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# THE EFFECTIVENESS OF STABILIZATION POLICY IN A SMALL OPEN ECONOMY

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DISCUSSION PAPER NO. 77

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## I. Introduction

A small open economy is forced to operate, as we have learned from Mundell [4], in a constrained policy environment. As stabilization instruments he found that monetary policy is ineffective under a regime of fixed exchange rates while fiscal policy is ineffective when exchange rates are flexible. In a sense an SOE (to coin an acronym) is analogous to a firm in perfect competition. An atomistic competitor is also constrained; he cannot affect the market price at which he sells his product nor the rental rate of factors of production. But he is not completely without options. Consistent with profit maximizing behaviour, he sells as much output as he wants at the given market price and buys as many inputs as he wants at the given market rental rate for each factor of production. While the atomistic competitor is no longer a particularly useful concept in the theory of the firm, the same cannot be said for an SOE as a concept in world markets. There are a large number of countries who are forced by their lack of monopolistic power to accept certain conditions imposed by the external (world) environment. To name just a few, Canada, the Netherlands, Denmark, New Zealand, Belgium and Austria would fit into this categorization. It is true that for some products even a small country may have some monopoly power (e.g. nickel for Canada, tulip bulbs for Holland) but in the aggregate these countries approximate more closely the behaviour of price takers than price makers.

It is to economies such as these and not larger or closed economies that the analysis of this paper is devoted. The extremity of the assumptions is such as to make the analysis totally inapplicable to countries such as the United States. The purpose of the paper then is to investigate the characteristics peculiar to a small open economy and to incorporate them in a model which will allow us to discuss the effectiveness of stabilization policy in this constrained environment. In particular, it is proposed to re-examine Mundell's conclusions about monetary and fiscal policy under fixed and flexible exchange rates and to show that under flexible exchange rates an optimum policy combination exists that eliminates the trade-off between inflation and unemployment. As is common in these stabilization policy models, growth in factor supplies and therefore output is assumed not to exist.[1]

## II. Characteristics of a Small Open Economy

In previous models, such as those of Mundell [4,5], Takayama [8] and Dernburg [1], the small-country assumption is considered as only one possibility (often as an extreme assumption). At the same time all the essential characteristics of an SOE are not incorporated in the model. Let us first discuss these characteristics before proceeding with the construction of the model and testing for policy effectiveness.

### 1. Relative Prices

SOE's cannot affect the world price of their exports or imports;

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1. The guidelines for stabilization policy in a growing economy are discussed by Niehans [6, Section IV]. In this context he states, "For the time being, it seems to be an illusion to believe that these are hard and fast rules about the optimal combination of monetary and fiscal policies in an open economy independent of any specific information about the economy in question." [6, p. 905].

this is the operational meaning of a price taker in world markets. They can, however, change the domestic price of these goods by changing the exchange rate. A devaluation of the domestic currency, for instance, will raise the domestic price of both exportables and importables by the extent of the devaluation.[1] Under these circumstances, there will be no change in the relative price of exportables and importables. This is in contrast to the devaluation analysis applied to larger countries. In the case of an SOE then, it is appropriate to aggregate exportables and importables as tradables and show that devaluation changes the relative price of tradables and non-tradables. This fact implies that the optimal strategy for model building for SOE's is to specify a two sector model with supply and demand relationships for tradables and non-tradables.

## 2. The Domestic Interest Rate

The assumption of smallness together with the assumption of perfect capital mobility leads us to the conclusion that the domestic interest rate must always adjust to the world interest rate and in equilibrium they are equal. Thus domestic residents will adjust their rate of time preference once and for all to the world interest rate. In this case it is not necessary to dichotomize consumption and investment; the proportion of total output going to each will also be fixed once and for all.[2] But domestic residents will adjust their absorption (consumption plus investment) of tradables and non-tradables as relative prices change. This provides further evidence for the two-sector model stated above.

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1. This point has been made by McKinnon [3, p. 719].

2. Because the context is a static model, it is assumed that gross investment is positive but net investment is zero.

### 3. Sterilization Operations

A large country is able, at least theoretically, to neutralize the effect of a balance of payments deficit or surplus on the money supply but it makes no sense even to consider such a possibility for an SOE. Assume a deficit in the balance of payments. This loss of international reserves will lead to a reduction of the domestic money supply since it has the same characteristics as an open market operation. If the central bank attempted to restore the money supply to its original level, this would require the purchase of domestic bonds. The result would be a temporary increase in the price of bonds and a temporary reduction in the domestic interest rate to a level below the world interest rate. This change in the domestic interest rate would stimulate a capital outflow and give rise to a further deficit in the balance of payments. For our purposes then, we can assume that sterilization operations are not possible for an SOE and build our model to reflect the fact that a change in international reserves changes the domestic money supply in the same direction. This is the approach adopted by Mundell [4, p. 480-1]. The importance of this proposition is that for a small open economy, a balance of payments deficit or surplus cannot be sustained and external equilibrium is assured whether fixed or flexible exchange rates prevail.

### 4. Portfolio Adjustments

The assets in Mundell's model are money and bonds.[1] In equilibrium the desired holdings of each asset must equal the actual stocks. In a closed

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1. The private sector is assumed to hold few, if any international reserves. See Mundell [4, p. 476]. In addition we assume that only domestic bonds are held in portfolios.

economy when the stock of one of these assets is increased, bond prices and interest rates adjust so that the addition to the stock is willingly held in private portfolios. In a model of an SOE however, where we assume perfect capital mobility, the domestic interest rate can deviate only temporarily from the world interest rate and thus adjustments to an exogenous change in the stock of an asset must be made through interaction with foreign portfolio holders. As an example, let us assume an open market operation which increases private holdings of bonds and reduces the amount of money in portfolios. At the equilibrium interest rate there is excess demand for money and excess supply of bonds. Hence there is downward pressure on bond prices and upward pressure on interest rates. This creates foreign demand for domestic bonds and a balance of payments surplus. Under fixed exchange rates the monetary authorities purchase the excess supply of foreign currency thus increasing the stock of domestic currency. Domestic wealth owners have moved back to the original equilibrium exchanging their excess bonds for domestic money by allowing foreigners to increase their holdings of domestic bonds and the monetary authority to increase its holdings of international reserves. Under flexible exchange rates the adjustment process is somewhat different since income will decline. With a lower level of income, domestic portfolio holders will desire a lesser amount of money for transactions balances which allows them to hold larger amounts of bonds. But it must be remembered that the adjustment takes place in a way which is constrained by the fact that the interest rate must return to the world level. In summary, if the assumed change in the stock of an asset cannot change the level of income, portfolios must return to their original position; if the level of income increases (decreases) domestic portfolios will have higher (lower) amounts of money and lower (higher) amounts of bonds.

## 5. Domestic and Foreign Bonds

In order to give an operational meaning to perfect capital mobility we must assume that domestic and foreign bonds are perfect substitutes. Because they are perfect substitutes their prices and interest rates will be the same.[1] But since the foreign country, that is the world, is large and the domestic country is small, the price and interest rate of foreign bonds will dominate the price and interest rate of domestic bonds forcing the latter to adjust to the former. It is in this sense that we stipulate that, for a small open economy where perfect capital mobility prevails, the domestic interest rate will always adjust to the world interest rate. But can domestic and foreign bonds be perfect substitutes under all circumstances? Under fixed exchange rates there will always be a given number of bonds denominated in the domestic currency that will equal the value of one bond denominated in the foreign currency and by assuming away all other causes of "external risk" such as capital controls and differential tax treatment of interest payments, domestic and foreign bonds will be perfect substitutes. But under flexible exchange rates the situation is not quite the same. Now a depreciation of the domestic currency will reduce the value of domestic bonds in terms of the foreign currency which means a capital loss to foreign holders of the domestic bonds, a capital loss which they do not experience with respect to their own bonds. Therefore unless foreign investors expect the exchange rate to return to the old level before the maturity of the domestic bonds, they will not consider them to be perfect substitutes for their own bonds. As a result there is some difficulty in

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1. This assumption indicates that nominal rates of interest are equalized. The domestic real rate of interest could be altered if the expected rate of inflation changes. However it will be assumed that the expected rate of inflation is zero and thus the nominal and real rates of interest are identical.

interpreting perfect capital mobility when flexible exchange rates prevail. Mundell recognizes this problem but his treatment is unable to cope with it [4, p. 475]. There exists, however, a partial means of dealing with this difficulty. The existence of flexible exchange rates introduces a risk premium for foreigners holding domestic assets. As long as this risk remains constant (equal to the expected change in the exchange rate) the domestic interest rate will be equal to the foreign rate plus the risk premium. Under these circumstances the domestic rate is not free to move away from the world rate by an arbitrary amount and it is still meaningful to stipulate that the domestic interest rate is a parameter of the system rather than a variable.

## 6. The Trade Balance, The Capital Account Balance and the Domestic Wealth Position

A small open economy, as we have seen, is a price taker in world markets for both goods and services and financial instruments. Its excess demand position in the former market is reflected in the trade balance and its excess demand position in the latter market is reflected in the balance on capital account. It should also be remembered that the trade balance involves a flow equilibrium whereas the capital account balance involves a stock equilibrium. The question now is what are the equilibrium conditions that have to be specified for each of these two balances? We know that a balance of payments surplus or deficit (which is the algebraic sum of the two balances) cannot represent a static equilibrium position since the money supply will be affected and domestic portfolios will require adjustment. But if balance of payments equilibrium is established, is it possible to have a deficit in the current account which is offset by a surplus in the

capital account? Since the introduction of portfolio balance analysis, the answer to this question would appear to be no because a surplus in the capital account implies that portfolios are still in the process of adjustment and this situation cannot be consistent with full equilibrium. Perhaps more importantly, an inflow of capital involves an increase in foreign holdings of domestic assets or, in other words, an increase in domestic liabilities to foreigners which reduces domestic wealth and in turn reduces expenditures on goods and services.

The next question therefore is whether the operation of monetary and fiscal policy in a model of a small open economy has any continuing wealth effects which might prevent the establishment of a static equilibrium. Wealth in such a model consists of the stock of money and security holdings of the private sector. The first point to note is that for an SOE an exchange of bonds for money will not change the level of wealth through the Metzler effect since the interest rate will remain at the world level in the new equilibrium position. Therefore monetary policy through open market operations will only change the composition of private wealth, not its level.[1] An open market purchase of securities will lead to a temporary decline in the domestic interest rate and an outflow of capital. But this outflow will cease and the interest rate will return to the world level once the increase in the money supply has been absorbed by domestic residents (under flexible exchange rates) or by foreign residents (with fixed exchange rates). Fiscal policy presents a different problem. Assume a once-and-for-all

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1. Printing money which is an alternative to open market operations will have wealth effects, but this type of monetary policy is not an important tool in countries with well-developed financial markets.

increase in government expenditures financed by borrowing from the public. But there will now be a continuing deficit in every subsequent time period (taxes are assumed to remain constant) which must be financed by new bond issues. This puts upward pressure on the interest rate and this pressure will remain as long as the higher level of government expenditures remains, resulting in a continuous inflow of capital. These inflows increase domestic liabilities to foreigners which reduces domestic private wealth, but the bonds issued by the government will restore the wealth position to the old level.[1] In summary neither monetary nor fiscal policy in an SOE will change the level of private wealth and therefore it is not necessary to introduce wealth arguments in the expenditure functions. This procedure would, of course, not apply unless the assumptions of smallness and perfect capital mobility are explicitly made.[2]

## III. The Model

In the model to be developed there are four markets: the markets for tradables and non-tradables, the bond market and the money market. By Walras Law we can leave one of the markets out of the analysis. To retain consistency with other models of this type, the bond market equilibrium will be determined residually.

The following notation will be used:

$\bar{p}_t$, $p_n$ = domestic price of tradables and non-tradables, set initially equal to 1 by an appropriate choice of quantity units.

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1. In Swoboda's terminology this is consistent with quasi-equilibrium but not full equilibrium. See Swoboda [7, pp. 163-4].

2. For a discussion of the effects of monetary and fiscal policy in an open economy without some of these assumptions, see Harkness [2].

$p$ = aggregate price level.

$A_t$, $A_n$ = domestic absorption (consumption plus investment) of tradables and non-tradables.

$A_t^*$, $A_n^*$ = total domestic demand (domestic absorption plus government expenditures) for tradables and non-tradables.

$Q_t$, $Q_n$ = domestic production of tradables and non-tradables.

$G_t$, $G_n$ = government expenditures on tradables and non-tradables.

$Y$ = nominal level of GNP.

$y$ = real level of income or output.

$B$ = balance of trade.

$D$ = domestic component of the money supply.

$R$ = level of international reserves.

1. The Equations of the Model

(1) $A_t^* + B = Q_t$ (equilibrium in the tradable sector).

(2) $A_t^* = A_t\ (p_t, p_n, y) + G_t$ (domestic demand for tradables).

(3) $Q_t = Q_t\ (p_t)$ (domestic supply of tradables).

(4) $A_n^* = Q_n$ (equilibrium condition in the non-tradable sector).

(5) $A_n^* = A_n\ (p_t, p_n, y) + G_n$ (demand for non-tradables).

(6) $Q_n = Q_n\ (p_n)$ (supply of non-tradables).

(7) $D + R = L(Y)$ (equilibrium in the monetary sector).

(8) $Y = y.p$ (definition of money income).

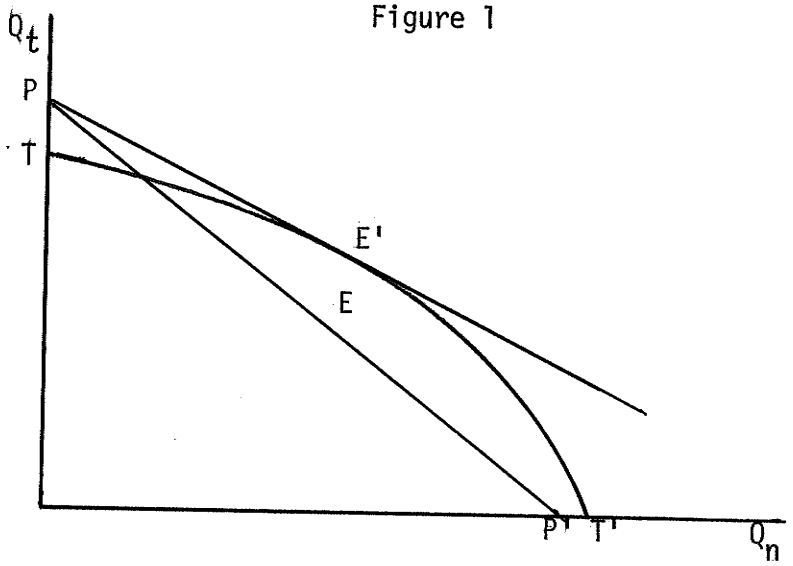
(9) $p = (Q_t/y)p_t + (Q_n/y)p_n$ (definition of aggregate price level).

(10) $y = Q_t + Q_n$ (income-output identity).

These equations can now be discussed in some detail. Equations (2) and (5) represent traditional demand relationships except that government expenditures have been added to each to represent the operation of fiscal policy. These equations differ somewhat from Mundell's analysis which does not distinguish between fiscal operations in the two markets,[1] nor does he consider prices as arguments in the demand functions since the price level was held constant. On the other hand,Takayama does allow for the aggregate price level to rise [8].

The burden of the underemployment equilibrium is borne by the two supply equations. In an economy where all prices are flexible, equilibrium will result in the full utilization of all resources and there is no requirement for stabilization policy. Even if the price of tradables is fixed in world markets, as we have assumed for this small open economy, full employment is realized.

Figure 1




In Figure 1, TT' represents the transformation curve for tradables

1. Mundell assumes government expenditures on home goods only. See [4, p. 476].

and non-tradables. Given the relative price of PP', the economy may be producing any combination of the two goods inside TT' and equilibrium could be established at E with some unemployed resources. But a lowering of the price of non-tradables (with the price of tradables fixed) will move the economy to E' on the transformation curve and full employment. Hence in specifying the supply functions of the two commodities we have assumed the existence of unemployed resources and related the output of each good to its own price rather than to relative prices. An exogenous increase in the price of tradables, for instance, will increase the output of tradables without decreasing the output of non-tradables as would be required by a movement along the transformation curve. Mundell, on the other hand, assumed that output was completely demand determined and prices remained fixed. In this model, the assumption is intermediate between these two extremes. The supply curve of each output has a positive slope on the assumption that the unemployed resources which are pulled into each sector as output expands are less efficient (i.e., lower marginal product) than those already employed but that wages are rigid.

Equation (7) is taken directly from Mundell's model, but it should be noted that since the supply of money is in nominal terms, the demand for money is related to the nominal level of GNP. In addition, the interest rate does not appear as an argument in the demand function since it is constant as long as the world rate of interest remains unchanged. Equation (8) shows that money income is the product of real income and the aggregate price level. This price level in turn is composed of a weighted average (with fixed production weights) of the prices in the two sectors as indicated by equation (9). The last equation ensures that domestic real income is

equal to domestic output in the absence of interest payments on foreign owned domestic debt. (The outputs of the two sectors can be added directly because of the assumption that $p_t = p_n = 1$ initially.)

This system of equations is reduced to a model with four equations. Substitution of (2) and (3) into (1) gives us the equation for the tradable sector. Similarly, substituting (5) and (6) into (4) produces the equation for the non-tradable sector. By substituting (9) into (8) and then into (7) we have the equilibrium condition for the monetary sector and equation (10) remains as the income-output identity to close the system.

Differentiating this sytem totally, we obtain

(11) $dp_t\ (A'_{t,p_t} - Q'_{t,p_t}) + dp_n\ (A'_{t,p_n}) + dy\ (A'_{t,y}) + dB = -dG_t$

(12) $dp_t\ (A'_{n,p_t}) + dp_n\ (A'_{n,p_n} - Q'_{n,p_n}) + dy\ (A'_{n,y}) = -dG_n$

(13) $dp_t\ (L'_Y.Q_t) + dp_n\ (L'_Y.Q_n) + dy\ (L'_Y) - dR = dD$

(14) $dp_t\ (Q'_{t,p_t}) + dp_n\ (Q'_{n,p_n}) - dy = 0$

where $A'_{t,p_t} = \partial A_t/\partial p_t$, etc.

For simplicity let

$$\beta_1 = A'_{t,p_t} - Q'_{t,p_t} < 0 \text{ since } A'_{t,p_t} < 0 \text{ and } Q'_{t,p_t} > 0$$

$$\beta_2 = A'_{n,p_n} - Q'_{n,p_n} < 0 \text{ since } A'_{n,p_n} < 0 \text{ and } Q'_{n,p_n} > 0.$$

All other derivatives are positive.

Equations (11) - (14) represent the structure of the model. The exogenous policy variables are $dG_t$ and $dG_n$ for fiscal policy and dD for

monetary policy.[1] It is important to remember that an increase in government expenditures must be financed by a sale of bonds to the public since the sale of the bonds to the central bank or an issue of currency would increase the money supply and monetary and fiscal policies would not be independent.[2]

This leaves the following variables to be determined by the system: $dp_t$, $dp_n$, dy, dB and dR. Under flexible exchange rates $dp_t = 0$ and the four equations determine the remaining four variables. With flexible exchange rates, the reserve position of the country remains constant which implies $dR = 0$.

## 2. Stabilization Policy Under Fixed Exchange Rates

Under fixed exchange rates the structure of the model is as follows:

$$\begin{bmatrix} A'_{t,p_n} & A'_{t,y} & 1 & 0 \\ \beta_2 & A'_{n,y} & 0 & 0 \\ L'_Y \cdot Q_n & L'_Y & 0 & -1 \\ Q'_{n,p_n} & -1 & 0 & 0 \end{bmatrix} \begin{bmatrix} dp_n \\ dy \\ dB \\ dR \end{bmatrix} = \begin{bmatrix} -dG_t \\ -dG_n \\ dD \\ 0 \end{bmatrix}$$

Let $\Delta$ be the determinant of this system of equations.

$$\Delta = -\beta_2 - Q'_{n,p_n} \cdot A'_{n,y} = -A'_{n,p_n} + Q'_{n,p_n}(1-A'_{n,y}) > 0.$$

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1. The monetary policy instrument is assumed to be open market operations. Printing money or shifting of government deposits between commercial banks and the central bank are assumed not to occur.

2. For the case of co-ordinated monetary and fiscal policies see Dernburg [1].

We can now solve for the change in real income or output.

$$dy = 1/\Delta \ (Q'_{n,p_n} \cdot dG_n).$$

Hence

$$\frac{dy}{dG_t} = 0$$

$$\frac{dy}{dG_n} = 1/\Delta \ Q'_{n,p_n} > 0$$

$$\frac{dy}{dD} = 0.$$

In conformity with Mundell's results, monetary policy is ineffective as a stabilization instrument. Fiscal policy, on the other hand, is only effective if there is an increase in government expenditures in the non-tradable sector. An exogenous increase in the tradable sector does not expand output since its price is fixed in world markets and the increase in domestic demand is offset by a decline in the trade balance (i.e., $dB/dG_t = -1$).

In addition it can be shown that the price level is only affected by an increase in $G_n$, namely

$$\frac{dp}{dG_n} = 1/\Delta \ \frac{Q_n}{y}$$

which is derived from the fact that $dp_t = 0$ and $dp_n/dG_n = 1/\Delta$.

### 3. Stabilization Policy Under Flexible Exchange Rates

We can now turn to the case where the government does not intervene in the foreign exchange market to maintain a fixed exchange rate. Thus $dR = 0$ and the structure of the model becomes

$$\begin{bmatrix} \beta_1 & A'_{t,p_n} & A'_{t,y} & 1 \\ A'_{n,p_t} & \beta_2 & A'_{n,y} & 0 \\ L'_Y.Q_t & L'_Y.Q_n & L'_Y & 0 \\ Q'_{t,p_t} & Q'_{n,p_n} & -1 & 0 \end{bmatrix} \begin{bmatrix} dp_t \\ dp_n \\ dy \\ dB \end{bmatrix} = \begin{bmatrix} -dG_t \\ -dG_n \\ dD \\ 0 \end{bmatrix}$$

Let $\Delta'$ be the determinant of the system and it can be shown that $\Delta' > 0$. We can again solve for the change in real income and derive the following multipliers:

$$\frac{dy}{dG_t} = 0$$

$$\frac{dy}{dG_n} = \frac{L'_Y}{\Delta'} (Q_t.Q'_{n,p_n} - Q_n.Q'_{t,p_t}) = \frac{L'_Y}{\Delta'} Q_t.Q_n (\eta_n - \eta_t) > 0 \text{ if } \eta_n > \eta_t$$

where $\eta_n$ and $\eta_t$ refer to the supply elasticities of non-tradables and tradables

$$\frac{dy}{dD} = \frac{1}{\Delta'} (A'_{n,p_t}. Q'_{n,p_n} - \beta_2 . Q'_{t,p_t}) > 0.$$

Now monetary policy is effective but fiscal policy may also change the level of income if $\eta_t \neq \eta_n$ and if the change in expenditures occurs in the non-tradable sector.

By solving for $dp_t$ and $dp_n$ we can also derive the effect of these policy measures on the aggregate price level.

$$\frac{dp}{dG_t} = 0$$

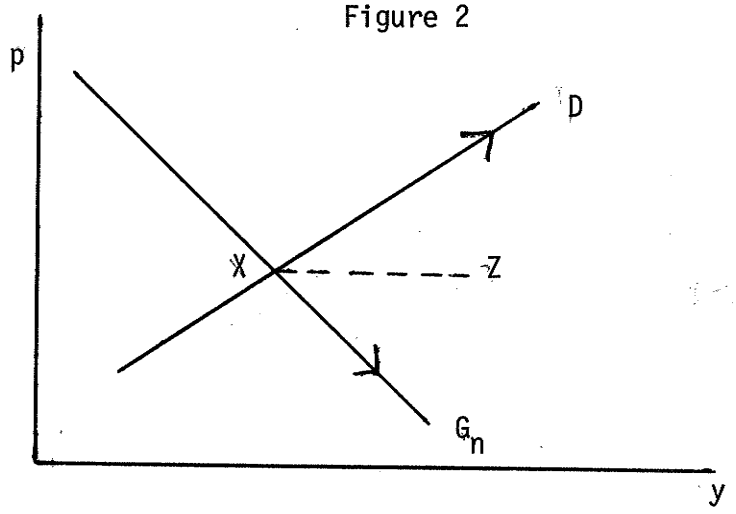
$$\frac{dp}{dG_n} = \frac{L'_Y}{\Delta'} \frac{Q_t Q_n}{y} (\eta_t - \eta_n) > 0 \text{ if } \eta_t > \eta_n$$

$$\frac{dp}{dD} = \frac{1}{\Delta'} \left[ - \frac{Q_t}{y} \left( \beta_2 + A'_{n,y} \cdot Q'_{n,p_n} \right) + \frac{Q_n}{y} \left( A'_{n,p_t} + A'_{n,y} \cdot Q'_{t,p_t} \right) \right] > 0.$$

From this it should be noted that an increase in government expenditures in the tradable sector will not influence income or the aggregate price level. On the other hand, expenditure policy in the non-tradable sector will change income and prices as long as $\eta_t \neq \eta_n$. The same will occur, unambiguously, with monetary policy. However, a combination of monetary policy and expenditure policy in the non-tradable sector will allow an expansion of real income without an increase in the price level.

This combination of policies can be shown in Figure 2. From any point such as X, expansionary monetary policy will move the economy up and to the right, in the direction of the arrow on line D. (It can be shown that the slope of the monetary policy line $\left(\frac{dp}{dy}\right)_D > 0$.) On the other hand, expansionary expenditure policy in the non-tradable sector will move the economy down and to the right if $\eta_n > \eta_t$.[1] (The slope of the fiscal policy line $\left(\frac{dp}{dy}\right)_{G_n} < 0$.)

Figure 2




1. If $\eta_t > \eta_n$, then expansionary policy moves the economy up and to the left.

Assume that the economy is at X where unemployed resources exist and the aim is to move to Z where full employment obtains. Here a combination of expansionary monetary policy and expansionary fiscal policy in the non-tradable sector will achieve this result without inflation.[1] The reason for this fortunate result is that expansionary fiscal policy puts upward pressure on the exchange rate which keeps down the price level through a decline in the domestic price of tradables. At the same time there is no need to worry that these policies will have adverse effects on the balance of payments since the flexible exchange rate will ensure continuing external equilibrium. Of course a continuing appreciation or depreciation of the domestic currency cannot be sustained indefinitely but it nevertheless remains as a useful degree of freedom for stabilization policy. If $\eta_t > \eta_n$, then the appropriate combination is expansionary monetary policy and contractionary fiscal policy. Only if $\eta_t = \eta_n$ is it impossible to increase output and employment without inflation.

It will be remembered that under fixed exchange rates the only policy instrument which affected income and prices was expenditure policy in the non-tradable sector. In this situation it is impossible to expand income without increasing the price level as well since two independent policy instruments are not available. This adds one further argument in favour of flexible exchange rates, since full employment, price stability and external equilibrium can be achieved simultaneously in a small open economy with the appropriate combination of monetary and fiscal policies.

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1. This may involve financing the deficit by selling bonds to the central bank.

## IV. Conclusions

In Mundell's model the assumption of smallness together with perfect capital mobility implied that an economy with these characteristics is essentially a price taker in the capital account of its balance of payments. By extending this assumption to the current account it has been shown that an SOE is also a price taker in the world market for tradables. While this extension may appear to increase the constraints on policy effectiveness in such an economy, it has been shown that the opposite is true. The role of the exchange rate in determining the domestic price level and the effect of monetary and fiscal policy measures on the exchange rate have led to the conclusion that the trade-off between inflation and unemployment is much less serious for an SOE than for a large or closed economy where the Phillips curve is still considered an unfortunate fact of life.

The urge to translate these conclusions into practical policy prescriptions, however, must be resisted since many of the assumptions in the model are heroic to say the least. One should be particularly uncomfortable about investigating the role of stabilization policy in a static context when in fact policy makers are confronted with problems of stabilization and growth simultaneously. But in view of Niehans' pessimistic outlook in this area, we may have to be satisfied for the present with more limited advances in our knowledge about policy effectiveness.

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