

SAVINGS, INVESTMENT AND GROWTH:
TRENDS AND DETERMINANTS IN SELECTED CARIBBEAN COUNTRIES
IN RECENT YEARS

by

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*Paper to be Presented at the 20th Annual Meeting of the
Regional Programme of Monetary Studies to be held in
Port-of-Spain, Trinidad on November 16th to 18th, 1988.*

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CCMS Annual Monetary Studies
Conference
(November 1988)

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The emergence of serious fiscal and balance of payments problems in the context of stagnant or declining output levels and persistent high rates of un-employment has forced a number of Caribbean countries to review their development strategies and traditional approaches to economic management. Generally, the 'new' programs emphasise increases in the level of savings, and investment as major policy objectives for getting out of stagnant or negative growth paths and for restoring balance of payments equilibrium. Identifying and removing the obstacles to investment has understandably become a major preoccupation of both the public and private sectors. It is widely accepted that the desire to encourage greater capital formation has to be accompanied by a more vigorous savings effort which itself requires action over a very broad front involving as it does behavioural and institutional changes of a wide ranging nature. Uncertainty over the nature of both the investment and savings functions tends to put the focus on what appears to be the most critical obstacles and incentives, and which appear to be easily influenced by immediate policy action. Depending on one's view the order of

priority can vary widely. The removal of red tape, the manipulation of interest rates, exchange rates adjustments, the reform of the tax system, the allocation of foreign exchange, the rationalisation of public expenditures and the introduction of new opportunities for saving feature prominently in the programs. Also high on the list is the supplementing of domestic resources with foreign savings. The recent trends of capital flight and diminishing inflows of investment and loan funds are viewed with concern since there is a widespread perception that this trend is strongly correlated with the poor growth performances of recent years. Even countries that are deemed to be highly indebted see the path to renewed growth as being critically dependent not only on internal policy reforms, but also on the availability of more foreign resources. In fact, access to new funds is often made contingent on certain types of economic adjustments being undertaken even though these may run counter to desired social policies and long term objectives. In such circumstances policies may be instituted not because they are the 'right' policies, but because they are the ones creditors see as necessary for bringing about the required adjustments. The heavy weight of guilt being placed on internal policies often ignores the fact that external factors have contributed to the desperate fiscal and foreign exchange positions that have emerged, and to the extent that this is so too much may be expected from some of the reform programs within the time frame envisaged.

This paper has a limited objective. Using recent data and simple regression analysis we test a number of common hypotheses relating to certain macro-economic aggregates. The paper is organised into two main sections. In the first we examine recent trends in growth, savings and investment. In the second we explore determinants of these aggregates in recent years. The discussion is confined to the experience of four countries, viz. Barbados, Guyana, Jamaica and Trinidad and Tobago.

I. RECENT TRENDS IN GROWTH, SAVINGS AND INVESTMENT

While recognising the need for economic adjustment, given the seriousness of the present difficulties, policy-makers (and creditors) insist that such adjustments should not impact adversely on the growth process. The growth of GDP (or one of its several versions) is viewed as a major indicator of the success or failure of a given policy package. It is well recognised, however, that given the structure of Caribbean economies growth can take place even in the presence of perverse or inconsistent policies. High prices for a major export product, for instance, can produce consequences which can hide the inefficacy of a wide range of policies. In fact, a buoyant growth rate itself may spawn nonsensical policies. Conversely well conceived programs can suffer from lack of proper implementation stemming from stringencies relating to poor balance of payments performances. In short, it can be misleading to use GDP growth rates as an indicator of efficient resource use or welfare. Growth results from the interaction of a wide variety of factors. It is often difficult to say which is the dependent and which is the independent variable. For instance, it is well known that savings, investment and growth are closely linked. The classical approach sees savings as a prerequisite of investment. The Keynesian view is that investment determines savings. The pragmatic approach underlying much of today's thinking is that both savings and

investment are necessary to raise real output and living standards. It is equally recognised that factors other than savings and investment also influence the growth process. Some of these are not easily quantifiable, and often escape much of the discussion dealing with 'adjustment with growth' topics. Many developing countries themselves have contributed to their predicament by fiddling for years with important issues relating to productivity, motivation and efficient resource use. The external imposition of economic management is part of the price to be paid for resource misuse, wastage and the general absence of a well conceived framework of development. In certain cases one can easily add irresponsibility.

In Table I we provide data relating to growth rates, and investment and savings ratios for four Caribbean countries. The Table should be read against the normal caveats associated with national income estimates. Savings and investment data in particular tend to be associated with a wide margin of error. While most of the ratios are derived from official data, some are the author's own estimates.

Between 1970 and 1980 the Barbadian economy grew at an average rate of 4.7 per cent. Since then it has averaged less than one per cent. While the savings ratio appears to have risen from the early 1970s and the investment ratio maintained a level

TABLE 1

Trends in Growth, Savings and Investment, 1970-87

| | BARBADOS | | | GUYANA | | | JAMAICA | | | TRINIDAD & TOBAGO | | |
|-----------------|------------------|---------------|------------------|------------------|---------------|------------------|------------------|---------------|------------------|-------------------|---------------|------------------|
| | Real Growth Rate | Gross Savings | Investment Ratio | Real Growth Rate | Gross Savings | Investment Ratio | Real Growth Rate | Gross Savings | Investment Ratio | Real Growth Rate | Gross Savings | Investment Ratio |
| | % | % | % | % | % | % | % | % | % | % | % | % |
| 1970 | 7.3 | na | na | 3.4 | 22 | 21 | 11.9 | 25 | 31 | 3.6 | 10 | 21 |
| 71 | 4.0 | na | na | 2.8 | 22 | 18 | 3.1 | 18 | 28 | 1.0 | 11 | 33 |
| 72 | 4.4 | 5 | 23 | -2.0 | 19 | 18 | 9.2 | 19 | 26 | 5.8 | 6 | 30 |
| 73 | 2.3 | 5 | 25 | 1.7 | 11 | 24 | 1.4 | 22 | 26 | 1.7 | 16 | 23 |
| 74 | 13.5 | 8 | 22 | 7.0 | 28 | 21 | -4.7 | 21 | 22 | 3.8 | 25 | 16 |
| 75 | -1.9 | 9 | 19 | 10.4 | 33 | 30 | -0.4 | 17 | 24 | 1.5 | 35 | 21 |
| 76 | 4.3 | 8 | 27 | 2.9 | 13 | 34 | -6.5 | 8 | 17 | 6.4 | 27 | 23 |
| 77 | 5.6 | 5 | 20 | -4.8 | 14 | 26 | -2.4 | 12 | 12 | 9.1 | 24 | 23 |
| 78 | 5.0 | 15 | 23 | -1.8 | 21 | 19 | 0.5 | 12 | 13 | 10.0 | 24 | 27 |
| 79 | 7.8 | 14 | 24 | -0.7 | 22 | 25 | -1.7 | 13 | 18 | 3.6 | 22 | 27 |
| 80 | 4.4 | 19 | 25 | 1.9 | 19 | 27 | -5.8 | 9 | 15 | 10.4 | 30 | 28 |
| 81 | -2.0 | 13 | 28 | 4.5 | 11 | 31 | 2.5 | 9 | 18 | 4.6 | 27 | 26 |
| 82 | -5.0 | 16 | 23 | -12.4 | 9 | 24 | 1.0 | 8 | 20 | 4.0 | 13 | 27 |
| 83 | 0.4 | 15 | 20 | -8.8 | 3 | 22 | 2.0 | 11 | 21 | -9.2 ^a | 6 | 27 |
| 48 | 3.5 | 17 | 16 | 0.3 | 16 | 25 | -0.4 | 10 | 21 | -6.0 | 8 | 23 |
| 85 | 0.3 | 19 | 15 | 0.9 | 10 | 27 | -4.7 | 15 | 22 | -4.5 | 6 | 17 |
| 86 | 4.7 | 16 | 16 | 1.4 | na | na | 2.3 | 15 | 18 | -2.3 | (0.4) | 23 |
| 87 ^p | 2.0 | 15 | 15 | 0.0 | na | na | 4.1 | 16 | 19 | -7.4 | 2 | 19 |

p - Provisional

na - not available

Real Growth Rate - except where otherwise indicated this is based on GDP at current market prices deflated by 1980 prices

Gross Savings Ratio - Gross Domestic Savings as a % of GDP at current market prices.

Investment Ratio - Gross Fixed Investment as a % of GDP at current market prices.

Sources: Official Publications and IMF, International Financial Statistics, Various Issues.

of over 20 per cent until 1980, the buoyancy of the period 1976-80 was clearly linked to developments in Trinidad and Tobago, which had a favourable effect on that country's manufacturing and tourism sectors. The stagnation in output growth since 1980 is associated with a decline in the investment ratio to under 20 per cent. Most of this period incidentally also coincides with a down-turn in the Trinidad and Tobago economy.

The high growth rates experienced by the Guyanese economy in the 1974-75 period reflects the buoyant prices for sugar in that period. Since 1976 the Guyana economy has been in a virtual tail spin. The 1985 output was estimated to be about 20 per cent below the 1976 level. The savings ratio has shown a decline in recent years, but the data until 1985 indicate that the investment ratio appears to have retained a level of over 20 per cent, largely no doubt/^{because} of the Government's efforts. It is estimated that the private sector on average accounted for less than 20 per cent of the annual investment in fixed capital formation between 1975 and 1985.

The Jamaican economy's growth path changed sharply in 1974. Increased prices for oil, a depressed bauxite market and problems in the tourism sector combined to tighten the foreign exchange constraint. Between 1974 and 1980 there was positive growth in only one year. The performance in 1986 and 1987 seems to indicate a reversal of recent trends. The 1986 output, however, was

estimated to be still about 17 per cent below the 1973 level. Both the savings and investment ratios appear to have declined from the early 1970s.

Between 1970 and 1975 the growth rate of the Trinidad and Tobago economy averaged 2.6 per cent. This increased to over 6 per cent in the 1976-82 period as a result of the increased foreign exchange earnings accruing from the oil sector and the resultant expansion in public revenue and expenditure. The economy has declined in every year since 1983 as a result of the drop in foreign earnings. Output in 1987 was estimated to be about 20 per cent below the 1983 level. The savings and investment ratios averaged well over 20 per cent in the boom years of 1974-81. Since 1981 the savings ratio has declined sharply, averaging under 10 per cent since 1983. The investment ratio has also declined though less sharply than the savings ratio.

Though there has been some improvement in the range and quality of the national income data available on the region, the official estimates still lack many details which are important for planning and policy making. For instance, because of the way aggregate savings is derived, it is often difficult to pick up personal savings which tends to be included with corporate savings in a category called 'private savings'. The savings aggregate tends to be derived as a residual and not from independent

sources which could be cross checked. Personal disposable income is not readily available. The contribution of the public and private sectors to real capital formation is also lacking. In the following section based on available data we try to provide some further details on the aggregate concepts discussed earlier.

Savings

The savings aggregate has three main components: government savings, personal or household savings (including unincorporated enterprises) and corporate savings. Gross savings include estimates for the consumption of fixed capital (depreciation). The share contributed by the latter varies widely from country to country and can be quite controversial. In Trinidad and Tobago the consumption of fixed capital as a proportion of gross capital formation (at current prices) varied between 29 per cent and 60 per cent between 1983 and 1987. In Jamaica the proportion varied between 34 and 78 per cent in the period between 1974-84. The term national savings refers to domestic savings adjusted for net factor income paid abroad and private transfers. So that even if net factor income is negative national savings could exceed domestic savings if private transfer inflows are greater than net factor income outflows. In Barbados for instance, national savings tends to be higher than domestic savings. In 1986 and 1987 this

trend was reversed because of the significant increase in net factor income payments. In the case of Guyana gross national savings has been consistently below gross domestic savings in recent years. Between 1975 and 1985 the former averaged 33 per cent of the latter. Domestic savings itself can be divided, as indicated earlier, between government savings and private savings. The latter category tends to account for the major part of the savings taking place in the region. The period 1974-81 was an exceptional one in the case of Trinidad and Tobago when governmental savings accounted on average for about 60 per cent of net domestic savings.

Investment is financed both by domestic savings and foreign savings. It is difficult to gauge the extent of the latter's contribution to capital formation. The balance of payments data is not adequate since not all of governments' borrowed funds is used for investment. The respective contribution of the two sources of funds varies from country to country. In the case of Jamaica, net foreign inflows are estimated to have amounted to an average of 37 per cent of gross accumulation in the period 1974-84. The annual contribution fluctuated between 7 per cent and 56 per cent.

Government Savings

Given the significant increase that has taken place in the public debt for the region generally and the increasing burden of servicing this debt, governments are under pressure to reduce the level and growth of current expenditures in order to make more resources available for investment. Among the measures taken or contemplated are the reduction of the public service work force, stricter control of wages and salaries, reduction or elimination of various kinds of subsidies and social assistance, increases in public utilities rates and the closure or privatisation of state enterprises. In certain cases, as indicated earlier, these measures are a precondition for foreign assistance and debt relief.

Between 1977 and 1987 the central government accounts in Barbados showed a surplus in every year. Only in two years, however, did this surplus exceed 5 per cent of GDP. In fact since 1983, this surplus has shown a consistent decline falling to less than 1 per cent in 1987. The overall balance in the period has been negative in every year, the deficit as a percentage of GDP varying between 0.4 per cent and 8.4 per cent. For the public sector as a whole the savings performance has fallen steadily since 1983. With the deterioration of the current account balance, foreign finance has played an increasingly important role in financing the Government's investment activities. Between 1978 and 1987

foreign finance is estimated to have contributed 80 per cent of the total overall deficits incurred in the period. The outstanding public external debt grew from B\$89.2 million at the end of 1978 to B\$553.5 million at the end of 1986. Interests payments on the external debt increased from B\$5.6 million (1.8 per cent of current revenue in the fiscal year 1978/79 to B\$43.2 million (6.4 per cent of current revenue) in fiscal year 1986/87.

In Guyana the fiscal position has deteriorated significantly in recent years. The current account deficit which averaged less than 10 per cent of GDP in the 1976-80 period had increased to over 30 per cent by the early 1980s. The overall deficit had increased to over 50 per cent. For the public sector as a whole the current deficit as a percentage of GDP averaged over 20 per cent between 1977 and 1987. In Guyana's case too external finance has also featured prominently in the finance of the capital programmes. Between 1975 and 1985 net external borrowing accounted for 25 per cent of the total overall deficits incurred by the central government.

The Jamaican Government has not been able to make any saving on its current budget since 1976. The deficit/GDP ratio averaged almost 6 per cent between 1976 and 1986. For the current budget and 15 per cent for the overall budget of the central

government. For the public sector as a whole the deficit/GDP ratio rose from an average of 5.5 per cent in 1977/80 to an average of 16 per cent in 1981/85. The ratio dropped to less than 10 per cent in 1986 and 1987. Between fiscal year 1973/74 and fiscal year 1986/87 external finance accounted for almost 50 per cent of the total overall deficits of the central government.

Trinidad and Tobago's surplus on current account as a proportion of GDP increased from less than 3 per cent in the early 1970s to an average of over 18 per cent in the period 1974 and 1981. In this period the Government was able to finance a large part of its development programme with its own funds. Some of the savings were diverted into a number of so-called Long Term Funds earmarked for specific areas, but these were quickly drawn down in the 1981-86 period with the decline in revenues stemming from the drop in oil prices. Between 1983 and 1985 the current account surplus fell to less than 2 per cent of GDP and in 1986 and 1987 it turned negative. Between 1982 and 1987 the overall deficit averaged almost 10 per cent of GDP, but a large part of this was financed by previous years savings, as indicated earlier. Of the total deficits of some TT\$10.8 billion incurred between 1982 and 1987 net external financing amounted to less than 9 per cent. In 1986 and 1987 net external financing (i.e. disbursements minus repayments) was

negative. Net domestic borrowing (including advances from the Central Bank) increased from TT\$55 million in 1984 to an estimated TT\$1,274 million in 1987. With current account deficits in 1986 and 1987, and given the difficulties in raising foreign funds, the capital program was reduced considerably in 1986 and 1987, when no major undertakings were initiated.

Private Savings

As a source of funds for development, the non-Government sector holds critical importance. Governments' investment programs have suffered as a result of the growth of consumption spending. To move from a position of zero or negative savings to a level amounting to say 5 per cent of GDP will require a great deal of political will particularly in a situation where the region's major exports are facing depressed prices. Table 2 shows that the proportion of GDP accounted for by Government final consumption expenditure are higher in the cases of Trinidad and Tobago and Guyana than in the cases of Barbados and Jamaica. With respect to the former two there were sharp increases in the proportion since the early 1970s.

One of the major elements in the adjustment programs is a reduction of government intervention in the economy and a more active role for the private sector. The need for Governments to finance a larger proportion of their investment is not unrelated

TABLE 2

Government and Private Final Consumption Expenditure
as a % of GDP, 1970-87

| | BARBADOS | | GUYANA | | JAMAICA | | TRINIDAD & TOBAGO | |
|------|-------------------|-------------------|---------|------------|---------|------------|-------------------|------------|
| | Private | Government | Private | Government | Private | Government | Private | Government |
| 1970 | 75.7 ^a | 19.9 ^a | 60.4 | 17.7 | 60.9 | 11.7 | 60.0 | 13.1 |
| 74 | 76.8 | 14.2 | 53.7 | 17.0 | 67.9 | 17.9 | 42.3 | 11.3 |
| 75 | 69.9 | 12.6 | 47.3 | 19.6 | 66.1 | 18.4 | 42.6 | 12.3 |
| 76 | 74.0 | 17.3 | 59.3 | 28.2 | 69.6 | 20.9 | 47.5 | 12.2 |
| 77 | 74.6 | 17.3 | 60.7 | 25.8 | 68.4 | 20.7 | 47.8 | 12.8 |
| 78 | 70.3 | 17.1 | 56.2 | 23.4 | 63.5 | 20.0 | 52.0 | 13.4 |
| 79 | 71.6 | 15.6 | 52.2 | 26.2 | 63.1 | 19.3 | 51.3 | 13.9 |
| 80 | 62.4 | 14.9 | 51.8 | 28.9 | 65.7 | 20.4 | 45.9 | 12.0 |
| 81 | 64.8 | 16.8 | 59.3 | 29.4 | 69.4 | 21.0 | 49.9 | 12.8 |
| 82 | 63.5 | 16.5 | 60.7 | 30.0 | 70.3 | 22.6 | 57.9 | 21.0 |
| 83 | 62.5 | 16.4 | 64.8 | 32.0 | 69.5 | 21.1 | 62.7 | 20.4 |
| 84 | 62.2 | 16.8 | 51.5 | 32.3 | 65.6 | 17.9 | 56.2 | 22.2 |
| 85 | 58.2 | 18.8 | 53.0 | 36.9 | 66.3 | 16.7 | 55.7 | 22.7 |
| 86 | 60.3 | 17.5 | 45.0 | 39.5 | 69.7 | 15.2 | 59.7 | 24.3 |
| 87 | 66.0 | 19.0 | 46.7 | 36.1 | 65.4 | 15.5 | 56.9 | 23.0 |

a. 1972

Sources: Official Publications and IMF International Financial Statistics, Various Issues.

to this objective. It is feared the present trends of increasing government borrowing on the local markets could crowd out the private sector. Tax reforms are also aimed at encouraging a higher level of investment. The private sectors argue that tax revenues have not been spent efficiently. A reduction in the tax rate for business concerns will provide the surpluses necessary for a higher level of investment. A complementary argument is that a reduction in the tax rate for the higher income groups would raise the level of savings, since they have a higher propensity to save. The fact is that in many cases the effective level of taxation is much lower/^{what}than the nominal rates would seem to suggest given the exemptions and the opportunities for reducing the tax burden. A major premise underlying the above arguments is that funds spent by the private sector provide a higher return to the economy than the same funds spent by the public sector. The motives which provide the basis for public spending are not necessarily the same ones that drive the private sector and the concept of 'return' has to be interpreted with care. The perception that non-wage income is associated with a higher saving propensity is not one that is accepted without controversy. The growth in per capita income need not be accompanied by a higher marginal savings rate as is commonly assumed.

The reduction in direct taxes is often accompanied by an increase in indirect taxes and the reduction or removal of price controls. In such attempts to increase savings and improve the allocation of resources distributional issues are put on the back burner to be handled by ad hoc measures. In the interest of adjustment the regressive nature of indirect taxes is easily overlooked. If in fact these taxes succeed in reducing consumption, some unemployment could result. Firms long oriented towards the domestic market may choose to close rather than shift their resources to exports. The export function is far more complex than is generally accepted and includes factors outside the control of the local economy. There are instances of countries which have done all the things expected of them but have not been able to develop any significant non-traditional export capacity.

Interest rates policies are an important element in adjustment programs. Interest rates tend to be seen as a major influence on savings and if it is perceived that there is an inadequate level of investible funds, an increase in interest rates is normally suggested. An increase in the cost of funds would of course tend to lead to an increase in lending rates if financial intermediaries insist on maintaining their spread. Paradoxically, such an increase can take place when a major objective is to increase the level of investment. In such a case

one is left to assume that there is a shortage of resources, and this is viewed as a more important obstacle to investment than the cost of borrowing. Alternatively, the thinking may be that the increase in the interest rate is not enough to make borrowing prohibitive. Certainly, it would not be that the cost of funds does not matter in the investment decision. When deposit and lending rates come down not only is it assumed that volume of savings will not fall, but that investment will increase.

Part of the answer to some of the inconsistencies one finds in interest rates policies is to be found in the theories of those arguing for a positive interest rate policy i.e. for interest rates that exceed the expected rate of inflation and thus provide savers with a positive real rate of return. The basic argument is that controlled interest rates (which is only one aspect of the financial repression programme) distorts saving behaviour and encourages resources to move to non-productive uses. To the extent that the controlled nominal rates are below the equilibrium real interest rate necessary to provide the level of saving to finance the required level of investment the desired growth rate will ^{not} be realised. Advocates against financial repression argue against control of both deposit rates and lending rates. Savers should not subsidise borrowers. Interest rates left to find their values in the market place would not only attract the necessary funds, but would determine which

projects are worth undertaking. Marginal projects offering a rate of return below the real cost of funds would be discouraged. But suppose these marginal projects have high social values?

The empirical work on interest rates both in developed and developing countries is quite inconclusive. In some studies the link between interest rates (nominal or real) and savings is weak. Because of the money illusion, negative real interest rates do not always appear to have the adverse effect on economic growth suggested by much of the conventional theory.

II. DETERMINANTS OF SAVINGS, INVESTMENT AND GROWTH*Growth

Classical and neo-classical growth theorists take a rather simplistic view of the world. The savings and investment functions are viewed as virtually the same thing. Savings is seen as a constraint on development and if investment is to increase, this has to be preceded by an increase in the savings level. All savings are translated into investment. In other words, realised investment is always equal to planned saving. In the real world this need not be the case. Investment can also be financed on the basis of borrowing. As indicated earlier, Keynesians see saving as being a function of investment and income. Whatever the view on which comes first, financial resources are seen as a critical variable in efforts to stimulate growth and employment. In equations (1) to (4) we examine the relationship between growth, domestic savings and private and official foreign capital flows for the four countries. Savings and foreign capital are expressed as percentages of GDP. In Equation (1) domestic savings and foreign finance are not able to explain any significant part of Barbados' economic performance in the period, 1972-86. Foreign savings are 'broken-up' into direct investment, 'other private capital' and official inflows, but all the independent variables have negative signs. The high standard errors cast serious doubts on the significance of these variables.

* I am indebted to Vince Maraj for his assistance with the computations.

RGDP = rate of growth of real GDP
 GDS = gross domestic savings as a % of GDP
 DI = net direct investment flows as a % of GDP
 PI = net other private investment flows as a % of GDP
 OR = net official receipts as a % of GDP
 GDP = gross domestic product at current prices.

BARBADOS (1972-86)

$$(1) \quad \text{RGDP} = 10.21 - 0.37\text{GDS} - 0.57\text{DI} - 0.26\text{PI} - 0.64\text{OR}$$

$$(6.11) \quad (0.35) \quad (0.76) \quad (0.56) \quad (0.69)$$

$$R^2 = 0.15$$

$$\bar{R}^2 = -0.20$$

$$\text{D.W.} = 1.99$$

GUYANA (1970-85)

$$(2) \quad \text{RGDP} = -8.99 + 0.47\text{GDS} + 0.94\text{DI} - 0.11\text{PI} + 0.16\text{OR}$$

$$(2.84) \quad (0.16) \quad (1.03) \quad (0.95) \quad (0.17)$$

$$\bar{R}^2 = 0.39$$

$$\text{D.W.} = 1.88$$

JAMAICA (1970-86)

$$(3) \quad \text{RGDP} = -7.78 + 0.44\text{GDS} + 0.52\text{DI} - 0.11\text{PI} + 0.20\text{OR}$$

$$(5.33) \quad (0.31) \quad (0.42) \quad (0.35) \quad (0.28)$$

$$\bar{R}^2 = 0.30$$

$$\text{D.W.} = 2.3$$

TRINIDAD AND TOBAGO (1970-87)

$$(4) \quad \text{RGDP} = -5.91 + 0.34\text{GDS} + 0.39\text{DI} + 0.52\text{PI} + 0.81\text{OR}$$

$$(2.54) \quad (0.11) \quad (0.33) \quad (0.71) \quad (0.48)$$

$$\bar{R}^2 = 0.51$$

$$\text{D.W.} = 2.67$$

In the case of Guyana the explanatory power of the same variables is much greater accounting as they do for almost 40 per cent of Guyana's growth in the period 1970-85. The savings, the direct investment and the official inflows variables all have positive signs. The direct investment coefficient is larger than the domestic savings coefficient, but is not significant.

In the case of Jamaica domestic and foreign savings accounted for about a third of the growth in real GDP in the period 1970-86. All the variables with the exception of 'other private inflows' had a positive effect. With a coefficient of 0.52 direct investment had a stronger influence than either domestic savings or official capital flows.

In the case of Trinidad and Tobago, all the independent variables are associated with positive signs, and together explain over half of Trinidad and Tobago's growth in the period 1970-87. The 'official inflows' variable has the highest coefficient, but the standard error raises some doubt about its significance. On the other hand the savings ratio seems to have had a definite impact on Trinidad and Tobago's growth in recent years.

There is some controversy in the literature over the effect of foreign resources on the domestic savings effort. There is a view which asserts that the impact tends to be negative. The availability of foreign finance, it is argued, can encourage greater consumption and reduce the local savings effort.

Equations (5) to (8) show the relationship between the domestic savings ratio and foreign finance. In Barbados both the private and official inflows variables are associated with negative signs, implying they have had a negative impact on the domestic savings effort. In Guyana the opposite is the case. All the explanatory

BARBADOS (1972-86)

$$(5) \quad \text{GDS} = 16.10 - 1.37\text{DI} - 0.77\text{PI} - 0.32\text{OR}$$

$$(2.17) \quad (0.51) \quad (0.43) \quad (0.60)$$

$$\bar{R}^2 = 0.34$$

$$\text{D.W} = 1.82$$

GUYANA (1970-85)

$$(6) \quad \text{GDS} = 14.30 + 0.68\text{DI} + 2.23\text{PI} + 0.23\text{OR}$$

$$(2.82) \quad (1.81) \quad (1.55) \quad (0.30)$$

$$R^2 = 0.19$$

$$\bar{R}^2 = -0.009$$

$$\text{D.W} = 2.16$$

JAMAICA (1970-86)

$$(7) \quad \text{GDS} = -16.33 + 0.82\text{DI} + 0.54\text{PI} - 0.53\text{OR}$$

$$(1.49) \quad (0.30) \quad (0.27) \quad (0.20)$$

$$\bar{R}^2 = 0.60$$

$$\text{D.W} = 1.37$$

TRINIDAD AND TOBAGO (1970-87)

$$(8) \quad \text{GDS} = 15.76 + 0.27\text{DI} + 2.52\text{PI} - 0.93\text{OR}$$

$$(4.79) \quad (0.83) \quad (1.65) \quad (1.18)$$

$$\bar{R}^2 = 0.07$$

$$\text{D.W} = 1.03$$

variables have positive signs, but they explain very little of the variation in the domestic savings ratio. In the case of Jamaica they explain 60 per cent. Official inflows, however, has had a negative effect on the domestic savings ratio. The same is the case in Trinidad and Tobago, though the high standard error associated with this variable casts doubt on its significance. Also, all the variables taken together explain very little of the variation in the domestic savings ratio.

In order to further explore the factors affecting the savings rate, the rate of growth of GDP was added as an explanatory variable. In the case of Barbados the fit was not significantly improved. In the case of Guyana the rate of growth of income was a major factor affecting the savings ratio. In Jamaica it had a positive effect, but there was no improvement in the explanatory power of the function. In the case of Trinidad and Tobago the income variable was found to be the most important influence affecting the savings ratio. The addition of this variable increased the adjusted R^2 from less than 10 per cent to over 40 per cent.

As a further exercise the savings ratio was regressed on GDP at current prices with the following results:

BARBADOS (1972-86)

$$(9) \quad \text{GDS} = 3.84 + 0.006\text{GDP}$$

$$(1.68) \quad (0.001)$$

$$\bar{R}^2 = 0.68$$

$$\text{D.W} = 2.18$$

GUYANA (1970-85)

$$(10) \quad \text{GDS} = 24.80 - 0.007 \text{ GDP}$$

$$(5.53) \quad (0.004)$$

$$\bar{R}^2 = 0.07$$

$$\text{D.W} = 1.74$$

JAMAICA (1970-86)

$$(11) \quad \text{GDS} = 17.79 - 0.64\text{GDP}$$

$$(2.30) \quad (0.40)$$

$$\bar{R}^2 = 0.09$$

$$\text{D.W} = 0.44$$

TRINIDAD AND TOBAGO

$$(12) \quad \text{GDS} = 21.03 - 0.0005\text{GDP}$$

$$(4.62) \quad (0.0004)$$

$$\bar{R}^2 = 0.03$$

$$\text{D.W} = 0.46$$

The current income hypothesis appears to stand up only in Barbados where 68 per cent of the variation in the domestic savings ratio is explained by current income. The explanatory power of the other equations/^{is}not only extremely low, but the income variable has the 'wrong' sign.

As indicated earlier, net domestic savings has three main components. The factors influencing each are not the same. Government savings is motivated by the need to finance at least part of the infra-structural requirements necessary to encourage growth. A good savings effort may also help a government obtain outside funds, particularly in situations where counterpart resources are a precondition. Governments, however, are always under pressure to expand consumption expenditure and a major savings effort calls for great political will. It is difficult to specify a savings function for government since the availability of ^a greater amount of revenue in itself need not result in a greater level of savings. Such factors like export and the tax rate do tend to influence revenue. Investment expenditure can itself generate greater current spending. Corporate savings also depends on a variety of factors. The growth of the economy and the investment climate will rank high on the list. The latter tends to be influenced by government policies, the tax rate, productivity of the labour force, various forms of incentives, development in other countries, opportunities for investment and, of course, the political climate. With respect to personal savings, empirical studies point to a variety of factors. Personal disposable income tends to be of major importance. Interest (real or nominal) has been shown to have a positive effect on personal savings in some situations and in others not. Unquantifiable influences such as uncertainty about the future and the need to save for a rainy day or to provide for

future contingencies often exert a stronger impact than the rate of return. In Equations (13) to (28) we examine the effects of selected independent variables on some of the components of aggregate savings.

Equations (13) to (16) show the relationship between the central government savings (deficits) ratio, exports (X) and the tax ratio (TR). With the exception of Trinidad and Tobago, the association

CAS = government current account savings (deficit) expressed as a proportion of GDP

X = exports of goods and services expressed in current values

TR = tax revenues expressed as a proportion of GDP

CE = government consumption expenditure expressed as a proportion of GDP

CR = government current revenue

PCI = per capita GDP

BARBADOS (1972-1986)

$$(13) \quad \text{CAS} = -14.35 + 0.0009X + 0.69\text{TR}$$

$$(10.76) \quad (0.001) \quad (0.49)$$

$$\bar{R}^2 = 0.20$$

$$\text{D.W} = 1.48$$

GUYANA (1970-85)

$$(14) \quad \text{CAS} = -33.56 + 0.01X + 0.17\text{TR}$$

$$(21.43) \quad (0.02) \quad (0.98)$$

$$\bar{R}^2 = 0.09$$

$$\text{D.W} = 0.70$$

JAMAICA (1970-86)

$$(15) \quad \text{CAS} = -0.14 + 0.0006X - 0.24\text{TR}$$

$$(2.96) \quad (0.0004) \quad (0.14)$$

$$\bar{R}^2 = 0.15$$

$$\text{D.W} = 1.5$$

TRINIDAD AND TOBAGO (1970-87)

$$(16) \quad \text{CAS} = -30.52 - 0.004X + 1.98\text{TR}$$

$$(4.52) \quad (0.0007) \quad (0.22)$$

$$\bar{R}^2 = 0.82$$

$$\text{D.W} = 1.00$$

in the other cases is weak. In the cases of the former, the tax ratio had a significant influence on the Government savings effort. (Table 3 shows that the tax revenue/GDP ratio vary greatly among the four countries). The equations were re-run using current revenue as the dependent variable and exports and per capita income as the independent variables. Not surprisingly the association was much stronger here. See Equations (17) to (20).

BARBADOS (1972-86)

$$(17) \quad \text{CR} = -26.98 + 0.073\text{PCI} + 0.02X$$

$$(12.17) \quad (0.009) \quad (0.05)$$

$$\bar{R}^2 = 0.99$$

$$\text{D.W} = 2.18$$

GUYANA (1970-85)

$$(18) \quad \text{CR} = -332.58 + 0.83\text{PCI} - 0.55X$$

$$(68.76) \quad (9.17) \quad (0.26)$$

$$\bar{R}^2 = 0.92$$

$$\text{D.W} = 0.87$$

TABLE 3

Tax Revenue as a % of GDP¹, 1970-87.

| | Barbados | Guyana | Jamaica | Trinidad & Tobago ² |
|-----------------|----------|-----------------|---------|--------------------------------------|
| 1970 | n.a. | 22 | 17 | 16 |
| 71 | n.a. | 20 | 18 | 17 |
| 72 | 23 | 22 | 18 | 18(4) |
| 73 | 23 | 23 | 18 | 18(5) |
| 74 | 20 | 31 ³ | 17 | 30(21) |
| 75 | 22 | 39 | 18 | 32(24) |
| 76 | 22 | 30 | 18 | 33(23) |
| 77 | 22 | 27 | 17 | 36(23) |
| 78 | 25 | 24 | 20 | 32(20) |
| 79 | 24 | 25 | 20 | 33(21) |
| 80 | 23 | 25 | 19 | 40(25) |
| 81 | 22 | 30 | 22 | 40(26) |
| 82 | 23 | 31 | 25 | 34(17) |
| 83 | 24 | 33 | 23 | 32(13) |
| 84 | 24 | 34 | 23 | 33(15) |
| 85 | 25 | na | 27 | 32(14) |
| 86 | 24 | na | 28 | 27(10) |
| 87 ^P | 24 | na | na | 28(12) |

na - not available

P Provisional

1. at current market prices

2. figures in brackets refer to revenues from the oil sector

3. 1974 to 1977 include the sugar levy

Sources: Official Publications.

JAMAICA (1970-86)

$$(19) \quad CR = -145.12 + 0.47PCI + 0.15X$$

$$(109.21) \quad (0.12) \quad (0.83)$$

$$\bar{R}^2 = 0.97$$

$$D.W = 1.83$$

TRINIDAD AND TOBAGO (1970-87)

$$(20) \quad CR = -620.59 + 0.32PCI + 0.34X$$

$$(116.13) \quad (0.32) \quad (0.08)$$

$$\bar{R}^2 = 0.99$$

$$D.W. = 1.75$$

Another way to examine the savings function is to look at the consumption function. Government consumption ratio (i.e. final consumption expenditures expressed as a proportion of GDP) was regressed on the tax ratio with the results shown in Equations (21) to (24). The association is generally very weak. We expect increased tax revenues to lead to greater government spending, thus

BARBADOS (1972-86)

$$(21) \quad CE = 2.19 + 0.64TR$$

$$(10.87) \quad (0.47)$$

$$\bar{R}^2 = 0.06$$

$$D.W = 1.36$$

GUYANA (1970-85)

$$(22) \quad CE = 12.16 + 0.48TR$$

$$(7.75) \quad (0.27)$$

$$\bar{R}^2 = 0.12$$

$$D.W = 0.88$$

JAMAICA (1970-86)

$$(23) \quad CE = 15.55 + 0.12TR$$

$$(2.66) \quad (0.13)$$

$$\bar{R}^2 = 0.05$$

$$D.W. = 0.4$$

TRINIDAD AND TOBAGO (1970-87)

$$(24) \quad CE = 16.64 - 0.02TR$$

$$(4.71) \quad (0.15)$$

$$\bar{R}^2 = 0.0$$

$$D.W. = 0.28$$

implying a positive sign for the tax ratio variable. In the case of Trinidad and Tobago the expected sign did not materialise. A negative relationship between the tax variable and government current spending suggests a policy aimed at controlling aggregate demand.

Bank deposits represent a major form of savings in Caribbean economies. Some of the factors that affect the volume of bank deposits are interest rates, per capita income and the expected rate of inflation. The spread of bank offices can also affect the amount of savings accounted for by the banking system. The expected rate of inflation is not a directly observable variable and a number of devices has been used in empirical work to arrive at a reasonable surrogate. In this study we have used the previous year's inflation rate as a proxy in the current year. We chose a middle rate (the 3 months fixed deposit rate) to represent the rate of return. In all four cases, the interest rate, the expected rate of inflation and per capita income explain a high proportion

of the variation in the level of bank deposits. In the cases of Guyana and Jamaica the interest rate variable came out with positive signs, but so did the inflation variable. In the cases of Barbados and Trinidad and Tobago both these variables are associated with

The Variables

TBD = total bank deposits

INT = average nominal interest rate on 3 months fixed deposits

IF = the expected rate of inflation represented by the actual inflation rate lagged one year

PCI = per capita GDP in current prices.

BARBADOS (1972-86)

$$(25) \quad \text{TBD} = 39.38 - 0.80\text{INT} - 0.94\text{IF} + 0.11\text{PCI}$$

$$(32.74) \quad (3.82) \quad (0.91) \quad (0.27)$$

$$\bar{R}^2 = 0.99$$

$$\text{D.W} = 2.11$$

GUYANA (1970-85)

$$(26) \quad \text{TBD} = -588.27 + 83.12\text{INT} + 6.95\text{IF} + 0.34\text{PCI}$$

$$(271.14) \quad (28.78) \quad (16.14) \quad (0.29)$$

$$\bar{R}^2 = 0.78$$

$$\text{D.W} = 0.43$$

JAMAICA (1970-86)

$$(27) \quad \text{TBD} = -2204.18 + 402.69\text{INT} + 7.44\text{IF} + 0.008\text{PCI}$$

$$(1047.98) \quad (111.89) \quad (38.67) \quad (0.33)$$

$$\bar{R}^2 = 0.55$$

$$\text{D.W} = 0.90$$

TRINIDAD AND TOBAGO (1970-87)

$$(28) \quad \text{TBD} = 1986.78 - 421.88\text{INT} - 120.81\text{IF} + 0.62\text{PCI}$$

$$(1002.02) \quad (200.92) \quad (38.37) \quad (0.06)$$

$$\bar{R}^2 = 0.93$$

$$\text{D.W} = 0.92$$

negative signs. Though per capita income is positively related to total bank deposits, the associated standard error is generally high, except for Trinidad and Tobago. One expects the interest rate to be associated with a positive sign. A negative sign indicates that people save less when the rate rises. A high rate of inflation would tend to encourage people to move out of financial assets. Savers who suffer from money illusion or who are motivated by factors other than the rate of return would continue to save even though the rate of inflation is higher than the interest rate, implying a negative real interest rate. Responsiveness to incentives is conditional by a variety of factors which have a differential impact on communities, depending on sophistication, opportunities for investment, environment, experience, confidence and perception of the future.

Since deposit rates represent the cost of funds for financial intermediaries, they are a major influence on lending rates. Not surprisingly they tend to move in the same direction since financial institutions tend to maintain a certain spread. The cost of borrowing funds is only one factor in the investment decision. Projects that offer the prospect of a good return will still be under-

taken notwithstanding marginal changes in the interest rate. This is likely to be particularly so where the costs could easily be passed on. An increase in interest rate can decide the fate of some projects.

Regressions carried out with the rate of growth of real income as the dependent variable and the investment ratio as the independent ratio show the latter as a poor explanatory variable except for Jamaica where the coefficient is highly significant and the \bar{R}^2 to be almost 40 per cent. In Equations (29) to (32) the investment variable is regressed on the average prime rate and the expected inflation rate. The Prime Rate is associated with the expected negative sign except in the case of Barbados. Only in the case of Jamaica, however, is the coefficient significant.

IF = the inflation rate lagged one year

IVT = gross fixed investment as a proportion of GDP

PR = average prime rate

BARBADOS (1972-86)

$$(29) \quad IVT = 17.80 + 0.28PR + 0.09IF$$

$$(6.53) \quad (0.68) \quad (0.12)$$

$$R^2 = 0.07$$

$$D.W = 1.11$$

GUYANA (1970-85)

$$(30) \quad IVT = 25.18 - 0.58PR + 0.45IF$$

$$(4.09) \quad (0.56) \quad (0.24)$$

$$\bar{R}^2 = 0.12$$

$$D.W = 1.9$$

JAMAICA (1970-86)

$$(31) \quad IVT = 28.95 - 0.68PR - 0.03IF$$

$$(4.26) \quad (0.32) \quad (0.17)$$

$$\bar{R}^2 = 0.18$$

$$D.W = 0.93$$

TRINIDAD AND TOBAGO (1970-87)

$$(32) \quad IVT = 30.59 - 0.41PR - 0.21IF$$

$$(5.46) \quad (0.57) \quad (0.21)$$

$$\bar{R}^2 = 0.01$$

$$D.W = 1.23$$

Concluding Remarks

Serious fiscal and balance of payments problems are forcing Governments in the region not only to review their own role in the economy, but a whole range of other measures and policies. The fall of public and private investment in the region has no doubt been a contributory factor to the poor performances of recent years. Savings and investment levels themselves, reflect the decline or stagnation of real income. This points to the need not only for comprehensive programs, but for a great deal of consistency and co-ordination among the measures both in relation to short term goals and long term objectives. The need to increase the level of public and private savings is widely acknowledged. Whatever merits or demerits may be associated with foreign capital, the latter ought not to be viewed as a substitute for a more vigorous domestic savings effort. Governments have to lead the way by exercising greater control over the growth of current spending. There are limits to which they can borrow locally, or abroad, and in certain cases these limits may have been reached or passed. However well-intentioned a government may be, it has to fashion its programs within the limits of the resources available to it. The more effective use of these may mitigate some of the hardships that are likely to result in the short term from the rationalisation of public expenditures.

Private savings also need to be encouraged. There are doubts whether marginal changes in the nominal interest rates are sufficient to achieve this. Fortunately, Caribbean countries do not suffer from the outrageous inflation levels prevalent in some Latin American states. Financial assets are still attractive. The experience of other countries with indexation tell us this should be avoided. What may be needed besides responsible fiscal policies are more imaginative instruments in terms of not only yield, but marketability.

With respect to private investment it is clear that many of the institutions set up to encourage expansion of productive capacity have contributed very little to this objective. Their structure and operations need to be critically examined with a view to increasing their effectiveness.

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