

ESTIMATING A NATIONAL SAVINGS SERIES,
1970-1983 AND PRELIMINARY
ESTIMATES OF THE SAVINGS FUNCTION

BY

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SAVINGS IN TRINIDAD AND TOBAGO

Theories of economic growth and development emphasize the importance of the savings rate. Savings provide the resources which make investment possible and a higher rate of investment will, *ceteris paribus*, result in higher growth and economic development. The link between savings and growth has been well recognized by economists in the Caribbean and in fact formed one of the cornerstones of Arthur Lewis theory of economic growth¹. However in analysing the significance of the savings effort as an independent determinant of economic progress and in formulating policies designed to increase the savings propensity, one must first know the nature of the savings function. A detailed examination of the savings function in Trinidad and Tobago, including sub-functions on sectoral savings and their determinants, is the ultimate objective of this Project. However to do this one must first calculate a savings series which can be accredited with a high degree of accuracy.

This paper represents our preliminary efforts at calculating savings for Trinidad and Tobago for the period 1970

¹ W. Arthur Lewis⁸.

to 1983. In Section I, a review of the basic theoretical concepts and measures of savings is attempted, while in Section II, some of the previous studies on savings in some Caribbean countries are outlined. In Section III, estimates of Gross National Savings for 1970 - 1980 are derived using the National Income Accounting method and the limitations of the estimates are discussed. In Section IV, the Flow of Funds approach is used to calculate Gross National Savings for 1970 - 1979. The limitations of this method, and plans for improving the data and arriving at estimates for 1980 - 1983 are also outlined in this Section. Section V contains a brief comparison of the two saving series estimated. In Section VI, the series derived from the National Income Accounting approach is projected to 1983 using ordinary least squares regression. Section VII presents a summary of the major theories associated with developing a savings function and two savings/Income Hypotheses are tested as a prelude of work to be continued in Phase II of this Project.

Additional savings estimates are available on request.

The National Income Accounting approach is used to derive the savings series for 1970 - 1979. The Flow of Funds approach is used to derive the savings series for 1970 - 1979. The limitations of this method, and plans for improving the data and arriving at estimates for 1980 - 1983 are also outlined in this Section. Section V contains a brief comparison of the two saving series estimated. In Section VI, the series derived from the National Income Accounting approach is projected to 1983 using ordinary least squares regression. Section VII presents a summary of the major theories associated with developing a savings function and two savings/Income Hypotheses are tested as a prelude of work to be continued in Phase II of this Project.

I

The Concept and Measurement of Savings

Savings, as represented by the three basic macroeconomic processes of production, consumption and accumulation, can be viewed simply as the difference between current receipts and current disbursements over a specified period of time. This relationship forms the basis of the two approaches to measuring savings pursued in this paper: (i) the National Income Accounting method, which is based on the identity "Production MINUS Consumption EQUAL Savings", and (ii) the Flow Of Funds Accounting method which is based on the truism that the change in the accumulated net worth of each sector of the economy equals total savings. Mikesell and Zinser in their survey of the theoretical and empirical literature on the nature of the savings function, emphasize the desirability of generating sufficient data for deriving aggregate savings estimates on more than one basis².

The National Income Accounting method used internationally for arriving at the principal macroeconomic aggregates, employ the following familiar Keynesian identities:-

² F. Mikesell and James E. Zinser¹³.

Income = Expenditure

Income = Consumption + Savings

Expenditure = Consumption + Investment

Savings = Investment

In this system, income and consumption are estimated, and savings is derived in an export sense based on its identity to investment. The Balance of Payments current account deficit which is the measure of the net capital inflow/outflow, into or out of the system, is deducted from the estimates of gross capital formation.

The second method of estimating national savings utilizes the Flow of Funds Accounting system which measures the net financial savings of specific sectors of the economy. National savings are derived from the summation of direct estimates of personal savings, corporate savings and government savings. The measurement of these institutional savings is based on the following accounting identity:-

$$\text{Financial Assets} + \text{Real Assets} = \text{Liabilities} + \text{Net Worth}$$

$$(\text{Fin. Assets} - \text{Liabilities}) + \text{Real Assets} = \text{Net Worth}$$

$$\text{Net Worth} = \text{Savings}$$

Each of these two approaches to measuring savings involves a number of data limitations. Although these are discussed in the relevant sections, there are several common conceptual problems which are best discussed generally.

3. Includes Issued Share Capital.

Firstly, if current receipts minus current disbursements is defined to be savings, then all capital gains and losses associated with transactions in goods and services must be excluded from the concept of savings. But the effect of price changes on savings is a factor which cannot easily be ignored. Looking at the accumulation process from a Balance Sheet approach, the process is as follows. For each unit, funds for investment in financial and real assets must be derived either from the excess of current revenue over current disbursements or by incurring liabilities. In a closed economy without price movements therefore, the total value of real capital is equal to the sum of all reserves since all financial assets and liabilities cancel out when balance sheets are consolidated. The change in the total value of real capital must therefore equal the change in the total value of reserves. The concept of 'false savings' was introduced into the theory to represent the increase in the money value of constant physical output due to price increases. If however we define savings in real terms, as the difference between real income (or output) and consumption, and investment as real accumulation, in an ex-post sense there cannot be any divergence between saving and investment as they are identically equal.

A second major problem in the measurement of savings arises from the need to distinguish between current and capital expenditure. For the Household sector, expenditure on consumer durables such as motor-cars, refrigerators etc. are traditionally classified as consumption expenditure. However, such outlays may in some cases legitimately qualify for classification as capital goods which produce a stream of services over time. Such a reclassification while not affecting the value of the G.D.P. or National Income, would increase the level of personal savings. Definitional problems involved in measuring savings for the government account also center around the classification of expenditure items as recurrent or capital.

A third major problem in the measurement of savings involves the measurement of depreciation. Capital consumption allowances account for a significant percentage of gross domestic savings. However, serious difficulties are encountered due to the non-uniform procedures for estimating depreciation amongst corporations. If depreciation rates overestimate the true rate at which physical capital wears out, it will result in an overestimation of the level of gross savings.

II

The Study of Savings in the Caribbean

The literature on savings in the Caribbean emphasises the importance of saving for financing capital formation, which is crucial to the process of transformation. Savings are viewed as the surplus of production over consumption and the effective mobilisation and utilisation of this surplus is a major concern in the literature. As such, much attention is focussed on the quantum of savings mobilised by financial intermediaries and other traditional credit associations such as Building and Friendly Societies, Credit Unions, Agricultural Co-operatives, Su Su and National Insurance. The methodology adopted in most studies involved an examination of the growth of deposits held at the various financial institutions together with an assessment of their loan portfolios. From these analyses inferences were made regarding the mobilisation of savings into capital formation activities.

The majority of studies concluded that of all the financial intermediaries, the commercial banks were the most strategic institutions in the saving/investment process since they mobilised the largest proportion of deposits. The insurance companies mobilised the second largest proportion of deposits. Some writers, including Nello Raphael⁴ and Huntley

⁴ Raphael, Nello 22.

Manhertz⁵ concluded that commercial bank financing of capital investment has not always been efficient as these institutions concentrate their operations at the short to medium-term end of the credit market. It was stated that commercial banks tended to finance investment either by rolling over short to medium term loans or through the overdraft facility which, it was claimed, is a costly way of financing investment. However, an empirical study on the use of bank credit by businesses in Trinidad and Tobago, conducted in 1983 seems to indicate that since the studies of the 1970's, the overdraft facility has become a less popular means of financing capital investment in Trinidad and Tobago. It was found that although the overdraft facility is still used for financing investment, internally generated funds are more widely used.⁶

The study by Manhertz in 1972 also concluded that commercial bank lending in Jamaica tended to encourage consumption rather than investment. His examination of the sectoral distribution of loans and advances revealed that the greatest share went to Personal Borrowers and the Distributive Trades.

⁵ Huntley Manhertz⁹.

⁶ Central Bank of Trinidad and Tobago, "Preliminary Report on Business Use of Bank Credit", 1983.

Loans to the former are largely for consumption expenditure and the latter, for expenditure on imports. On the other hand, important growth sectors such as agriculture, fisheries and tourism were neglected. Other writers commented on a similar pattern of commercial bank lending in other countries of the region.⁷

The predominance of these types of studies in the 1960's and 1970's led to a growing concern over the need for properly functioning capital markets which would facilitate the orderly mobilisation of domestic financial resources and the channelling of these funds into the most productive investments. However, it was recognised that certain conditions necessary for the proper functioning of capital markets namely, a high level of domestic savings, a relatively large and continuous supply of securities and a large pool of buyers were absent in countries of the region. Many of the more recent studies have therefore concentrated on the development of various aspects of the local capital markets and have emphasized the crucial role of government in this development.

⁷ At the Caribbean Capital Markets Symposium in 1972, C.H. Clarke and A. Chang Fong reported that the distribution of commercial bank loans and advances in Barbados and Trinidad was similar to that of Jamaica.

The majority of studies referred to above, tended to be largely descriptive or to examine some published data series. Few studies added to the data base with a view to building up a series on total national savings. In the Caribbean countries, the government's statistical office is the agency responsible for computing the National Accounts which include the savings aggregate. However, the majority of countries in the region have made very slow progress in the compilation of National Accounts primarily because of a shortage of qualified personnel who can be fully employed on the estimation of these statistics.

Most countries in the region follow the basic United Nations system of National Accounts with its four consolidated accounts of the nation, from which savings estimates are directly derived. The majority of these countries however concentrate on the Production Accounts. Jamaica, Guyana and Trinidad and Tobago alone have published data on gross domestic savings. In the case of Trinidad and Tobago the last published figures are for 1966 while for Guyana, the last published figures are for 1968. Data for Jamaica are available up to 1982. In fact, estimates of National Income and Expenditure for Jamaica have been compiled by the Department of Statistics since 1953 and the accounts have been consistently revised.

For instance, in 1965, changes were introduced in the structure and presentation of the Accounts and in the conceptual basis and definitions of the principal aggregates. Then in 1975, the data base of the National Accounts was revised and data sources were expanded. It is also noteworthy that a National Savings Commission has been set up in Jamaica.

The Flow of Funds Accounts constitute an important source of data on national savings and has been published by two countries in the region, Jamaica and Trinidad and Tobago. Data are available for Trinidad and Tobago from 1966 - 1979 while for Jamaica data are available from 1964 to 1976.

Household Budgetary Surveys, which cover household savings distributed by age, occupation, educational attainment etc. have also been undertaken by several Caribbean countries. However, these studies generally do not result in reliable estimates of total Households savings and are so infrequent as to be of little use in the overall estimation of a series on national savings.

The following attempt at estimating a saving series for Trinidad and Tobago was facilitated by the fact that the Central Statistical Office has recently sought to pull together its various national accounts series and have made available estimates of the principal national aggregates. The data have not been officially released and are subject to revision.

III

The National Income Accounting System for Deriving
Estimates of National Savings

Production Accounts for the main sectors of the economy are compiled by the Central Statistical Office (CSO). In these Accounts, Gross Output minus intermediate expenses is defined as Value Added or Gross Domestic Product at factor cost. For each sector this is disaggregated into 'compensation to employees', 'operating surplus' and 'depreciation' which represents the Income side of G.D.P. also known as the returns to the factors of production. 'Compensation to employees' includes gross wages and salaries, National Insurance and pension plan contributions, directors fees, travelling subsistence and the cost of all welfare benefits payed to employees. 'Operating Surplus' refers to profits before tax and before distribution, it includes all payments to Government except indirect taxes, foreign interest and bank charges and Head office expenses. 'Consumption of fixed capital' is represented by the annual depreciation expense.

On the expenditure side of the G.D.P. at market prices, Income is defined as Consumption plus Investment MINUS Net Exports of goods and non-factor services. The C.S.O. has

not published the expenditure side of the National Accounts since 1966 mainly due to difficulties associated with the estimates of Gross Capital formation. Recently, provisional estimates of this series have been made available. Data on Government final consumption expenditure are computed from the Government Estimates of Revenue and Expenditure. Government final consumption expenditure is defined as the sum of 'compensation to employees', 'intermediate consumption', 'consumption of fixed capital', and 'interest on the foreign public debt' MINUS 'sales of goods and services'.

Estimates of exports and imports of goods and non-factor services are derived from the Balance of Payments Accounts. On the exports side, inflows on the Investment Income Account, which in Trinidad and Tobago mainly represents the return on Central Bank foreign Capital, is deducted from the total exports of goods and services. On the import side, outflows on the Investment Income Account which represent a return to the foreign entrepreneur, and outflows for management fees, patents, royalties and similar fees, are deducted from total imports of goods and services. Private Final Consumption expenditure is derived as a residual in the expenditure of the G.D.P. Table I illustrates the Gross Domestic Product and Expenditure on the Gross Domestic Product Account for 1970-1980.

The G.D.P. and Expenditure Account is linked directly to the National Income and Appropriation Account, alternatively called the National Income and Outlay Account. This Account outlines the receipt and disposal of incomes by institutional units. As illustrated in Table 2, the Net Domestic Product (factor cost) is adjusted for net foreign income and transfers and for indirect taxes net of subsidies, to give net National Product at market prices or National Income. The National Income is appropriated either through consumption or savings. In this Account final consumption expenditure is further disaggregated into government consumption and private consumption with net national savings as the residual.

In Table 3, the estimates of net national savings derived in Table 2 are adjusted by 'consumption of fixed capital' to yield the estimates of gross national savings.

TABLE 1
GROSS DOMESTIC PRODUCT AND EXPENDITURE ON THE G.D.P.
(₹M)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
1. Compensation to Employees	858	984	1138	1323	1639	1988	2476	3056	3914	5012	5938
2. Operating Surplus	634	607	668	989	2198	2903	3201	3919	3905	5645	8938
3. Consumption of Fixed Capital	147	178	249	248	307	355	522	680	764	864	1000
<u>G.D.P. (FACTOR COST) (1+2+3)</u>	<u>1639</u>	<u>1769</u>	<u>2055</u>	<u>2560</u>	<u>4144</u>	<u>5246</u>	<u>6199</u>	<u>7655</u>	<u>8583</u>	<u>11521</u>	<u>15876</u>
4. Indirect Taxes	122	141	171	185	200	260	371	544	555	712	1008
5. Less: Subsidies	18	19	20	27	71	119	204	294	360	701	1141
G.D.P. (market prices)	1743	1891	2206	2718	4273	5387	6366	7905	8778	11532	15743
1. Private Final Consumption Expenditure	1089	1054	1360	1575	1710	2611	3026	3739	4480	5780	6377
2. Gov't Final Consumption Expenditure	215	289	338	374	510	682	770	992	1210	1661	2016
3. Gross Capital Formation	421	639	647	621	856	1151	1614	2220	2713	3457	5492
4. Exports of Goods and non-factor Services	703	757	824	1132	2547	2808	3401	3733	3766	4979	7655
5. Less: Imports of Goods and non-factor Services	685	848	963	984	1350	1865	2445	2779	3391	4345	5797

SOURCE: C.S.O., National Income Division (unpublished).
Central Bank Staff Estimates.
Balance of Payments Reports - C.S.O.

TABLE 2
THE NATIONAL INCOME AND ITS APPROPRIATION
(\$M)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Compensation to Employees	858	984	1138	1323	1639	1988	2476	3056	3914	5012	5938
Operating Surplus	634	607	668	989	2198	2903	3201	3919	3905	5645	8938
Net, Property and Entrepreneurial Income to the Rest of the World	-130	-132	-136	-180	-283	-181	-264	-464	-187	-611	-756
Net, Other Current Transfers to R.O.W.	-4	-9	-9	-19	-35	-46	-73	-75	-91	-109	-157
Net Indirect Taxes (i.e. less Subsidies)	104	122	151	158	129	141	167	250	195	11	-133
Net National Product (Market Prices) or National Income	1462	1572	1812	2271	3648	4805	5507	6686	7736	9948	13830
Government final Consumption Expenditure	215	289	338	374	510	682	770	992	1210	1661	2016
Private final Consumption Expenditure	1089	1054	1360	1575	1710	2611	3026	3739	4480	5780	6377
Net National Savings	158	229	114	322	1428	1512	1711	1955	2046	2507	5437
Appropriation of National Income	1462	1572	1812	2271	3648	4805	5507	6686	7736	9948	13830

SOURCE: C.S.O., National Income Division (unpublished data)
Balance of Payments Reports - C.S.O.

TABLE 3
GROSS NATIONAL SAVINGS ESTIMATE
(\$M)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Net National Savings	158	229	114	322	1428	1512	1711	1955	2046	2507	5437
Consumption of Fixed Capital	147	178	249	248	307	355	522	680	764	864	1000
Gross National Savings	305	407	363	570	1735	1867	2233	2635	2810	3371	6437

The limitations of the estimates of national savings derived above do not lie in the overall methodology but rather in the methodologies for arriving at the various aggregates which are input to the tables.

The Central Statistical Office has indicated that the estimates of total Gross Domestic Product are "good" in that all sectors are accounted for. Production Accounts detailing "Gross Output," "Intermediate Expenses," "Value Added" and Value-Added disaggregated into "compensation to employees," "Depreciation expense" and the residual, "operating surplus", are available for all sectors up to 1978. From 1978, the total value-added for several sectors is estimated based on sub-sector bench-marks and a number of other relevant indicators. The relative values of the three principal components of Value-Added are then estimated by applying percentage changes from previous years. Accordingly, the values of the national aggregates, "compensation to employees", "operating surplus" and "consumption of fixed capital" may be weaker for the years 1978 onwards. It should be noted that the derivation of 'operating surplus' as a residual on the income side of the Account and private consumption expenditure as a residual on the expenditure side of the Account, may introduce significant errors into the resulting savings series.

Data presented on "indirect taxes," "subsidies" and "government consumption expenditure" are extracted directly from Government accounts. However, in the National Income Accounting System, the classification of certain items vary from normal accounting practices. For example, in the National Income Accounting System the operating losses of Statutory Boards are recorded as a government subsidy.

Of the National Income aggregates employed in this method of computing savings, the series on Gross Capital Formation appears "weakest." The Central Statistical Office has noted that from 1976 data are provisional. From 1976, actual Company data are available for a limited number of sectors, although these include key sectors such as Petroleum, Government, Sugar and Electricity and Water. For other sectors, data on annual capital investment for a sample of firms are blown-up by applying the ratio of "capital formation to Production" for responding firms, to the total estimated production for the sector. Data on imports of capital goods and machinery (adjusted to include mark-up and installation charges) are used as a check on these estimates.

For some sectors, methodologies involving projections of various averages of the ratios of Imports of relevant Capital goods and machinery to total capital formation for the

sector, for the years 1966 to 1976, are utilized. Data on stock changes and work-in-progress, which comprise important components of capital formation are generally difficult to estimate. Consequently the methods outlined above seek to concentrate on estimating the change in new fixed capital. Overall the weaknesses of the Gross Capital Formation estimate, on which the savings series is directly dependent, present a serious limitation to the National Income Accounting approach to measuring savings in Trinidad and Tobago.

IV

The Flow of Funds Approach to the Measurement of Savings:

The Flow of Funds is an accounting system designed to monitor changes in financial assets and liabilities of the institutional sectors of the economy. It provides an important tool for analysing savings patterns. While for the economy as a whole, saving is equal to capital formation plus net foreign investment, for the individual units the equality between saving and investment is achieved through the mechanism of finance, by the acquisition of specific assets, both financial and non-financial and the reduction of liabilities. The financial sector provides the machinery whereby these equalities are satisfied. Further it must be noted that savers exercise a choice at different levels, either the acquisition of real assets or the acquisition of financial claims of varying degrees of liquidity or the redemption of liabilities previously accumulated. A similar choice is exercised by borrowers.

In utilizing this method of estimating savings, the economy of Trinidad and Tobago is disaggregated into three sectors:-

- (a) The General Government, which includes Central Government, Local Government and Statutory Boards other than PTSC, WASA, T&TEC and Port Authority.

- (b) The Corporate Sector, which includes the Local Corporate Sector, the Foreign Corporate Sector and Government non-financial enterprises (including the four financially autonomous Statutory Boards).

- (c) The Household and Un-Incorporated Enterprises Sector.

For each sector, an attempt is made to calculate gross savings. The flow of Funds approach is not applicable to the government sector as the government does not construct a Balance Sheet. For this sector therefore, a national income accounting approach of revenue minus expenditure is employed. For the Corporate and Household sectors, a Flow of Funds approach using the change in Financial Assets Minus the change in Liabilities plus the change in Real Assets, is employed.

The Government Sector

As illustrated in Table 4, Government's recurrent revenue is disaggregated into final consumption expenditure, subsidies and current transfers, with gross savings as the residual.

TABLE 4
GENERAL GOVERNMENT ACCOUNT-GROSS SAVINGS
(\$M)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Recurrent Revenue ¹	302	335	401	478	1232	1705	2194	2843	2875	4004	6106
Less: Net non-capital transfers to R.O.W. ²	8	14	13	14	20	21	47	36	40	44	52
<u>Total Recurrent Revenue of which</u>	<u>294</u>	<u>321</u>	<u>388</u>	<u>464</u>	<u>1212</u>	<u>1684</u>	<u>2147</u>	<u>2807</u>	<u>2835</u>	<u>3960</u>	<u>6054</u>
1. Gov't Final Consump. Expenditure ³	215	289	338	374	510	682	770	992	1210	1661	2016
2. Subsidies	18	19	20	27	71	119	204	294	360	701	1141
3. Current Transfers to Households & Un-Incorp. Enterprises ⁴	22	31	35	43	57	63	93	92	133	160	147
4. Gross Savings ⁵	39	(18)	(5)	20	574	820	1080	1429	1132	1438	2750

SOURCE: C.S.O. National Income Division (unpublished).

¹ Excludes revenue from sales of goods and services

² Source: Balance of Payments Accounts - Unrequited Transfers: Government

³ Represents the sum of 'compensation to Employees', 'Intermediate Consumption', 'consumption of fixed capital' and 'Interest on the Foreign Public Debt', MINUS 'Sales of Goods and services'

⁴ The sum of 'Transfers from Statutory Boards to Households', 'Central Government-Grants and Transfers to Households,' and 'Interest on the local public Debt'

⁵ Estimated as a residual. Although the estimates of Government Final Consumption Expenditure includes consumption of fixed capital, this is only for the Statutory Boards included in this sector and these values are minimal (less than \$1mn). The resultant savings series are therefore taken to represent gross savings.

The Corporate Sector

Data on the Corporate Sector were extracted from the C.S.O's Worksheets for the Flow of Funds Reports. These worksheets contain consolidated balance sheets of the three corporate sub-sectors. The financial instruments were aggregated to give total financial assets, total real assets, total liabilities and total reserves. The stock positions were then converted into net flow positions by calculating the year to year changes, and the level of savings, as represented by the changes in reserves, was determined. These calculations are illustrated in Tables 5,6 and 7.

Data on the Corporate Sector used in this study suffer from two serious limitations:

Firstly while complete coverage of all firms is attempted for the Foreign Corporate Sector and Government Non-Financial Enterprises Sector, the Local Corporate Sector companies only a sample of firms. The firms covered are judged to represent the majority of large and medium-sized establishments in each of the activity sectors, but the specific sample ratio, in terms of proportion of total assets covered is not available. While estimates are made for selected firms which do not respond in a

particular year, so as to ensure that inter-temporal analyses are meaningful, no attempt is made to 'blow-up' the data to represent the total Local Corporate Sector.

Secondly the problem of 'false savings' due to price changes is crucial in this method of estimating savings. On the Balance Sheet of a Company, any revaluation of real assets is counter-recorded on the liabilities side as an increase in 'Capital Reserves.' The change in reserves which is taken to represent savings in this study, is therefore overestimated to the extent of occurrence of this practice of revaluing the book value of company assets.

The Corporate savings series resulting from these estimates are (i) 'net', because profits transferred from a company's Income and Expenditure Account to its Reserve Account represent profits after depreciation, and (ii) 'domestic', because it includes the profits of direct investment enterprises. In Table 8 this series is adjusted for corporate consumption of fixed capital and retained earnings of direct investment enterprises, to arrive at estimates of Gross National Savings for the Corporate Sector.

TABLE 5
CORPORATE SECTORS, CONSOLIDATED BALANCE SHEETS
\$M

YEAR	LOCAL CORPORATE SECTOR ¹					FOREIGN CORPORATE SECTOR ²					GOVERNMENT NON-FINANCIAL ENTERPRISES ³				
	Fin. Assets	Real ⁴ Assets	TOTAL ASSETS LIAB.	Liabil- ⁵ ities	Re- ⁶ serves	Fin. Assets	Real ⁴ Assets	TOTAL ASSETS/ LIAB.	Liabil- ⁵ ities	Re- ⁶ serves	Fin. Assets	Real ⁴ Assets	TOTAL ASSETS LIAB.	Liabil- ⁵ ities	Re- ⁶ serves
1969	128	205	333	270	63	113	457	570	453	117	75	487	562	389	173
1970	139	216	355	299	56	143	549	692	539	153	95	516	611	436	175
1971	137	253	390	328	62	149	693	842	708	134	85	583	668	447	221
1972	142	288	430	371	59	170	834	1004	898	106	81	653	734	520	214
1973	169	333	502	423	79	465	962	1427	1070	357	99	688	787	620	167
1974	195	437	632	560	72	580	1150	1730	1133	597	173	754	927	701	226
1975	271	518	789	675	114	736	1446	2182	1461	721	411	1164	1575	1140	435
1976	386	656	1042	857	185	754	1518	2272	1383	889	520	1401	1921	1901	20
1977	519	943	1462	1168	294	1229	1918	3147	1778	1369	497	2111	2608	2431	177
1978	465	1048	1513	1215	298	1526	2125	3651	2099	1552	1155	2425	3580	3017	563
1979	774	1423	2197	1745	452	2444	2084	4528	2767	1761	1742	3322	5064	4408	656
1980			n/a			2514	2055	4569	1504	3065			n/a		

SOURCE: C.S.O. National Accounting Division, Flow of Funds Worksheets (unpublished).

1. Defined to include all incorporated enterprises in which over 50% of the issued capital is held locally.
2. Defined to include all incorporated enterprises in which 50% and over, of the issued capital is held by foreigners.
3. Defined to include all incorporated enterprises in which over 50% of the issued capital is held by Government.
4. Stock plus Net Fixed Assets.
5. Total Liabilities plus Issued Share Capital.
6. All Reserve Accounts including Revenue Reserves, Capital Reserves, Share Premium Account etc.

TABLE 6
TOTAL CORPORATE SECTOR: CONSOLIDATED BALANCE SHEET
\$M

YEAR	FINANCIAL ASSETS	REAL ASSETS	TOTAL ASSET/ LIABILITIES	LIABILITIES	RESERVES
1969	316	1149	1465	1112	353
1970	377	1281	1658	1273	385
1971	371	1529	1900	1483	417
1972	393	1775	2168	1789	359
1973	733	1983	2716	2113	603
1974	948	2341	3289	2394	895
1975	1418	3128	4546	3276	1270
1976	1660	3575	5235	4141	1094
1977	2245	4972	7217	5377	1840
1978	3146	5598	8744	6331	2413
1979	4960	6829	11789	8920	2869

SOURCE: C.S.O. National Accounts Division, Flow of Funds Reports and Worksheets

TABLE 7
TOTAL CORPORATE SECTOR ANNUAL CHANGE IN BALANCE SHEET POSITION
\$M

YEAR	FINANCIAL ASSETS	REAL ASSETS	TOTAL ASSETS/ LIABILITIES	LIABILITIES	RESERVES
1970	61	132	193	161	32
1971	(6)	248	242	210	32
1972	22	246	268	306	(38)
1973	340	208	548	324	224
1974	215	358	573	281	292
1975	470	787	1257	882	375
1976	242	447	689	865	(176)
1977	585	1397	1982	1236	746
1978	901	626	1527	954	573
1979	1814	1231	3045	2589	456

SOURCE: C.S.O. National Accounts Division. Flow of Funds Reports and Worksheets.

TABLE 8
GROSS NATIONAL SAVINGS OF THE CORPORATE SECTOR
\$M

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Net Domestic Savings	32	32	(38)	224	292	375	(176)	746	573	456
Add: Consumption of fixed capital ¹	147	178	249	248	307	355	522	680	764	864
Minus: Direct Investment Enterprises - Retained ² Earnings	110	101	108	132	238	162	315	520	362	733
Gross National Savings	79	109	103	340	361	568	31	906	975	587

1. Source: C.S.O. National Accounts, total consumption of fixed capital for the economy.
2. Source: C.S.O. Balance of Payments, Current Account - Investment Income, Direct Investment Income, Retained Profits - (Debit).

The Households and Unincorporated Enterprises Sector

The financial savings of the Households and Unincorporated Enterprises Sector were extracted from the C.S.O.'s Flow of Funds worksheets. Table 9 illustrates the stock and flow values of total financial assets and liabilities for this sector. As shown in Table 10, the sector's investment in real assets is represented by estimates of capital formation for Dwelling Services, Agriculture, and Unincorporated Enterprises in the Trucking and Taxi business. Total Households' savings is estimated as the sum of the change in net financial assets plus the increase in real assets. The resulting savings aggregate, as shown in Table 11, represent gross national savings. No estimates of depreciation for these sub-sectors are available. This method of computing savings does not reflect capital gains due to transfers of the existing stock of houses and land, and is in accordance with the United Nations recommendation for measuring real savings.

The major limitation of this series on Households and Un-Incorporated Enterprises savings appears to lie in the estimates of investment in real assets. While capital investment by the Dwelling Services sub-sector is expected to account for the major share of capital formation in the Households and Unincorporated Enterprises sector, capital formation of the un-incorporated enterprises is likely to be

significant, particularly since 1975. Other than for the Trucking and Taxi sub-sectors, data on Capital investment in un-incorporated enterprises was not available from the National Income Accounts. The estimates of capital formation of the Dwelling Services utilize a methodology based on the "Floor Area of Residential Building Plans Approved" multiplied by "Building Cost per square foot" statistics. Several areas of this methodology are a probable source of error:-

- (i) Building costs per square foot are estimated as a composite of the Index of construction materials and the Index of Minimum Wage Rates for Construction workers.
- (ii) For 1970 - 1976 the Building Cost Index is broken down into Indices for High, Medium and Low cost Housing, based on the results of annual surveys of Quantity Surveyors. For this period, approved plans are disaggregated to represent High, Medium and Low Cost Houses based on rough estimates. From 1977 however, this breakdown was discontinued due to data inadequacies.
- (iii) Approved building plans are lagged by one year.
- (iv) No adjustments are made for construction/rennovation without official approval, or for that per cent of approved building plans which are never actually built.

TABLE 9
HOUSEHOLDS AND UNINCORPORATED ENTERPRISES - FINANCIAL
ASSETS AND LIABILITIES
\$M

YEAR	Financial Assets	Financial Liabilities	ANNUAL CHANGE	
			Fin. Assets	Fin. Liabilities
1969	761	351
1970	863	445	102	94
1971	1,051	489	188	44
1972	1,194	611	143	122
1973	1,429	699	235	88
1974	1,775	784	346	85
1975	2,281	1,041	506	257
1976	2,992	1,446	711	405
1977	3,604	1,937	612	491
1978	4,473	2,551	869	614
1979	5,279	2,977	806	426

SOURCE: C.S.O., National Income Division - Flow of Funds Reports.

TABLE 10
HOUSEHOLDS AND UN-INCORPORATED ENTERPRISES -
CAPITAL FORMATION FOR SELECTED SECTORS
\$M

SECTORS	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
1. Agriculture ¹	7	9	12	12	13	18	20	24	17	21
2. Taxi Service ¹	4	3	3	5	4	6	7	15	18	15
3. Trucking ¹	2	2	3	3	3	4	8	12	15	19
4. Dwelling Services ²	53	67	82	95	134	140	196	322	392	495
TOTAL	66	81	100	115	154	168	231	373	442	550

SOURCE: C.S.O., National Income Division (unpublished data).

1. Estimates of the proportion attributable to Unincorporated Enterprises only.
2. Computed as: "Total floor area of plans approved for residential buildings" (lagged one year) x "Building Cost per sq.ft." statistics.

TABLE 11
HOUSEHOLDS & UN-INCORPORATED ENTERPRISES - GROSS NATIONAL SAVINGS
\$M

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Net Financial Savings	8	144	21	147	261	249	306	121	255	380
Real Savings	66	81	100	115	154	168	231	373	442	550
TOTAL	74	225	121	262	415	417	537	494	697	930

The Gross National Savings of the three sectors defined in the Flow of Funds Approach to measuring national savings are summed in Table 12.

TABLE 12
GROSS NATIONAL SAVINGS OF TRINIDAD AND TOBAGO
\$M

SECTORS	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
THE GOVERNMENT SECTOR	39	(18)	(5)	20	574	820	1,080	1,429	1,132	1,438
THE CORPORATE SECTOR	79	109	103	340	361	568	31	906	975	587
THE HOUSEHOLDS AND UN-INCORPORATED ENTERPRISES SECTOR	74	225	121	262	415	417	537	494	697	930
GROSS GROSS NATIONAL SAVINGS	192	316	219	622	1,350	1,805	1,648	2,829	2,804	2,955

At present work is continuing on improving the quality of the Flow of Funds savings estimates. Data on the local Corporate sector in particular must be adjusted so as to reflect coverage of the total sector. The Inland Revenue Department and the C.S.O. - Business Surveys Unit, are two sources which will be investigated in an attempt to arrive at a more complete series on corporate profits after tax and after distribution. The C.S.O. has temporarily discontinued work on the Flow of Funds Report. Yet, in accordance with the stated objective of deriving national savings based on two different methods, it will be necessary to project national savings based on the Flow of Funds approach for 1980 to 1983. Also, the results of this approach, by providing data on sectoral savings would be crucial to the later determination of sectoral savings functions.

V

Comparing the Two Savings Series

The estimates of gross national savings arrived at in Sections III and IV are juxtaposed in Table 13. As a first attempt at assessing the relative accuracy of the two series, gross national savings is expressed as a percent of G.D.P. at market prices. This aggregate is selected despite the fact that it is part of the National Income Accounting approach, since for Trinidad and Tobago, this is the most reliable measure of income available. These ratios are also illustrated in Table 13.

The disparities in the two sets of data reflect the net errors of over-estimation and under-estimation in the National Accounts, Flow of Funds and Balance of Payments data, and highlight the urgent need for cross-checks amongst the major economic statistics. It must be noted however, that the savings series derived from the National Income Accounting approach and that derived from the Flow of Funds approach are at least in one respect, conceptually different. As discussed in the Flow of Funds method, corporate sector savings include savings/dissavings brought about by the revaluation of a company's assets due to price increases/decreases. The savings

aggregate derived from the National Income Accounting approach however attempts to measure "pure" savings through actual capital formation without regard to the value of assets due to price changes. In this Phase of the Project, no attempt is made at specific year-by-year comparisons since work on improving the estimates is still to be undertaken.

TABLE 13

GROSS NATIONAL SAVINGS

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
A. <u>National Income Accounting Approach</u>											
(i) Gross Nat. Savings(\$m)	305	407	363	570	1735	1867	2233	2635	2810	3371	6437
(ii) Savings/G.D.P.(mp)(%)	17	22	16	21	41	35	35	33	32	29	41
B. <u>Flow of Funds Approach</u>											
(i) Gross Nat. Savings(\$m)	192	316	219	622	1350	1805	1648	2829	2804	2955	n.a.
(ii) Savings/G.D.P.(mp)(%)	11	17	10	23	32	34	26	36	32	26	n.a.

VI

National Income Accounting - Savings Projections

In projecting the national income accounting aggregates to arrive at estimates of gross national savings for 1981, 1982 and 1983, the ex-post identity between savings and investment is highlighted. In terms of determining savings, the more complete system - The G.D.P. and Expenditure on the G.D.P., and The National Income and Outlay Account - as described in Section III, can be reduced to the following relationship.

$$\begin{aligned} & \text{Gross Capital Formation} \\ & -/+ \text{ Balance of Payments Current} \\ & \quad \text{Account Deficit (-)/Surplus(+)} \\ & = \text{Gross National Savings.} \end{aligned}$$

The Balance of Payments Accounts are available up to 1983 though the data are provisional for 1982 and 1983. Gross Capital Formation (GCF) is estimated using ordinary least-square regression on three variables for the period 1970 - 1980. Gross Capital Formation is defined to be dependent on:-

- (i) Gross Capital Formation of the Petroleum Sector (PGCF)
- (ii) Government Capital Expenditure (GCE)
- (iii) Imports of Machinery and Transport Equipment (MMTE).

The relationship between each of the dependent and independent variables is defined as linear and is utilized purely for statistical purposes.

Table 14 summarizes the results.

TABLE 14
GROSS CAPITAL FORMATION-REGRESSION RESULTS 1970-1980

(i)	GCF = -640.92	+	4.73PGCF			
	(-1.88)		(8.29)			
	R ² = 0.88	R ² = 0.87	DW = 2.15	F = 68.74	SER = 563.71	
(ii)	GCF = 261.12	+	2.10 GCE			
	(2.98)		(24.42)			
	R ² = 0.98	R ² = 0.98	DW = 2.16	F = 596.46	SER = 201.99	
(iii)	GCF = -20.81	+	2.63 MMTE			
	(-0.14)		(16.13)			
	R ² = 0.97	R ² = 0.96	DW = 1.96	F = 260.21	SER = 302.91	

Equations two (ii) and three (iii) exhibit high R-squares and lower Standard Error of the Regression (SER) values, indicating relatively good linear fits. It was therefore decided to use a weighted average of the two Gross Capital Formation estimates derived from equations (ii) and (iii). The Adjusted R² values are used to weight each estimate. For equation (iii), as indicated by the T-statistic value, the constant term is not significant and is therefore omitted. The 1981, 1982 and 1983 values for Gross Capital Formation are calculated to be \$5,725 million, \$7,673 million and \$6,111 million, respectively.

As shown in Table 15 the Balance of Payments current account surplus/deficit is added/subtracted from the estimates of Gross Capital Formation for 1981, 1982 and 1983 to arrive at estimates of Gross National Savings for these years.

TABLE 15
GROSS NATIONAL SAVINGS ESTIMATES
(\$M)

	<u>1981</u>	<u>1982</u>	<u>1983</u>
Gross Capital Formation	5,725	7,673	6,111
B.O.P. Current Account	+842	-2,006	-2,274
Gross National Savings	<u>6,567</u>	<u>5,667</u>	<u>3,837</u>

For later testing of the Income/Savings relationship it was necessary to arrive at estimates of the Gross National Product (market prices) and Government Savings for 1981-1983.

Provisional data on Gross Domestic Product (Factor Cost), indirect taxes and subsidies are available from the C.S.O. Estimates of the net value of 'property and entrepreneurial income' and 'other current transfers from the rest of the world' for 1981-1983 are also available from the provisional Balance of Payments Accounts. The necessary adjustments are illustrated in Table 16.

TABLE 16
GROSS NATIONAL PRODUCT ESTIMATES

(\$M)

	1981	1982	1983
G.D.P. (Factor Cost)	18,129	19,138	20,174
Indirect Taxes	1,138	1,231	1,202
- Subsidies	1,188	1,710	1,797
<u>G.D.P. (Market Prices)</u>	<u>18,079</u>	<u>18,659</u>	<u>19,579</u>
Property and Entrepreneurial Income R.O.W. (Net)	-341	-97	-221
Other Current Transfrom from R.O.W. (Net)	-217	-252	-298
Gross National Product	17,521	18,310	19,060

Government savings for the period 1981 to 1983 are calculated using data provided by the C.S.O. and the Government statements of Revenue and Expenditure. The estimates of Government Final Consumption Expenditure are derived from actual data on government wages and salaries and interest on the external debt. Table 17 illustrates these projections.

TABLE 17
GOVERNMENT SAVINGS - PROJECTIONS
(\$M)

	1981	1982	1983
Recurrent Revenue	6,985	7,025	6,665
Less: Non-Capital transfers to the R.O.W. (Net)	-56	-72	-80
<u>Total Recurrent Revenue</u> of which:	<u>6,929</u>	<u>6,953</u>	<u>6,402</u>
Gov't Final Consumption Exp.	3,191	4,009	4,251
Subsidies	1,188	1,710	1,797
Current Transfers to Households & Un-Incorporated Enterprises	163	202	250
Savings	2,387	1,032	104

VII

The Savings Function

In this section the various theories of savings behaviour are discussed and preliminary tests of the saving - income relation in the case of Trinidad and Tobago are undertaken. The estimation of a savings function is not attempted here as it is first necessary to develop the theoretical framework which is the objective of this section.

In most theories of savings behaviour, the level of income is regarded as a major determinant of savings but different definitions of income are used. In Keynesian theory it is claimed that the decision to consume and save is made with respect to the absolute level of income. Keynes also believed that increases in income would be accompanied not by a corresponding rise in the rate of consumption but by a higher rate of saving. This implies that over time, the marginal savings rate would exceed the average savings rate. Empirical tests did not fully support this hypothesis however and in other studies on savings behaviour, additional explanatory variables were included in the savings function and other definitions of the income variable were adopted.⁸

⁸ Mikesell and Zinser 12.

In an attempt to better explain variations in savings, Duesenberry postulated that savings depend not only on the absolute level of current income but also on past income levels. In particular it was held that savings are influenced by the ratio of current income to the highest income previously attained. According to this Relative Income Hypothesis, individuals are prepared to save less when incomes fall in an effort to maintain living standards to which they have become accustomed. However when incomes rise, the saving income ratio will be constant if the structure of income distribution remains unchanged, implying that savings tend to be a constant proportion of income in the long run. To date, there has been no published work that has tested this hypothesis for developing countries.

In the two remaining theories the point of departure differs from those mentioned above. In particular, the income concept in a given year is not the relevant variable, but the total resources of an individual over his lifetime. In the Permanent Income Hypothesis, as developed by Friedman, measured income is divided into permanent and transitory components. Permanent income is the sum of current earnings plus expected future receipts from both human and non-human assets discounted back to the present. Transitory income is the difference between measured and permanent income. It is argued that

saving should be a constant proportion of permanent income, the proportion being independent of the level of income. In addition all of transitory income is saved. Therefore savings depend on both permanent and transitory income. Several researchers³ have tested this hypothesis for developing countries and in many cases the findings did support this hypothesis.⁹ It was discovered that in many developing countries the marginal propensity to save from transitory income exceeded that from permanent income.

In the Life-Cycle Hypothesis, developed by Modigliani and Brumberg, it is alleged that individuals save for the purpose of spreading consumption evenly over their life-time. After retirement, however individuals dissave. It therefore followed that if society remained static aggregate savings in any given year would be zero as the savings of the working population would offset that of the retired population. But changes in the structure of the population and growth in per capita income would result in a positive level of savings. A rise in income would increase the saving-income ratio as individuals would seek to spread the increase over their remaining life span. Very few attempts were made to test the validity of this hypothesis largely because of difficulties in obtaining all the relevant data.

⁹ Mikesell and Zinser 13.

A study by Leff however concluded that there is some evidence that demographic factors influence savings.¹⁰

In order to obtain a better explanation of saving behaviour, some hypotheses introduce variables other than income and demographic factors into the saving function. It has been suggested that savings may also be influenced by net foreign capital flows, exports, the rate of change of prices, the rate of interest, and the level of taxation. By providing more investment opportunities, it was thought that capital inflows should stimulate income and savings. Leff tested this hypothesis and concluded that capital inflows were not significantly related to savings¹¹. In addition some researchers have tried to explain variations in the savings rate of primary export producing countries by introducing exports in the savings function. Maizels tested the association between exports and savings and his findings confirmed that the two variables were highly correlated¹². Lee carried out a similar test for a much larger sample of countries over a longer time period and his results were consistent with that of Maizels¹³.

10 N. Leff⁴.

11 N Leff⁵.

12 A. Maizels⁹.

13 J.K. Lee³.

Researchers have also been concerned with the effect of changes in the price level on savings. It is argued that since price increases undermine the real value of savings, individuals attempt to counteract this by increasing their savings. The impact of inflation is incorporated either by using real variables in the saving function or by explicitly including an index of price changes.

The role of interest rates in savings determination has also been investigated. However, most of these studies examined the experiences of Asian countries. Some findings suggested that real deposit rates of interest were positively correlated with savings. McDonald tested the interest responsiveness of saving in Latin American countries and found evidence of a positive correlation between the two variables¹⁴.

Some economists have advocated the use of government taxes as a means of mobilising savings for investment. The argument is that low income levels, the taste for foreign goods and other such factors adversely affect the level of voluntary savings. Domestic savings for national development can be increased only by governments' compulsorily reducing personal

¹⁴ McDonald, 012.

consumption. But Please has argued that increased taxation has been often accompanied by a decline in government savings due mainly to a growth of governments' current expenditure¹⁵. However in Morss' study of the relationship between fiscal policy and savings in developing countries taxes and savings were found to be positively related.¹⁶

Following on the review of the general theories of savings functions the next stage is the formulation of a conceptual model of savings in Trinidad and Tobago. As a first step towards this understanding of the factors influencing savings in Trinidad and Tobago, it was decided to test two selected hypotheses using ordinary least - squares regression :-

- (i) The Absolute Income Hypothesis, which postulates a linear relation between the absolute level of measured income and measured savings;
- (ii) The Permanent Income Hypothesis, which postulates that savings is a constant proportion of permanent income.

15 S. Please¹⁹.

16 E.R. Morss¹⁵.

Data on Gross National Product at market prices, Gross National Savings, Gross Private Income and Gross Private Savings were extracted for the years 1963-1983. Permanent Gross National Product and Permanent Gross Private Income were calculated based on three-year moving averages of Gross National Product and Gross Private Income respectively. The Retail Price Index and Mid-Year Population Estimates were also extracted to enable testing for "nominal" and "real" relationships as well as "per capita" and "real per capita" relationships. The following ordinary least-squares regressions were tested:-

- (i) Gross National Savings (GNS) / Gross National Product (GNP)
- (ii) Gross National Savings per capita (GNSC) / Gross National Product per capital (GNPC)
- (iii) Real Gross National Savings (GNSR) / Real Gross National Product (GNPR)
- (iv) Real Gross National Savings per capital (RGNSC) / Real Gross National Product per capita (RGPC)
- (v) Gross Private Savings (GPS) / Gross Private Income (GPI)
- (vi) Gross Private Savings per capita (GPSC) / Gross Private Income per capita (GPIC)
- (vii) Real Gross Private Savings (GPSR) / Real Gross Private Income (GPIR)
- (viii) Real Gross Private Savings per capita (RGPSC) / Income per capita (RGPIC)

- (ix) Gross National Savings (GNS) / Permanent Gross National Product (PGNP)
- (x) Gross National Savings per capital (GNSC) / Permanent Gross National Product per capital (PGNPC)
- (xi) Real Gross National Savings (GNSR) / Real Permanent Gross National Product (PGNPR)
- (xii) Real Gross National Savings per capita (RGNSC) / Real Permanent Gross National Product per capita (RPGNPC)
- (xiii) Gross Private Savings (GPS) / Permanent Gross Private Income (PGPI)
- (xiv) Gross Private Savings per capital (GPSC) / Permanent Gross Private Income per capita (PGPIC)
- (xv) Real Gross Private Savings (GPSR) / Real Permanent Gross Private Income (PGPIR)
- (xvi) Real Gross Private Savings per capita (RGPSC) / Real Permanent Gross Private Income per capita (RGPIC).

All the regression pairs involving real variables exhibited low correlations. This however probably reflects the inappropriateness of the Retail Price Index as a deflator for both savings and income rather than a genuinely low relatedness of the two series. The results of the eight (8) regressions not involving "real" or "real per capita" variables are summarized in Table 18.

As exhibited by equations (i) to (iv) there is a close linear fit between national savings and national income,

whether using the nominal, per capita or permanent measure. Comparing equation (i) with equation (iii) does however indicate that the measure of permanent income gives slight improvement to the fit. The adjusted R-squares for equations (v) to (viii) indicate more variability in the fit between private savings and private income, although the measure of permanent gross private income again improved the results.

These regressions and the analysis of their results are preliminary. We would however like to conclude this Paper by noting that the overall results point to a marginal savings rate of 0.37 to 0.38 for Trinidad and Tobago.

TABLE 18

Savings/Income Regression Results

No. of observations: 19

(i)	GNS = -230.78 + 0.37 GNP (-1.17) (14.85)			
\bar{R}^2	= 0.92	DW = 2.31	F = 220.61	SER = 614.41
(ii)	GNSC = -0.23 + 0.37 GNPC (-1.25) (14.45)			
\bar{R}^2	= 0.92	DW = 2.32	F = 208.77	SER = 0.56
(iii)	GNS = -365.14 + 0.38 PGNP (1.82) (15.03)			
\bar{R}^2	= 0.93	DW = 2.45	F = 225.89	SER = 607.69
(iv)	GNSC = 0.36 + 0.38 PGNPC (-1.93) (14.75)			
\bar{R}^2	= 0.92	DW = 2.49	F = 63.94	SER = 672.43
(v)	GPS = -171.82 + 0.37 GPI (-0.76) (7.99)			
\bar{R}^2	= 0.78	DW = 2.11	F = 63.94	SER = 672.43
(vi)	GPSC = -0.17 + 0.37 GPIC (-0.79) (7.71)			
\bar{R}^2	= 0.75	DW = 2.76	F = 54.88	SER = 0.19
(vii)	GPS = -352.28 + 0.39 PGPI (-1.67) (8.8)			
\bar{R}^2	= 0.81	DW = 2.04	F = 77.47	SER = 0.55

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