

**ECONOMIC POLICY AND CARIBBEAN
ECONOMIC PERFORMANCE**

by

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Economic Policy and Caribbean Economic Performance

1. Introduction

The Caribbean has seen a wide range of economic performance in the past 25 years, ever since the first oil crisis. Many countries have experienced steady growth with only occasional interruptions and income per head and the quality of life has significantly improved, as may be inferred from the Human Development Report (UNDP, 1997). That list includes Aruba, the Bahamas, Barbados, Bermuda, Belize, Cayman Islands, the Netherlands Antilles and the Organisation of Eastern Caribbean States (OECS). However, the economies of other countries have contracted and living standards have fallen. The list is shorter - The Dominican Republic, Haiti, Jamaica, Guyana, Suriname and Trinidad and Tobago - but they account for a much larger share of population than the members of the first list.¹

The obvious distinguishing characteristic of the better performers is a currency with a fixed value in terms of the U.S. dollar. A selection of countries from the two groups, shown in Table 1, makes the point.² Apart from the exchange rate strategy Caribbean economies are similar in every way: in the goods and services they produce and export, the ratio of their foreign current account transactions to GDP, their economic size, investment ratios, capital inflows, the economic policy instruments

¹The first list also includes dependencies - the U.S. Virgin Islands, Puerto Rico, Martinique, Guadeloupe and French Guiana - but they benefit from large volumes of transfers. The second list includes Cuba, whose economic problems stem from over-dependence on the now defunct Soviet bloc.

²A second distinguishing characteristic - the quality of official intervention - is identified and discussed elsewhere (Worrell, 1997).

they employ and the timing, magnitude and nature of shocks to which they are subject.³ One of the things being explored in our empirical work is whether the exchange rate strategy is sufficient to explain the difference in economic performances. We had hoped to have some preliminary insights on this question by now but as we have not completed crucial empirical tests this will be in the nature of a progress report.

2. General Models for Developing Countries

The empirical macro economic models available for developing economies are usefully summarised in Agénor and Montiel (1996) which is the basis for Table 2. The IMF financial programming model based on the nominal income identity popularised by Polak is not intended to explain growth, inflation and the balance of payments or the effects that policy instruments may have on them. The model requires apriori assumptions about the real growth rate. The nominal growth rate depends on the money supply which is driven by domestic credit and the accumulation or decumulation of foreign exchange.

The World Bank RMSM model establishes a link between investment and growth. Investment is equated to savings and a relation established between domestic savings and income. The objective

³No comparative in-depth study of the Caribbean exists but useful country summaries may be found in the Annual Report of the Caribbean Development Bank and in the Economic and Social Progress Report published annually by the Inter-American Development Bank. See also Worrell (1987).

is to determine the shift in the savings function necessary to generate investment for a target growth rate. The model has been extended to identify fiscal and foreign exchange gaps.

The general run of structural macro economic models will contain equations for output, domestic prices, wages, consumption and investment. In Table 2, output is determined by a production function which includes imported intermediate goods (j) as well as labour (l) and capital (k). In addition to wages (w) and import prices (p_j), domestic prices depend on the extent of capacity utilisation where y is capacity output. Wages are determined by an expectations augmented Phillips curve: p^f is a foreign price index, l is the available labour force and $E(\dot{p})$ is the expected rate of inflation. Consumption depends on disposable income (y_d), the real rate of interest ρ and a wealth variable (a). The investment equation includes as arguments real output (y), the cost of capital (q) and the pre-existing capital stock (k_{t-1}). Most - though not all - models developed for Caribbean countries fall within this genre. Twenty-eight models for the English-speaking Caribbean are summarised in Craigwell et al (1996), Table 1.

Agénor and Montiel point out the deficiencies of the available models. In the first place, most have only one output, so that the factors influencing production of tradeables and non-tradeables cannot be distinguished. For example, the demand for tradeables is potentially unlimited for a small country. Furthermore a single output model is unable to capture important terms of trade effects (a point emphasized for example by McClean, 1997). Agénor and Montiel suggest a minimum of three outputs are required - exportables, importables and non-tradeables. Secondly, Agénor and Montiel

recommend labour market segregation into rural, urban formal and urban informal. Thirdly models should feature informal credit markets and parallel foreign exchange markets.

3. Distinguishing Features of Caribbean Economies

Not all the features cited by Agénor and Montiel are typical of the Caribbean. Furthermore, two essential characteristics of Caribbean economies feature in none of the models; small size and geographic location. These are factors which may significantly influence the outcome of policy.

Small size is in many ways the Caribbean's defining characteristic. Because of small size resource based activities are few in relation to the wide diversity of consumption needs. Caribbean countries therefore have very high ratios of external transactions to GDP. Openness is a structural feature of countries as small as these and may not be changed to any significant degree by trade policy (Carter, 1997). Small size also results in export concentration because the achievement of efficient scale in just one or two industries exhausts the supply of skilled qualified labour. Exporters from small countries face disproportionately high costs of diversification of product and market, areas where economies of scale and scope are considerable and where information costs may be prohibitive for small firms. For many of the same reasons there are limited possibilities of agglomeration economies. Only in the main export activity will there usually be a sufficient number of firms to attract investment by others specialising in the same field (Krugman, 1991).

Arguably, the critical growth constraint for small countries is neither savings nor foreign exchange but capacity in the tradeables sector. In much the same way that trade policies have little effect on trade structures, financial policies have little effect on foreign investment inflows and outflows in countries where there is no parallel market in foreign exchange.⁴ There is therefore no savings gap because foreign finance will supply any deficiency in the supply of finance for profitable investment. That may appear to close the foreign exchange gap as well but only if investment takes place in the tradeable sector. Investment in non-tradeables will not supply an earnings stream of foreign exchange to service the burden of foreign debt. For this reason, growth models for small developing economies ought to specify a growth constraint based on investment in tradeables.

It follows from their structural openness that small countries' inflation is very strongly influenced by foreign inflation and exchange rate changes. Domestic inflation may be driven above foreign inflation by expansionary policies affecting the price of non-tradeables but the only way to keep domestic inflation below foreign inflation is to achieve rapid increases in total factor productivity in non-tradeable production with no increase in real wages.⁵ Empirical studies for the Caribbean all confirm the foreign price effect on inflation (see Cumberbatch (1997) for a survey).

⁴They may, however, have a large impact on financial flows mainly of a speculative nature.

⁵Capital flows equilibrate profit rates at home and abroad with allowance for information cost and risk.

A second distinguishing characteristic of Caribbean economies is their geographical proximity to the United States. In conjunction with their small size, this makes them extensions of the U.S. currency area (Worrell, 1994). This vastly circumscribes the possibility for exchange rate policy since financial flows quickly neutralise the real balance effects and the pass-through of prices means that relative price effects soon disappear.⁶ Nothing is lost by neglecting the nominal exchange rate in growth models for the Caribbean. It is the real exchange rate that matters and changes in real exchange rates bear no relationship to nominal exchange rate changes (Bynoe-Mayers, 1997).

Caribbean countries are not typical developing economies in the prevalence of informal credit and foreign exchange markets, and labour market segmentation along the lines described in Agénor and Montiel is characteristic of few Caribbean countries. Banks, insurance companies and other financial institutions have a history of over 100 years in the Caribbean. In the mid-1950s there was an acceleration of financial services for the general population so that for the last three decades only a small proportion of the Caribbean population in remote areas is short of a range of financial services. In major cities quite sophisticated financial services are available. Informal credit arrangements exist but are of little significance, while informal foreign exchange arrangements and parallel markets were features of some countries (all drawn from the list of poor performers) but have now all but disappeared (see IMF, 1996).

⁶The main outfalls of nominal exchange rate changes seem to be to undermine the credibility of stabilisation policies and to increase uncertainty and risk premiums.

Most Caribbean countries are so small that urban-rural distinctions have little meaning. The typical journey from a farming community to the centre of commerce and industry is measured in minutes rather than hours. The labour market is fragmented in larger countries such as the Dominican Republic and Jamaica where the rural-urban distinction is marked and the main city attracts a large reserve of the under-employed. However, the leading sectors in these countries are tourism and resource based industries which create a demand for labour which is dispersed around the country and not centered in the main urban areas. A labour market model which represents this complexity remains to be developed.

4. Models for Caribbean Circumstances

Over many years, colleagues and I at the Central Bank of Barbados have essayed models to incorporate some of the peculiarities of the Caribbean. The exercise has gone on sporadically since the 1970s when we first built two-product models with tradeables and non-tradeables. Among the earliest publications from that effort was Holder and Worrell (1985), a model to detect sources of inflation in three Caribbean countries - Barbados, Jamaica and Trinidad and Tobago. The domestic source of inflation is the price of non-tradeables and domestic inflation is therefore determined by the demand and supply of non-tradeables. Demand is a reflection of intended expenditure which is driven by monetary and fiscal policy and by the balance of payments while the supply curve shifts with changes in local and imported costs. The paper concluded that foreign prices, exchange rates and trade controls have the largest effect on domestic prices. Domestic pressures on prices are not

very strong. Real income shocks have little inflationary impact. Interest rate increases sometimes inflate prices via working capital costs and wages sometimes have an inflationary effect.

Boamah et al (1985) added equations to explore the determination of wages and employment. Employment is derived from real output and the level of real wages. The wage is assumed to be the result of a bargain between employers and workers where employers' offers are conditioned by the price at which they can sell the product and where demands are based on previous wage levels and inflation expectations. The model is tested for Barbados. Employment responds to output very slowly while wage effects were not statistically significant. Inflation was the main determinant of wage increases.

A structural model to explore linkages in the financial sector was first published in Worrell (1985). It was incorporated into the model for output, prices, employment and the balance of payments in Worrell (1987), Appendix B (with Holder). It was tested for three Caribbean countries. No simulations were conducted on the effect of financial variables on the real sector. Foreign interest rates affected domestic interest rates in two out of the three countries. The Central Bank discount rate had some influence on other domestic rates in one country but loans and deposits were not generally sensitive to interest rate changes.

In Worrell (1992) we introduced an output capacity limit based on investment. Capacity output was equal to the previous year's output plus an increase derived from investment and the incremental capital output ratio. The model was used to forecast growth, inflation and the balance of payments

for five Caribbean countries. However, the investment function used was not very satisfactory and although a distinction was maintained between output in tradeables and non-tradeables, a single aggregate investment variable was employed in the model. In a presentation to the International Symposium on Forecasting 1996 I disaggregated output of tradeables into the principal exports - agriculture, manufacturing, tourism and petroleum - for the Dominican Republic, Jamaica and Trinidad and Tobago. I tested the sensitivity of the balance of payments to wage increases, relative price changes in private sector credit. For Trinidad and Tobago, none of these variables had a very strong effect. In Jamaica, relative prices were less influential than wages or credit while in the Dominican Republic all three factors seemed to elicit similar responses to changes of similar proportion.

5. Current Research

Current research focuses on output capacity in the tradeable sector. The demand for tradeable goods is unlimited and firms produce to the limit of their capacity. That capacity depends on recent investment essential for maintenance, technical upgrade, productivity enhancement and to keep up with changing tastes. Overall investment in the Caribbean has been healthy - over 20% for most countries (Worrell, 1993) - but the proportion spent on the non-tradeable sector - and building in particular - has been high. It may be that too little investment in tradeables - perhaps because of too much investment in non-tradeables - has inhibited growth of the tradeable sector and of the economy as a whole.

The model contains, for the first time, an equation determining the investment in tradeables, from which the output of tradeables is derived. Investment in tradeables depends among other things on relative prices which change with the price of non-tradeables, as the price of tradeables is an exogenous variable determined in the rest of the world. The equation for the price of non-tradeables is the supply-price function featured in earlier models. The equation for the output of non-tradeables is also descended from earlier models. (The equations of the model are shown in Table 3.) Other highly developed features of earlier models - monetary, balance of payments and labour market equations - are neglected at this stage to facilitate the focus on investment in tradeables. They may be re-introduced later to test the robustness of conclusions from the current model.

The determinants of investment in tradeables are retained earnings, the expected rate of return, the perceived risk associated with that rate of return, the opportunity cost of investment, the rate of previous investment in the tradeable sector, technical change, infrastructure and the possibilities of agglomeration economies. Although few studies of the financing of investment in the Caribbean are available, what evidence we have confirms that well over 50% of investment is financed by retained earnings (Worrell, 1985). Firms in the tradeable sector plough earnings back into the business because openness to international competition guarantees attractive prospective rates of return, provided domestic policies do not raise the opportunity cost of that investment. We therefore expect retained earnings to have a direct impact on subsequent investment.

The expected rate of return is the probability distribution of expected profits based on market projections, modified by the rate and structure of corporate taxation. The effective tax rate depends

on depreciation allowances, depreciation rules, regulations for expensing capital items, procedures for accumulating losses against future tax liabilities etc. (See King and Fullerton, 1984; an illustration for Barbados may be found in Worrell, 1989).

There are many non-quantifiable factors known to effect the decision process. Several of these - the credibility of economic policy and the stability of economic variables, for example - may be represented by the variance of the market exchange rate. The relationship between exchange rate stability and appropriate policy is very close in small open economies and there is evidence that investors are sensitive to this (Pindyck, 1991). The variance of the exchange rate is therefore used as a variable to measure the perceived degree of uncertainty in the investment climate.

The opportunity cost of investment is the return from placing funds in some financial instrument. In the Caribbean returns on financial assets can deviate from returns in the United States only by the amount of transactions costs and risk premiums. The U.S. interest rate is therefore a suitable measure of the opportunity cost.

Previous investment constitutes a fund of stored knowledge that would otherwise have to be bought and will therefore have a positive effect on current investment. Investment in new technology may be necessary to sustain existing production levels as competitors' productivity increases or because of rising factor costs. A time variable is included to proxy technological change.

Government investment in transportation, communications, human resource development and environmental enhancement provides sources of external and agglomeration economies.

The model is completed with equations for relative prices and the output of non-tradeables borrowed from work cited earlier, and an equation for the output of tradeables which incorporates the investment capacity limitation.

As has been pointed out in earlier studies, the distinction between tradeable and non-tradeable sectors in the national accounts of Caribbean countries is relatively clear cut. Tradeables comprise agricultural products, manufactures, minerals and tourism. The transportation, transactions and information costs of trading services such as distribution, public utilities and financial services are prohibitive.⁷ We therefore have dependable measures of sectoral real output and relative prices.

Unfortunately we have so far unearthed only one Caribbean country which provides a sectoral breakdown of investment into tradeables and non-tradeables. For the others more or less unsatisfactory proxies are used. Most commonly we use non-building private investment. Building investment is mostly for housing and domestic commercial ventures whereas investment in tradeables is mainly for machinery and equipment. However, investment in private non-building activity becomes a poor proxy during periods of intense hotel construction, for example.

⁷Even though finance is highly mobile between the Caribbean and North America only a very small proportion of domestic financial transactions are serviced by North American institutions.

Retained earnings is the most elusive of the variables in the model. This variable has to be derived from available series using various assumptions. One approach we have tried is to document all identifiable sources of finance for investment. Presumably the residual of capital expenditure is composed mainly of retained earnings. In other instances we have used industrial share prices as the measure of firms' ability to reinvest, in the absence of data on retained earnings.

The uncertainty variable is the standard deviation of monthly exchange rate changes for each year of the sample period. The U.S. treasury bill rate is our indicator for U.S. interest rates.

6. Empirical Evidence on the Current Issues

(a) Trade Liberalization

In general trade liberalization is expected to yield increased openness and increased efficiency in the production of tradeables. However, the majority of Caribbean countries have always maintained liberal trade regimes with relatively low tariffs and a limited range of quantitative restrictions. Moreover, for those countries which imposed high levels of protection the incidence of protection was highly variable and the evidence is that protection did not significantly influence the pattern or growth of manufacturing (Worrell 1987, Appendix E provides a survey).

The effects of the reversal of non-tariff barriers in the heavily protected countries have not been analysed. Anecdotal evidence indicates that it eliminated rent-seeking. Nevertheless the fact that

protection had little effect in the first place suggests that it would be no significant gain for manufacturing.

No weighted average tariff measure is available for the Caribbean prior to the reduction in the CARICOM External Tariff (CEF) in the early 1990s. The maximum CET rate of 40% applied to relatively few items; the majority of imports attracted tariffs in the range of 20% to 30% before the recent reduction. The average tariff reported for CARICOM is now 11% (IDB, 1997). Because of the small size of Caribbean countries tariff reduction has had no effect on the degree of openness. The revenue loss from tariff reduction has been replaced by value-added taxes and other indirect taxes, essentially on the same range of goods and services. The effects of tariff reform are mostly cosmetic.

(b) *Exchange Rate Policy*

Exchange rate adjustment has been the most controversial policy in Caribbean economic discussion, stimulating many empirical studies of exchange rate effects over the years (Bourne *et al*, 1985; Worrell, 1979; Modeste, 1992 and 1993; Thomas, 1992). However, the effects of exchange rate changes on growth and the balance of payments remain ambiguous; the only clear-cut result is the inflationary impact of devaluation.

The principal issue to be resolved is the relationship between the nominal and the real exchange rate. As mentioned earlier, in the medium term there is no correspondence between the observed

movements of the nominal and real exchange rate, however measured. Economists have so far failed to come up with an empirical model to explain the divergences. The problem may be that there are too many degrees of freedom. Any target real exchange rate is consistent with a wide range of nominal exchange rates depending on the size of the fiscal deficit, the external debt service ratio, the extent of foreign direct investment, the credibility of government policy and other factors. From an empirical point of view, the issue remains unresolved and there is no guidance on an appropriate level of the nominal exchange rate. In any case the focus is on the real exchange rate because that is the variable which determines economic outcomes. Current research is therefore designed to measure the effects of real exchange rate changes.

(c) *Financial Liberalization*

Financial liberalization may be justified on grounds that it removes opportunities for rent-seeking. In the context of monetary union, independent monetary policy is nullified by financial flows. The Caribbean forms a *de facto* monetary union with the US, the corollary of the fact that the region is an extension of the US currency area. Therefore, monetary and credit policy does not fundamentally alter the supply or allocation of finance, but it may inhibit the activities of particular classes of financial institutions. Liberalization removes these "distortions" which provide avenues for rent-seeking. The empirical importance of this effect has not been established but it is probably not significant.

(d) *Central Bank Independence*

It follows from the impotence of monetary policy that central bank independence is not of fundamental importance in the Caribbean. The empirical results of tests of central bank independence as a determinant of inflation in the Caribbean are presented in Belgrave and Worrell (1997). Too many of the variables that define legal independence have no significant influence and the inflation predictions based on the measure of central bank independence and other variables are way off target. Belgrave and Worrell argue that the central bank should seek consensus with the Treasury about fiscal policy, which may have far-reaching effects.

(e) *Fiscal Policy*

The size of the government deficit and how it is financed have consequences for balance of payments equilibrium and equilibrium in the non-tradeable sector, and hence for relative prices. Relative prices affect investment in the tradeable sector and therefore the potential growth of tradeables and overall output. No results are as yet available on this important linkage.

Government capital formation includes the investment climate and has a positive effect on overall investment. That effect has been confirmed in a study by Craigwell and Belgrave (1997). (See also Blejer and Khan, 1984).

Unfortunately most fiscal studies have to do with the revenue impact of tax reform and offer limited insight on the effect of tax reform in the medium-term. The vital question of the impact on relative prices and on incentives for investment in tradeables has not been addressed in any empirical study.

(f) *Export Diversification*

Recently published strategies for Caribbean economic development envisage a diversification of export products and markets in order to sustain the growth of exports (World Bank, 1996). The task of quantifying the overall growth potential in this context remains to be addressed. Existing quantitative analysis is based on historical relationships and interactions and the parameters derived from them. In contrast, projections for new products and markets must be based on hypothesis; greater precision may be brought to such projections by developing models which incorporate economies of scale in production, marketing, transportation and communications, information costs, learning costs, switching costs, hysteresis and other barriers to entry.

Conclusion

At an intuitive level there is growing understanding about economic policy for stabilisation and growth in the Caribbean but the empirical task of documenting this intuition is in the early stages. Decision-makers now accept that the essentials of good policy include:

- (a) A "small" fiscal deficit,
- (b) moderate levels of external borrowing, and
- (c) an unvarying US dollar value of the domestic currency, sustained by central bank market intervention at that rate.

These are the targets set for eligibility to the Caricom monetary union, to which regional governments have committed themselves (see Heads of Government, 1992). These targets must be achieved in an environment where output and employment are growing, inflation is low and other macroeconomic indicators are converging among member countries. Decision-makers are vague about the policies - in addition to fiscal moderation and an exchange-rate anchor - which are necessary to promote growth and stability.

We shall need several models to help our understanding of what may be required. The current model on which I am working addresses only one issue: the limits to growth from investment in the tradeable sector. In addition we will need models to explore economies of scale, entry costs, uncertainty and irreversibility in export markets, and the implementation and effectiveness of individual policy instruments. Insights from these satellite models may be drawn into the detailed policy models which are currently in use for economic forecasting and policy analysis.

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Table 1

FIXED AND FLEXIBLE EXCHANGE RATES

Country	Period	Exchange Rate Variance	Average Growth Rate	Growth Rate Variance	Average Inflation Rate	Inflation Rate Variance
Fixed Rates						
Bahamas	60-91	0	3.67	7.04	6.03	5.03
Belize	77-92	0	5.46	18.24	3.94	6.64
St. Kitts	77-92	0	4.86	14.65	4.19	15.64
St. Lucia	77-92	0	7.07	18.75	5.80	18.92
St. Vincent	77-92	0	5.93	2.58	6.00	17.93
Maximum			<u>7.07</u>	<u>18.75</u>	<u>6.03</u>	<u>18.92</u>
Minimum			<u>3.67</u>	<u>2.58</u>	<u>3.94</u>	<u>5.03</u>
Flexible Rates						
Dom. Republic	82-92	237.35	1.70	13.34	20.13	148.44
Guyana	80-92	558.67	-1.60	31.96	93.86	65.74
Jamaica	77-94	379.82	-0.27	22.90	16.25	69.53
Suriname	60-92	2.97	-0.49	36.26	8.96	64.29
T'dad & T'bgo	60-92	40.81	2.42	37.10	7.90	20.77
Maximum		<u>558.67</u>	<u>2.42</u>	<u>37.10</u>	<u>93.86</u>	<u>148.44</u>
Minimum		<u>2.97</u>	<u>-1.60</u>	<u>13.34</u>	<u>7.90</u>	<u>20.77</u>

Source: World Bank World Tables

Table 2

Models for Developing Countries

Growth Models

Production Technology $q = q(k, l, \dots)$ Factor Growth $i = i(\dots); l = l(\dots)$

IMF (Polak) Model

Nominal Income $Y = Y_1(MO) = Y_2(CR, FXR)$

World Bank (RMSM)

Real Income $\Delta y = i/COR$ Investment $i = s = s(y)$

Representative Macroeconometric Model

Output $y = y(l, j, k)$ Price of home good $p = p(w, p, y/\bar{y})$ Wages $w = w(l(y, k, p^j)/\bar{l}, \bar{p})$ Consumption $c = c(y_d, \rho, a)$ Investment $I = I(y, q, \bar{k}_{-1})$

Source: Agénor and Montiel (1966, ch. 12).

Table 3

The Current Model

$$\text{Log } (I/y) = f_1 \left(\text{Log } E(P_n/P), \text{Log } RE_{-t}, \text{Log } \sigma_e r_f, \text{Log } (I_G/Y)_{-t}, \text{Log } (I/y)_{-t} \right)$$

$$\text{Log } P_n/P_t = f_2 \left(\text{Log } V/P_t, \text{Log } q_n/P_t, \text{Log } W/P_t, r/P_t \right)$$

$$\text{Log } q_t = f_3 \left(\text{Log } (I/P)_{-t} \right)$$

$$\text{Log } q_n = f_4 \left(\text{Log } q, \text{Log } RP, \text{Log } \dot{P}, \text{Log } \frac{(NFA + CRG)}{P}, \text{Log } q_n(-1) \right)$$

$$\text{Log } q \equiv \alpha \text{Log } q_t + (1-\alpha) \text{Log } q_n$$

