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MONEY AND EXCHANGE-RATE ADJUSTMENT IN AN LDC CONTEXT

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The paper presents theoretical models designed to examine, first, the links between a monetary expansion and the collapse of a fixed exchange rate, and second, the behavior of the real exchange rate following a devaluation. Under a free float, a monetary expansion leads to an appreciation in the long-run. If the monetary authority intervenes to prevent the depreciation, then foreign reserves decline to restore asset-market equilibrium.

1. Introduction

This paper presents some recent theoretical developments in open-macroeconomy analysis that help explain exchange-rate adjustments and movements in many less developed countries. Two specific issues are tackled here. First, I focus on the link between monetary expansion and currency devaluation under a fixed exchange-rate regime, and second, on the subsequent exchange-rate movements under a floating regime that generally follows a devaluation. Two models describing the effects of monetary policy under a fixed and a flexible exchange-rate regime are developed.

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These issues continue to rank high in the research priorities of many economists, who note that the choice of a proper exchange-rate system still eludes many developing countries. The LDC debt crisis, for example, is attributed largely to inconsistent macroeconomic and exchange-rate policy.

The immediate motivation for this paper stems from the series of major devaluations that the Philippines, one of the heavily indebted LDCs today, experienced after World War II. The exchange value of the Philippine peso to the U.S. dollar was fixed by the Central Bank when it started operations in 1949.

The fixed rate collapsed in 1962. In 1970, another sharp devaluation occurred. Thereafter, the peso was placed on a managed float. In the 1970s, the Philippines, just like many of the Latin American countries, experienced a capital-inflow problem. With liberalization of the capital account, foreign borrowing enabled the Central Bank to increase its level of international reserves. The domestic inflation rate, however, exceeded the foreign inflation rate. As a result, the real exchange rate appreciated, the current account deteriorated and the net external indebtedness of the government increased rapidly. In 1983, the government declared a moraturium on foreign-debt servicing.

The paper takes off by presenting a theoretical model that tries to account for the collapse of a fixed exchange rate. The phenomenon, to the best of my knowledge, was first studied formally by Paul Krugman (1979) who applied to the analysis of a balance-of-payments crisis the approach that Stephen Salant and Dale Henderson (1978) used for studying a speculative attack on a government stockpile of exhaustible resource, the price of which the government pegs. After Krugman's pioneering paper, Robert Flood and Peter Garber (1984), Michael Connoly and Dean Taylor (1984), Maurice Obstfled (1984), and Guillermo Calvo (1987), drew up models that addressed essentially the same phenomenon. In these studies, inappropriate domestic credit policy is the mechanism that drives the devaluation of the local currency. The determination of the timing of the collapse is central to these studies, an issue that is, however, skirted here. My model only spells out the condition under which a monetary expansion leads to a depletion of a central bank's foreign reserves. I extend the linear continuous-time model of Flood and Garber by adding real income as an argument in the demand for real money balances. In so doing, it is shown that the time rate of change of foreign reserves is a function not only of the rate of change of domestic credit creation but also of the rate of change of real income.

Following a devaluation, many LDC's permit the exchange rate to float. Under a free float, the exchange rate normally moves in response to flows in the current account of the balance of payments and changes in the expectation of agents about the future time path of the current account and of government policy. A framework that seems consistent with observed exchange-rate movements following a devaluation in many LDCs is developed next. The usefulness of this discussion may be seen in the context of the eagerness of many LDCs to counteract or prod some exchange-rate movements through some form of monetary intervention. In many instances, such interventions are designed to preserve a currency appreciation. Consequently, the real exchange rate becomes misaligned, and an external imbalance that calls for another sharp currency depreciation ensues.

The paper is organized as follows: Section 2 presents a brief background on the exchange-rate experience of the Philippines. Section 3 presents a model that shows the links between a monetary expansion and a devaluation. I take as starting point a fixed exchange-rate regime and derive the condition that leads to the collapse of that peg. Section 4 is a selective survey of recent theoretical developments in exchange-rate dynamics that may help shed light on the observed movements of the exchange rate when it is allowed to float freely following the collapse of a fixed exchange rate. Section 5 develops a model of the real exchange rate that may be used to study the effects of fiscal and monetary policy actions. Section 6 concludes the paper.

2. Devaluation in the Philippines

The immediate motivation for this paper stems from the series of devaluations experienced by the Philippine economy after the Second World War. In the 1950s, the price of a U.S. dollar was fixed by the Central Bank at 2 pesos. That rate lasted up to

1962 when, under a new president, the peg was adjusted to 3.95 pesos per dollar. In 1970, the peso was again devalued, the exchange rate dropping sharply to 6.45 pesos per dollar.

In 1970, Philippine monetary authorities ushered in a managed-float regime, in line with the adoption of generalized floating for the world's major currencies. That managed float was operationalized mainly through Central Bank interventions in the spot and forward foreign exchange markets. After the first oil-price shock of 1973, policymakers in the Philippines pursued activist fiscal and monetary policies in an attempt to counter the expected negative output effects of the input-price shocks.

Such policies led to deficits in the budget of the national government, which were financed largely by borrowing from the Central Bank, multilateral institutions and foreign commercial banks (see Canlas, 1989). During the seventies, the average annual growth rate of the money base was 20 percent, which was double that of the previous decade. A significant percentage of the money growth rate arose from the Central Bank's extension of credit to the public sector. The persistence of deficits in the national government budget, coupled with a savings-investment gap for the private sector, meant deficits in the current account of the balance of payments. As was to be expected, the chronic internal and external imbalances exerted pressure for a peso depreciation. During the Seventies, the Philippines was able to ease somewhat the pressure for a sharp peso depreciation mainly on account of capital inflows from abroad. Foreign borrowing enabled the Central Bank to raise the level of its international reserves, which were used to support a target exchange rate. The fiscal and monetary policy actions, however, led to a domestic inflation rate that exceeded foreign inflation rate. The real exchange rate appreciated. As the deficit in the current account worsened, the net external indebtedness of the government rose rapidly.

In 1981, the Third-World debt crisis broke out into the open with Mexico's decision to suspend foreign-debt repayments. In 1982, Argentina followed suit. As a result, capital inflows to LDCs in general slowed down considerably, a situation that weakened the capacity of the Philippine monetary authority to support the foreign exchange value of the peso. In June 1983, the exchange rate depreciated by about 22 percent to 11 pesos per dollar, and further down to 14 pesos per dollar in October of that same year. In June 1984, the exchange rate again depreciated sharply, settling at 18 pesos per dollar. In October 1984, the peso depreciated to 22 pesos per dollar. In November 1990, a 12 percent depreciation took place, making the exchange rate 28 pesos per dollar. Since then, the exchange rate has appreciated slightly to 27.60 pesos to a dollar.

In a study of some aspects of central banking on the Philippines, the rate of domestic credit creation by the Central Bank two years prior to some of the major peso devaluations was examined (see Canlas, 1990). A pattern is discernible: the percentage change in net domestic credit extended by the Central Bank to the public sector (local and national government) jumped significantly the year before a devaluation. Prior to the 1970 devaluation, for instance, the percentage change in domestic credit creation was 46 percent. In a similar vein, the rate of domestic credit creation was 55 percent in 1983.

Evidently, too, the period of free floating that followed a devaluation, during which the exchange rate tended to be realistic, was generally short-lived. Following a devaluation, foreign exchange usually flowed in. The Central Bank then purchased the foreign currency with pesos to raise its international reserves. However, the peso expansion, coupled with the government's inability to curb inflationary expectations, raised domestic prices and caused an appreciation of the real exchange rate. As the Central Bank intervened to help the appreciation along, the deficit in the current account widened again. The CB's efforts to support an appreciating exchange rate led to declining official international reserves whose eventual outcome was another sharp currency depreciation.

The above observations suggest an important role for domestic credit creation by the monetary authority in explaining the collapse of a fixed exchange rate. A framework that highlights that role is presented in the next section.

3. A Model of Collapsing Exchange Rate

The model presented here describes the condition that leads to the collapse of a fixed exchange rate. The model, which integrates an asset and a good market, follows the linear, continuous-time model of Flood and Garber with a slight modification. I consider a small open economy wherein agents with perfect foresight trade in goods and securities. The country faces a parametric price for imports and a world interest rate.

There is a single consumption good that can be produced both locally and abroad. Residents are confronted with four types of assets: domestic money and bonds, and foreign money and bonds. Domestic and foreign bonds can substitute for each other provided the yield of the domestic bond is properly adjusted for expected appreciation or depreciation of the domestic currency. Domestic money and bonds as well as foreign bonds dominate foreign money and so residents do not hold foreign money. Foreigners, meanwhile, do not hold domestic money. The central bank of the country holds some international reserves which it uses to support the foreign exchange value of the local currency.

The structural equations are listed below:

(1) $M(t)/P(t) = \beta_0 - \beta_1 r(t) + \beta_2 Y(t), \qquad \beta_0, \beta_1, \beta_2 > 0$

(2) $d\{Y(t)\} = \mu$

(3) $M(t) = R(t) + D(t)$

(4) $d\{D(t)\} = \delta, \qquad \delta > 0$

(5) $P(t) = E(t)P^*(t)$

(6) $r(t) = r^*(t) + d\{E(t)\} \quad /E(t)$

The notations are as follows: Y is real income, M is nominal money base, r is nominal interest rate, R is foreign reserves of the central bank, D is domestic credit, E is the spot exchange rate unit of the foreign currency, d is a time derivative, and t refers to the time period. A variable with an asterisk pertains to the foreign country.

Equation (1) which is derived from an inventory-theoretic approach shows that the demand for real cash balances is negatively related to the nominal interest rate and positively related to real income whose rate of change with time, as shown in (2), is assumed equal to the constant μ. The introduction of real income in the money-demand function extends that of Flood and Garber. Equation (3) defines the money base as the sum of foreign reserves and domestic credit. The credit-creation activities of the banking system are ignored. The time rate of change of domestic credit is assumed equal to the constant, δ, in (4). Equation (5) assumes that the purchasing power parity condition holds while (6) follows from the assumption of perfect capital mobility.

Substituting (5) and (6) into (1) yields the following:

$$M(t) = \{ \beta_0 P^*(t) - \beta_1 P^*(t) r^*(t) \} E(t) + \{\beta_2 P^*(t)\} Y(t)E(t) - \{\beta_1 P^*(t)\} \; d\{E(t)\}. \tag{7}$$

If the government fixes the exchange rate at E_0, then:

$$M(t) = \{ \beta_0 P^*(t) - \beta_1 P^*(t) r^*(t) \} E_0 + \{ \beta_2 P^*(t) \} \; E_0 Y(t) \cdot \tag{8}$$

The rate of change over time of $M(t)$, given $d\{Y(t)\} = \mu$ in (2), is:

$$d\{M(t)\} = \beta_2 P^*(t) \, \mu \, E_0 \tag{9}$$

Under a fixed exchange rate, foreign reserves adjust to maintain equilibrium in the money market. The level of foreign reserves at any time t is given by:

$$R(t) = M(t) - D(t). \tag{10}$$

The time rate of change of foreign reserves is:

$$d\{R(t)\} = \beta_2 P^*(t) \, \mu \, E_0 - \delta. \tag{11}$$

According to (11), if $\mu > 0$ and $\beta_2\ P^*(t)\ \mu\ E_0 < \delta$, then foreign reserves will not be exhausted by domestic credit creation.

However, if $\beta_2\ P^*(t)\ \mu\ E_0 < \delta$, then foreign reserves with an upper bound will at some finite point get depleted even if the rate of change of Y is positive. If $\mu < 0$, then domestic credit creation hastens the depletion of finite foreign reserves. If $\mu = 0$, the rate at which foreign reserves get depleted is equal to the rate of domestic credit creation, or $d\ \{R(t)\} = -\delta$, the result obtained by Flood and Garber.

A brief discussion of the implications of the above result is useful at this point. The onset of a balance-of-payments crisis may be foiled if the capital inflows, made possible by, say, foreign borrowing, contribute to sustained growth of real output. It is thus important for an LDC government to pay close attention to investment projects financed by, say, foreign loans.

Such projects should be productive enough to pay their way through. If this happens, then it seems clear that a large foreign debt is not bad per se. South Korea may be cited as evidence thereof while the Philippines, whose investment projects financed by foreign loans did not yield reasonable rates of returns, suggests a counterexample.

4. Exchange Rate Dynamics: A Review

Following a devaluation, the monetary authority in many LDCs permits the exchange rate to float. In some cases, the flexible period is temporary; but in others, it may be permanent. In the case of client-countries of the International Monetary fund, the decision to float is usually in line with the Fund's conditionality practices. An understanding of the dynamics of flexible exchange rates thus seems useful at this point.

To prepare the ground for a model of real exchange rate, this section first presents two theoretical models that appear consistent with the observed movements of a flexible exchange rate. Both models discussed here all belong to a class that integrates an asset with a goods market, and emphasizes the role of expectations and wealth effects induced by the current account.

Suppose a devaluation is successful in restoring balance in the goods and asset markets and the exchange rate is permitted to enter a flexible regime. What exchange-rate movements can be expected? The insights from a model developed by Dornbusch (1976) which emphasizes the relationship between expectation and the exchange rate are presented below.

4.1 Expectations and the Exchange Rate

Dornbusch assumes a demand-for-money function of the form:

$$(12) \quad m - p = -\alpha_0 r + \alpha_1 y$$

where, m, p, and y denote logarithms of the nominal quantity of money, price level, and real income. It is assumed that nominal money stock and real income are given.

Assets denominated in foreign and domestic currency can substitute for each other if the yields are properly adjusted for expected changes in the exchange rate. If the local currency is expected to depreciate at the rate $d(E)/E$, it follows from the assumption of perfect capital mobility that:

$$(13) \quad r = r^* + d(E)/E.$$

It is assumed that expectations are formed according to the following:

$$(14) \quad d(E)/E = \theta\,(\,\varepsilon - e\,)$$

where ε and e are the logarithms of the long-run exchange rate and the spot rate, respectively, while θ is a coefficient of adjustment.

It is likewise assumed that the asset market clears. Substituting (13) and (14) in (12), one gets:

(15) $p - m = - \alpha_1 y + \alpha_0 r^* + \alpha_0 \theta (\varepsilon - e)$

Equation (15) links the spot exchange rate, the price level, and the long-run exchange rate.

Given a stationary money supply, the long-run equilibrium implies $\varepsilon = e$ and $r = r^*$. Under these conditions, (15) is solved for long-run p which is denoted by π below:

(16) $\pi = m + (\alpha_0 r^* - \alpha_1 y)$.

Substituting (16) in (15) yields a relationship between the exchange rate and the price level:

(17) $e = \varepsilon - 1/\alpha_0 \theta (p - \pi)$.

Equation (17) determines the spot exchange rate given the current level of prices, which then yields the domestic interest rate and an interest-rate differential.

Turning next to the goods market, Dornbusch assumes a demand function of the form:

(18) $\ln Q = u + \alpha (e - p + \beta y - \sigma r$

where Q is demand for domestic output and u is a shift parameter. The variable $(e-p)$ is the relative price of domestic output with the foreign price set to unity. The rate of change of the price level is assumed proportional, with k as the constant of proportionality, to an excess-demand measure:

(19) $d(p) = k\ln(Q/y) = k \{ u + \alpha (e - p) + (\beta - 1)y - \sigma r\}$.

Setting $d(p) = 0$ and $r = r^*$, the long-run equilibrium exchange rate implied by (19) is:

(20) $\varepsilon = \pi + 1/\alpha \{ \sigma r^* + (1 - \beta) y - u \}$

where π is defined from (16).

According to (20), the long-run equilibrium exchange rate depends both on monetary and real variables.

Using (20) and $r - r^* = \theta\,(\varepsilon - e)$, equation (19) can be written as:

(21) $d\,(p) = -\,\upsilon(p - \pi)$

where $\upsilon = k\,\{\,\alpha + (\,\alpha + \sigma\,\theta\,) \surd\,\alpha_0\,\theta\,\}$.

Equation (21) yields the time path of the price level:

(22) $p(t) = \pi + (p_0 - \pi)\exp(-\,\upsilon t)$.

Substituting (22) in (17) gives the time path for the spot exchange rate:

(23) $e(t) = \varepsilon - (1/\alpha_0\,\theta)\,(p_0 - \pi)\exp(-\,\upsilon t) = \varepsilon + (e_0 - \varepsilon)\exp(-\,\upsilon t)$.

Equations (22) and (23) indicate that both the price level and the spot rate converge to their long-run level. The spot rate appreciates if the price level is initially below its long-run level, and depreciates if initially above.

Dornbusch uses (22) and (23) to study the adjustment process to the long-run equilibrium, (π , ε), set into play by a monetary expansion. The effect of such an expansion is to raise prices in the long run, thereby causing a depreciation of the exchange rate. The extent of the initial depreciation, however, may overshoot the long-run equilibrium exchange rate. This overshooting arises because a monetary expansion initially causes a decline in the interest rate, which results in a capital outflow and depreciation of the spot rate. The extent of the depreciation has to be sufficient to permit the anticipation of an appreciation at a rate enough to offset the reduction in the interest rate. Moreover, the overshooting is made possible by the assumption that asset prices adjust instantaneously while good prices do so with a lag.

4.2 Exchange Rate and the Current Account

The model in Section 4.1 above has been extended by Dornbusch and Stanley Fischer (1980). This extended model, which stresses the relationship between the exchange rate and the current account, is summarized below.

In the money market, the equilibrium condition is given by:

$$(23) \quad m = f\{ r^* + d(e)/e \} \ \{ y + \tau A \} \ ; m = M/P, \quad \tau = eP^*/P$$

where r^* is the foreign interest rate, $d(e)/e$ is the expected depreciation of the exchange rate, P is the price of domestic output, y is the domestic output, P^* is the given foreign price level, and A is external assets or the number of income claims each yielding one unit of foreign output. Note that m is the stock of real money balances while τ is the terms of trade.

Assuming expected depreciation rate is zero and foreign interest rate is given, then the function f becomes a constant.

In the goods market, the equilibrium condition is given by:

$$(24) \quad y = Q(\tau , W) + F(\tau); \ Q\tau , F\tau > 0; \ Qw > 0$$

where Q is domestic demand for the country's output, F is its foreign demand, and w is real wealth defined as follows:

$$(25) \quad w = m + \tau A/r^*$$

The current account correspond to the excess of income over spending when the goods market clears. It represents claims on the rest of the world. Alternatively, under certain conditions, a surplus in the current account corresponds to savings. Suppose savings is a decreasing function of nonwork income:

$$(26) \quad S = S(W), S_w < 0.$$

It also follows that the current account surplus is equal to the rate at which the country acquires claims on the rest of the world, that is:

$$(27) \quad \tau\, d(A) / r = S(W).$$

From (23), the equilibrium stock of real money balances is an increasing function of the value of external assets:

(28) $m = m(\tau A),\ m' > 0.$

The positive relationship in (28) is based on the following argument: an increase in external assets raises real wealth which raises the demand for real cash balances.

From (28), the equilibrium terms of trade, given the output level, is a function of the level of external assets:

(29) $\tau = \tau\,(A),\ \tau\,' < 0.$

The assumed negative relationship between the terms of trade and external assets rests on the following: an increase in real wealth raises demand for domestic output, which raises the demand for domestic output, requiring an offsetting increase in the price of domestic goods or a decline in the terms of trade.

The equilibrium position of the model is the pair (τ^E, A^E), on which point the current account is balanced. If at any point in time, the level of external assets is below the long-run level, then external assets will be accumulated which implies that the current account is in surplus. As external assets are being accumulated, real wealth goes up, demand for domestic output increases, and the relative price of domestic output goes up. The terms of trade declines and with P^* given, the exchange rate appreciates. This is consistent with the observation of a current account surplus accompanying an appreciation of the exchange rate.

5. A Model of the Real Exchange Rate

It seems clear that although the monetary authority can fix the nominal exchange rate and the money base, the same cannot be done for the real exchange rate, which is defined here as the ratio of the price of an importable foreign good to the price of an exportable home good. The real exchange rate is an endogeneous variable that depends on conditions of demand for the importable good and supply of the exportable good. As Arnold Harberger

(1986) points out, the flow of foreign currency hinges on the import demand and export supply curves.

In this section, I develop a model that can be used to analyze the effects of fiscal and monetary policy actions on the real exchange rate. Following Dornbusch and Fischer (1980), the model highlights the wealth effects on aggregate private consumption of changes in net foreign assets. Initially, it is assumed that monetary policy is conducted to maintain stable prices.

The home country produces a single good Y that is produced and consumed domestically and can also be exported. Let P^T denote the price of the exportable good. The rest of the world produces a foreign good Y^* that the home country can import at the foreign currency price P^*. The domestic currency price of the foreign good, P^F, is equal to EP^* where E is the nominal exchange rate or the domestic currency price of a unit of foreign currency.

Meanwhile, the real exchange rate, e, is defined as follows:

(30) $e = P^F / P^T = EP^* / P^T = E / P^T$

where the foreign price has been set to unity.

Assume that private consumption of the home good is a positive function of net wealth or assets, A and of the real exchange rate. That is:

(31) $C = C(A, e)$, $C_1 > 0$ and $C_2 > 0$.

In addition, it is assumed that the rest of the world's demand for the exportable good is a positive function of e:

(32) $W = W(e)$, $W' > 0$.

Meanwhile, the home country's demand for the importable good is assumed to be a negative function of the real exchange rate:

(33) $Z = Z(e)$, $Z' < 0$.

It is also assumed that there is a government sector whose purchases are fixed at G. For the moment, the government is viewed as operating within a balanced budget.

The equilibrium condition in the goods market is:

$$(34) \quad Y = C(A, e) + G + W(e) - Z(e).$$

From (34), the sum $C + G$ constitutes aggregate domestic spending. Whenever aggregate income Y exceeds $C + G$, then the home country ends up as a net exporter which leads to a net inflow of foreign currency. The real exchange rate has to fall to maintain trade equilibrium. The opposite happens if aggregate spending exceeds aggregate income. The home country becomes a net importer and the real exchange rate increases to remove the excess demand for imports.

The current account may influence the real exchange rate thorough its effects on private consumption spending. Suppose that at some point in time, the current account is in surplus and the assets of local residents are below their long-run level. Then households will tend to accumulate more assets to raise actual to the desired level. As assets increase, wealth rises, and so does consumption spending. To restore balance, the real exchange rate must appreciate as an offset to the rise in consumption. This is consistent with the observation that a current-account surplus accompanies an appreciation of the local currency.

The foregoing analysis has concentrated on the goods sector and proceeded from the assumption that the monetary authority is successful in stabilizing prices. To be able to analyze the impacts of fiscal and monetary actions, however, an asset market and a government budget constraint need to be introduced into the model.

In the asset market, the demand for real money balances is assumed to be positive function of Y and a negative function of the nominal interest rate, R:

$$(35) \quad M/P^T = L(Y,R),\ L_1 > 0 \text{ and } L_2 < 0.$$

The nominal interest rate is assumed equal to the given foreign interest rate adjusted for the expected change in the nominal exchange rate:

(36) $R = R^* + d(E)/E.$

Turning now to the government sector, it is assumed that the government levies a lump-sum tax, T, and any excess of government spending over revenue is financed by money creation, where M denotes the money base. That is:

(37) $G = T + (M_1 - M_{t-1}).$

Suppose the government decides to raise its purchases and instead of raising taxes, it creates new money to finance its increased spending. Holding demand for real money balances fixed, and assuming flexible prices, the increase in money leads to an increase in P^T. If P^F is given, the real exchange rate appreciates in the short run, thereby raising the demand for imports. In the long run, however, the real exchange rate will have to depreciate to remove the excess demand for imports. If the monetary authority intervenes to prevent a depreciation, an excess demand for foreign currency emerges. The monetary authority will then have to use its foreign reserves to restore equilibrium in the asset market.

The above analysis is suggestive of the experience of many heavily indebted countries. Debt servicing creates budget deficits that are financed mainly through money creation. The resulting domestic inflation exceeds the foreign inflation rate thereby decreasing the relative price of imports. The real exchange rate appreciates and as a result, the current account worsens. An unwillingness on the part of the monetary authority to let the nominal exchange rate depreciate can only mean a decline in net foreign reserve assets.

6. Concluding Remarks

The paper has addressed two issues on exchange-rate adjustments. The first is on the collapse of a fixed exchange rate. By slightly modifying a popular model of a balance-of-payments crisis, it is shown that the depletion of the monetary authority's international reserves may be forestalled if the positive rate of change of real income is sufficiently high. If output is stagnant, however, a positive rate of domestic credit creation will exhaust in finite time official international reserves.

The second issue addressed by the paper is the behavior of a flexible exchange rate and how it is affected by fiscal and monetary policy actions. The short-run effect of a monetary expansion is to reduce the relative price of imports. In the long run, the real exchange rate must depreciate to remove the excess demand for imports. An intervention by the monetary authority to prevent a depreciation may mean a decline in official foreign reserves.

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