
THE REAL DEBT SERVICE CAPACITY
OF TRINIDAD AND TOBAGO

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NOT FOR QUOTATION

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INTRODUCTION

The Trinidad and Tobago economy has been in decline since 1983. Economic recession has been accompanied by substantial increases in unemployment levels, fiscal crises, rapid depletion of international reserves, and foreign exchange rate pressure. At the same time, foreign debt service payments continued to rise. The conjuncture of heavy debt service burden and economic recession is not unique to Trinidad and Tobago, but is in fact experienced by several Latin American and Caribbean economies, and by many less developed countries in the world.

The view has been advanced in many official and expert fora with increasing acceptance that external debt has become a source of large financial resource transfers out of developing countries. Consequently,

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its impact on economic growth and development is now debilitating rather than supportive. Correspondingly, substantial debt relief is advocated as a means of reversing the economic decline and averting major collapse of heavily debt-burdened societies. The prevailing judgement is that real debt service capacity, i.e. the ability to honour external debt commitments without jeopardizing domestic economic growth and economic welfare, has been greatly eroded. But there are well-meaning sceptics who question this judgement and prefer to interpret debt delinquency as reflections of bad faith and weak will on the part of LDC debtor governments.

This paper provides an empirical study of Trinidad and Tobago as a case study intended to exemplify the real debt service capacity problem of a small Caribbean economy with a large but undiversified external sector, narrow production structure, heavy reliance on the public sector for generation and diffusion of economic activity. These features characterise most of the small economies of the Caribbean irrespective of their language zone. The methodology utilises macro-simulations of the effect of arbitrary increases and decreases in external debt flows on selected macro-economic variables, notably national income, gross domestic product, employment, investment and the foreign trade balance. The results lead to the conclusion that debt service payments have lowered economic growth and generally weakened the macro economic performance of Trinidad and Tobago, that further increases in debt payments would seriously aggravate current economic problems, and that debt relief would be a major boon to the resumption of economic growth. Section I describes the structure of the model; Section II discusses the estimation and simulation results while Section III analyses the effects of increases and decreases in external debt flows on the macro economy.

SECTION I

MODEL STRUCTURE

The model was constructed as a Block Recursive system with groups of simultaneous and recursive equations. The system contains nine behavioural equations, the first of which postulates that tax revenues are determined by the value of exports. The second behavioural equation (Equation 4) posits that Gross Domestic Expenditure is determined by the value of imports, which is used as a proxy for the non-oil imports of producer and capital goods, and by employment in the sector. This is in effect a production function for the non-oil sector.

In the third behavioural equation (Equation 6) employment is determined by a production relationship. This relationship hypothesises specifically that the level of employment is derived from the level of output. Retail Prices (Equation 7) are determined by wages and import prices. The fifth equation (Equation 8) is a simple relationship in which Private Domestic Expenditure is determined by the level of National Income.

There is an investment function (Equation 9) which embodies an accelerator principle, the influence of credit and the foreign reserves effect which reflects the capacity to import capital goods. The accelerator variable measures the annual change in total GDP while the credit variable used is the stock of credit to the Private Sector. Investment is expected to vary directly with each of these three variables.

SECTION II

ESTIMATION METHOD

The estimator chosen was a limited information system estimator namely two stage least squares. The estimator was chosen because it provides consistent single equation parameter estimates in a simultaneous equation system environment [see Fomby et al (1984)]. Data used to estimate the model over the period 1966-1983 were compiled from publications of the Central Bank and the Central Statistical Office of Trinidad and Tobago. Analysis of the estimation results were based on the usual statistical criteria namely \bar{R}^2 , Fisher-Snedecor statistic, Durbin-Watson and Durbin H-statistics and the Ljung-Box Q-statistic.

ANALYSIS OF ESTIMATION RESULTS

The equations for TAX, NGDP, EMP, PDE and FRESV were all corrected for first-order serial correlation using the maximum likelihood method of Beach and MacKinnon (1978). The Durbin H-statistic could not be computed for the FRESV equation because the variance of the coefficient of FRESV (-1) exceeded unity. The Ljung-Box test (Q-statistic) was therefore utilised to confirm that the residual patterns were white noise and were therefore carrying no more useful information. The estimated equations fitted well overall as evidenced by the high \bar{R}^2 and significant t and F values. Exceptions to this general overall significance occurred in the NGDP and FRESV equations in which exogenous variables LFNOIL and NFFD respectively were insignificant.

The estimation results are presented in Table 2. At this juncture it is perhaps useful to draw attention to the implications of the individual equations. The results show that non-oil domestic product is significantly driven by imports which is a proxy for imported capital goods and other raw material. The hypothesis that tax revenue is determined primarily by exports is also supported even though the relationship seems to be less close in the last couple of years.

Employment is output driven even though in some years the relationship appears not to be very strong while Private Domestic Expenditure as expected is influenced significantly by income. In respect of investment Expenditure, the accelerator principle and the supply of Domestic Credit both seem to have strong influences. Investment Expenditure also varies directly with the stock of Foreign Reserves.

Gross Domestic Expenditure has a positive influence on the level of imports whereas the influence of foreign reserves while being in the anticipated direction is not as strong. The coefficient, however, on the relative price variable is positively signed contrary to a priori expectations. The level of non-oil exports increases when non-oil GDP increases and rises also when export prices rise relative to domestic prices.

The last equation we draw attention to is the Foreign Reserves Equation in which net debt inflows appear to result in a reduction in the stock of foreign reserves. This statistical result is not intuitively obvious but if valid would suggest that domestic expenditure stimulated

by inflows generate a larger demand for Foreign Exchange Expenditures. Nevertheless this relationship is in need of further analysis.

ANALYSIS OF SIMULATION PERFORMANCE

The overall adequacy of the model was analysed by a set of dynamic simulations. The results obtained from the dynamic simulations were compared with the actual historical values in order to assess the overall performance of the model. Graphic illustrations of the fits are presented in Charts I, II and III. The charts indicate that the model demonstrates the ability to replicate oscillations or turning points in the actual data series. The summary statistical measures presented in Table 3 for the interested readers, also confirm this goodness of fit.

The correlation coefficient squared indicate high correlations between the actual and simulated values while the thiel u reinforces the smallness of the bias between actual and simulated values. All in all the simulation exercise demonstrates that the fit of the model as a system of equation is quite good. One therefore feels confident in using the model to analyse the influence of varying debt payment obligations on the macro economy.

Whereas total exports increased by 0.7 per cent total imports also increased but at a faster rate (2.7 per cent) with net effect being a deterioration in the current account balance.

2. Increase in Debt Payment Obligations (Shock 2)

The second experiment consisted of a reduction in external debt payment obligations by 20 per cent. The intention was to examine the resulting impact on the economy from an outflow of capital. Immediately one noticed perfect symmetry between this experiment and the 20 per cent reduction in external payment obligations discussed above. This was, without doubt, the result of the highly linear form of the econometric model.

Contractions in the major macro economic variables were evident from this shock. Gross domestic product and non-oil GDP declined by an averaged of 2.2 per cent and 2.7 per cent, respectively over the period. In addition there were notable declines in both Government and total domestic expenditure which fell by 10.8 per cent and 3.8 per cent, respectively. There were also declines in investment and national income. The effects on employment and Government revenue were however only marginal with declined of 0.4 per cent and 0.5 per cent, respectively.

Meanwhile the effect on the Current Account Balance was positive largely on account of the steeper decline in imports relative to exports. This balance grew by 2.0 per cent over the four year period.

3. Significant Increase in Debt Payment Obligations (Shock 3)

The third experiment entailed examining the effects of a substantial outflow of external debt payments on the macro-economy. Debt obligations over the period 1980-1983 were therefore increased by 125 per cent. This substantial increase was meant to mimic the heavy bunching of external debt payments which is a characteristic feature of small Caribbean economies which have very limited experience debt management systems.

This shock led to severe contraction in both non-oil and gross domestic product which declined by 16.7 per cent and 13.4 per cent, respectively over the period. Also both investment and National Income registered notable declines of 8.7 per cent and 18.4 per cent, respectively.

Summary tables and charts are presented below in order to give an idea of the impacts of all three shocks on the macro economy.

SUMMARY AND CONCLUSIONS

This paper advances the concept of real debt service capacity as the capacity of an economy to honour its external debt obligations without depressing its economic growth rate, employment levels and creating other serious macro economic problems. On the basis of a small macro econometric model, the paper assessed the real debt servicing capacity of Trinidad and Tobago in these terms.

The overall inference to be drawn from this study is that the real debt service capacity of a small, highly specialized open economy such as Trinidad and Tobago is very limited. Large, discontinuous increases in debt service payments retard economic growth and lower levels of living. As a corollary, debt relief can play a major role in averting economic decline or at least prevent debt payments from accentuating recessionary pressures originating in the production and trade sectors. Moreover, debt relief can be instrumental in engendering economic revival.

TABLE 1

SPECIFICATION OF THE TRINIDAD AND TOBAGO DEBT MODEL

FISCAL BLOCK

- 1.* TAX = f(XPORT) + e(t)
2. GDE = TAX + CGS + NFFD
3. CPS = DC - CGS

OUTPUT BLOCK

- 4.* NGDP = f(LFNOIL, MPORT) + e(t)
5. TGDP = OGDP + NGDP

EMPLOYMENT AND PRICES BLOCK

- 6.* EMP = f(TGDP) + e(t)
- 7.* RPI = f(WAG, PIMP) + e(t)

INCOME-EXPENDITURE BLOCK

- 8.* PDE = f(INC) + e(t)
- 9.* INVEST = f([TGDP - TGDP(-1)], CPS, FRESV) + e(t)
10. INC = GDE + PDE + INVEST + XPORT - MPORT
11. GREXP = INC - XPORT + MPORT

TABLE 1 (Cont'd)

FOREIGN-TRADE BLOCK

- 12.* MPORT = f(GREXP, FRESV, RMPRPI) + e(t)
13.* XNOIL = f(NGDP, RXPRPI) + e(t)
14.* FRESV = f(FRESV(-1), NEFD) + e(t)
15. XPORT = XNOIL + XOIL
16. RMPRPI = f(PIMP/RPI) + e(t)

LIST OF VARIABLES

ENDOGENOUS VARIABLES

1. TAX - Government Tax Revenue
2. GDE - Government Domestic Expenditure
3. CPS - Credit to the Private Sector
4. NGDP - Non-oil GDP
5. TGDP - Total GDP
6. EMP - Employment
7. PDE - Private Domestic Expenditure
8. INVEST - Investment
9. RPI - Consumer Prices
10. INC - National Income
11. GREXP - Gross Domestic Expenditure
12. MPORT - Imports (Total)
13. XNOIL - Non-oil Exports
14. FRESV - Foreign Exchange Reserves
15. XPORT - Exports (Total)
16. RMPRPI - Relative Import Prices

* indicate behavioural relationships

TABLE 1 (Cont'd)

LIST OF VARIABLES

PREDETERMINED VARIABLES

Exogenous

1. NFFD - Net Inflow of Foreign Debt
2. CGS - Credit to the Government
3. CGDP - Oil-GDP
4. WAG - Wages
5. LFNOIL - Non-oil Labour Force
6. PIMP - Import Prices
7. RXPRPI - Export Prices
8. DC - Total Domestic Credit
9. XOIL - Oil Exports

Lagged Endogenous

10. TGDP(-1) - Lagged Total GDP
11. FRESV(-1) - Lagged Foreign Reserves

TABLE 2

ESTIMATION RESULTS: TRINIDAD AND TOBAGO DEBT MODEL

1.	$TAX = 1241.5 + 0.82 XPORT$ (0.932) (6.8)			
	$\bar{R}^2 = 0.95$	$F = 449.6$	$D.W. = 1.17$	$QSTAT = 10.1$
2.	$NGDP = 488.7 - 0.972 LFOIL + 2.47 MPORT$ (0.126) (-0.09) (18.1)			
	$\bar{R}^2 = 0.94$	$F = 309.6$	$D.W. = 1.7$	
3.	$EMP = 315.4 + 0.005 TGDP$ (31.7) (5.2)			
	$\bar{R}^2 = 0.91$	$F = 155.2$	$D.W. = 1.4$	
4.	$RPI = 19.1 + 2.11 WAG + 0.49 PIMP$ (10.15) (3.74) (4.33)			
	$\bar{R}^2 = 0.99$	$F = 262.1$	$D.W. = 1.8$	
5.	$PDE = -276.4 + 0.45 INC$ (-1.009) (14.76)			
	$\bar{R}^2 = 0.90$	$F = 127.1$	$D.W. = 1.9$	
6.	$INVEST = 94.5 + 0.23[TGDP - TGDP(-1)] + 0.81 CPS + 0.103 FRESV$ (1.585) (4.50) (12.17) (2.009)			
	$\bar{R}^2 = 0.99$	$F = 856.6$	$D.W. = 2.3$	
7.	$MPORT = -176.4 + 0.29 GREXP + 0.087 FRESV + 7.2 RMPRPI$ (-0.91) (15.4) (1.8) (2.1)			
	$\bar{R}^2 = 0.99$	$F = 756.8$	$D.W. = 2.4$	
8.	$XNOIL = -120.4 + 0.11 NGDP + 13.1 RXPRPI$ (-1.41) (11.33) (6.64)			
	$\bar{R}^2 = 0.98$	$F = 358.4$	$D.W. = 1.9$	

9.
$$\text{FRESV} = 1.12 \text{ FRESV}(-1) - 1.53 \text{ NFED}$$
$$(3.8) \quad \quad \quad (-1.09)$$

$\bar{R}^2 = 0.97$ $F = 686.1$ $D.W. = 1.20$ $QSTAT = 10.7$

TABLE 3
SIMULATION RESULTS: TRINIDAD AND TOBAGO DEBT MODEL

Endogenous	CCS	U	UB	UV	UC
TAX	0.98	0.013	0.086	0.304	0.610
GDE	0.94	0.036	0.086	0.029	0.885
NGDP	0.95	0.020	0.032	0.037	0.931
TGDP	0.96	0.013	0.032	0.039	0.929
EMP	0.85	0.001	0.029	0.016	0.955
RPI	0.99	0.003	0.001	0.002	0.997
PDE	0.77	0.103	0.004	0.029	0.967
INVEST	0.97	0.011	0.039	0.025	0.936
INC	0.94	0.025	0.019	0.031	0.950
GREXP	0.90	0.041	0.022	0.023	0.955
MPORT	0.93	0.026	0.032	0.019	0.949
XNOIL	0.95	0.013	0.016	0.022	0.962
PRESV	0.95	0.029	0.032	0.066	0.902
XPORT	0.99	0.002	0.017	0.029	0.954
RMPRPI	0.97	0.002	0.000	0.011	0.989

CCS - Correlation Coefficient Squared

U - Theil Inequality Coefficient

UB - Bias Proportion of U

UV - Variance Proportion of U

UC - Covariance Proportion of U

where $0 \leq U \leq 1$ and $UB + UV + UC = 1$

TABLE 4

SUMMARY

EFFECTS OF THE SHOCKS ON THE MAJOR MACROECONOMIC
VARIABLES: TRINIDAD AND TOBAGO DEBT MODEL

Endo Variables	Shock 1 (%)	Shock 2 (%)	Shock 3 (%)
TAX	+0.5	-0.5	-13.4
GDE	+10.8	-10.8	-67.5
NGDP	+2.7	-2.7	-16.7
TGDP	+2.2	-2.2	-13.4
EMP	+0.4	-0.4	-2.7
RPI	0.0	0.0	0.0
PDE	+3.1	-3.1	-19.2
INVEST	+1.4	-1.4	-8.7
INC	+2.9	-2.9	-18.4
GREXP	+3.8	-3.8	-23.8
MPORT	+2.7	-2.7	-16.8
XNOIL	+1.6	-1.6	-9.9
FRESV*	-2.8	+2.8	+17.4
XPORT	+0.7	-0.7	-4.4
RMPRPI	0.0	0.0	0.0

Shock 1 - Decrease in Debt Outflows or increase in debt inflows.

Shock 2 - Increase in Debt Outflows or decrease in debt inflows.

Shock 3 - Increase in Debt Outflows or decrease in debt inflows.

TABLE 5

BASE AND SHOCK SIMULATIONS FOR SELECTED
VARIABLES: TRINIDAD AND TOBAGO DEBT MODEL

TGDP - TOTAL GROSS DOMESTIC PRODUCT

	Base	Shock 1	Shock 2	Shock 3
1980	15,263.4	15,479.7	15,047.1	13,911.6
1981	14,889.4	15,233.7	14,545.1	12,737.4
1982	16,547.6	16,948.6	16,146.6	14,041.5
1983	19,724.2	20,198.4	19,249.9	16,760.2

INC - NATIONAL INCOME

	Base	Shock 1	Shock 2	Shock 3
1980	14,083.4	14,418.2	13,748.5	11,990.5
1981	13,007.0	13,408.9	12,605.1	10,495.5
1982	14,633.4	15,118.5	14,148.2	11,601.5
1983	18,709.1	19,275.7	18,142.4	15,167.5

EMP - EMPLOYMENT

	Base	Shock 1	Shock 2	Shock 3
1980	404.9	405.9	403.8	398.5
1981	385.9	387.5	384.2	375.5
1982	391.4	393.3	389.5	379.6
1983	405.4	407.7	403.2	391.5

INVEST - INVESTMENT

	Base	Shock 1	Shock 2	Shock 3
1980	4,318.0	4,335.8	4,300.2	4,206.8
1981	4,143.0	4,216.4	4,069.7	3,684.5
1982	4,979.4	5,059.0	4,899.9	4,482.2
1983	5,457.1	5,553.6	5,360.5	4,853.7

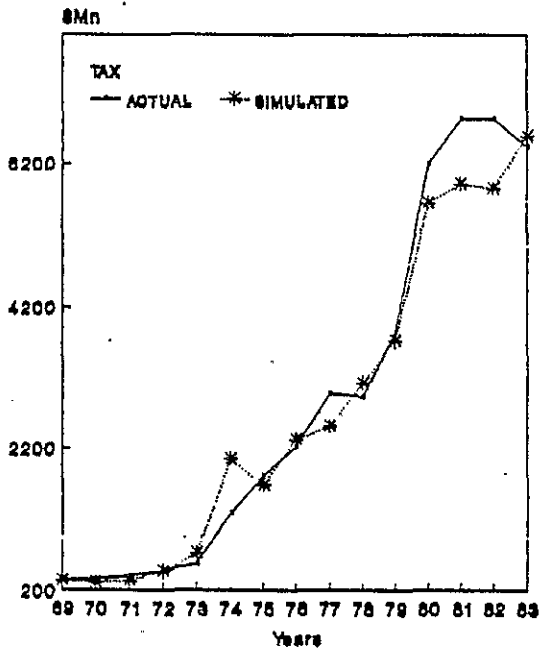
CAB - CURRENT ACCOUNT BALANCE

	Base	Shock 1	Shock 2	Shock 3
1980	1,134.9	1,752.2	1,879.1	2,212.6
1981	1,807.5	1,706.4	1,908.7	2,439.5
1982	-399.5	-517.3	-281.7	336.4
1983	-1,551.1	-1,690.4	-1,411.8	-680.8

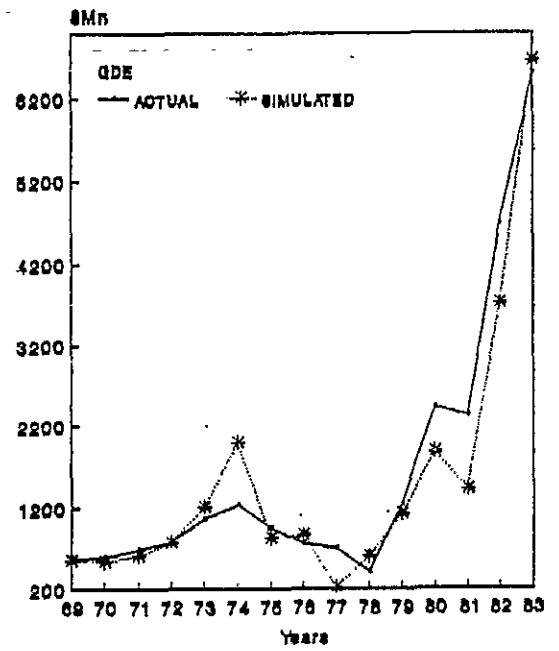
TRINIDAD AND TOBAGO DEBT MODEL

CHART I

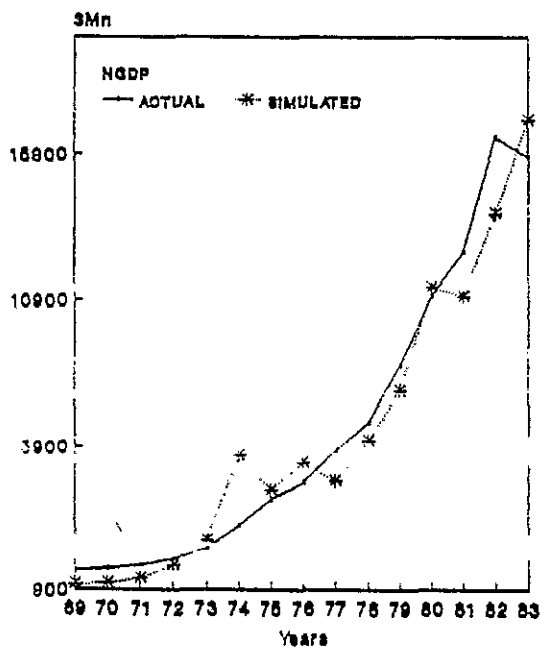
TAX: GOV'T REVENUE



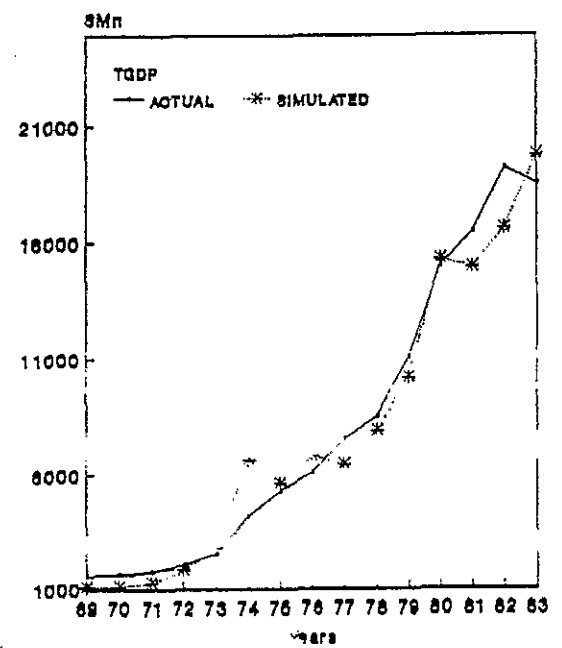
GDE: GOV'T DOM. EXPENDITURE



NGDP: NON-OIL GDP



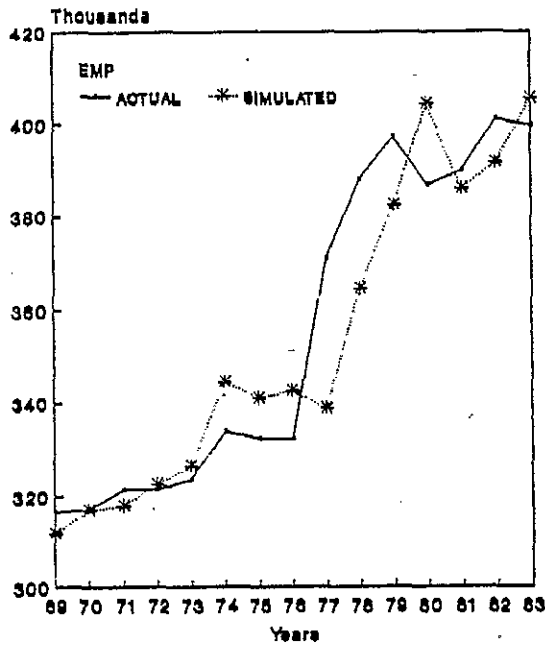
TGDP: TOTAL GDP



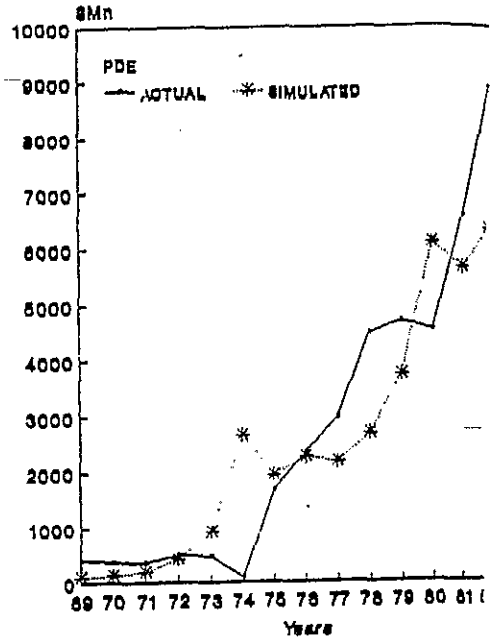
TRINIDAD AND TOBAGO DEBT MODEL

CHART II

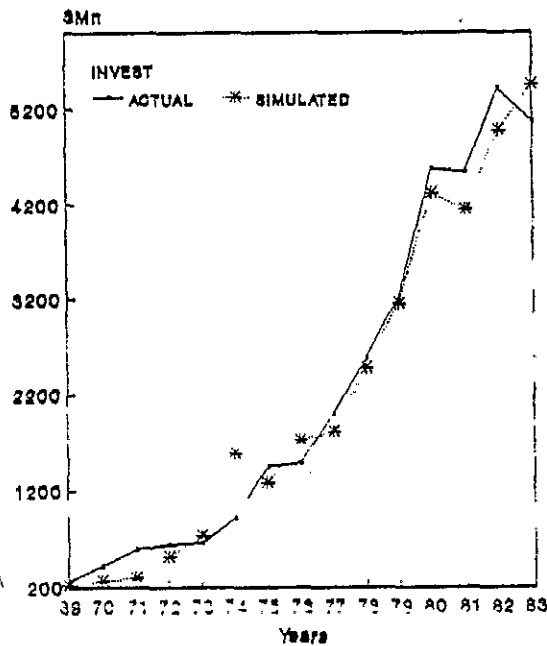
EMP: EMPLOYMENT



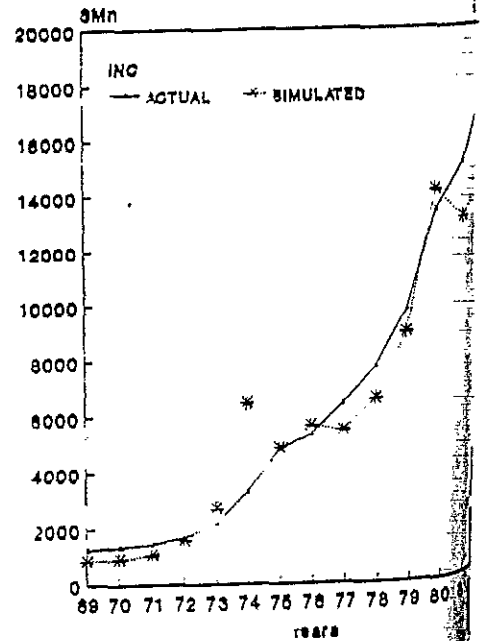
PDE: PRIVATE DOM. EXPENDIT



INVEST: INVESTMENT



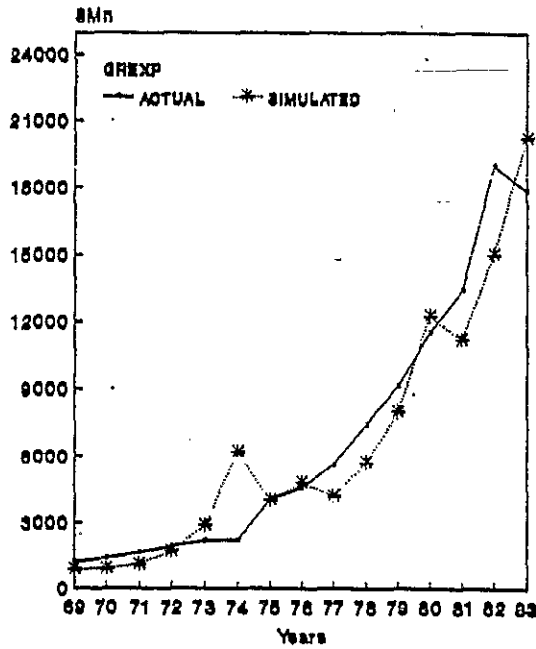
INC: INCOME



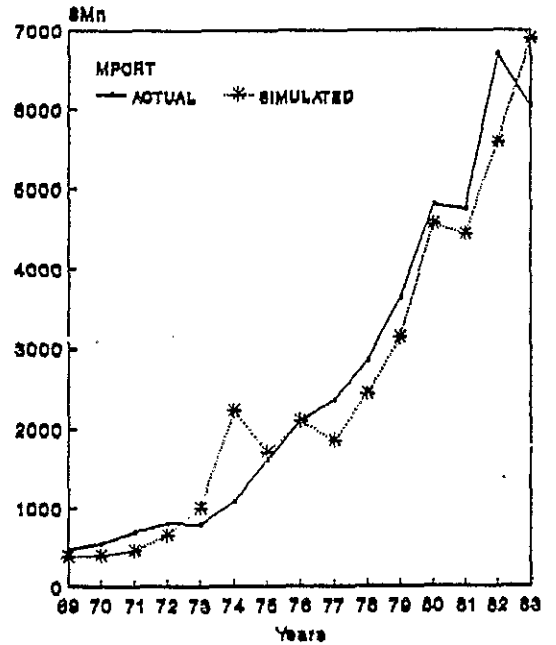
TRINIDAD AND TOBAGO DEBT MODEL

CHART III

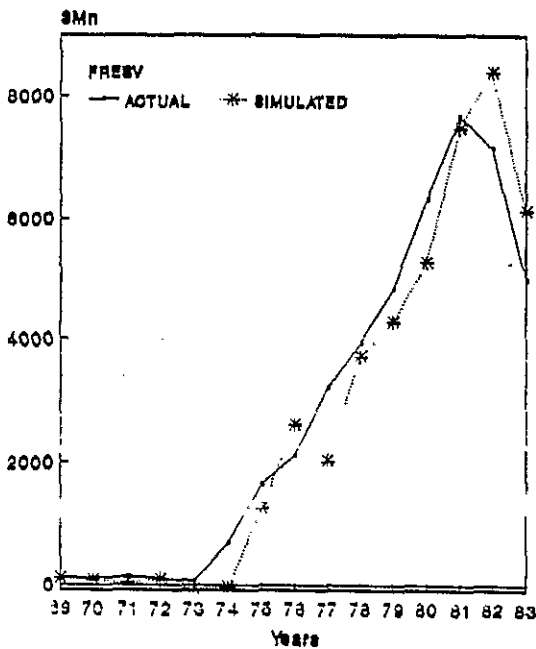
GREXP : GROSS DOM. EXPENDITURE



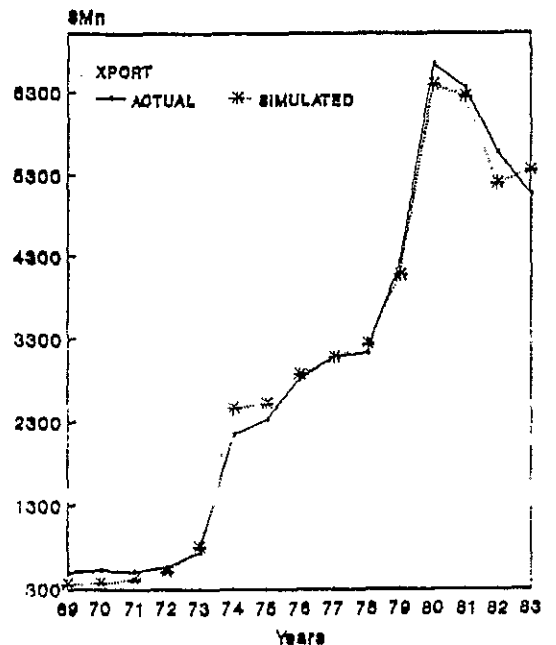
MPORT: IMPORTS



FRESV: FOREIGN RESERVES



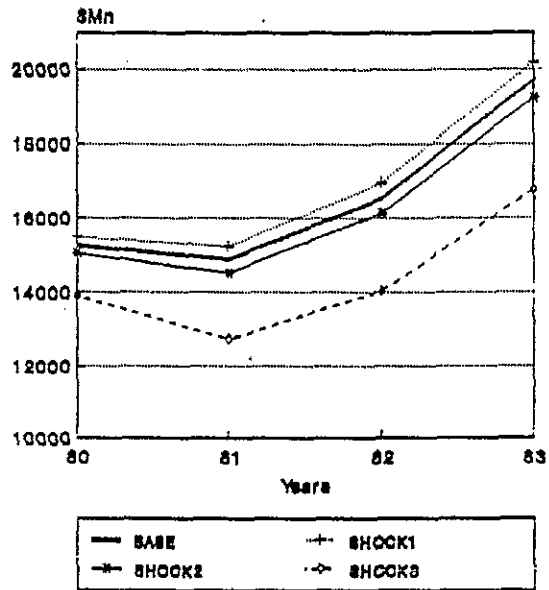
XPORT: EXPORTS



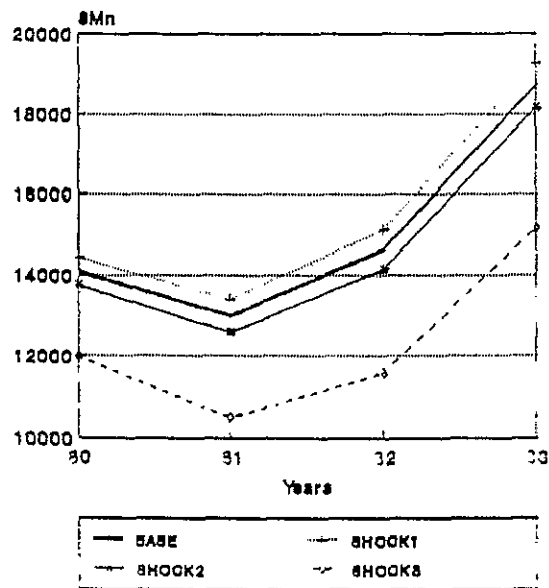
TRINIDAD AND TOBAGO DEBT MODEL

CHART IV

IMPACT ON
TGDP



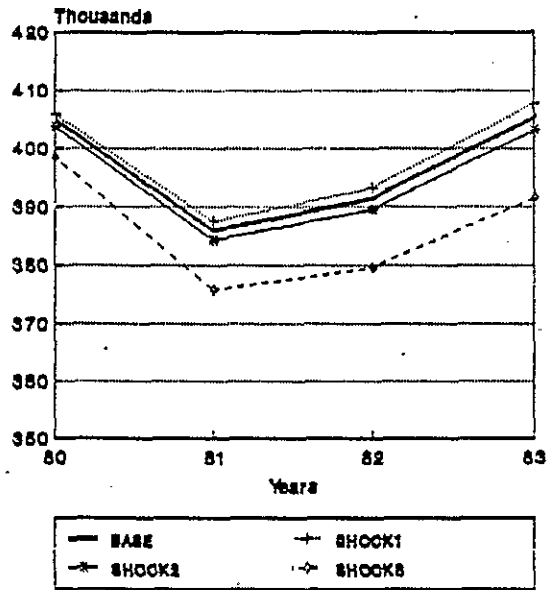
IMPACT ON
INC



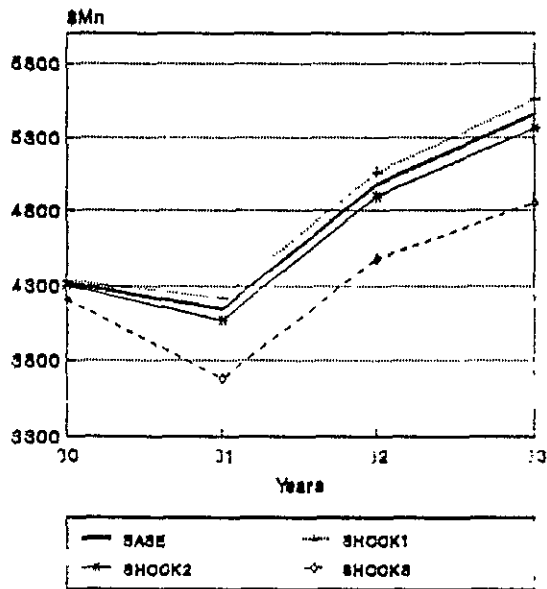
TRINIDAD AND TOBAGO DEBT MODEL

CHART V

IMPACT ON
EMP



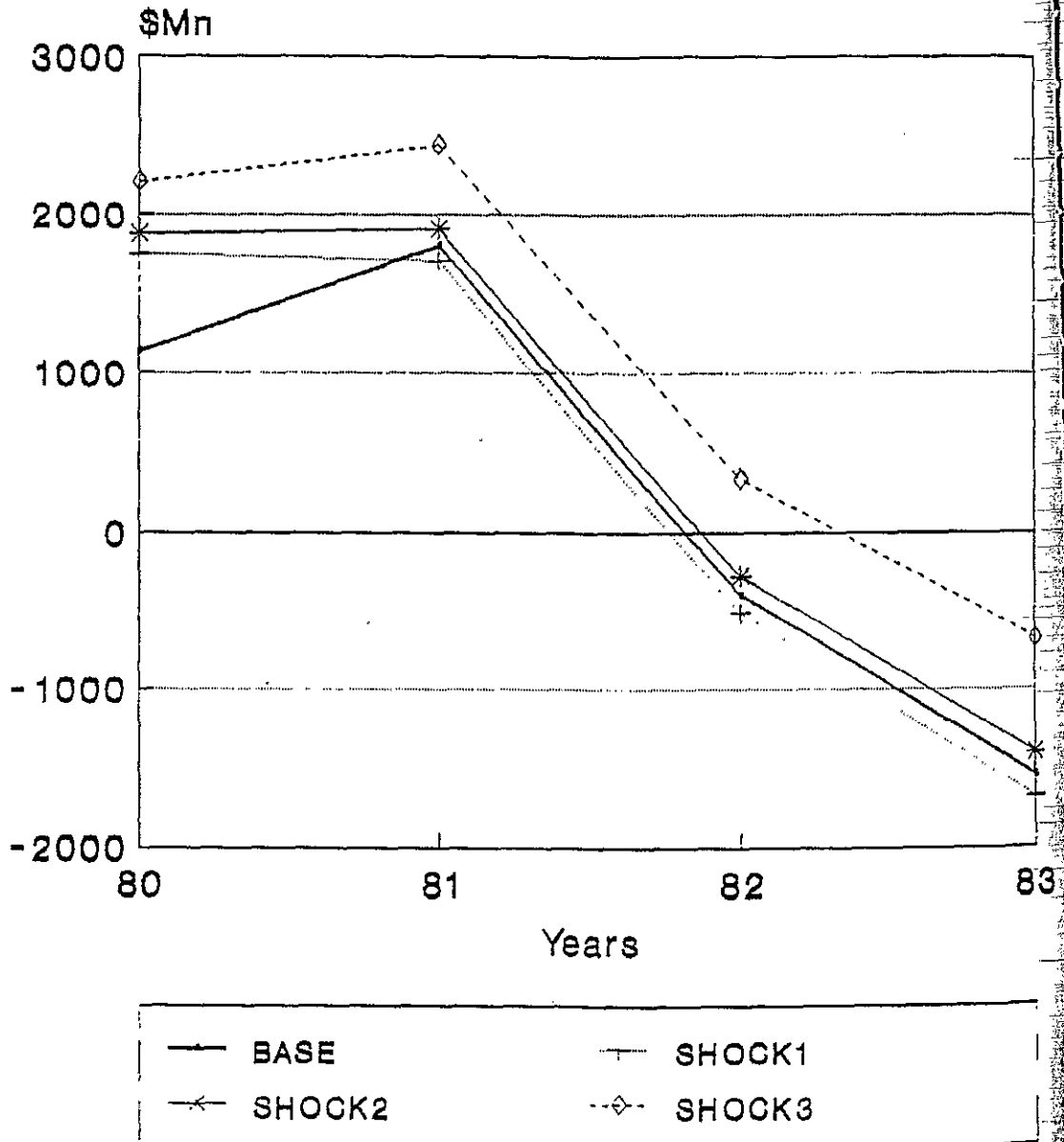
IMPACT ON
INVEST



TRINIDAD AND TOBAGO DEBT MODEL

CHART VI

IMPACT ON CBAL



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PRELIMINARY RESULTS

BARBADOS DEBT

MODEL

TABLE 1B

SPECIFICATION OF THE BARBADOS DEBT MODEL

FISCAL BLOCK

- 1.* BDTAX = f(INC) + e(t)
- 2.* BINDTAX = f(BMPORT) + e(t)
3. BREV = BOTAX + BINDTAX + BOREV
4. BGDE = BREV + BCGS + BNFFD

MONETARY BLOCK

- 5.* BCRP = f(BINC, BRL) + e(t)
6. BDC = BCRP + BCGS

OUTPUT BLOCK

- 7.* BGDG = f(BMPORT) + e(t)

EMPLOYMENT AND PRICES BLOCK

- 8.* BEMP = f(BGDG) + e(t)
- 9.* BRPI = f(BWAG, BPM) + e(t)

INCOME AND EXPENDITURE BLOCK

- 10.* BPDE = f(BINC) + e(t)
- 11.* BINVEST = f([BGDP-BGDP(-1)], DBCRP, DBRESV) + e(t)
- 12. BINC = BGDE + BPDE + BINVEST + EXPORT - BMPORT
- 13. BGREXP = BINC - EXPORT + BMPORT

FOREIGN TRADE BLOCK

- 14.* BMPORT = f(BGREXP, DBRESV, BRPM) + e(t)
- 15. BFRESV = BFRESV(-1) + DBRESV
- 16.* DBRESV = f(BNFFD) + e(t)
- 17. BCAB = EXPORT - BMPORT
- 18. BRPM = (BPM/BRPI)

* Indicates behavioural relationships

TABLE 1B (Cont'd)

LIST OF VARIABLES

ENDOGENOUS VARIABLES

1. BDTAX - Direct Taxes
2. BINDTAX - Indirect Taxes
3. BREV - Government Revenue
4. BGDE - Government Domestic Expenditure
5. BCRP - Credit to the Private Sector
6. BDC - Total Domestic Credit
7. BGDP - Total GDP
8. BEMP - Employment
9. BRPI - Domestic Prices
10. BPDE - Private Domestic Expenditure
11. BINVEST - Investment
12. BINC - National Income
13. GREXP - Gross Domestic Expenditure
14. BIMPORT - Imports (Total)
15. BRFESV - Foreign Exchange Reserves
16. DBRESV - Change in Reserves
17. BCAB - Current Account Balance
18. BRPM - Relative Import Prices

PREDETERMINED

Exogenous

1. BOREV - Other Revenue
2. BCGS - Credit to the Government Sector
3. BNEFD - Net Inflow of Foreign Debt
4. BRL - Loan Rate
5. BWAG - Wages
6. BPM - Import Prices

7. DECRP - Change in Credit to the Private Sector
8. BINVEST - Investment
9. EXPORT - Exports

Lagged Endogenous

1. BGDP(-1) - Lagged Total GDP
2. BFRESV(-1) - Lagged Foreign Reserves

TABLE 2B

ESTIMATION RESULTS OF THE BARBADOS DEBT MODEL
(Two Stage Least Squares)

1.	BDTAX = 15.007 + 0.664 BINC (1.84) (14.49)		
	$\bar{R}^2 = 0.98$	F = 978.3	D.W. = 1.81
2.	BINDTAX = -11.06 + 0.227 BMPORT (-3.77) (52.92)		
	$\bar{R}^2 = 0.99$	F = 2405.9	D.W. = 1.89
3.	BCRP = -18.78 + 0.25 BINC + 9.44 BRL (-0.355) (18.4) (1.53)		
	$\bar{R}^2 = 0.98$	F = 386.9	D.W. = 1.61
4.	BGDP = -33.25 + 1.55 BMPORT (-0.86) (28.59)		
	$\bar{R}^2 = 0.99$	F = 1432.0	D.W. = 1.75
5.	BEMP = 83.14 + 0.007 BGDP (34.74) (3.49)		
	$\bar{R}^2 = 0.70$	F = 37.2	D.W. = 1.44
6.	BRPI = -9.58 + 0.765 BWAG + 0.376 BPM (-2.59) (6.79) (2.71)		
	$\bar{R}^2 = 0.99$	F = 875.5	D.W. = 1.45
7.	BPDE = 106.6 + 0.453 BINC (2.74) (18.95)		
	$\bar{R}^2 = 0.98$	F = 1067.7	D.W. = 1.93
8.	BINVEST = 243.18 + 0.119 [BGDP-BGDP(-1)] + 0.17 DBCRP (1.20) (0.71) (0.32) - 0.654 DBRESV (-1.36)		
	$\bar{R}^2 = 0.70$	F = 9.23	D.W. = 1.02

$$9. \quad \text{BMPORT} = -422.2 + 0.41 \text{ BGREXP} - 0.18 \text{ DBRESV} + 340.8 \text{ BRPM}$$

(-1.12) (9.4) (-0.43) (1.21)

$$\bar{R}^2 = 0.98$$

$$F = 307.7$$

$$D.W. = 1.68$$

$$10. \quad \text{DBRESV} = 1.287 + 0.035 \text{ BNFFD}$$

(0.16) (1.81)

$$\bar{R}^2 = 0.52$$

$$F = 10.6$$

$$D.W. = 2.2$$

TABLE 3B

SUMMARY

EFFECTS OF THE SHOCKS ON THE MAJOR
MACROECONOMIC VARIABLES
(Barbados Model)

Endo Variables	Shock 1 (%)	Shock 2 (%)	Shock 3 (%)
BDTAX	+4.8	-4.8	-26.8
BINDTAX	+8.5	-8.5	-52.5
BREV	+6.0	-6.0	-37.8
BGDE	+12.0	-12.0	-74.5
BCRP	+4.8	-4.8	-30.2
BDC	+3.8	-3.8	-23.0
BGDP	+8.2	-8.2	-51.2
BEMP	+0.8	-0.8	-6.8
BRPI	0.0	0.0	0.0
BPDE	+4.8	-4.8	-31.0
BINVEST	+0.5	-0.5	-6.0
BINC	+5.8	-5.8	-34.5
BGREXP	+7.5	-7.5	-45.8
BCABM	+15.0	-15.0	-92.2
BFRESVM	+3.2	-3.2	-19.8
BRPM	0.0	0.0	0.0

TABLE 4B
SIMULATION RESULTS: BARBADOS DEBT MODEL

Endogenous	CCS	U	UB	UV	UC
BDTAX	0.98	0.0005	0.06	0.01	0.93
BINDTAX	0.98	0.0006	0.15	0.01	0.84
BREV	0.99	0.0003	0.22	0.00	0.78
EGDE	0.99	0.0004	0.22	0.00	0.78
BCRP	0.99	0.0002	0.10	0.00	0.90
BDC	0.99	0.0001	0.10	0.00	0.90
EGDP	0.98	0.0004	0.24	0.01	0.75
BEMP	0.77	0.0001	0.00	0.06	0.94
BRPI	0.99	0.0001	0.00	0.04	0.96
BPDE	0.98	0.0006	0.06	0.00	0.94
BINVEST	0.93	0.03	0.20	0.10	0.70
BINC	0.99	0.0003	0.07	0.00	0.93
BRREXP	0.99	0.0003	0.17	0.00	0.83
BMPORT	0.98	0.0006	0.15	0.00	0.85
BCAB	0.94	0.02	0.15	0.01	0.84
BFRESV	0.86	0.04	0.00	0.01	0.99
DBRESV	0.21	0.64	0.00	0.36	0.64
BRPM	0.86	0.00	0.03	0.01	0.96

CCS - Correlation Coefficient Squared

U - Theil's U Inequality

UB - Bias Proportion of U

UV - Variance Proportion of U

UC - Covariance Proportion of U

N.B. $0 \leq U \leq 1$ and $UB + UV + UC = 1$

TABLE 5B

BASE AND SHOCK SIMULATIONS FOR
SELECTED VARIABLES: BARBADOS DEBT MODEL

BGDP - TOTAL GROSS DOMESTIC PRODUCT

	Base	Shock 1	Shock 2	Shock 3
1980	1,349.7	1,449.4	1,255.2	731.6
1981	1,629.5	1,767.2	1,499.1	776.0
1982	1,791.0	1,943.8	1,629.8	844.0
1983	1,979.6	2,152.7	1,801.4	906.5

BINC - NATIONAL INCOME

	Base	Shock 1	Shock 2	Shock 3
1980	2,041.5	2,138.6	1,939.4	1,439.5
1981	2,220.8	2,355.4	2,087.6	1,386.4
1982	2,628.3	2,777.7	2,470.6	1,701.6
1983	2,932.3	3,101.7	2,756.4	1,882.4

BEMP - EMPLOYMENT

	Base	Shock 1	Shock 2	Shock 3
1980	95.8	96.6	95.0	91.2
1981	97.7	98.8	96.7	91.4
1982	98.7	99.8	97.7	91.6
1983	98.1	99.4	97.1	90.1

TABLE 5B (Cont'd)

BINVEST - INVESTMENT

	Base	Shock 1	Shock 2	Shock 3
1980	332.6	334.9	330.3	346.9
1981	406.1	410.2	402.2	430.2
1982	429.0	433.3	424.5	457.0
1983	481.7	486.5	476.6	513.2

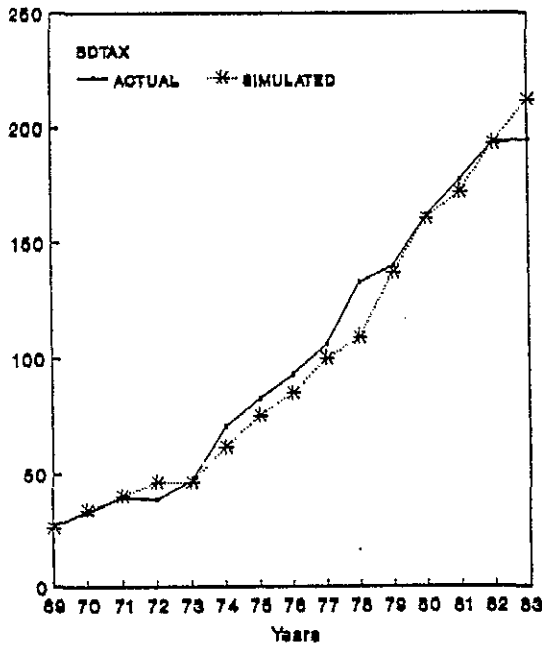
BCAB - CURRENT ACCOUNT BALANCE

	Base	Shock 1	Shock 2	Shock 3
1980	-456.7	-520.9	-392.8	-58.5
1981	-693.9	-782.6	-603.7	-144.1
1982	-665.4	-763.8	-565.6	-55.3
1983	-624.6	-736.1	-512.2	66.7

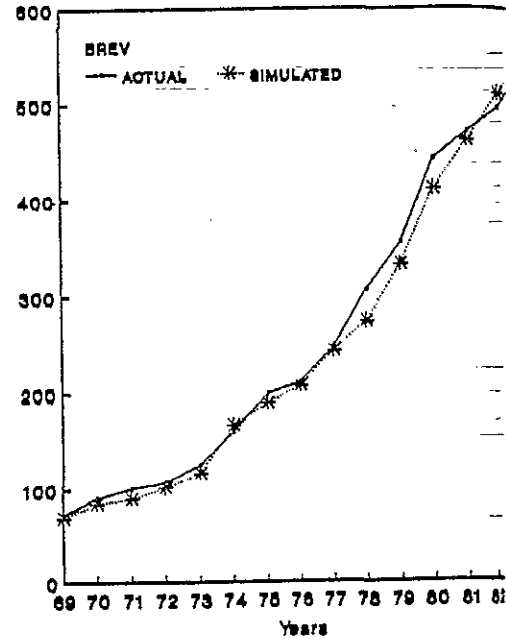
BARBADOS DEBT MODEL

CHART 1

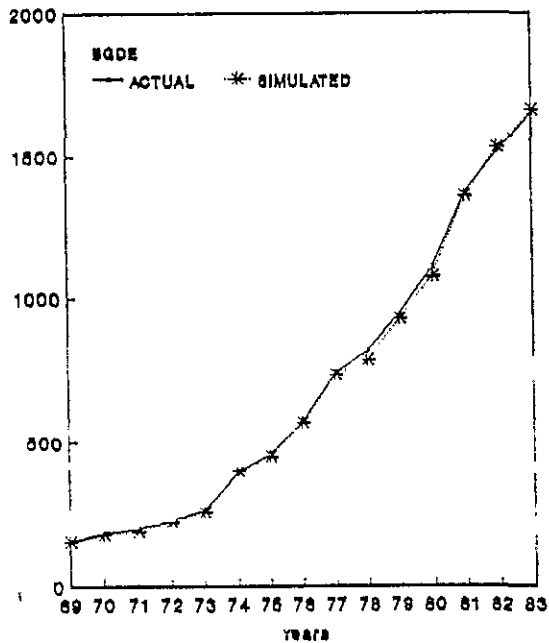
BDTAX: DIRECT TAXES



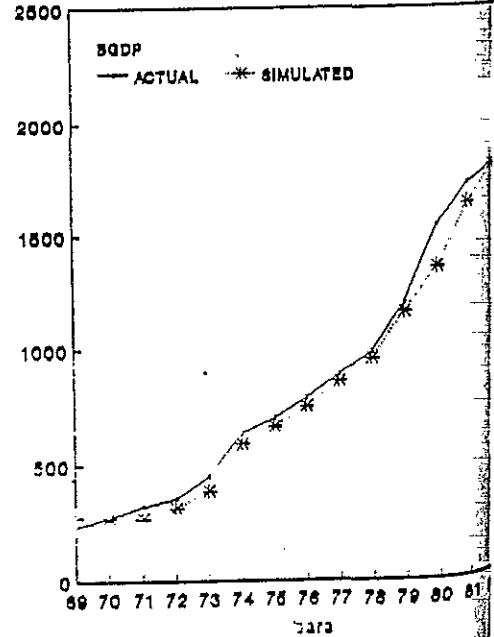
BREV: GOV'T REVENUE



BGDE: GOV'T DOM. EXPENDITURE



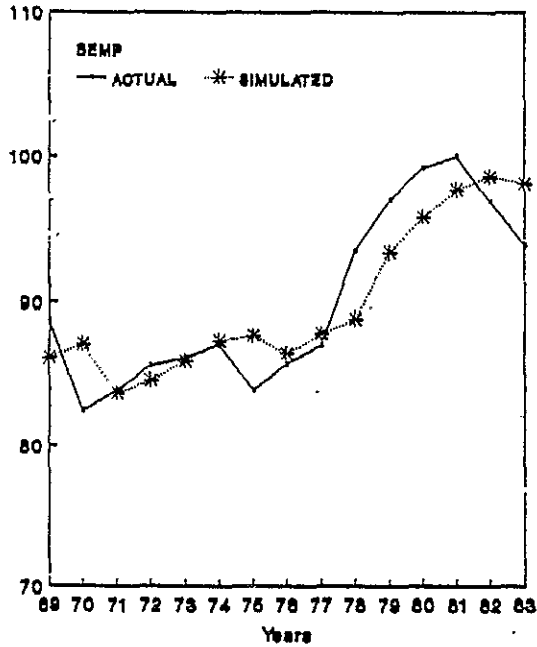
BGDP: TOTAL GDP



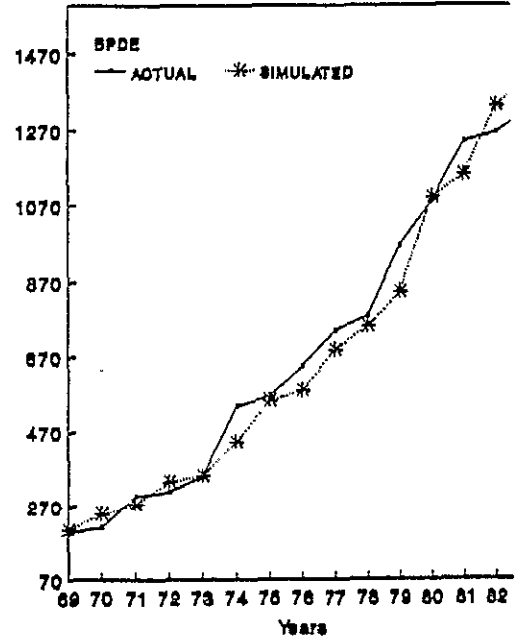
BARBADOS DEBT MODEL

CHART II

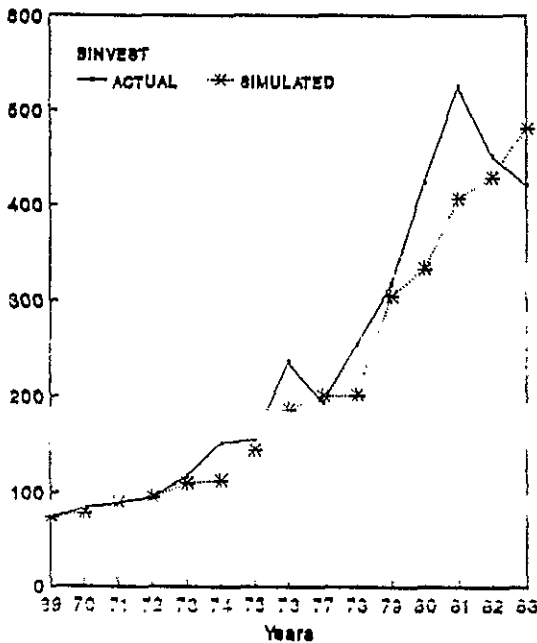
BEMP: EMPLOYMENT



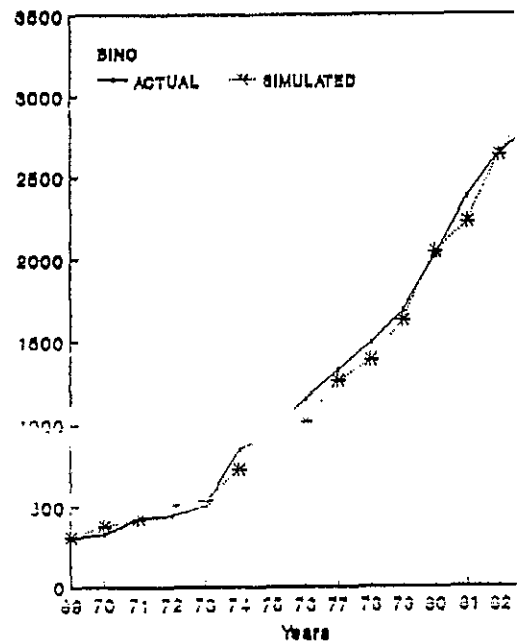
BPDE: PRIVATE DOM. EXPENDITURE



BINVEST: INVESTMENT



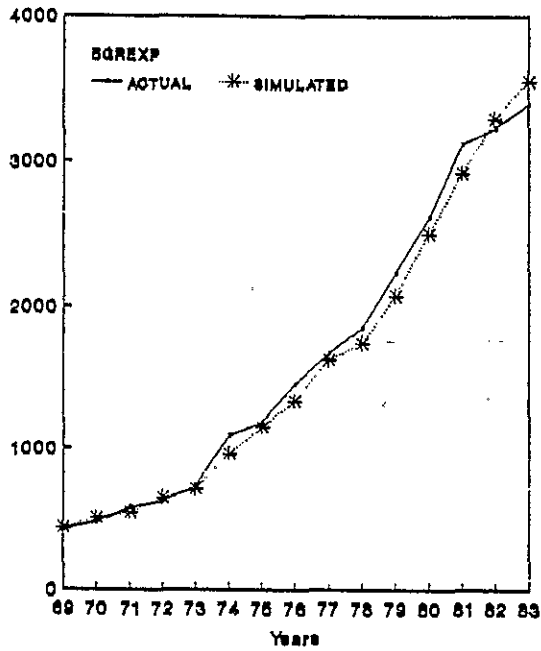
BINC: INCOME



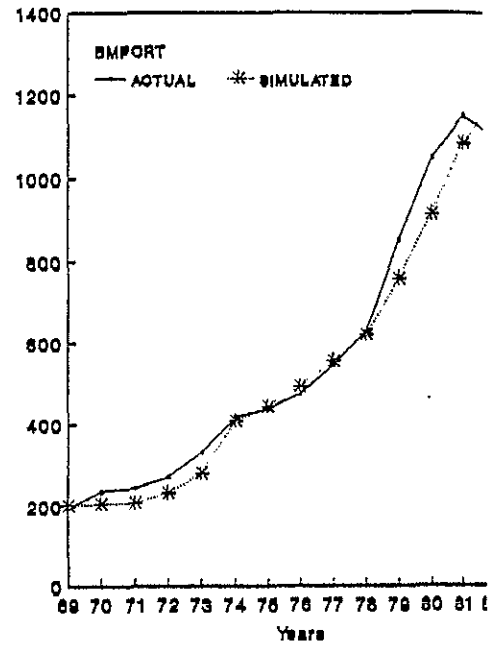
BARBADOS DEBT MODEL

CHART III

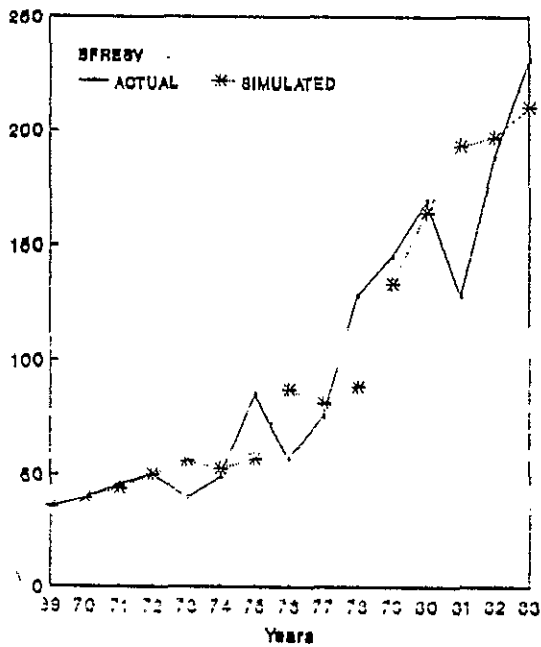
BGREXP: GROSS DOM. EXPENDITURE



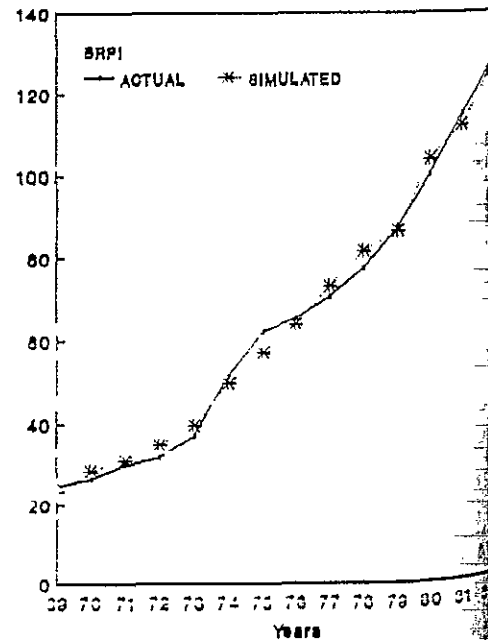
BMPORT: IMPORTS



BFRESV: FOREIGN RESERVES



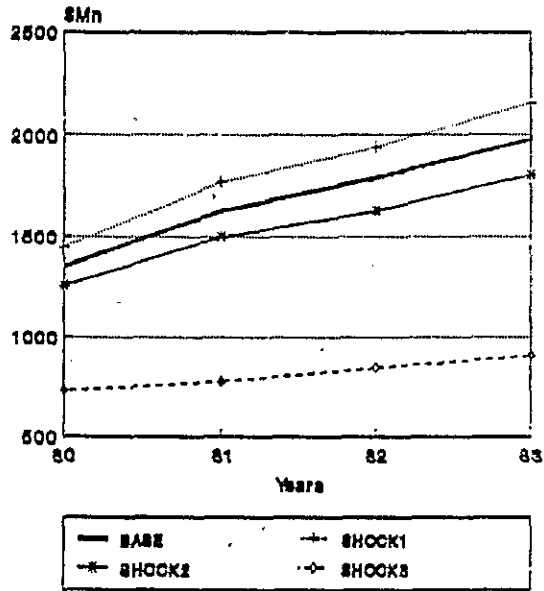
BRPI: RETAIL PRICES



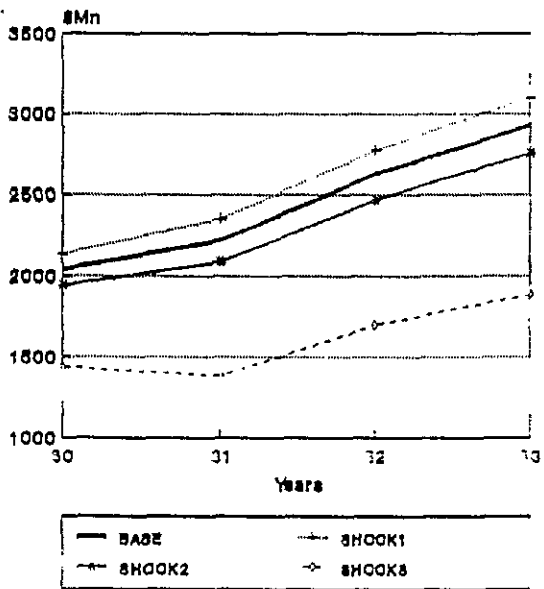
BARBADOS DEBT MODEL

CHART IV

**IMPACT ON
BGDP**



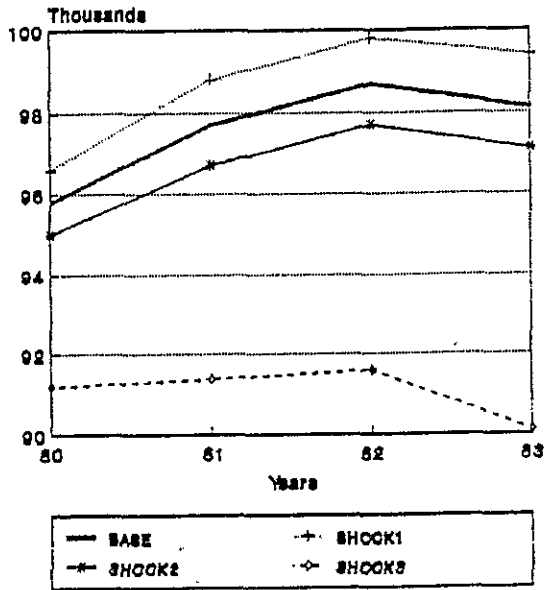
**IMPACT ON
BINC**



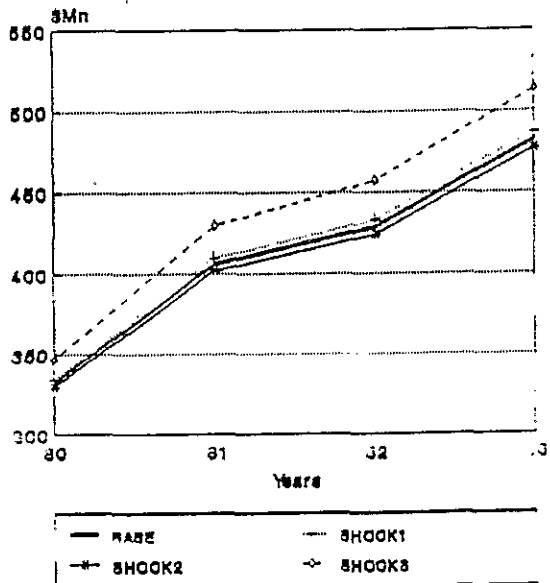
BARBADOS DEBT MODEL

CHART V

IMPACT ON BEMP



IMPACT ON BINVEST



BARBADOS DEBT MODEL

CHART VI

IMPACT ON BCBAL

