fixed Exchange Rates Regime

We assume the major role for determining the type of exchange rate regime is in the hand of the central bank. Every central bank has to achieve two objectives, that is, stabilizing output around some desired level and keeping inflation rate low. With this in mind, we can define the objective function for the central bank. We want to set the inflation rate to be minimum. To avoid the problem of negative inflation rate appears, we set to minimum square of the inflation rate. Similarly, in order to avoid the problem of negative output, we set to minimize the square of the mean adjusted output. To make the output as stable as possible, we introduce a variable relative welfare weight placed on the output, and we denote it by the letter B. thus, the objective function of the central bank is given by:

$$\text{Min } L = E \left[B(y - \bar{y})^2 + \pi^2 \right] \quad (1)$$

$$y = \beta(\pi - \pi^e) + \eta \quad (2)$$

$$\Delta m = \Delta dc + \Delta r \quad (3)$$

$$\pi = \Delta m + v\pi^e + \varepsilon \quad (4)$$

Where y denotes the output by a Lucas-type supply function as shown in (2), π is the inflation rate and π^e is the private sector's expectation of the inflation rate, ε is a Gaussian white noise. m , dc and r denote money supply, domestic credit and reserves respectively. Since the currency is pegged on the currency of another country, which normally has a very low inflation rate, for simplicity, we make the assumption that the inflation rate π or π^e is equal to zero. This is because the foreign inflation rate on which currency is pegged is assumed to be zero. Hence, after simplification, equation (1) and (2) become:

$$L_{peg} = B \left[\sigma_\eta^2 + \bar{y}^2 \right] \quad (5)$$

3. Floating Exchange Rate Regime

Under a floating regime, reserves are constant. The central bank is free to pursue an activist monetary policy. By substituting equation (2) and (4) into (3), we obtain:

$$\Delta dc = \frac{-B\beta\eta + B\beta\bar{y} + B\beta^2(1-v)\pi^e - v\pi^e}{1 + B\beta^2} \quad (6)$$

By substituting (6) into (4), we obtain the semi reduced form for inflation:

$$\pi = \frac{-B\beta\eta + B\beta\bar{y} + B\beta^2\pi^e}{1 + B\beta^2} + \varepsilon \quad (7)$$

Since the private sector has not observed η or ε , we have to use their unconditional means (zero) in forming its expectations. Thus, by taking expectation of (7), we would have the following results:

$$\pi^e = B\beta\bar{y} \quad (8)$$

By substituting (7) and (8) into (2), we obtain:

$$y = \beta(\pi - \pi^e) = \frac{B\beta^2\eta}{1 + B\beta^2} + \beta\varepsilon \quad (9)$$

The central bank would try to break down the inflation rate and in doing so, it brings in inflationary bias to the economy as measured by:

$$\pi = \frac{-B\beta\eta}{1+B\beta^2} + B\beta\bar{y} + \varepsilon \tag{10}$$

Notice that the equation (10) is obtained by substituting the equation (8) into equation (7). We substitute equation (10) and equation (9) into the objective function of the central bank and by taking expectation, we obtain the ex ante loss function under a floating exchange rate.

$$L_{flt} = \left[1+B\beta^2\right] \left[\frac{B\sigma_\eta^2}{(1+B\beta^2)^2} + \sigma_\varepsilon^2 + B\bar{y}^2 \right] \tag{11}$$

4. Comparison of Regimes

We have derived the two formulae for pegged regime and free float regime. We are now going to examine the characteristics of the two difference regimes theoretically. We examine the two formulae in (5) and (11) and try to extract information from the comparison.

Suppose that we assume that the central bank has no incentive to create surprise inflation. In that case, we can set $\bar{y} = 0$. We further assume that there are no monetary shocks, which implies that $\sigma_\varepsilon^2 = 0$. With this, we have the following relationship:

$$L_{peg} > L_{flt} \text{ iff } B\sigma_\eta^2 > \frac{B\sigma_\eta^2}{(1+B\beta^2)} \tag{12}$$

Equation (12) above shows very clearly that the expected loss under the pegged regime is greater. Thus, under this condition, we can conclude that floating regime is preferable.

On the other hand, if there are monetary shocks, we would have the following relationship:

$$L_{flt} > L_{peg} \text{ iff } B\sigma_\eta^2 < \frac{B\sigma_\eta^2}{(1+B\beta^2)} + (1+B\beta^2)\sigma_\varepsilon^2 \tag{13}$$

Hence, the pegged regime is preferable.

5. Conclusion

The assumption of the average inflation under the two regimes in this paper is the same. Thus, it is expected under pegged regime, the variance of inflation is smaller than that under floating regime. This is because under the pegged regime, the partner country chosen would have a low inflation rate.

One would expect countries under floating exchange regimes to display higher exchange rate volatility and lower interest rate volatility than similar countries with exchange pegs. If the country in question is relatively open in terms of trade to another country (or a group of countries in a currency block), but has no or negligible labor mobility across its border, its economy is not well diversified, and it faces different external shocks, a flexible exchange rate is likely to be a better choice for that country.

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