DETERMINANTS OF AGGREGATE SAVINGS IN POST-WAR TRINIDAD AND TOBAGO

(An Exploratory Study)

by

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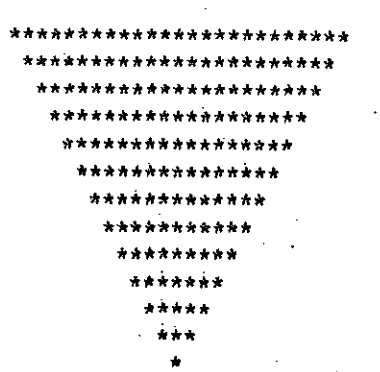

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INTRODUCTION

The role of savings as an important source of finance for capital formation occupies a very prominent place in the development literature. It is generally felt that if poor countries are to achieve higher rates of growth it is essential for them to save and invest a higher proportion of their national income. In fact one distinguished writer has observed that the "central problem in the theory of economic growth is to understand the process by which a community is converted from being a five percent to a twelve percent saver- with all the changes in attitudes, in institutions and in techniques which accompany this conversion."[1] The implementation of policies designed to raise the level of savings in an economy requires at least a notional identification of the factors which influence savings behaviour. Of course, the importance of these factors in a savings function would tend to vary from one context to another. In other words, while it is possible to focus on certain factors or variables, based on observation or à priori reasoning, it is difficult to generalise a savings function applicable to all countries, or even to the same country over time. A further difficulty in specifying a savings equation for empirical testing arises from the fact that considerations which may exert an important influence on the behaviour of the different

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sectors (government, corporations and households) which contribute to aggregate savings may not be readily quantifiable in a form that can be used in a specification. The purpose of this paper is to examine through the use of simple econometric models, the relationship between savings and certain selected variables in the Trinidad and Tobago economy in the post-war period.

The paper is divided into four (4) parts. In the first section we undertake a brief review of the various theories of savings, which have either inspired or grown out of the empirical work undertaken in the post-war period. In the second we examine the trends in savings and investment ratios and the sources of finance for capital formation in the economy. In the third section we explore the importance of various savings functions for the economy as a whole, and where data permit, for individual sectors. In the fourth we examine the impact of exports on aggregate savings, and explore the relationships between foreign capital and domestic savings and growth.

1. Theories of Savings

Attempts to focus on the main factors which influence the level of savings in an economy have resulted in a number of different theories. The variables to which attention has been drawn fall into two (2) broad categories: characteristics of the saver (e.g. income, assets, occupation, age etc.) and characteristics of his environment (e.g. prices, interest rates, etc).[2] The classical economists (while not completely ignoring the role of income) placed heavy emphasis on the rate of interest. They saw interest as the payment (or reward) for abstaining from consumption, or payment for the use of funds. For them the rate of interest was the factor which brought the supply and demand for savings into equilibrium. An important assumption of the classical position was that aggregate expenditure on consumption was (ceteris paribus) negatively sensitive to changes in the rate of interest

i.e. any increase in the rate of interest would result in a significant drop in consumption. Keynes disagreed with this position. In the "General Theory" he asserted that "the total effect of changes in the rate of interest on the readiness to spend on present consumption is complex and uncertain, being dependent on conflicting tendencies, since some of the subjective motives towards saving will be more easily satisfied if the rate of interest rises, whilst others will be weakened."[3] He argued that the rate of interest is not a return to saving or waiting as such. It is the reward for parting with liquidity - a measure of the unwillingness of those who posses money to part with their liquid control over it. "The rate of interest is not the "price" which brings into equilibrium the demand for resources to invest with the readiness to abstain from present consumption. It is the "price" which equilibrates the desire to hold wealth in the form of cash with the available quantity of cash...."[4]

Keynes felt the rate of interest was not important in decisions of people in allocating their income between consumption and saving. To him the critical determinant was the level of income. Psychological factors summed up in his 'propensity to consume' (and 'propensity to save') concepts help to influence the individual in deciding how much of his income he will consume now and how much he will reserve in some form of command over future consumption. Keynes listed eight (8) main motives which lead individuals to refrain from spending out of their incomes. These are: precaution, foresight, calculation, improvement, independence, enterprise, pride and avarice. There can be a corresponding list on the consumption side e.g. enjoyment, shortsightedness, ostentation, etc. The strength of all these motives, he concedes "will vary enormously according to habits formed by race, education, communities, religion and current morals, according to present hopes and past experience according to the scale and technique of capital equipment, and according to the prevailing distribution of wealth and the established standards of life".[5]

He lists some further motives which might influence the savings behaviour of governments and business corporations. These are: (a) The motive of enterprise - to secure resources to carry out further capital investment without incurring debt or raising further capital on the market; (b) Liquidity - to secure liquid resources to meet emergencies, difficulties and depressions; (c) The motive of improvement - to secure a gradually increasing income to protect the management from criticisms of inefficiency; (d) Financial prudence - making provisions to discharge debt and write off the cost of assets ahead of the actual rate of wastage and obsolescence.

Based on a priori reasoning, Keynes was led to believe that as real income rises, a greater proportion of income will be saved. An implicit assumption here is that the average propensity to consume declines as income increases. Whether or not a greater proportion is saved as income rises, "we take it as a fundamental psychological rule of any modern community that, when its real income is increased, it will not increase its consumption by an equal absolute amount, so that a greater absolute amount must be saved, unless a large and unusual change is occurring at the same time in other factors."[7] By stipulating "a falling average propensity to consume, Keynes was assuming either a non-linear consumption function, for which the marginal propensity to consume also declines with income or a linear consumption function (constant m.p.c.) which has a positive intercept and is therefore referred to as being non-proportional."[8]

Keynes' 'General Theory' inspired a number of empirical work designed to test his hypotheses. Some of these studies produced results which appeared to be in conflict with a priori observation. An early post-war study undertaken by Kuznets[9] on the U.S. economy showed that even though income had risen, there was a fairly stable consumption-income ratio (a.p.c.) in the long run. The a.p.c. and m.p.c. reported

were almost identical, thus suggesting a proportional long-run consumption function. On the other, the evidence for the short-run indicated that the a.p.c. was not a constant.[10]

A widely accepted argument advanced to explain the behaviour of the short and long term average propensities is that over time an upward shift of the consumption function takes place. Duesenberry[11] has tried to explain this phenomenon using the concept of relative rather than absolute income. The relative income hypothesis views consumption (or saving) as a function not only of the consumers' current income but of previous income and of the consumption standards of others. Duesenberry argues that consumers having become accustomed to a particular consumption standard tend to resist any decline in this standard as income falls. Consumption may decline but less slowly than income. In such a situation the average propensity to save will fall. In the event that there are subsequent increases in income, consumers will attempt to restore the previous relationship between saving and consumption leading to a rise in the saving-income ratio and a fall in the consumption-income ratio. The consumption function proposed by Duesenberry took the form shown in Equation (i), where s and y

$$\text{Eq. (1)} \quad \frac{s_t}{y_t} = a\frac{y_t}{y_o} + b$$

represent saving and income respectively; the subscript t refers to the current period and o to the previous peak. Equation (1) could also be rewritten as equation (2) where c_t represents consumption and the other variables are as defined previously.

$$\text{Eq. (2)} \quad c_t = b_o y_t - b_1 \left\{\frac{y_t^2}{y_o}\right\}$$

Another post-Keyesian theory advanced to explain the relationship between income, consumption and saving is what is known as the permanent income hypothesis (P.I.H.) associated with the name of Milton Friedman.[12] Friedman does not accept the proposition that people adjust their consumption to their current income. He divides current (or measured) income into two (2) components: permanent and transitory. Permanent income is the perpetual (or lifetime) income stream an individual expects to derive from his human and non-human wealth over a reasonable period of time. Transitory income is the difference between measured (actual) income and permanent income. It represents unanticipated or unforseen additions or subtractions to permanent income. Friedman's main contention is that permanent consumption is proportional to permanent income. The average propensity to consume permanent income is constant. Savings will tend to vary with movements in transitory income. Friedman sees these raltionships as plausible explanations for the short run variation in the savings (or consumption) ratio and the stability in the secular function observed in practice.

The life-cycle hypothesis (L.C.H.) developed by Modigliani and Brumberg[13] also rejects the Keynesian position that current income is the major determinant of individual or aggregate savings. Like the permanent income hypothesis, the L.C.H. is based on maximising utility behaviour. Current consumption of the individual is postulated to be a function of his total resources (defined as the sum of his current and discounted future earnings over his lifetime and his current net worth), and the rate of return on capital with parameters depending on age. The shape of the utility function depends on the kinds of assumption we make with respect to life time consumption patterns (consumption at different points in the life cycle) and expectations with respect to the receiving or

leaving of legacies. "The difference between the L.C.H. and P.I.H. is one of emphasis in that the L.C.H. is concerned explicitly with the role of asset accumulation and the effect of age on household consimption. The L.C.H. is similar to the P.I.H., in that it assumes that any change in total resources, due to any of the three (3) components, will cause a proportional change in planned consumption in all future periods."[14]

The theories reviewed above were formulated largely in the context of the experience of the developed countries (DCs). The analyses generally assumed a closed economy framework. In more recent years the need to understand the savings function in developing countries (LDCs) has led some researchers to examine the quantitative relationshp betwen savings and certain variables which have proved useful in explaining savings (and consumption) behaviour in the DCs.[15] No new theories have grown out of these studies, but some analysts have found it necessary to take explicit account of the 'openness' feature. One writer, for instance, thinks that exports is an important variable in explaining variations in domestic savings in LDCs.[16] Some others contend that the inflow of foreign capital can adversely affect the local savings effort, and ultimately the growth rate of the economy.[17]

In this paper the hypotheses selected for testing tend to be influenced by the availability and limitations of the data at out disposal. Before undertaking this exercise, however, it would be instructive to present a brief survey of the components of total savings, and of movements in the investment and savings ratios in Trinidad and Tobago in the post-war period. This would provide a useful background to the econometric results presented in later sections.

2. Trends in Savings and Investment Ratios

Since savings data[18] tend to be computed as a residual in national income statistics, the reliability of such statistics would depend on the degree of care that goes into national income computation. Countries which place a high priority on the accuracy of their national income data employ all three methods (viz. the income, output or value added and the expenditure approaches) in deriving their estimates. In Trinidad and Tobago the last year for which we have published aggregate income and savings data for the major sectors of the economy is 1962. In more recent years attention has been concentrated on the output and expenditure approaches which do not provide the full range of information necessary for examining aggregate savings and consumption behaviour. For instance, data relating to disposable income and the functional distribution of income are not readily available. Figures pertaining to capital replacement (depreciation) are also completely absent. The flow-of-funds studies put out by the Central Statistical Office (C.S.O.) do give some idea of how funds are borrowed and lent, and provide some limited information on the extent of saving and investment undertaken by the various sectors within the economy. The inadequate coverage of the exercise, however, coupled with certain methodological shortcomings in the compilation of data require one to be very careful in drawing conclusions from the positions presented.

In the following section we undertake an examination of the broad trends in savings an investment in the early post-war period. Using a combination of published data and residual estimates this exercise is later extended to cover the period up to 1979.

In Tables 1(a) and 1(b) below we show the main sources from which capital formation was financed between 1952 and 1962. As can be seen from these Tables the contribution of capital consumption allowances fluctuated between 28 and 45% over the period. There was no clear trend, as was the case with the other sources. It can be observed also that local corporate savings tended to provide the smallest share of total finance, the contribution varying between 2.7% and 8.2%. However, personal savings (i.e. the savings of households and un-incorporated enterprises) played a significant part in the growth of the economy in this period. In absolute terms personal savings increased from $24m in 1952 to $61m in 1962, or by 154%. With the exception of four years (1957-1960) when there was a relatively heavy inflow of foreign capital), the contribution from this source to total capital formation was of the order of 20% or more. Government savings varies widely from year to year as can be seen in Table 1(a). The contribution to total investment finance averaged around 10% for the period. Net capital inflow (which includes the re-invested profits of foreign-owned enterprises) provided an important complement to domestic savings in the 1950's. It is important to point out here that the term 'net' is used here in a limited sense, as can be seen in footnote 2 of Table 1(a). The outflow of investment income is not taken into account. Columns (9) and (10) in Table 1a) show the respective contributions by local finance and foreign capital to net investment in the economy. Foreign inflows on average accounted for 40% of net investment over the period.

Table 1(a)

Sources of Finance for Capital Formation

Year	(1) Capital Consumption Allowances TT $mn	(2) Local Corporate Savings TT $m	(3) Personal Savings[1] TT $mn	(4) Gov't Savings TT $mn	(5) Foreign Borrowing by Gov't TT $mn	(6) Net Capital Inflow[2] TT $mn	(7) Total (1) to (6) TT $mn	(8) Net Investment TT $Mn	(9) Net National Savings as a % of (8)	(1) Net Capital Inflow[3] as a % of (8)
1952	29.3	3.4	23.6	11.0	-	27.2	94.5	65.2	58.3	41.7
53	38.5	5.1	31.1	7.5	-	3.7	85.9	47.4	92.3	7.8
54	37.3	5.6	34.5	5.7	20.0	- 11.4	91.7	54.4	84.2	15.8
55	43.8	3.5	25.7	7.8	-	34.7	115.5	71.7	51.6	48.4
56	53.8	9.1	25.5	10.5	-	26.6	125.5	71.7	62.9	37.1
57	48.6	14.2	29.1	26.3	-	54.3	172.5	123.9	56.2	43.8
58	63.3	16.8	32.0	37.9	-	56.2	206.2	142.9	60.7	39.3
59	72.4	13.2	28.7	35.3	-	99.7	249.3	176.9	43.6	56.4
60	93.1	10.4	43.9	37.3	-	101.2	285.9	192.8	47.5	52.5
61	98.5	6.8	67.3	11.8	-	71.9	256.3	157.8	54.4	45.6
62	112.7	9.3	60.9	16.4	14.0	84.9	298.2	185.5	46.7	53.3

1. Savings of households and un-incorporated enterprises.
2. Includes re-investment by foreign-owned enterprises. The figures are 'net' of certain outflows related to the operations of the Government, the banking and insurance sector and the monetary authorities.
3. Includes Government borrowing
4. Net National Saving is the sum of (2), (3) and (4).

Source: CSO, The National Income of Trinidad and Tobago, 1952-62.

Table 1(b)

Sources of Finance for Capital Formation

(Percentages)

Year	Capital Consumption Allowances	Local Corporate Savings	Personal Savings	Government Savings	Foreign Borrowing By Gov't	Net Capital Inflow	Total
1952	31.0	3.6	25.0	11.6	-	28.8	100.0
53	44.8	5.9	36.2	8.7	-	4.4	100.0
54	40.7	6.1	37.6	6.2	21.8	-12.4	100.0
55	37.9	3.0	22.2	6.8	-	30.1	100.0
56	42.9	7.2	20.3	8.4	-	21.2	100.0
57	28.2	8.2	16.9	15.2	-	31.5	100.0
58	30.7	8.1	15.5	18.4	-	27.3	100.0
59	29.0	5.3	11.5	14.2	-	40.0	100.0
60	32.6	3.6	15.4	13.0	-	35.4	100.0
61	38.4	2.7	26.3	4.6	-	28.0	100.0
62	37.8	3.1	20.4	5.5	4.7	28.5	100.0

Source: Table 1(a)

Table 2 shows savings of the various sectors as a % of GNP. Here it can be observed that over the 1952-62 period the proportion of local corporate savings varied between 1.0% and 2.5% as compared to an average of 6% for personal savings. Government savings ranged between 1.3% and 5.6%. Capital consumption allowances was generally over 8%. Net National Savings[19] (i.e. local corporate savings + Personal savings + government savings) varied between 7.8% and 12.8%.

As indicated earlier data on aggregate private savings associated with national income statistics have not been published since 1962. In an effort to gain some idea of developments in more recent years we turned to the flow of funds studies to which reference was made earlier. Some of the data used in these reports, it should be noted, were gained from budgetary surveys and the use of samples. The data pertaining to the local corporate sector, for instance, are based on a sample of the largest firms and no attempt was made to "blow-up"data. In order to get an indication of savings taking place in the household sector we calculated the net change in assets at the end of each year, i.e. the difference between change in assets and change in liabilities. The results which are shown in colums (1) of Table 3 indicate that personal expenditure was generally less than personal income. In other words, the household sector was a net supplier of funds in the economic system - a continuation of the trend we observed in the 1950's. Turning our attention to the local corporate sector the figures indicate that this sector was generally a net user of funds. The negative sign is not a reflection of net operating position but points to the fact that the sector was investing more than it saved. Government savings is never easy to define. Certain categories of spending which we normally class as current expenditure have effects associated with capital. spending. A case in point in the well known example of salaries paid to teachers. This issue, however, is one that does not concern us here. The figures shown in columns (4) and (5) of Table 3 indicate that government savings continued the trend of fluctuating from year to

Table 2

Savings as a % of GNP[1]

Year	(1) Capital Consumption Allowances %	(2) Local Corporate Savings %	(3) Personal Savings %	(4) Gov't Savings %	(5) Net Capital Inflow %	(6) All Sources %	(7) Net National Savings[2]	(8) Gross National Savings (1) + (7)
1952	8.5	1.0	6.9	3.2	7.9	27.5	11.1	19.6
53	10.3	1.4	8.3	2.0	1.0	23.0	11.7	22.0
54	9.1	1.4	8.4	1.4	-2.8	17.5	11.2	20.3
55	9.3	0.7	5.4	1.7	7.4	24.5	7.8	17.1
56	10.3	1.7	4.9	2.0	5.1	24.0	8.6	18.9
57	8.3	2.4	4.9	4.5	9.2	29.3	11.8	20.1
58	9.3	2.5	4.7	5.6	8.3	30.4	12.8	22.1
59	9.9	1.8	4.0	4.8	13.7	34.2	10.6	20.5
60	11.2	1.2	5.3	4.5	12.2	34.4	11.0	22.2
61	11.5	0.8	7.6	1.3	8.1	29.3	9.7	21.2
62	11.9	1.0	6.4	1.7	8.9	29.9	9.1	21.0

1. At current market prices

2. Cols. (2) + (3) + (4)

Source:

Table 3

Selected Savings Data as a % of GNP 1967-79

Year	(1) Personal Savings $ mn	(2) (1) as a % of GNP	(3) Local Corporate Savings $ mn	(4) Gov't. Current Surplus $ mn	(5) (4) as a % of GNP
1967	4.3	0.3	- 4.9	23.5	1.7
68	44.1	2.9	4.3	48.6	3.2
69	64.4	4.2	- 12.3	68.5	4.5
70	19.1	1.2	0.3	53.7	3.4
71	143.9	7.8	- 6.1	14.2	0.8
72	-25.0	-1.2	- 59.5	4.7	0.2
73	209.2	8.2	-124.8	46.0	1.8
74	249.4	6.8	- 13.4	628.0	17.1
75	257.7	5.0	- 78.5	940.0	18.4
76	311.0	5.1	-167.7	1,172.0	19.4
77	n.a.	n.a.	n.a.	1,623.0	22.2
78	nn.a.	n.a.	n.a.	1,308.0	15.4
79	n.a.	n.a.	n.a.	1,316.0[e]	13.5

e. estimate

Source: CSO, Flow of Funds for Trinidad and Tobago 1966-74, and 1967-76; Central Bank, Annual Reports, Various Issues

As indicated earlier, since aggregate savings data for recent years are not available, we have had to make some estimates based on the residual approach. We experimented with three (3) concepts: (1) Gross Domestic Savings (GDS) which we defined as Gross Domestic Product minus government and private consumption expenditure; (2) Gross National Savings (GNS_1) which was equal to GNP minus the sum of net investment income and net transfer payments in the balance of payments account; and (3) a second estimate of Gross National Saving (GNS_2) which we defined as Gross Capital Formation minus net movements in the capital account (non-monetary sector) of the balance of payments.

The ratios of each of these concepts to GNP are shown in columns (3), (4) and (5) of Table 4. Column (2) shows the proportion of gross domestic capital formation (GDCF) to GNP. These latter ratios have fluctuated between 16% and 35% over the 1952-79 period. Since 1970 the figures have consistently exceeded 20%. Capital formation, of course, is financed both by domestic savings and foreign resources. The 'gross' indicates that provision for capital replacement (depreciation) are included in the figures. Foreign savings includes not only new inflows from abroad, but the re-investment of profits by foreign-owned enterprises. As defined, all three concepts are expected to give us different ratios. Gross Domestic Savings (GDS) includes both national and foreign savings. Gross National Savings (GNS_1) by taking account of investment income outflows tries to capture the net effect of foreign inflows. GNS_2 uses a different method to arrive at national savings. It is interesting to note that our GNS_1 ratios relating to the 1952-62 period are almost identical to the ratios shown in column (8) of Table 2, which indicate that this approach may have provided the overall framework in deriving the total savings of the economy in the period.

Table 4

Gross Domestic Capital Formation (GDCF) and Three Concepts of Saving as a % of GNP (at market prices)

(1) Year	(2) GDCF As a % of GNP	(3) Gross Domestic Savings as a % of GNP	(4) Gross National Savings (GNS_1) as a % of GNP	(5) GNS_2 as as a % of GNP
1952	27.6	25.9	19.6	17.4
53	22.9	30.6	21.8	15.6
54	22.5	27.1	20.3	7.7
55	24.5	24.5	17.2	17.1
56	24.1	32.1	18.5	14.8
57	29.4	38.7	19.7	12.2
58	30.6	35.9	22.8	20.2
59	34.2	36.8	22.2	19.2
60	34.5	33.2	21.6	26.1
61	28.8	34.3	20.1	22.7
62	31.4	33.4	20.5	23.1
63	26.3	27.4	15.9	13.0
64	25.6	27.9	16.8	18.8
65	30.5	23.1	16.0	18.2
66	23.6	25.2	17.3	19.4
67	16.8	15.1	6.0	13.4
68	17.5	18.6	10.0	13.3
69	17.7	12.7	3.9	9.1
70	26.4	16.7	12.7	16.0
71	34.6	20.0	16.4	21.1
72	31.2	15.5	8.7	21.4
73	24.5	20.9	13.5	19.7
74	23.3	35.3	18.7	19.4
75	22.6	34.9	22.5	15.6
76	26.7	35.3	22.5	25.2
77	28.0	33.9	18.5	19.3
78	31.9	35.2	24.4	23.7
79	31.1	45.5	37.5	21.9

1. GDCF - Gross Domestic Capital Formation

Source: Computed from publications of the Central Statistical Office, the Central Bank and the International Monetary Fund

3. The Determinants of Saving

The best known model concerning the determinants of current savings is based on the current income hypothesis, which states that current saving is a linear function of current income. This can be written as:

$$S = a+by \qquad \text{Eq. (3)}$$

where 'S' is saving 'y' is current income, and 'a' and b are parameters or constants. In this equation 'b' is the marginal propensity to save and is assumed to remain the same irrespective of the level of income.[20] A number of variations of course can be made to this simple specification outlined above. For instance, other independent variables can be added. Time can be introduced as an indication of the historical shift in the relation between income and saving. Past income can be used as an additional variable perhaps in the form of income of the preceding year or the ratio of the previous year's income to the current year's. Current income itself can take a number of forms. It can be used in an absolute sense or as the ratio of saving to income; as an aggregate or per head of the population or spending unit. As with most other variables it may be convenient to use the logarithm form of income. Any of these transformation of course may be based on real rather than current values.[21]

In the section that follow we apply the above model to the Trinidad and Tobago data. Since our estimates of savings are not strictly comparable with the published data for the 1952-62 period, we have tried to keep the computations based on published data and our own estimates separately and this is indicated where necessary by the period on which the particular equations are based.

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[20] ... of determinants to the 1952-62 period.

coefficient of determination, R^2. GNP explains 82% of the variation in NNS. Equation (5) is based on the same data expressed in per capita terms. Here we see per capita income also provides a good explanation of changes in per capita savings. The R^2, however, is smaller in this latter formulation. Equation (6) shows the results when the per capita data are expressed in real terms. The standard error of per capita income remains significant, but the value of the coefficient of determination falls considerably. Real per capita income explains only 56% of the movements in real per capita savings as compared to 70% in Equation (5) where the nominal figures were used. Equations (7) and (8) show the results of the regressions when we use the logarithm of the savings and income variables both in aggregate and per capita forms. As before, the coefficient of both GNP and PGNP are highly significant. The R^2 remains high. It is worth pointing out that the coefficient of determination tends to be lower in the functions where we have used the variables (both dependent and independent) in per capita form.

NNS = Net National Savings

GNP = Gosss National Product

PGNP = Per Capita GNP

PNS = Per Capita Net National Savings
RNP = Real Per Capita GNP
RNNS = Real Per Capita Net National Savings

Eq. (4) NNS = 5.18 + 0.096 GNP (1952-62)
(9.08) (0.14)

D.W. = 1.30

F_2 =46.96
$\bar{R}^2$ = 0.82

Eq. (5) PNS = 6.56 + 0.096 PGNP (1952-62)
(15.76) (0.02)

D.W. = 1.33
F = 24.44
$\bar{R}^2$ = 0.70

Eq. (6) RNNS = 6.89 + 0.94 RNP (1952-62)
(18.85) (0.03)

D.W. = 1.34
F = 11.48
$\bar{R}^2$ = 0.56

Eq. (7) log NNS = -0.83 + 0.95 log GNP (1952-62)
(0.38) (0.14)

D.W. = 1.38
F = 46.64
$\bar{R}^2$ = 0.82

Eq. (8) log NNS = -0.80 + 0.94 log PGNP (1952-62)
(0.56) (0.12)

D.W. = 1.39
F = 23.62
$\bar{R}^2$ = 0.69

The savings estimates from our three definitions were each regressed on GNP for three periods, 1952-62, 1963-79 and 1952-79. The results are shown in Equations (9) to (17). The R^2 in all the equations is very high indicating that GNP explains a significant part of the variation in all the different estimates of savings in the periods we have considered. The standard errors show that the GNP coefficients are statistically significant in all of the estimated equations. The negative intercept in all the equations indicate a marginal propensity to save that is higher than the average.

Equation No.	Period	Dependent Variable	Intercept	Coefficient of Independent Variable	D.W. Statistic	$\bar{R}^2$	F Statistic
Eq. (9)	1952-62	GDS	-38.65 (19.01)	+ 0.39 GNP (0.03)	1.32	0.95	177.84
Eq. (10)	1963-79	GDS	-368.35 (86.97)	+ 0.43 GNP (0.19)	1.29	0.97	470.61
Eq. (11)	1952-79	GDS	-177.76 (55.32)	+ 0.40 GNP (0.02)	0.88	0.96	167.64
Eq. (12)	1952-62	GNS_1	- 8.41 (9.20)	+ 0.22 GNP (0.01)	1.21	0.96	238.76
Eq. (13)	1963-79	GNS_1	-337.92 (122.16)	+ 0.31 GNP (0.03)	1.18	0.89	127.61
Eq. (14)	1952-79	GNS_1	-169.01 (68.56)	+ 0.29 GNP (0.02)	1.00	0.89	208.05
Eq. (15)	1952-62	GNS_2	- 72.58 (20.85)	+ 0.31 (0.03)	1.95	0.91	92.33
Eq. (16)	1963-79	GNS_2	-101.24 (46.03)	+ 0.23 GNP (0.01)	2.99	0.96	480.18
Eq. (17)	1952-79	GNS_2	- 53.83 (25.13)	+ 0.22 GNP (0.007)	2.63	0.97	928.27

In contemplating additional factors which might exert some influence on the level of savings, two which readily come to mind are changes in the level of prices and population growth. Rather than introduce these factors as explicit variables, we felt it more convenient to use the per capita variants i.e. we simply divided the aggregate data by the total population, and for the real values we deflated the results by the consumer price index. Equations (18) and (20) show the relationship between Per Capita Gross Domestic Savings (PGDS) and Per Capita GNP. Equations (21) and (23) are based on the deflated data. There are two points to note about this latter set of equations. The first, to which attention was drawn earlier, is that the R^2 tends to be lower than those associated with the equations based on nominal figures; and the second, is that marginal propensity to save (mps) is higher in the equations in which real variables were used than in those computed with current values. In Equations (24) and (26) we have as the dependent variable the ratio of Gross Domestic Savings (GDS) to GNP and per capita GNP as the explanatory variable. Our estimates show that in the period 1963-79 per capita income explained 65% of the variation in the saving ratio, as compared to 34% in the 1952-62 period. When we take the entire period (i.e. 1952-79). the R^2 not only falls to 15% but the value of the D.W. Statistic indicates the incidence of auto-correlation is higher than is the case in Equation (24) and (25). It should be noted that in the equations where we have used the savings ratio as the dependent variable the intercept tends to be positive.

Equation No.	Period	Dependent Variable	Intercept	Independent Variable	D.W. Statistics	$\bar{R}^2$	F Statistic
			NOMINAL				
Eq. (18)	1952-62	PGDS	- 77.60 (33.62)	+ 0.43 PGNP (0.04)	1.37	0.91	104.17
Eq. (19)	1963-79	PGDS	-364.46 (80.75)	+ 0.43 PGNP (0.02)	1.28	0.97	448.54
Eq. (20)	1952-79	PGDS	-183.27 (52.68)	+ 0.40PGNP (0.02)	0.85	0.95	562.84
			DEFLATED				
Eq. (21)	1952-62	PGDS	-101.65 (41.17)	+ 0.48 PGNP (0.06)	1.40	0.86	61.60
Eq. (22)	1963-79	PGDS	-323.88 (60.00)	+ 0.55 (0.04)	0.96	0.89	135.27
Eq. (23)	1952-79	PGDS	-113.95 (43.96)	+ 0.41 PGNP (0.04)	0.46	0.78	99.74
			THE SAVINGS RATIO (USING GDS) ON PGNP				
Eq. (24)	1952-62	$\frac{GDS}{GNP}$	+20.28 (4.81)	+ 0.015 PGNP 0.006)	1.37	0.34	6.32
Eq. (25)	1963-79	$\frac{GDS}{GNP}$	+16.41 (2.20)	+ 0.003 PGNP (0.000)	1.02	0.65	30.55
Eq. (26)	1952-79	$\frac{GDS}{GNP}$	+24.88 (2.04)	+ 0.002 PGNP (0.0006)	0.47	0.15	6.009

Equation No.	Pericd	Dependent Variable	Intercept	Independent Variable	D.W. Statistic	$\bar{R}^2$	F Statistic
			N O MIN A L				
Eq. (27)	1952-62	$PGNS_1$	-16.53 (16.05)	+ 0.22 PGNP (0.02)	1.23	0.92	128.76
Eq. (28)	1963-79	$PGNS_1$	-327.76 (112.41)	+ 0.32 PGNP (0.02)	1.17	0.88	122.78
Eq. (29)	1952-79	$PGNS_1$	-171.71 (63.96	+ 0.29 PGNP (0.02)	0.99	0.88	196.51
			D E F L A T E D				
Eq. (30)	1952-62	$PGNS_1$	- 23.99 (19.32)	+ 0.24 PGNP (0.03)	1.22	0.87	70.58
Eq. (31)	1963-79	$PGNS_1$	-250.81 (66.009)	+ 0.39 PGNP (0.05)	1.10	0.77	55.93
Eq. (32)	1952-79	$PGNS_1$	- 94.18 (39.43)	+ 0.28 PGNP (0.04)	0.70	0.68	59.28
			THE SAVINGS RATIO (USING GNS_1) ON PGNP				
Eq. (33)	1952-62	$\frac{GNS_1}{GNP}$	+18.21 (2.14)	+ 0.003 PGNP (0.003)	1.31	0.00	1.09
Eq. (34)	1963-79	$\frac{GNS_1}{GNP}$	+ 8.73 (1.95)	+ 0.002 PGNP (0.50)	1.47	0.60	25.44
Eq. (35)	1952-79	$\frac{GNS_1}{GNP}$	+ 15.0 (1.53)	+ 0.14 PGNP (0.0005)	0.73	0.20	7.98

Savings Functions of the Household Sector

Total savings as indicated earlier, has three (3) components: (a) household savings; (b) government savings and (c) corporate savings. Personal savings data available for the period 1952-62 include savings of incorporated business enterprises. Since the factors or motives influencing savings in each of these sectors tend to be different, we thought it a useful exercise to examine (as far as the data would allow) possible functions at a more disaggregated level.

Equation (36) shows the result when personal savings (PS) is regressed on personal disposable income (PDI). The data relate to the 1952-62 period and are in current values. Personal disposable income explains 62% of the variation in personal savings. In Equation (37) the figures used to calculate Equation (36) are deflated by the total population making the dependent variable per capita personal savings (PPS) and the independent per capita durable income (PCD). Though the income coefficient (the marginal propensity to save) falls slightly, it remains significant. The sign also remains positive as before. The R^2, however, drops from 62% to 38%. When the per capita data are deflated by the price index further changes in the parameters take place as can be seen in Equation (38). In this equation both the mps and the R^2 fall further.

In Equation (39) we have as the dependent variable the ratio of personal savings to personal disposable income. The explanatory variable is per capita GNP. This equation provides a very poor fit to the data. Not only is the R^2 low, but the income coefficient is not significant. In addition the negative sign of the explanatory variable does not seem to accord with a priori reasoning. When per capita GNP is replaced by per capita disposable income (PCD) in Equation (40), the R^2 improves slightly but remains low. The standard error changes sufficiently to make the PCD coefficient significant, but the sign remains negative.

PS = Personal Savings

PPS = Per Capita Personal Savings

PDI = Personal Disposable Income

RPS = Real Per Capita Personal Savings
PCD = Per Capita Disposable Income
RPDI = Real Per Capita Personal Disposable Income

Eq. (36) $PS = 1.24 + 0.08\ PDI$ (8.87) (0.02) (1952-62)

D.W. = 1.0481

$\bar{F}$ = 17.5259

R^2 = 0.62

Eq. (37) $PPS = 6.87 + 0.07\ PCD$ (15.30) (0.03) (1952-62)

D.W. = 1.0307

$\bar{F}$ = 7.1005

R^2 = 0.38

Eq. (38) $RPS = 10.64 + 0.06\ RPDI$ (18.60) (0.04) (1952-62

D.W. = 1.01

R^2 = 0.13

F = 2.54

Eq. (39) $\frac{PS}{PDI} = 14.79 - 0.009\ PGNP$ (3.11) (0.387) (1952-62)

D.W. = 2.5930

$\bar{F}$ = 5.7468

R^2 = 0.32

Eq. (40) $\frac{PS}{PDI} = 15.29 - 0.014\ PCD$ (3.13) (0.005) (1952-62)

D.W. = 2.5439

F = 6.4564

R^2 = 0.36

Eq. (41) $PS = 7.61 + 0.06\ PI_3 + 0.46 TI_3$ (10.76) (0.02) (0.43) (1951-62)

D.W. = 1.26

$\bar{F}$ = 5.12

R^2 = 0.52

It was pointed out earlier that the empirical work done on some of the developed countries indicate that there is a fair amount of stability in the average propensity to consume, even over fairly long periods. Milton Friedman, as pointed earlier, tried to explain this phenomenon by arguing that people do not adjust their consumption to current income but to long-run earnings - a notion he sought to operationalise through the concept of permanent income. Actual income of individuals can said to be comprised of permanent income and transitory income - the latter being a random element which has no immediate effect on consumption. These concepts are not easy to measure. In practice a number of devices are employed to arrive at variables approximating these two income concepts. One of the simplest, from a computational point of view, is the use of the moving average to calculate permanent income. Transitory income is defined as the difference between actual income and permanent income.

Equation (41) gives the results when personal savings (PS) is regressed on permanent income (PI_3) and transitory income (TI). Permanent income is defined here as a 3-year moving average of personal disposable income, while transitory income is taken to be the difference between PI and actual income. The data used refer to the period 1951-62 (12 years), but the use of a 3-year moving average eliminates two years, leaving us with ten data points. Both the PI and TI coefficients have positive signs. From the size of the TI coefficient it would appear that the marginal propensity to save out of transitory income is higher than that for permanent income, but one has to view such a conclusion against the high standard error of the TI coefficient. Equation (42) shows the results when the regression is done on the basis of per capita data. The sign of the coefficients remain positive but the R^2 drops considerably. The standard error of the TI coefficient in this equation is higher than the coefficient itself. In order to explore further the impact of permanent and transitory income on savings behaviour, we used a 2-year moving average of personal disposable income as a surrogate variable for permanent income. Transitory income of course [illegible]

Eq. (42) $PCS = \underset{(18.66)}{16.48} + \underset{(0.03)}{0.05}\ PPI + \underset{(0.42)}{0.32}\ PTI$ (1951-62)

D.W. = 1.23

F = 1.90

$\bar{R}^2$ = 0.24

Eq. (43) $PS = \underset{(9.10)}{4.53} + \underset{(0.02)}{0.09}\ PI_2 - \underset{(0.38)}{0.37}\ TI_2$ (1951-62)

D.W. = 0.84

F = 0.67

$\bar{R}^2$ = 9.874

The results shown in Equation (43) depicts a different picture from that reflected in Equations (41) and (42). The R^2 is higher, but the TI variable assumes a negative sign. As in the other equations, the coefficient associated with the transitory income variable is not significant. In conclusion it is fair to say that the above findings do not enable us to make any clear statements about the effect of permanent and transitory income on personal savings. The time span considered was undoubtedly too short, and the definitions of the two concepts of income used may themselves have been inadequate.

Some observers contend that the functional distribution of income has an important effect on the level of savings taking place in an economy. More specifically it is argued that recipients of non-wage income have a higher rpopensity to save than recipients of labour income. The hypothesis was tested with the data we have for the 1952-62 period. The specification used in Equation (44) and (46) is similar to that of Williamson.[22] The dependent variable personal savings (PS) is regressed on 'Direct Taxes on Households less Transfer' (DT), 'Wages and Salaries Income' (WS), and 'Non Labour Income' (NLI). An examination of Equations (44) and (45) brings out a number of points. The first is that the $\bar{R}^2$ in the aggregate equation is higher than that of the per capita equation. The coefficients of the DT variable are not only not

expectation. It is difficult to conceive of a situation where an increase in taxes would lead to an increase in personal savings. In both equations (44) and (45) the wage coefficient is higher than that of the non-wage income. In addition the sign of the latter variable is negative while that of the former is positive. The coefficients of the wage and non-wage income in both equations are significant. In sum, it is fair to say that the data we have used here does not support the hypothesis that a distribution of income in favour of the non-wage sector is a necessary pre-requisite for increasing personal savings.

In equation (46), the independent variables are current income (PSI), the consumer price index (CPI). The negative sign before the CPI coefficient would seem to indicate an inverse relationship between price increases and personal savings. Given the high standard error as pointed with this coefficient, however, one has to be careful in drawing conclusions. The coefficient of income in the previous year PSI_{t-1} is almost as high as that of income in the present period, but its standard error indicates that it is not significant.

PS = Personal Savings
PSI = Personal Income
DI = Direct Taxes on Households less Transfers
WS = Wages and Salaries
NLI = Non-Labour Income
CPI = Consumer Price Index

Aggregate

Eq. (44) $PS = -23.85 + 1.60\ DT + 0.68\ WS - 0.63\ NLI$ (1952-62)
(12.23) (1.12) (0.21) (0.23)

D.W. = 1.19
$\bar{R}^2$ = 0.80
F = 14.65

Per Capita

Eq. (45) $PS = -48.40 + 1.19\ DT + 0.73\ WS - 0.62\ NLI$ (1952-62)
(23.28) (0.98) (0.23) (0.24)

D.W. = 1.04

$\bar{R}^2$ = 0.64

F = 7.18

Aggregate

Eq. (46) $PS = 2.42 + 0.047\ PSI_t - 0.94\ CPI + 0.46\ PSI_{t-1}$ (1953-62
(15.67) (0.03) (2.09) (0.33)

D.W. = 1.23

$\bar{R}^2$ = 0.61

F = 5.35

The effect of demographic factors on the level of savings has long been a subject of speculation. A commonly held view is that a high birth rate is likely to have a negative impact on the savings ratio. This conclusion is based on the reasoning that a high birth rate produces populations with a high dependency ratio, i.e. populations with a high concentration in the younger age groups. "Children constitute a heavy charge for expenditure which, in the standard national income accounting framework, is put under the heading of consumption. Because they contribute to consumption but not to production, a high ratio of dependents to the working age population might be expected to impose a constraint on a society's potential for saving".[23] People in the very high age groups are also often seen as putting a strain on society's resources without making a concomitant contribution to production.

In order to test this hypothesis on the basis of data for Trinidad, we tried a number of specifications similar to those of Leff. In equation (47) the dependent variable is the ratio of net national savings to GNP $\left(\frac{NNS}{GNP}\right)$, and the independent variables are per capita GNP (PGNP), the rate of growth of per capita GNP (RGI), the proportion of population 14 years and under (P_1) and the proportion of population 65 years and over (P_2). The proportion of the population 14 years and under over the last three decades has averaged around 40% as compared to 3 to 4% for the population 65 years and over. The data used were all in logarithm form. Taken together the four independent variables

explain 20% of the variation in the aggregate savings ratio. The P_1 and P_2

Eq. (47) $\log \frac{NNS}{GNP} = \underset{(10.25)}{16.47} + \underset{(0.73)}{0.97} \log PGNP + \underset{(0.10)}{0.06} \log RGI - \underset{(7.64)}{11.97} \log P_1 - \underset{(0.35)}{0.77} \log P_2$ (1952-62

D.W. = 1.64

$\bar{R}^2$ = 0.20

F = 1.63

coefficients have negative signs, but the standard error associated with the former variable indicates that it is not statistically significant.

In equation (48), the dependent variable $\left(\frac{PS}{PDI}\right)$ is the ratio of personal savings to personal disposable income. The independent variables are the same as in equation (47). In this equation the R^2 is higher but the coefficient of P_2 has a positive sign. If we combine P_1 and P_2 into one variable

Eq. (48) $\log \frac{PS}{PDI} = \underset{(13.23)}{20.70} + \underset{(0.94)}{0.75} \log PGNP - \underset{(0.13)}{0.15} RGI - \underset{(9.87)}{12.79} \log P_1$ (1952-62)

$+ \underset{(\quad)}{0.79} \log P_2$

D.W. = 1.62

$\bar{R}^2$ = 0.50

F = 3.43

(P_3), the sign of the latter's coefficient is negative, but the R^2 falls to 36% - see equation (49)

Eq. (49) $\log \frac{PS}{PDI} = \underset{(14.62)}{25.79} + \underset{(1.05)}{0.99} \log PGNP - \underset{(0.15)}{0.19} \log RGI - \underset{(10.82)}{16.98} \log P_3$ (1952-62)

D.W. = 1.44

$\bar{R}^2$ = 0.36

F = 2.81

In equations (50) and (51), the dependent variable is per capita personal savings. The R^2 associated with equation (50) is over 60%, but the coefficient of P_2 has a positive sign. Equation (51) uses the combined variable,

Eq. (50) $\log PPS = \underset{(13.32)}{18.24} + \underset{(0.94)}{1.68} \log PGNP - \underset{(0.13)}{0.16} \log RGI - \underset{(9.94)}{12.42} \log P_1 + \underset{(0.46)}{0.81} \log P_2$ (1952-62

$D.W. = 1.57$

$\bar{R}^2 = 0.62$

$F = 4.97$

Eq. (51) $\log PPS = \underset{(15.01)}{23.68} + \underset{(1.08)}{1.93} \log PGNP - \underset{(0.15)}{0.21} \log RGI - \underset{(11.11)}{16.90} \text{ Log } P_3$ (1952-62)

$D.W. = 1.52$

$\bar{R}^2 = 0.49$

$F = 4.17$

P_3. The sign of P_3 is negative but the standard error of its coefficient is high. The R^2 falls to 49%. Equation (52) shows the relationship between the national savings ratio and per capita GNP (PGNP), the proportion of the population 14 years and under (P_2) and the proportion of the population 65 years and over in a more recent period (1963-79). Together

Eq. (52) $\log \frac{GNS_I}{GNP} = \underset{(1.00)}{3.31} + \underset{(0.46)}{0.83} \log PGNP - \underset{(4.99)}{1.12} \log P_1 - \underset{(6.58)}{5.43} \log P_2$ (1963-79)

$\bar{R}^2 = 0.98$

$D.W. = 1.9$

Eq. (53) $\log \frac{GNS_I}{GNP} = \underset{(0.09)}{3.83} + \underset{(0.51)}{1.10} \log PGNP + \underset{(0.26)}{3.17} \log RGI - \underset{(0.05)}{0.008} \log P_I - \underset{(0.08)}{11.52} \log P_2$ (1963-79)

$\bar{R}^2 = 0.99$

$D.W. = 1.97$

these three variables explained 98% of the variation in the savings ratio during the period. Both the coefficients of P_I and P_2 have negative signs, but in both cases the standard errors exceed the values of the coefficients. In euqation (53) we include a fourth independent variable, the rate of growth of per capita income (RGI). In this specification the R^2 increases 99% and the standard errors of the coefficients of both P_I and P_2 fall considerably.

Factors Affecting the Growth of Total Bank Deposits

As indicated earlier, we do not have data on total household savings and household disposable income for recent years. Some components of personal savings are however available, and it is possible to gain some insights by examining these in relation to certain variables which are commonly thought to influence their behaviour.

A glance at Table 5 shows that savings in financial institutions account for a substantial part of total household financial assets. As a savings-medium commercial banks are not only the most important group of financial institutions, but their importance has been growing in recent years. In 1966 savings held by the commercial banks amounted to 53.1% of total personal deposits in financial institutions. In 1968 the comparable figure was 50.3%, but by 1976 it had increased to over 80%. In order to get some idea of the factors bearing on this rapid expansion of bank deposit liabilities, we regressed total bank deposits (TBD) on variables such as per capita GNP (PGNP), the nomical interest rate (INT), the real interest rate (RI) and the total number of bank offices (BO), There are other factors (such as advertising, the spread of the banking habit and the growth of confidence in the banking system, innovative savings schemes, etc.) which may have played a role in attracting people towards financial institutions, but which are not easily quantifiable, and therefore we have not been able to treat them explicitly in the regressions.

Table 5

Financial Assets Portfolio of Households and Un-incorporated Enterprises, 1966 and 1976

Assets	1966		1976	
	Value $mn	%	Value $mn	%
Currency	29.7	5.7	158.2	5.3
Savings[1] in Financial Instits.	375.6	72.6	1,409.2	47.7
Other Investments in Financial Inst[2]	11.7	2.3	1,100.7	37.3
Shares in Corporate Sector	79.1	15.3	128.4	4.3
Trade Debtors in Corporate Sector	8.7	1.7	98.4	3.3
Other Balances in Corporate Sector	12.6	2.4	63.4	2.1
Total	517.4	100.0	2,458.3	100.0

. Demand, savings and time deposits

2. Includes actuarial reserves of insurance companies and pension funds

Source: CSO, Flow of Funds for Trinidad and Tobago 1966-1974 and 1967-1976

Equation (54) shows that in the 1968-79 period per capita income explained 96% of the variation in total bank deposits. The D.W. statistic, however, suggests a strong case of serial correlation in the error term. When we use nominal interest rates[25] as the independent variable the fit becomes very poor. The R^2 drops to 35%, and although the sign of the interest coefficient is positive, the coefficient itself is not significant. Equation (55) suggests that factors other than nominal interest rates by themselves have been the more important influence on the growth of bank deposits. It is often suggested that to the extent that people do not suffer from the money illusion, the more important explanatory variable should be the real interest rate.[26] This latter variable is not easy to measure in practice for two main reasons. Firstly, on Fry [27] has pointed out, even where nominal rates are available, these tend to be poor proxies for nominal yields actually facing savers and potential savers. And secondly, expected inflation is not directly observable. In our case assuming that the inflation rate in the previous period provided a good guide for the expected inflation rate in the present period, we derived the real interest rate by substracting the former from the current nominal interest rate. Generally the real interest rate for the period under consideration (i.e. 1968-79) was negative. It is not surprising therefore, that the coefficient of the RI variable is negative. Judging from the S.E. of the RI coefficient and the R^2, the fit is extremely poor. It may be tempting to interpret the results shown in equation (56) as reflecting the presence of the money illusion effect. It is possible, however, that even while people may be aware that the real return on their savings is negative, there may be stronger personal factors in operation, such as the need to save for a 'rainy day' or to provide for the education of one's children, or to purchase a house or some other long needed item. The demonstration of the saving habit is often important in securing further credit, and this may also be an incentive to save.

TBD = Total Bank Deposits (average of the end of quarter figures)

PGNP = Per Capita GNP

RI = Real Rate of Interest

RPNG = Real Per Capita Income

TDI = Total Bank Deposits held by Individuals

INT = Nominal Interest Rates (average of the end of quarter weighted rates)

	Period	Dependent Variable	Intercept	Independent Variable	D.W. Statistic	$\bar{R}^2$	
Eq. (54)	1968-79	TBD	-275.29 (107.85)	+0.39 PGNP (0.02)	0.71	0.96	
Eq. (55)	1968-79	TBD	895.86 (1896.2)	+73.3 INT (388.5)	0.12	0.00	
Eq. (56)	1968-79	TBD	955.2 (340.8)	-63.15 (RI) (42.32)	0.33	3.10	
Eq. (57)	1968-79	RD	+54.58 (87.49(	-17.68 RI (10.86)	0.34	0.13	
Eq. (58)	1968-79	RD	-293.45 (105.82)	+0.44RPNG (0.05)	0.75	0.88	
Eq. (59)	1968-79	TBD	-207.7 (1147.6)	102.3INT+0.41PGNP-7.26BO (77.3) (0.05) (15.5)	0.36	0.96	
Eq. (60)	1968-79	TBD	-7937.8 (1842.1	+104.0 BO (20.77)	0.36	0.68	
Eq. (61)	1968-79	TBD	-7824.0 (2148.9)	-3.67RI+102.5BO (30.04) (24.9)	0.39	0.65	
Eq. (62)	1968-79	RD	-827.3 (367.13)	+9.89RI+0.44RPNG+6.73B) (4.54) (0.41) (6.16)	0.58	0.93	
Eq. (63)	1968-79	TDI	609.65 (1158.81)	+44.99INT (237.41)	0.11	0.79	
Eq. (64)	1968-79	TDI	643.25 (207.34)	-39.36 RI (25.75)	0.36	0.84	
Eq. (65)	1968-79	TDI	-4967.92 (1076.21)	+65.72 BO (12.16)	0.41	0.95	
Eq. (66)	1968-79	TDI	-108.82 (58.25)	+0.24 PGNP (0.01)	0.75	0.98	
Eq. (67)	1968-79	TDI	-368.02 (638.83	+3.35BO + 0.23 PGNP (8.21)	0.74	0.98	
Eq. (68)	1968-79	TDI	-246.33 (376.42)	+14.84RI+1.55BO+0.26PGNP (3.49) (4.84) (0.02)	2.0	0.99	

Equation (57) shows that even when real deposits are used as the dependent variable, the fit does not improve significantly. Real deposits and real per capita income, however, have a strong association (equation 58). Equation (59) shows the results when total bank deposits is regressed on nominal interest rates (INT), per capita GNP (PGNP) and the total number of bank offices (BO). The R^2 is high, over 95%, but only the per capita income coefficient is significant. The income and interest rate coefficients have positive signs, but that of bank offices is negative. The value of the D.W. coefficient suggests serial correlation in the error term. When total bank deposits is regressed on the bank offices variable alone the expected sign appears. (See equation 60). When the real interest rate is added as a second variable (equation 61) the BO coefficient remains significant with a positive sign. It should be noted that the addition of the RI variable does not increase the value of the R^2. Equation (62) shows the regression results when real deposits is regressed on the real interest rate (RI), real per capita income (RPNG) and total bank offices (BO). All three independent variables have positive signs, but the coefficient of the BO variable is not significant. The R^2 is 93%, but here again the value of the D.W. statistic suggests serial correlation in the error term.

In equations (54) to (62), total bank deposits (TID) was used as the dependent variable. In equations (63) to (68) this variable was replaced by total bank deposits held by individual (TDI)[28]. The picture depicted by this latter set of equations is virtually the same as that depicted by the previous set of equations. Equation (63) shows that though the R^2 is high and the nominal interest rate coefficient has a positive sign, its standard error is extremely high. The coefficient of the real interest rate variable has a negative sign, but the coefficient itself is not significant. Equations (65) and (66) show that while the total number of bank offices and per capita

income explains a fair amount of the variations in savings, the income variable is the more important. Equation (68) shows that the real interest rate, the total number of bank offices and per capita GNP explain almost all the variation in nominal bank deposits held by individuals. The problem of serial correlation in the error term so readily apparent in the other equations is absent here.

The above analysis raises a considerable degree of uncertainty about relationship between the rate of interest and savings in the Trinidad economy in recent years. In studies done on parts of the world the relationship is not as certain and incontrovertisble as is often made out to be. For example, Shaw and McKinnon[29] claim that the high interest rates prevailing in South Korea and Taiwan were largely responsible for the high savings rates and financial accumulations taking place in these countries during the 1960's. Hagen[30] contends that in the light of all the evidence available it is possible that the rate of growth of income may have been the crucial factor. In oconsidering interest rates manipulation as an active policy instrument, there is clearly a broad range of considerations that has to be taken into account. One is the sensitivity of financial accumulation to interest rates changes themselves. Is there a link at all? If there is, what is the nature of the link? On the other side interest rates represent the cost of funds to borrowers, and to the extent that they influence the level of investment there is a link with the growth rate of the economy. It is not always easy to reconcile the objective of giving savers a fair return on their deposits with that of keeping lending rates within acceptable levels. Very often the former is sacrificed, but not always to the benefit of the latter. Savers, particularly in a situation where there is a lack of investment sophistication and the absence of a wide range of investment outlets, generally tend to be in a weak position. In a buoyant money and capital market low savings rates do not necessarily result in low lending rates. In the absence of official

intervention, financial intermediaries determine the spread between the two sets of rates, and to the extent that this spread is significantly determined by profit criteria rather than by the needs of the economy, financial intermediation loses an essential part of its value in promoting the growth process.

Government Saving

From the data used earlier, it can be observed that government savings vary widely from year to year. Since 1974, however, there has been a significant increase in the annual current surplus as a result of developments in the oil sector. The figure increased from $46.0 mn (1.8% of GNP) in 1973, to $628 mn (17.1% of GNP) in 1974, and to an estimated $1,316.0 mn (13.5% of GNP) in 1979.

In an effort to identify the main determinants of government saving in the post-war period, we examined the impact of several different variables In Equations (69) to (72), the explanatory variable is aggregate GNP. It appears from Equation (69) that GNP was not a significant variable in explaining variations in government saving (GS) in the period between 1952 and 1962. Equations (70) and (71) show, however, that when the 1973-79 period is taken into account the GNP coefficient becomes significant, and the R^2 increases to 90%. When the regression is carried out on the basis of per capita data, one finds a similar situation. In Equations (77) to (84) current reveune (CR) is substituted for GNP as the regressor. In the period 1952-72 this variable 'explained' only 7% of the variation in government saving. Again when the number of data points are extended to take account of the tremendous growth in government income in the post-1973 period the fit (as can be seen in Equations (78) and (79) improves significantly. When the data are used in per capita terms, current revenue explained none of the variation in government savings between 1952-72, but over 90% in the longer period viz., 1952-79

	Period	Dependent Variable	Intercept	Independent Variable	$\bar{R}^2$	D.W. Statistic	F Statistic
Eq. (69)	1952-62	GS	-0.10 (11.17)	+0.03 GNP (0.02)	0.18	0.88	3.20
Eq. (70)	1963-79	GS	-231.66 (70.87)	+0.20 GNP (0.02)	0.90	1.05	146.6
Eq. (71)	1952-79	GS	-149.94 (38.93)	+ 0.18 GNP (0.01)	0.90	0.88	259.63
Eq. (72)	1952-72	GS	11.67 (8.52)	+ 0.01 GNP (0.01)	0.05	0.77	2.16
			Per Capita				
Eq. (73)	1952-62	GS	-5.70 (18.42)	+ 0.04 PGNP 0.02)	0.14	0.88	2.73
Eq. (74)	1963-79	GS	-243.93 (66.39)	+ 0.20 PGNP (0.02)	0.89	1.06	144.22
Eq. (75)	1952-79	GS	-172.34 (36.64)	+0.19 PGNP (0.01)	0.91	0.91	258.36
Eq. (76)	1952-72	GS	16.62 (11.41)	+0.008 PGNP (0.009)	0.00	0.76	0.67
Eq. (77)	1952-62	GS	-6.99 (11.55)	+0.24CR (0.10)	0.30	0.86	5.42
Eq. (78)	1963-79	GS	-66.64 (56.51)	+0.46CR (0.03)	0.91	0.92	171.08
Eq. (79)	1952-72	GS	-46.92 (30.12)	+0.45CR (0.02)	0.93	0.90	356.42
Eq. (80)	1952-72	GS	11.45 (7.99)	+.06CR (0.04)	0.07	0.76	2.61
			Per Capita				
Eq. (81)	1952-62	GS	-22.18 (19.28)	+0.34CR (0.14)	0.33	0.83	5.94
Eq. (82)	1963-79	GS	-73.49 (51.24)	+0.47CR (0.03)	0.91	0.91	172.66
Eq. (83)	1952-79	GS	-55.06 (27.40)	+0.46CR (0.02)	0.93	0.89	356.05
Eq. (84)	1952-72	GS	15.70 (10.50)	+0.049CR 0.05)	0.00	0.74	0.99

As a final exercise, we decided to regress government saving on government revenue from taxation, using both variables as a proportion of GNP. As can be seen in Equation (85), the tax/GNP variable $\left\{\frac{T}{GNP}\right\}$ was of little significance in the 1952-73 period. Even when we included per capita GNP (PGNP) as an additional explanatory variable the R^2 increased to only 5% (See Equation 87). Here again once we extend the data series to include the 1973-79 period there is a tendency for the standard errors relating to the coefficients of the explanatory variables to fall and the R^2 to increase. The impact of developments in the post-1973 period on a variety of statistics has been sifficiently powerful to exert a determinate influence on series covering the longer time span, and which, until 1973 may have been pointing in a different direction.

Eq. (85) $\frac{GS}{GNP} = -0.22 + 0.18\frac{T}{GNP}$ (1952-73)

(3.52) (0.24)

$\bar{R}^2 = 0.00$

D.W = 0.68

F = 0.57

Eq. (86) $\frac{GS}{GnP} = -8.24 + 0.73\frac{T}{GNP}$ (1952-79)

(1.17) (0.05)

$\bar{R}^2 = 0.86$

D.W. = 0.72

F = 169.7

Eq. (87) $\frac{GS}{GNP} = -0.86 - 0.001\ PGNP + 0.31\frac{T}{GNP}$ (1952-73)

(3.41) (0.001) (0.24)

$\bar{R}^2 = 0.05$

D.W. = 0.74

F = 1.62

Eq. (88) $\frac{GS}{GNP} = -11.44 - 0.001\ PGNP + 1.05\frac{T}{GNP}$ (1952-79)

(1.95) (0.0006) (0.16)

$\bar{R}^2 = 0.88$

D.W. = 0.81

F = 96.56

Corporate Savings

In any discussion on savings, some attnetion needs to be paid to the role of the corporate sector. The propensity to save (both on average and at the margin) of the various sectors are important to general policy formulation, and in particular to tax policy. The data we have are too limited in scope to permit us to explore in any meaningful way any of the major determinants of corporate savings.

4. Exports and Saving

One of the major assimptions underlying the "two-gap analysis" associated with the name of H.B. Chenery and others is that the ex-ante savings gap and the ex-ante foreign exchange gap are generated independently of each other.[31] This assumption has been severely criticised in the literature.

Maizels,[32] for instance, contends that variations in exports could produce corresponding effects on domestic savings. This could happen because (a) the propensity to save is higher in the export sector than elsewhere, or (b) because government savings rely heavily on taxes on foreign trade, or (c) because over time a sustained growth in exports could result in a rise in the marginal savings propensities in other sectors also. To test the hypothesis between exports and savings, Maizels fitted annual data for twelve countries to Equations (89) and (90). The data generally covered the period from the early 1950's to the early 1960's and were in constant price values. With two exceptions Equation (89) yielded a marginal propensity to save of 0.20 or more for the other countries. Using exports (X) and the remainder of gross domestic product (Q-X) as the independent variables there was an improvement in the goodness of fit for seven of the countries in the sample. In a later study based on a sample of twenty-eight (28) countries

Eq.(89) $S_t = a + bQ_t$

Eq.(90) $S_t = a + bX_t + c(Q_t - X_t)$

where

S = gross domestic savings

Q = gross domestic product

X = merchandise exports

(20 less developed and 8 more developed. Lee[33] also found a strong positive relationship between exports and savings, thus giving further support to the Maizel hypothesis.

In order to test the hypothesis with respect to Trinidad, Maizel's two equations were fitted to data covering the 1952-79 period. The respective time series on which equations (1) to (103) are based were deflated by the consumer price index in order to get real values. The three concepts of savings were used as dependent variables, and the time series were split

into two parts in order to isolate the impact of the oil revenue increases in the post--1873 period. The independent variables were gross domestic product at market prices (Y), exports of goods and services (X) and non-export (Y-X) GDP (Z). It can be noticed in equations (92) and (94) that the inclusion of exports as an explicit variable results in a slight improvement of $\bar{R}^2$. While, however, the export coefficient is significant in the shorter period (i.e. 1952-73), it loses its significance when we include post-1973 data in the series. It can also be noticed that the coefficient of the Z variable which is negative and insignificant in equation (92) becomes positive and significant in equation (94). The equations with GNS_1 as the dependent variable display certain distinct features which are worth noting. Equation (96) which is based on the shorter period show that when exports are included as a separate variable, there is a slight drop in the R^2, and even though the coefficient of X is positive and higher than that of Z in equation (96), its standard error is high. Equation (98) which is based on 1952-79 data show an improvement in the $\bar{R}^2$ when exports is introduced separately. The coefficient of 'X' however, is negative and insignificant. Equations (99) to (103), which have GNS_2 as the dependent variable, also show a small improvement in the fit when exports are treated as a separate variable. The standard error of the 'X' coefficient in both equations (101) and (103), however, is high.

Exports are a very important sector in the economy of Trinidad and Tobago. Over the last five years exports have averaged around 50% of GDP. In this context developments in the external sector are bound to exert a very deep influence on major aggregates in the economic system. In the above exercise we have tried to ascertain the impact of exports on various concepts of savings over particular time periods, by using GDP, exports and non-export GDP as explanatory variables. With the exception of equations (97) and (98), the splitting of GDP in this fashion resulted in no significant change in the R^2. Generally the results shown in equations (91) to (103) do not permit us to make any precise statement with respect to the relationship between exports and savings.

	Period	Dependent Variables	Constant	Independent Variable	$\bar{R}^2$	D.W. Statistic
Eq. (91)	1952-73	GDS	98.23 (29.75)	+ 0.10Y (0.03)	0.973	0.78
Eq. (92)	1952-73	GDS	69.12 (35.87)	- 0.06Z + 0.26X (0.12) (0.12)	0.975	1.64
Eq. (93)	1952-79	GDS	-95.61 (35.41)	0.36Y (0.03)	0.972	0.38
Eq. (94)	1952-79	GDS	- 11.94 (54.36)	+ 0.64Z + 10.01X (0.15) (0.18)	0.975	0.62
Eq. (95)	1952-73	GNS_1	92.91 (24.31)	+ 0.03Y (0.03)	0.957	1.65
Eq. (96)	1952-73	GNS_1	92.71 (30.77)	+ 0.02Z + 0.03X (0.01) (0.10)	0.955	1.64
Eq. (97)	1952-79	GNS_1	-60.95 (35.28)	+ 0.23Y (0.03)	0.937	0.72
Eq. (98)	1952-79	GNS_1	61.64 (49.02)	+ 0.64Z - 0.27X (0.13) (0.16)	0.954	1.15
Eq. (99)	1952-79	GNS_2	-18.53 (23.26)	+0.18Y (0.03)	0.972	1.17
Eq. (101)	1952-79	GNS_2	- 4.15 (29.11)	+ 0.26Z + 0.11X (0.10) (0.09)	0.971	1.29
Eq. (102)	1952-79	GNS_2	-35.06 (16.67)	+ 0.02Y (0.01)	0.984	1.95
Eq. (103)	1952-79	GNS_2	- 7.43 (26.63)	+ 0.29Z + 0.09X (0.07) (0.09)	0.985	2.21

Foreign Capital, National Savings and Economic Growth

The role of foreign capital in economic development is a very controversial one. A popular theme in the early post-war literature was that external assistance was essential if poor countires were to break out of the low-savings low-investment low-income vicious circle. Foreign savings tended to be seen as not just an addition to domestic savings, but as a critical means of finance for securing imports essential to the growth process. The experience of the last two or three decades has brought this view under increasingly greater scrutiny, and in some cases even under outright attack. Some economists argue that foreign assistance not only does not encourage growth, but in fact may deter it. One of the basic assumptions of many foreign aid models is that foreign resources will supplement rather than replace domestic efforts. Griffin and Enos[34] argue that foreign and domestic savings are substitutable resources. In practice, they contend, foreign savings often tend to supplant rather than supplement or increase domestic savings. To provides some support for their theses they produced two regression equations which are shown in (104) and (105). Equation (104) was based on

Eq. (104) $$\dot{Y} = 4.8 + \underset{(0.26)}{0.18}\ \frac{A}{Y} \qquad R^2 = 0.33$$

Eq. (105) $$\dot{Y} = 42.97 - \underset{(n.a.)}{6.78}\ \frac{A}{Y} \qquad R^2 = 0.13$$

where $\dot{Y}$ = average rate of growth of GNP

$\frac{A}{Y}$ = ratio of foreign aid to GNP

1962-64 data for fifteen African and Asian countries, while Equation (105) was computed on the basis of figures pertaining to the 1957-64 period. Both equations show a very low correlation between the amount of aid received and the rate of growth of GNP. In fact the coefficient of the independent variable in Eq. (105) is negative. It should be noted that for both equations

the authors had some reservations about the quality of the data used in the computation. In another paper[35], however, Griffin used a different specification and a more broadly based sample to arrive at the same conclusion.

Eq. (106) $$\frac{S}{Y} = 11.2 - 0.73 \underset{(0.11)}{\frac{A}{Y}}$$

$$R^2 = 0.54$$

$\frac{S}{Y}$ = gross domestic savings as a % of GDP

$\frac{A}{Y}$ = foreign savings as a % of GDP.

Equation (106) was computed from 1962-64 data relating to 32 under-developed countries. Saving was calculated as a residual and the net inflow of foreign capital was assumed to be equal to the deficit on current account of the balance of payments. Equation (106) shows foreign resources to be negatively related to the savings ratio.

Despite the admittedly poor quality of the data used, Griffin's conclusion has found support in a number of other studies. Using data for the period 1940-60 for Brazil, Leff[36] estimated equation (107) which shows an inverse relationship between foreign investment (NFCI) and domestic saving (DS_t)

Eq. (107) $$DS_t = \underset{(4.72)}{1.78} + \underset{(0.02)}{0.1545}\ Y_{t-1} - \underset{(0.33)}{0.1560}\ NFCI_t$$

$$R^2 = 0.8391$$

$$D.W. = 2.0620$$

DS_t = Annual Domestic Savings

Y_{t-1} = National Income in the Previous Year

$NFCI_t$ = Current Volume of Net Foreign Capital Inflow

Using cross country regression analysis Papanek[37] chose to examine the effects of savings and foreign inflows on growth for 85 countries (34 for the 1950's and 51 for the 1960's). An implicit assumption in Leff's equation is that the impact of inflows on savings can be measured by regressing one on the other. Papanek took the approach that foreign inflows and savings are independent variables in explaining growth. He also broke down foreign inflows into three major components: aid, foreign private investment and other foreign inflows. His regression results are presented in Eqs (108) to (111) According to Equation (108) savings and foreign inflows explain over a third

	Equation	Intercept	Savings	Aid	Foreign Private Investment	Other Foreign Flows	Corrected R^2	F Statistic
(108)	Growth =	1.5 (2.5)	+0.20 (6.0)	+0.39 (5.8)	+0.17 (2.5)	+ 0.19 (2.1)	0.37	13.5
(109)	Growth =	4.4 (8.7)	+0.7 (1.7)	...	...	...	0.02	3.9
(110)	Growth =	4.9 (20.0)	...	0.20 (3.1)	...	...	0.08	9.6
(111)	Growth =	2.0 (3.3)	+0.18 (5.5)	+0.39			0.28	17.6

Note: growth = annual rate of increase in GDP;

saving = gross domestic savings;

aid = net transfers received by governments plus official long term borrowing;

foreign private investment = private long term borrowing plus net private direct investment;

other foreign inflows = net private transfers and short term borrowing, other capital (net), and errors and omissions in the balance of payments. All independent variables expressed as percentages of GDP.

of growth. Aid had a much greater impact than any of the other variables including savings. The latter alone as an independent variable explained only 2% of the variation in growth.

Using data covering the period 1952-79, we tested the relationship between capital inflows and economic growth in Trinidad and Tobago. Equations (113) to (121) are differentiated by the time period they cover, and by the dependent variable used. In Equations (113) to (115) the rate of growth of GNP is regressed on the ratio of net capital movements (in the non-monetary sector of the balance of payments) to GNP. In Equations (116) to (118) we use the rate of growth in per capita GNP (RGI) as the independent variable. It can be seen in these euqations that the RNM variable is negatively related to the rate of growth of both total and per capita income. The R^2 is extremely low in all cases.

Capital can be disaggregated into several forms. In Equation (112) the rate of growth of GNP (RGN) is

Eq. (112) $RGN = 4.73 + 0.36\ GNS_2 + 0.22\ PCF$ (1952-79)
(10.35) (0.41) (0.52)

$-0.21\ GB - 5.32\ OCI$
(1.12) (0.206)

$\bar{R}^2 = 0.17$
D.W. = 1.1
F = 2.36

dependent on Gross National Savings (GNS_2), private investment (PCF), net government borrowing and transfers (GB) and other capital inflows (QCI). All the independent variables are expressed as porportions of GNP. The fit to the data is very poor. Taken together these variables explain only 17% of the variation in the rate of growth of GNP in the 1952-79 period. The coefficients of domestic savings and private investment have positive signs but they are both insignificant. The sign before the coefficients of net government

borrowing and other capital inflows indicate a negative impact on the rate of growth of GNP, but the high standard error of the government borrowing coefficient raises doubt about the significance of this variable.

	(1) Period	Dependent Variable	Intercept	Coefficient of Independent Variable	D.W. Statistic	$\bar{R}^2$	F Statistic
(113)	1952-62	RGN	11.08 (3.15)	-0.015 RNM (0.287)	2.1318	0.00	0.0026
(114)	1963-79	RGN	22.61 (6.80)	-0.98 RNM (0.82)	0.8891	0.02	1.4224
(115)	1952-79	RGN	19.77 (4.43)	-0.72 RNM (0.47)	0.8436	0.05	2.3506
(116)	1952-62	RGI	7.91 (3.41)	-0.0064 RNM (0.31)	2.0758	0.00	0.0004
(117)	1963-79	RGI	20.53 (6.89)	-0.95 RNM (0.84)	0.8113	0.04	1.2964
(118)	1952-79	RGI	17.81 (4.54)	-0.765 RNM (0.48)	0.79765	0.05	1.2964

RGN = Rate Growth of GNP

RGI = Rate of Growth of Per Capita GNP

RNM = Rate of Net Capital Movements (in the Non-Monetary Sector of the balance of payments) to GNP

	Period	Dependent Variable	Intercept	Independent Variable	$\bar{R}^2$	D.W.	F Statistic
(119)	1952-62	GNS_2	-50.19 (20.54)	+0.37 GNP_{t-1} 0.58 NCM (0.04) (0.30)	0.93	1.08	50.09
(120)	1963-62	GNS_2	-126.46 (33.72)	+0.33 GNP_{t-1} 0.55 NCM (0.02) (0.19)	0.98	2.13	470.23
(121)	1952-79	GNS_2	-66.82 (20.03)	+0.31 GNP_{t-1} 0.47 NCM (0.18) (0.17)	0.98	2.13	751.66

GNS_2 = Gross National Saving

NCM = Net Capital Movements in the Non-Monetary Sector of the Balance of Payments

GNP_{t-1} = GNP in the Previous Year

In Equations (119) to (121) we try a specification similar to that of Leff.[38] These equations show the regression results of domestic savings (GNS_2) on income (GNP) in the previous year and net capital movements (NCM). The coefficients of the latter are all negative, while those of income are positive. The R^2 are all over 90%.

Bearing in mind the defects of our data, our results indicate that foreign inflows may have had a negative impact on both domestic savings and the rate of growth of income in Trinidad and Tobago. Savings, investment and the growth of income are, of course, all inter-related. Developments in any one of these areas tend to affect the other two. As indicated earlier, a basic assumption of some of the models formulated in the 1950's and 1960's was that foreign inflows, by making possible a higher level of imports and investment would lead to accelerated devleopment. The experience of recent years has led some critics to the view that foreign capital can retard development. The argument takes several forms. A widely held one relates to the subsequent outflows which an injection of private foreign capital generates over time. It is argued that while initially an inflow

of foreign resources may supplement domestic saving, in the long term the outflow of investment income exerts a debilitating effect on the growth capacity of the economy. Some of the results from our earlier regression exercises may be explained to some extent by the picture depicted in Table 6. Here it can be observed that while there was an estimated net inflow of TT$4.5 billion worth of private investment capital in Trinidad and Tobago in the period between 1952 and 1979, there was a net outflow of TT$7.4 billion in the form of investment income in the same period.

Table 6

Trinidad and Tobago: Net Flow of Foreign Private Capital, 1952-79

$mn

Period	(1) Net Inflow of Private Capital	(2) Net Outflow Of Investment Income	(3) (2) - (1)
1952-62	656.0	- 823.5	- 167.5
1963-79	3,891.3	-6,547.2	- 2,655.9
Total (1952-79)	4,547.3	-7,370.7	- 2,823.4

Source: CSO, The National Income of Trinidad and Tobago, 1952-62. CSO The Balance of Payments of Trinidad and Tobago, Various Issues; CSO, Annual Digest of Statistics, Various Issues; Ministry of Finance, Review of the Economy, Various Issues.

Some observers contend that foreign capital can adversely effect development through its influence on attitudes towards saving . Griffin[39] for example, contends that foreign resources can reduce the level of savings in an economy. This will happen if in response to foreign inflows, government reduces taxation, makes less effort to collect taxes, or operates a tax system that is not sufficiently elastic in changing conditions, while at the same time maintaining high levelsof public expenditure. The situation is exacerbated if the composition of expenditure changes in favour of public consumption. Private savings can also be affected if capital inflows result in an easing of local credit conditions which in turn affect the incentive to save. It is also argued that capital imports "may reduce domestic savings by stimulating the consumption of importables and exportables. The increased availability of imported goods which foreign capital facilitates may lead to an increase in their consumption. Perhaps even more likely, the increased availability of foreign exchange which accompanies capital imports may induce the government to adopt or maintain inappropriate exchanges rates or other trade policies."[40]

These views have not gone unchallenged. Papanek, for instance, concedes that some part of foreign inflows may go towards increasing consumption. He, however, challenges the conclusion that a close statistical association between foreign inflows and low growth or savings rates necessarily means that one causes the other. Statistical results have to be viewed against the particular savings functions specified. He argues that there are "plausible savings functions which could result in one dollar of foreign inflows producing either a positive or negative effect on saving and anything from no increase in investment to more than one dollar of additional investment."[41] Grinols and Bhagwati[42] link the thesis 'that a reduction of domestic savings by foreign capital is harmful to the notion of 'dependence', and formulates a Harrod-Domar type model to examine whether in reducing domestic savings an influx of foreign capital postpones or renders infeasible

the reaching of self reliance. They argue that whether a capital inflow creates dependence will depend on the assumed parameters of the model as well as the targeted level of the savings rate and the time by which it must be achieved. "Contrary to the radical notions, an aid programme may achieve a targeted increase in the savings rate earlier than in the absence of aid, or may make an infeasible target a feasible one."[43] In a simulated exercise the authors found some support for the view that domestic savings and self reliance could be affected by foreign inflows, but also found that the latter had a positive impact on investment and income. They concluded that "no overall judgement on whether foreign aid has been beneficial or not to recipient countries can be reached without adding several other relevant dimension of a social welfare function."[44]

Concluding Remarks

The variety of functions one can use in the search for a savings function is almost limitless. The choice of variables is often dictated by available data. In this study we have tested some of the more conventional hypotheses with a view to ascertaining their relevance to the Trinidad situation. In some instances, the evidence appeared to be conclusive; in others not so. In both cases one has to view the results against the quality of the data we have used.

This latter concern cannot be stressed too much. The usefulness of quantitative work to policy making, or for predictions purposes, rests heavily on the quality of the statistics on which they are based. The range of data also help to determine the scope of the search for relevant formulations. It is clear that if the authorities are seriously interested in the whole question of saving, greater thought and effort would have to go into the data collection exercise.

1. W. Arthur Lewis. Theory of Economic Growth (New York: Harper & Row, 1970), pp. 224-25.

2. See Raymond W. Goldsmith, et al., A Study of Saving in the United States, Vol. III, (Greenwood Press, New York,) pp. 388-389.

3. J.M. Keynes. The General Theory of Employment Interest and Money (London: Macmillan & Co, Ltd., 1964), p.97.

4. Ibid., p. 167

5. Ibid., p. 109

6. Ibid., p. 97

7. Ibid., p.97

8. See R. Levacic, Macro-economics (London: The Macmillan Press Ltd., 1976) p. 61.

9. Simon Kuznets, Uses of National Income in Peace and War (New York: NBER, 1942) p. 31.

10. See G. Ackley, Macro-economic Theory (New York: The Macmillan Co., 1961), Chap. XI.

11. See J.S. Duesenberry, Income, Saving and the Theory of Consumer Behaviour (Cambridge, Harvard University Press, 1949).

12. See Milton Friedman, A Theory of the Consumption Function (Princeton N.J., Princeton University Press, 1957).

13. For a discussion and test of this theory, see A. Ando and F. Modigliani "The Life Cycle Hypothesis of Saving: Aggregate Implications and Tests", American Economic Review, March 1963.

14. See Levacic, op. cit. p.79

15. See, for example, H.S. Houthakker, "On Some Determinants of Saving in Developed and Under-developed Countries" in E.A.G. Robinson (ed), Problems in Economic Development (New York: Macmillan, 1966). See also J.G. Williamson "Personal Saving in Developing Nations: An Intertemporal Cross Section from Asia", Economic Record, June 1968.

16. See Alfred Maizels, Exports and Economic Growth of Developing Countries (Cambridge University Press, 1968), pp. 51-52.

17. See, for example, K. Griffin and J.L. Enos, "Foreign Assistance: Objectives and Consequences", Economic Development and Cultural Change, April, 1970.

18. Our concept of savings used in this paper derives largely from the Keynesian aggretate accounting identities. Some analysts regard expenditure on certain consumer durables as a form of saving. We have not paid any attention to this issue in the paper.

19. What I am calling 'Net National Savings' is commonly referred in national accounting jargon as 'Net Domestic Savings'.

20. If we wish to view saving as a constant proportion of income, we can write the function as $S = by$. Defining the concept of supernumerary income as $(Y-a)$ some investigators have preferred to work with the function $S = b(Y-a)$ according to which saving is a constant proportion of supernumerary income $(Y-a)$ and can also be written with the savings ratio as the dependent variable, viz $\frac{S}{Y} = a-\frac{b}{Y}$. Implicit in this latter is a hyperbolic saving ratio. See Goldsmith et al., op. cit.

21. Ibid. p.389.

22. J.G. Williamson, "Personal Saving in Developing Nations: An Intertemporal Cross-Section from Asia", the Economic Record, June, 1968.

23 N.H. Leff, "Dependency Rates and Savings Rates", American Economic Review, Dec., 1969.

24. Ibid

25. Average of end of quarter weighted interest rates published by the Central Bank.

26. We defined the real interest rate as the current nominal rate less the rate of inflation in the previous period.

27. See M.J. Fry, "Savings, Investment, Growth and the Cost of Financial Repression", World Development, Vol. 8, 1980.

28. At the end of 1979 individuals were holding 60% of total deposits in Commercial Banks

29. See E.S. Shaw, Financial Deepening in Economic Development (London: Oxford University Press, 1973); and R.I. Kinnon, Money and Capital in Economic Development (Washington, D.C., The Brookings Institution, 1973).

30. See E.E. Hagen, The Economics of Development (Homewood, Ill., Richard D. Irvin Inc., 1973) pp. 345-46.

31. See, for example, H.E. Chenery and A.M. Strout, "Foreign Assistance and Economic Development", The American Economic Review, Sept., 1966.

32. Maizels, op. cit. pp. 51-52

33. See Joong-Koon Lee, "Exports and the Propensity to Save in LDC's", Economic Journal, June 1971.

34. op. cit.

35. Keith Griffin, "Foreign Capital, Domestic Savings and Economic Development", Bulletin of Oxford University - Institute of Economics and Statistics, May, 1970.

36. N.H. Leff, "Marginal Savings Rates in the Development Process: The Brazilian Experience," Economic Journal, Sept., 1968.

37. G.F. Papanek, "Aid, Foreign Private Investment, Savings and Growth in Less Developed Countires", Journal of Political Economy, Jan/Feb, 1973.

38. op. cit.

39. Op. cit. (April, 1970).

40. Ibid.

41. Op. cit. (Jan/Feb, 1973)

42. J.N. Bhagwati and E. Grinols, "Foreign Capital, Dependence, Destabilisation and Feasibility of Transition to Socialism", Journal of Development Economics, June, 1975.

43. Ibid.

44. Ibid.