THE IMF MODEL AND JAMAICA

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INTRODUCTION

The Jamaican economy in April 1977, and in May 1978, has
received financial assistance from the International Monetary Fund
on conditions which have been the subject of much debate within the
Jamaican society. The main burden of radical criticisms has been
ideological and political, the IMF being cast in the role of imperialist
agent. While there can be no doubt, given the voting system of the
IMF and the relative economic strength of the United States within
that organisation, that the policies of the IMF will reflect those
of the large capitalist societies, the radical critique suffers from
two limitations. First, the solutions it implicitly offers are those
of traumatic disengagement or long term political-ideological change.
Second, it errs in ascribing a monolithic intellectual tradition and
model to the IMF, and by virtue of not attempting an economic analytical
assault on the model misses the opportunity for forcing short-run
policy compromises by the IMF.

A singular exception to the political one-dimensionality of the
radical critique is the contribution of Girvan (2) who challenged the
appropriateness of the 1977 devaluation as a solution for the severe
balance of payments problem. Girvan's essay is valuable as a forceful,

correct restatement of the structuralist criticisms of devaluation

as a price instrument for balance of payments correction. However,

as a result of its elasticities - absorption framework of analysis,

the essay can provide a cogent criticism of only one element of the

IMF package, that is the exchange rate devaluation. Even then, it

cannot address the fundamental theory which underpins all elements,

including the exchange rate, in the package.

The purpose of this paper is to outline explicitly and to

appraise the economic model which is implicit in the IMF prescription

announced on May 11, 1978. The model is evaluated in terms of the

balance of payments objective as such, and in terms of its side effects.

For surely, the IMF ought to be concerned with the possibly harmful

side effects of the prescribed medicine on Jamaica.

DOMINANT SYMPTOMS, HOME REMEDIES, AND THE IMF PRESCRIPTION

The dominant symptoms of economic malaise within recent years

are economic stagnation, domestic price inflation and the rapidly

deteriorating balance of payment situation. The continuing deficit

in the balance of payments is reflected in the decline of net foreign

reserves from a level of $132.2 million in 1971 to -$196.0 million in

1977. By the end of 1976, not only had the current account deficit

widened to $275.2 million (or 10.4% of GNP), but also the capital

accounts which previously moderated the current account deficit was

itself in deficit of $43.9 million.

The adverse balance of payments situation existed despite a

rapid annual rate of growth of exports in current dollars. Between 1970/2

and 1975/7, exports grew at a rate of 17.7% in dollar values. However, the growth was largely due to rising export prices (the index rose from 100 in 1970 to 246.2 in 1976), and not to increases in output since for the major export industries, namely tourism, mining, and agriculture, output in physical terms declined at annual rates ranging between 2% and 10%. Current dollar expenditures on imports rose quickly (annual average rate of 14%) between 1970/2 and 1975/7. Nonetheless, real imports despite the increasing degree and spread of quantitative restrictions, did not vary much about a mean of $448 million between 1970 and 1975, thereby reflecting the severe import dependence of the economy. Import price inflation has been serious problem since 1973 when import prices rose at an average annual rate of 39%, and continued to average 21% between 1974 and 1976, despite a pronounced slowing down of the rate in 1975 and 1976.

The year 1973 also marked a turning point in the inflationary experience of Jamaica. The rate of price increases had been rising gradually since 1966, but only averaged 5.4% between 1966 and 1972. However, from 1973 to 1975, the inflation rate accelerated to 20 per cent on average, and then slowed down to a mean of 10% for the next two years. Associated with the recent inflation is an amalgam of factors foremost among which are massive import price inflation, rapid money wage increases, and even more rapid growth in domestic money and credit in excess of the supply of goods and services. Though consistent wage series are not readily available, data published in the Bank of Jamaica Annual Report indicates that annual percentage wage awards in major sectors ranged between 12% and 55% between 1970 and 1976. Nominal money supply expanded at an annual rate of 22%, and total monetary sector

domestic credit grew at an average annual rate of 24.6%, in comparison
with the rates of -1.6 and -1.7 recorded for real GNP and real GDP
respectively for the period 1970/2 to 1975/77. It is important to
note that the government deficit increased markedly over the same
period, from a value of $41 million in 1970 to $418.3 million in
1976.

The governmental authorities have independently adopted a
series of measures, differing in scope and severity of application
as a means of tackling the economic problems identified above. Since
the IMF solution pertains essentially to the balance of payments prob-
lem, only those government policy actions with direct relevance to the
balance of payments are itemised. Basically they can be described as
restrictions on credit to the private sector, wages and price guide-
lines, export credits, quantitative restrictions on imports, and
foreign exchange controls on capital outflows. The unifying charac-
teristics of these measures are that they do not rely on the price
mechanism, are discriminatory, as opposed to global in impact, and are
confined to the non-governmental sector. Since the intention here is
not to appraise these home remedies, the only comment made is that
those measures directly pertaining to trade and payments patently
offend the spirit if not the letter of the Bretton Woods codes which
enshrine the avoidance of non-price restrictions on trade and payments
as balance of payments policies. For that reason, and possibly because
of their general non-price, non-market character, the home remedies
adopted by the Jamaican government are unlikely to be approved of by
the IMF regardless of questions of technical efficiency. It is not

surprising therefore that on May 11, 1978, the IMF, having been
invited, issued a quite different prescription.

The agreement between the IMF and the Government of Jamaica
is summarised in Table 1 below. The IMF has agreed to provide
US$240 in loan funds to Jamaica as part of a three-year economic
programme. The agreement targets for a fall in consumption expen-
ditures both government and private; and for an increase in fixed
investment expenditures as a percentage of GDP. Furthermore, the
increased investment is to be financed not by credit creation but
by appropriate increases in the government and private sectors
domestic savings ratios. The agreement requires Central Bank credit
to the government to be reduced. The agreement stipulated an immediate
devaluation of 15%, followed by a phased one totalling an additional
15% over twelve months. From the criterian on the reduction of arrears
                                                                  the
it might be deduced that an important element of the agreement is/dis-
mantling of non-price restrictions on trade and payments. Ministry
Paper No. 10 makes this clear by stating that: "On the imports side,
the intention is to free imports from balance of payments constraint
(so that) before the end of the programme this freedom from balance
of payments constraint is expected to be extended to all imports".
Likewise, "the Government intends to liberalise gradually the remain-
ing restrictions on payments and transfers for current international
transactions and to eliminate them before the end of the three-year
programme". The government promised not "to introduce new multiple
currency practices or impose new or to intensify existing restrictions
on payments and transfers for current international transactions or

TABLE 1

THE IMF AGREEMENT OF MAY 11, 1978

AGREEMENTS	1977/78	March 1979	1980/81
IMF LOAN ASSISTANCE	US$240m. over 3 years		
PERCENTAGE GDP TARGETS			
1) Current Account Deficit	2.8		2.4
2) Net International Reserves	-3.0		-0.5
3) General Govt. Revenue	22.5		28.1
4) General Govt. Current Expenditure	23.7		20.2
5) General Capital Expenditure	12.1		12.4
6) General Govt. Savings	- 1.3		7.9
7) General Govt. Deficit	13.4		4.5
8) Gross Investment	10.4		21.8
9) Domestic Financing	7.6		19.4
10) Foreign Financing	2.8		2.4
CRITERIA			
1) Net Foreign Assets of Bank of Jamaica US$m	- 317	- 280	
2) Outstanding Arrears US$m.	82	20	
3) Net Domestic Assets of Bank of Jamaica J$m	403	473	
4) Net Bank Credit to Public Sector J$m	841	1041	
DEVALUATION	15%	15%	

SOURCE: Ministry Paper No. 10, Ministry of Finance , 8th May 1978.

NOTE: 'Criteria' data under 1977/78 refers to actual values at 31st March, 1978. The currency was devalued by 15% in May 11, 1977, and is to be devalued by a further 15% over the next year.

intensify existing restrictions on imports for balance of payments
reasons". In essence, the IMF not only wrote a fundamentally differ-
ent prescription for remedying the balance of payments problem, but
as a condition for continued treatment made the patient swear to
cease using unconventional home remedies.

THE IMF MODEL

The analytical model which underlies the IMF prescription is
implicit in those stipulations relating to the expenditure mix, money
supply and domestic credit expansion, and to the exchange rate. It
can also be deduced from the consistency between these guidelines and
the policy inferences drawn from a series of economic studies, both
theoretical and empirical, conducted by IMF personnel since 1957. In
other words, the model is attributed to the IMF on the basis of
inferences from the May 11, 1977 Agreement as well as on the basis
of the intellectual lineage of the IMF balance of payments policies.
The major works within the school of thought can be found in IMF (3).

The IMF model, though differing in some ways from Chicago
monetarism, can best be described as a monetary model of the balance
of payments. The central theoretical underpinnings of the model are
that the demand for money is a stable function of income and the rate
of domestic inflation, and that the money supply is determined in an
accounting manner by the stock of international reserves, and domestic
credit creation by the central bank, and is determined behaviourally by
the constrained portfolio behaviour of the commercial banks summarised
in the money multiplier.

Formally, the system of equations is −

(1) $\dfrac{M^d}{P} = F_1 \; (\; Y, \; TT \;)$

(2) $M = m \; H$

(3) $H = R + D$

(4) $M^d = M$

where Y is national income, P is the domestic price level, and TT its

time rate of change, M is the nominal stock of money, m is the money

multiplier, H is the stock of highpowered money, R is the stock of

international reserves, and D is the net domestic assets of the

Monetary authorities. Equations (1) to (4) can be manipulated to yield

a model linking the growth rate of foreign reserves to the growth rates

of national income, domestic prices, inflation, net doemstic assets,

and the money multiplier. (For details see Aghevli and Khan (1)):

(5) $\dfrac{\ddot{R}}{R} = \dfrac{\dot{H}}{R} \; \left[\; \dfrac{\dot{P}}{P} + e_{MY} \; \dfrac{\dot{Y}}{Y} + e_M \; TT \; \dfrac{\dot{TT}}{TT} \; - \; \dfrac{\dot{m}}{m} \; \right] - \dfrac{D}{R} \; \dfrac{\dot{D}}{D}$

On the behavioural assumption that the money demand is positively

related to income, the model states that the balance of payments improves

as the rate of growth of income increases. It also improves as the rate

of growth of prices increases. The balance of payments deteriorates

when the growth rates of the money multiplier and net domestic assets

increases. The impact of the rate of inflation depends on whether the

demand for real money balances is an inverse or a positive function of the rate of inflation.. If the relationship is inverse, an increase in the rate of inflation worsens the balance ofpayments; conversely, if the relationship is positive.

Devaluation can be incorporated into the model by specifying a domestic price function:

(6) $P = F_2 (P_m, M)$ where P_m are import prices and an import price function

(7) $P_m = F_3 (P_f, r)$ where P_f is foreign prices and r is the foreign currency price of the local currency.

In the monetary model, a devaluation affects the balance of payments through its influence on the domestic price level. Though relative price effects are not ruled out, the model does not depend on them.

The central analytical feature of the IMF model is the real balance effect. Exchange rate adjustment, income growth, credit and money supply control have significance within this model primarily through their influence on the excess demand for money function with the overriding proposition that money market disequilibrium is eliminated by adjustments in domestic expenditures. Reductions in domestic expenditures lead to import expenditures. If the composition of domestic expenditures also changes in favour of investment, then national income grows thereby improving the balance of payments. In effect underlying the reduced form are an aggregate expenditure function, and an import demand function such as --

(8) $E = F_4 (Y, M)$ or $F_4 (Y, DC)$

(9) $IM = F_5 (E, \frac{Pm}{P})$

In addition, export earnings may be determined by a supply capacity
variable indexed by income (or output) and export prices relative to
domestic prices:

(10) $X = F_6 (Y, \frac{Px}{P})$

For the open economy dependent on foreign capital for investment
purposes, private consumption and government consumption are likely
to be more responsive than investment expenditures to changes in
money and credit.

The IMF prescription for Jamaica can be restated in terms of
the model. The economic authorities should seek to reduce the growth
rate of the net domestic assets of the Bank of Jamaica since $\frac{\dot{D}}{D}$ has
a negative impact on $\frac{\dot{R}}{R}$. The government revenue and expenditure
specifications amount to reducing aggregate consumption expenditures
as a proportion of GDP by 9.1 percentage points. Together with 2.6
percentage points increase in the private savings/GDP ratio, this
reduction in consumption finances the gross investment ratio of 21.8
per cent. The higher rate of investment in this scheme of things
would lead to faster growth of national income, and in terms of equation
5 to an improvement in the balance of payments. The curbs on the growth
of credit, and the investment target, together would reduce the growth
rate of the rate of inflation, thereby improving the balance of payments.

Devaluation combined with the restrictive monetary policy reduces
real money balances and thereby import expenditures. The continuous
exchange rate adjustments would also increase the rate of growth of
the domestic price level and contribute to an improvement in the
balance of payments.

ASSESSMENT OF THE MODEL

The IMF model can be evaluated in the specific context of
Jamaica either by an examination of the empirical validity of the
structural relationships or by analysis of the reduced form equation
for reserve growth. The latter alternative, though easier to conduct
and though providing a more direct test, has the demerit of not pro-
viding insights into the strengths or weaknesses of the various links
in the model. For that reason, this study focusses on the structural
equations. Not all relationships are examined. Instead, the statis-
tical information pertains to money demand, domestic price formation,
private consumption expenditures, import expenditures, and export
earnings. The following results of ordinary least square regressions
on annual data for the years 1965 to 1975 are presented as preliminary
evidence on the adequacy of the model for Jamaica. More econometric
work has to be done before firm conclusions can be stated.

$$(11) \qquad \frac{M}{P} = -88.65 + 0.186 \frac{Y}{P} + 1.160 \; \Pi$$
$$\qquad\qquad\qquad\qquad (4.09) \qquad\quad (1.85)$$
$$R^2 = .8403 \quad F = 21.0 \quad D.W. = 2.66$$

(12) $\quad$ P $=$ 44.81 $+$ 0.226 Pm $+$ 0.283 M
$$\qquad\qquad\qquad (4.51) \qquad\quad (6.26)$$

$R^2 = .9977 \quad$ F $=$ 1039.8 $\quad$ D.W. $=$ 2.45

(13) $\quad$ Cp $=$ 31.65 $+$ 0.715 Y $-$ 0.60 M
$$\qquad\qquad\qquad (5.20) \qquad\quad (-0.56)$$

$R^2 = .9957 \quad$ F $=$ 918.9 $\quad$ D.W. $=$ 1.90

(14) $\quad$ IM $=$ 310.61 $+$ 0.332 E $+$ 382.60 $\dfrac{Pm}{P}$
$$\qquad\qquad\qquad (13.89) \qquad\quad (3.54)$$

$R^2 = .9923 \quad$ F $=$ 518.8 $\quad$ D.W. $=$ 1.78

(15) $\quad$ X $=$ 223.28 $+$ 0.325 Y $+$ 272.70 $\dfrac{Px}{P}$
$$\qquad\qquad\qquad (30.6) \qquad\quad (6.31)$$

$R^2 = .9944 \quad$ F $=$ 715.4 $\quad$ D.W. $=$ 1.01

All the equations predict well. The coefficients of the money stock in the private consumption function is statistically insignificant, and remains so whether one uses real values. Further, the substitution of net credit for money does not improve the result. It is noticeable that the coefficient for the relative import prices variable is positively signed. This may be a reflection of the close parallelism in the behaviour of the two price series. A regression with Pm entered separately produces a negatively signed though statistically insignificant coefficient.

The absence of a real balance effect on private consumption expenditures is a serious blow to the monetarist model, though not

necessarily to the IMF prescription which limits credit to the
government and thereby government consumption expenditures. The
latter average 24 per cent of total consumption expenditures between
1976 and 1977. It is to be noted that import expenditures respond to
aggregate domestic expenditures. The computed elasticity is 0.80.
Money stock control also exerts an influence on the balance of payments
via the domestic price level function which feed directly into import
expenditures and export receipts. However, the mean elasticity of
domestic prices to money supply is 0.38 which indicates a fairly weak
response. Devaluation pushes up import prices which then generate an
increase in domestic prices which is less than proportionate (elasticity
= .26) to the increase in the import price index. The domestic price
level change, exerts a depressing effect on exports and imports, subject
to the behaviour of import and export prices which are themselves in-
fluenced by the devaluation. The imports demand equation indicates
that devaluation does not have the potential for reducing imports via
the relative price mechanism. On the contrary, as a result of the
country's import dependence (evidenced by the constancy of real imports
between 1970 and 1975), devaluation leads to an increase in the domestic
currency value of imports. The relative price elasticity based on the
mean of data for 1965 to 1975 is 0.75. In contrast, devaluation seems
to improve export earnings, the computed relative price elasticity
being 0.60. It must be observed additionally that output growth is
critical to export expansion.

Given the constraints of time, only a brief comment will be made
on the side-effects of the IMF prescription. If the policy package does
succeed in reducing import expenditures, as our results suggest it will

do moderately, then the growth rate will decline unless the composi-
tion of imports is altered in favour of producer goods. Without a
disaggregate study of import demand one can guage the possibility
that the devaluation also alters the composition of imports. The
credit package is growth biased. However, the autonomous government
credit directives reverse the growth thrust of the IMF package by
imposing limits on commercial bank credit to the private sector with
a view to facilitating the financing of government in a manner which
does not violate the IMF agreement. The more serious potential side
effects are those stemming from the depression of government and
private real consumption expenditures. These result in economic
deprivation in the shortrun, and may undermine social stability and
cohesion. It would be foolish to pretend that the socio-political
climate does not influence the realization of growth objectives. Yet
at the same time, it is difficult to envisage within the present
economic framework, any meaningful alternative to growth and struc-
tural change as a means to relaxing the balance of payments constant
on economic progress.

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