THE TREASURY AND THE CENTRAL BANK: INDEPENDENCE OR CONSENSUS

by

DeLisle Worrell

and

Anton Belgrave

Research Department
Central Bank of Barbados
P.O. Box 1016
Spry Street
Bridgetown
Barbados

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Abstract

We review the arguments for and against central bank independence, and the empirical evidence for central bank independence as a means of curbing inflation, focusing especially on results for the Caribbean. The results suggest a re-examination of the assumptions underpinning the argument for independence in light of Caribbean circumstances. We conclude that, as a practical matter, Caribbean central banks should seek consensus with their Treasuries on macroeconomic policy, and we illustrate the argument with examples.

The Treasury and the Central Bank:

Independence or Consensus.

"*The Bank of England is my creature, but like all creatures it sometimes goes its own way.*"
Chancellor of the Exchequer, Sir Stafford Cripps(1964).

In the Caribbean , central bank independence has been advocated for countries with a history of persistent inflation. The contrast has been drawn with the inflation performance of the countries of the Organisation of Eastern Caribbean States, a Caribbean sub-group which features a monetary union, with a central bank which derives considerable operational independence from its regional nature. It has been suggested that a regional central bank for the English speaking Caribbean , set up under institutional arrangements which afford it independence of action, may be a source of policy credibility for the region as a whole, and may secure the benefits of low inflation for countries which have a poor history of inflation control (Farrell and Worrell, 1994). However, taking all Caribbean countries together, the relationship between central bank independence and inflation is unclear. This paper examines theory and evidence on central bank independence , and applies them to Caribbean circumstances. We argue that policy inconsistencies can be removed only by co-operation between the central bank and the treasury.

A Review of the Debate .

Modern theory attributes the inflationary bias in policy making either to the dynamic inconsistency of monetary policy in an expectational Philips's curve model of output determination or to the revenue motive, through use of the inflation tax. The revenue motive is not a convincing explanation for inflationary bias when applied to developing countries. As Tanzi(1977) has shown, the effect of inflation in developing countries has been to lower income tax revenues because of delayed payment systems and poor collection and enforcement. Central bank "independence" has been proposed as one method to counter the perceived bias in policy.

However, most authors provide no clear definition as to what is meant by independence. According to Hesse (1990), central bank independence can be related to three areas. These are independence in personnel matters, financial independence and policy independence. Personnel independence refers to the influence the government has in appointment procedures within the central bank. Financial independence is the ability of the government to finance its expenditure either directly or indirectly through central bank credit. The issue which concerns most researchers is policy independence : the maneuvering room given to the central bank in the formation of monetary policy.

The theoretical arguments for central bank independence can be divided into two main streams: the "conservative" central bank approach of Kenneth Rogoff(1985) and the principal-agent approach of Carl Walsh(1995) and Torsten Persson and Guido Tabellini(1993). Fisher (1995) points out that

these two approaches lead to different forms of central bank independence. Under Rogoff's approach, the inflationary bias can be countered by appointing a central banker who weighs deviations in inflation more heavily than policy makers, in the social welfare function. In the principal-agent approach the inflationary bias is countered by structuring the contract in such a way as to penalise the central banker for inflation which deviates from some contractual level. Fisher terms the relatively less circumscribed Rogoff central banker as *goal independent* while the those who are contractually bounded are said to possess *instrument independence.*

Empirical evidence relating central bank independence to the rate of inflation experienced has been presented in the literature. Although Rogoff's paper suggests that an independent and inflation averse central bank reduces average inflation but is less effective in stabilising output, some empirical studies dispute this outcome. Alesina and Summers (1993) found that for the OECD countries, independent central banks are not associated with more variability of growth or employment. They concluded that "independent central banks bring about low inflation at no apparent real costs." Cukierman et al (1992) present regressions that explain inflation in different countries by the degree of central bank independence. In addition to constructing an index of legal independence based on the terms and conditions governing the relationship between the central bank and the government they also analyse factors which may be significant determinants of inflation, such as the average tenure of the governor. Like previous studies, including Alesina and Summers, legal indices help account for cross country differentials in inflation within industrial economies but not within developing economies. There appears to be little association between actual and legal independence among these countries. Cukierman and Webb(1995) revisited the issue with a considerably broader study, which examined the differences in political vulnerability, political instability and central bank turnover in politically volatile periods. They concluded that these variables provide a major part of the explanation as to why developing countries have on average, higher and more variable inflation than the industrial economies.

The literature is far from unanimous in its enthusiasm for central bank independence. Criticism has encompassed both the theoretical and empirical foundations on which most of these studies are based. Carvalho (1995) points out that most of the theoretical studies embody the natural rate (of unemployment) hypothesis as well as some degree of rational expectations, propositions which are not universally accepted. He also questions the assumption of an intrinsic nature of central banks; i.e. central banks are assumed to possess an objective function, like consumers and firms, such that they will blindly pursue price stability. Goodhart's (1994) examination of the central bank's behaviour in post communist Russia as well as the public choice literature on bureaucratic behaviour display cases of central banks with multiple objectives. Furthermore the indices used in empirical studies are (admittedly) fragile and generally do not consider more complex factors such as political consensus formation, which may be so important as to differentiate the cases of the United States and Japan.

Doyle and Weale(1994) point out that Cukierman's(1992) analysis assumes that the effect of the degree of independence on inflation is constant over time. They present regressions which lead them to conclude that the importance of central bank independence on the inflation rate depends on the general international inflationary environment. The influence of central bank independence is

felt mainly in periods of high inflation. They also raise the issue of policy effectiveness. Little account is taken of fiscal policy in most of the studies. Furthermore they argue that "it is perfectly possible that having set up an independent monetary authority, the government will find that it does not like the monetary authority's policy and will use fiscal policy to try to undo the impact of monetary policy on some variable such as aggregate demand". This outcome has been illustrated by Nordhaus(1994) in a game theoretic framework. Using a reaction curve framework Doyle and Weale demonstrate how the institutions together can arrive at a Nash equilibrium based on to their different preferences (see Appendix A). It may be that less, rather than more central bank independence is required in order to achieve a co-operative outcome.

Levy(1995) argues that an independent central bank can be consistent with democracy only if two requirements are met:

(1) The consequences of monetary policy are narrow: they affect price stability and the soundness of the financial system but do not involve social trade-offs;

(2) The central bank has a systematic and objective method of selecting the right policy to meet its goal of a stable currency and a healthy financial sector.

Neither of these requirements is met in practice. Monetary policy has both economic and widespread social significance. Levy advocates a reduction in the Federal Reserve's independence, claiming that central banks need to be made more accountable for their actions.

Undoubtedly a goal independent central bank would violate democracy and it is unlikely that such a creature would survive for very long. An instrument independent central bank would satisfy the democracy criterion. Flexibility appears to be necessary in most pre-commitment efforts, as historically fixed rules have often been had to be abandoned. In an effort to prevent subsequent bouts of inflation following the Napoleonic War the 1844 Bank Charter Act of the Bank of England limited the fiduciary issue to £14 million. Three years later a banking crisis led to the abandonment of this rule as the bank supplied the necessary credit to the financial system. Experience suggests that political accountability needs to be embedded within central banks' behavioural models. One such model is that of Flood and Issard(1988). They present a model in which the central bank pursues a simple monetary rule in "normal" times, but acquiesces to government discretion under abnormal circumstances.

Empirical Aspects

This section uses Cukierman, Webb and Nyapti (1992) as a starting point in analysing the salient features of Caribbean central banking. They argue that studies which used legal indices were incomplete since laws cannot explicitly specify the limits of authority between central banks and political authorities in all contingencies. These voids are filled either by tradition, at best, or power politics at worst. Thus, while legal independence is an important determinant of inflation in industrial countries, in developing countries governor turnover is the variable most strongly and positively associated with inflation. Since the focus of the literature is on inflation we concentrate on this variable.

Using the data as provided in Cukierman et al (1992) and supplementing this with additional variables for the five Caribbean island economies, the following variables were re-aggregated and

re-estimated. In coding the variables, the legal characteristics of the central bank as stated in the charter were grouped into four legal clusters. These were :

(a) the appointment, dismissal and term of office of the Chief Executive Officer/Governor.

(b) The policy formation cluster which was concerned with the resolution of conflicts between the executive branch and the central bank over monetary policy and the participation of the central bank in the budget process

(c) the objectives of the central bank

(d) the limitations on the ability of the central bank to lend to the public sector. Such restrictions represent the limits on the volume, maturity, interest rates and the conditions for direct advances and securitized lending from the central bank to the public sector.

The clusters are built up from sixteen different variables each coded on a scale of 0 (lowest level of independence) to 1 (highest level of independence). Detailed information is provided by Cukierman (1992) on the weights used in the formulation of the variables, as well as well as the methodology in dealing with missing observations.

The variables used are :

Inflation - the average inflation rate for the period of existence of the relevant central bank.

Turnover - the probability that there will be a change in governor for any given year.

CEO - this weighted average of factors represents the conditions of employment/dismissal of the CEO/governor.

Policy Formation - this variable is designed to capture the influence of the central bank on the formulation of monetary and fiscal policy.

Central Bank Objectives - a quantification of the weight given to price stability in the central bank's mission statement/charter.

The remaining variables measure the central bank's ability to control its lending to government. These are :

Advances - the terms and conditions given on non securitized loans.

Securitized Lending - the terms and conditions of securitized loans.

Terms of Lending - the nature of the agreement concerning lending i.e. derived from agreement between bank and executive or specified in the bank's charter ,etc.

Potential Borrowers - the permissible range of borrowers from the central bank, i.e. central government, private corporations etc.

Others - this variable is a composite of loan maturity, interest rates on loans, and the variable used in defining the limits of central bank expenditure to government.

The major objective in re-estimation was to facilitate a comparison between the Caribbean nations and other developing countries. The data drawn from Cukierman(1992) was augmented with the addition of four Caribbean countries; Jamaica, Trinidad and Tobago, Guyana., and Belize. Based on our questionnaire the data for Barbados and the Bahamas was adjusted. The other major difference between this study and Cukierman (1992) occurs with respect to the dummy variables which the author used to capture differing phases of the world economy[1].

[1] Cukierman et al,divided the period 1950 to 1989 into four subperiods: 1950-59, 1960-71, 1972-79, and 1980-89. These periods correspond,respectively, to the gold-dollar standard period before most currencies had convertibility, the period of convertibility with the dollar, the period of the two oil shocks following the end of the Bretton Woods currency system, and the period of disinflation and the debt crisis.

As expected, the results were similar to Cukierman (1992). Table 1 summarises the results of regressing the inflation variable on total aggregate legal independence and the probability of turnover.

Table 1. The Inflation Rate , Aggregate Legal Independence, and the Turnover Rate(1950-1989)

	All Countries 1	Developing Countries 2	Industrial Countries 3
Intercept	-1.015	-1.361	0.312
	(-1.181)	(-1.026)	(1.814)
Total Legal Independence	1.784	3.091	-4.214
	(0.794)	(0.830)	(-1.171)
Rate of Turnover of Central Bank Governor	4.456	4.372	0.338
	(2.736)	(1.844)	(0.755)
R^2	0.11	0.09	0.08
F Statistic	4.176	2.321	0.754
Number of Observations	67	45	19

The results for the entire sample (Table 1, Column 1) imply that the total turnover rate is a significant variable in explaining variations in the inflationary performance while the aggregate legal variable is insignificant. Thus, any increase in the probability that there will be a change in governor can be expected to lead to an increased probability of a more inflationary outcome. A second test disaggregating the aggregate legal variables produces less clearcut results (Table 2). The rate of turnover remains significant and positive at conventional significance levels, and several of the legal variables are significant. These are the goal variable, non securitized lending and the policy variable. The ambiguity of these results is unsurprising. While no coding system can fully capture the complex relationship between the executive and the central bank, each legal indicator attempts to capture a different aspect of independence .

The rate of turnover remained significant when the equation was repeated for the developing country sample (Column 2). This variable may not be perfectly correlated with functional independence. A low probability of turnover might imply that the central bank governor accommodates the wishes of the executive making his dismissal unnecessary. Still , it is likely that for developing countries, operational independence is better captured by the probability of turnover of the central bank governor, than for industrial countries.

Table 2

	Equation 1 All Countries	Equation 2 Developing Countries
Intercept	-1.362	-1.728
	(-1.159)	(-1.081)
CEO	10.230	14.730
	(1.409)	(1.518)
Policy Formation	43.094	45.192
	(2.057)	(1.742)
Central Bank Objectives	-22.845	-30.620
	(-2.942)	(-2.976)
Advances	18.882	24.306
	(2.447)	(2.334)
Securitized Lending	-18.258	-18.217
	(-1.258)	(-1.031)
Terms of Lending	10.294	18.455
	(0.793)	(1.061)
Potential Borrowers	-20.973	-37.925
	(-1.403)	(-1.930)
Others	8.420	18.981
	(0.381)	(0.616)
Rate Of Turnover of Central Bank Governor	4.832	4.747
	(2.770)	(2.111)
R^2	0.363	0.447
F Statistic	2.980	2.874
Number of Observations	57	42

The Caribbean inflationary experience can be summarised by noting that with the exception of Jamaica and Guyana, on average inflation has been less than 10%, roughly equal to the rate recorded for industrial countries, and much lower than for developing countries as a group. Other differences emerged between the Caribbean subsample and the remainder of developing countries. The average independence index for the Caribbean (0.46), was greater than the average of that of the remaining developing countries (0.31). However, the small size of the Caribbean subsample meant that no information could be gleaned as to the nature of the statistical significance of the difference between the two means.

The probability of a change in governor in the Caribbean (0.21) in any given year was also less than that recorded for the remainder of the developing country sample group (0.28). However, it was greater than that of industrial countries where the probability of governor dismissal was 0.12. Whereas Cukierman's study suggests a strong link between governor tenure and inflation, chart 1 suggests that there is little correlation between this variable and the inflationary experience in Caribbean countries.

Indeed, the average tenure in the Caribbean appears to be significantly over the five year election horizon. Belize's low average tenure might best be explained by relatively recent formation of its central bank. The other outlier, Jamaica, appears at first to provide some confirmation of Cukierman's hypothesis. Further evidence suggests that this is not the case. In revisiting the issue in their 1995 paper, Cukierman and Webb provide additional perspective on the issue. Using a cut-off point of six months after a change in government to classify CEO changes at the central bank as "political " or "non political ", they find that six of the seven changes in governor in Jamaica occurred after the six month period.

The lack of predictive power of the regressions can be highlighted by comparing actual versus predicted values for the Caribbean.

Table 3

Actual versus Predicted Inflation For the Caribbean.

Table 2		*Barbados*	*Bahamas*	*Belize*	*Guyana*	*Jamaica*	*Trinidad &Tobago*
Equation 1	$\prod^e$	1.381	0.715	3.18	0.40	0.54	1.48
	$\prod$	(0.07)	(0.06)	(0.05)	(0.12)	(0.16)	(0.06)
Equation 2	$\prod^e$	1.531	0.971	3.103	0.46	1.51	1.49
	$\prod$	(0.07)	(0.06)	(0.05)	(0.12)	(0.16)	(0.06)

Note: Bracketed numbers represent actual inflation.($\prod$) . Unbracketed numbers are predicted inflation ($\prod^e$).

The empirical results are somewhat disappointing. Too many of the variables that define legal independence have no significant impact on inflationary performance. Furthermore, the Caribbean sub sample appears to be much closer to the industrial country average than to developing countries. Although it may be possible to perfect measures of central bank independence which successfully "explain" the Caribbean inflationary performance, we must also explore other possibilities.

The Rationale for Consensus, based on Caribbean Experience

The empirical results may reflect the fact that the conditions under which central bank independence improves economic outcomes, described in the first section, do not obtain in the Caribbean: central banks have multiple objectives; the treasury may easily frustrate the central bank if their objectives differ; the adverse consequences of aggressive monetary policy may be far reaching; there is no consensus on the best mix of monetary instruments for the circumstances of Caribbean countries; and central banks are not detached from the process of political consensus formation.

Central banks have multiple objectives. No Caribbean central bank has professed to focus exclusively on price stabilisation. That objective is tempered by the desire to avoid financial crises, achieve real economic growth, improve international competitiveness and diversify economic activity. These multiple objectives have been reflected in bail-outs of failed institutions, central bank involvement in the establishment of investment funds and securities exchanges and the establishment of support facilities for commercial firms. We offer some illustrations, and their implications for monetary policy.

In September 1986 the Central Bank of Trinidad and Tobago assumed control of the Trinidad Co-operative Bank and closed five non-bank financial institutions, after TT$ 142 million had been committed in liquidity support over the previous three years (Farrell, 1990, p 110). In 1996, the Bank of Jamaica assumed the direction of Century National Bank after an injection of official funds failed to avert insolvency. This was followed, in 1997, by the forced sale of Eagle Bank Group to FINSAC, a newly established financial restructuring agency of the Government of Jamaica. The Government of Barbados rescued the Barbados National Bank in 1994 when it became insolvent as a result of the impairment of 70% of its loan portfolio. The potential increase in narrow money - one third of the total money supply - was averted by the issue of long term government debt.

Central banks have been involved in the establishment and support of securities exchanges in the Organisation of East Caribbean States (OECS), Barbados, Jamaica and Trinidad and Tobago. Central banks have contributed in varying ways, including providing equity to the securities exchange, the establishment of brokerages and investment arms, technical assistance and operational support for the exchanges. Caribbean central banks have financed development finance institutions, established investment funds and contributed to venture capital funds. Development of financial markets included the introduction by the Bank of Jamaica of certificates of deposit - which, however , aggravated the problems of monetary control which they were expected to solve. The Bank of Jamaica also introduced a trading room to facilitate short term money market exchange. In the 1970s the Central Banks of Barbados and Jamaica established schemes for export credit and the guarantee of export loans.

These multiple objectives exposed central banks to conflicts with the objective of price stability. The outcome varied depending on treasury policy. The most persistent conflict arose between external price competitiveness and price stability, reflected in efforts to stabilise exchange rates.

Recognising that devaluation is the principal source of high inflation, the Bank of Jamaica tried a variety of mechanisms to steady the nominal exchange rate over the past 20 years. These efforts all failed with the passage of time because of public perception that the exchange rate was not competitive, in the sense that the country did not earn enough foreign exchange to cover import demand at that rate.

Other potential conflicts had a more favourable outcome, not because of independent central bank action, but because of co-operative action with the treasury. The rescue of the Barbados National Bank was effected through the issue of government securities, minimising the expansion in money supply which resulted. The new money created was limited to the interest cost of servicing the new government debt. A new financial restructuring agency (FINSAC) was set up by the Government of Jamaica to avoid systematic risk from bankruptcy of large financial institutions, without significant liquidity injections that would augment the money supply. In most other instances, central banks' efforts to pursue non-price objectives were innocuous, too insignificant in their effects to create a potential for conflict. Export credits, securities exchanges and development financial institutions together made a very small contribution to capital formation in the Caribbean.

The treasury may easily frustrate the central bank if their objectives differ. In the late 1980s all signs pointed to the need to slow aggregate demand growth in Barbados. Export earnings were growing sluggishly, manufacturing and agricultural output contracted significantly, and the current account of the balance of payments deteriorated rapidly. However, fiscal correction was intermittent and inadequate, and in 1989/90 it was abandoned altogether, with the fiscal deficit rising to the equivalent of 8% of GDP from an average of 2-3% in the early 1980s. The Central Bank of Barbados engaged in moral suasion and drove up short term interest rates in an effort to contain the money supply, but these efforts were frustrated by extensive government borrowings from the Bank which directly boosted the money supply and precipitated a balance of payments crisis. The Central Bank's Board of Directors is empowered by law to maintain an independent monetary policy, including limits on lending to government. However, government changed the provisions of the law in order to legitimise its excess borrowing from the Bank.

According to Marston (1995) Bank of Jamaica policy was similarly frustrated by excessive fiscal deficits in the late 1980s. In 1985 the Government of Jamaica embarked on a programme of financial liberalisation focused on the use of aggressive marketing of short term instruments to influence interest rates. However, Government did not achieve targets for fiscal contraction and that policy failed, resulting in a sharp currency devaluation and very high real interest rates

It has long been accepted that monetary policy has only nominal effects in small open economies which maintain fixed exchange rates - if indeed it has any effect at all. An attempt to depress aggregate demand, for example by raising the domestic interest rate, attracts capital inflow rather than reducing expenditure and increasing the demand for money. This has been the universal experience in the English-speaking Caribbean. Large disparities between domestic and foreign interest rates have led to capital inflows and outflows in fixed exchange countries such as Barbados, The Bahamas and Belize. Capital controls have inhibited these transfers very little

because of the very large volume of trade credit which may be increased to secure capital inflows or reduced to shift funds abroad. In Caribbean countries with fixed exchange rates central banks are therefore not very activist. Inflation is governed by import prices, the money supply by the balance of payments and public sector borrowing requirements, and credit restrictions and interest rate changes have little real effect. The main efforts of the Central Banks of Barbados, The Bahamas, Belize and the Eastern Caribbean Central Bank are directed to persuading their treasuries to contain the public sector borrowing requirement.

Doubts have emerged in the Caribbean, as in the rest of the world, about the efficacy of monetary policy in small open economies even when exchange rates float. In a static economy with no time inconsistency monetary policy has real effects where exchange rates are flexible. In an overheating economy an increase in the interest rate reduces aggregate demand, lowers the relative price of domestic goods and increases export supply (export demand for small open economies is infinite). Research over the past two decades has shown that these results are unlikely because of the differential reactions of the capital and current accounts to monetary changes, the inconsistency of short and long term effects of monetary policy on relative prices and the resulting uncertainty about the equilibrium exchange rate. (A summary of these arguments in Edwards, 1989).

Jamaica is the only floating rate Caribbean country which has had an activist monetary policy. Monetary policy in the Dominican Republic, Trinidad and Tobago, Guyana and Suriname has, like that for fixed rate countries, not gone much beyond moral suasion aimed at the fiscal deficit

Jamaica is yet to record success in the primary objective of its monetary policy: to stabilise the exchange rate, to restore investor confidence and reduce chronic high inflation. Earlier attempts were frustrated by the size of the fiscal and quasi-fiscal deficits. Fiscal accounts have been in overall surplus for three successive years but inflation has remained in double digits and it is too early to say whether the exchange rate has stabilised.

Caribbean experience suggests that fiscal dominates monetary policy in all economies whether the exchange rate is fixed or flexible. There has been no instance where monetary policy objectives have been achieved when fiscal policy was off target. There are several examples, in contrast, where expansionary fiscal policy rendered monetary policy ineffective or prevented the implementation of measures (such as a reduction in central bank credit to government) which monetary authorities espoused.

The adverse consequences of aggressive monetary policy may be far reaching. When monetary policy reinforces sound fiscal policy it has little effect on the real economy. The main outcome is narrower fluctuations in foreign exchange reserves. However, aggressive monetary policy designed to stabilise the exchange rate or curtail private sector spending has consequences that go well beyond prices and the financial sector. Such policies have produced high real interest rates, a proven deterrent to fixed capital formation. The problem is worst in Jamaica but has emerged also in Guyana and Trinidad and Tobago. It may have had consequences for income distribution because home mortgages became less affordable. It affected the sectoral distribution of income, with profits rising in the financial sector and falling in agriculture and manufacturing.

The use of monetary policy to stabilise the exchange rate has increased economic uncertainty to the detriment of investment. Reductions in interest rates intended to signal lower inflation targets have been interpreted instead as harbingers of devaluation. Central banks have not acted swiftly to correct that perception by selling foreign exchange to stabilise the exchange rate.

The central bank in a small open economy cannot single-mindedly target inflation - even if it wished to - because of the link between the money supply, the balance of payments and the exchange rate. Money affects prices most significantly through the exchange rate with its implications for production, absorption and expectations. The central bank is therefore always constrained to fix strategy with multiple objectives in mind, and with a view to the medium term.

Although there is a gathering tendency towards the use of indirect monetary instruments *there is not a consensus about the best mix of instruments for the circumstances of the Caribbean.* The international financial institutions have been advising complete reliance on the demand and supply of securities as the sole instrument of monetary policy. In no country has this proved practical; securities market intervention has had to be supplemented by reserve and security requirements, credit ceilings and/or interest rate directives. There is no agreement on which combination of these measures is appropriate to the current circumstances of Caribbean countries. Nor is there a common view on how financial reforms might change the environment for monetary policy (See for example the range of views expressed in Clarke and Leon, 1996.)

The central bank is not detached from political consensus formation. If the central bank is to be successful it must choose, from the universe of potential objectives, those which accord with the sentiment of the nation at large. Small countries face economic disadvantages such as domestic markets too small for the optimum scale of plant for mass produced goods, concentration of exports and lack of diversity in raw materials and natural resources. However, small states may possess a comparative advantage in political consensus formation. Streeten (1993) emphasises that progress involves change which harms some groups, who will resist . In small countries this resistance is likely to be less, and the harm more readily compensated because of greater national cohesion . Generally, the free rider problem is less disruptive of collective action in small groups .

Central banks may inform national preferences by the economic intelligence they provide, but monetary policies succeed only when they respect those preferences. Faced with a balance of payments crisis in 1991, the Government of Barbados initiated an adjustment programme which cut the fiscal deficit from 8 to 1% of GDP, reduced public sector wages by 8%, reduced the Government workforce by over 10%, reformed the tax system and raised interest rates while maintaining a fixed currency value with the US dollar . By 1993 the economy turned around, growth resumed, the current account of the balance of payments was in surplus and fixed capital formation recovered.

In Jamaica, after a decade and a half of repeated exchange rate crises, the private sector took an initiative in 1993 to stabilise the exchange. The rate was kept fixed for 18 months with no

assistance from the Bank of Jamaica, ushering in a period of temporary optimism about Jamaica's economic prospects which has since evaporated with the failure of the initiative, in 1995.

The credibility and influence of central banks in the Caribbean is directly related to the stability of the US dollar value of the domestic currency. The Eastern Caribbean Central Bank, which has avoided any major balance of payments crisis or threat to the fixed exchange rate, is the most influential and highly regarded in the Caribbean, followed by the Central Banks of The Bahamas, Barbados, Belize, Aruba and The Netherlands Antilles, all of which have maintained unvarying currency values. At the other end of the spectrum the Central Banks of Guyana and Suriname, whose currencies have depreciated by several orders of magnitude, are managed as departments of government, subordinate to the treasury. In between are the Central Banks of the Dominican Republic, Jamaica and Trinidad and Tobago which have lost much of the credibility they once enjoyed, mainly because of their repeated failure to stabilise the exchange rate (in spite of measures to increase their legal independence in some cases). Caribbean populations value an unvarying US dollar peg very highly. Until that sentiment changes central banks are constrained to make that a target of their policy. To the extent that is a political choice the central bank has to operate within a political consensus.

Beyond Independence: Consensus

In small open economies like those of the Caribbean the central bank's responsibility goes beyond what is contemplated by the advocates of independent central banks. The central bank is the principal source of economic information and analysis which informs the popular consensus on the desirable mix of economic policies to achieve national objectives. Its overwhelming mission must be to ensure that consensus is fully informed. Caribbean experience has shown that painful adjustment policies and policies that presume a sophisticated understanding of the time consistency of their effects may be successfully undertaken in circumstances where there is popular appreciation of the economic trade-offs the country faces. In the absence of such understanding, relatively timid policies meet with implacable resistance and are frustrated by unexpected market reaction.

Rather than pursue an independent line, Caribbean central banks should seek a meeting of minds with their treasuries on economic policy and provide information and analysis to shape a national consensus around that strategy. First notions of the content of the strategy must be revised if the national consensus proves to be at variance with them. The justification for this approach may be summarised as follows:

(a) It is unrealistic to divorce monetary policy from fiscal policy and policies to ensure stable economic growth. For credibility there must be a complementary and consistent package.

(b) The policy package necessarily involves economic trade offs, most importantly between immediate and future consumption and in the way income is distributed.

(c) No element of the package has unambiguous effects on any economic objective. In particular it is impossible to say that a particular monetary stance will have certain effects on inflation and/or the balance of payments without describing the full policy scenario and economic environment.

(d) Monetary policy is the least important element of the policy package in small open economies and a wide range of values for monetary variables may be tolerated without measurable impact on economic outcomes.

(e) In functioning democracies such as we have in the Caribbean, policy will not be sustained unless it commands majority popular support. The way to ensure good policy must be to ensure the population is fully informed so they throw their weight behind policies that accord with their own goals.

(f) The central bank as the principal source of economic information in all Caribbean countries is well positioned to make a decisive contribution to good policy via public education.

Monetary policy must be part of a package of policy measures suitable for achieving sustained economic growth with a stable balance of payments and low inflation. If all elements of such a package are not in place efforts of the central bank to stabilise the balance of payments or reduce inflation will lack credibility. Often the monetary initiative has no effect, as in the case of Barbados' interest rate increases in 1988 and 1989, which were nullified by large fiscal deficits. Where monetary policy does appear to succeed, as in Jamaica in the late 1980s, its effects highlight inconsistencies with other policies and a crisis emerges when scepticism becomes sufficiently widespread. Repeated episodes of policy incompatibility rob the central bank of its credibility. Its role is then trivialised; it cannot secure expected outcomes because of an ingrained expectation that its policies will fail.

The policy package must be governed by the nation's choice of economic trade-offs. Caribbean central banks are regularly frustrated by the choice made between immediate and future consumption as reflected in decisions on government saving. Frequently, Caribbean governments have chosen to reduce government saving to add to spending power in reaction to increases in import prices or to compensate for stagnation in exports of goods and services. This consumption always proved to be at the expense of future spending as a result of depreciating exchange rates, inflation, import contraction to service foreign debt and constrained fiscal deficits in later years. Central banks have been unable to avoid the excess supply of money which came with government borrowing directly from them, foreign borrowing beyond prudent limits and involuntary currency depreciation.

Policies have had significant impact on income distribution, often with unintended consequences. Several studies have identified their disproportionate impact on the poor and in some cases there has been an increase in the incidence of poverty. (See Boyd, 1988; Anderson, 1989; Greene, 1994). Countries which have opted for flexible exchange rates have witnessed increased

dollarisation of their economies. That narrows the sphere of domestic monetary policy and opens a gap between the incomes of those who earn US dollars and who are therefore protected against high domestic inflation and those who earn local currency which is subject to periodic devaluation.

By hindsight it appears that some of the trade-offs chosen were ill-advised, resulting in an overall slowdown in the growth of real consumption over time and worsening the distribution of income. This occurred although policies were intended to ensure growth as well as stability. (The income distribution target often was ambiguous.) In contrast, policy measures that were highly criticised at the time, especially the use of a US dollar exchange rate anchor, have been associated with steady growth, low inflation and a healthy current account of the balance of payments. Evidently, these countries were content to reduce current consumption and endure the real burden of adjustment to external shocks in order to sustain the value of the currency and an environment of stable low inflation. The key to successful economic policy is public education which moves the national consensus from the trade-off embraced by the low-growth countries with an emphasis on financing and accommodating to shocks to that of the higher growth countries which opted for adjustment of real consumption.

The impact of monetary policy depends on fiscal, exchange rate and other economic policies. In circumstances where fiscal policy is tight and the balance of payments is in surplus, higher interest rates may attract capital inflow, but the flow may be reversed with no change in the monetary stance if the fiscal situation or the balance of payments deteriorate. These circumstances call into question the strategy of using monetary policy to stabilise the exchange rate. Perhaps fiscal policy and government debt strategy should be actively employed in defence of the exchange rate instead.

Moreover, a history of exchange rate crises and devaluations invalidates monetary policy by destroying the credibility of the central bank. High interest rates no longer attract capital except for very short term speculative funds because expectations are that future devaluations will wipe out all windfalls from local/foreign interest rate discrepancies. Those who place funds in domestic currency under these conditions fully intend to out-guess the monetary authority on the timing of the next devaluation.

Monetary policy in the Caribbean is a weak instrument and may have no effect unless pushed to undesirable extremes. Excess liquidity persists for long periods in the Caribbean in spite of interest rate changes. Financial intermediaries are insensitive to interest rate changes (McClean,1997; Farrell and Christopher,1989). Direct interventions such as credit controls and reserve requirements may have temporary effects but these soon wear off or are circumvented (Worrell,1997).

There is not a unique value of the money supply, the prime interest rate or any other monetary variable which is associated with a particular balance of payments outcome or rate of inflation, even where all other dimensions of the policy package are fixed. Monetary policy is elastic and may vary within a wide range with no measurable effect.

Countries which lean heavily on the monetary policy elements of their economic strategy may experience destabilising policy swings and extreme values which have unwanted consequences. In 1981 and 1982 Barbados' Central Bank discount rate was increased from 7% to over 20% in an effort to curb credit to the private sector. In 1989 the increase was from 8% to 13 1/2%. The nominal interest rate in Jamaica has remained several orders of magnitude higher than the nominal interest rate in the United States, a sign that inflation is expected to persist and a source of discouragement to those interested in long term investment.

Better policy may be secured through improved public information. Typically the central bank is the nation's richest repository of economic expertise and the information it provides helps decision makers to match economic policies to national objectives. The Government of Barbados' economic adjustment programme of 1991 was instituted at a point when the Central Bank of Barbados had exhausted its stocks of owned and borrowed foreign exchange reserves and was no longer able to maintain the U.S. dollar parity by intervention on demand at the fixed rate. After fiscal correction was instituted and monetary policies tightened the financial system voluntarily rationed available foreign exchange at the existing exchange rate without intervention by the Central Bank for a period exceeding six months until import demand contraction had allowed for rebuilding of adequate foreign exchange reserve stocks.

The favourable outcome was possible because the Barbadian public was warned by the experience of neighbouring countries about the adverse consequences of currency instability - the erosion of investor confidence, loss of official policy credibility, the heightening of industrial tension, the encouragement of speculative activity and the discouragement of individual saving. Citizens had adequate, up-to-date information on the economic situation, published by the Central Bank of Barbados and interpreted by the local media. Information was imperfect and the adjustment was contentious but a national consensus on policy held, vigorously supported and proselytised by the private sector and by government officials.

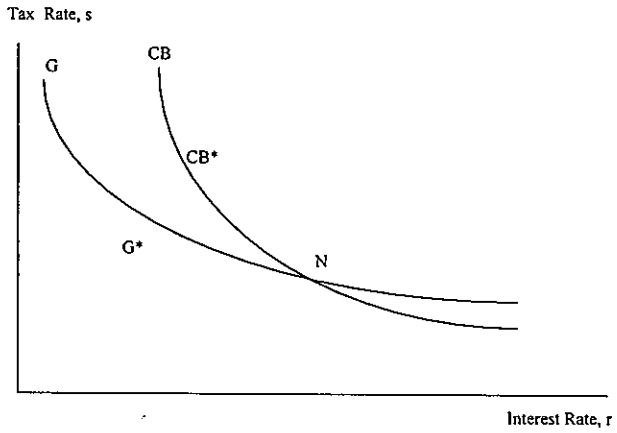
Conclusion

A focus on public economic information and analysis is the most effective way for Caribbean central banks (and others in similar circumstances) to influence economic policy. Rather than distance itself from other official policy the central bank should actively embrace and inform the national economic debate. It is not the bank's business to determine national economic objectives, or decide on the trade-offs between conflicting objectives. Its responsibility is to ensure that the public choices are fully informed. The more effectively this is done the greater the prospect that a national consensus on economic strategy will emerge. Such a consensus is the *sine qua non* of effective economic policy. Without it, even an independent central bank is unable to reach its objectives.. Consensus does not imply an absence of dissension, but agreement on core elements of policy (such as an exchange rate anchor) which supports the overall economic strategy with effective social sanctions to ensure its success.

Appendix A

The Setting of Fiscal and Monetary Policy

Chart A1



Assume that the central bank and the government are concerned about different aspects of the economy. The points G* and CB*(bliss points) are combinations of tax rates and interest rates that each authority would choose if it were free to set both variables. The slopes may be interpreted as reflecting the two authorities unwillingness' to move very far away from their preferred point. In Chart A1 it is assumed the government's bliss point (G*) has a lower tax rate and a lower interest rate than that of the central bank (CB*). With an arbitrary starting point to the north-west of N, an equilibrium will exist where the two reaction functions cross. It can be seen that the outcome is a low tax and high interest rate regime. If the two authorities co-ordinated their policies, the line joining the two bliss points represents a contract curve or set of points at which the "welfare" of the central bank cannot be increased without reducing the "welfare" of the government. The actual outcome is dependent upon the relative bargaining strength of the two authorities.

Appendix B

Dynamic Inconsistency

Dynamic inconsistency arises when the best plan made currently for some future period is no longer optimal when the period actually starts. Following McCallum(1985), the central insight of dynamic inconsistency models as applied to the issue of central bank independence can be explained as follows. It is assumed that policy makers seek to minimise the loss function L( ), where $0 < \omega$ and $k > 1$,

$$(1) \quad L(\pi_t) = \omega \pi_t^2 + (y_t - k y_n)^2,$$

whereas output is driven by,

$$(2) \quad y_t = y_n + B(\dot{\pi}_t - \pi_t^e + u_t)$$

where Π_t is inflation, Π_t^e is expected inflation, y_t is output, y_n is the natural output, and u_t is a random shock. We assume here, that deviations of employment from its natural level are positively related to unanticipated inflation. This follows from the existence of nominal wage contracts in conjunction with a real wage that is normally above the market clearing real wage.

Policy makers have an objective function which assigns a positive weight to employment stimulation and a negative weight to inflation. Policymakers minimise the loss function (equation [1]) on a period -by- period basis, taking the inflation expectations as given.

Substituting (2) into (1) , differentiating and simplifying leads to

$$(3) \quad \omega \pi_t + B y_n + B^2 \pi_t - B \pi_t^e + B^2 u_t - Bk y_n = 0$$

Further simplification leads to:

$$(4) \quad \pi_t = \frac{B(k-1) y_n}{\omega + B^2} + \frac{B^2 \pi_t^e}{\omega + B^2} - \frac{B^2 u_t}{\omega + B^2}$$

With rational expectations, i.e. solving using equation (5) ,

$$(5) \quad \pi_t = \pi_t^e + u_t$$

this leads to

$$(6) \quad \pi_t = \frac{B^2(k-1) y_n}{\omega} - \frac{B^2 u_t}{\omega + B^2}$$

If policymakers were to follow a rule taking into account private rational-expectations behaviour, inflation would be

$$(7) \quad \pi_t = -\frac{B^2}{\omega + B} u_t$$

Because the same level of output pertains in both cases, the latter outcome is clearly superior. No matter what exactly causes the dynamic inconsistency problem, the resulting rate of inflation is , in all cases, suboptimal.

References

Alesina, Alberto, and Lawrence H. Summers, " Central Bank Independence and Macroeconomic Performance: Some Comparative Evidence," *Journal of Money, Credit and Banking*, Volume 25, May 1993.

Anderson, Patricia, "Levels of Poverty and Household Food Consumption in Jamaica in 1989", Institute of Social and Economic Studies, University of the West Indies, University of the West Indies,1990.

Barro, Robert J. and David B. Gordon, " Rules, Discretion and Reputation in a Model of Monetary Policy, " *Journal of Monetary Economics*, Vol. 12, 1983, pp. 101-121.

Boyd, Derick A.C., , "*Economic Management, Income Distribution, and Poverty in Jamaica*", New York, Praeger, 1988.

Carvalho, Fernando J Cardin, "The independence of central banks: a critical assessment of the arguments," *Journal of Post Keynesian Economics*, Vol. 18, No. 2 , Winter 1995-96.

Clarke, Laurence and Hyginus Leon, Eds., "Liquidity Management in Liberalising Economies: Some Experiences from the Caribbean," Caribbean Centre for Monetary Studies Occasional Paper No. 3, 1996.

Cukierman, Alex, Stephen B. Webb and Bilin Neyapti, "Measuring the Independence of Central Banks and its Effect on Policy Outcomes," *The World Bank Economic Review*, Vol. 6 No. 3 , 1992, pp. 353 - 398.

Cukierman, Alex and Stephen B Webb, "Political Influence on the Central Bank: International Evidence," *The World Bank Economic Review*, Vol.9 No. 3, 1995, pp. 397-423.

Doyle, Christopher and Martin Weale, "Do We Really Want an Independent Central Bank?" *Oxford Review of Economic Policy*, Vol. 10 No.3, 1994, pp.61 - 77.

Edwards, Sebastian, "*Real Exchange Rates, Devaluation and Adjustment: Exchange Rate Policies in Developing Countries*", Cambridge Mass: MIT Press,1989.

Farrell, Terrence, , "*Central Banking in a Developing Economy: A Study of Trinidad and Tobago, 1964-1989*", Institute of Social and Economic Studies, University of the West Indies, 1990.

Farrell, Terrence and Janice Christopher, "Macro- monetary Relationships in the Caribbean: An Eclectic Review of the Literature," in D.Worrell and C.Bourne, Eds, *Economic Adjustment Policies For Small Nations*, Praeger Publications, 1989.

Farrell, Terrence and DeLisle Worrell, "*Caribbean Monetary Integration*" , Trinidad : Caribbean Information Systems and Services, 1994.

Fisher, Stanley, "Central Bank Independence Revisited," *American Economic Review*, Vol. 85 No. 2, May 1995, pp. 201 - 206.

Flood. R. P, and P Issard, "Monetary Policy Strategies," NBER Working Paper, no. 2770, November,1988

Goodhart, Charles A. E., "Game Theory for Central Bankers: A Report to the Governor of the Bank of England," *Journal of Econometric Literature*, Vol. XXXI, 1994, pp. 101 - 114.

Levy, David A, " Does an Independent Central Bank Violate Democracy ?" *Journal of Post Keynesian Economics*, Vol. 18, No. 2 , Winter 1995-96.

Marston, David, "Financial Sector Reform in Jamaica during 1985-92" IMF Working Paper, September, 1995.

McClean, Wendell, "Monetary Dynamics in Barbados: The Evidence from Cointegration Analysis and Error Correction Modelling," in D. Worrell and R. Craigwell, Eds, *Macoeconomics and Finance in the Caribbean: Quantitative Analyses*, Caribbean Centre for Monetary Studies, 1997.

Nordhaus, William, "Marching to Different Drummers; Coordination and Independence in Monetary and Fiscal Policies," Cowles Foundation Discussion Paper, No, 1067, Yale University, January,1994

Persson, Torsten and Guido Tabelli, " Designing Institutions for Monetary Stability," Carnegie-Rochester Conference Series on Public Policy, December 1993, Vol.39, pp. 53-84.

Rogoff, Kenneth , "The Optimal Degree of Commitment to an Intermediate Monetary Target," *The Quarterly Journal of Economics*, November 1985, pp. 1169-1189

Tanzi, Vito "Inflation, Lags in Collection and the real Value of Tax Revenue." *IMF Staff Papers*, Volume 24, 1977, pp. 154-67.

Walsh, Carl, "Optimal Contracts for Central Bankers" *American Economic Review*, March 1995, Vol. 85, No.1, pp. 150-167.

Worrell, DeLisle, , "Role Models for Monetary Policy in the Caribbean : Comparing Caricom Central Banks," in R. Craigwell, H. Codrington and C. Haynes, *Central banking in Barbados: Reflections and Challenges*, Central Bank of Barbados, 1997.