

MONETARY POLICY

IN

DEVELOPING COUNTRIES

THE CASE OF GUYANA

by

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INTRODUCTION

A significant feature of the past decade has been a very unstable international monetary system with its concomitant problems of inflation and payments difficulties for developing countries. Four factors may be singled out as the major contributors to this instability:- (i) phenomenal increase in oil prices, (ii) rising prices in major industrialised countries, (iii) exchange rate movements of major reserve currencies, and (iv) highly unstable prices for primary products. The quadrupling of the prices of oil in 1974 and the continued increases in the price of this commodity by OPEC have led to a continued and increasing drain of resources from the developing countries. The current account deficit of non-oil developing countries, taken as a group increased from US\$38 billion in 1978 to US\$82 billion in 1980 and is estimated to reach US\$97 billion in 1981.¹⁾

Balance of payments disequilibria in developing countries, however, cannot be attributed totally to international factors mentioned earlier. Domestic policies have also contributed to internal and external disequilibria as evidenced by inflation, unemployment, slow growth and balance of payments problems. It is against this background that monetary policy in developing countries will be analysed.

1) I.M.F. Annual Report 1981, Washington, Sept. 1981, page 29.

This paper is divided into two parts. Part I looks at the monetary aspects of stabilization and the application of the Polak Model to developing countries. Part II reviews monetary policy in Guyana since 1965, applied the Polak Model for the period 1973-80, and evaluates its results and implications as a guide for monetary policy in Guyana.

SECTION I

MONETARY ASPECTS OF STABILIZATION AND THE APPLICATION OF THE POLAK MODEL TO L.D.C.'s

Over recent years the number of developing countries applying for the use of I.M.F. resources under higher credit tranches and the Extended Fund Facility has increased very sharply. As at the end of June 1981, 15 Extended Fund Facility programmes were in force of which 11 were approved in 1981. In addition 45 Standby Arrangements in force of which 21 were approved in 1981. These compare with 13 in 1972 and 1973.²⁾ This increasing number of applications for the use of Fund's resources has meant that developing countries, in the absence of additional sources of non-conditional financing, have increasingly been forced into accepting monetary discipline as a means of stabilizing their economies.

Typically, countries seeking recourse to the I.M.F. are faced with persistent balance of payments deficits associated with rapid inflation and slow rates of growth. The root of these problems can be traced, in most cases, to Government budget deficits and the resultant expansion of credit to finance these deficits.³⁾ Because of the relatively high import coefficient in these countries, excessive credit expansion invariably results in balance of payments problems. As the balance of payments worsens, authorities are likely

2) I.M.F. Annual Report 1981, Washington, Sept. 1981, pages 83-84

3) Ibid - page 14

to resort to measures to restrict and control imports to arrest the rapid decline in the stock of international reserves. These measures usually fuel inflation and create further distortions within the economy thus slowing the rate of economic growth.

In these circumstances, monetary authorities in L.D.C.'s often find that traditional instruments of monetary control are inapplicable. Open market operations as an instrument of monetary control tend to be irrelevant as a result of the lack of market for securities. Similarly little or no use can be made of reserve requirements, due to the tendency for actual reserves to exceed required levels.

Apart from the lack of usefulness of traditional instruments of monetary control, the nature of the money supply process in an open economy under fixed exchange rates renders money supply targets largely unattainable. This is so since the balance of payments is a very important and largely uncontrollable source of influence on the money stock. To the extent that control of the money supply is almost impossible, control of domestic credit expansion remains the most important tool for managing aggregate demand and the balance of payments.

This monetary aspect has become very prevalent in analyses of demand and supply management in developing countries. The monetary approach to the balance of payments and other income related problems eliminates the practical problems associated with the elasticities approach by focusing directly on a few monetary aggregates. The Fund staff made valuable pioneering contributions in

this regard. Polak, in the late 1950's, was able to develop a monetary model to analyse these problems.⁴⁾ The model is, for practical purposes, simple to apply and yields useful policy implications. Primarily for this reason, it has now become, with some fine-tuning to meet the peculiarities of individual countries, the most important aspect of the Fund's approach to stabilization.

Review of the Polak Model:

The Polak Model integrates monetary developments with the balance of payments. The model predicts imports and income reasonably well⁵⁾ from monetary data, once good forecasts of exports, net capital inflows and domestic credit can be made. Alternatively, the estimate of an appropriate rate of domestic credit expansion by the monetary system could be derived from the model.

The model⁶⁾ is based on the assumption of a constant income velocity of circulation (v). Apart from (v), m (the import coefficient) is the only other structural parameter of the model. Exports, net capital inflow and credit, the three autonomous determinants of the model represent the only source of injections into the money income stream. Leakages are represented by import payments. The accuracy of the model's predictions depends on the degree of stability of v and m . The model may be summarized in the following system of equations:-

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- 4) Polak, J.J. "Monetary Analysis of Income Formation & Payments Problems" I.M.F., The Monetary Approach to the Balance of Payments: A collection of Research Papers by Members of the Staff of the I.M.F. (Washington 1977)
- 5) Polak, J.J. & Boissonneault, L. "Monetary Analysis of Income and Imports and its Statistical application" in I.M.F., 1977 op. cit.
- 6) For more detailed explanation of the Model with regard assumptions and structure, see Polak, J.J. & Polak & Boissonneault.

$$Y = MO \times v \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (1)$$

where Y = Money Income
 MO = Money Supply
 v = Velocity

$$Y(t) = Y(t-1) + X(t) + NCI(t) + \Delta DA(t) - M(t) \quad \dots \quad (2)$$

where Y = Income
 X = Exports
 NCI = Net Capital Inflow
 ΔDA = Change in Domestic Assets
 M = Imports
 t = refers to that period of the year for which $v = 1$

$$Y(t) = Y(t-1) + Q(t) - M(t) \quad \dots \quad \dots \quad \dots \quad \dots \quad (3)$$

where $Q(t) = NCI(t) + X(t) + \Delta DA(t)$

$$\Delta MO(t) = \Delta DA + \Delta FA \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (4)$$

where ΔMO = Change in Money Supply
 ΔFA = Change in Foreign Assets

$$\Delta FA(t) = X(t) + NCI(t) - M(t) \quad \dots \quad \dots \quad \dots \quad \dots \quad (5)$$

Therefore

$$\Delta MO(t) = X(t) + NCI(t) + \Delta DA(t) - M(t) \quad \dots \quad \dots \quad (6)$$

$$\text{or } \Delta MO(t) = Q(t) - M(t) \quad \dots \quad \dots \quad \dots \quad \dots \quad (7)$$

Combining equations (7) and (3) gives a definition of current income as in previous period and change in MO.

It is difficult to arrive at any conclusive assessment of the application of this Model. The Fund's (I.M.F.) experiences with the application of the model to developing countries with serious balance of payments problems have not been particularly encouraging when one takes into consideration the number of cases that have achieved all targets and objectives set. Consolation is derived however in the fact that while targeted adjustment did not occur within the adjustment period, there are in place measures to achieve the necessary structural adjustment even beyond the adjustment period.

It is within this framework of the Polak Model that the following section will review and evaluate monetary policy in Guyana.

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- 7) Generally speaking, the one year stand-by programmes that have been unsuccessful have been transformed into E.F.F. programmes.

SECTION IIREVIEW OF MONETARY POLICY IN GUYANA1965-1980

The conduct of monetary policy is an integral part of overall economic policy in Guyana and is effected through the Central Bank. The Central Bank was established "to foster monetary stability and promote credit and exchange conditions conducive to growth of the economy."⁸⁾ In the discharge of its functions, the Bank of Guyana is generally regulatory and essentially acts upon the behaviour of commercial banks to ensure that their operations promote the desired policy objective of the State. This is not to say that, at times, it may become necessary for the Bank to resort to direct controls to achieve its objective.

Central banking is a relatively recent phenomenon in Guyana. The Bank of Guyana was established in 1965 as part of a conscious effort by the State to take "control" of the financial system (most importantly the commercial banks) in the interest of the developmental needs of the economy of Guyana, as is explicitly stated in the Bank of Guyana Act.

The scope, however, for effective monetary policy in our developing country must take into consideration structural rigidities and imbalances in the economy of Guyana along with its "openness."

8) Bank of Guyana Act. Section five (5).

In addition, the effectiveness of monetary policy depends on the relationship of the Central Bank with the Government. The ability of the Central Bank to cope with such possibly conflicting situations has reflected the degree of independence/autonomy enjoyed by the Bank.

Quite apart from the other functions of the Bank of Guyana, the control of credit expansion has been the most important aspect of monetary policy in Guyana. Overall credit expansion is affected primarily in two ways:-

- (i) Central Bank's credit to the Central Government and
- (ii) the lending practice of commercial banks.

The Central Bank's ability to grant credit to the Central Government is explicitly and strictly defined in Sections 48 and 49 of the Bank of Guyana Act. Under Section 48 of the Act:-

"The Bank may make direct advances to the Central Government, provided that at any one time the total outstanding amount of such direct advances shall not exceed fifteen percent of the average annual revenues collected and accounted for by the Government during the last three preceeding financial years. Such direct advances shall not, during any financial years of the bank, be outstanding for a total of more than three hundred and fifty days."

Section 49 of the Act sets a ceiling of 30% of the annual average revenue collected by the Government, on the amount of Government

securities the Bank of Guyana could hold. At any one time, therefore, the Central Bank of Guyana shall not finance the Central Government in excess of 45% of the annual average revenues collected by the Central Government in the past three years. These ceilings need critical appraisal with respect to the appropriateness of their levels. Such an appraisal is necessary if the Bank of Guyana Act is to maintain its realism, and especially since the State dominates the economic life of the economy. During the entire period 1966-1980 the 15% ceiling on Central Bank advances to the Central Government was observed. The ceiling on securities (30%), however, was kept during the period 1966 to 1975, except for one year (1973) when actual holdings of securities by the Central Bank stood at 50.3% of the annual average revenues of the past three years. From 1976 onwards this percentage of Central Bank holdings of securities increased progressively - from 68.5% in 1976 to 218% in 1980 (see Table 5(a) for performance against these ceilings).

The second aspect of credit concerns the commercial banking system, the conditions of which, to a large extent, are influenced by the Central Bank. Lending rates, overall credit ceilings, sectoral ceilings and directing credit to priority areas by moral suasion have been and are still the most important aspects of the Central Bank's action in influencing overall credit conditions.

CREDIT

Over the past five years (1976-1980) credit was at the centre of monetary policy. Credit policy generally took the form of the issue of guidelines by the Central Bank with respect to the desired allocation of credit.

Selective credit controls (through Guidelines to Commercial Banks) in Guyana have been used for basically three purposes - to promote growth, to manage aggregate demand and, to a lesser extent, to diversify the economic structure of Guyana's economy. These guidelines have generally incorporated a global ceiling - the rate of expansion of which is a function of projected rate of growth of savings. In further detail, these guidelines set out maximum limits on the rate of growth of areas of low priority and minimum ceilings to areas of high priority. Low priority lending areas have been defined in these guidelines as personal loans for consumptive purposes and loans for distributive trades which basically support consumption. Small agriculture, is regarded as high priority area as are housing and manufacturing. Even the limited credit allocated to distributive trades was encouraged to be used for stocking producer goods.

These guidelines were generally observed (see Table 8) except for a few occasions when the aggregate private sector ceilings were exceeded. The performance of the guidelines with respect to small agriculture has been generally poor as credit extended to this sector was very often below the minimum targets set, reflecting both the nature of commercial banking behaviour and the need for specialized institutions to provide agricultural credit. Available data show that credit to individual customers increased on an average by 19.5% over the period 1967-1980 while that of small agriculture increased, on an average, by 15.3% over the same period (see Table 6).

During the period 1969-1973, credit guidelines were generally private sector oriented. After 1973, as the State embarked on a programme of greater control of the real sector of the economy,

guidelines issued aimed at supporting public sector enterprises. This was very much in evidence in 1974 in the circumstances of depressed production levels and phenomenal increases in oil prices. Credit to private sector was kept at the level in 1973 and foreign based firms were asked to seek credit overseas. However, as the public sector enterprises utilized more credit than was projected for in 1974, a limit of 7½% on the growth of credit to this sector was in place for 1975. The need for credit above this ceiling was subject to specific approval. In 1975, the guidelines aimed at maximum expansion of credit to productive sectors and no restraint was imposed. During 1976-1978 the growth of credit to the private sector was restricted in order to release more bank resources to facilitate public sector expansion. In subsequent years, public corporations were asked to impose restraint on their borrowing and this was reinforced by individual ceilings on their overdraft with the various commercial banks, as the economic situation gets worse.

While formal restraint was imposed on commercial banks' lending to the private sector and public sector corporations, similar restraint was not evident in Central Government borrowing. As indicated earlier, the statutory limits of central bank lending to the Central Government, 45% of the average ordinary revenues of the past three years, were not observed. Central bank financing of the Central Government increased progressively, from G\$44.5 million (21%) in 1975 to G\$828.4 million (224.7%) in 1980 (see Table 5(a)). Similarly, commercial banks' holdings of short-term Government securities increased from G\$146.8 million in 1975 to G\$216.8 million in 1980. Given a very high import ratio of about 0.8 (see Table 2) in Guyana one does not expect that credit expansion on such a scale to be sustainable.

Indeed, this sharp expansion of credit to the Central Government over the past 5 years together with continued poor performance of the public corporations resulted in a crisis in the balance of payments. From 1977 commercial arrears became a prominent item in our balance of payments, and the balance on current account averaged G\$236.5 million over the past 5 years as compared with G\$40.0 million during the period 1969 to 1975.

The authorities immediate response to the balance of payments problems was to control demand for imports via various exchange control measures. While these measures helped to protect the stock of international reserves, they contributed to bottlenecks in production as a result of shortages of essential imported inputs and spareparts. The balance of payments problems have not been alleviated in spite of exchange control measures - the current account deficit averaged 20% of G.D.P. during the period 1976-1980, while international reserves declined on an average by G\$120 million per annum during the same period. As the balance of payments problems persisted, and concessional foreign financing became relatively scarce, the authorities had no alternative but to resort to the I.M.F.

I.M.F. ASSISTANCE

Developing countries generally try to avoid assistance from the I.M.F. as long as possible because of the conditions that are usually attached to I.M.F. lending. During the period 1966-1977 ten Stand-by Arrangements were approved by the I.M.F. for Guyana, of which four were utilized. As the balance of payments position worsened in 1977, production and exports were adversely affected, resulting in further deterioration in the balance of payments. In the circumstances the authorities negotiated the eleventh Stand-by Arrangement with the I.M.F. in 1978.

The conditions attached were essentially deflationary and reflected the I.M.F. analysis of balance of payments problems. This programme aimed at reducing the overall public sector deficit via expenditure restraint and at improving revenues. The Central Government fiscal efforts were to be expanded while public corporations pricing policies were to be brought more in line with commercial practice. Commitment to these measures were to be enforced by quantitative ceilings on Public Sector borrowing from the banking system.

Additional support to stabilization was sought via interest rate policy. Higher interest rates were introduced in 1978 (see Table 8) as a means of increasing financial savings and increasing efficiency in public sector enterprises. With regard to increasing savings the data for 1978 to 1980, when interest rates were increased further, do not seem to reflect increased savings being induced on account of higher interest rates. On the question of improving public sector efficiency, this is also subject to considerable doubt due to considerable management inefficiencies and inadequate accountability in the public sector.

In light of the continuation of the problem of internal and external balance the one year type of stabilization programme was considered inappropriate for our situation. The authorities, therefore, requested I.M.F. assistance under the "Extended Fund Facility" (E.F.F.) in 1980. It was approved and implemented in July of the same year.

Under the E.F.F. programme ceilings on public sector borrowing continue to be used as the key instrument in demand management.

To reinforce the programme, public sector expenditure levels were targeted and measures were taken to strengthen the sector's finances and to improve the balance of payments. These include increases in taxation and improvements in tax collection; an exchange rate depreciation of 17.6% aimed mainly at increasing savings of public sector enterprises. On the supply side a wages policy designed to improve managerial and technical capabilities of Public Corporations was implemented. Pricing policies of State enterprises were to be more in line with commercial practice. An Export Development Fund was established as an additional measure to release the foreign exchange constraint on production and exports. Interest rates were increased on an average by 2% in 1980 to stimulate growth in private financial savings (see Table 7 for impact of interest rates on growth of savings).

In view of the importance of credit as an instrument of which demand management in Fund stabilization programmes, the Polak Model, continues to be the framework used by the I.M.F. in adjustment programmes for developing countries, will be tested against Guyanese data for 1973 to 1980.

THE POLAK MODEL APPLIED TO GUYANA 1973-1980

The purpose and usefulness of the Polak Model have been dealt with in Section 1. This section will deal with the application of the Polak Model in Guyana during the period 1973-1980. Barton⁹⁾ applied the model to Guyana for the period 1968 to 1972 and discussed

9) Barton, W.E. "Income Determination and Related Issues in the Guyana Economy - A La Polak" Bank of Guyana 1973.

the results in the same publication. This exercise will serve as an update to the application of the model by Barton and at the same time give indications as to its relevance in the light of developments that were non-existent at the time when Barton did his application.

Instead of the system of equations developed in the Polak Model, as summarized in Section I of this paper, a more simplified set of formulae has been devised for empirical work. These formulae use only combinations of m and v , and t is redefined to correspond with one calendar year. The list of formulae is depicted in the Table 1.

TABLE 1

Polak's Formulation for Obtaining Coefficients relevant to the Estimation of Y and M¹⁰⁾

(a) FORMULAE

Autonomous Determinants	Formulation For	
	Income Coefficients	Import Coefficients
Q (t)	$\frac{1}{m} \frac{1}{2} v (mv - (1 - r^v))$	$\frac{1}{mv} (mv - (1 - r^v))$
Q (t - 1)	$\frac{1}{m} \frac{1}{2} v (1 - r^v)^2$	$\frac{1}{mv} (1 - r^v)^2$
Q (t - 2)	$\frac{1}{m} \frac{1}{2} v r^v (1 - r^v)^2$	$\frac{1}{mv} r^v (1 - r^v)^2$
Q (t - 3)	$\frac{1}{m} \frac{1}{2} v r^v (1 - r^v)^2$	$\frac{1}{mv} r^v (1 - r^v)^2$

From Table 2: $v = 5.1$, $m = 0.84$, and $r = \frac{1}{1+m} = 0.54$

10) Polak J.J. & Boissoneault, L. "Monetary Analysis of Income and Imports and Its Statistical Application." The Monetary Approach to the Balance of Payments. - I.M.F. 1977.

TABLE 2

BALANCE OF PAYMENTS, INCOME AND MONETARY DATA

CSMN.

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
1. IMPORTS OF GOODS AND SERVICES (M)	238	267	288	292	319	345	341	360	457	662	941	1095	948	850	1007	1344
2. EXPORTS OF GOODS AND SERVICES (X)	202	215	244	267	295	307	328	340	333	650	914	760	707	794	798	1046
3. NET IMPORTS (2 - 1)	- 36	- 52	- 44	- 25	- 24	- 38	- 13	- 20	-124	- 12	- 27	-335	-241	- 56	-209	-298
4. CHANGES IN RESERVES (3 + 5)	- 13	- 12	+ 14	- 2	- 9	- 3	+ 12	+ 20	- 43	+ 70	+ 90	-237	- 56	+ 31	-124	-210
5. CAPITAL INFLOW (NET)	+ 23	+ 40	+ 58	+ 23	+ 15	+ 35	+ 25	+ 40	+ 81	+ 82	+117	+ 98	+185	+ 87	+ 85	+ 88
6. YEAR-END ESTIMATE OF GNP (Y)	335	356	393	429	457	497	534	572	617	905	1139	1057	1059	1211	1239	1425
7. ΔY (FROM 6)	+ 31	+ 21	+ 37	+ 36	+ 28	+ 40	+ 37	+ 38	+ 45	+288	+234	- 82	+ 2	+152	+ 28	+186
8. M/Y	.710448	.750000	.732824	.680653	.698031	.694165	.638577	.659091	.740681	.731492	.826163	1.035951	.895184	.701899	.812752	.943158
9. M (AVERAGE OF 8)	AVERAGE IMPORT/INCOME RATIO (1965 - 1972 .695474)								AVERAGE IMPORT/INCOME RATIO (1973 - 1980 .835910)							
10. MO (NARROW MONEY SUPPLY; CURRENCY AND DEMAND DEPOSITS)	46	48	53	59	62	62	71	85	97	129	203	218	281	295	284	323
11. ΔMO	+ 5	+ 2	+ 5	+ 6	+ 3	+ 1	+ 9	+ 14	+ 12	+ 32	+ 74	+ 15	+ 63	+ 14	- 11	+ 39
12. $Y \div MO$ (6 \div 10)	7.28261	7.41667	7.41509	7.27119	7.37097	8.01613	7.52113	6.72941	6.36082	7.01550	5.61084	4.84862	3.76868	4.10508	4.36268	4.41176
13. Y (AVERAGE OF 12)	AVERAGE INCOME/MONEY SUPPLY RATIO (1965-1972 7.37790)								AVERAGE Y/MO 1973 - 1980 5.06089							
14. MO ₂ (TOTAL MONEY SUPPLY INCLUSIVE OF QUASI-MONEY)	102	111	125	140	154	165	192	232	274	318	449	492	603	664	714	850
15. ΔMO_2	+ 8	+ 9	+ 14	+ 15	+14	+ 11	+ 27	+ 40	+ 42	+ 44	+ 31	+ 43	+111	+ 61	+ 50	+ 136
16. ΔDA (15 - 4)	+ 21	+ 21	+ 1	+ 17	+ 23	+ 14	+ 20	+ 24	+ 85	- 26	- 59	+280	+167	+ 30	+174	+ 346
17. Q _t (2 + 5 + 16)	246	276	302	307	333	356	373	404	499	706	972	1138	1059	911	1057	1480

Source: BANK OF GUYANA ANNUAL REPORTS

(b) COEFFICIENTS OBTAINED FOR GUYANA ECONOMY

Autonomous Determinants	Income	Imports
Q (t)	0.92777	0.77674
Q (t - 1)	0.25555	0.21395
Q (t - 2)	0.01132	0.00924
Q (t - 3)	0.00002	0.00040
Total	1.19466	1.00033

Reciprocal of Average Prosperity to Import = 1.19

These income coefficients are applied to the relevant variables included in Table 2 and the results are contained in Tables 3 and 4.

TABLE 4
COMPUTED IMPORTS

<u>G\$Mn.</u>	1973	1974	1975	1976	1977	1978	1979	1980
Mc	<u>477.5</u>	<u>659.0</u>	<u>910.8</u>	<u>1,098.6</u>	<u>1,075.4</u>	<u>945.1</u>	<u>1,026.2</u>	<u>1,384.5</u>
Q (t)	387.6	548.4	755.0	883.9	822.6	707.6	821.0	1,149.6
Q (t - 1)	86.4	106.8	151.0	208.0	243.5	226.6	194.9	226.1
Q (t - 2)	3.4	3.7	4.6	6.5	9.0	10.5	9.8	8.4
Q (t - 3)	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.4
M (Actual Imports)	457	662	941	1095	948	850	1007	1344
Mc (Computed Imports)	477	659	911	1099	1075	945	1026	1384
Mc, - M	+ 20	- 3	- 30	+ 4	+127	+ 95	+ 19	+ 40
Average Difference				+ 34				
% Difference				3.7%				
Ratio of M/Mc	0.958	1.004	1.033	0.996	0.882	0.899	0.981	0.971
Projection Multiplier								
<u>M</u>								
Mc/N				0.966				

From the results obtained (see Tables 3 and 4) it seems that the model performs better with respect to predicting imports than it does with respect to income. For the period 1973-1980 the average annual error for computed income amounted to G\$53.4 million or 4.9%. The projection multiplier (0.98) can be used as a proxy indicator of the performance of the model - the closer the multiplier gets to 1, the greater is the predictive value of the model. Differences for individual years between some computed and actual incomes were somewhat large. The large deviations of computed from actual basically reflect sharp movements in the values of the autonomous determinants. Results obtained from the computation of imports were better. The average annual error for the period was G\$34 million or 3.7%. Deviations of computed from actual imports were more evenly distributed over the period than was the case with incomes.

These deviations do not invalidate the predictive value of the model, especially since there were violent fluctuations in key variables of the model during this period. Barton¹¹⁾ had better results from his application of the model for the period 1968-1972. This is understandable when one looks at the values for v , m and $Q(t)$ (the sum of autonomous determinants). The ratios v and m for the period in which Barton (see Table 2, 1965-1972) did his study were quite stable, reflecting the rather stable prevailing economic environment during that period. The value of the autonomous determinants $Q(t)$ increased very gradually during the period. The period 1973-1980, however, was characterised by economic instability which are reflected in the m 's and v 's during the period 1973-1980. The predictive value of the model crucially depends on these ratios, in particular on that of v which is assumed to be constant in the model.

11) Barton, W.E. "Income Determination & Related Issues in the Guyana Economy: A La Polak" - Bank of Guyana 1973.

Apart from these ratios there were serious fluctuations in value of the autonomous determinants. When one takes the instability that characterised the period 1973-1980 and having allowed for some statistical error, the model performs well and hence can be very useful for monetary management in the economy of Guyana to mitigate if not prevent payments crisis such as we are currently experiencing.

The usefulness of the model in overall financial management of the economy lies not in its ability to predict imports nor of predicting income. The usefulness lies in its ability to explain the inter-relationships of key monetary variables and to quantify their effects on various target variables.

From the available data, it is obvious that credit policy was not clearly linked with any target variable in the external sector. The credit guidelines to the commercial banks only vaguely refer to credit restraint as a means of maintaining a strong balance of payments position. There was an absence of any quantitative analysis on how credit relates to the external sector. The Solak Model can provide such quantitative guide, which if non-existent, can make effective financial management very difficult. Our experiences with exchange control as a means of achieving external balance is surely not encouraging, when the distortions and inefficiencies are taken into account. While developing countries (and Guyana is no exception) have been very reluctant to use exchange rates and interest rates to complement credit ceilings at the initial stages of the development of the problem, experiences have shown that the situation slips very rapidly into crisis despite the implementation of exchange control measures. Credit expansion within some quantitative framework can play a very important role in the pursuit of internal and external balance, which seems to be necessary to achieve stability and growth in the long run.

CONCLUSION

The paper establishes the link between budgetary financing and balance of payments problems in Guyana. Given the size of the public sector (estimated at 80% of the national economy of Guyana) and Guyana's high import ratio our balance of payments could not accommodate the rapid expansion of public sector spending by continuously incurring large budget deficits. Further, the Polak Model worked when applied to historical data for Guyana, and in spite of this both the Fund's Stand-by programme (1978/1979) and the Extended Fund Facility (1980/81) have failed to achieve the expected results in Guyana.

While prices for petroleum and petroleum products rose sharply, one can hardly blame the state of the economy on international factors. Available data indicate that during the period 1973-1980 Guyana's terms of trade performed better than non-oil developing countries and industrial countries (see Table 9(a) & 9(b)). Domestic factors, therefore, seem largely responsible. Physical output of two of our major foreign exchange earners, bauxite and sugar has been declining over the period 1973-1980 (see Table 9(h)). While the indices show improvement in rice production, in reality there is a flattening out in production levels. The base year, 1972 was one when production levels were extremely low. On the monetary side the picture is even worse. Despite explicit quantitative ceilings on public sector borrowing from the domestic banking system in these programmes none was observed. Under these circumstances, clearly one cannot expect the balance of payments to improve.

While it is obvious that one cannot dismiss the Polak framework as inappropriate for our situation one needs to identify the reasons why the desired results of the Fund programmes are impossible to achieve. Two reasons seem to be the main contributors

- (i) Inefficient administrative and financial management in the public sector.
- (ii) Obvious lack of clarity of objectives of public sector enterprises.

It is therefore necessary to overhaul the overall management of the public sector and ensure that commercial enterprises are run along commercial lines. In addition to this the banking system should play a more active and dynamic role in the use of credit by the public sector. The Central Bank in particular should play a more active role - functioning not simply as a monitoring agent but being involved in approving expenditures and loans and imposing sanctions on delinquent corporations. These broad measures are necessary to make the public sector financially viable and the country more responsive to adjustment policies such as those advocated by Polak.

TABLE 5(a)
ANALYSIS OF CREDIT EXTENDED BY BANK OF GUYANA TO CENTRAL GOVERNMENT

G\$Mn.	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
1. Annual Average Revenue of last three years	76.6	85.2	93.6	102.0	115.4	123.5	136.9	145.6	210.1	318.5	391.0	402.7	365.8	371.9
2. Central Bank Holdings of Securities	5.5	3.3	5.3	11.2	16.9	28.7	68.8	20.3	44.5	218.2	342.0	397.3	589.2	611.2
3. 2 As a Percentage of 1	7.2	3.9	6.7	11.0	14.6	23.2	50.3	13.9	21.2	68.5	87.5	98.6	161.1	218.1
4. Central Bank Advances to Central Government	1.5	0.9	11.1	10.0	3.5	-	20.5	8.1	-	36.6	4.8	-	-	17.2
5. 4 As a Percentage of 1	2.0	1.0	11.9	9.8	3.0	0.0	15.0	5.6	0.0	11.5	1.2	0.0	0.0	4.6
6. Total Central Bank Credit to Central Government	7.0	4.2	17.4	21.2	20.4	28.7	89.3	28.4	44.5	254.8	346.8	397.3	589.2	828.4
7. 6 As a Percentage of 1	9.1	4.9	18.6	20.8	17.6	23.2	65.2	19.5	21.2	80.0	88.7	98.6	161.1	222.7

TABLE 5(b)
DOMESTIC BANKING SYSTEM CREDIT TO CENTRAL GOVERNMENT

8. Commercial Banks' Holdings of Securities	11.5	21.9	19.8	20.8	37.7	59.0	66.4	64.8	146.8	136.7	187.4	213.1	199.0	216.8
9. Total Banking System Credit to Central Government - 6 + 8	16.5	26.1	37.2	42.0	58.1	87.7	155.7	93.2	191.3	391.5	534.2	610.4	788.2	1045.2
10. Percentage Change in Banking System Credit to Central Government		+41.1	+42.5	+12.9	+38.3	+50.9	+77.5	-40.1	+105.2	+104.6	+36.4	+14.3	+29.1	+32.6

SOURCE: Bank of Guyana Annual Report

TABLE 6

LOANS & ADVANCES TO PRIVATE & PUBLIC SECTORS BY COMMERCIAL BANKS: 1967-80

G\$Mn

	Ave. % age 1967-80	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
<u>PRIVATE SECTOR</u>		<u>44.2</u>	<u>56.5</u>	<u>67.4</u>	<u>80.1</u>	<u>83.7</u>	<u>83.4</u>	<u>101.1</u>	<u>113.4</u>	<u>112.2</u>	<u>110.0</u>	<u>107.2</u>	<u>113.3</u>	<u>151.5</u>	<u>187.6</u>
1. Individual Customers		7.5	9.7	12.8	13.0	14.1	16.5	23.5	23.4	26.5	27.2	31.8	39.1	50.4	65.7
Annual %'age Δ	(+19.5)	(+27.1)	(+29.3)	(+32.0)	(+ 1.7)	(+ 8.5)	(+17.0)	(+42.4)	(- 0.4)	(+13.2)	(+ 2.6)	(+16.9)	(+22.9)	(+28.9)	(+30.3)
2. Agriculture		3.9	3.9	5.1	6.4	7.1	8.5	9.5	9.4	10.6	11.5	11.2	11.4	14.1	15.5
Annual %'age Δ	(+15.3)	(+62.5)	(+ 0.0)	(+30.8)	(+25.5)	(+10.9)	(+19.7)	(+11.8)	(- 1.0)	(+12.8)	(+ 8.5)	(- 2.6)	(+ 1.8)	(+23.6)	(+ 9.5)
3. Mining, M'fature & Construction		14.3	16.6	21.1	26.6	33.8	29.1	34.6	44.5	40.9	31.7	24.9	28.0	41.0	51.9
Annual %'age Δ	(+10.4)	(-17.3)	(+16.1)	(+27.1)	(+26.0)	(+27.1)	(-13.9)	(+18.9)	(+28.6)	(- 8.1)	(-22.5)	(-21.5)	(+12.4)	(+46.4)	(+26.6)
4. Priv. Financial Inst.		2.7	3.4	2.6	3.0	2.3	1.4	1.8	1.0	0.9	0.9	0.2	1.2	1.0	0.4
5. Services		15.8	22.9	25.8	31.1	26.4	27.9	31.7	35.1	33.3	38.7	39.1	33.6	45.0	54.1
<u>PUBLIC SECTOR</u>		<u>8.3</u>	<u>8.4</u>	<u>10.7</u>	<u>13.8</u>	<u>14.1</u>	<u>13.3</u>	<u>22.3</u>	<u>58.5</u>	<u>59.6</u>	<u>81.5</u>	<u>123.0</u>	<u>128.0</u>	<u>117.2</u>	<u>235.5</u>
6. Central Government		-	-	-	-	-	-	-	-	-	-	-	0.7	0.1	-
7. Local Government		0.7	0.7	0.7	1.0	0.9	1.1	1.5	1.7	1.7	2.2	3.7	4.0	3.5	4.3
8. Govt. Enterprises		7.6	7.7	10.0	12.8	13.2	12.2	20.8	56.8	57.9	79.3	119.3	123.3	113.6	231.2
Annual %'age Δ	(+32.2)	(-36.1)	(+1.3)	(+29.9)	(+28.0)	(+ 3.1)	(-7.6)	(+70.5)	(+173.0)	(+ 1.9)	(+37.0)	(+50.4)	(+ 3.4)	(+ 7.8)	(+103.5)
<u>TOTAL CREDIT</u>		<u>52.5</u>	<u>64.9</u>	<u>78.1</u>	<u>93.9</u>	<u>97.8</u>	<u>96.7</u>	<u>123.4</u>	<u>171.9</u>	<u>171.8</u>	<u>191.5</u>	<u>230.2</u>	<u>241.3</u>	<u>268.7</u>	<u>423.1</u>
Annual %'age Δ	(+15.5)	(- 1.7)	(+23.6)	(+20.3)	(+20.2)	(+ 4.2)	(- 1.1)	(+27.6)	(+39.3)	(0.0)	(+11.5)	(+20.2)	(+ 4.8)	(+11.4)	(+57.5)

SOURCE: Bank of Guyana Annual Report

TABLE 7

FINANCIAL SAVINGS WITH COMMERCIAL BANKS 1970-1980

G\$Mn.

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
TOTAL DEPOSITS (Year End)	<u>124.2</u>	<u>147.9</u>	<u>176.4</u>	<u>212.0</u>	<u>244.5</u>	<u>342.3</u>	<u>365.7</u>	<u>426.9</u>	<u>482.1</u>	<u>549.3</u>	<u>673.1</u>
% Increase		19.0	19.3	20.2	15.3	40.0	6.8	16.7	12.9	28.3	22.5
Demand Deposits	21.2	26.0	30.2	35.2	56.3	95.6	92.8	105.1	111.0	117.4	143.6
% Increase		22.6	16.2	16.6	59.9	69.8	- 2.9	13.3	5.6	5.8	22.3
Time & Savings	103.0	121.9	146.2	176.8	188.2	246.7	272.9	321.8	371.1	431.9	529.5
% Increase		18.4	19.9	20.9	6.5	31.1	10.6	17.9	15.3	16.4	22.6
COMPOSITION OF DEPOSITS											
A. DEMAND	21.2	26.0	30.2	35.2	56.3	95.6	92.8	105.1	111.0	117.4	143.6
Public Sector	(1.4)	(2.6)	(1.8)	(6.8)	(6.9)	(32.4)	(26.1)	(18.5)	(36.7)	(31.9)	(41.4)
Private Sector	(19.8)	(23.4)	(28.4)	(28.4)	(49.4)	(63.2)	(66.7)	(86.6)	(74.3)	(85.5)	(102.2)
B. TIME & SAVINGS	103.0	121.9	146.2	176.8	188.2	246.7	272.9	321.8	371.1	431.9	529.5
Public Sector	(1.9)	(2.7)	(4.1)	(11.0)	(13.5)	(20.4)	(30.4)	(31.6)	(17.9)	(19.5)	(25.2)
Private Sector	(101.1)	(119.2)	(142.1)	(165.8)	(174.7)	(226.3)	(242.5)	(290.2)	(353.2)	(412.4)	(504.3)
INTEREST RATE LEVELS											
Savings	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.5	8.5	10.5
3-Months Time	4.75	4.75	4.0	4.0	4.0	4.0	4.0	4.0	7.0	9.0	11.0
Prime Rate	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	9.5	11.5	13.5
Treasury Bill Rate	6.09	5.88	5.88	5.88	5.88	5.88	5.88	5.88	7.8	9.72	11.62

SOURCE: Bank of Guyana Annual Reports

TABLE 8

CREDIT EXPANSION GUIDELINES CONVERTED INTO VALUES (G\$Mn.) - ACTUALS AND CEILINGS

G\$Mn.

	1969		1973		1974		1975		1976		1978	
	ACTUAL	CEILINGS	ACTUAL	CEILINGS	ACTUAL	CEILINGS	ACTUAL	CEILINGS	ACTUAL	CEILINGS	ACTUAL	CEILINGS
PRIVATE SECTOR	+ 10.9	+ 5.7	+ 17.7	n.a	+12.3	0.0	- 1.2	n.a	- 2.2	+ 7.9	+ 6.1	+ 5.4
DISTRIBUTIVE	0.0	+ 1.0	+ 3.4	+ 5.9	+ 1.2	0.0	- 3.2	+ 16.3	+ 1.1	+ 3.2	0.0	n.a
PERSONAL	+ 0.2	+ 0.4	+ 4.2	+ 1.8	- 1.5	0.0	+ 0.9	+ 4.9	+ 1.8	0.0	+ 5.3	n.a
SMALL AGRICULTURE ¹⁾	+ 1.2	n.a	+ 1.0	+ 3.5	- 0.1	to be +	+ 1.2	+ 16.3	+ 0.9	0.0	+ 0.2	n.a
PUBLIC SECTOR	+ 21.3	n.a	+ 8.6	n.a	+36.0	n.a	+ 1.1	+ 4.3	+21.4	+ 2.9	+ 4.0	n.a

SOURCE: Bank of Guyana

1) For small agriculture ceilings are minimum ceilings while other ceilings are maximum.

TABLE 9(a)

EXPORTS, IMPORTS & TERMS OF TRADE INDICES 1976 = 100

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
PRICES INDICES OF MERCHANDISE EXPORTS										
Calcined	33.1	49.0	49.8	64.9	79.3	100.0	116.9	133.7	154.3	197.3
Dried Bauxite	69.8	70.3	72.4	64.4	95.7	100.0	115.2	119.6	134.7	154.4
Alumina	65.7	52.9	51.8	66.5	92.5	100.0	122.5	134.6	152.0	207.2
Sugar	41.0	49.0	45.7	121.5	186.4	100.0	102.5	95.8	99.1	145.7
Rice	37.7	40.8	77.1	103.3	104.0	100.0	97.7	88.3	92.2	104.0
Total Merchandise Exports	45.2	51.1	54.3	91.4	121.1	100.0	109.0	112.3	123.8	161.7
Price Indices of Merchandise Imports	45.2	53.0	58.9	82.4	92.4	100.0	110.7	132.3	152.9	192.4
Indices of Terms of Trade	100.0	96.4	92.2	110.9	131.1	100.0	98.4	84.9	81.0	84.0

TABLE 9(b)

OTHER ECONOMIC INDICATORS

PHYSICAL OUTPUT INDICES

Sugar	117.1	100.0	84.1	108.2	95.2	105.4	76.8	103.1	94.7	85.6
Rice	127.7	100.0	117.0	152.1	170.2	117.0	223.4	193.6	151.1	176.6
Dried Bauxite	127.6	100.0	100.7	83.0	80.0	39.2	61.6	62.5	67.6	66.9
Calcined Bauxite	102.9	100.0	92.3	105.2	112.6	119.3	104.3	83.9	83.6	87.1
Alumina	118.7	100.0	91.1	121.0	114.4	90.7	107.8	93.4	63.0	83.7
Percentage Changes in Terms of Trade										
Industrial Countries			- 1.7	-11.7	2.1	- 0.8	- 1.2	2.8	- 3.1	- 6.7
Oil Exporting Countries			13.4	138.3	- 5.4	5.6	0.6	-10.8	27.8	41.8
Non-Oil Developing Countries			6.5	- 6.9	- 8.9	2.2	6.3	- 5.6	- 0.5	- 3.1

SOURCE: (a) Bank of Guyana Annual Report 1980

(b) I.M.F. Annual Report 1981

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