



**LONG-TERM PRIVATE SECTOR INVESTMENT INFLOWS
AND THEIR IMPACT ON BARBADIAN EXPORTS
AND IMPORTS FROM 1970 - 1997**

by

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Introduction

Long-term private sector investment inflows have played an important role in the development of Barbados for many years. First of all, they have a direct impact on the country's capital and financial account, and by extension, the foreign reserves which are the lifeblood of the Barbadian economy and indeed, many economies around the globe. Secondly, because private sector activity is linked to those sectors which earn as well as consume foreign exchange, any investment undertaken by this group should have implications for import and export performances. It is therefore against this background that a study of this nature is being carried out. Section two will look at trends in long-term private sector investment inflows over the last twenty eight years. This will be followed in the next section by some observations on exports and imports over the said period. Section four seeks to examine the impact of long-term private sector investment inflows on Barbadian exports and imports in the long and short run with the use of regression analysis. This will be followed by a conclusion.

Section 2

Trends in Long-Term Private Sector Investment Inflows in Barbados Over the Past Twenty Eight Years

Long-term private sector investment is captured in the capital and financial account of the balance of payments of Barbados and comprises foreign direct investment, portfolio investment and other investment transactions. Direct investment involves total or substantial control of an enterprise; the investment takes the form of equity capital, retained earnings, loans from a parent company and the acquisition or disposal of land by anyone except an embassy. Direct investment may also involve the transfer of technology, management resources and marketing expertise. Portfolio investment, which assumes no control on the part of the investor, includes the purchases of corporate securities. The other investment category is mainly made up of long-term loans and trade credits outstanding for more than one year.

Between 1970 and 1976, direct investment was the primary source of long-term private sector investment in Barbados. During this period, when long-term inflows moved from \$26.4 million to \$40.8 million, direct investment accounted for approximately 80% of these movements, which were the result of loans from parent companies and to a lesser extent, branch investment and retained earnings. Thereafter, the other investment category played a more significant role and in several cases was the major source of inflows to Barbados, primarily as a result of long-term loans. However portfolio investment inflows hardly surpassed \$15 million on any occasion [see Balance of Payments Publication, Central Bank of Barbados].

In the year that followed, long-term private sector inflows grew by \$29 million. Of this total, some \$9.8 million was attributed to direct investment while the remainder was due to transactions in the other investment category. While the majority investment occurred in the industrial sector, investment also took place in hotels and other tourist accommodation [see Central Bank Annual Reports, and Codrington (1987)]. Four years later, private sector inflows more than tripled the 1977 amount, rising by \$101.2 million, mainly on account of public utilities. Both the Barbados Telephone Company (as it was then called) and the Barbados Light and Power Company began the process of upgrading services in order to accommodate more sophisticated consumer patterns and reduce operating costs (Codrington, pp22). However by 1984, a slowdown of long-term loans from abroad coupled with a reduction in local debt instruments drove long-term private sector transactions down to a level comparable with that of 1977.

In 1988, for the first time on record, private sector investment transactions were negative as the gains in direct investment capital were eroded by foreign amortization payments. This pattern continued into 1989 but a reversal was experienced in the following year when inflows of \$64 million were recorded. The growth of inflows was reflected in all investment

categories. Four years later, long-term private sector investment inflows in Barbados reached an all-time high with transactions totalling \$ 105.7 million. This was driven mainly by investment in tourism, especially the hotel sector. The activities included hotel construction, general upgrading, golf course construction and ancillary services such as duty-free outlets, restaurants and water sports. However the record inflows of 1994 were short-lived as hotel-related investment in addition to investment in power generation and telecommunications played a key role in the \$136 million inflows of 1996. Both the hotel sector and public utilities continued to attract significant foreign investment from abroad during 1997, with the result that private sector inflows entering the country were almost the same level as in 1996.

Section 3

Some Observations on Barbados' Exports and Imports

Over the years, both goods and services have played significant roles in the development of the Barbadian economy. On the export side, the item, goods, was the single largest category up until 1970 when it was replaced by tourist receipts but it has always dominated the import account. The major goods which Barbados exports abroad are sugar, electrical components, chemicals and food and beverages. On the import side, goods purchased from abroad are broken down into consumer, intermediate and capital items. Within the last twelve years, with the exception of one or two of these years, motor cars have comprised the single largest item of consumer imports. Construction materials, chemicals, fuels and feeds, fats and crude materials help to make up intermediate commodities while machinery is the dominant item of capital imports.

Up until 1973, the majority of Barbados' commodities was sold to Europe but this role was taken over by the USA from 1974 until 1987. From 1988 until 1997, Caricom countries, especially, Trinidad and Tobago and Jamaica, have been the major recipients of Barbados'

exports. Between 1970 and 1978, Barbados imported most of its commodities from Europe but thereafter, the USA replaced Europe as the major supplier of its imports.

In Barbados, services comprise travel, transportation, government services (not included elsewhere) and other services. Travel accounts for just over 40% of Barbados' foreign receipts [Campbell and Bynoe-Mayers, 1997], and surpassed foreign income earned from merchandise exports since 1970. Indeed between 1970 and 1974, net earnings rose by approximately 20% per annum, due to the fact that higher disposable incomes in major markets facilitated promotional efforts and both air fares and air links were more favourable (Codrington, 1993). However from 1983 until 1989, despite the longest peacetime economic boom in western industrial countries, net earnings from tourism grew at their slowest average annual rate (13%). This was due to the fact that spending by visitors was offset to some extent by a noticeable pick-up in outlays for foreign travel by Barbadians. The highest amount of tourist expenditure on record for Barbados during this period was in 1996, when visitors spent \$1385.2 million. Barbados' major markets to date are the UK (which at present accounts for the largest market share), the USA, Canada and Caricom countries.

The net transportation balance has always been negative because of the dominance of freight payments and the absence of stores and bunkers. Freight payments were estimated at 7% of total imports prior to 1976 but this estimation has increased to 10% ever since. The changes to the transportation table came about after the Fifth Edition Manual of the International Monetary Fund (IMF) was implemented (Campbell, 2000). These net outflows have risen every year with the exception of 1992 when measures were put in place by the Government of Barbados to severely restrict economic activity after a serious depletion of the country's foreign reserves in 1991.

Government transactions consists of those transactions between the Government of Barbados and non-residents as well as residents of Barbados and the agencies of foreign bodies. Such transactions became important just after Independence when a deepening of international links resulted in a rapid increase in the number of diplomats stationed in Barbados. The main components of Government services are wage payments, services under aid programmes, real estate rentals and diplomatic personal expenditure. This category has remained a net foreign exchange earner for Barbados over the period under discussion.

The other services category includes all of those services not accounted for in the previous categories. Some of the items which fall under this heading are insurance services, financial services, computer and information services, communication services, to name a few.

The balance on insurance services has largely been negative, emphasising the extent to which non-resident insurers have been penetrating the local market. Financial services comprise, among other things, the transactions of off-shore companies which are of extreme importance to Barbados. Indeed over the last three years, net foreign receipts from financial services have averaged approximately \$100 million [Campbell, 1999]. Computer and information services have provided Barbados with average net foreign receipts of \$50 million, ever since data were being captured on this component some four years ago. As has been the case with financial and computer and information services, communication services has always been a net foreign exchange earner for Barbados. This component picked up significantly in the mid-1980's when it was facilitated by the modernization of telecommunications facilities which made Barbados the regional leader in this field.

Section 4

The Impact of Long-Term Private Sector Investment Inflows on Exports and Imports

In the case of import demand for goods and services, M , the explanatory variables considered along with long-term private sector investment inflows, K , are real income of Barbados, Y_{BDS} , real exchange rate, RER , availability of foreign exchange earned by exporters, F , commercial bank credit, CRE , and a Government policy variable. The variables chosen to explain exports of goods and services, X , are long-term private sector investment inflows, K , relative prices, RP and tourist arrivals, ARR .

Long-term private sector investment inflows should drive up import demand for goods and services, since as these inflows grow, a proportion of these inflows are used to purchase goods and services from abroad. As real income expands, the demand for imports of goods and services should rise with increased economic activity, hence a positive relationship between the two variables. A negative relationship should occur between the real exchange rate and import demand, since as the price of foreign goods rises, foreign goods become more expensive and imports should decline. This was one of the variables chosen by Wilamoski and Tinkler (1999) when analyzing the trade effects of US foreign direct investment in Mexico. The availability of foreign exchange earned by exporters was an explanatory variable used by Fry (1996) when examining the effect of foreign direct investment in Pacific Asia on the external current account. This variable and imports should move in the same direction since as more foreign exchange becomes available, more foreign currency can be used to purchase goods and services from abroad. The use of credit enables an individual or a firm to save after he/she or it has purchased instead of before. If terms become easier, greater use would be made of credit and this would tend to raise import demand.

On the export side, private sector foreign investment inflows should be positively related to exports of goods and services if these flows are used to stimulate growth in the productive sectors. Relative prices should be positively related to exports of goods and services since an increase in world prices would serve as an incentive for local producers to increase production for overseas markets, resulting in increased foreign receipts. Higher tourist arrivals to Barbados should result in additional earnings in goods and services as long as these visitors increase their spending.

4(a) Model Specification

Formally, the models of imports and exports of goods and services can be expressed as follows:

$$M = M(K, Y_{BDS}, RER, CRE, F,) \quad (1)$$

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$$X = X(K, ARR, RP) \quad (2)$$

+ + +

where all of the variables have already been defined.

4(b) Data and Variables

The data analyzed in this study are annual observations over a twenty eight year period. The data set was compiled with the assistance of the Annual Statistical Digest and the Balance of Payments Publication, both published by the Central Bank of Barbados and the International Financial Statistics Yearbook published by the International Monetary Fund.. Real gross domestic product was used as a proxy for real incomes of Barbados and was estimated at 1974 prices. Relative prices were calculated using 1990 as the base year. The availability of foreign exchange is proxied by the ratio of nominal exports to nominal GDP.. The real exchange rate is calculated with 1980 as base year while the dummy variable is assigned values of one from 1991 to 1993 when the stabilisation programme implemented by the Government of Barbados

with the assistance of the International Monetary Fund was in operation. All estimations were performed using the econometric software package Eviews 3.0.

4(c) Results

The Augmented Dickey-Fuller (ADF) test was used to determine the order of integration of each data series. This is a test of the null hypothesis of non-stationarity or a unit root [integrated of order d, I(d) where $d \geq 1$] against the alternative hypothesis of stationarity [or integration of order zero, I(0)]. The ADF tests of the first differences of each variable indicate that all of the variables are I(1). All of the variables have the correct sign and the numbers which are shown in parenthesis directly under the variables are the respective "t" statistics. The long run results of the import equation are shown below.

$$M = -1822.34 + 0.959K + 2.827Y_{BDS} - 2.724RER + 0.85CRED + 19.97F \quad (3)$$

(-5.382) (1.809) (7.122) (-1.902) (9.382) (7.136)

$$R^2 = 0.98 \quad \text{Adj } R^2 = 0.97 \quad \text{D.W.} = 2.23 \quad \text{ADF} = -3.448 \quad (-2.9798)$$

The results show that all of the explanatory variables are cointegrated since both the Augmented Dickey-Fuller (ADF) test rejects the null hypothesis of non-stationarity of the residuals at the 5% level. No first order serial correlation was discovered in the Durbin Watson statistic. All of the variables are significant and have the correct signs. The coefficient of long-term private sector investment inflows suggests that in the long run, every \$1 million borrowed from abroad by local private concerns or invested in Barbados by foreign interests will lead to an additional \$0.95 million in import purchases. In the case of the long run export equation, we report the following findings:

$$X = 934.57 + 3.605K + 0.004ARR + 11.35RP \quad (4)$$

(1.773) (3.619) (6.795) (4.113)

$$R^2 = 0.94 \quad \text{Adj } R^2 = 0.93 \quad \text{D.W.} = 1.54 \quad \text{ADF} = -3.252 \quad (-2.9798)$$

As was the case in equation 3, the results of the Augmented Dickey-Fuller test indicates that all of the explanatory variables are cointegrated. The Durbin Watson statistic also does not indicate any first order serial correlation in this case. All of the variables help to explain exports of goods and services and are significant at the 5% level. In this case, the data suggest that a \$1 million rise in long-term private sector financial inflows will lead to an increase in exports of goods and services of \$3.6 million. When one compares these findings of equation 4 with those of equation 3, we obtain a net increase in exports of goods and services of approximately \$2.7 million. These results imply that it is in the interest of Barbados to encourage foreign investment or for the private sector to engage in foreign borrowing since, not only will it be a boost to the capital and financial account, but also that it will be a benefit primarily to the productive sectors.. Such borrowings will also assist in improving the current account balance over time by way of categories such as tourist expenditure.

If a set of variables are cointegrated, then a valid Error Correction Model of those variables can be formulated. This is according to the Engle and Granger Representation Theorem of 1987. The Error Correction Model nests both the long run behaviour and short run dynamics. An application of the Hendry General to Specific Methodology is used in this instance. It begins with a model which is over parameterised and with the use of a step-wise process, eliminates insignificant variables until a parsimonious representation of the model is obtained. The results are shown below as follows:

$$DM = 15.6 + 0.94DK + 3.158DY_{BDS} + 19.37DF + 0.7731DCRE_{-1} - 0.76 ECM_{-1} \quad (5)$$

(0.529) (1.984) (4.604) (3.652) (2.029) (-3.045)

$$R^2 = 0.68 \text{ Adj. } R^2 = 0.61 \text{ D.W.} = 1.87 \text{ NORM} = 0.13 \text{ BG} = 0.68 \text{ ARCH} = 0.67$$

$$DX = 27.546 + 0.793DX_{-1} - 1.4721DK - 1.5611DK_{-1} - 0.53 ECM_{-1} \quad (6)$$

(1.246) (4.668) (-2.684) (-3.526) (-2.654)

$$R^2 = 0.61 \text{ Adj. } R^2 = 0.53 \text{ D.W.} = 1.85 \text{ NORM} = 0.44 \text{ BG} = 0.58 \text{ ARCH} = 0.78$$

D represents the first difference operator while NORM is the Jarque-Bera test for normality which is based on a test of kurtosis and skewness of the residuals. BG is the Breusch-Godfrey Lagrange Multiplier test for serial correlation while ARCH is the Engle's k^{th} order Autoregressive Conditional Heteroskedasticity test statistic. All other variables are described as before.

The results of the diagnostic tests show that the models are adequately specified and that the residuals do not violate the classical assumptions of normality, homoskedasticity and serial dependence. In equation 5, four variables help to explain imports of goods and services in the short run. These are long-term private sector financial inflows, real income, availability of foreign exchange earned by exporters and the previous year's commercial bank credit. As far as long-term private sector inflows are concerned, the results imply that these transactions will cause imports to rise. In equation 6, three variables influence exports in the short run, namely the previous year's exports and long-term private sector investment inflows in the present and previous periods. In this instance, the data show that over a two-year period, these inflows will lead to a contraction in the exports of goods and services. The short run result therefore is that private sector investment inflows will lead to net foreign outflows from goods and services as firms may find themselves pre-occupied with purchasing materials and technical skills from

abroad at the expense of exports. The error correction terms are negative and significant, thereby confirming the long-run cointegrating relationship, with the coefficients of 0.76 indicating a fairly rapid speed of adjustment to the long run relationship in the case of the import equation and 0.53, a slow speed of adjustment in the case of the export function.

Conclusion

This paper has attempted to examine some of the aspects surrounding long-term private sector investment inflows and their impact on Barbados' exports and imports. The findings of equations 3, 4, 5 and 6 respectively provide adequate solutions to those who wondered what the impact of such foreign capital might have on the Barbadian economy. The short-run situation is that private sector investment in Barbados will lead to net outflows of goods and services. This is not surprising, even in the case of Barbadian firms, since in a country which is not self-sufficient, there is a high propensity to import. Hence, for firms who are engaged in, for example, renovations, most of their materials would come from abroad. There may also be local firms who are setting up new projects, where the loan suppliers of such projects require feasibility studies to be conducted by their foreign personnel. Payments to these professional groups constitute imports of services. However the long-run results show that this investment is concentrated more in foreign exchange earning projects than in those projects that consume foreign exchange, so that Barbados will benefit from private sector investment in the long term.

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