

# Shortcomings of Mundell's Internal-External Balance Model

H. PETER GRAY\*

There are two species of models that can be used to show how the twin targets of external and internal balance can be achieved. One model, the Swan model, relies upon the rate of exchange and the flow of expenditure as the two policy instruments needed to achieve the two targets. This model involves adjustment of the focus economy to achieve external balance.<sup>1</sup> The apparatus is, therefore, theoretically capable of continued existence in a static frame of reference. The second or Mundell approach uses the rate of interest and the government deficit as its policy instruments and eliminates any payments deficit by financing rather than by adjustment. This model is the one in which Mundell first created the important principle of effective market classification.<sup>2</sup> As does any model that portrays combinations of independent variables that will yield a flow equilibrium in a sector and combines two such sectors to indicate a general flow equilibrium, it traces its genealogy back to Sir John Hicks' IS-LM apparatus.<sup>3</sup> The one important difference is that Mundell's schedules explicitly

depict policy targets achieved by manipulation of policy instruments.

This paper argues that models of this type must meet certain requirements before they can have analytic value for policy formulation and that the Mundell model does not meet the specifications.<sup>4</sup> As a consequence, the model should cease to be the focus of so much professional effort or a basis for analysis of other, related problems.<sup>5</sup>

The model portrays flow equilibria as func-

<sup>4</sup>Sven W. Arndt, "Policy Choices in an Open Economy: Some Dynamic Considerations," *Journal of Political Economy*, (July/August 1973), pp. 916-935, draws essentially the same conclusion. While I disagree with Arndt over minutiae, and perhaps in philosophy, this note owes a great deal to Arndt's article.

<sup>5</sup>This is particularly important in that R. E. Caves and R. W. Jones seem to have marked out the model for inclusion in the orthodox body of theory by incorporating it in *World Trade and Payments: An Introduction*, (Boston: Little Brown, 1973), pp. 371-9. Not that Caves and Jones are unaware of the shortcomings but they seem to attach insufficient importance to them. Equally, the use of the simple model made by F. Modigliani and H. Askari, "The International Transfer of Capital and the Propagation of Domestic Disturbances under Alternative Payments Systems," *Banca Nazionale del Lavoro Quarterly Review*, (December, 1973), pp. 295-310, makes their analysis vulnerable since the shortcomings of the Mundell model leads them into an uncomfortable straddling of long-run analysis in which payments balance must prevail and the short-run that is compatible with "initial flows"—see particularly p. 304, fn. 6.

\*Douglass College, Rutgers University.

<sup>1</sup>See, for example, my "The Internal-External Balance Trade-Off; A Graphical Analysis," *Weltwirtschaftliches Archiv*, (June, 1974), pp. 399-412.

<sup>2</sup>R. A. Mundell, "The Appropriate Use of Monetary and Fiscal Policy for Internal and External Stability," *I.M.F. Staff Papers*, (March, 1962), pp. 70-79.

<sup>3</sup>John Hicks, "Mr. Keynes and the Classics," *Econometrica*, (April, 1937), pp. 147-159.

tions of instrument variables. These functional relationships must, therefore, be:

1. fully specified so that no important target or independent variable is omitted.

2. be constant over the policy horizon so that the solution derived is not fleetingly transitory.

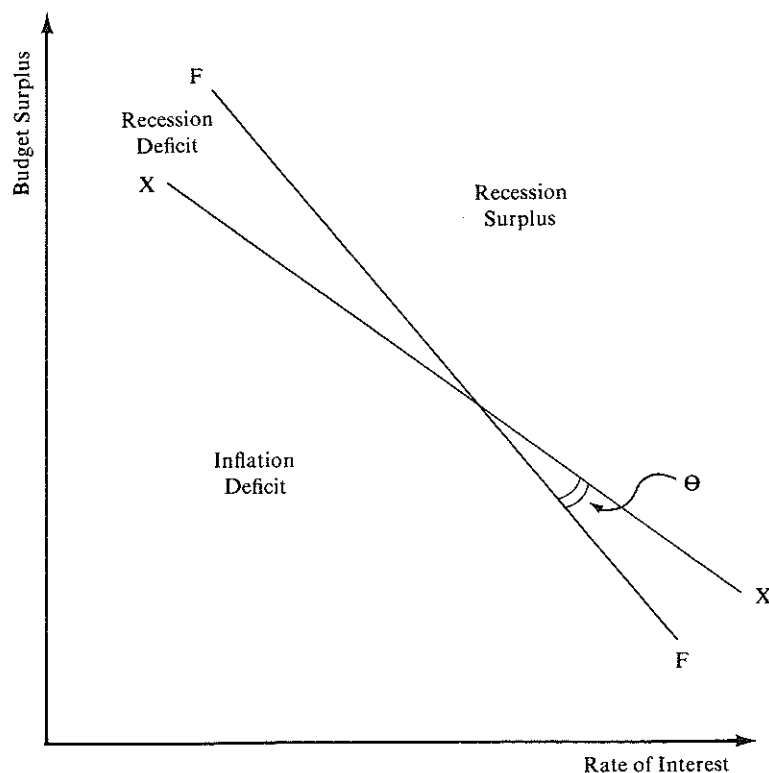
3. non-reversible during the course of the period in which policy is being formulated so that the direction of influence of a variable (the sign of its partial) does not change either through time or with a change in the value of the variable.

The fallibility of the Mundell model has already been demonstrated by Willett and Forte (*W-F*)<sup>6</sup> who show that Mundell's model omits interest payments to foreigners on short-

term liabilities (point 1) and ignores the stock-flow characteristics of international movements of interest-sensitive capital (point 2). Even granting Mundell the constancy of foreign short-term interest rates,<sup>7</sup> the Mundell model relies fundamentally upon the constancy of the international flow of short-term capital through time in response to any given differential in interest rates. Referring to the angle between the *FF* schedule and the *XX* schedule in

<sup>6</sup>Thomas D. Willett and Francesco Forte, "Interest Rate Policy and External Balance," *Quarterly Journal of Economics*, (May, 1969), pp. 242-262.

<sup>7</sup>See R. A. Mundell, "On the Selection of a Program of Economic Policy with an Application to the Current Situation in the United States," Banca Nazionale del Lavoro *Quarterly Review*, (September, 1963), pp. 262-284.



(The external balance schedule is *FF*)

Figure 1 Mundell's Internal and External Balance Schedules

Mundell's diagram (Figure 1) as  $\theta$ , *W-F* show that when the stock-adjustment effect of the realignment of stocks of internationally mobile capital has been completed, the sensitivity of the distribution of newly-generated flows to a change in the interest-differential will be so slight (that  $\theta$  will be so small) as to make fiscal and monetary instruments insufficiently distinctive to allow Mundell's solution to be effective. The smallness of  $\theta$  also gave rise to the possibility that the increase in interest payments resulting from the larger stock of liabilities and the higher rates paid as a result of the realignment of short-term stocks, could be large enough to make  $\theta$  negative.<sup>8</sup> The probability that  $\theta$  will be negative is quite low. Funds obtained by the focus nation through the readjustment of stocks of capital cannot be assumed to be hoarded in some sterile asset. More probably, these funds would be used to reduce foreign indebtedness by the authorities and would therefore generate an offsetting reduction in international interest payments. A second aspect of the *W-F* criticism can be questioned when the basic balance of the focus nation contains a significant net deficit on long-term capital account—a characteristic of the balance of payments of the United States in the 'sixties. When long-term capital exports form a significant proportion of total debits in the basic balance, a basic deficit may mean one of three quite different things:

A. A deficit on capital account greater than a surplus on current account plus transfers.

B. A deficit on capital account and a deficit on current account plus transfers.

C. A surplus on capital account smaller than the deficit on current account plus transfers.

Conditions B and C do not weaken the *W-F* criticism of the Mundell analysis but under condition A, an inflow of short-term capital need not involve any increased *net* outflow on

interest and dividend account. Under condition A, the acquisition of international long-term assets is being financed by short-term liabilities. Depending upon the marginal cost of short-term funds and the rate of repatriated return on long-term assets, the net effect could be positive or negative. If a surplus on current account coexists with a deficit on long-term capital account, increases in receipts of dividends and interest will be likely to outweigh higher interest payments and the external-balance schedule will shift gradually over time.

Arndt's article introduced an important variable that had been omitted in earlier versions of the model (point 1).<sup>9</sup> The introduction of the flow of equity capital (direct investment) to the original framework made the total capital account respond to two different forces: short-term flows to interest differentials and direct investment to activity levels or income. Arndt shows clearly that if the (net) inflow of direct investment is positively related to changes in domestic national income, the traditional pairing of the rate of interest and payments balance could be incorrect. When the relationship is negative, as could occur when expectations lead or lag variations in current activity,<sup>10</sup> the traditional pairing of the rate of interest and payments balance will hold.

The analytic framework lends itself best to circumstances under which the partial with respect to income of the response of international direct investment, does not change sign. Lack of synchronization of business cycles in different developed countries could bring about a change in the sign of the partial during the period for which policy is being formulated. It is also quite likely that direct investment may flow in to a developed country during the recovery but will flow out, on balance at the cyclical peak. At the peak, domestic firms find urgent need for foreign

<sup>8</sup>A negative  $\theta$  implies that the internal balance schedule (*XX*) is more steeply sloped than the foreign balance schedule (*FF*).

<sup>9</sup>Arndt, *op. cit.*

<sup>10</sup>*Ibid.*, p. 921.

sources of primary products (often in LDCs) high profits to enable the investment and a relative decline in domestic investment opportunities. Such relationships are not inconsistent with either the accelerator model or varying leads and lags in expectations. Strictly speaking, it would suffice that any such changes in the signs of the partials (or in their magnitudes) be foreseen and anticipated by changes in the thrust of the control variables. But, if the values of coefficients are transitory, there can be little hope for the model to be usefully employed in policy formulation.<sup>11</sup>

In practice, then, the import of the criticisms of both *W-F* and Arndt is that models of flow equilibria of the kind put forward by Hicks and Mundell are of little value. Either the simplicity that they achieve is spurious or the schedules that they derive and on the constancy of which their analysis depends, are subject to shifts of significant magnitude during the period of policy analysis, formulation and execution. Professor Joan Robinson has already castigated the comfortableness of the post-Keynesian orthodoxy in her Richard T. Ely lecture.<sup>12</sup> Her argument was, essentially, that orthodoxy had thrust economic theory back into an equilibrium straitjacket and had put aside the disequilibrium, short-run analysis that is the core of *The General Theory*. Her proposition can be extended to argue that the construction of misleadingly static analytic frames of references breeds in the mind of the analyst the idea that the real world resembles the model and makes him insufficiently alert to shifts in the schedules.

*W-F* have shown that when interest payments are included, the external balance schedule has a gradual movement built into it. Arndt has shown that the position of the capital account schedule is crucial to the policy formulation

<sup>11</sup>For this point, see Arndt, *loc. cit.*, fn 10 and section II.

<sup>12</sup>Joan Robinson, "The Second Crisis of Economic Theory," *American Economic Review*, (May, 1972), pp. 1-10.

deduced. Further, small shifts in aggregated schedules are capable of suppressing quite important compositional variations and these variations can have important repercussions for internal balance. The demand for labor will be quite sensitive to the same external balance when the basic balance is brought about by the combination in *A* and in *C* in the above listing. Still further, the mix of the balance on goods and services can have direct implications for internal balance and may indeed have contributed to the unexpectedly slow pace of recovery in the United States in 1971 as the following data indicate.

Components of Net Exports  
(in billions of dollars)

Component	1970	1971	Difference
1. Net merchandise (exc. military)	+2.2	-2.7	-4.9
2. Net services and military (exc. 3)	-4.8	-4.6	+0.2
3. Net investment income	+6.3	+8.0	+1.7
4. Net balance on goods and services	+3.6	+0.7	-2.9

(Source: *Survey of Current Business*, June, 1972, p. 26)

If economic analysis is to facilitate improved economic policies, what is necessary is either that much more elaborate and complex empirical and analytic bases for policy formulation be created or that the policy-makers be given cruder but more flexible tools and less ambitious targets. The less constant variables and relationships over time, the smaller is the degree of reliability that can be placed upon time-series empiricism. In the absence of reliable empiricism, it seems that economic analysis must stress an awareness of the existence of short-run disturbances and the consequent need for flexibility in all economic policies. Both in goal-setting and in policy formulation, a knowledge of one's limitations is a priceless asset.