The Macroeconomic Impact of IMF-Supported Programmes in Small Open Economies: The Case of Barbados

By

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It is often argued that the IMF plays an important role in international financial affairs, particularly in providing support to countries experiencing macroeconomic imbalances. At the same time, critics claim that the conditionalities imposed on the countries caused much hardship and often fail to achieve their intended objective. Based on the analysis of IMF-supported programmes in Barbados, this paper evaluates the macroeconomic effectiveness of fund-supported stabilization program with both its criticism and its advocates. Barbados presents an interesting study as it is one of the few cases where an exchange-rate devaluation was not part of the programme. Trend analysis along with the generalized evaluation estimator technique is used to assess the macroeconomic impacts of the IMF supported programmes on four target variables; economic growth, inflation, the current account balance and the overall balance of payment position. The empirical model also accounts for other policy variables that might have been adopted in the absence of programmes and foreign exogenous variables, in order to isolate the effect of Fund-supported programmes. The results lend favourable support for the programmes. Specifically, the current account balance improved and growth was stimulated on account of being in a fund programme.

1. Introduction

Given the rapid changes that are taking place in the domestic and international environments, Caribbean governments face new challenges that call for the modernization of the tax systems and more efficient public sector spending. The budget remains an important policy instrument that influences the allocation of resources, redistribution of income and what public policy is put in place to address social issues of protecting the vulnerable and reducing poverty. Experience has shown that government, using state institutions and mechanisms, can stimulate economic growth but can also bring a growing economy to a halt and thereby precipitate social and economic crises when policies are not carefully thought out.

Governments rely on revenues generated from taxes and non-tax sources to run its programmes. Public expenditures tend to be driven by popular expectations, rising administrative costs, the need to improve public infrastructure and increasing social infrastructure. In most cases there is a tendency for expenditure to grow faster than revenue. Government savings tend to be low because the revenue systems are hardly buoyant and they tend to be inelastic while returns to expenditure are poor. This usually triggers fiscal gaps that need to be financed. To finance these deficits, governments have had to borrow or sometimes create money by resorting to central bank accommodations. Both processes (borrowing and creating money) have social costs which need to be managed carefully. The results of repeated borrowings to finance public sector deficits have given rise to increasing public debt and servicing these debts pull resources away from other uses. In other words, the existing debt stock in a country largely reflects the accumulated past fiscal imbalances, while current debt service obligations have a direct impact on current fiscal performance. Moreover, the unwarranted expansion of money supply through recourse to repeated accommodations from the central bank can often lead to inflation, reduced competitiveness and very often loss of foreign exchange reserves.

Since the establishment of the Central Bank in 1972, the Barbados economy was for almost two decades characterized by relative fiscal dominance where persistent fiscal deficits were financed by either monetary accommodation or borrowing. This led to a build up of public debt which rose form a relatively low figure of 20% of GDP in 1971 to about 70% in 1991. This period was also marked by moderate to strong inertia of inflationary expectations and declining level of competitiveness, leading to expanding current account deficits and unsustainable losses in foreign exchange reserves.

Following a major recession in 1991-1992, Barbados instituted a strong programme of macroeconomic stabilization and adjustment, supported by the International Monetary Fund during the period 1992-1994. The centre-piece of the programme was a significant fiscal adjustment to correct for the relatively large fiscal disequilibrium that had characterized the economy. Government expenditure was sharply reduced, aided in part by a cut in public servants nominal wages along with a reduction in public sector employment.

The main objective of this paper is to assess the relative impact of the programme on the overall economy. The paper begins with a review of the literature with regards to the various approaches that have been applied to the evaluation of fund-supported programmes. Section 3 offers a discussion of the main components of the IMF programme. Section 4 then presents an analysis of macroeconomic trends over the period 1971 to 2008, identifying the behaviour of the key variables in both the pre- and post-adjustment period, and making appropriate assessments where necessary. The key macroeconomic indicators analysed include real growth rate, inflation, public debt as well as fiscal and external current account balances. However, given the emphasis on fiscal adjustment in the programme under review, fiscal issues have been given more prominence in the discussions. This is followed in section 5 with a *model-evaluation approach* of the fund programme. The final section provides summary and main conclusions.

2. Literature Review

The effectiveness of IMF stabilisation programmes in achieving various macroeconomic objectives has been one of the many areas of interest among economists for several decades. Despite the several studies that have been undertaken in this area, no consensus has been reached with respect to whether fund-supported programmes improve or worsen the economic conditions of its recipients. Some studies have purported that fund-supported programmes do little to improve prevailing economic conditions, while others have argued that these programmes actually worsen the economic performance of recipient countries. Perhaps the underlying cause of such disarray among these studies is that there is little agreement in the profession about how to measure the macroeconomic effects of fund-supported programmes.

One technique which may be employed to measure the success of fund-supported programmes is to compare the macroeconomic performance under the programme to the macroeconomic performance that would have occurred in the absence of the programme, known as the 'counterfactual' (see Guiti 1981). However, by definition the counterfactual cannot be observed and must therefore be estimated. Of course, the estimation of the counterfactual begs the question 'what if' and as such, inferences about the effectiveness of fund-supported programmes largely depend on the accuracy of the counterfactual. As such, the various techniques employed to measure the impact of such programmes should therefore be evaluated on how well they estimate the counterfactual.

The literature suggests five approaches that may be used to measure the impact of fund-supported programmes. These are: (1) the before-after approach, which compares the macroeconomic performance before and during the programme; (2) the with-without approach, which compares the macroeconomic performance of countries with the programme to the performance of countries without the programme (the control group); (3) actual-versus-target approach, which compares the actual macroeconomic performance with its pre-defined (targeted) performance; (4) comparison-of-simulations

approach, which compares the simulated performance of the fund-supported programme with the simulated performance of alternative policy packages; and (5) generalised evaluation approach, which establishes a link between the targeted variables, external variables and the programme with the view of estimating the direct effect of the fund-supported programme. The following discussion examines studies in which the aforementioned approaches were employed.

The Before-After Approach

Reichemann and Stillson (1978) used the before-after approach to examine seventy-nine IMF programmes during the 1963-72, comparing the performance of the balance of payments, inflation and growth for two-years prior and after programme implementation. With respect to the balance of payments they found that there was a significant improvement in only about one-fourth of all programmes and in over seventy percent of the cases there was no significant change in the balance of payments. A total of twenty-nine programmes with high inflation were implemented during the period, with a decline in the rate of inflation being realised for six of eleven programmes in which there was a sizable decrease in the expansion of domestic credit. However, inflation was higher in five of the nine of the programmes involving devaluation. In addition, of the seventy programmes examined it was concluded that, on average, fund-supported programmes did not exert adverse effects on growth rates, with growth rates only declining in forty percent of programmes after inception when compared to the previous two years' average growth rate. They found that growth was higher in forty-seven percent of the programmes examined.

Connors (1979) also used the before-after approach to examine thirty-one programmes in twenty-three countries during the period 1973-77. His comparisons were made one year before and after the programmes were implemented and he found that fund-supported programmes had negligible effects on final growth, inflation and current account deficit targets or on intermediate targets such as the fiscal deficit to gross domestic product (GDP) ratio.

Zulu and Nsouli (1985) also used this approach to measure the effects of fund-supported programmes in thirty-five programmes implemented during 1980-81 for twenty-two African countries. They examined changes in growth, the current account and inflation and found that in 60 percent of the cases growth was lower or the same one year after the programme was implemented. With respect to the current account and inflation targets, the results were fifty-fifty, with the same number of programmes showing an improvement in the current account and inflation as those whose performance worsened or remained constant.

Finally, Pastor (1987) conducted a similar study in eighteen Latin American countries during 1965-81 using one-year comparisons and found that fund-programmes led to a significant improvement in the balance of payments, but did not affect the current account, inflation or nominal GDP growth rates.

Although the before-after approach is easy to apply, it attributes all changes in the macroeconomic performance of programme countries to the implementation of the programme, and as such is unable to distinguish between programme and non-programme related outcomes. Therefore, the before-after approach is a good measure for what occurred, but not why it occurred.

The With-Without Approach

The with-without approach was first used by Donovan (1981) to compare export growth, inflation and GDP growth for twelve fund-supported programmes in twelve countries during a ten-year horizon spanning 1970-1980. Comparisons were made for one and three year periods and measured against a control group of all non-oil developing countries. Donovan found that the rate of growth of exports was consistently higher for programme countries than for the control group. In addition, he found that the increase in the rate of inflation for programme countries was approximately half that of the control group during the first year and, despite an increase in the rate of inflation in programme countries, the inflation rate remained lower than the average rate of increase for the control group over the three-year period. Finally, Donovan's findings were mixed with

respect to GDP growth rates, as there was a significant improvement in growth in programme countries in the one-year comparison but, a greater decline in the growth rate of programme countries in the three-year comparison period relative to the control group.

One year later, Donovan (1982), expanded his research to cover seventy-eight programmes during the period 1971-80. Using the same approach employed in his previous study, Donovan found that the balance of payments and current account positions of the programme countries improved relative to the control group in both time horizons (one and three-year). The increase in inflation in programme countries remained half that of the control group during the one-year comparison and dropped to a third of the control group's in the three-year comparisons. In contrast to his initial research findings, the rate of GDP growth for programme countries fell by more than the average decline for the control group in the one-year comparisons but by less in the three-year comparison period.

Gylfason (1987) also used the with-without approach in his study of thirty-two fund-supported programmes implemented during 1977-79. He compared the performance of the programme group to developing countries that experienced balance of payments difficulties during 1975-77. Using non-parametric statistical tests he found that there was an improvement in the balance of payments in programme countries relative to the control group for a three-year comparison period. He also found that the rate of inflation for both groups was the same and that the programme had no significant impact on growth rates.

Pastor (1987), employing the same statistical methodology as Gylfason (1987) for Latin American countries, found that the balance of payments performance was significantly better for programme countries relative to the control group. Additionally, he found that the difference in inflation and GDP growth was not statistically significant.

Like the before-after approach, the with-without technique attributes all the changes in the economic performance of the recipient countries to the programme. Another weakness of this approach is that it does not account for the initial differences in the economic conditions between the programme and non-programme countries. This is extremely important because to qualify for financial support through an IMF programme the economic conditions in programme countries had to be relatively poor prior to programme implementation unlike that of the control group. Therefore, this approach attempts to compare the changes in the economic performance of countries with poor economic conditions prior to the implementation of the programme to countries which were always 'economically sound'.

The Actual-Versus-Target Approach

The actual-versus-target approach was utilised by Reichmann (1978) to measure the impact of fund-supported programmes for eighteen countries during 1973-75. He found that, in most cases, the fund-supported programme was effective, as balance of payments, inflation and growth targets were either met or surpassed. For instance, he found that approximately two-thirds of the programmes met or exceeded their balance of payments targets, while the targets for inflation were met in over fifty percent of the programmes. Additionally, the target for the rate of growth was met in sixty-two percent of the programmes.

Beveridge and Kelly (1980) also used the actual-versus target approach to survey the fiscal content of one hundred and five programmes during 1967-78, focusing on three intermediate targets: (1) domestic credit expansion, (2) government revenues and expenditures and (3) deficit financing. They found that programmes did not meet their government and revenue expenditures, with forty percent of the programmes falling short of their revenue target and sixty percent surpassing their expenditure targets during the review period. As a result, only about fifty percent of the programmes met their overall fiscal targets. Beveridge and Kelly also found that governments were more successful in meeting their domestic non-bank financing targets (met in approximately

seventy percent of the programmes) than their foreign financing targets (exceeded in over sixty percent of the programmes).

Similarly, Zulu and Nsouli (1985) employed this approach in their study of programmes in African countries during 1980-81. Zulu and Nsouli found that thirty-eight percent of programmes met their current account targets, while an estimated forty-eight percent met their inflation targets. However, less than twenty percent achieved their growth targets.

Again, this approach suffers the same weakness of the previous two approaches, as it attributes all changes in economic performance to the programme. In addition, this approach does not measure whether the actual changes would have been more or less that what would have occurred in the absence of the programme.

The Comparison-of-Simulations Approach

Khan and Knight (1985) employed the comparison-of-stimulations approach, expanding on their initial study, Khan and Knight (1981), focusing on the balance of payments, inflation and real output growth of a package of a one-time reduction in the rates of growth of nominal domestic credit and nominal government expenditures, plus a devaluation (demand-management policies) with a package containing the abovementioned plus a set of structural policies that would gradually raise the rate of growth of capacity output. They found that the demand-management package almost immediately improved the balance of payments but at the cost of a short-run reduction in growth and a temporarily higher inflation rate. However, they found that in the second set of simulations that combined demand-management and structural policies, the structural policies could be used to help to partially offset any short-term adverse effect on growth as well as the inflationary pressures. Furthermore, they found that the longer-run effects of stimulated policies were more favourable than the short-run effects.

Where as the previous three approaches attributed actual outcomes in recipient countries to the fund-supported programme, the comparison-of-simulations approach

does not. Instead, this approach uses simulations of economic models to infer the hypothetical performance of fund-type polices and alternative policy packages. This approach is quite useful if the objective is to evaluate the design and effectiveness of various fund programme packages. However, the drawback of this approach is that the parameters in the econometric model are held fixed across policy simulations, and as such, remain invariant to policy regime changes (Khan, 1990).

The Generalised Evaluation Approach

Goldstein and Montiel (1986) applied the generalised-evaluation approach as well as the with-without approach to sixty-eight fund-supported programmes for fifty-eight developing countries during the period 1974-81. They found that programme countries had higher inflation levels, slower growth rates and larger current account and overall balance of payments deficits than non-programmed countries in the pre-programme period. After adjusting for these pre-programme differences and accounting for the effects of policy instruments on targets, the authors then used regression analysis to estimate the programme effects. Goldstein and Montiel found that the impact of programmes on the current account, balance of payments, inflation and real GDP growth were not statistically significant. However, these results differed from those obtained using the with-without approach, as these findings showed that programmes resulted in an improvement in the current account, a marginal worsening of the balance of payments, a reduction in the rate of inflation, and an increase in GDP. When the generalised-evaluation estimator was employed, there was no improvement in the current account. In addition, the results of the generalised-evaluation approach pointed to a larger deterioration in the balance of payments, increased inflationary pressures and a decline in growth rates.

Although the generalised evaluation approach provides an estimation of the direct impact of the fund-supported programme, it only gives an indication of the direction of the impact, as indicated by the direction of the dummy, but does not quantify how much of the change is attributed to the programme versus other factors.

3. The Fund-supported Programmes in Barbados

The combination of external shocks and weak domestic policies has forced all of the more developed economies of the Caribbean, with the exception of The Bahamas, to seek the assistance of the IMF in addressing their problems. Barbados' own economic circumstances have forced it to use Fund resources on three occasions, in 1977, 1982-84 and 1992-93. The character of each arrangement with the IMF varied according to the size of the problem and the policies needed to return the economy to a sustainable growth path.

The first drawing in 1977 was related to compensatory financing for export shortfall and involved no conditionality, but subsequent purchases from the Fund have been accompanied by upper credit tranche[1] stand-by arrangements. The differences in approach reflect both the nature of the problem at the time and the degree of access to alternative financing. The 1982-83 programme was completed successfully in terms of the targets agreed between the IMF and the Barbadian authorities and all drawdowns were made. The 1992-93 programme was preceded by severe external disequilibrium, requiring a faster pace of adjustment and involving a mix of macroeconomic and structural measures.

The 1992 program was more complex than its predecessor. The foreign exchange deterioration was more severe and targets for the central government deficit and net international reserves formed part of the quantitative performance criteria along with limits on the net domestic assets, public sector borrowing requirements and external debt. In additional, government committed itself to a wide ranging list of structural reforms, related to tax policy, the financial sector, trade liberalisation, labour market and state ownership of commercial entities. The objectives of the program were more demanding than that of 1982, as evidenced by the aim to cut the public sector deficit

[1] Stand-by arrangements in excess of 25% of quota.

from 6.7% in FY 1990-91 to 0.6% in FY 1991-92 and a revised surplus position of 1.1% by FY 1992-93. As described below, the policy matrix required stronger action to achieve fiscal and external objective.

The development of this disequilibrium in external and fiscal accounts is attributed to several causes. The crisis itself was preceded by strong economic growth between 1986 and 1989, influenced in part by growth in tourism and by expansionary policies. However, efforts to broaden the economic base for foreign exchange earnings had still left the economy almost dependent on one sector – tourism and there was increasing concern that the foreign exchange earning sectors were losing competitiveness. In addition, with a fillip being provided to consumption and investment in non-traded activities, the import reserve cover was not adequate to protect the economy against external shocks created by a slowdown in economic activity in industrial countries and the impact of the Gulf War on tourist travel and unsustainable domestic policies.

The relaxation in fiscal discipline almost immediately after the 1982-84 programme provided the impetus for the unsustainability of domestic policies. The sharp reduction in direct tax rates created excess liquidity as the private sector adapted to the increase in disposable income. This monetary overhang was only partially addressed by the budgetary correction of FY 1988-89 and in 1989 private sector spending accelerated, resulting in an improvement in the public finances based on higher indirect taxes from a surge in imports.

Government engaged in extensive commercial borrowing between 1985 and 1990 but, as spending picked up and external debt service ballooned in 1990, the foreign exchange reserves came under pressure. The sharp rise in government spending on wages and capital formation in the lead up to the 1991 election raised the public sector deficit for the FY 1990-91 to 7.4% of GDP, comparable only to that of 1987, the first year of the 1986 tax regime. The contraction in domestic liquidity together with the increase in public sector external debt service shifted the burden of financing government onto the Central Bank at the expense of the reserves.

Characteristics of Adjustment Programme

Overall, the strategies were market-oriented and broadly intended to reduce state participation in economic activity and stimulate the private sector. Additionally, with adherence to a fixed exchange rate strategy, Barbados concentrated on expenditure reduction policies, incorporating economy-wide restraint, and made efforts to diversify into offshore financial services.

The Nature of Fiscal Adjustment

The adjustment programme during the 1992-93 period put fiscal contraction as the central element in stabilising the economy, as devaluation was completely ruled out. Following central government deficits averaging 4.3 percent of GDP in fiscal years 1986/87 to 1990/91, a comprehensive tightening of fiscal operations was launched. On the expenditure side, nominal wages in the public sector were cut by 8 percent in late 1991 and frozen in the following year, while 11 percent (3,000) of public sector workers were made redundant. Capital formation was sharply reduced, particularly through deferment of projects which did not have a large foreign-financed component. To improve revenue, a stabilisation tax of 1.5 to 5 percent was imposed on incomes, the basic consumption tax was raised from 10 to 17 percent, the consumption tax on petroleum increased, and a 20 percent tax on luxury imports was levied. To improve the finances of the national insurance scheme (NIS), contribution rates were increased and unemployment benefits and severance payments reduced. As a result, the fiscal position improved, as the overall public sector balance moved from a deficit of over 7 percent of GDP in 1990/91 to a small surplus in 1992/93.

The goals of this stiff fiscal adjustment related to the need to immediately reduce the imbalance between demand and supply of resources so as to curb the outflow of foreign exchange, preserve the value of the exchange rate and restore confidence. By emphasising wages as part of the correction, it contributed to the need to enhance cost competitiveness in the economy. In addition, to place the fiscal accounts on a sustainable path, the adjustment sought to improve financial efficiency in the public

sector. In this regard, Government sold its shares in various public entities and this helped in the financing of government operations. Some public enterprises were restructured with a view to improving efficiency while greater attention was paid to cost recovery in relation to services provided by the public sector.

A programme to reform the Barbadian tax system was launched in 1993, initially with a focus on direct taxation. By 1995 the stabilization tax and some other payroll levies were abolished, the number of personal income tax brackets was reduced from 6 to 2, the corporation tax rate was equalise with the top personal income tax rate at 40 percent, and many exemptions were eliminated. A value-added tax (VAT) was introduced at the start of 1997 with a basic rate of 15 percent, except for hotel accommodations at 7.5 percent. The VAT significantly simplified the tax system as it replaced 11 indirect taxes, and also proved to be revenue enhancing.

Monetary and Financial Policies

In a simple model of an open economy with a fixed exchange rate and perfect capital mobility, monetary policy is ultimately ineffective, as attempts by the central bank to increase (decrease) the domestic money supply are eventually frustrated by capital outflows (inflows). However, Barbados had some degree of autonomy in monetary policy during the stabilisation programme given the existence of capital controls along with its fixed exchange rate regime. Nonetheless, the general focus of monetary policy, rather than taking center stage, was to complement fiscal policy by keeping a lid on central bank credit to the public sector. Also, in keeping with the market-oriented spirit of reform, credit and interest rate restrictions to the private sector were lowered.

Since its inception in 1972, the Central Bank of Barbados primarily used credit and interest controls as well as liquidity requirements on bank deposits (made up of unremunerated cash reserves to be held at the central bank and the rest to be held in eligible government instruments). In the adjustment programme in the early 1990s, limits were put on central bank credit to the public sector, while, to slow private sector credit, the liquid assets requirement and minimum deposits rates were raised, and the

ceiling on loans rates removed. To discourage commercial bank borrowing from the central bank, the discount rate was increased, together with the penalty interest on reserves deficiencies. A plan to phase out a number of direct controls was started and in a few years all selective credit controls had been removed, leaving a minimum deposit rate (4 and later 5 percent), and a liquidity requirement of 29 percent of bank deposits, of which 6 percent must be in cash. This was subsequently lowered to 25 percent. Occasionally, the central bank moved government deposits out of the commercial banks and also sold treasury bills to tighten liquidity conditions.

Barbados did not experience a full-fledged banking system crisis but needed to address problems arising from the weak performance of state banks that caused a fiscal drain. In particular, the government-owned Barbados National Bank (BNB) was overexposed to a depressed sugar sector while the Barbados Development Bank (BDB) was burdened by non-performing loans to small hotels. The government issued bonds to restructure the sugar industry debt, engaged in an internal reorganisation exercise and later capitalised the BNB. The BDB was eventually closed. In a relatively calm financial environment, new legislation was put in place in 1997, strengthening the supervisory powers of the Central Bank, and including prudential regulations along the lines of the Basel Accord.

Exchange Rate and Trade Policies

Barbados steadfastly adhered to a fixed exchange rate at an unchanged parity. This was formally expressed in the “Protocol for the Implementation of Prices and Income Policy” which covered the period 1993 to 1995 and made provision for an economy-wide wage freeze, as well as two subsequent agreements among the government, business, and labour leaders.

In 1991 the exchange rate came under severe strain. Despite the depreciation in the real effective exchange rate, foreign reserves were under sustained pressure between 1986 and 1990. Relatively low external debt indicators facilitated an increase in foreign borrowing between 1986 and 1990, ensuring that foreign exchange was available to

meet the economy's needs. However, this served to mask the problems created by fiscal pressures. The rapid deterioration in the reserves of the Central Bank during 1989 and 1990 was cushioned by new borrowings but, as foreign creditors became increasingly concerned about economic developments, access to capital markets declined. With outflows for debt service payments accelerating, the depletion of foreign exchange also signalled pressure on the official exchange rate. The gross reserves of the Central Bank fell to less than two weeks of foreign exchange in terms of imports and banks were unable to service demand. Rumours of an emerging small black market for foreign exchange surfaced, raising concern that the official exchange rate could not be sustained. However, government maintained its resolve to keep the exchange rate unchanged. Instead, government returned to first principles, employing a strong fiscal correction supported by wage restraint as mentioned earlier. Privatization proceeds helped to smooth the initial cash flow problems and the effective dampening of demand facilitated a swift recovery in the foreign exchange situation. This helped to allay fears, deter the growth of the black market and restore confidence in the exchange rate.

Trade measures, such as reduced tariffs and quantitative import restrictions, were employed more as medium-term devices to improve welfare. In the early 1970s and1980s, imports were subject to a significant degree of control, in large measure based on an argument that import substitution would foster domestic manufacturing. The idea was that after a temporary period of protection, trade could then be opened up as the manufacturers would be strong enough to withstand competition. In practice, manufacturers became dependent on protection, and in periods of balance of payments difficulties, the typical reaction was to increase import tariffs and tighten quantitative restrictions.

In contrast, in the stabilisation programme, trade was liberalised, with quantitative restrictions being phased out and replaced by higher import duties that were themselves lowered over time. The roots of this change lie in the adoption by the governments of a more medium term perspective that the economies would be more efficient in a liberalized environment. Such a perspective was no doubt influenced by the global

move toward more open trade. In terms of the capital account, Barbados maintained exchange controls to complement the exchange rate stance.

4. Macroeconomic Trends and Performance

In the post-central bank era, the Barbados economy has undergone three relatively short periods of recession (1974-75, 1981-82 and 1990-92) interspersed with long periods of positive growth. A common trait of these downturns was that they were either preceded or were accompanied by periods of relatively large fiscal deficits. These deficits triggered current account disequilibria, sometimes made worse by developments in the external economy.

Following the recession of 1974-75, brought on mainly by the quadrupling of international oil prices, the economy expanded at a fairly strong pace of about 5% per annum between 1976 and 1980, underpinned by an emerging tourism industry, but mainly supported by increased public expenditure that fuelled aggregate demand. For instance, the fiscal deficit nearly doubled from 4% per annum between 1974 and 1975 to 7.8% per annum between 1976 and 1977 and stayed at 5.8% on average over the six- year period to 1981. Meanwhile, credit to the non-financial private sector averaged 13.75% per annum over the period 1976 to 1981, accentuating the high level of aggregate demand over this period. As a result, the external current accounts experienced a series of deficits averaging 8.5% per annum over this period, putting the overall balance of payments under pressure, accompanied by large losses of international reserves. The country experienced two years of economic decline in 1981 and 1982, while the rate of inflation averaged 10% per annum. The Government negotiated a stand-by arrangement with the International Monetary Fund to support the balance of payments and measures were put in place to curtail growth in aggregate expenditure, including additional revenue raising measures and credit restrictions which moderated import growth.

The economy responded to the measures to dampen aggregate demand in the preceding two years and, along with rebounding tourism earnings, the country emerged out of recession in 1983 and for the next six years real economic activity expanded at an average annual growth rate of 3.2%. Over the period 1983 to 1990, inflationary pressures were more subdued, growing at an annual average rate of approximately 4%. Despite the extended period of positive growth, the balance of payments pressures that had emerged in the early 1980s persisted throughout the mid to the late 1980s, in part due to continued fiscal expansion. Moreover the increased fiscal deficits were increasingly being financed via Central Bank accommodation. This, along with a resurgence in consumer spending led to rapid reserve losses. In addition, the Government borrowed heavily overseas for balance of payment support and to help service an expanding external public debt and by 1991, the island's foreign exchange reserves were seriously depleted, even as the economy slid into a recession. In an effort to correct the resulting foreign exchange deficiency, Government implemented an eighteen-month stabilization programme, with the support of the International Monetary Fund, during the fourth quarter of 1991.

The programme sought to reduce spending on imports through reductions in the fiscal deficit and private sector credit. The fiscal measures included a decrease in the wages bill of all public sector entities, a cutback in spending on capital projects, lower transfers to statutory corporations and increased taxation. To complement the fiscal measures, monetary policy was tightened; the Central Bank's discount rate was raised and commercial banks were required to hold a higher proportion of deposits in government securities. In addition, global credit limits were imposed on commercial banks but the ceiling on the banks' average lending rate was removed.

Along with these short-term measures, the country introduced a structural adjustment programme intended to strengthen the island's capacity to produce more. Commitment was given to tax reform measures to broaden the tax base and reduce the tax burden, the reform of social expenditure programmes and social security schemes as well as the restructuring of public enterprises to make them more efficient. In addition, there

were measures to streamline the tariff structure, giving it a distinct bias towards export-producing activities and financial sector reforms to strengthen the regulatory instruments that guide the operations of financial institutions.

Charts 1 to 3 display the evolution of the key macroeconomic aggregates (fiscal deficit, external current account and inflation) covering the periods both before and after the adjustment programme. As can be ascertained from these charts, the post-adjustment period of 1992 to 2006 was characterized by relatively low macroeconomic disequilibrium. For instance, the fiscal deficit averaged only 2.4% of GDP per year in that period, compared with 5.4% in the pre-adjustment period of 1977 to 1990. Similarly the external current account deficit in the post adjustment period averaged 2.8% compared with 3.8% in the period 1977 to 1990. Indeed if one considers the immediate post-adjustment period of 1991 to 2000, there was a positive current account balance of 1% of GDP.

Chart 1: Fiscal Deficit of GDP Ratio (1970 – 2008)

Shaded areas represent recessionary periods

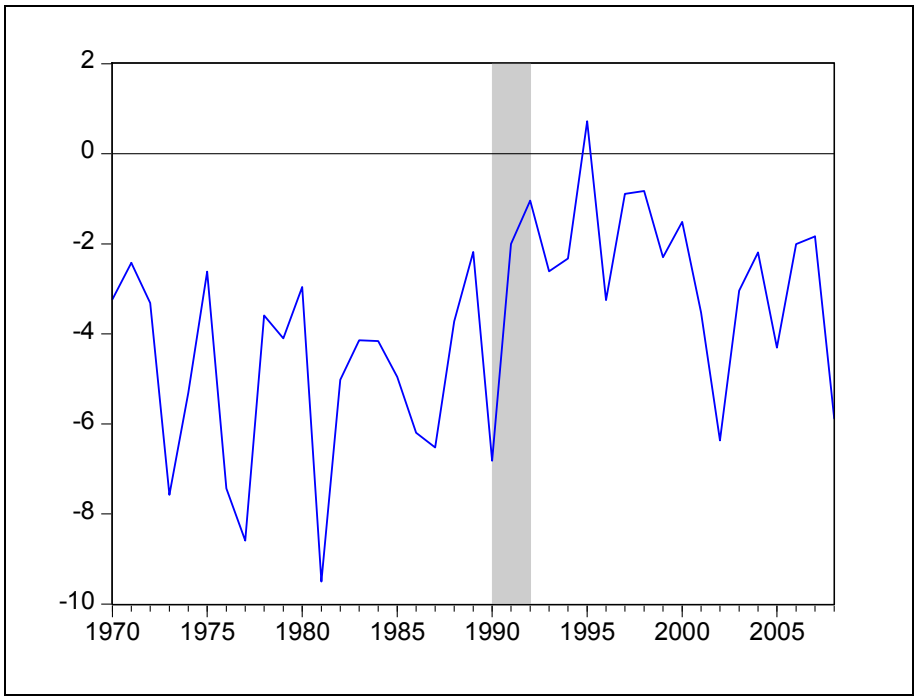


Chart 2: Current Account Balance/GDP (1970 – 2008)

Shaded areas represent recessionary periods

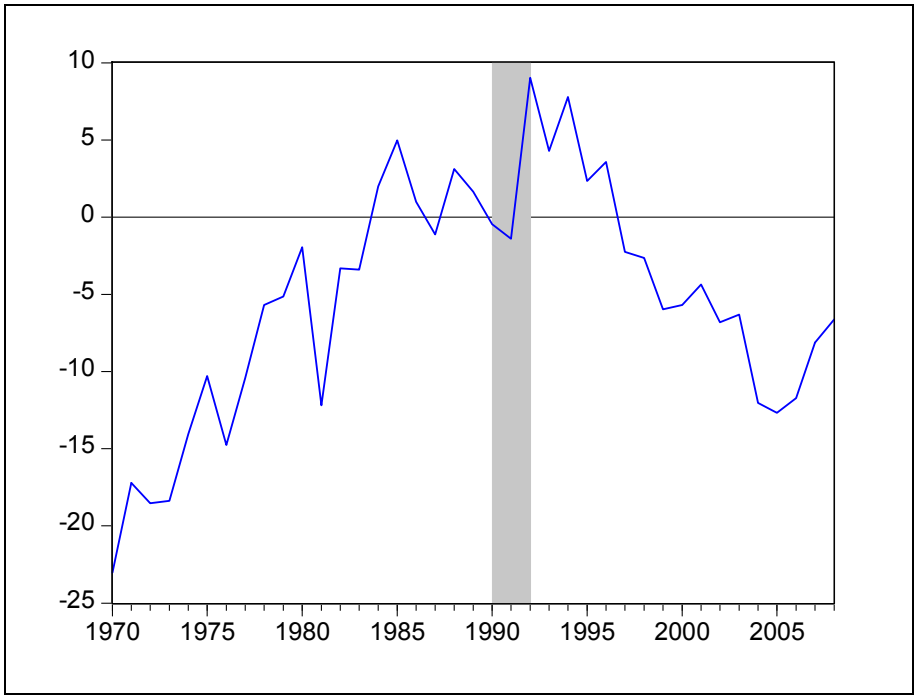
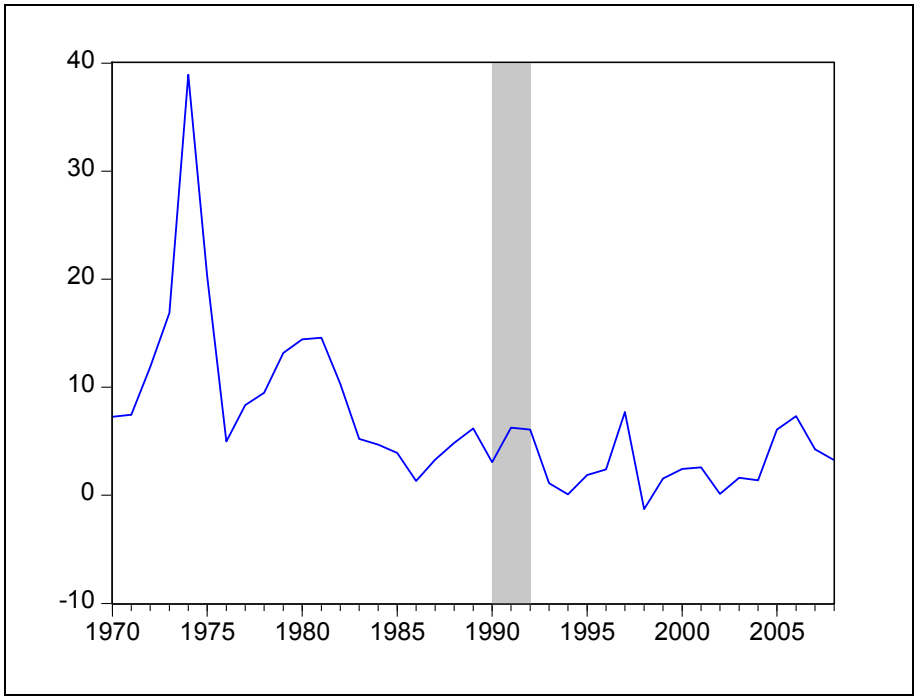
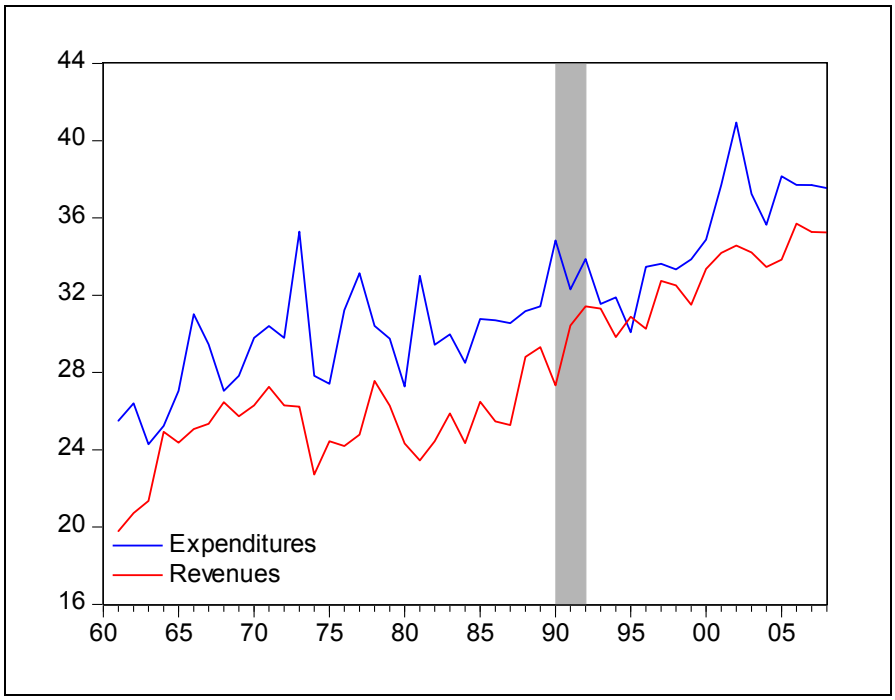


Chart 3: Rate of Inflation



An important feature of this period was the realisation of eight successive years of real economic expansion, the longest in the economic history of Barbados. Compared with the previous two decades, where total expenditure averaged 13.4% per annum, total expenditure growth slowed considerably to an annual rate of 4.6% on average during the years of 1991-2000. Although employment in the public sector continued to grow strongly, especially between 1995 and 2000, overall recurrent expenditure expanded on average by 5.7%, owing to moderate public sector wage increases, commensurate with a relatively modest period of price inflation.

Chart 4: Revenues and Expenditures as % of GDP (1970 – 2008)



By the end of 2000, the revenue-to-GDP ratio had risen to almost 32%, compared with 27.6% at year-end 1990, largely due to government's emphasis on discretionary changes rather than the natural responsiveness of the tax system to real GDP growth. In a recent study, the overall tax elasticity for the period 1977 to 1999 was estimated to be 0.88, compared to a tax buoyancy of about 1.29 (see Skeete, 2001). This suggests that the Barbadian tax system during this period was relatively inelastic, and that government was forced to rely on frequent discretionary changes for revenue to keep up with GDP growth.

Evolution of Reforms to the tax System

Between 1971-80, taxation policy initially focussed more on the government's role to facilitate economic growth and increase employment than on income distribution. Heavy reliance was placed on the direct mode of taxation and, while the income tax system was highly progressive, the threshold of income tax incidence was quite low. From 1980, onwards government fiscal policy was directed more towards expenditure

taxation rather than income taxation. The highly progressive direct tax system began to be dismantled.

A new tax rate structure was introduced and there were sizeable reductions in personal income tax liabilities, as the top marginal rate was lowered from 70% to 65% by 1985. In 1986, further revisions were made to the direct tax system. The top marginal rate was lowered to 50% and personal allowances were raised from $13,000 to $15,000 in addition to the existing standard deductions for full mortgage interest payments and life insurance premiums. Also, from 1980 onwards, the scope of consumption taxes was gradually widened and by the end of 1990, the ratio of indirect tax to overall tax revenue averaged 56%, almost nine percentage points above the ratio in the previous decade The emphasis on expenditure taxation continued into the decade ending in 2000, a period marked by important reforms in the taxation system.

Indeed, discretionary changes in tax rates, income tax bands and concessions were important components in the arsenal of fiscal tools that have been utilised to manage the fiscal system in Barbados. However, **following the 1990-92** recession, major reforms of both the direct and indirect tax systems were undertaken as part of the measures to restructure various sectors of the Barbados economy.

Direct Tax Reform

Over time, the direct tax system had become highly complicated due a complex system of itemised allowances, an abundance of payroll taxes (levies) and concessions, which tended to be discriminatory to the extent that it appeared to favour the high-income group. The broad thrust of the 1992 direct tax reform was, therefore, to simplify the direct tax system, broaden the tax base, while reducing the scope of direct taxation further in anticipation of the intended introduction of the all-embracing value added tax.

Personal allowances were standardised to $13,000 and most tax-exempt allowances, such as deductions for life insurance payments and full mortgage interest payments, were removed. In addition, income tax bands were widened, the top marginal income

tax rate was reduced from 50% to 40% and four levies comprising the training, health, employment and transportation were abolished.

Indirect Tax Reform

Arguably, the most important change in the taxation system in Barbados was the introduction of the value added tax (VAT) in 1997, as part of the reform of the indirect tax system. The major justification for this change was that the indirect tax system had become complex, characterised by multiple rates, cascading, protectionism and non-transparency, which impaired the proper functioning of the tax system. With its simplicity of administration, neutrality and revenue efficiency, the VAT was considered the appropriate form of taxation to improve the functioning of the system. It replaced eleven taxes[2] and was levied at a standard rate of 15% on all goods and services and 7.5% on hotel accommodation, with few exemptions and zero-ratings. Excise taxes were retained on alcohol and tobacco, motor vehicles, land and petroleum products.

By all accounts the reform measures were generally successful in boosting revenue. Government revenue intake after 1992 rose to about 30% of GDP compared to an average 25.5% between 1995 to 1990. Indeed, after the introduction of the VAT in 1997, total revenue grew by 19% as compared with an average increase of 8.8% in the previous two years, pushing the tax-GDP ratio to 33%. The VAT which had originally been intended to be revenue neutral, turned out to be revenue positive, extracting 2.5% of GDP more in revenue than was anticipated.

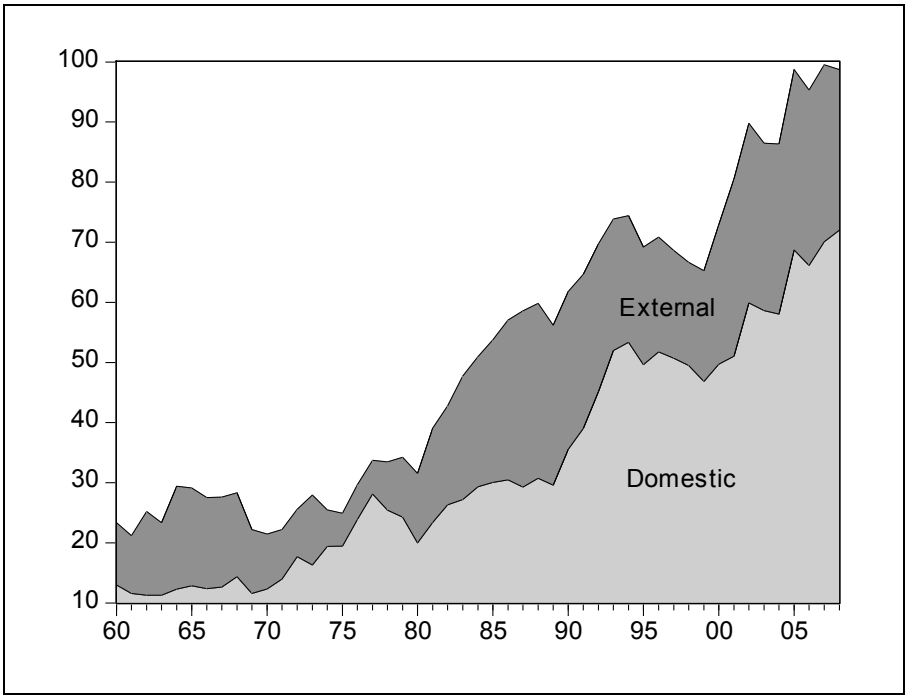
Fiscal Policy and Public Debt

Chart 4 shows the growth of public debt over the period 1971-2006. Total public debt (including government guaranteed debt) to GDP (at market prices) rose from about 20% in 1971 to about 75.5% in 1994, accelerating sharply during the 1980s, as Government incurred large fiscal deficits. Between 1994 and 1999, when the country's access to

[2] These were the consumption tax, surcharge on luxury imports, stamp duty on imports, public entertainment tax, hotel and restaurants sales tax, service tax, tax on quarriable minerals, travel ticket tax and tax on overseas telephone calls.

external borrowing was limited, the debt-to-GDP ratio fell to approximately 64%, but rose to a high of 96.3% in 2005 before dipping to 91.3% in 2006.

Chart 4: Total Public Debt-to-GDP Ratio

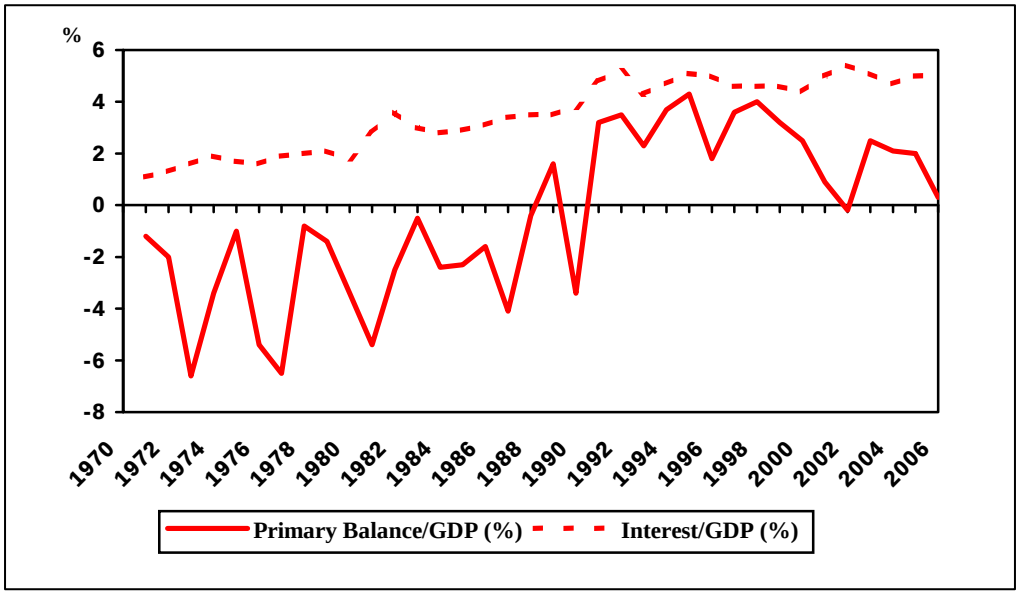


In Barbados, domestic debt has traditionally been the largest component of public debt, although its share has varied according to the emphasis placed on the main sources for financing public sector deficits. For instance, during the period 1978 to 1988, when Government borrowed heavily overseas for infrastructural development and balance of payments support, the ratio of domestic debt to total debt gradually declined from 76% to about 50%. During this period, the stock of external debt rose almost ten-fold. However, between 1988 and 1999, Government reverted to domestic sources for the bulk of its deficit financing and the share of domestic debt rose sharply to over 72%. In addition, Government incurred large contingent liabilities in 1992 and 1994 when long-term debt instruments were issued to restructure the balance sheet of a public lending institution overburdened by the debt of the sugar industry.

Ten years of moderate fiscal deficits, averaging about 1.5% between 1991 and 2000, gave way to a period of increasing deficits (averaging 3.8% of GDP) between 2001 and 2006 when Government intensified its capital works programme. Consequently, the debt-to-GDP ratio rose sharply from 64.4% in 1999 to 91.3% in 2006. Is the debt profile sustainable? The work of Buiter (1985) and others have established an important relationship between the debt-GDP ratio, the primary budget balance and interest rates. Those studies suggest that in the absence of central bank financing and zero growth, stabilising the level of real debt requires government to run a primary surplus at least equal to the interest charges. In a growing economy, debt would become sustainable only if government runs high primary surpluses.

Between 1991-2000, the Government of Barbados achieved an average primary surplus, equivalent to 3.2% of GDP. At the same time, interest charges amounted to an average of 4.7%. Over the period 2001-2006, the average primary surplus dropped to only 1.3% of GDP while interest charges amounted to 5% of GDP. This means that recent fiscal effort is not sufficient to maintain debt sustainability. Indeed, at this rate, the Government's declared policy of reducing the public debt to GDP ratio to around 60% could hardly be met, unless there is a deliberate policy action to increase the revenue yield or to cut back government spending.

Chart 5: Primary Balance and Debt Charges



5. Model Specification and Results

Model Specification

Based on the literature review, this study opts for the generalised evaluation approach to assessing the effects of the IMF supported programmes in Barbados. The generalised evaluation techniques attempts to estimate the effect of policy, exogenous shocks and other variables on specific macroeconomic targets, taking into account how policies would have evolved in the absence of the programme. As such, the model includes a reaction function to account for differences between targeted and actual outcomes. Specifically, the model defines the target variable for the country as:

$$y_i = \beta_1 + \beta_2 x_{it} + \beta_3 w_{it} + \beta^{IMF} d_t + \varepsilon_t \qquad (1)$$

where y_i is the target variable (for example, the current account balance, the overall balance of payments, economic growth and inflation), x_i is a vector of policy instruments (such as the fiscal balance or domestic credit), w_i are foreign exogenous variables that can have an effect on the target variable (for example the terms of trade, international interest rates, international oil prices), d is a dummy variable that takes the value unity during the year of the fund-supported program and zero otherwise, and ε is an unobserved error term with zero mean and fixed variance.

As such, Equation (1) defines changes in the particular macroeconomic outcome or target variable as a function of four factors: (1) changes in macroeconomic policy instruments that would have occurred in the absence of a program; (2) changes in external economic; (3) the total effect of a Fund program, as captured by the coefficient, β^{IMF}; and (4) any other unobservable shocks.

With β^{IMF} capturing the effect of the fund programme, then the x_i is by definition referring to those policies that would have been adopted in the absence of a programme. Goldstein and Montiel (1986) suggest representing x_i via the reaction function:

$$\Delta x_i = \gamma\left[y_i^d - (y_i)_{-1}\right] + \eta_i \qquad (2)$$

which posits that the change in macroeconomic policy instruments between the current and previous period is a function of the gap between the desired value of the macroeconomic target variables in the current period, y_i^d, and their actual value in the preceding period, y_{t-1}, with y serving as the coefficient that indicates the responsiveness of the policy instruments to such target disequilibria (Goldstein and Montiel 1986). For example, in the case of stabilising policy behaviour, Equation (2) would suggest that a current account deficit in the preceding period that was large relative to the target deficit would require a downward adjustment in a policy rate, such as the growth in domestic credit in the current period.

The generalised evaluation estimator can now be derived by substituting Equation (2) in to Equation (1) for x_i, the unobservable policy changes that would occur in the absence of a fund programme. Thus,

$$\Delta y_{it} = \beta_{0i} - (\gamma\beta_2 + 1)y_{t-1} + \beta_2 x_{t-1} + \beta_3 w + \beta^{IMF} d + (\varepsilon_t + \beta_2\eta) \qquad (3)$$

where the desired values y_i^d are subsumed in the constant such that $\beta_{0i} = \beta_1 + \beta_2 y_i^d$.

Goldstein and Montiel (1986) demonstrated that OLS estimation of Equation (3) produces an unbiased estimate of β^{IMF}. Moreover, the equation takes care of estimation of the counterfactual by controlling for the factors that are systematically related to the policies that would have been followed in the absence of a programme, by including the lag values of the target variables and the policy instruments in the specification.

Therefore, Equation (3) can be used to evaluate the simultaneous effect of fund-supported programmes, policy shocks, and foreign exogenous variables. It serves our objective of diagnosing the impact of fund-supported programmes, while taking into account the effect of other policy options that might have been adopted in the absence of the programs and foreign exogenous variables. Consistent with the literature, the targeted macroeconomic variables are the overall balance of payment position, current account balance, real economic growth and inflation. Thus, the following equation is estimated for each target variable.

$$\begin{aligned}\Delta y = {} & \alpha_0 + \alpha_1 (BOP/Y)_{t-1} + \alpha_2 (CA/Y)_{t-1} + \alpha_3 \pi_{t-1} + \alpha_4 g_{t-1} \\ & + \alpha_5 \Delta DC_{t-1} + \alpha_6 REER_{t-1} \alpha_7 (FD/Y)_{t-1} + \alpha_8 \Delta TOT_{t-1} \\ & + \alpha_9 Trend + \alpha_{10} FundDummy + \varsigma_t\end{aligned} \qquad (4)$$

Where Δy includes changes in the ratio of the balance of payments to GDP (BOP/Y), in the ratio of the current account to GDP (CA/Y), in inflation (π), and in growth (g), respectively. The policy variables are the percentage change in domestic credit (ΔDC), the real effective exchange rate ($REER$), and the ratio of the fiscal balance to GDP (FD/Y). These three policy variables are certainly not only policy measures in Fund-supported programmes, but they are perhaps the more important ones. The only external variable included is percentage change in the terms of trade (ΔTOT). Any other relevant international variables, such as the growth of ex-port markets, as well as domestic exogenous variables not included in Equation (4), are assumed to be captured by a linear time trend. The effects of programs is evaluated by the sign and statistical significance of α_{10}. All data are obtained from the Central Bank of Barbados Data Bank, with the exception of the terms of trade variable which is derived from the United Nations National Accounts Database.

Results and Discussion

Equation 4 is estimated for each of the four target variables and the results are presented in Table 2. The relatively high R^2s indicate that in each model more than 70

percent of variation in target variables is account for by the explanatory variables. In addition, each model passes the battery of diagnostics tests, including that for the normality of the residuals, no serial correlation and the absence of heteroskedasticity.

Table 1: Generalised Evaluation Estimates of Programme Effects

	Δ(BOP/Y)	Δ(CA/Y)	Δ(π)	Δ(g)
Constant	-2.705 (-0.816)	0.624 (0.145)	0.7769 (0.197)	4.289* (1.879)
$(BOP/Y)_{t-1}$	-0.320* (-1.789)	-0.151 (-0.642)	0.024 (0.178)	0.500* (1.789)
$(CA/Y)_{t-1}$	-0.389** (-2.223)	0.273* (1.783)	0.120 (0.774)	0.103 (0.650)
π_{t-1}	0.035 (0.222)	0.251* (1.989)	-0.657*** (-6.853)	-0.272*** (-2.988)
g_{t-1}	0.069 (0.300)	0.287 (1.489)	0.597** (2.324)	-0.655*** (-4.093)
ΔDC_{t-1}	-0.021** (-0.182)	-0.175 (-1.198)	0.201** (2.779)	0.051 (0.624)
$REER_{t-1}$	-0.148** (-2.435)	-0.296*** (-3.814)	0.066 (0.863)	0.148* (1.846)
$(FD/Y)_{t-1}$	0.493 (1.354)	0.844** (2.119)	0.115 (0.521)	-0.380* (-1.637)
TOT_{t-1}	-0.630** (2.098)	-0.643*** (-2.998)	0.332*** (-2.929)	-0.268 (-1.279)
Trend	0.377** (2.078)	0.541*** (3.186)	-0.166 (-0.877)	-0.387** (-2.478)
Fund Dummy	1.783 (0.851)	3.813** (2.541)	2.913* (1.809)	0.221** (2.897)
Dummy	-12.141*** (-3.864) *2004*			-9.043*** (-5.768) 2001
R^2	0.728	0.803	0.800	0.717
DW	2.03	1.98	1.93	2.05
AR	0.456[0.639]	0.181[0.835]	0.125[0.883]	0.576[0.571]
RESET	0.308[0.584]	0.739[0.400]	0.142[0.709]	0.414[0.527]
Norm	1.340[0.512]	0.028[0.986]	0.646[0.724]	0.811[0.667]
ARCH	0.251[0.621]	0.209[0.653]	0.427[0.521]	0.010[0.920]
HET	0.459[0.898]	0.209[0.994]	0.400[0.929]	0.133[0.998]

Notes: T-statistics are in parentheses and *, **, *** indicates significance at the 10, 5 and 1 percent level, respectively. The F-statistic for the respective diagnostics tests are shown (unless indicated otherwise) and the associated p-value in square brackets. *DW* is the Durbin-Watson statistic. *AR* is the Lagrange multiplier test for *p-th* order residual autocorrelation correlation (see Godfrey, 1978). *RESET* is the Ramsey's (1969) RESET test for incorrect functional form using the square of the fitted values (χ^2 (1)). *Norn* is the test for normality of the residuals based on the Jarque-Bera test statistic (χ^2 (2)). ARCH is the autoregressive conditional heteroscedasticity for up to *p*-th order (see Engle, 1982a). *HET* is the unconditional heteroscedasticity test based on the regression of squared residuals on squared fitted values (See Koenker, 1981).

The findings provide favourable support for Barbados' experience with fund-supported programmes. More specifically, the coefficient of the programme dummy in the balance of payments equation is positive, though statistically insignificant. However, with respect to the current account balance, the programme coefficient is not only positive and large, it is also highly significant. Thus, the fund-supported programme has resulted in an improvement in the current account balance for Barbados. This finding is consistent with the stylised facts. For example, in 1981 the current account balance had exceeded 12 percentage of GDP and by the conclusion of the fund-supported programme, which began in October 1982 and ended in May 1984, the current account had recorded a surplus of 2 percent of GDP and went on to record balances averaging 1.2 percent of GDP up until 1991. There results also suggest that the growth rate was positively and significantly impacted on by the programmes. This is not surprising since following the 1992 programme Barbados recorded 14 years of uninterrupted growth except for a short recession in 2001. Though not all this growth can be attributed to the programme, it is generally accepted that the programme did help stimulate growth, at least in the earlier years, through it assistance with restructuring the economy. Finally, the programmes also appear to have led to an increase in inflation, but this change is not statistically significant.

The results for the other parameters of the models are all reasonable. First, the coefficients of the own lagged values of each of the outcome variables are all statistically significant in the respective equations. Furthermore, in all four equations the lagged value of at least one of the other outcome variables shows up as significant. This result demonstrates of controlling for the factors that are systematically related to the policies that would have been followed in the absence of a programme.

The lagged percentage change in domestic credit turns out to have a significant effect only in the inflation and balance of payments equations, and indicate that credit expansion in Barbados often serve to worsen the overall balance of payments position and is usually inflationary. This is a reasonable conclusion given the high import bias in the domestic absorption mix.

The lagged real effective exchange rate is significant in all but the inflation equation. In both the balance of payments and current account equations, real depreciations (which basically represents an improvement in external competitiveness) have resulted in a deterioration in their balances. Since Barbados has maintained the fixed exchange rate parity for over 35 years, movements in the real effective exchange rate mirror changes in wages and other cost associated with businesses. Thus, the evidence would suggest that when gains are made in these areas, they have more of an impact on the imports than on the exports side. More importantly, this finding adds credence to the argument of many local commentators that a nominal devaluation would adversely affect Barbados' external position, further aggravating any imbalances that may exist. The findings on the terms of trade variable also support this analysis.

The lagged fiscal balance variable also yields very plausible results. An increase in the fiscal deficit worsens the current account but raises the growth rate. However, the coefficient measuring the effects of the fiscal balance is insignificant in the balance of payments and inflation.

6. Summary and Conclusion

The paper has attempted to assess the relative impact of Fund-supported programmes in Barbados. Trend movement of fiscal and external current balances, as well as inflation and public debt in the pre- and post-adjustment periods have been examined, serving as a guide to assessing the overall quality of the programme. In addition, the Generalized Evaluation Estimator technique is used in order to measure the impact of such programmes on targeted macroeconomic variables. This approach takes into account exogenous factors and the other policy options that can also affect the performance of target variables, apart from the Fund programmes, and it does so by including those exogenous variables along with the IMF dummy. The other policy variables are directly observable in the absence of the programs but cannot be observed during the program years and so to overcome this problem reaction functions are estimated.

In general the overall programme appeared to have been successful in laying the foundation for sustained growth within an environment of stable prices, especially in the immediate decade or so after the implication of the 1992 programme. The stabilisation programme did impact a measure of stability to the macro-economic variables examined. Moreover, the accompanying structural measures have helped to reduce some of the distortions embedded in the fiscal and social security systems. Nevertheless, the Barbados economy is still faced with a number of macro fiscal challenges, some of which have been identified in the paper. Moreover, Government's resort to counter-cyclical measures to support economic growth in the aftermath of the 2001 recession appeared to have restructured aggregate demand, as is evident by the determination in the external current account balances. Careful attention must be paid to the steadily increasing fiscal deficit and the accompanying increase in the public debt to GDP ratio.

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