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Economic Research at the Central Bank

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Introduction

Prudent economic management is crucial to national progress. Few dispassionate observers would deny that the Central Bank of Barbados has been in the vanguard of macroeconomic management ever since its formation. This was made possible by a systematic attempt by the Bank to discover and document the underpinnings of domestic economic relationships. The result has been the preparation and presentation in Barbados and elsewhere of numerous papers on the Barbadian economy. The bibliography at the end of this book indicates that to date over 150 articles, pamphlets and books have been published by the Bank's staff. This is the second collection of articles prepared to commemorate a special anniversary of the Bank; the first was for the tenth anniversary in 1982. This paper takes stock of the research effort by the Central Bank's staff over the last 25 years. It highlights the main influences on research themes and discusses some of the principal findings in some of the papers as space does not permit a comprehensive discussion of them.

1. The Early Writings: 1973-79

Research on the Barbadian economy started soon after the establishment of the Research Department in March 1973. Gloria Francis presented a paper on the impact of the Agricultural Marketing Protocol on vegetable production in Barbados, at the 8th West Indian Agricultural Economic Conference in Trinidad and Tobago, which was included in the Conference Proceedings. This effort was followed by a wave of writings aimed at improving the understanding of how the economy functioned.

In keeping with the Bank's mandate to regulate the money supply and promote monetary stability, several of the early papers focussed on various aspects of the behaviour of commercial banks. Examples are the articles on liquid asset holdings (Howard and Wapensky (1974)), bank credit (Saunders and Worrell (1978)) and interest rate behaviour (Howard (1976)). Howard showed how interest rates in Barbados during the mid-1960s to mid-1970s were affected by rates in the United Kingdom, the oligopolistic nature of domestic banking, intense competition after the entry of banks from the United States of America and heavy foreign borrowing in the Euro-dollar market.

Among this early set of papers, the only attempt to explain the behaviour of depositors came from Worrell in 1974. He identified domestic interest rates, foreign exchange earnings, domestic expenditures, credit expansion and interest rate differentials as short-run influences while economic growth served as a long-run determinant. However, Worrell pointed out that his analysis could not account for interrelationships between the variables and advocated further research with the benefit of more sophisticated quantitative techniques.

Other aspects of banking also came in for scrutiny. In 1978, there were descriptions of bank supervision practices (Johnson and Springer) and off-shore banking centres (Eric Brathwaite). The latter helped to inform official attempts to promote offshore banking operations in Barbados. Brathwaite distinguished between "real" and "shadow" off-shore operations, discussed the requirements of a typical off-shore centre, the costs and benefits as well as the problem of insulating the centre from the domestic economy.¹

Another of the early research interests was consumer prices, which was not surprising in light of the relatively high rates of inflation in the early to mid-1970s. Articles which dealt with this topic included "Price trends in Barbados, 1968-1973" (Francis (1975)) and "The Control of Inflation in a Small, Underdeveloped Economy: The Barbadian Experience" (Gittens (1978)).² Francis concluded that import prices impacted positively on domestic inflation more significantly than tariffs, taxes and mark-ups.

The vast majority of the remaining articles during this period constituted the first attempts to understand real sector activity. Among this set are writings on food production (Francis (1975)), the sugar industry (Phillips (1977)), manufacturing (Cox (1975)) and energy (Cox (1976 and 1978)). Cox drew

¹Between 1973 and 1997 only three papers on the off-shore sector have been published.

²The article by Gittens was the first by a Central Bank staff member to be published in a non-regional journal.

attention to one of manufacturing's main short-comings - the absence of significant linkages with other economic sectors - and in his energy paper he focussed on the need to rationalize energy usage as well as pursue conservation and alternative sources. Phillips showed that the sugar industry's viability would require adequate financing, higher efficiency and increased mechanization of the operations.

2. Consolidation and Expansion: The 1980s

By the early 1980s, the pioneering researchers of the 1970s had given way to new ones. The base provided by these early writers provided an opportunity for the Bank to consolidate its knowledge, explore new themes and adopt new techniques. Greater use was made of econometric models and research priorities shifted somewhat. Published work on commercial banking activity and inflation declined, but real sector issues continued to attract much interest, partly because the 1981/82 recession ignited concerns about the traded/non-traded dichotomy in the productive base. Thus, references to the balance of payments implications of non-traded activity are discerned in papers on construction (Brathwaite (1982)), public transport (Codrington (1984)) and housing (Holder (1985)). Analysis of the foreign-exchange earning sectors underscored a search for export-diversification and competitiveness. Following Worrell's 1982 paper on industrial policies, Whitehall examined first protectionism (1984) and then profits (1986) in manufacturing. Articles on tourism examined the role of quality and professionalism (Worrell (1984)) and the impact of prices and incomes (Clarke, Wood and Worrell (1986)).

However, the most comprehensive treatment of sectoral issues came in a collection of papers in 1982, on the occasion of the Central Bank's Tenth Anniversary. Entitled "*The Economy of Barbados: 1946-1980*", the volume was a post-World War II assessment of the economy. There were chapters on the sugar industry, tourism, and manufacturing and the external sector. Cox examined the framework of fiscal incentives in the manufacturing sector and the impact of incentives on value-added, exports and employment. He also explored the growth in manufacturing output and foreign exchange earnings. Haynes' article chronicled the contribution of the sugar industry to income generation, employment and the balance of payments during the period. It underscored the importance of international trading arrangements to the industry's survival and discussed attempts to modernize the sugar industry in the face of declining profitability. In the paper on tourism, Phillips dealt firstly with the pattern of arrivals and the expansion in accommodation. He then examined the growth of

tourist expenditures and the new initiatives in the development of the industry. Brathwaite and Codrington began by discussing the growth and composition of exports, export markets and the nexus between foreign exchange earnings and economic growth. They then dealt with import growth, the pattern of import substitution and the evolution of the terms of trade.

The articles were cemented by DeLisle Worrell's economic review of the period. This overview provided information on social and economic indicators, and described the pattern of overall and sectoral growth. The survey also examined the issues that influenced economic development, domestic investment and external finance and provided insights into monetary and fiscal issues. Maxine Williams and Aldeen Payne contributed a "Select Bibliography on the Economy of Barbados," which informed much of the economic research.

One of the new themes discerned in the Bank's research in the mid-1980s was a body of work which resulted from efforts to develop a macroeconomic model for Barbados. A general approach to the subject was provided in "Some Thoughts on Model Building for Developing Countries" (Boamah (1985)), "A Model for Forecasting in the Caribbean" (Holder and Worrell (1987)) and "Economic Theory, Empirical Estimation and Inference: Some Caveat" (Leon (1989)). Among the most instructive of Leon's conclusions is that "useful policy insights can be obtained if econometric modelling is based on appropriate economic principles and statistical analysis" (p. 24). After the macroeconomic model was implemented, a number of appraisals were published by Craigwell and others. (See, for example "The New Forecasting System of the Barbadian Economy: Some Preliminary Results" and "Reflections on Macroeconomic Forecasting in the English-speaking Caribbean" published in 1996).

There were also attempts at modelling output, wages, prices and productivity (Downes, Holder and Leon (1988)) and prices (Holder and Worrell (1985)) as well as short-term forecasting of wages (Boamah (1988)). Papers on wage formation (Boamah (1985)), and wages and productivity (Mascoll (1985)) helped to enhance an understanding of economic relationships and advance the model-building process.

With time, the researchers started to focus more directly on the technical aspects of modelling. Leon, the then Manager of Research and a specialist in econometrics, contributed significantly to this thrust. In 1990 he teamed up with Craigwell to examine causality testing and sensitivity in detrending. During 1991, there were papers on testing for non-stationarities (Holder, Leon and Wood) and the use of cointegration in inflation modelling (Holder, Leon and Downes).

Another new strand of research in the 1980s encompassed a number of topics which could be described as external sector issues. The first analysis of

external debt was published by Zephirin (1980). The external debt issue was later examined by Boamah, who put out three papers on the subject in 1988 and 1989. One of them analysed the macroeconomic implications of external debt for Barbados. It provided some appraisal of popular debt-reducing modalities like swaps, rescheduling and conversions. Boamah showed that it was possible for a developing country to grow out of debt, as long as it adopted prudent domestic policies and external borrowing rates were relatively stable. However, he underscored the need for external financing and the removal of structural barriers to help expand productive capacity. The external debt issue was the subject of two additional articles (Craigwell, Rock and Sealy (1988) and Holder and Prescod (1991)).

There were a few articles on exchange rate policy and external influences on domestic policy early in the period (Worrell (1980) and (1981)). The rapid build-up in foreign reserves in Trinidad and Tobago in the late 1970s was partly responsible for an examination of foreign reserves management (Blackman (1981)). Blackman's paper suggested guidelines for reserves management, a policy which had been first advanced by Worrell, who in 1976 utilized data for Jamaica to examine the optimal level of reserves. Blackman's wider scope enabled him to explain that the overall objectives of management should be to ensure sufficient liquidity for necessary payments, maximum income from investment, the holding of certain precautionary assets (gold, for example), adequate provision for politically-motivated actions and the maintenance of the currency's value. Other research on the external sector during the 1980s included the terms of trade (Codrington and Holder (1984)) and the capital account of the balance of payments ((Codrington (1985, 1987), Codrington, Khan, Nurse and Worrell (1987)). Codrington's explanation of short-term capital movements, which imparted some instability to the balance of payments in the early 1980s, linked them to the level of Caricom trade, interest rates and the liquidity of business firms.

First attempts at explaining macroeconomic policies also appeared during the 1980s. Muriel Saunders' chronicle of Central Bank policies in 1980, which was updated (with Wood) in 1988 helped to inform discussions on monetary mechanisms (Worrell (1985)) and monetary and fiscal policies (Haynes and Holder (1989)). The analysis by the latter authors, who reviewed the period 1970-85, determined that fiscal policy is much more effective than monetary policy in Caribbean economies and concluded that the success of monetary policy is dependent on the degree of fiscal discipline. Fiscal issues, thrust into the foreground by the economic recession early in the decade, attracted a reasonable degree of interest. In a comprehensive assessment of government expenditure,

Saunders and Worrell (1981) discussed the impact of wages and prices on the Government budget, spending on the social services, economic infrastructure and public enterprises as well as debt servicing. Towards the end of the decade, there were several papers on various aspects of taxation (Craigwell and Rock (1988), Codrington (1989) and Worrell 1989)).

Two other areas of research which emerged in the 1980s were writings on the financial sector and regional issues. The first article on the financial sector dealt with its growth and appeared in 1983 (Prescod and Worrell). Some of the other studies were concerned with the financial structure and the allocation of credit (Codrington and Coppin (1989)), financial regulations (Williams (1989)) and the link between finance and development (Worrell (1987)). The first publication to deal directly with a regional issue was "An Analysis of regional trade and payments arrangements in Caricom, 1971-82" by Williams (1985). This paper, which came out in the wake of the collapse of the CMCF, provided valuable information on the history, operations, and weaknesses of regional payments mechanisms. Williams also authored an article on the regulation of financial institutions in Caricom in 1989 while Babb (1990) compared income tax regimes in Caricom.

3. Contemporary Research: The 1990s

Economic research during the 1990s was influenced to a very large extent by the economic crisis of 1990 to 1992. Some of the themes which had taken root during the previous decade assumed different dimensions as the researchers struggled to explain the changed economic landscape. In addition, the new interest in regional monetary integration provided another topic for discussion. The writing concentrated on five main areas - fiscal policy, macroeconomic adjustment policies, the financial sector, the balance of payments and monetary union.

One of the significant factors in the evolution of the economic crisis was public sector finances; naturally, this led to a number of papers on the topic. In 1991, Craigwell and Ian Durant explored possibilities for financing the fiscal deficit and Craigwell tested the applicability of the Buchanan-Wagner thesis to the Barbadian situation, concluding that it had some validity. The desire to describe the impact of expenditure on other variables led to papers on Government revenue - expenditure causality (Craigwell, Leon and Mascoll (1994)) and Government expenditure and growth (Belgrave and Craigwell (1997)). In an effort to inform the national debate on the need for tax reform, Mascoll described trends in the effective tax rates of individuals (1991), pointing out that the tax

system had become less progressive and recommending adjustments to the allowances and deductions (pp. 19-20). Mascoll and Harding (1993) also showed that lower Common External Tariff (CET) rates would impact negatively on the manufacturing sector and Government revenue.

Worrell, a major player in the technical discussions with the multilateral financial institutions, dominated the writing on macroeconomic and adjustment policy. During 1991, he produced three articles on these topics. In "Management of Adjustment Programmes" he listed the difficulties with management of these programmes as technical problems, problems of political economy, implementation problems and bad attitudes. He also outlined a set of remedial measures which included the need for more economic research, better statistics, public education and additional central banking autonomy. During this period Worrell also authored articles on appropriate policies for small, open economies (1992), economic adjustment and growth (1993) and macroeconomics and small developing countries (1994).

External sector issues featured in five publications. Boamah and Craigwell wrote on substitution possibilities between imports and traditional factors of production (1993). In 1996, the price competitiveness of exports was explored by Boamah, Campbell and Worrell who showed that during the 1970s and 1980s, tourism moreso than other activities had lost ground. In that year, Dalrymple's paper sought to explain the decision to maintain the prevailing exchange rate in the face of severe foreign exchange losses. Discussion on external account measurement problems is found in Codrington (1994) who sought to remove some of the confusion which arose from the use of the new concept of net international reserves in monitoring the foreign reserves movement. The paper showed that, while there was some variation in the magnitudes of different indicators of reserve adequacy, they all displayed similar trends. Campbell (1995) also examined the compilation of balance of payments statistics.

Between 1990 and 1996, the Bank produced the most substantial set of writing on commercial banking issues since the 1970s. This included articles on interest rates (Craigwell (1990) and Craigwell and Melville (1996)), and deposits (Zephirin (1994)). There were also several studies on the financial sector generally. Worrell dealt with the impact of finance on development, investment and trade and there were two contributions on financial liberalization (Zephirin (1993) and Williams (1996)). Zephirin's theoretical treatment included a section on partial equilibrium models of Caribbean banking. Using data from Barbados, Trinidad and Tobago and Jamaica, Williams concluded that "... where banking authorities are restricted, the scope for profit-maximizing behaviour is reduced and the banks' opportunity set is curtailed" (p.231).

The other subject to attract significant treatment in the 1990s was monetary union. Under the patronage of the West Indian Commission, this issue was first explored by Worrell in 1992. His paper put a case for a common, freely-convertible Caribbean currency and also described the institutional arrangements which would be necessary to support this venture. The regional monetary authority would be empowered to hold an amount of foreign exchange to protect the currency against devaluation with respect to the US dollar. This rule which "...implies a limit to its discretionary powers to create money", in the interest of fiscal discipline, is the most attractive of the proposals regarding the regional monetary authority. A number of joint publications on the subject (Codrington et al, Farrell and Worrell) came out in 1994 and in 1995. Codrington examined the economic and political ramifications of Barbados' entry into the monetary union.

4. Agenda for the Future

Economic research has been one of the distinguishing features of the Central Bank's work since 1972. This is, in part, the result of a willingness to explore topics which were not traditional central bank concerns. In so doing, the Bank's research effort has done much to explain how the Barbadian economy works and to enhance debate on domestic, regional and international issues.

One task for the future is to maintain the publications record in the face of the changing economic priorities. Already, some of the new themes have begun to emerge, e.g. the prospects of monetary union and increased integration in Caricom and the challenges presented by globalization. Increasingly, too, there will be a need to explore many of the microeconomic issues - e.g. poverty, urban transport - which are known to impact heavily on national decision-making. The value of the Bank's research output will continue to be judged by its overall relevance to the country's economic development.