THE ADJUSTMENT COSTS OF MONETARY INTEGRATION IN CARICOM

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Introduction

The governments of the Caribbean Community have endorsed the desirability of monetary integration in the region. They have agreed to a timetable for the introduction of a common currency for the region. This agreement was based on one of the recommendations of the West Indian Commission which had been established by the CARICOM Heads of Government at their meeting in July 1989. The Commission had been established with a broad mandate to formulate proposals for advancing the goals of the Treaty of Chaguaramas which established the Caribbean Community and Common Market (CARICOM) in 1973.

A realisation of the goal of monetary integration in CARICOM would result in individual countries surrendering control over the conduct of monetary policy to a regional authority. In addition, with a common currency, governments would no longer be able to use exchange rate adjustment as a policy tool. Surrendering control over monetary management also carries implications for the conduct of fiscal policy. This arises from the fact that governments, in particular those of Guyana and Jamaica, have relied at times on their central banks to support their spending programmes. At the same time the potential benefits from having a common regional currency will only be realized if the currency is able to maintain a stable international value and is convertible. This will require a commitment to a great degree of monetary and fiscal discipline on the part of all participants.

In this paper attention will be directed towards an assessment of the potential costs to three of the major countries in the region, Guyana, Jamaica and Trinidad and Tobago, in

foregoing the use of these policy instruments. These three countries were selected in that they are the ones which, unlike the OECS countries and Barbados, have resorted to devaluations and more recently flexible exchange rate regimes. In addition, they have relied heavily on central bank advances to support government expenditure. It is then likely that they would be required to make the greatest adjustments in these policy areas in order to establish the overall level of economic stability on a regional basis for monetary integration to be viable. The paper will be organised as follows. In the first section, there will be a review of the theoretical approaches adopted for assessing the costs of participating in a monetary union. In the succeeding sections an empirical assessment of the potential costs of relinquishing these policy tools will be conducted with the assistance of a simple model designed to establish the linkage between real output and the use of these policy tools in the respective countries.

The Costs of Monetary Integration

The issue of adjustment costs associated with monetary integration and the adoption of a common currency was initially analyzed in the theoretical literature on optimum currency areas(Mundell,1961;Mckinnon,1963). In this analysis the issue of costs was associated with the ability of the respective countries to respond to economic shocks without being able to independently employ instruments of macroeconomic policy. In the Mundell analysis, the critical determinants as to the potential magnitude of these costs would be the extent to which factors of production could freely move between the participating countries. The greater the degree of mobility, the lower would be the costs of adjustment. Adjustment costs could also be minimized even in those instances where factors were relatively immobile if factor prices were

sufficiently flexible. This analysis would lead one to conclude that CARICOM does not constitute an optimum currency area. The costs of monetary integration in the Caribbean to participating countries might then be significant.

The optimum currency area theory has recently been subject to considerable criticism (See DeGrauwe,1992). First of all, the Mundell analysis was based on a demand shift from the products of one member country to that of another. The question was raised as to whether monetary integration would likely lead to an increase in the frequency of such shocks. It was suggested in the case of a European monetary union that such differential shocks in demand would occur less frequently(DeGrauwe,1992,p.31). It was also argued that economic integration might create opportunities for firms to exploit economies of scale. As a result, there could emerge a concentration of production of specific products in particular countries. Accordingly, there would still be a possibility of asymmetric demand shocks between countries.

The second major criticism concerns the implicit assumption of the optimum currency area theory that the exchange rate is an effective instrument of policy in correcting for the differential developments in demand, costs and prices among countries. The issue here is whether a nominal exchange rate change can lead to a permanent change in real exchange rates. It is now generally accepted that a nominal exchange rate adjustment will not result in a permanent real adjustment in a highly open economy. Consequently, the costs of participating in a monetary union will be inversely related to the degree of openness of the economies of the participating countries (McKinnon,1963; Krugman,1990). Since the economies of the member countries of CARICOM are highly open, this line of reasoning implies that relinquishing the exchange rate tool would not be costly.

Let us now turn to a consideration of some of the potential costs associated with not being able to pursue an independent monetary policy. The issue of costs in this context might be thought of as arising from the fact that different countries are willing to accept higher rates of inflation than others. Such a decision might be justified in the short run as a trade off against higher rates of unemployment. It is now generally accepted that once one incorporates inflationary expectations into the analysis there can be no permanent trade off(Friedman, 1967; Phelps, 1968). Nevertheless, the possibility of a trade off remains in the short run. A country which was forced to adjust to a lower rate of inflation as a condition for participating in a monetary union might then be faced with a significant short term increase in unemployment.

Costs may also be related to the fact that participating countries may experience different rates of growth. The countries with the high growth rates would tend to find themselves in a chronic trade deficit position with their slower growing partners. In order to avoid these chronic deficits the fast growing countries would have to lower the price of their exports to make them more competitive in their partners' markets. Since prices cannot be adjusted through exchange rate change, the faster growing countries would be forced to adopt deflationary policies. The cost of participating in a monetary union would be having to accept a lower rate of growth (DeGrauwe, 1992, p.26)

Finally, participation in a monetary union will mean that a government would no longer have the freedom to finance a part of its deficit through money creation. Moreover, the pooling of exchange reserves which follow from the adoption of a single currency and monetary authority would also impose limits on external borrowing. The government will be faced with the choice of either raising more taxes to support expenditure, or reducing expenditure to keep

it in line with tax receipts. Either of these options would have a short term deflationary impact.

Use of Instruments of Macro Economic Policy

The theoretical review in the previous section highlighted the potential costs associated with relinquishing the use of instruments of macroeconomic policy. In this section a review will be conducted of the use of these instruments in the four so called more developed countries, Barbados, Guyana, Jamaica and Trinidad and Tobago over the decade of the eighties.

In Chart 1, we have set out the end of year levels of the money supply for each of the countries. In the case of Barbados, the chart reveals that the money supply at the end of 1990 had grown to approximately twice the level of what it had been at the end of 1980. The money supply over this decade grew at an annual rate of just under 9.5 percent. There was a far more dramatic expansion in the money supply over the same period in both Guyana and Jamaica. As the chart indicates, there was an approximate seven fold increase in the money supply in both countries over this period. The money supply in Trinidad and Tobago at the end of the period was one third higher than at the beginning of the period. However, the chart also reveals that after reaching a peak in 1982 there was a steady decline in the money supply over the subsequent six year period.

Apart from these overall trends in the money supply, another indicator of how much use was made of the monetary policy instrument might be derived from observing year over year changes in the money supply. These changes are shown in Chart 2. The chart reveals that there was, particularly in the cases of Jamaica and Trinidad and Tobago, a significant degree of variability in the year over year changes in the money supply. In the case of

Barbados, one can discern a three year period of decline from 1980 to 1982 and a period of steady expansion from 1984 through 1988. In Guyana, the post 1986 period was characterised by annual changes in the money supply which were at almost twice the level of that for the earlier years of the decade.

One of the issues which have been examined in the theoretical literature on monetary integration concerns the potential costs associated with the need to harmonize inflation rates. This is based on the notion that prior to participating in a monetary union, some of the countries might have chosen to trade off higher rates of inflation to secure higher rates of economic growth. In Chart 3, we have set out annual percentage changes in the consumer price index for each of the countries. Guyana had by far the highest rates of inflation. Between 1980 and 1986 the annual change in the index for Guyana was for the most part twice that for Barbados, the country with the lowest annual changes. In the post 1986 period, annual price increases in Guyana vastly outstripped that of all of the other countries. In the period from 1981 through 1983 the annual rate of increase in prices in Trinidad and Tobago was second to that of Guyana. However, since 1983, the annual rate of price increase in Jamaica has for the most part been the second highest among the countries. In fact, from 1984 to 1986 Jamaica recorded the highest rates of the four countries. The higher annual rates of inflation in Guyana and Jamaica would appear to reflect the differential rates of monetary expansion noted above. However, the times during which both countries recorded the highest annual rates of inflation occurred during periods when their respective currencies were undergoing a major devaluation. The closeness of this relationship is clearly illustrated in Charts 4 and 5.

The currency devaluations which we suggest were a major determinant of inflation

Chart 1

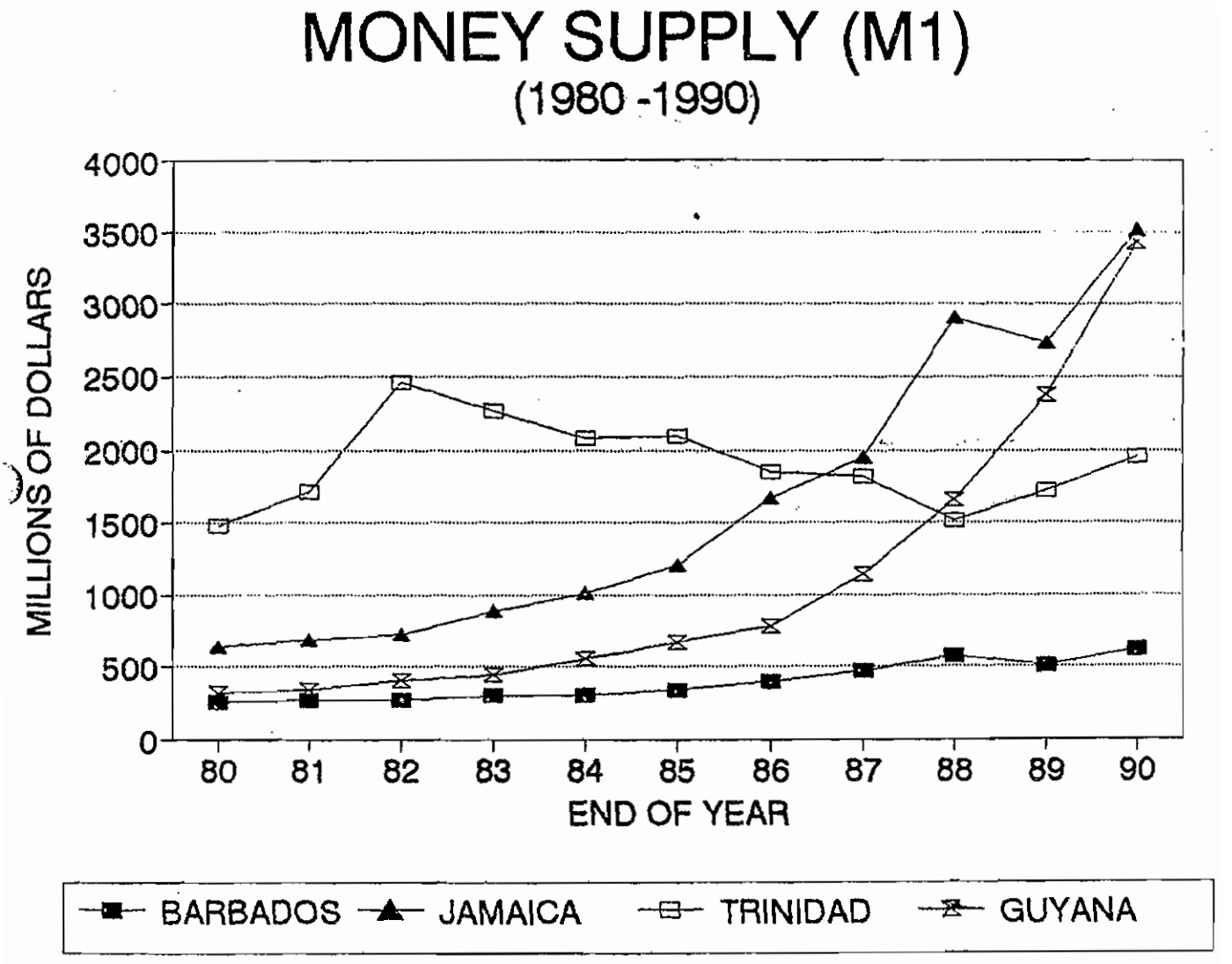

MONEY SUPPLY (M1)
(1980 -1990)
MILLIONS OF DOLLARS
4000
3500
3000
2500
2000
1500
1000
500
0
80
81
82
83
84
85
86
87
88
89
90
END OF YEAR
BARBADOS
JAMAICA
TRINIDAD
GUYANA

Chart 2

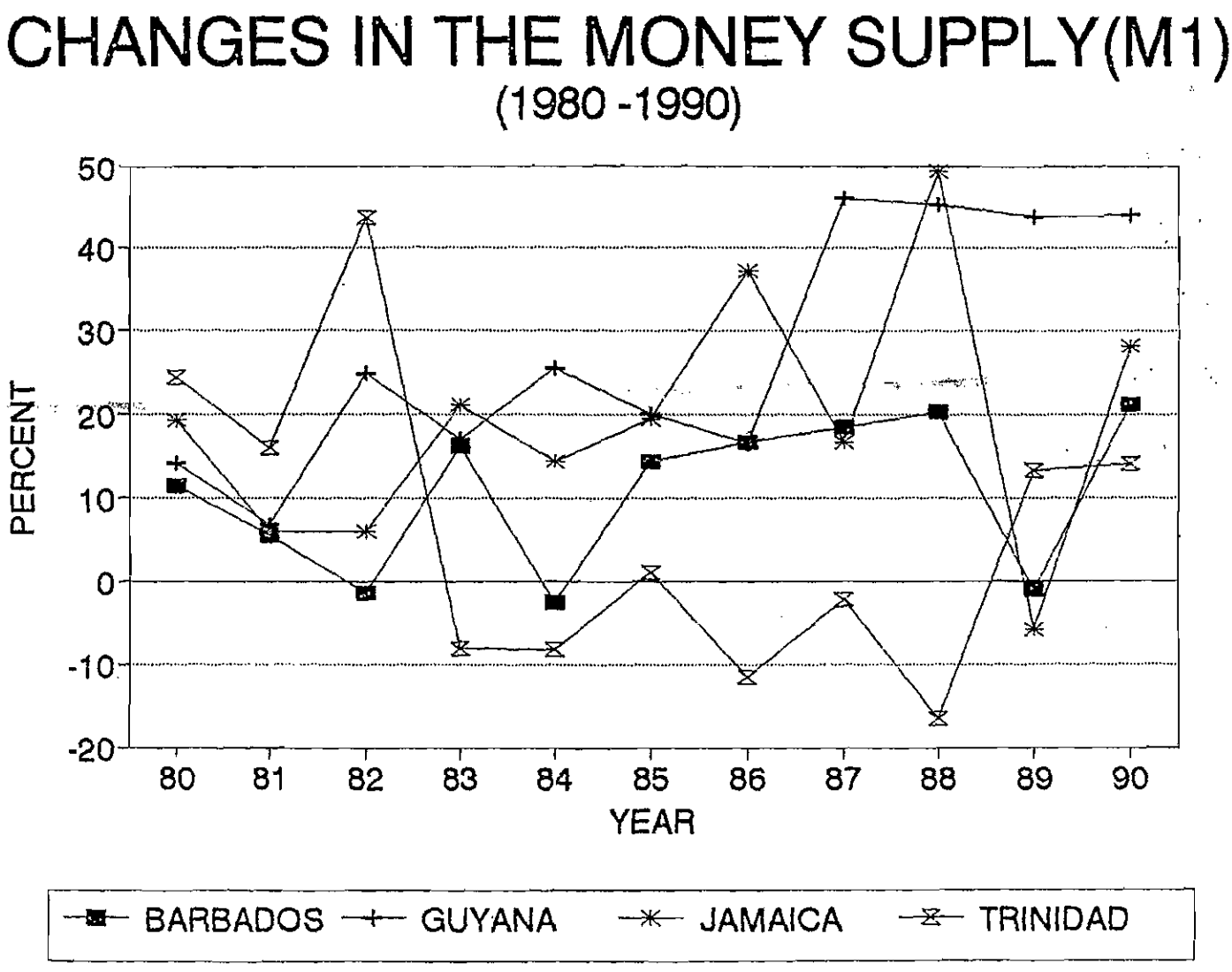
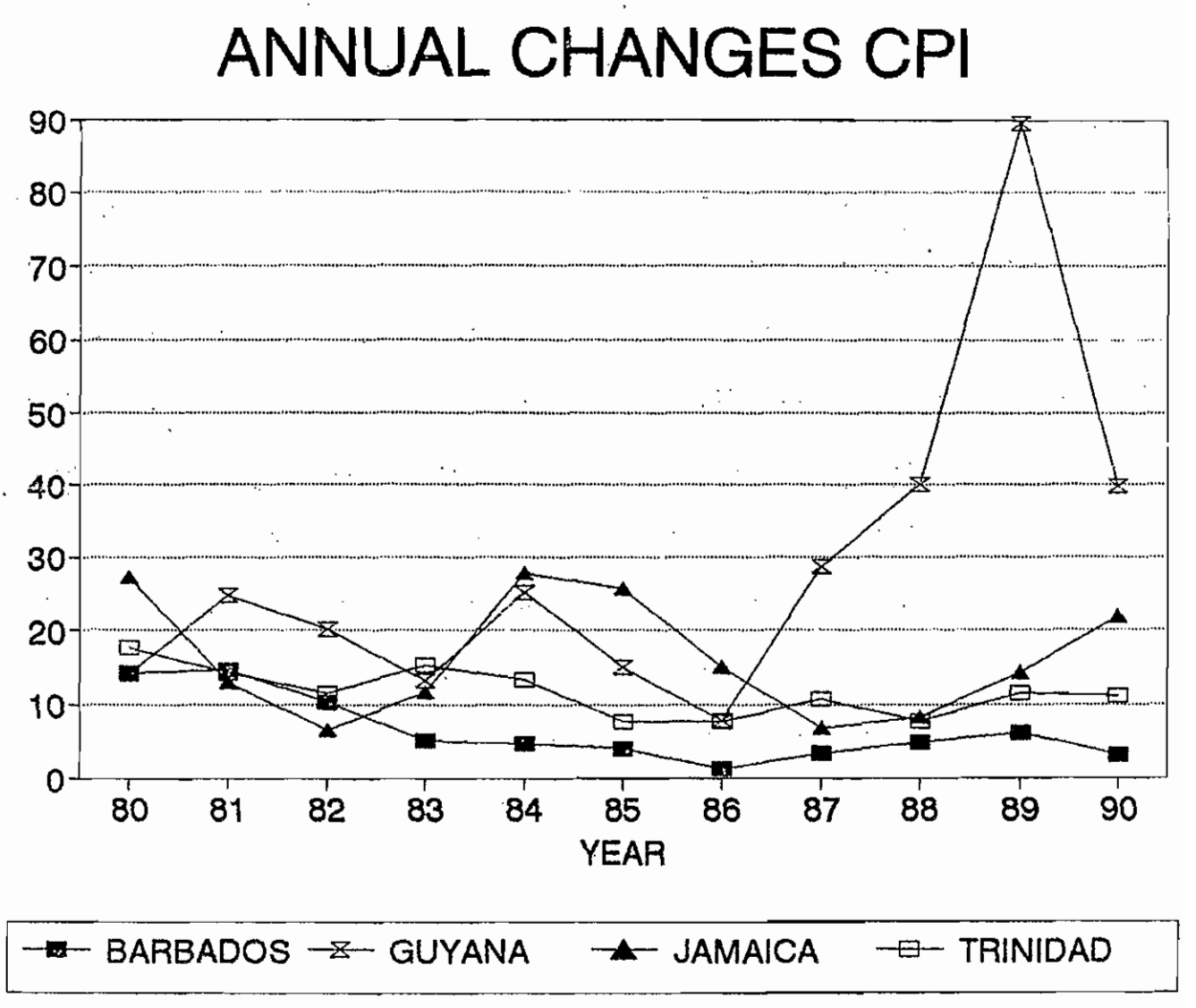

CHANGES IN THE MONEY SUPPLY(M1)
(1980 -1990)
PERCENT
50
40
30
20
10
0
-10
-20
80
81
82
83
84
85
86
87
88
89
90
YEAR
BARBADOS
GUYANA
JAMAICA
TRINIDAD

Chart 3


ANNUAL CHANGES CPI
PERCENT
90
80
70
60
50
40
30
20
10
0
80
81
82
83
84
85
86
87
88
89
90
YEAR
BARBADOS
GUYANA
JAMAICA
TRINIDAD

rates in the two countries which experienced the highest rates over the period, were a direct consequence of their weak external payments position. Nevertheless, it might be argued that if these countries had been willing to adopt a greater measure of discipline in the management of their money supply, it might have been possible for them to have experienced lower rates of inflation. In other words they might have been willing to accept higher rates of inflation in exchange for avoiding additional losses in income.

In Charts 6 through 9 we show for each of the countries annual percentage changes in the consumer price index and gross domestic product. In the case of Guyana and Jamaica, the two countries which experienced the highest rates of inflation over the decade, there was nothing in the annual movements of the CPI and GDP to suggest success in realising a trade off. In fact the periods of highest inflation were associated with the largest declines in income. This was also the case for Trinidad where it appears that higher inflation rates were associated with lower growth rates in income. The periods of highest inflation, as indicated above, appear to have been a direct consequence of major currency devaluations. In the case of Jamaica, these devaluations were a part of the stabilisation measures imposed on the country as a condition for receiving support from the International Monetary Fund to cope with its external payments problem. Consequently, devaluations would be associated with a short run decline in income.

Barbados was the only one of the countries which did not devalue its currency over the period. In addition, it was not forced to adopt any IMF stabilisation programmes. In reviewing the trends in Chart 8 there is some weak evidence of a short term trade off between 1987 and 1990.

The balance of payments constraint with which such small open economies have

Chart 4

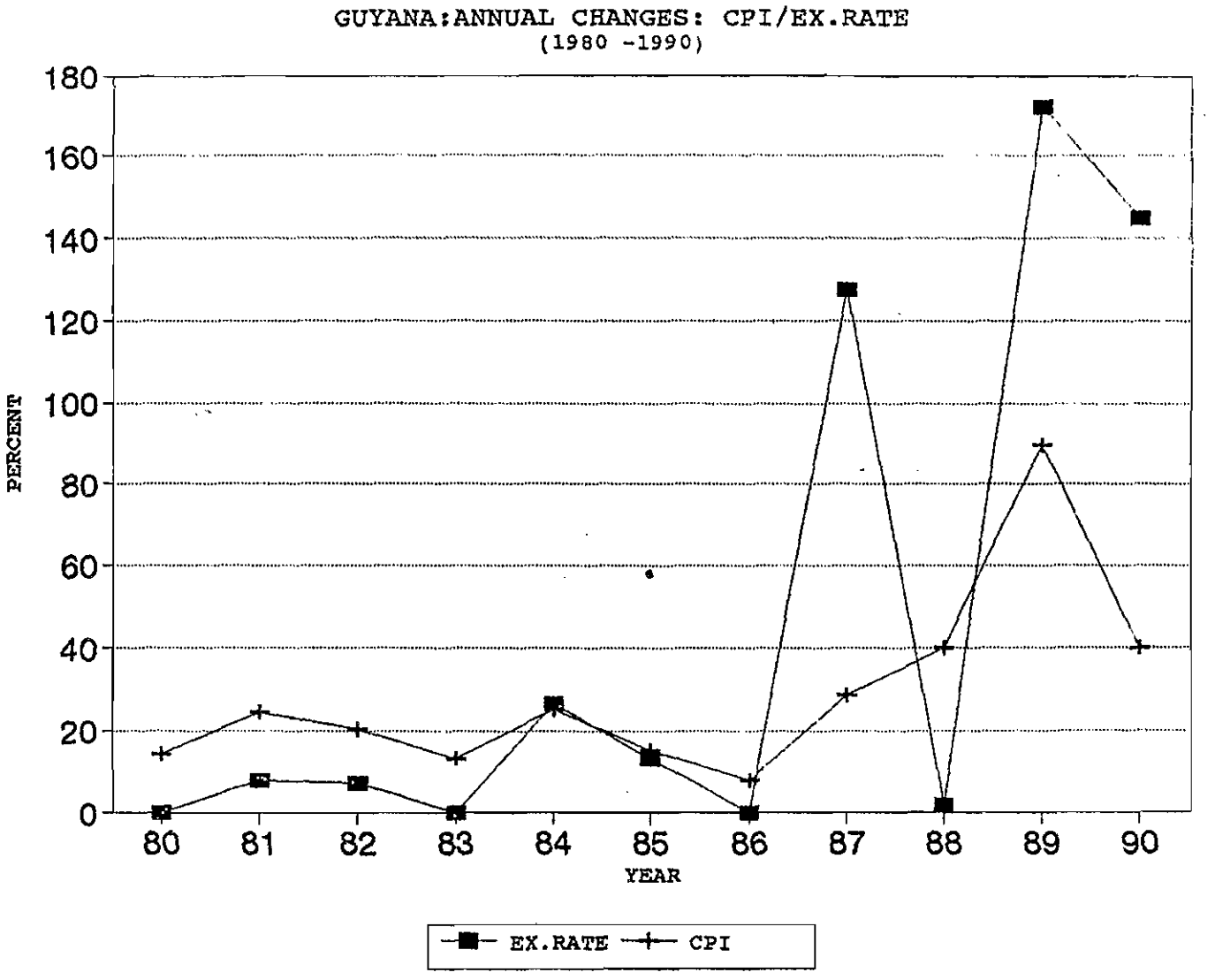

GUYANA:ANNUAL CHANGES: CPI/EX.RATE
(1980 -1990)
PERCENT
180
160
140
120
100
80
60
40
20
0
80
81
82
83
84
85
86
87
88
89
90
YEAR
EX.RATE
CPI

Chart 5

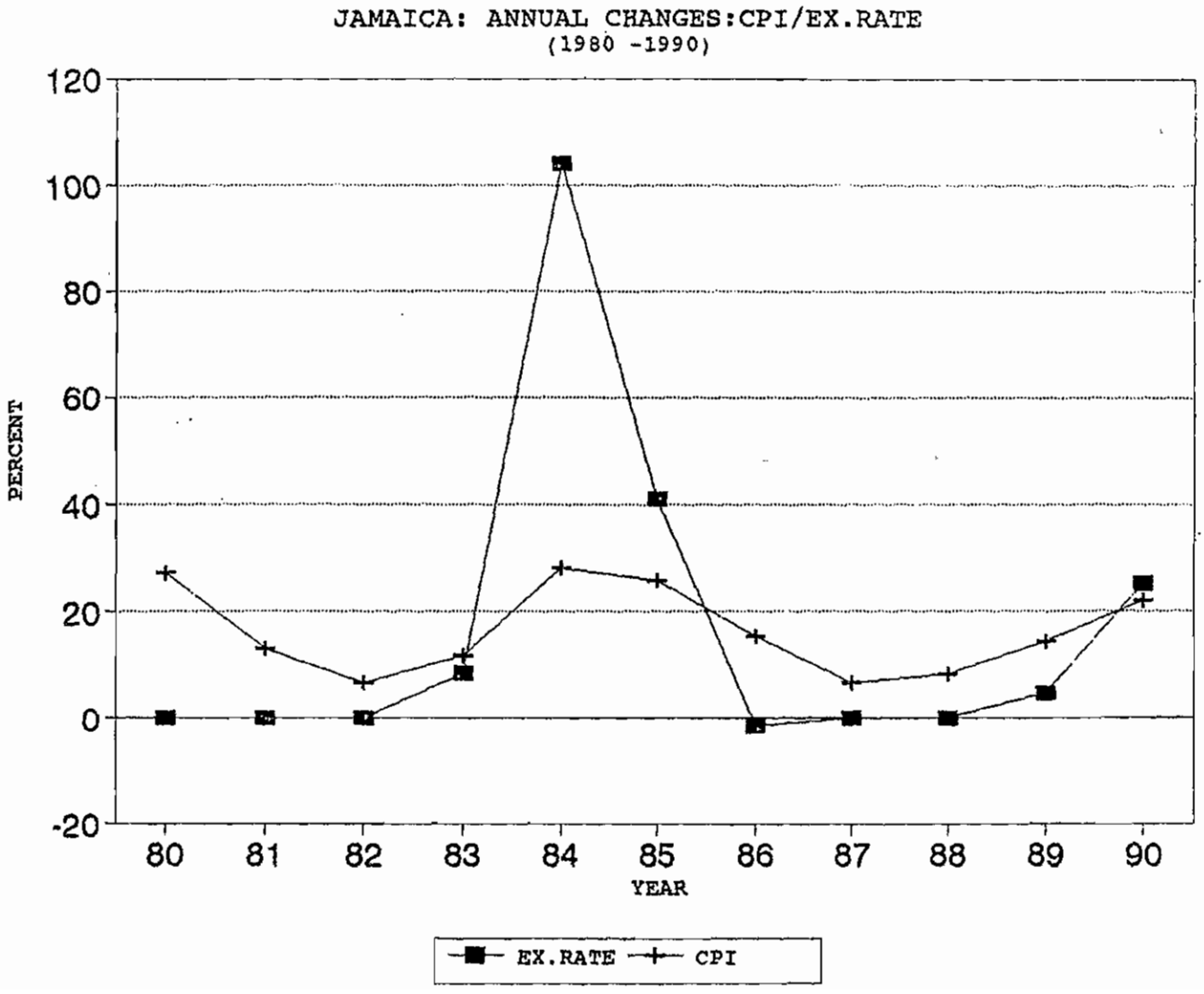

JAMAICA: ANNUAL CHANGES:CPI/EX.RATE
(1980 -1990)
PERCENT
120
100
80
60
40
20
0
-20
80
81
82
83
84
85
86
87
88
89
90
YEAR
EX.RATE
CPI

Chart 6

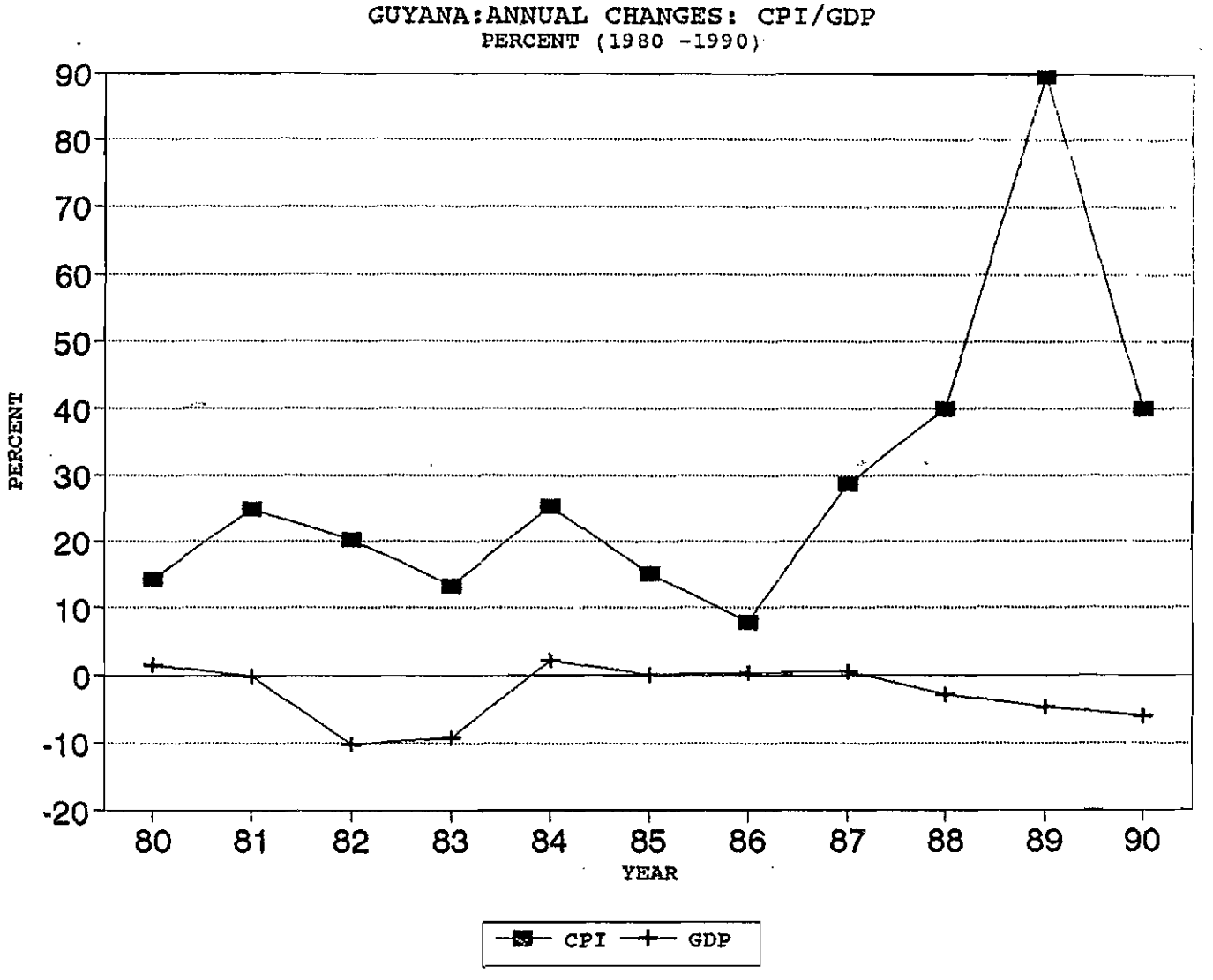

GUYANA:ANNUAL CHANGES: CPI/GDP
PERCENT (1980 -1990)
PERCENT
90
80
70
60
50
40
30
20
10
0
-10
-20
80
81
82
83
84
85
86
87
88
89
90
YEAR
CPI
GDP

Chart 7

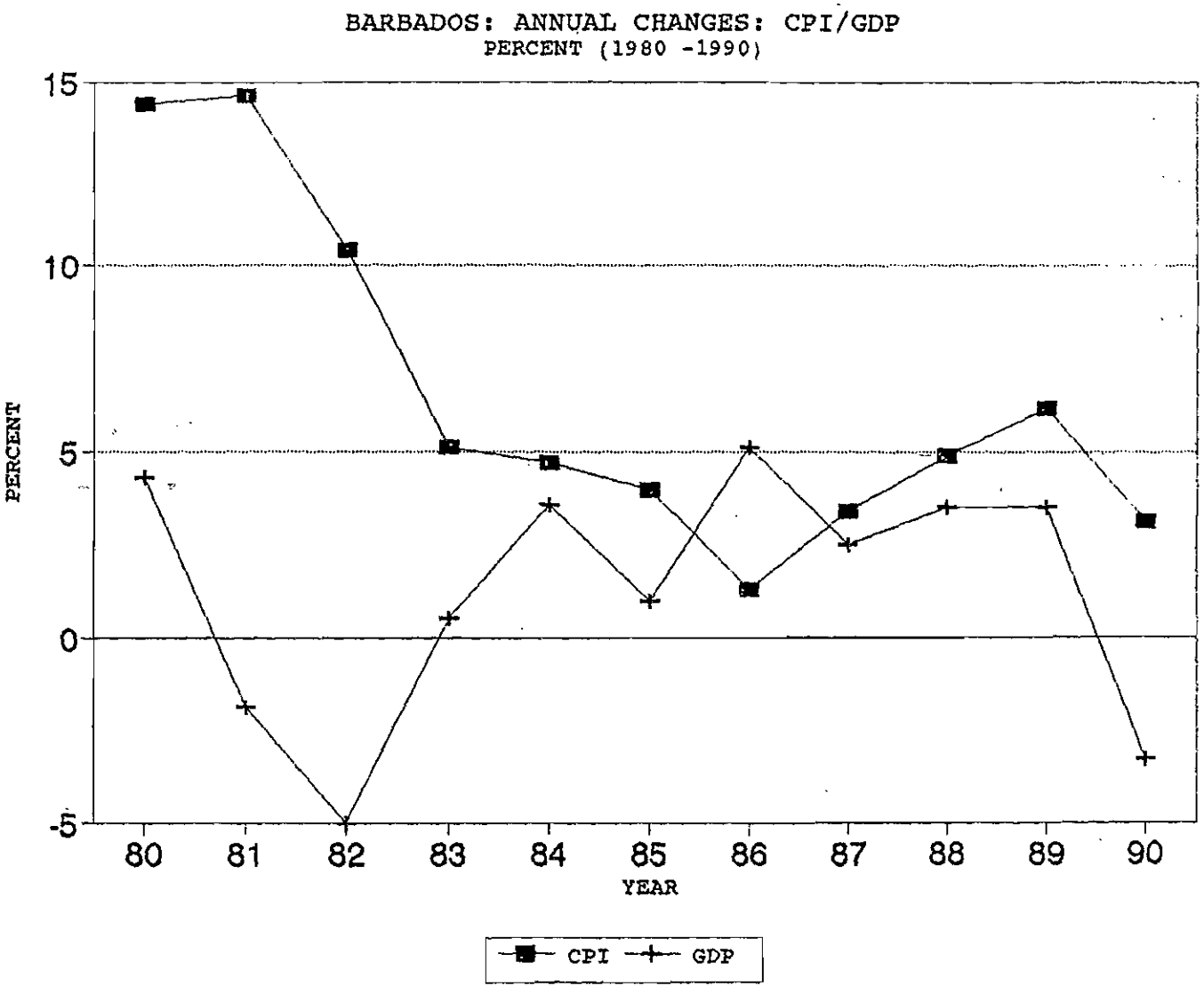

BARBADOS: ANNUAL CHANGES: CPI/GDP
PERCENT (1980 -1990)
15
10
5
0
-5
PERCENT
80
81
82
83
84
85
86
87
88
89
90
YEAR
CPI
GDP

Chart 8

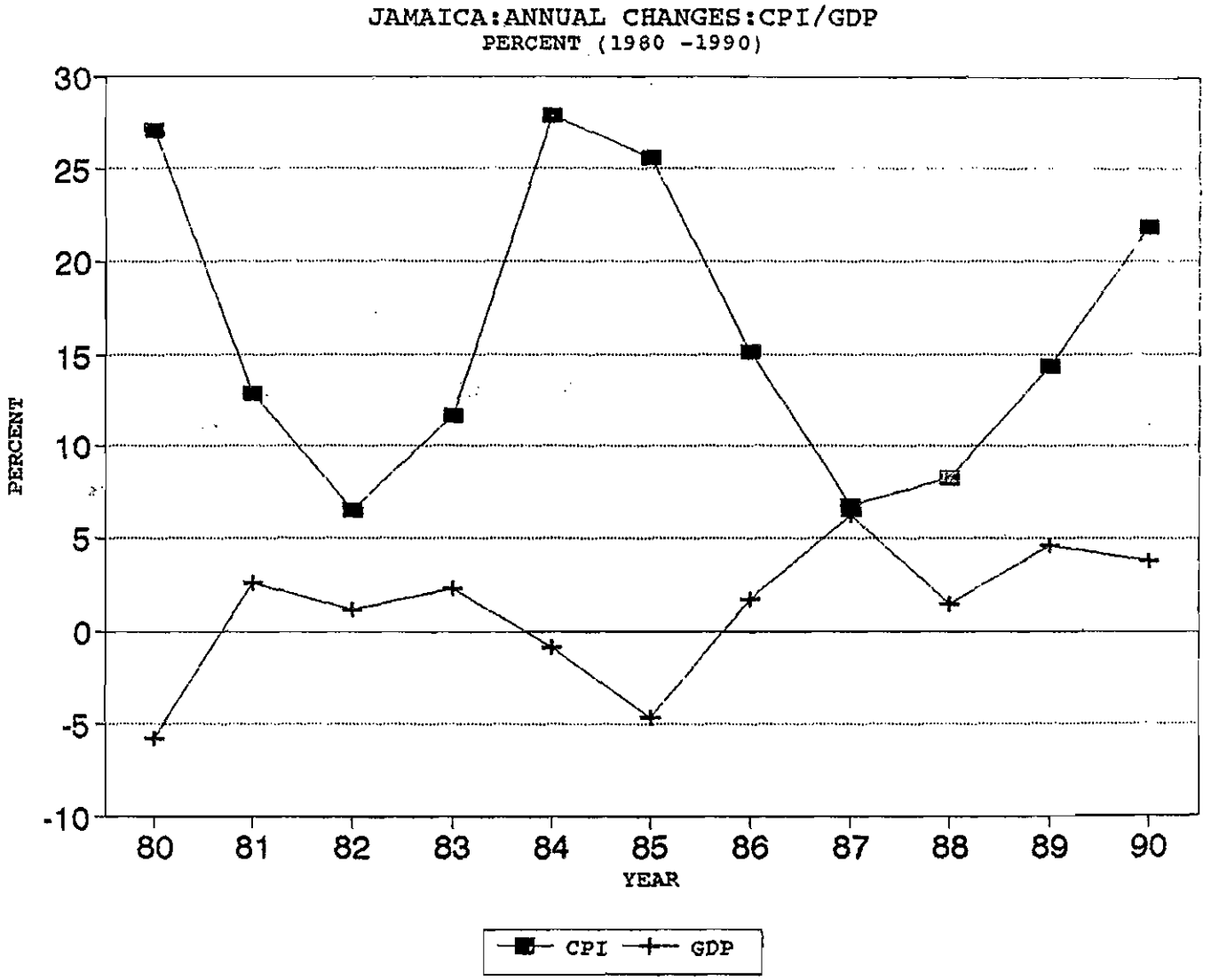
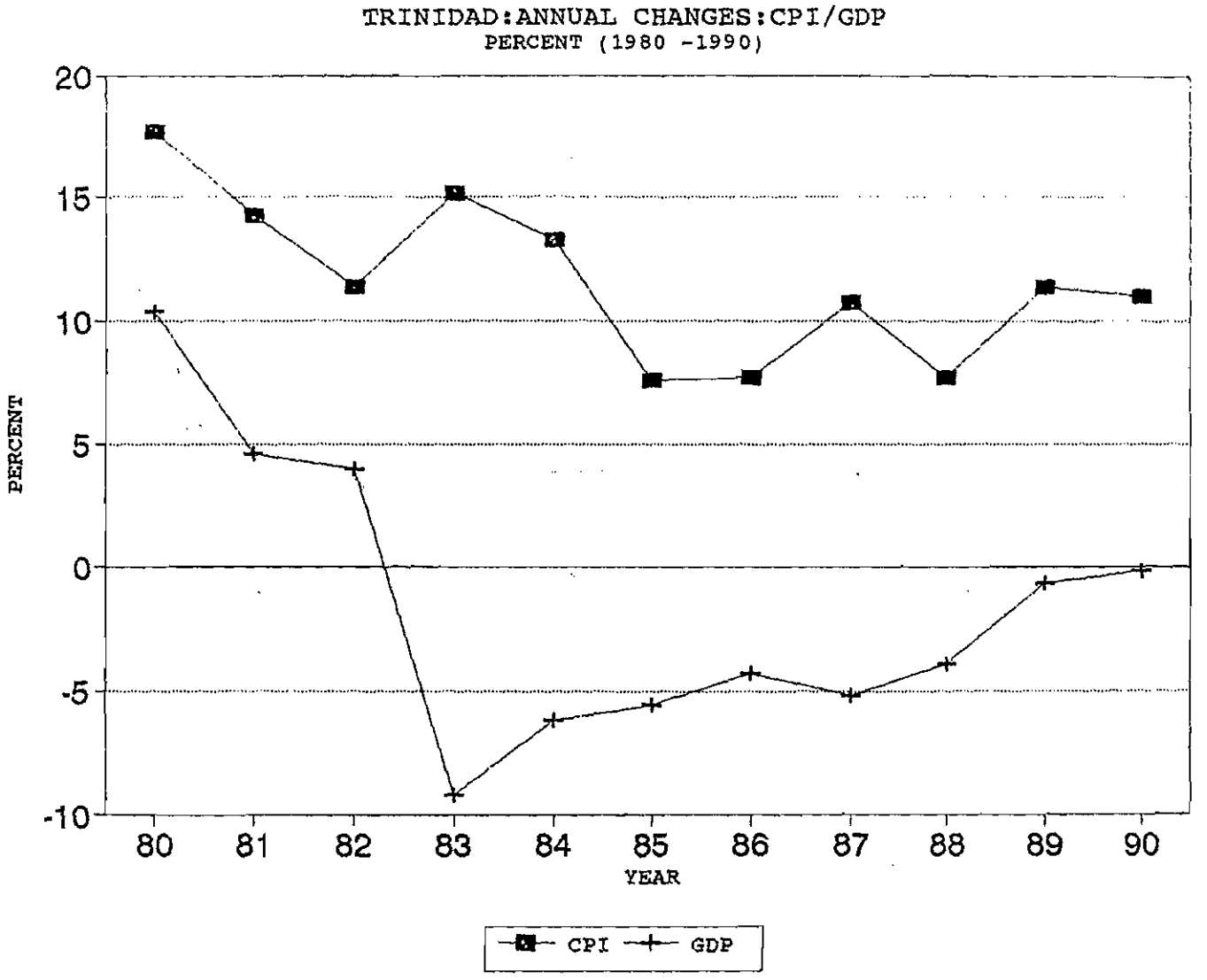

JAMAICA:ANNUAL CHANGES:CPI/GDP
PERCENT (1980 -1990)
PERCENT
30
25
20
15
10
5
0
-5
-10
80
81
82
83
84
85
86
87
88
89
90
YEAR
CPI
GDP

Chart 9


TRINIDAD:ANNUAL CHANGES:CPI/GDP
PERCENT (1980 -1990)
PERCENT
20
15
10
5
0
-5
-10
80
81
82
83
84
85
86
87
88
89
90
YEAR
CPI
GDP

to cope would seem to prevent them from pursuing an independent inflationary policy. Accordingly, the cost of foregoing the use of the monetary policy instrument should be of limited significance. In fact, the inverse relationship between inflation rates and growth rates of GDP indicates that the greater monetary discipline which might be associated with monetary integration could have beneficial short, as well as long term income effects.

Estimating the Costs of Monetary Integration

In this section an effort will be made to derive estimates of the potential costs to the economies of Guyana, Jamaica and Trinidad and Tobago of having to forego control over the use of fiscal, monetary and exchange rate policy. As indicated earlier, these three countries were selected because they were the countries in the region which have made the most frequent use of these policy instruments over the past twenty years.

These three countries have the following features in common. They are not able to exercise control over the prices they can charge for their principal traditional exports, bauxite, alumina and sugar in the case of Guyana and Jamaica, and petroleum for Trinidad and Tobago. The volume of sales, as well as incomes generated from sales of these products would then be determined primarily by foreign incomes and prevailing world prices. They could, however, have an indirect influence on the level of activity in their respective mineral exporting sectors through their ability to adjust their tax regimes. On the other hand, domestic cost competitiveness is the major determinant of the level of output in the manufacturing sector in all three countries. This would also be true for the tourist industry in Jamaica. In the case of such highly open economies, the level of the exchange rate will play an important role in establishing

and maintaining domestic competitiveness.

Government spending has a major influence on the level of activity in what might be defined as the non traded sector of the respective economies. The level of government spending will be determined by the revenue generated from taxation, and the amounts which can be raised through borrowing from domestic and foreign sources. The amount of revenue raised from taxation will be largely determined by the performance of the sectors identified above. The amount of funds raised through foreign borrowing will be determined by the willingness of foreign governments to provide concessional loans, as well as the willingness of the multilateral institutions to respond favourably to loan requests. At the same time, government control over the central bank, as well as its ability to vary the liquidity requirements of the commercial banks means that their are no important constraints on access to the domestic financial sector.

Given these common structural features, our primary objective is to ascertain the impact of changes in government expenditure, changes in the exchange rate and domestic credit on real output for these three countries. In addition we are also concerned with assessing the comparative significance of these domestic policy tools with exogenous factors such as changes in world income and prices on output levels of these economies. Using data for a twenty four year period from 1967 to 1990 we estimated the following equation.

$$L_nY = A + bL_nG + cL_nE + dL_nDC + fL_nY_w + gL_nP_w \qquad (1)$$

where Y =Gdp in constant 1985 dollars; G= government expenditure; E = the exchange rate defined as units of domestic currency per US dollar; DC= domestic credit; Y_w = index of real income of industrial countries base year 1985; P_w = Index of consumer prices of the industrial countries base year 1985. The estimates, which are presented in Table 1, were derived using

the Cochrane -Orcutt procedure.

In the case of all three countries, exchange rate depreciation had the expected negative impact on income,although in the case of Jamaica, the value of the coefficient was of limited statistical significance. The estimates suggest that changes in income in the industrial countries and global inflation rates had very little impact on the performance of the Guyana economy. This was also the case for Trinidad and Tobago.This is somewhat surprising for a country heavily dependent on the proceeds from petroleum exports. On the other hand, both of these variables were significant for Jamaica. However, the negative sign on the global inflation coefficient is

Table 1

VARIABLE	GUYANA	JAMAICA	TRINIDAD/TOBAGO
A	6.69	7.42	10.23
	(2.84)	(5.01)	(8.23)
l_n G	0.13	0.16	-0.18
	(1.22)	(1.84)	(-1.61)
l_n E	-0.09	-0.05	-0.31
	(-1.72)	(-1.25)	(-2.66)
l_n DC*	-0.11	0.11	0.56
	(-1.22)	(1.82)	(3.01)
l_n Y_w	0.22	0.85	-0.55
	(0.33)	(2.19)	(-1.31)
l_n P_w	0.03	-0.90	-0.23
	(0.11)	(-3.54)	(-0.66)
R^2	.81	.83	.96
Durbin - Watson	1.40	1.58	1.63

* M_2 in the case of Trinidad and Tobago

The values in parenthesis are the t statistic

contrary to what one would expect. Nevertheless, when one takes into consideration the stagflation experiences of those industrial countries over this period, especially the United States, which was that country's major trading partner, the negative relationship may not necessarily be perverse.

With respect to the other two variables representing domestic policy instruments, government expenditure and domestic credit, both were significant for Jamaica and Trinidad and Tobago. The negative sign on the coefficient for government expenditure in the latter country is contrary to what one would expect. In the case of Jamaica, the positive sign on the coefficient for domestic credit, given the negative impact on the balance of payments of domestic credit expansion, is not in keeping with what one would expect, given that the country operated for most of the period with negative net international reserves. On the other hand, Trinidad and Tobago, accumulated substantial increases in international reserves over the period from 1974 - 1982. Relieved from the balance of payments constraint, this might explain why domestic credit expansion had a strong positive impact on income in that country. Neither of these instruments had a significant impact on the performance of the Guyana economy. The coefficient for domestic credit,had a negative sign. This is in keeping with what one would expect in a country which for most of the period operated with minimal foreign exchange reserves.

In summary, these findings support the notion that in the case of small open economies, the exchange rate cannot be used as an instrument for generating positive income growth in the short term. In all cases exchange rate devaluation was found to have a negative impact on income. With respect to the other instruments of domestic policy, government expenditure and monetary policy, they appeared to have little impact on the performance of the

Guyana economy over that period. In the case of Jamaica, government expenditure had an important impact on income while the weight of the balance of payments constraint, might have severely restricted the use of monetary policy for short term stabilisation purposes. Monetary policy appeared to be an effective instrument of short run stabilisation in Trinidad and Tobago. This might, as indicated above, be attributed to the absence of a balance of payments constraint for a great part of the period.

The Guyana results are surprising, given the fact that during the period in question the government exercised control over most aspects of economic activity. In addition, the government had limited access to sources of external financing. The government had to rely heavily on financial support from the central bank. This is reflected in the dramatic increases in the extension of credit by the Bank of Guyana to the government during the decade of the eighties (See Bank of Guyana, Statistical Bulletin, Quarterly). The rapid growth in the money supply associated with these developments, along with the exchange rate devaluations, contributed to the high rates of inflation of that period. In order to assess the potential significance of these inflationary measures on the economy, we reestimated equation 1 for Guyana, incorporating an additional independent variable, the consumer price index. We also substituted the broader definition of money M_2 for domestic credit in the equation. For comparative purposes we also report estimates for Jamaica and Trinidad and Tobago. The results are presented in Table 2.

$$l_nY = A + bl_nG + cl_nE + dl_nE + dl_nM_2 + fl_nY_w + gl_nP_w + hl_nCPI \qquad (2)$$

The addition of the inflation variable made a major difference in the case of Guyana, but was of virtually no significance in the cases of Jamaica and Trinidad and Tobago.

Table 2

VARIABLE	GUYANA	JAMAICA	TRINIDAD/TOBAGO
A	8.86	5.64	8.39
	(8.93)	(3.83)	(4.22)
l_n G	0.29	0.12	-0.17
	(3.74)	(1.24)	(-1.47)
l_n E	0.24	-0.04	-0.29
	(2.68)	(-O.40)	(-2.37)
l_n M^2	0.04	0.001	0.40
	(0.36)	(0.02)	(1.67)
l_n Y_w	-0.55	1.16	-0.40
	(-1.78)	(2.84)	(-0.93)
l_n P_w	0.34	-0.45	0.74
	(1.59)	(-1.40)	(0.85)
l_n CPI	-0.64	-0.10	-0.43
	(-7.39)	(-0.52)	(-1.24)
R^2	.92	.80	.96
Durbin - Watson	2.30	1.54	1.70

Values in parenthesis are the t statistic

Changes in government expenditure in Guyana is now shown to have a significant impact on changes in the level of income. Once again, monetary policy appeared to be ineffective. The value of the coefficient was not significantly different from zero.The coefficient for the exchange rate variable was highly significant, although on this occasion it had a positive sign. This would suggest, that unlike Jamaica and Trinidad and Tobago, exchange rate devaluation could be used as an instrument for stimulating economic growth. External shocks, such as changes in growth rates of income and inflation rates in the industrial economies, are now shown to be of significance to the performance of the Guyana economy. Changes in the price level was shown to have a strong negative impact on income. Every one percent increase in the CPI would be

associated with a decline in real income of six tenths of one percent. The price coefficient had an approximate value of zero for Jamaica and was not statistically significant in Trinidad and Tobago.

The periods when there were the most significant changes in the price level occurred when there were major devaluations of the currency in the respective countries. These devaluations were usually a component of a set of policy initiatives adopted for the purpose of correcting an unsupportable level of aggregate demand. Since a major share of the level of aggregate demand can be linked directly and indirectly to government expenditure, and government expenditure was frequently supported by money creation, we proceeded to ascertain the link between changes in the exchange rate, changes in the money supply and government expenditure. The following equation was estimated for the three countries and the estimates are reported in Table 3.

$$l_n = A + bl_n G + kl_n M_2 \qquad (3)$$

Table 3

Variable	Guyana	Jamaica	Trinidad/Tobago
A	-3.51	-2.96	-0.11
	(-3.36)	(-9.89)	(-0.17)
l_n G	-0.11	-0.26	-0.19
	(-0.30)	(-1.99)	(-0.99)
$l_n M_2$	0.84	0.76	0.31
	(2.84)	(7.01)	(1.53)
R^2	.93	.98	.87
Durbin - Watson	2.05	1.68	1.84

Values in parenthesis are the t statistic

In the case of Guyana and Jamaica, the two countries which had the most frequent adjustments in exchange rates during this period, there was a very strong relationship between changes in the money supply and the exchange rate. Every one percent increase in the money supply would be associated with a .84 percent depreciation in the exchange rate in Guyana and a .76 percent depreciation in Jamaica. The coefficients were also highly significant. The coefficients for government expenditure, with the exception of Jamaica were not statistically significant. In addition they had the wrong sign. However, this might simply underscore the point made earlier that devaluations were more often than not associated with enforced reductions in government expenditure as part of a stabilisation initiative.

Conclusions

In this paper an attempt was made to estimate the impact of domestic policy instruments, such as variations in government expenditure, the money supply and exchange rate changes on real income. In two of the countries, Guyana and Jamaica, changes in real income were found to be linked directly to changes in government expenditure. Nevertheless, the values of the coefficients indicate that expenditure changes had a modest impact on income. Money supply changes had a significant impact on income only in Trinidad and Tobago. Exchange rate devaluations were found to have a negative impact on income in Jamaica and Trinidad and Tobago. In all instances, increases in domestic inflation rates were associated with a decline in real income.

The findings suggest that an inability to resort freely to use of these instruments is unlikely to impose significant costs on the economies of these countries. The central issue

facing the countries of the region is that of how they can stabilise their respective economies following a period during which, by general consensus, there was considerable economic mismanagement. The importance of monetary integration has to be measured not so much in terms of costs associated with foregoing the use of policy instruments. Rather, it is whether it might facilitate more effective management of these policy instruments.

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