THE CARIBBEAN MINERAL ECONOMY

T. A. Harewood

ABSTRACT

The Caribbean Mineral Economy
The Case of Trinidad and Tobago 1951-65[1]

The development of the economy of Trinidad and Tobago between 1951 and 1965 can be divided into two periods. During the first period 1951-59 the economy grew at an exceedingly fast rate generated almost totally by expansions in the petroleum industry. Whereas the rate of labour unemployment increased during the second half of the decade it did not develop into a critical social problem.

During the second period 1959-65 the petroleum industry stagnated and the economy grew at a much slower rate. The problem of unemployment was now assuming major proportions. The economy was therefore forced to transform with the domestic sectors (the public sectors in particular) becoming more propulsive.

While it is evident that some initial progress has been made in this direction during the 1960's we have found that some of the basic features of plantation economy still remain.

[1]
T.A. Harewood, master's thesis presented to the Faculty of Graduate Studies and Research of McGill University, Montreal, Quebec, July 1969.

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The Case of Trinidad and Tobago
1951-1965

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by

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Thesis presented to the Faculty of Graduate
Studies and Research of McGill University
of Montreal as partial fulfillment of the
requirements for the degree of Master of Arts

Montreal, Quebec 1969

INTRODUCTION

In this study we examine the pattern of development in the economy of Trinidad and Tobago in the period 1951-1965 and the influence of the petroleum industry on this development. While the economy has been dominated by the petroleum industry during the last two to three decades, many of the characteristics of the typical plantation economy still remain. In this connection Trinidad and Tobago is similar to the majority of Caribbean territories which have had a history of economic exploitation by the colonial powers of the North Atlantic. For this reason in Chapter 1 we undertake a relatively comprehensive review of economic thought in the Caribbean region since World War 11.

In Chapter 11 we examine in detail the performance of the petroleum industry during the period 1951-65. This is essential to the understanding of developments in the economy at large. Finally in Chapter 111 a macro-study of the economy is presented. In this section we assess the relevance of the theories outlined in Chapter 1 to the economy of Trinidad and Tobago.

I am indebted to a number of persons who by their encouragement and assistance have made this study possible. I have benefitted considerably from the numerous discussions with Mr. Edwin Carrington and the various other forms of assistance freely given by him. Mr. Aldwyn Jordan has been very helpful with the computation of statistical data. My greatest debt however, is to

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CHAPTER I

POST-WAR APPROACHES TO ECONOMIC DEVELOPMENT IN

THE CARIBBEAN

The two decades preceding World War II were marked by general economic malaise in the Caribbean, a condition which erupted in a series of disturbances between 1934 and 1939.[1] The discontent was diagnosed to derive from "a positive demand for the creation of new conditions that will render possible a better and less restricted life (coexisting with) an unfavourable economic trend". More specifically, the disturbances were regarded as "a symptom of which the principal causes were low earnings and irregular employment".[2]

The demand for better conditions of work and life had been stimulated by the cumulative effect of education, improved communication including news media and the comparison between the poverty of the region and living standards in the North Atlantic countries. Sugar cultivation which formed the mainstay of Caribbean economic activity was suffering from persistently falling prices, as world productive capacity exceeded the growth in demand. The attempt by plantation owners to diversify was

1. Serious disturbances were recorded in Trinidad on
    sugar estates in 1934; general disturbances in 1937.
    In Jamaica there were isolated disturbances on sugar
    estates in 1935 and general disturbances in May-June,
    1938. In Guyana disturbances at various estates took
    place in 1935 and again in 1939. In St. Kitts there
    were general disturbances in 1935. In St. Vincent
    isolated rioting in 1935. In Barbados general dis-
    turbances took place in 1937.
    See: _West Indies Royal Commission Report_, H.M.S.O.
          July 1945. p. 196.

2. _Ibid_., pp. 8 and 197.

of limited success since flagging demand conditions were not unique to sugar. Only the market shelter provided by the Imperial governments brought temporary financial relief to the Caribbean economies. At the same time however protection served to postpone radical attempts at effecting a more efficient use of the resources of the region. There was however, a continuous decline in the number of people employed in agriculture. Trends in employment since the turn of the century are shown in Table I.

Table I

Number of Persons Engaged in Agriculture (1891 - 1946)

('000 persons)

	1891	1911	1921	1946
Jamaica	271	271	286	228
Trinidad and Tobago	66	97	96	54
Windward Islands	54	61	67	54
Barbados	45	38	34	26
Leeward Islands	34	27	26	25

Source: Industrial Development in the Caribbean, Caribbean Commission Central Secretariat, Trinidad, 1951 P. 26.

The decline in employment in plantation agriculture was closely associated with the substitution of capital for labour as estate owners tried to cut costs and make their enterprises more competitive. Writing in 1951, Sir Arthur Lewis claimed that "...thirty years ago, the sugar industry employed on an average throughout the year about one person for every one and a half acres; today

it employs one person for every two acres, or 25% less."[3]

The pace of mechanization was accelerated by the growing strength of labour unions and their success in winning wage increases for those employed. The result was an increase in the number of the persons unemployed. Furthermore, peasant agriculture was adversely affected by plantation cultivation. The choicest arable lands had been pre-empted by the plantations and the limited acreage remaining for peasant farming subdivided into an excessive number of small uneconomic units. Productivity per acre was low and the number of persons capable of earning a decent livelihood from small scale farming activity was diminishing.

The problems of the Caribbean economies were further aggravated by the rapid growth of population, estimated at 1.5 to 2.0 per cent per annum. While emigration had served in former times as an outlet for surplus labour, this avenue was rapidly being closed as recipient countries were themselves forced to contend with a chronic excess supply of labour.

As agricultural employment contracted, a drift of population from country to town was set in motion. The better opportunities for casual employment as well as the relatively higher wages in the urban area served as pull factors encouraging this trend.

But there was no commensurate expansion of employment in the towns to provide for the displaced agricultural workers as well as for the annual accretion to the labour force. Existing

3. Industrial Development in the Caribbean, Caribbean Commission Central Secretariat, Trinidad 1951, p.27.

industries, such as the manufacture of unrefined sugar, the grading, packaging and internal transportation of citrus fruit and similar products were ancillary to agriculture. With the exception of Trinidad, where oil and asphalt were beginning to be exploited, no other territory was able to generate a significant volume of employment based on non-agricultural activity. The total number of persons employed in government services was small in relation to the adult population of the colonies.

Rationalization of plantation agriculture had three consequences: the number of gainfully employed women was substantially reduced; the proportion of the labour force engaged in casual work, petty trades and other unproductive jobs increased appreciably; and disguised unemployment gave way to open unemployment.

The central concern of post-war Caribbean economic thought was therefore how to transform the economic structure of the region so as to create productive employment for the large pool of surplus labour.

The Moyne Commission

The first set of proposals emerging after the war resulted from the visit of the Moyne Commission to the islands in 1938 - 39.[4] The Commission had found that the economic ills of the region during the 1930's were largely agrarian in nature and stemmed not so much from adverse market conditions in respect

4. _West Indies Royal Commission Report_, H.M.S.O., July 1945.

of the agricultural export crops as from an excessive reliance
on production for export: "The great dangers of specialization
stand out clearly in West Indian experience, and their avoidance
should be the cardinal point of future agricultural policy."[5]
A rapidly growing population with rising expectations only served
to aggravate an already precarious situation.

In the view of the Commission therefore, the solution to the
Caribbean problem was to be found in agrarian reform. It recom-
mended that:

> "In order to provide the means of absorbing this
> growth of numbers it is essential on the one
> hand to secure a re-orientation of the agricul-
> tural system in the direction of a far greater
> home production of essential foodstuffs on a
> basis of mixed farming, and on the other to take
> whatever steps practicable to improve the posi-
> tion of the agricultural exporting industries."[6]

In the case of peasant agriculture the Commission recom-
mended that additional land should be provided, tenure conditions
improved and more efficient techniques of production introduced.
With respect to the traditional export crops the recommendations
called for an increase in the basic export quotas allocated
to the islands, an improvement of the prices offered under the
Colonial preference system, and the extension of the marketing
arrangements for sugar to other agricultural staple exports.

The Commission was less optimistic about the prospects
for industry. On this issue they wrote, "as regards non-agricul-
tural activities, we do not recommend that West Indian Govern-
ments should conduct or finance speculative industrial enter-
prises."[7] Indeed it was recommended that the role of the gov-

5. _Ibid._, p. 41.
6. _Ibid._, p. 441.
7. _Ibid._, p. 443.

ernments be largely limited to undertaking public works
programmes.

The Commission recognized that the existing structure of
production imposed severe constraints on intra-regional trade.
However, they were of the view that trade among the islands
would increase as agricultural production became more diver-
sified. They further argued that such a development would be
facilitated by the political federation of the colonies.[8]

Finally the rate of population growth must be controlled.
Whereas agricultural reorganization would promote increased
employment and a higher standard of living, such an effect
would only be temporary if the current increase in population
were to continue. In this sense the Commission considered the
reduction of the birth rate a crucial aspect of any programme
of development for the region.

The Moyne Commission report represented a departure from
then existing policy only in the sense that it strongly urged
the freeing of the economy from its reliance on traditional ex-
port crops. By recommending a wider protection of these products
however the incentive to diversify agriculture was in fact re-
moved. Furthermore, the development of a viable peasant indus-
try required capital and administrative effort of a type and on
a scale which the Colonial governments were in no position to
provide. In fact no serious attempt was made at implementing
the basic proposals of the report. Concerted efforts at trans-
forming the economies of the region had to await the growth of
governments more representative of the interests of the region.

8. Ibid., p. 259.

The Lewis Strategy

Whereas the Moyne Commission relied exclusively on the diversification of agriculture as a means of stimulating the growth of output and employment, the Lewis strategy[9] placed major emphasis on the rapid industrialization of the Caribbean region. It was drawn largely from the experience of Puerto Rico during the 1940's and decisively influenced economic policy during the 1950's. For this reason we will explain in some detail the 'model' which underlies the Lewis' policy of 'industrialization by invitation'.

Lewis divides the economy into two broad sectors, an agricultural sector and a modern sector. The agricultural sector dominates the economy and is further subdivided into peasant agriculture and plantation agriculture. The peasant farms produce foodstuffs for the local market and use labour-intensive methods of production. Farming techniques are inefficient and labour productivity is low. The plantations on the other hand grow staples for export and production is to a large extent mechanized and more efficient. By international standards, however, estate cultivation is still high-cost and depends for its survival on protection provided by international agreements. Lewis contended that the numbers engaged in agricultural activity could be substantially reduced without causing a reduction in the total output of the sector.

9. See W. Arthur Lewis, "Industrial Development in the Caribbean" Caribbean Commission Central Secretariat, Trinidad 1951, and "Economic Development with Unlimited Supplies of Labour", Manchester School, May 1954.

The modern sector is very small and engages in the production of manufactures for the local market and services, including tourism. Production is organised on the basis of highly mechanized techniques and a skilled labour force. Wages are accordingly high, at least 30% above that in agriculture.

From this follows Lewis' theory of balanced growth. Agricultural productivity can only be improved by further mechanizing the plantations and reorganizing the peasant farms. This however requires a reduction in the numbers engaged by the sector. The other sectors of the economy must therefore expand sufficiently to absorb the surplus released from agriculture. Lewis considered emigration, tourism and manufacturing as natural outlets for the surplus labour. As the number of people who can be absorbed by emigration and tourism is limited Lewis argued that the success of any programme of agricultural rationalization depended on the creation of a rapidly growing manufacturing industry.

In addition to the 'labour-balance', there must be 'goods balance'. While incomes created by the new manufacturing industries simultaneously constitute a source of demand for the output of these industries, the standard of living in the agricultural sector must also rise in order to provide a sufficiently large market demand for manufactured goods. On the other hand the expansion of the manufacturing sector will also increase the demand for foodstuffs and this demand can only be satisfied from local output if agricultural productivity rises.

Lewis anticipated the possibility that bottlenecks would impede such balanced growth. A shortage of arable land or the sluggish growth of agriculture could limit the supply of foodstuffs, while absence of certain domestic raw materials could narrow the range of domestic production. It would thus become necessary to export manufactured goods in exchange for imported supplies of foodstuffs and raw materials.

The small size of the domestic market typical of Caribbean economies is a further reason why manufactures would have to be exported. The low standard of living in the early period of development biases consumption in favour of foodstuffs thus limiting the market for manufactured goods. Moreover the provision of wide variety in consumer goods further restricts the effective demand for any individual good.

There still remains the crucial problem of mobilizing capital for the programme of development.[10] In the early period of development domestic savings are small and cannot therefore contribute much to capital needs of the region. The islands are therefore forced to solicit funds from abroad. "Foreign capital is needed because industrialization is a frightfully expensive business quite beyond the resources of the islands."[11]

10. Lewis writes, "The central problem in the theory of economic development is to understand the process by which a community which was previously saving and investing 4 or 5 percent of its national income or less, converts itself into an economy where voluntary saving is running at about 12 or 15 percent of national income or more", "Unlimited Supplies of Labour..." op.cit., p.155

11. Lewis, "Industrial Development in the Caribbean", op. cit., p. 56. para. 113.

However neither the local governments nor the local entrepreneurs will be in a position to raise the required amount of foreign capital. For this reason, Lewis argues that it would be better to entice direct investment by foreign capitalists who will bring with them capital, expertise and established marketing outlets.

> "...successful industrialization on a big scale is possible only if the islands can export manufactures. And, since it is difficult and expensive to break into a foreign market by building up new distribution outlets this is most likely to succeed if the islands concentrate on inviting manufacturers who are already well established in foreign markets."[12]

Industrialization was therefore to be initiated largely by foreign capital and foreign entrepreneurship. As development proceeded it was expected that local savings would increase and that local entrepreneurs, after learning the tricks of the trade would be able to move into the manufacturing business utilizing the local supply of capital.

Industrial development would also require positive and intelligent action by the governments designed to create conditions that would attract the foreign capitalists to the region. Here Puerto Rico provided the model. Special development agencies should be set up to decide on the industries to be established and the types of assistance likely to attract these industries, and to seek out and interest manufacturers in coming into the area. Incentives should be given to potential investors including the provision of factory space, assistance in obtaining capital from abroad, protection in the local markets, subsidies and tax holidays.

12. _Ibid._, p. 56 para. 113.

An effective industrialization policy must also ensure
that wages do not get out of line with labour productivity.
In an open economy high cost production implies reduced activity
and employment. The government should thus institute an incomes
policy relating wages to labour productivity or maintain external
competitiveness by currency devaluation.

Because of the small size of the individual countries Lewis
argued that the 'sine qua non' of industrial development is the
establishment of a customs union or better still, a single West
Indian government.[13] This would facilitate the rational estab-
lishment of industries in the region and thus realize the fullest
potential of scale. Furthermore, the free movement of population
between the islands would be assured.

Lewis' policy of industrialization by invitation was most
vigorously applied by Jamaica and to lesser degrees by Trinidad
and Barbados during the 1950's. But while domestic output grew
at a rapid rate in these countries throughout the decade, the
unemployment problem remained unresolved. Indeed it became more
serious. Lewis himself was puzzled. Writing about Jamaica in
1964, he asked: "how does a country double its output, lose 11
percent of its labour force, and still have 12 percent unemploy-
ed?"[14]

The manufacturing sector did not perform in the manner
anticipated by Lewis. It developed on the basis of a heavily

13. <u>Ibid</u>., p. 61, para. 129.

14. Lewis, "Jamaica's Economic Problems", <u>Jamaican Gleaner</u>,
    September 1964, p.11.

protected domestic market, and despite the presence of foreign capitalists it made no significant contribution to the export earnings of the territories. Although imports of finished goods were somewhat reduced, there was a substantial increase in the importation of duty free intermediate goods, and finished parts for assembly. Linkages between the manufacturing sector and the other sectors of the economy remained limited. Moreover, although exports of manufactured goods were markedly below expectations, manufacturers were committed to satisfying the demand for variety by domestic consumers. This served to fragment the already small domestic market raising cost and reducing efficiency.

Lewis' expectations concerning domestic savings were also unfulfilled. Despite the rapid growth of domestic output, local savings and investment did not increase as fast as had been expected. The dominance of foreign capital in the economy and the provisions of excessively attractive terms for depreciation ensured that the proportion of domestic savings preempted by foreign entrepreneurs remained high. Moreover the foreign entrepreneurs invested in and monopolized specific sectors of the economy with the result that local entrepreneurs neither had the store of local savings, nor were they able to develop the 'tricks of the trade' with which to fully participate in the industrialization process.

The employment problem was probably aggravated by the peculiar form of development recommended by Lewis. The introduction of metropolitan capital and expertise ensured the adoption of metropolitan forms of technology. These techniques

tend to be capital-intensive. Further, since labour remuneration formed a small part of the operating costs of these firms, the industry is usually able to satisfy the demands of the workers for higher wages. The high wages paid in these capital-intensive industries set a trend which spreads to all sectors of the economy. The effect is to curtail the expansion of economic activity and of employment.

In these circumstances the governments found themselves unable to do much to remedy the unemployment situation. A considerable amount of revenue was lost by the provision of duty-free imports and extravagant depreciation allowances; a fair proportion of government expenditures was committed to subsidizing industry in the form of industrial 'infrastructure'; and finally the mobilization of domestic resources is difficult in the absence of a local capital market in the region, the development of which is inhibited by the operations of metropolitan subsidiaries. Under these conditions the governments have had to resort to foreign borrowing to finance their development programmes.

Some of the problems were recognized by Lewis in 1964. On this occasion he wrote:

> "...the point of developing Jamaica is to give Jamaicans more income, rather than foreigners. Foreign investment is better than none, since it raises Jamaican incomes too. But Jamaican investment is better if the money can be saved at home."[15]

This undoubtedly represents a shift in emphasis in Lewis' thinking. By 1964 he saw the solution to the Caribbean

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15. Ibid., p. viii

problem primarily in terms of an incomes policy aimed at making costs more competitive; in the utilization of technology more appropriate to the resources of the region; and finally in the encouragement of greater participation of local savings and investments in the development process.

A Model of an Open Petroleum Economy

Immediately preceding the Lewis article of 1964, a more rigorous formulation of the Caribbean problem was presented by Dudley Seers'.[16] based on the experience of Venezuela during the 1950's. Seers starts with the premise that "the economic models constructed to describe the working of industrial economies (for example, the Keynesian model) are not necessarily, or even probably, suitable for exporters of primary products, because their fundamental assumptions do not apply."[17] He then sets out to determine the cause of the apparent paradox of the co-existence of high rates of growth and high levels of unemployment in an open petroleum economy.

Seers divides the economy into three sectors, the export sector, the government sector, and the private domestic sector. The economy is completely 'export-propelled', exports being the only autonomous variable in the model. The export sector is foreign owned, and given the oligopolistic nature of the petro-

16. Dudley Seers, "The Mechanism of an Open Petroleum Economy," Social and Economic Studies, June 1964. An earlier version was published in Revista de Economica Latino - Americano No. 7.

17. Ibid., p. 233.

leum industry, both the volume and the price of exports are externally determined. The external transactions of the economy are assumed to be in balance so that the level of export earnings sets a limit to import of goods and services. Employment in the petroleum sector is assumed to be constant, while output and gross export earnings increase. Increases in the wage bill thus arise solely from increases in the wage rate. The growth of employment in the economy must therefore derive from the expansion of output and employment in the domestic sectors.

The government sector is assumed to receive all revenue from taxes on export earnings while its expenditures are assumed to consist of payments to labour. Government revenue and expenditure are further assumed to be in balance thereby eliminating the possibility of foreign domestic borrowing. The level of employment in the sector then depends on the trend in export earnings, the rate of taxation on exports and the trend in wage rates. The rate of increase in employment will vary directly with the rate of increase in export earnings, the rate of taxation on exports and inversely with the rate of increase in wage rates.

The private domestic sector receives its impetus for growth from the incomes generated by the export sector. The export sector not only dictates expansion in the domestic sector by its local payments but also determines how much domestic demand can be met from imports. Employment in the domestic sector will therefore depend on the trend in export earnings, the import coefficient, the profit margin and the wage level. Given the trend

in export earnings employment will be greater, the lower the
wage rate, the lower the import coefficient and the lower the
margin of profit in the sector.

Of the five factors affecting the level of employment in
the domestic sector Seers assumes the last three to be constant;
tax rates cannot be indefinitely increased; profits margins are
unlikely to change rapidly or to prove amenable to policy meas-
ures; and the openness of the economy prevents serious attempts
at import substitution.

The crux of the employment problem accordingly lies in
the relationship between export earnings and wage rates. From
this it follows that:

> "The pace at which employment grows depends in fact
> on the difference between the trends in exports and
> wage rates. There is therefore something like a
> 'wage fund' in such an economy."[18]

In such an economy,

> "...employment will grow in such an economy if -
> and only if - exports increase more quickly than
> average wages ... The greater the excess of growth
> of exports over the rise in wage rates, the faster
> will employment climb."[19]

There is however a tendency for wages to get out of line with
prices, particularly during an export boom. As export earnings
rise, petroleum producers are less inclined to resist demands
for higher wages by labour unions because wages are a relative-
ly small item in total costs. Furthermore, wages are partly
'paid by the government', being deductible from declarations of

18. Ibid., p. 234.

19. Ibid., p. 241.

taxable income. Rising wages in the petroleum sector set up a sort of 'demonstration effect' amongst wage earners and unions in other sectors press for wage increases.

Wage rates soon become high by international standards especially in relation to the efficiency of the workers in the domestic sector. Foodstuffs and other locally produced goods tend to be replaced by imports, so that the import coefficient remains high or rises. The increasing inequality of income distribution and movement of population to the oil fields and towns further accentuate the tendency to spend more on imported goods and services thus aggravating the unemployment problem. Rising costs also make it difficult to develop new exports thus perpetuating the traditional structure of exports.

One would expect that a high cost structure would lead to balance of payments disequilibrium and the use of correctives such as devaluation, exchange control, import licensing and tariffs. However, Seers argues that this is not the case in the open petroleum economy so long as exports are rising appreciably. Because of the nature of the international oil industry, devaluation will have little impact on foreign exchange earnings or on the level of employment in the export sector. Furthermore, the groups most strongly opposed to devaluation and other control measures (importers, merchants, foreign subsidiaries, and the employed) are politically influential. The open petroleum economy therefore suffers from "disguised, rather than overt, balance - of - payments tensions"[20] Disequilibrium expresses itself

20. Ibid., p. 236.

in growing unemployment.

If petroleum exports cease to grow, the latent tensions
in the economy come to the fore. As exchange reserves dwindle
and capital flows out the temptation to use exchange controls
becomes stronger and pressures to increase protection of local
industry build up. The open petroleum economy is potentially
explosive:

> "The conflict of interests between petroleum companies,
> trade unions, local farmers, manufacturers, importers
> and the unemployed, which can be accomodated in a
> rapidly expanding economy, is suddenly exposed, and
> tensions mount. A petroleum economy has a potentially
> explosive character."[21]

In this analysis Seers has excluded the conventional categ-
ory of savings, investment, consumption and productivity as
explicit variables. Exports are the only autonomous variable;
investment is assumed to be induced rather than autonomous
in the Keynesian sense. This is obvious in the case of the
export sector, while in the government sector it follows from
his assumption that government revenues are derived almost tot-
ally from taxes on exports.

Seers suggests that the main areas of investment in the
private domestic sector are in housing and distribution, the
demand for both is directly related to the growth of export
earnings. The import co-efficient, rather than the level of in-
vestment affects income generation.

The fact that investment is induced, however, does not imply
any relationship between investment and savings. If local

21. _Ibid._, p. 236.

savings fall short of investment possibilities, the gap will be
filled by foreign capital inflows. In this case the effect on
employment is favourable, although eventually the outflows of
profits tend to act as an offset. Conversely, if local savings
are in excess of investment possibilities, local capital will
flow out with adverse effects on employment. In this situation
the emphasis is on investment opportunities rather than the
availability of savings.

Seers considers productivity change to be the most serious
omission of his model expecially since rapid increases could be
expected as mechanization becomes excessive. But since producti-
vity change is also an influence on imports, and the import co-
efficient is assumed constant, Seers concludes that productivity
is indirectly taken care of in the model. Productivity change is
not assumed to affect employment in the export sector (assumption
of constant employment) nor in the government sector (assumption
of balance of government revenue and expenditure). It however
affects employment in the private sector. Seers describes these
effects in the following way:

> "If the commodity concerned is mostly non-competitive
> with imports, an increase in productivity does take
> place very largely at the expense of employment...
> But when the commodity competes with imports the
> consequences may very well be to make it move com-
> petitive, reducing the propensity to import."[22]

Thus when increases in productivity are experienced in
nontradable activities or local monopolies, such as electric

22. _Ibid._, p. 238.

power, construction and rum, the impact on employment is un-
favourable. Since import substitution is not expected to be
extensive in the open petroleum economy, the net effect of
rising productivity on employment may be negative.

Because the trend in export earnings is externally deter-
mined it appears that the only variable that can be manipulated
by public policy is the level of wage rates. Implicit in Seers'
theory therefore is the conclusion that the employment problem
of the open petroleum economy can be solved by an incomes policy
which ensures that the rate of increase of wages is not as
great as the rate of increase of export earnings.

Finally, Seers suggested that his model holds lessons for
both Trinidad and Jamaica, especially the former. The applic-
ability of Seers' model to Caribbean economies has been ques-
tioned principally by Havelock Brewster. In the only published
critique of the model Brewster argued first that the assumptions
of the model are much too restrictive, and second, that the model
falls short in its formulation of the critical problem of the
Caribbean area.[23] Implicit in this critique is a rejection of
an incomes policy designed to keep down wage levels.

Using statistical data for Trinidad and Tobago, Brewster
argues that the assumptions of the model are too restrictive
and are therefore misleading. Firstly, while the tax rate on
exports was constant between 1957 and 1963, the trend of gov-
ernment revenue (ignoring deficit financing) over the period

23. "Exports, Employment and Wages: Trinidad and Tobago
and Mr. Seers' Model of the Open Economy." Research
Papers No. 5. C.S.O. April 1968 pp. 1-21.

was twice as large as the trend in export earnings. The diver-
gence was even more pronounced in the case of Jamaica, the rise
being three times as great as that of export earnings over the
same period. This has been explained by the fact that import
duties rather than taxes on export earnings were in fact the
largest single component of government revenue, a condition
made possible by a growing trade deficit financed by the opera-
tions of expatriate banks, foreign exchange reserves and loans.

Secondly, Brewster argues that while the trend in govern-
ment employment corresponds approximately to the trend in labour
compensation (allowing for increases in wages), the level of
employment was much less than would be the case if government
expenditures consisted solely of labour payments. Indeed a
sizeable share of government revenues is absorbed by foreign
payments (for imported goods and services and amortization pay-
ments) and by payments to the private domestic sector. Wage
and salary payments of the government as a result accounted for
only 40% of government revenues.[24]

Brewster is even more critical of Seers's assumption in
respect of the private domestic sector. In the Seers model
domestic output is equal to the domestic payments of the export
sector (i.e. wages and taxes) times a multiplier. But these
domestic payments are also equal to imports (excluding remitted
profits) while the propensity to import is assumed to be cons-
tant. The domestic sector can therefore grow no faster than

24. This proportion appears to be relatively low; Brewster's
    argument is not seriously affected by this however.

the trend in imports, or the trend in export earnings.[25]

It may be inferred from this that if the export sector does not grow, the domestic sector would remain stagnant; and if at the same time wages rise (the profit margin remaining constant), there would be a net decline in employment. In fact the opposite was true for Trinidad and Tobago between 1962 and 1965. During these years the petroleum sector did in fact stagnate but this was matched by appreciable growth in the private domestic and the government sector. Brewster therefore argues that the growth of output of the domestic sector should be an explicit and integral part of the model and that once this is done, the problem of labour productivity cannot be avoided. He further adds that "if this is so, it may be less reasonable that the conventional factors of savings, consumption and investment should be totally absent from the model."[26]

Seers's arguments for excluding productivity and investment as explicit variables in his model rest largely on his assumption of a constant import coefficient. If the import coefficient should fall, (the domestic profit margin and the tax on exports remaining constant) then domestic output would grow and if there is import substitution, employment would also increase; conversely a rise in the import coefficient would be associated with a fall in output and in the level of employment in the domestic sector. Brewster suggests that this approach is static since a rise in the import coefficient could be associated with an

25. These two will be the same if profit as a proportion of export earnings is the same.

26. Brewster, op.cit., p. 14.

increase in output and employment so long as imports grow faster
than domestic output. Similarly a fall in the import coefficient
accompanied by an increase in domestic output is not necessarily
the result of import substitution. If for instance domestic out-
put grows relatively to imports as a result of the expansion of
the closed sectors of the economy (i.e. construction, distribu-
tion, and services) then the decline in the import coefficient
is clearly not derived from import substitution. Furthermore,
in this situation the effect on domestic employment is likely
to be more favourable than in the case of import substitution
(eg. manufacturing) because the import content is likely to be
lower, and the ratio of labour to capital higher.

The second aspect of Brewster's criticism relates to the
static nature of the problem as defined by Seers. Accordingly
he suggests the incorporation of a rate of absorption of labour
into the model which would take into account the existing volume
of unemployment, the rate of increase of the labour force, the
weight of the domestic sector in the working labour force and
the time - horizon set for the achievement of full employment.
He writes:

> "The important immediate question is whether the
> level of unemployment is stabilized, not whether
> there is stagnation in the level of employment.
> More ambitiously, the question is whether there is
> some recurrent net absolute reduction in the volume
> of unemployment so that full employment may event-
> uate at some time in the future."[27]

At the bottom of Brewster's critique of Seers' model is
the concern that the rigidity of the model may "divert interest

27. Ibid., p. 2.

and policy from the substantive dynamic issues of structural transformation, the initiation of productive activity and the creation of productive employment...by simulating that the crux of the employment problem lies in the distribution of an export-generated 'wage-fund'"[28] However while he concedes that less damage is done to reality by assuming exports to be the only autonomous variable and investment induced, than by the conventional Keynesian assumption of autonomous investment, he implicitly rejects in his critique the idea of an incomes policy aimed at controlling the rise of wage levels.[29]

An extreme advocate of the Keynesian approach is Professor Charles Kennedy. He argues that "a properly developed Keynesian theory in an open economy is applicable to developed and developing economies alike."[30] The conclusion deriving from his modified version is expressed as follows: "...the output of an open developing economy (is) capable of expansion in response to increased demand provided the necessary increase in imports could be financed, and therefore the balance of payments (is) the key to economic growth and development."[31]

However, in reaching this conclusion Kennedy relies on the

28. <u>Ibid</u>., pp. 20-21.

29. See also by the same author, <u>Legislation and Economic Control: Wage-Policy Issues in an Open Underdeveloped Economy, Trinidad and Tobago</u>. University of the West Indies. 1968.

30. Kennedy, "Keynesian Theory in an Open Economy," <u>Social and Economic Studies</u>, University of the West Indies, Vol. 15 No. 1 March 1966. p. 21.

31. Kennedy, "Domar--Type Theory in an Open Economy" <u>Social and Economic Studies</u>, University of the West Indies, Vol. 15, No. 3, Sept. 1966. p. 175.

Keynesian assumption of excess capacity in the economy and further assumes that imports is the only scarce resource required for capital formation. By so doing Kennedy has effectively assumed away the problem of 'underdevelopment'. Clearly structural unemployment is the major problem in the region and the assumption that bottlenecks in the system could be overcome by imports is indeed dubious. Moreover by failing to incorporate wages and employment explicitly in his models one must infer that Kennedy also accepts the Keynesian assumption of a 1 : 1 relationship between output and employment. If however, we accept the analysis of Seers and Demas (discussed later) with respect to the operation of the wages mechanism and its effect on the techniques of production and on employment, then the conclusions that are likely to emerge would be substantially different.

Whereas it could be argued that Seers's model is too rigid, and does not deal adequately with the domestic sector of the economy, the Keynes-type model appears less adequate for dealing with the contemporary problems of the Caribbean region. Kennedy's effort if nothing else underlies the difficulty of applying general macro-economic models to economies with peculiar structural and institutional characteristics. In this regard, Best and Levitt have commented:

> "If the entrepreneurial dynamic of growth were able
> to set up a Harrod - Domar - type process of cumula-
> tive income and capacity creation, then Kennedy's
> position that the only constraint consist of short
> run shortage of foreign exchange is fully acceptable.
> Such a situation implies that the economies export

or borrow in order to be able to supply themselves
with required imports for domestic consumption.

If however, the focus of enterpreneurial initia-
tive rests outside the country, if more particularly
it rests with the institutions which control the coun-
try's export sectors, then we have a situation in
which the country continues to import in order to
export. In this situation the domestic sector con-
tinues to be largely passive appendage to the export
sector, with little capacity to generate its own
growth."[32]

Size, Structural Transformation and Regional Integration

While Seers concerned himself specifically with the factors

which give rise to growing unemployment at a time when incomes

are rising, the work of William Demas[33] is concerned to estab-

lish the constraints imposed on development by a country's size.

For this purpose Demas diverges from the macro-economic approach

of the structuralist school and adopts the neo-classical tech-

nique of partial equilibrium analysis.

Demas considers the fundamental criterion of underdevelop-

ment to be "the extent to which an economy has undergone struc-

tural transformation and has acquired the continuing capacity

to adapt and to apply innovations"[34] In so doing Demas, like

Seers, has departed from the Keynesian and post-Keynesian approa-

ches which have defined growth and development purely in terms

of the movement of global aggregates such as savings, investment

and output.

The transformation of the structure of production implies

32. See Best and Levitt, Export - Propelled Growth and
    Industrialization in the Caribbean, Montreal, 1969
    (mineo) pp. 131-132.

33. William G. Demas, The Economics of Development in
    Small Countries, McGill University Press, Montreal, 1965.

34. Ibid., p. 6.

seven basic elements. These are:

> "the capacity to transform as determined by politi-
> cal and social processes and attitudes; the unifica-
> tion of the national market for goods and services;
> the shift of production and of labour as between
> primary, secondary and tertiary sectors of the econ-
> omy; the development of an increasing degree of inter-
> dependence among domestic industries and activities;
> changes in the importance and composition of foreign
> trade; the reduction of dualism in the economy; and
> the development of appropriate institutions."[35]

But while structural transformation is an essential element
in development, a country that has achieved structural trans-
formation will not necessarily be 'fully' self-sustaining. In
the final analysis the ability of a country to be fully self-
sustaining will be dictated to a large extent by the size of
its economy.[36]

The main concern is therefore with 'natural' structural
limitations to the growth process. This is not intended to
underscore the importance of the 'functional' variables as
described by Allister McIntyre.[37] However, Demas contends that
the 'more fundamental social, political, and institutional para-
meters underlying the process of growth and structural change'
hold irrespective of the size of the country, its degree of part-
icipation in foreign trade, or its relative emphasis on the role
of the public and private sectors.[38]

35. _Ibid._, p. 8.

36. Demas defines size in terms of the absolute number of
persons living in a national economy and its land area.
A small country is one with less than 5-10 million peo-
ple and 10-20 thousand square miles of usable land,
while a very large country will have a population of over
100 million and more than 1 million square miles of
territory.

37. See McIntyre, _Aspects of Development and Trade in the
Commonwealth Caribbean_, Economic Commission for Latin
America, March 1965.

38. Demas, op.cit., pp. 4, 34.

On this basis Demas argues that the patterns of development open to small countries in the contemporary world are much more narrowly circumscribed than those open to large countries, and that only in a very large continental-type economy could the fullest degree of self-sustenance be achieved. We will follow Demas' arguments as they apply to the very small country.

There are two fundamental reasons why the pattern of growth of a very small country will be unique. First, the resources of a very small country are likely to be highly skewed, while the composition of domestic demand for goods and services will be more diversified. The country will therefore have to rely on foreign trade to fill the gaps in production. Second, because of the small size of the internal market, the small country will have to export if it is to benefit from economies of scale. For these two reasons, most small countries have a concentrated composition of exports, a high ratio of exports to G.D.P. and a diversified structure of imports. They trade more and specialize more than large countries.

For a small country foreign trade assumes more than the 'balancing' role it plays in the larger country.

> "...the role of exports is much more that of a leading sector in the sense that the rate of growth of the G.D.P. is tied much more closely to the rate of growth of exports than in a very large economy. It is the growth of external demand which causes the economy to move..."39

Furthermore, in a large country (such as India) the constraints on the growth of domestic output that result from a sluggish demand for exports are essentially of a short-run nature

39. Ibid. p. 48.

applying to the take-off period. But in the case of the small country, the foreign exchange constraint is a continuing one, "it is a permanent fact of the national economy".[40]

This is not to say that growth can only be export-led in the small country. Indeed Demas concedes the possibility of growth being generated on the basis of import-substitution or with the development of the closed sectors of the economy (e.g. the construction sector). But there will be limits to the process of import-substitution. First, import substitution with respect to residentiary consumer goods and intermediate goods will be possible only to the extent that they are heavily protected by transportation costs; Second, the lack of variety in natural resources will be a severe constraint particularly in the case of intermediate and capital goods; and third, economies of scale will always be a problem given the limited size of the domestic market; the more so for the small country since manufacturing will have to play a key role in the development process, and it is precisely in manufacturing that the opportunities for achieving economies of scale are generally greatest.

Economies of scale will also affect other areas in the economic life of a small country. Because of the limited size of the domestic market, monopolies and oligopolies are seen as inevitable developments. Furthermore, the economies of scale derived by large countries in basic government administration as well as in the operation of certain public utilities will not apply to the very small country.

40. Ibid., p. 48.

Demas is not too convinced that the problems of scale
could be overcome by adapting technology to the requirements
of small markets. Research, he argues, will be very time-con-
suming, while the likelihood of success in such a programme
even in the long-run is considered debatable.

In addition to the limitations arising from the lack of
varied resources and the smallness of the internal market, Demas
enumerates four other disadvantages of small size.

First, as mentioned earlier, the growth of G.D.P. is depen-
dent on the continued growth of exports. The economy will there-
fore remain vulnerable to external demand and could only react
to such vicissitudes by being flexible, adaptable, and ready to
introduce innovations.

Second, the development of particular mineral or natural
resources by foreign capital could result in the growth of an
enclave sector so large in relation to the national economy that
all the important decisions about the economy will be taken by
large foreign corporations. Under these conditions the govern-
ment and domestic producers alike lose whatever autonomy they
might have had in determining the direction in which development
proceeds.

Third, while the structural and institutional openness of
small dependent economies facilitates the inflow of private capi-
tal and helps to ensure competitiveness in domestic production,
the disadvantages that go with such openness may be critical.
Foreign commercial capital is attracted to specific areas of the

island economies, the new export sectors being the main recipient of such capital. A substantial share of domestic savings (including depreciation) therefore accrues to foreign-owned firms in the export sector and is generally not available for investment in the domestic sectors of the economy. This tends to reinforce the lop-sidedness of the domestic economy. Moreover, the free converti-bility of the currency and the lack of a developed capital market encourage the outflow of foreign as well as national savings and the phenomenon of 'excess borrowing' develops.

The 'structurally' determined openness of the economy also inhibits the use of monetary policy to insulate the economy from externally induced fluctuations. The 'branch plant' nature of the financial institutions further weakens the powers of the monetary authorities to control the direction of the economy. Finally, in so far as the small dependent economy operates on the basis of an automatic monetary system, the growth of domestic expenditures, and as a consequence the expansion of employment is tied to the growth of exports. Under these circumstances balance-of-payments 'equilibrium' is achieved at the expense of adequate employment and adequate domestic demand.

Fourth, the demonstration effect is more acute in small countries with good communications than in large countries where the population is more dispersed. In such a situation there is no psychological distinction between town and country and the exposure of the rural population to the higher material stand-ards of the urban dweller stimulates in them the desire to have an equivalent level of consumption both privately and collectively

with that of the better-off townsmen. This, however, is not accompanied by a matching incentive to raise agricultural productivity to the levels of industrial productivity. To the extent that the propensity to consume rises, the mobilization of small rural savings is made all the more difficult.

We may now return to the question of employment in the small open economy. The 'demonstration effect' of high wages in the modern sector on the wage structure of the other sectors has been noted by Seers. The Keynesian approach would suggest that wage increases, by increasing domestic demand might generate a higher level of activity, thus fostering the growth of domestic employment. Demas like Seers disputes this. In a small open economy with a fixed exchange rate and an automatic monetary system, the marginal propensity to import is generally high. The first effect of rising money wages is to increase the demand for imports rather than to increase the demand for local goods and services. Furthermore, since in the short-run the price elasticity of supply in the domestic sector will be very low, the proportion of this increased demand that spills over to the domestic sector will have a limited impact on domestic output and employment. In this way, Demas argues, the increase in money wages automatically becomes an increase in real wages. And since in the short-run export receipts and foreign exchange will be fixed, such increases in money wage rates will seriously aggravate the employment problem. There thus exists a 'foreign-exchange fund' in the Demas model that is the equivalent of Seers' 'wages fund'.

There are four other implications of rising wages in the small country. First, the high wage levels of the modern sector may force up the supply price of labour in the low-productivity sectors of the economy. Disguised unemployment under these conditions gives way to open unemployment. Second, if wages rise faster than labour productivity, the cost structure will be thrown out of line with adverse effects on the level of activity and on employment. Third, rising wages will affect employment in the government sector by imposing a greater strain on the government budget. This is especially so where the marginal tax ratio is low. Fourth, high wage levels will encourage the substitution of capital for labour, and given the difficulty of producing capital goods economically in small countries, there will be no significant compensatory benefits from mechanization in the form of expansion in a capital goods sector.

However, there are some compensatory benefits to be drived from small size. In the first place the import demand for a particular commodity of a very small country is likely to be very small in relation to the total demand for that commodity. For this reason, even though the demand for the commodity may be income-or price-inelastic, the demand facing the individual country may be price-elastic. For similar reasons, the small country may be able to break the rules of the game, (e.g. by the use of discriminatory trade practices) without inducing retaliatory treatment by larger countries. Second, a given volume of foreign exchange would have a more significant impact on the small country than a large one. Third, the effect of devaluation on the terms

of trade of a small country is likely to be less severe. Fourth, the small independent country could more easily avoid heavy expenditures on defence. And fifth, to the extent that good communications exist in the small country, a truly national market could emerge, leading to the realization of economies of scale. Most of these advantages, however, are not automatic and could only be exploited by positive efforts on the part of the small country.

In the specific context of the Caribbean region, the individual territories are by definition small both in terms of area and population. Despite relatively high per capita incomes in certain regions the economies remain structurally untransformed. They are highly dependent in the sense that there is a high ratio of foreign trade to G.D.P.; "there is a great reliance on foreign private capital inflows and foreign aid; there is little financial and monetary autonomy; and there are still important gaps in the domestic financial structure. Foreign decision-making is all pervasive and touches many parts of economic and financial life."[41]

Furthermore, it is imperative that the rapid rate of development experienced in the 1950's should be maintained "in order to accomodate the rising population with their heightened expectations of material improvement; in order to compensate for the expected decline in the rate of growth of the leading mineral export sectors of bauxite and petroleum; in order to compensate

41. Ibid., p. 115.

for the removal of opportunities for emigration; and in order to preserve the intrinsically valuable institution of political democracy and a free trade-union movement".[42]

There are, however, two fundamental institutional constraints on the development of the region. The first is the "existence of political democracy on classical Westminister lines" and the second "the existence of a strong independent and forceful trade-union movement sharing the philosophy of North American, and to a lesser degree, British trade unionism".[43] The effect of the first constraint is to increase popular pressure on the government for immediate improvements, especially in the provision of social services. These demands may run counter to the long run objective of structural change. The trade unions on the other hand are inclined to policies which improve the well-being of their members at the expense of the expansion of employment opportunities, capital formation, and the government budget.

In the light of the particular structure and circumstances outlined here, Demas concludes that the individual territories will continue to rely heavily on exports for the expansion of domestic activity. But whereas it is considered inescapable that the economies should remain open, the degree of openness will have to be reduced. The protection of domestic industries and the control of imports of inessentials and luxuries, will require a reduction in the degree of 'structural' openess. Similarly the 'institutional' openess will have to be diminished in order to free the growth of domestic expenditures from its rigid

42. _Ibid._, p. 115.

43. _Ibid._, p. 98.

relationship with the growth of exports.

Transformation will then proceed on the basis of import substitution in domestic agriculture, food processing and manufacturing, as well as the encouragement of manufacturing for exports. The degree of feasible import substitution however is limited by the lack of a diversified resource base and the small size of the market. The major emphasis of the development strategy must therefore stress the production of manufactures for export. To this end suitable institutions will have to be developed for its promotion and financing.

Demas assumes that the use of imported capital - intensive technology will be unavoidable if industry is to be competitive. For this reason it is unlikely that development based on import substitution and export promotion can result in the full utilization of the countries' resources, in particular its human resources. A positive effort must therefore be made to make the 'closed' sectors, primarily the construction industry, more propulsive. It may thus be necessary to undertake a programme of useful public works. This however will be inhibited by the loss of potential revenue involved in granting incentives to industry, by the difficulty of mobilizing domestic resources in the absence of a capital market, and by the limited supplies of foreign exchange.

Rapidly rising wage rates could act as a serious damper on the development process. Demas argues that wage increases should fall short of productivity increases in order to facilitate the accumulation of surpluses for the expansion of output

and employment in the modern sector. This however, requires an incomes policy which not only allows for the control of wages in the modern sector but also ensures that the increases in wages forgone are usefully invested in the national economy.

The dualistic character of Caribbean economies cannot however be eliminated in the short run. In outlining an intermediate strategy of development, Demas comments as follows:

> "The strategy of development does not call for an attempt to eliminate dualism from the economic structure over the next decade or so in the sense of aiming at equalizing output per man as between the advanced and traditional sectors of the economy, but rather for a controlled and conscious dualism envisaging the maintenance of a gap between output per man in the export sector and in the domestic sectors such as domestic agriculture, construction, and public works."[44]

Agricultural policy should however, place emphasis on increasing output per acre rather than output per man, and at the same time measures should be taken to improve the rural way of life. By so doing the rural-urban population drift could be reduced.

The localization of decision-making forms an important aspect of development strategy. This would require an increase in the proportion of domestic investment financed from national sources of savings and controlled by local entrepreneurs. It thus implies "the encouragement of local entrepreneurs, the development of locally-owned financial institutions, and greater management of the monetary and financial system by the authorities".[45]

44. _Ibid._, p. 136.

45. _Ibid._, p. 137.

This does not however preclude the continued inflow of foreign commercial capital, nor does it necessitate the nationalization or expropriation of foreign businesses. Rather Demas envisages the growth of joint venture undertakings involving the cooperation of foreign capital with local capital contributed either by government or by private individuals. The essential constraint is that the decisions of the corporations should be in harmony with the national interest.

Finally, the development strategy outlined by Demas requires regional integration. "The larger the geographical size and population of the unit involved, the more nearly can the growth process approximate the continental pattern and the more nearly can the pattern of growth become fully sustaining."[46] It will therefore be advantageous for the Commonwealth Caribbean to associate in some form of economic union. This will make possible the realization of economies of scale and external economies, and facilitate the formation of a unified capital market. This however, will have to be accompanied by measures which would deal adequately with problems such as regional transportation, the protection of existing industries, and the rational specialization of activities.

In appraising the significance of the Demas contribution to Caribbean economic thought, two questions may be asked; first, to what extent do his arguments support his conclusions, and second of what prescriptive value are the conclusions so derived.

46. Ibid., p. 35.

We have observed that Demas uses the partial equilibrium technique of analysis, and holding everything else constant, concentrates on the two variables, the absolute size of population and the absolute amount of usable land. From here he argues that a large country is likely to have a wider resource base and a larger domestic market which, given the present 'state of the arts' will make possible the realization of economies of scale. The larger country will therefore be better placed to achieve a balanced and 'fully' self-sustaining form of growth. Furthermore, small countries could surmount some of the constraints of size by integrating into a larger economic unit. While it is obviously difficult if not impossible to establish empirical proof of this proposition, nonetheless its theoretical validity is indisputable.

This leads to the second question: to what degree should these conclusions influence the development policy of a small country. In this connection Havelock Brewster and Clive Thomas have argued:

> "...a general removal of internal barriers to trade and the coordinated imposition of external barriers are clearly not enough..."

> "...where 'unifying' and 'integrating' elements are found in the sphere of economic activity (in the West Indies), they are usually dis-functional and the reasons for this seem to lie in the almost classically colonial pattern of development of the area. This disfunctional integration is most clearly seen in the existence and operations of a pervasive system of branches of large international companies which control most of the basic resources of the region, such as bauxite, finance and sugar. Because of this company structure, the 'integration' of resources which occurs does so via the metropolitan area. Furthermore it creates a situation in which the disposition and

utilization of the resources of these sectors are
guided by the global considerations of these compan-
ies and their search for private profit over their
entire operations, which are in most cases vertically
integrated into their final manufacture activities
located in the metropolitan area. In many instances
this branch system stands in striking conflict with
the national interests of the West Indies."[47]

This argument has been taken further by Lloyd Best who
suggests that the transformation of the Caribbean economy will
involve the transformation of the character of the international
companies operating in the region and a drastic revision of the
terms of their participation. The question of nationalization
or expropriation cannot therefore be excluded as was inferred
by Demas. Best however anticipates that there may be metropoli-
tan retaliation in which case he suggests that military and pol-
itical factors will have to be incorporated into the analysis.
It is in this latter context, Best argues, that the question of
scale may be most critical.[48]

In conclusion, whereas Demas has provided a valuable in-
sight into the problems which confront the small country in its
attempt to achieve economic transformation and growth, some of
the 'policy' variables mentioned in his analysis must be further

47. Havelock Brewster and Clive Thomas, The Dynamics of
     West Indian Economic Integration, Institute of Social
     and Economic Research, University of the West Indies,
     Jamaica, 1967, p. 25. See also Lloyd Best, "Size and
     Survival", New World, Guyana Independence Issue, Guy-
     ana 1966. pp 58-63. Norman Girvan, The Caribbean
     Bauxite Industry, Institute of Social and Economic
     Research, University of the West Indies. 1967; Norman
     Girvan and Owen Jefferson, "Corporate vs. Caribbean
     Integration", New World Quarterly, Vol IV, No. 2, 1968
     pp. 45-56.

48. Lloyd Best, "Size and Survival", New World, Guyana
     Independence Issue, Guyana, 1966, p. 62.

examined if the resources of the region are to be fully exploit-
ed. Central to any such enquiry will be the role played by the
multinational corporation in the development of the region[49] and
the modifications of the present parent-affiliate relationship
required to ensure a viable integrated regional economic union.

A Structural and Institutional Approach

The most comprehensive study so far undertaken of the
Caribbean economies is provided in the recent work of Lloyd
Best and Kari Levitt, Export-Propelled Growth and Industrial-
ization in the Caribbean.[50]

The authors have delved into the historical experiences
of the Caribbean territories in an attempt to determine to what
extent the peculiar structural and institutional characteristics
inherited from the past have militated against recent efforts at
transforming these economies.

The main conclusion drawn from this study has been express-
ed as follows:

> "...the Caribbean economy has undergone little struc-
> tural change in the three hundred years of its existence.

49. Comprehensive accounts of the operation of the multi-
    national corporation may be found in the following
    sources: Judd Polk et al, U.S. Production Abroad and
    the Balance of Payments: A Survey of Corporate Invest-
    ment Experience, National Industrial Conference Board,
    Inc. New York, 1960. J. K. Galbraith, The New Indust-
    rial State, Houghton Miffin, Boston, 1967. Kari Levitt,
    "Canada, Economic Dependence, and Political Disintegra-
    tion," New World Quarterly, Vol. IV, No. 2, 1968, pp.59-
    139.

50. L. Best and K. Levitt, mineo.

By this we mean that the character of the economic
process in the region seems not to have significantly
altered over the period. Neither the modifications
which through time have been made to the original
institutions, nor the new institutions which have from
time to time been incorporated into the economy, have
relieved its dependence on external development init-
iatives. The economy remains, as it has always been,
passively responsive to metropolitan demand and met-
ropolitan investment."[51]

In their interpretation of the economic history of the
region the authors have constructed a series of models intended
to represent "successive layers of inherited structures and
mechanisms which condition the possibilities of transformation
of the present economy."[52] Model One, (Pure Plantation Economy)
provides the basic framework from which the other models flow.
It represents Caribbean economy as a slave plantation. Histor-
ically, it coincides with the mercantilist era of international
commerce and terminates with Emancipation. Model II, Plantation
Economy Modified, represents the period of English free trade in
the world economy. Historically it coincides with the period
between emancipation and the collapse of the world economy in
the 1930's. Model III, Plantation Economy Further Modified, be-
gins with the breakdown of the economic and political order in
the Caribbean in the late 1930's and extends to the establish-
ment of the new nation states in the post-war period. It is the
most complete model in the sense that it incorporates the old
structures of pure plantation economy as well as the modifica-
tions of the later periods.

51. Ibid., p. 22.

52. Ibid., p. 12.

Whereas Models I, II and III each have their particular structural and institutional characteristics the sequence is none-the-less conceived of as successive phases in a Model of Continuity and Change. For this reason most of the analysis is confined to the model representing contemporary economy.

In the accounting framework corresponding to Plantation Economy Further Modified the structure of production is divided into the traditional export, the traditional residentiary and the new dynamic sectors. The latter two are successive additions to the traditional export sector whose persistent dominance characterises Caribbean economy. Activities have been allocated to these three sectors according to the period of entry, the type of producing institution, and the actual behavior of institutions. However, the criteria are not mutually exclusive. Thus agricultural exports other than plantation output of sugar have been placed in the traditional export sector despite the profound difference in the typical producing institutions. Similarly, the new mineral exports have been included in the traditional export sector on the basis of crucial similarities between the old staple exports sugar and the new minerals.

The Model of Continuity and Change starts with Model I. Pure plantation economy forms part of the overseas economy of the Metropole and its total existence is tailored to the needs of the Metropole. The major source of its entrepreneurship and and finance as well as the focus of decision-making is metropolitan.

Certain 'rules of the game' define the relationship between hinterland and metropoles. The hinterland is restricted to terminal activity; primary production on the one hand and the distribution of consumer goods on the other. The transportation of merchandise is undertaken in metropolitan carriers, and associated services are provided by metropolitan intermediaries. Metropolitan banks and financial intermediaries dominate the monetary system while the currency is fully backed by metropolitan assets and is fully convertible into metropolitan exchange. Finally, an imperial preference system allows the conduct of trade within a framework of mutual preferences.

A subsidiary of a metropolitan firm forms the dominant unit of production in the plantation economy. Its primary links are always external and almost completely confined to the parent company in the metropole while in the hinterland it forms a self-contained unit. It has its own resident labour force, which is comprised largely of imported labour with no more skills than is required for the production of staples. Land is engrossed so as to ensure an adequate supply of labour at cheap wages. The resources are highly specialized in the production of staples, the demand for provision and supplies being provided from importation. There is an absence both of backward linkages and forward linkages to further stages of processing within the homeland.

The level of output and employment in the plantation economy is determined by the level of metropolitan domestic and re-export demand for the staple and by the share of the market

commanded by the particular hinterland. Aggregate demand may
or may not be income-elastic. In any event, output and employ-
ment are also influenced by the extent of the reserves of natural
resources in the hinterland. Since both the capital and enter-
preneurship are provided by the metropole and since the processing
facilities are located in the metropole, the metropolitan invest-
or can with facility either reinvest property incomes in the par-
ticular hinterland or place incremental investments in new terrain
elsewhere. The former course of action is taken only if the reser-
ves of natural resources are such as to ensure maximum profitabi-
lity, in which case there will be expansion in the particular
hinterland economy. If the latter alternative is more profitable
the ensuing expansion of capacity erodes the competitive position
of the mature hinterland.

In the latter situation, as profits decline and the export
sector grows at a reduced rate or stagnates, the demand for
labour declines, and the mature economy is forced to adjust.
The first reaction is to release some of the labour from the
plantation unit along with some limited tracts of land. It is
anticipated that these workers would be able to sustain themselves
without relying exclusively on employment on the plantations.
This is the nucleus from which the traditional residentiary
sector grows. A meaningful distinction could now be made be-
tween the national economy and the domestic economy. It is the
evolution of a domestic sector which forms the major characteris-
tics of Model II.

The national economy based on this domestic sector however is conditioned in its development by the structure of the pure plantation economy which gave birth to it. Land is limited; skills and craft are scarce; investible surpluses are confined to wages and are limited; demand is biased towards imports; and the state institutions are geared chiefly to the provision of law and order. There is therefore a lack of dynamism in the domestic sector and production is largely confined to output requiring traditional skills and traditional demands. The mature hinterland is now faced with the choice of rationalizing the structure of staple production or of negotiating more effective imperial protection and preference from the metropole. The metropolitan investor is not prepared to absorb the cost of rationalization, while the national economy cannot afford such expenditures. Increasing reliance on preferences is therefore a convenient way out. This also satisfies the wage earners in the traditional export sector and the small producers in the residentiary sector, the demand for whose services is maintained in the process. Transformation is thus postponed, at a cost of the "income, employment and internal dynamic which would have resulted had protection been abondoned and if the economy had embarked on a programme of import-displacement and diversification."[53]

Unless new resources are discovered in the mature hinterland, production costs in the export sector rise particularly in relation to new and more efficient producers in

53. Ibid., p. 43.

other hinterlands. The level of output and employment can now
be maintained only by further increases in imperial preferences.
Meanwhile population pressures on the land in the residentiary
sector become severe and lead to fragmentation and inefficien-
cy in production. A rapidly growing population aggravates this
trend. Eventually the system is threatened with collapse and a
new series of adjustments becomes necessary. At this stage we
leave Plantation Model Modified.

The adjustments that now emerge are indeterminate and dep-
end on whether or not the traditional mercantile ties are sev-
ered and the institutional framework altered.

In cases where the institutional base has been changed,
the localization of the export sector eliminates any valid dis-
tinction between the national and domestic economy. However,
the traditional export sector may disintegrate or it may be kept
intact. In the former case, the economy is no longer a hinterland
economy but it may or may not engage widely in international trade
and it may or may not stagnate. Haiti is given as an example of
one that has stagnated.

In the latter case, the economy forms a quasi-metropolitan
relationship in order to facilitate the external marketing of
its staples. Here contemporary Cuba is given as an example.
Because of the local ownership of resources, the economy has
full flexibility with regard to the use of its investible sur-
plus and some flexibility in respect of techniques. Further-
more the disruption of the old metropolitan links is necessarily

accompanied by a disruption of the established patterns of supply, taste and techniques of production. Traditional commercial interests are therefore eliminated and as a result local entrepreneurship is activated. The government is also better placed to utilize fiscal and monetary policy to effect the type of transformation desired. However, the extent to which the economy benefits from severing the established metropolitan ties will be curtailed by the new quasi - metropolitan relationship into which it enters.

Where the institutional base has been maintained the outcome will depend on whether or not new major staples have been found. If there are no new staples, then the only assets to be exploited are location and cheap labour. These may form a basis for the development of a 'quasi-staple' export sector specializing in service activity (e.g. finishing-touch assembly manufacturing, tourism and provision of labour to the metropole by immigration). This is an extreme example of an economy 'importing in order to export'. In such an economy local initiatives are limited, and the wage bill of the export sector forms the largest component of the national income. The government as a result depends heavily on metropolitan grants for its expenditures. Puerto Rico, Barbados and the Leeward Islands are considered as typical examples of this modified model.

On the other hand, if new staples have been discovered, a new wave of expansions begins. This is the case which corresponds to Trinidad or Jamaica and most closely to the models

developed by Seers, Demas and Lewis (1964). In this case the
national economy has neither the capital, the entrepreneurship
or the international marketing connections required for the
development of the resource. The kind of development that fol-
lows serves to perpetuate the hinterland relationship with the
metropolis. .

However some modifications become necessary because of the
changed character of the international political economy. The
authors argue that, "although the relationship between the metro-
pole and the hinterland, between the parent firm and the subsid-
iary, and between the new export sectors and the national economy
remains essentially unaltered, the forms within which it expresses
itself are different."[54]

In the Pure Plantation Economy the relations between metro-
pole and hinterland were determined by regulation; the division
of labour according to the 'Muscovado Bias'; the carriage of trade
by the Navigation Laws; the character of the monetary system by
the Metropolitan Exchange Standard; and the patterns of trade by
the Imperial Preference System.[55] In the Plantation Economy
Further Modified, these regulations are superceded by custom.
While the hinterland is theoretically free to make whatever
changes in policy it considers desirable, its relations with the
metropole are in practice seriously circumscribed by the terms
of bilateral and multilateral agreements and by rules of regional
and international agencies.

54. _Ibid._, p. 48.

55. See discussion above on "rules of the game". (p. 44)

With respect to the unit of enterprise, the merchant -
planter associations and the transitional coalitions of metropo-
litan rentiers and entrepreneurs are now replaced by the inter-
national corporations. These are very large corporate units,
often as large as the hinterland economy and in most cases larger
than the hinterland government. They engage in long-term plan-
ning and the switching of investments between different hinter-
land economies is systematically determined. Furthermore their
policy is strongly oriented towards the internal financing of
operations including that of their subsidiaries. Thus direct
investments by international corporations have largely replaced
private portfolio capital as a means of finance in the hinterland
economy.

Finally, as regards the relationship between the new export
sector and the national economy, the linkage remains limited.
Given the 'closed' nature of the international corporations,
except for the initial build-up period when heavy demands are
made on the local construction sector, the main contribution of
the export sector to the national economy consists of the taxes
paid to the government and the wages paid to the workers. This
places a limit on the surplus available for the development of
the national economy. It is therefore necessary to seek develop-
ment capital abroad from both private and public sources. But the
terms under which private capital is invited (e.g. Lewis' indus-
trialization by invitation) have the effect of further fragment-
ing the market for goods and for capital, reinforcing the bias
for imported goods and services, and in consequence, stunting
local entrepreneurial initiative. The dependent nature of the

national economy is therefore strengthened and transformation retarded. The governments as a result have to turn increasingly to national and international government loans and aid for the finance of their development programmes.

The authors have concluded that the principal lesson of the legacy of the plantation on the contemparary economy is that transformation is not possible without the localization of economic decision-making. This they express as follows:

> "In a society in which the high import content of consumption has been a structural characteristic inherited from the past, the encouragement of a metropolitan economic presence is particularly questionable as a development policy."[56]

> "To give to the economy the internal dynamic necessary to create new internal linkages, it is necessary to develop residentiary industries with lower import content and larger local purchases, to increase the degree of local processing of agricultural and mineral resources, to reallocate land resources, to halt the brain drain, to restructure financial institutions to widen the channels of national saving and investment flows, and to break down the economic barriers between individual territories within the region.[57]

The Best - Levitt thesis is therefore important in that it brings clearly into focus the obstacles in the way of transformation that have been created by the historically passive relationship of the Caribbean hinterland with the metropole. In so doing a strong case is made for the reduction of the openness of the economies in order to free the territories from their rigid dependence on metropolitan finance, entrepreneurship,

56. Ibid., p. 64.

57. Ibid., pp. 62 - 63.

technology and taste patterns, and to stimulate the growth of internal dynamism in the system.

However, it may be argued that their analysis of the mature plantation economy could have been taken further. They have not for instance explored the possibilities open to the mature plantation economy which has broken its traditional links with the metropole and which discovers a new mineral resource the development of which requires heavy outlays of capital. This is relevant since it is argued that there is a dearth of capital, entrepreneurship and international marketing experience in the islands at the time of the break. Cuba, for example, sacrificed some of its independence and flexibility in the mere act of marketing its sugar. It would appear therefore that foreign participation in one form or another would be unavoidable if the resource is to be developed. But the terms of such participation may indeed be narrowly circumscribed. Under these conditions size becomes a most important variable and the question of the economic and/ or political cordination of the region merits a fuller treatment in their analysis.

The Best-Levitt study, however, is a significant contribution to Caribbean economic thought; by focussing on the historical and institutional characteristics of the region's economies, they have emphasized the need for an 'inter-disciplinary' approach to the problem of transformation.

Summary

It is not expected in such a brief review that all the relevant studies on the contemporary Caribbean economic problems

could be included. However, the minimal requirement is that
the different approaches and consequently the different prescrip-
tions should be represented. This latter principle has formed
the basis for our particular choice of models.

We chose as our starting point the Moyne Commission report.
The Commission concluded that the economic problems of the region
stemmed largely from over-specialization in the production of
agricultural export staples. Because of this, output and employ-
ment in the economy as a whole were seriously affected in the
event of a protracted depression of external demand. A growing
population with rising expectations aggravated this condition.
As a solution the Commission therefore recommended firstly, that
agricultural production on the plantations as well as on the
peasant farms should be diversified and be made more efficient;
and secondly, that the rate of growth of the population should
be reduced. However, the production of staple export crops was
to remain the major activity on the plantation estates. It was
further recommended that the metropolitan governments should
provide larger quotas for these staples at higher guaranteed
prices. The Moyne Commission thus stressed agrarian reform and
had little faith in the development of non-agricultural activi-
ties. However, the fact that the producers of staples were being
offered a guaranteed market for their output removed any incen-
tive they might have had for the recommended deversification of
production.

Lewis on the other hand argued that the reorganization of
Caribbean agriculture could only be achieved if at the same time

other industries were being developed. The non-agricultural sectors would be required to absorb the surplus labour released from agriculture while a more efficient agriculture would ensure a supply of food for the workers in industry as well as an additional market for the output of these workers. The main emphasis was the establishment of a viable manufacturing industry on the basis of import-substitution and export-creation and this could best be done by inviting foreign entrepreneurs who would bring to the islands capital, skills and established external marketing outlets. The local governments were therefore to concentrate on incentive schemes that would attract these entrepreneurs to the region. Moreover, the region should be integrated in order that a rational distribution of industries could be effected and economies of scale achieved. Finally, steps were to be taken to keep production costs down in order that domestic output could be more competitive.

After a decade of 'industrialization by invitation' there was indeed a rapid growth of output but the unemployment problem remained unsolved. Agriculture was still inefficient and in need of reorganization. The manufacturing sector required a heavily protected domestic market for its expansion and its contribution to the net export earnings of the economies was limited. Similarly, the techniques of production were such as to restrict the number of jobs provided. The share of investment financed by national savings in total domestic investment was still very small. In effect the economies remained dependent on metropolitan capital, entrepreneurship, taste patterns and export demand and as a result had no dynamic of their own.

Recognising some of the defects of his earlier proposals, Lewis at this stage recommends first, that techniques more appropriate to the factor - proportions of the region be used; second that efforts to improve agricultural efficiency should be redoubled; third, that investment out of local savings should be encouraged; and fourth, that an incomes policy should be introduced with a view to keeping wage increases in line with labour productivity.

A more rigorous treatment of the same problem was provided by Seers in 1963. In his analysis of the open petroleum economy Seers argues that the main contribution of the export sector to the domestic sectors of the economy is in the form of wages and taxes. However, the wage rate in the export sector tends to be high and this wage level is transmitted throughout the economy by the labour unions. This has the effect of retarding the growth of other sectors of the economy. This indeed was one of the perverse effects of Lewis' "industrialization by invitation".

Seers further argued that the trend in export earnings and the trend in wage rates were the key variables in the open petroleum economy. He concluded that in the short-run employment would only grow if the rate of increase in wages were less than the increase in export earnings. Thus Seers, like Lewis (1964) implies that an incomes policy is crucial to the solution of the unemployment problem in the region.

However, while the Seers model provides a clear picture of the functioning of this kind of economy in the short period, the

treatment of the domestic sectors is not altogether representative of the contemporary Caribbean. The growth of output and employment in the model is too rigidly tied to the growth of domestic payments of the export sector of the economy.

Demas is more concerned with the constraints on transformation imposed by the absolute size of a country's population and the absolute amount of usable land. He concludes that a balanced and 'fully' self-sustaining growth is only possible in a large continental-type economy. This is so because the large country will have a wider variety of natural resources and greater opportunities for realizing economies of scale. A group of small countries will thus be better placed to achieve self-sustaining growth if they could be integrated into a single economic unit. With respect to the Caribbean territories therefore, Demas proposes a regional economic and/or political union which would make possible the more efficient development of a wider range of resources. While Demas recognises the importance of the institutional constraints on the transformation of the region, his analysis was centered on the 'natural' structural considerations.

Best and Levitt on the other hand attempt a more comprehensive analysis of the problems of the region. They survey the historical experiences of the region since the establishment of the slave plantation, with a view to determining to what extent the peculiar structural and institutional characteristics inherited from the past have operated against recent efforts at transformation. Their main conclusion is that the relationship between

the metropole and the hinterland, between the parent firm and the subsidiary, and between the new export sectors and the national economy have changed very little over the last three hundred years. The Caribbean economies, they argue, have continued to be passive appendages of the metropolitan economies. The authors suggest that it is only by breaking these ties and localizing decision-making that an integral dynamic for growth could be developed.

In the sections that follow we examine the economy of Trinidad and Tobago in the post-war period. The theories discussed above will form the basis for our evaluation of the problems of the economy and attempts at solving these problems in the period 1951 - 65.

CHAPTER II

THE OIL INDUSTRY OF TRINIDAD AND TOBAGO 1951-65

One of the main features emerging from our analysis of the Caribbean region is that the individual economies are dominated by one or a few staple export industries which function on the basis of metropolitan capital, entrepreneurship, technology and markets. In the case of Trinidad and Tobago[1] the predominant industry of the post-war period is the petroleum industry. Over the years 1951-65 the petroleum sector contributed 29.5 percent of the gross domestic product; 37.3 percent of gross domestic capital formation; 36.3 percent of government revenues; 81.9 percent of domestic merchandise exports and 37.7 percent of domestic merchandise imports. (See Table II)

This chapter deals with the accounts of the petroleum industry in Trinidad; our main concern here are those aspects which are important in determining the role played by the industry in the development of the island economy. Thus the composition of gross output, of value added and of total receipts; the structure of investments; and contribution of the industry to the national capacity to import are examined below. A brief sketch of the international petroleum industry is contained in Appendix I, while Appendix 2 consists of background material on the structure and growth of the domestic industry.

1. For the sake of convenience Trinidad and Tobago will subsequently be referred to as Trinidad. All values are in T.T. dollars unless otherwise specified. The conversion rate is at present approximately $1.00 U.S.-$1.86 T.T.

Table II

Contribution of the Petroleum Sector to the Domestic Economy of Trinidad and Tobago

(Percent)

	A GDP	B GDI	C Government Revenue	D Merchandise Exports	E Merchandise Imports
1951	29.9	43.8	38.1	78.3	29.8
1952	28.6	40.3	39.8	78.5	29.2
1953	31.4	40.9	37.5	77.4	27.6
1954	29.2	41.7	35.3	75.1	26.2
1955	29.2	37.3	37.1	76.2	25.0
1956	33.6	40.5	37.8	79.2	25.4
1957	36.0	41.4	45.0	82.6	24.5
1958	32.4	36.7	44.2	82.4	28.2
1959	32.7	42.3	38.1	83.6	29.3
1960	30.4	37.9	35.2	82.4	31.6
1961	30.0	33.2	36.6	85.2	45.6
1962	29.0	36.3	36.8	85.3	44.9
1963	27.6	35.1	33.6	82.0	45.9
1964	26.5	33.8	32.2	83.6	49.6
1965	24.2	35.3	29.6	83.0	48.4
1951-65	29.5	37.3	36.3	81.0	37.7

Notes and Sources:

(A)   Gross Domestic Product   See Table 3-13

(B)   Gross Domestic Investment   See Table 3-20

(C)   See Table 3-15

(D),(E)   These include crude oil imports.   Source:

Overseas Trade, C.S.O., Government of Trinidad and Tobago.

Gross Output

The growth and composition of gross industry output over the period 1951-65 is presented in Table 3-1. The most notable feature here is the fast growth/of industry output. Gross output rose from $202.7 million in 1951 to $795.2 million in 1965. This represents an annual rate of 10.3 percent per annum.[2]

One reason for the rapid growth of gross output was the expansion of the refining of imported crude oils. The influence of these intermediate purchases of crude oil on the growth of gross industry output is clearly seen in Figure I. Purchases of imported crudes as a proportion of the gross value of industry output first declined from 32.2 percent in 1951 to 21.5 percent in 1957, but then increased rapidly in the years that followed. By 1965 approximately 50 percent of value of gross output represented the purchase of foreign crude oil.

By deducting the value of imported crude oil from the value of industry output a more realistic picture of the industry's performance is obtained. Growth trends are provided in Table III which also shows the close similarity between the trend of output exclusive of imported crude oil, the trend of crude oil production and of value added.

2. All growth rates are compounded rates except where otherwise stated.

Table III

Comparative Rates of Growth

Average growth	Gross Output	Gross Output (excluding crude oil imports)	Crude Oil Production	Value Added
1951-54	6.3	4.6	4.3	8.6
1955-57	22.6	27.2	16.9	30.6
1958-61	13.9	5.6	7.1	7.0
1962-65	5.3	-0.7	-	-0.9
1951-65	10.3	5.9	6.3	8.2

Source: See Tables 2-3, 3-1 and 3-3.

Local and Foreign Content

From the data provided we may also determine the foreign
and local content of gross output. Here foreign content is de-
fined to include imported crude oil and other materials, profit
after tax and depreciation. Local content is comprised of wages
and salaries, payments to local government, local material pur-
chases and other local payments. This is illustrated in Figure 2.
The foreign content is large because of the heavy importation of
crude oil, the capital-intensive nature of production and the
need to import capital goods, and the outflow of funds resulting
from the foreign ownership of the industry. Whereas crude oil
purchases grew fastest after 1957, the growth of other foreign
payments was most pronounced in the period 1951-57. In 1951

foreign payments other than payments for crude oil accounted
for 35.5 percent of total output. By 1957 the proportion had
increased to 46.7 percent. In subsequent years this proportion
declined continuously, reaching 24.2 percent in 1965.

The local content of gross output was not only small but
declined relatively in the period under review. As a proportion
of gross output local payments declined from 32.3 percent in
1951 to 26.1 percent in 1965. These figures, however, are some-
what misleading because they reflect the large increase in the
importation of crude oil for processing in the years following
1957. In fact local payments by the industry grew from $65.7
million in 1951 to $208.2 million in 1965; this rate of increase
of 12% per annum exceeds the rate of increase of gross output.
If crude oil purchases were to be excluded from the value of
industry output, there is a noticable increase in local content
particularly after 1957.

We may further compare the composition of the output of the
mining sector with that of the refining sector. Table 3-2 pro-
vides data for the years 1961-62. In this period 34-38 percent
of the gross output of the industry originated in the mining
sector. The local content of mining output averaged 60 percent.
The refining sector on the other hand contributed 62-66 percent
of industry output, but the local content of the gross output of
this sector averaged only 30 percent.

The following conclusions may be drawn from this output
structure:

In the first place, the fact that the local content of the gross output of the industry is not large suggests a weak linkage between the petroleum sector and the rest of the economy. Moreover the linkage that is effected operates primarily through payments to labour and payments to government in the form of taxes. Purchases of local materials accounted for less than 3 percent of the value of gross output over the fifteen year period; while payments to contractors were approximately 5 percent of total output. These proportions would be even smaller if the foreign content of domestic purchases by the industry could be deducted.[3]

Secondly, it is evident that the growth of gross output of the mining sector generates a greater degree of expansion in the domestic sectors of the economy than does a similar rate of growth in the refining sector. To the extent that the expansion of the petroleum industry is based on the processing of imported crude oil, the impact of the industry on the rest of the economy will be rather small.

Value Added

The 'value added' by the petroleum industry is an important component of the national income of the country. In Table III a close correlation between the trend in crude oil production and the trend in the value added by the industry was observed. This

3. The foreign content has been calculated at 25.3 percent for construction, 24.5 percent for manufacturing, 13.8 percent for transportation, and 16.0 percent for services. See A. Francis "Inter-Industry Relations in Trinidad and Tobago", C.S.O. Research Papers, No. 2, 1966 p. 72.

similarity is explained by comparing the value added by the min-
ing sector with the value added by the refining sector in respect
of indigenous crude oils.[4] This was done for the years 1961-62
in Table IV. The data indicate that the value added in this per-
iod was five times as great for mining as it was for refining and
that growth of the industry as a whole is largely determined by
the growth of local oil mining activity.

Table IV

Value Added from Mining and Refining

Indigenous Crude Oil

	1961		1962	
	$mn	%	$mn	%
Oil mining	185.8	82.5	207.2	85.9
Refining	39.5	17.5	33.9	14.1
Total	225.3	100.0	241.1	100.0

Source: See Table 3-2

The composition of value added in the period 1951-65 is
given in Table 3-3. Here we may note the decline in the share
accruing to the local economy: wages and salaries and government
taxes. In 1951 wages and salaries was the largest single item
in value added and accounted for 29.1 percent of the total. By
1965 this proportion had declined to 23.3 percent. Similarly,

4. To obtain the value added deriving from the mining and
   refining of indigenous crude oil a proportion of the
   total value added by the refining sector equal to the
   share of indigenous crudes in total refinery throughput
   is added to the value added by the mining sector.

payments to the local government as a proportion of the total

fell from 23.6 percent in 1951 to 21.5 percent in 1965. On the

other hand depreciation provisions increased from 21.2 percent

of value added to 28.3 percent in 1965, while the share of indus-

try profit also moved upwards although somewhat erratically.

In the sections that follow we examine the trends in labour

payments, depreciation provisions and the distribution of gross

profits between the local government taxes and the companies.

Payments to Labour

The trend in payments to labour is influenced by the move-

ment of the two components, the level of employment and the level

of wage rates. Table V compares the trends in labour payments,

money wage rates, and employment. In the period 1951-65, payments

to labour increased by 143 percent, money wage rates by 248 percent,

while there was a 10 percent decline in the number of persons

employed.

From Figure 4 three distinct phases can be observed. In the

period 1951-54 money wage rates and employment were both increas-

ing, money wage rates rising by 31 percent and employment by 24

percent. As a result payments to labour increased substantially

(48 percent). During the period 1955-61 money wage rates rose

by 70 percent but there was an absolute decline in employment of

29 percent. The increase in payments to labour was 24 percent.

Employment remained constant in the third period, 1962-65

while there were major increases in the money wage rate. In
this period money wage rate grew at a rate of 15.2 percent per
annum making possible an increase of 20 percent in respect of
labour payments.[5]

The trend in the money wage rate is also important because
of the possible effect of wage increases on the level of employ-
ment. The tendency for wage increases to exceed the rise in
labour productivity would under normal conditions induce the
substitution of capital for labour. In Figure 5 money wage rates
are plotted against labour productivity. The relation between
wage rates and productivity is examined in terms of the three
periods 1951-54, 1955-61 and 1962-65. During the first period
the money wage rate grew much faster than labour productivity.
The fact that employment also increased at this time may be
attributed to the rise in import prices (22 percent between 1951
and 1954) and restrictions imposed on the use of foreign exchange.[6]

During the second period the increase in labour productivity
exceeded that of the money wage rate. The divergence was most
pronounced in 1955-59 when there were major reductions in the
number employed as well as a significant growth of industry out-
put. Moreover, the average price of imported capital goods de-
clined (See Table V) thereby facilitating the substitution of
machinery for labour.

5. The index of money wage rates relates to minimum wage
   rates for certain specified categories of manual workers
   on time rates only. These rates appear to have risen
   much faster than average earnings in this period, hence
   the relatively slower growth of labour payments.

6. The postwar dollar convertibility problem was only eased
   in 1958 with the removal of restrictions against certain
   foodstuffs and machinery imports.

Table V

Wages, Employment, Productivity and Import Prices
Petroleum Industry of Trinidad and Tobago 1951-65

Index   1951 = 100

	Money Wage Rate	Employment	Payments To Labour	Labour Productivity	Prices of Imported Capital Goods
1951	100	100	100	100	100
1952	105.4	103.8	115.8	101.3	104.3
1953	129.5	118.2	132.0	109.6	113.4
1954	130.9	123.9	147.8	103.7	122.0
1955	133.7	123.9	164.3	119.9	123.1
1956	154.5	104.4	170.9	191.7	126.3
1957	155.2	101.9	179.8	248.9	115.4
1958	168.8	101.2	186.0	246.4	112.8
1959	168.8	98.2	191.2	283.1	113.0
1960	209.6	95.0	196.3	296.6	138.6
1961	227.9	89.3	202.9	342.9	-
1962	227.9	88.7	201.8	351.6	-
1963	279.6	89.3	203.7	355.5	-
1964	304.2	88.0	222.1	365.6	-
1965	347.7	90.6	243.0	335.5	-

-   No data available

Source: Quarterly Economic Report, C.S.O.,Government of
          Trinidad and Tobago.

          Annual Statistical Digest, C.S.O., Government of
          Trinidad and Tobago.

In the third period labour productivity remained relatively constant while money wage rates soared. Employment, however, was virtually unchanged. Price indices of imported capital goods are not available for this period but in all appearances prices must have increased.

The labour policies of the industry however can not be fully explained by the relative movements in domestic money wage rates and labour productivity. The policies of the parent companies are also of paramount importance. From the second half of the 1950's the members of the international cartels (to which local companies are affiliates) experienced great difficulty in manipulating the market for petroleum. (See Appendix I). The reaction of these companies to stiffening competition and declining profit margins has been to adjust the structure of production in order to reduce costs. Production techniques became even more automated and employment declined. In the United States, Standard of New Jersey increased sales by 74 percent and net income by 27 percent while cutting back employment by 11 percent between 1950 and 1960. Socony-Mobil similarly succeeded in reducing its labour force while sales returns showed an increase of 60 percent. Gulf Oil Corporation doubled sales over the ten - year period with no increase whatever in the labour force.[7] The absolute reduction in the labour force facilitated the granting of wage increases by reducing the share of the wage bill in total costs and raising the level of labour productivity.

The transmission of these developments to the Trinidad

7. Harvey O'Connor, World Crisis in Oil, op.cit. p. 5.

operations of the international oil companies was inevitable
for several reasons. First, the local industry has been tradi-
tionally dependent on the parent companies for its technology;
secondly local production costs were already high by internation-
al standards; thirdly the incentives offered by the local gov-
ernment provided for duty-free importation of capital goods and
for very liberal provisions for capital consumption allowances;
and fourthly, a strong labour union had developed locally and
had patterned its outlook after the North Atlantic counterparts
to which it is affiliated.

The persistent depression of petroleum prices during the
1960's further reinforced the determination of the companies to
reduce costs by reducing employment. In recent years drastic re-
duction in employment was averted only by the intervention of
the local government. A decision was taken in September 1968
whereby government approval was made mandatory before the com-
panies could make further reductions in the labour force.[8]   At
the same time, the wage increases negotiated in collective
bargaining agreements were being subjected to closer scrutiny.[9]
The labour unions however are unlikely to be willing to go along
with a policy of wage restraint if the increases in wages for-
gone are in fact converted into increases in the remittable pro-
fits of foreign-owned companies. As for the companies the op-
portunity cost of retaining redundant labour is undoubtedly
greater for a private company than for a publicly-owned   concern

8. Draft Third Five Year Plan 1969-1973, Government Print-
    ery, Trinidad and Tobago. 1968.

9. To effect this the Industrial Stabilization Act was
    passed in April 1965.

especially when the unemployment problem of the economy is acute. Under these conditions the government is likely to be required to play a more active role in the industry than has been considered necessary in the past.

Depreciation

The provisions relating to the depreciation of fixed capital are contained in the Income Tax (In Aid of Industry) Ordinance, enacted in 1950 and revised in 1955. The Act provides for general allowances to all industries in respect of expenditures on industrial buildings, plant and machinery. Companies are granted an initial allowance of 10 percent and an annual allowance of 2 percent of the cost of expenditures on industrial buildings, while the allowance for plant and machinery is 40 percent initially and annual allowances range from 10 percent to 33 1/3 percent of the depreciated value of the assets.

In addition there are two major provisions which refer specifically to the petroleum industry. The first is the submarine well allowance which applies to individual offshore wells and is calculated on the gross value of production at well head. The allowance was fixed at 10 percent for the period 1956-60; 15 percent for 1961-65 and 20 percent for 1966-82. As an alternative to the percentage depletion allowance, the company may capitalize the expenses of exploration in which case the regulations provide for an initial allowance of 10 percent and a 20-year period over which the balance is to be written off. The allowance may not exceed 40 percent of the chargeable income

accruing from each well before the deduction of the capitalized expenses or the submarine well allowance.

The second important provision relates to the treatment of 'intangible development costs'. These represent expenditures on items without salvage value which have been incurred in the search for oil and gas. Although these are technically development expenditures which would normally be capitalized and written off over a number of years, the companies are allowed to treat the expenses as current costs of operations which are deductible after completion of the first producing well. Referring to this arrangement, the Oil Commission of 1963-64 commented that "the oil companies apparently treat the whole of Trinidad and the surrounding waters as being one petroleum province (or source) and consequently treat all current intangible development costs as deductible expenses."[10]

Depreciation allowances increased from $19.8 million in 1951 to $80.4 million in 1965. This was a rate of growth of 10.5 percent per annum. Tables 3-4 and 3-5 show the relationship between depreciation provisions and gross fixed capital formation in the industry. Depreciation allowances varied between 55 percent and 90 percent of gross fixed capital formation and were approximately 73 percent of the aggregate for the period as a whole. Allowances were heaviest in the case of oil well drilling and averaged 80.5 percent of capital formation in this acti-

10. Report of the Commission of Enquiry into the Oil Industry of Trinidad and Tobago 1963-64. Andre Deutsch Ltd., London 1964, p. 49.

vity. Allowances for other activities (mainly refinery expansion) covered approximately 64 percent of capital formation.

One effect of high depreciation allowances has been to increase the profitability of investment in the industry. In the period 1951-65 the ratio of net profits to net investment was on average 3.7:1. This appears quite favourable when compared with Venezuela where the emphasis of the industry has been on the more profitable crude oil production activities. The ratio in that country was 4.4:1 in the period 1950-60.[11]

Liberal depreciation allowances and other incentives are generally provided by governments to attract capital to particular industries in the first instance and to provide an extra source of savings with which to undertake further expansions. The economy as a whole benefits directly from the local purchases and payments of the industry and indirectly from the flow of company savings to other sectors through local financial institutions.

The benefits accruing from such policies are however limited. First, as was observed earlier, the local content of petroleum output is not only small but has been declining. Moreover this tendency is aggravated by incentive legislation which encourages the substitution of capital for labour by reducing the cost of imported capital goods. Secondly, the reinvestment of profit is influenced by the profitability of the local affiliates in relation to all other international interests of the parent company.

11. See C. Issawi and M. Yeganeh, Economics of Middle Eastern Oil, Faber and Faber, London 1962, pp. 188-189.

Capital consumption allowances may have to be exorbitant if a constant flow of investment funds is to be attracted from the international companies.

Thirdly, the benefits accruing to the local economy are restricted to the direct disbursements of the petroleum sector since the local petroleum companies do not invest in industries other than petroleum, and since the flow of funds through the financial institutions is very small. Most of the international transactions of the companies are cleared at their metropolitan head offices and the companies are not required to retain in the territory any capital in excess of that needed to meet current cash commitments.

The granting of liberal depreciation allowances to the petroleum sector in effect represents a transfer of savings from other sectors of the economy to the petroleum sector. Since the feedback from the petroleum sector is limited, it can be argued that one of the effects of the incentive programme has been to reinforce the lopsidedness of the economy by perpetuating its reliance on petroleum.

Distribution of Taxes and Profits

The sharing of profits between the local government and the producing companies has been one of the thorny problems of the international industry. Commenting on this conflict Edith Penrose wrote:

"The proportion of its profit that a company will be

willing to give up, depends on its estimate of the cost
of meeting the governments final demands compared with
the cost of resisting them, up to the point where the
loss in either case makes the business unprofitable...

...The demands of the government will depend on the loss
it believes it can inflict on the company by not giving
or by cancelling the concession under negotiation, that
is, on its estimate of the value of the concession to
the company, or on the amount it thinks the company will
be prepared to give up in order to avert political dis-
turbances and to maintain political goodwill."[12]

Governments of producing countries obtain their oil revenue
from a combination of the following sources; the ownership of re-
sources from which is derived bonuses, rents and royalties; the
ownership of property, in which case there will be profits; and
the system of income taxes. Whereas the specific terms under
which oil companies contribute to government revenue vary from
country to country, the concept of 50:50 profit sharing has
become a general standard (implicit or explicit) for evaluating
the equity of the fiscal obligations of these companies. The
concept was pioneered in Venezuela by the Law of Hydrocarbons
of 1943 and a subsequent ammendment of 1948, and has since been
accepted in diverse forms by most of the oil-producing states
throughout the world. The fundamental principle underlying the
profit-sharing agreements is that the government's share of the
net value of output (i.e. the gross value less cost of production)
should at least be equal to the after-tax profits of the compan-

12. Edith Penrose, "Profit-sharing between Producing
    Countries and Oil Companies in the Middle East" E.J.
    1959, pp. 240-41.

ies. Indeed the terms of the O.P.E.C.[13] agreement in 1964 stipulated that royalties were to be 'expensed' as a cost of production and therefore were not to be included in the computation of the 50:50 sharing arrangement.[14]

Since all the companies operating in Trinidad are foreign owned, the oil revenues of the government are derived from its ownership of crude oil resources and from taxes on company income. For the period 1951-65 total government receipts from the industry amounted to $671.6 million of which 58.6 percent came from direct taxes and 32.3 percent from royalties. Other payments (i.e. customs duties, harbour dues, oil impost and other miscellaneous payments) were just over 9 percent of the total. Income tax has been assessed on the basis of 40 percent of total taxable earnings of the companies for the period 1951-62 and 42 1/2 percent from 1963 onwards, while royalty rates have been 10-12 1/2 percent of the field storage value of net crude oil produced.

The relationship between government oil revenues and industry profits is shown in Table 3-6. Direct taxes as a proportion of gross industry profit (before taxes) varied between 20

13. The Organisation of Petroleum Exporting Countries (O.P. E.C.) was formed in September 1960 by representatives of the main oil-producing countries in the Middle East and of Venezuela for regular consultation amongst its members with a view to co-ordinating and unifying the policies of its members.

14. Draft Report of Ministry of Petroleum and Mines, 1966 Government of Trinidad and Tobago, 1966.

percent and 50 percent of the total and averaged 29.6 percent
in the period 1951-65. Total payments to government as a pro-
portion of the net surplus of the industry (i.e. net profits
plus total payments to the local government) fluctuated between
30 percent and 60 percent with an average of 41.6 percent for
the period as a whole. This ratio appears to be low in compar-
ison with the Venezuelan industry where the ratio has been
estimated at 58 percent in the period 1950-60.[15]

An interesting feature of the industry is the absence of
any positive correlation between the annual percent changes in
government oil revenues and the profits of the industry. This
is shown in Figure 6. It appears that fluctuations in the net
earnings of the industry have for the most part been absorbed
by the companies. A possible explanation may be found in the
composition of government oil revenues. Approximately 70 percent[16]
of total government oil revenues is received from the mining sec-
tor of the industry. However the price of crude petroleum is an
administered price and has been maintained at a relatively stable
level throughout the period.(See Table 3-8)

Product prices, on the other hand have been more vulnerable
to market forces and have fluctuated more widely than crude oil
prices. A large proportion of the refined products however has
consisted of foreign oil processed for a fee. The fee is deter-

15. See Issawi and Yeganeh, op.cit. pp. 188-189. The
    figures may not be strictly comparable however,
    because of possible differences in the treatment
    of certain items for income tax purposes.

16. This is based on data for only two years, 1961 and 1962.

mined without the collaboration of the local government and is intended to cover the cost of refining and a small profit margin. Government revenues from this source as a result may also be expected to be relatively stable.

In recent years the local government has shown increasing concern with the level of its oil revenues. In this connection special attention is to be paid to the level of domestic production, and the prices both of crude oil and refined products, as well as the system of incentives and the processing fee arrangement. These considerations underline the significance of the proposal to participate actively in the industry by the establishment of a publicly owned petroleum company.

Capital Formation

The pattern of capital formation in the industry is illustrated in Table 3-4. Total gross fixed capital formation in the period 1951-65 was $1,057.8 million, of which oil well drilling constituted 52.4 percent, plant and fixed machinery 40.9 percent and roads, bridges and buildings 6.7 percent.

In the case of oil well drilling most of the expansion occurred during the 1950's. In this period investment expenditures grew at a rate of 15.3 percent per year. In subsequent years investment expenditures stagnated as the footage drilled by local companies declined. (See Appendix 2)

The shift in drilling operations to marine areas towards the end of the 1950's resulted in a major change in the structure

of investment costs. It has been estimated that the cost per foot of drilling in the marine area exceeds the cost of land drilling by a ratio of 3.5:1.[17] Thus, whereas in the period 1963-65 the total footage drilled in the marine area was approximately 27 percent of the industry total, marine drilling must have absorbed more than 50 percent of total drilling expenditures.

Investment in plant and fixed equipment went mainly into the expansion of processing facilities. Whereas investment in drilling grew fastest between 1951 and 1959, the extensions to the refineries were concentrated in the period 1957-65. This pattern of capital formation in the domestic industry has been similar to that observed in the case of international majors in the period under review. A recent survey by the Chase Manhattan Bank suggests that the developing oversupply of crude oil since 1957 was one of the factors compelling international companies to concentrate on the marketing side of the industry. Thus in 1957 investment in marketing, transportation and refining were 46 percent of the total foreign petroleum capital expenditures of U.S. companies, and by 1964 the proportion had increased to 64 percent.[18]

Expenditures on roads, bridges and buildings formed a very small part of total investment outlays. This has been due to the

17. Data derived from unpublished government source.

18. Balance of Payments of the Petroleum Industry, Chase Manhattan Bank N.A. 1966, p. 7.

limited physical area of the territory, the concentration of the industry in specific regions, and the already existing network of roads which has made access to the mining areas relatively easy.

To derive the net capital formation of the industry we deduct the provisions for depreciation. Total net capital formation in the period 1951-65 was $285.0 million which was approximately 30 percent of the gross total. Because of the higher allowances in respect of drilling expenditures, net investment in drilling constituted only 37.2 percent of total net capital formation while net investments in plant, equipment and buildings accounted for more than 60 percent.

As regards the financing of gross capital formation by the industry, the high level of depreciation provisions has already been mentioned (see Table 3-5). Gross capital formation accounted for approximately 58 percent of total industry savings (i.e. net profits plus depreciation) whereas outlays on net capital formation were just over 27 percent of the net profits of the industry.

The decline in the total footage drilled has continued throughout the 1960's. Within recent years two of the major companies, British Petroleum (Trinidad) Ltd. and Shell (Trinidad) Ltd. have discontinued drilling on the grounds that they have exhausted all their possible prospects. However, it is not unlikely that investments in drilling will be accelerated in some

of the less explored marine areas. The expansion to refining
capacity on the other hand will depend partly on the growth
of domestic crude oil production and partly on the policy of
the refining companies (particularly Texaco) with regard to
the processing of foreign crude oils.

Receipts

The domestic petroleum industry is almost totally dependent
on foreign markets for the disposal of its output. In the period
1951-65, between 92 to 95 percent of gross receipts came from
foreign sales.(Table 3-7)   The greater proportion of these (94.1
percent) were product sales since most of the indigenous crude
oil is processed locally. Domestic sales accounted for less than
7 percent of gross receipts and consisted solely of product sales.

Gross receipts increased at a remarkable rate in this period.
Total sales climbed from $171.3 million in 1951 to $680.1 million
in 1965, an annual rate of growth of 10.4 percent. However, where-
as in the period 1951-57 increases in sales receipts resulted
from the growth of domestic output (See Appendix 2) as well as
from a rise in prices, in subsequent years the primary factor was
the increase in production. Table 3-8 records the movements of
crude petroleum and product prices. Petroleum prices rose to a
peak at the time of the Suez crisis in 1957-58 and then declined
continuously. However the fall in prices was less severe in
respect of the heavier oils which form the bulk of domestic pro-
duction. The domestic industry therefore appeared to have escaped

the full impact of this price trend.

There are several influences on the price at which domestic output is sold. While regular off-shore sales and sales to local marketing organizations tend to reflect the postings at the Caribbean exporting centres (i.e. Curacao and/or Aruba), international product or refinery capacity exchanges are not necessarily based on Caribbean postings and may reflect the higher prices of the U.S. Gulf Coast area. On the other hand sales to a number of traditional markets in the Caribbean are normally transacted directly from Trinidad and are therefore relatively free of interference from affiliated international marketing offices abroad. Similarly, with regard to bunker sales special arrangements apply, the prices including part of delivery charges for lighterage to anchorage. Finally, special prices are computed for each type of partly refined product, while products of inferior quality are sold at a discount below posted levels.[19]

The most significant changes in the direction of petroleum exports were the sharp increases in sales to the United States and the European Common Market and the declining importance of Caribbean and Latin American markets and bunker sales. (Table 3-9)

Exports to the United States grew at an annual rate of 31.3 percent during the period as a result of which the proportion of domestic exports going to this market area increased from 2.7 percent in 1951 to 31.2 percent in 1965. Most of this

19. See Report of the Commission of Enquiry into the Oil Industry of Trinidad and Tobago 1963-1964, op.cit pp. 28-29.

expansion was effected after 1956 and has been associated with
the purchase by Texaco of the British firm, Trinidad Leasholds
Ltd. The importance of the marketing outlets of the internation-
al companies is further illustrated by the fact that petroleum
consumption in the United States has increased at a rate of 3
percent per annum for the last decade or more.[20] For similar
reasons there was a decline in exports to the United Kingdom
after 1956. Sales to this market were 25.3 percent of domestic
sales in 1951, 31.7 percent in 1956 then declined to 11.0 percent
in 1965.

Exports to Western European markets also increased rapidly
during the period. Sales to European Common Market countries
grew at an average annual rate of 46.2 percent while the annual
increase was 16.1 percent in the case of countries in the Europ-
ean Free Trade Area (excluding the United Kingdom). This level
of expansion was facilitated by the remarkable growth of con-
sumption in this area since the middle of the 1950's (12 percent
per annum).[21] Approximately 17 percent of domestic exports
went to Western European markets in 1965 as compared with 3.6
percent in 1951.

Sales to the Caribbean area and Latin America fell from
29.1 percent of domestic sales in 1951 to 12.5 percent in 1965.
Exports to this region have been affected by the relatively slow
growth of consumption but mainly by the growth of refining cap-
acity. (approximately 11 percent per annum in 1956-66).[22] In

20. See World Oil: A Short Survey, Central Office of
     Information, London. March 1968, p. 17.
21. Ibid., p. 20.
22. Ibid., p. 26.

the Caribbean area, the construction of refineries in Barbados, Jamaica and Antigua and the expansion of existing capacity in Puerto Rico during the 1960's eroded the near-monopoly Trinidad petroleum had on these neighbouring markets.

The decline in bunker sales has been the most disturbing development in the marketing of domestic output. Trinidad's importance as a bunkering centre after the war was based on the country's membership in the Sterling Area as well as its central location within the Caribbean region. However once the post-war dollar convertibility problems of the world's trading nations were over, Trinidad's importance as a member of the Sterling Area was reduced. Similarly the construction of competitive bunkering facilities in other territories in the region (e.g. Panama and more recently Barbados) has seriously affected the domestic bunkering trade. As a result of these developments bunker sales increased at the marginal rate of 1.8 percent per annum and its contribution to total export sales declined from 20.2 percent in 1951 to 6.8 percent in 1965.

The problem of marketing domestic product output is likely to become more severe in the future. Although petroleum consumption has been growing rapidly in Western Europe, the expansion of refinery capacity has also been substantial. It has been estimated that capacity in this region increased at a rate of 13 percent per annum in the decade preceding 1966.[23] Extensions of capacity can also be expected in other importing regions while

23. Ibid. - p. 22

imports to the U.S. market continue to be restricted. The expansion of domestic sales will therefore depend to a large extent on the share of regional markets controlled by the international companies operating in the territory as well as their global marketing policies.

National Capacity to Import

In this section an attempt is made to evaluate the 'real' national foreign income of the petroleum sector. This index is important firstly because the traditional openness of the economy has made it extremely sensitive to changes in its foreign purchasing power; secondly, because the petroleum sector is the major source of foreign exchange for the national economy; and thirdly, because the complete alienation of ownership of the industry has meant that a sizeable share of its income flows abroad as payments to foreign factors of production.

The index used for the present purpose is the "national capacity to import"[24] which is an adaptation of the more familiar

24. See Lloyd Best and Kari Levitt, "An Ideal Type Accounting Framework for the Study of Caribbean Economy," Report of the Second Conference of Commonwealth Caribbean Government Statisticians, Georgetown, Guyana. 1968. also by the same authors "Externally Propelled Growth and Industrialization in the Caribbean," Montreal, 1969. (unpublished). This measure has been applied to the Trinidad economy by Gerard H. Dedeystere, "Some Measures of the National Capacity to Import", McGill University, Montreal, 1968. (mineo).

"income terms of trade".[25] To derive the national capacity to import we deduct from the gross value of exports all imported intermediate inputs as well as foreign payments in respect of profits, depreciation, management fees, rents and remitted salaries. By adding capital investment inflows to this total we obtain the national foreign exchange earnings of the sector. The national capacity to import is derived by dividing an index of the national export earnings by an import price index for goods other than crude petroleum.[26]

The trend in the national capacity to import is presented in Table 3-11. Two distinct periods can be observed. In the first period (1951-59) national foreign exchange earnings rose by 114.5 percent whereas import price increases were negligible (3.3 percent). The capacity to import as a result more than doubled. Between 1959 and 1965 however, national foreign exchange earnings went up only 17.0 percent while import prices soared by 35.0 percent. The national capacity to import therefore declined. In 1959 the capacity to import stood at 207.6 (1951-100) and by 1965 it had fallen to 179.9 or 13.4 percent less.

25. The "income terms of trade" had been introduced by G. S. Dorrance, "Income Terms of Trade" Review of Economic Studies, 1948-49. pp. 50-60. It measures the 'changes in quantity of imports obtainable from the sale of a country's exports' and is derived by dividing the index of export values by an index of the price of imports.

26. This measure differs from the "Current National Capacity to Import" used by Dedeystere (See Footnote 24). The latter measure excludes capital inflows for investment purposes.

Since petroleum is the principal source of foreign exchange in the domestic economy, a decline in the national capacity to import of the industry aggravates the balance of payments position of the economy and seriously affects the pattern of development and its financing. These effects will be discussed in greater detail in the next chapter.

Summary

The petroleum sector dominates the Trinidad economy, in terms of its contribution to the gross domestic product, gross fixed domestic capital formation, government revenues, and external trade.

There were significant increases in the gross output of the industry. However, much of this increase was absorbed by imports of crude oil for processing while remittance of profit and other foreign payments were by no means insignificant. The local content of gross output was therefore rather small and the linkage between the sector and the domestic economy was limited.

The growth of value added followed closely the growth in crude oil production. This is so because value added in the mining sector is five times as great as in the refining sector. Less than one-half of value added in the petroleum industry accrues to the local economy and the proportion has been declining.

Although there have been major wage increases particularly in the 1960's, employment in the industry has declined since 1951. Increases in payments to labour derive primarily from

increases in wage rates. Similarly, payments to the local government while relatively stable have tended to increase less rapidly than industry profits. Depreciation provisions on the other hand grew more rapidly than any other item of value added.

A relatively high level of capital formation was maintained throughout most of the period. The main items of investment expenditure were oil well drilling and fixed plant and equipment. Drilling investments grew fastest in 1951-59 while investments in plant and mchinery were concentrated in the period 1957-65. Because of the high level of depreciation provisions net capital formation was less than one-third of gross capital formation.

The industry receives most of its revenues from exports, a large proportion of which is exports of refined products. The general decline in petroleum prices after 1957 has reduced the value of the industry's output. However the heavier products which form the larger part of domestic output appeared to have been less affected than the lighter ones thus reducing the impact of the depression in world prices on the domestic industry.

The national capacity to import of the industry measures the trend in the real national earnings of the industry. The capacity to import doubled between 1951 and 1959 but declined in subsequent years. This trend in the earning power of the industry has had serious effects on the growth of the domestic economy and the way its development is financed. The effect of these trends in the sector on the development of the economy as a whole is the subject of Chapter 3.

Chapter III

The Economy of Trinidad and Tobago 1951-1965

In our review of post-war economic thought in the Carib-
bean region the central argument has been that the island
economies are still basically untransformed. The economies
continue to be dominated by one or a few staple export crops;
a high degree of openness has been maintained; and while fast
rates of growth have been experienced there still exists the
problem of rising unemployment. In this chapter an attempt
is made to determine to what extent these conclusions apply
to the Trinidad economy over the period 1951-65 and more
specifically, to what degree the petroleum industry has
influenced the pattern of growth in the economy as a whole.

The dominance of the petroleum industry in the Trinidad
economy has been described in the previous chapter. The
petroleum industry was shown to contribute a substantial pro-
portion of the gross domestic product, gross domestic fixed
capital formation, general government revenues and domestic
merchandise exports and imports.

A high degree of openness has also been a feature of the
Trinidad economy. This is indicated in Table VI which shows
the ratio of exports of goods and services to gross domestic
product; the ratio of imports of goods and services to gross
domestic product; the ratio of direct foreign domestic invest-
ment to gross domestic fixed capital formation; and the ratio
of imported consumer goods to total consumption expenditures.

The ratios were highest in respect of the first two measures. These are compared with similar ratios for selected trading countries in Table VI&. In terms of its dependence on foreign markets and foreign supplies Trinidad appears to be foremost amongst the world's open economies.

Finally, Trinidad has been faced with the problem of unemployment at a time of rapid economic growth. Over the period 1951-65 the gross domestic output increased at the remarkable rate of 10 percent per year.[1] As a result the gross domestic product per capita rose to $1,207.4 in 1965, while the national income per capita was $956.5 in the same year. On the basis of these statistical measures Trinidad cannot be described as a poor country. International comparisons are provided in Table VII. However, despite this fast growth of output the rate of unemployment has been increasing since the middle of the 1950's. The ratio of unemployed to the total labour force was 9 percent in 1955, rose to 14 percent in 1962 and remained at that level for the rest of the period. (See Table 3-12)

1. In real terms the rate of growth was somewhat slower but still relatively high particularly during the 1950's. In the period 1951-61 domestic output increased at an annual rate of 8.5 percent while in 1961-65 the rate declined to 3.5 percent. See Frank Rampersad, "Growth and Structural Change in the Economy of Trinidad and Tobago, 1951-1961". Research Papers No. 1 C.S.O. Government of Trinidad and Tobago. December 1963 pp. 82-176; Also Draft Third Five-Year Plan 1969-73. Government of Trinidad and Tobago. 1968 pp. 21-51

Table VI

Measures of Openness of the Economy of Trinidad and Tobago 1951-65

	$\dfrac{X^1}{GDP}$	$\dfrac{M^2}{GDP}$	$\dfrac{FPI^3}{GDFCF}$	$\dfrac{MC^4}{C}$
1951	79.2	86.0	40.2	46.1
1952	76.8	84.7	46.6	43.0
1953	75.8	77.0	32.2	40.7
1954	73.3	75.4	48.0	39.6
1955	68.7	75.7	32.6	38.9
1956	69.0	74.1	40.0	37.1
1957	69.7	78.4	62.4	36.4
1958	69.7	76.9	35.6	36.6
1959	66.3	77.8	45.0	36.1
1960	65.8	75.7	33.2	35.7
1961	73.8	80.7	24.7	31.2
1962	70.0	79.3	24.8	30.5
1963	67.8	77.0	36.5	26.0
1964	73.7	81.2	21.0	28.1
1965	72.3	84.1	33.0	27.2
1951-65	70.8	79.0	40.0	33.3

Notes:

1. Ratio of gross exports of goods and services to gross domestic product.

2. Ratio of gross imports of goods and services to gross domestic product.

3. Ratio of foreign private direct investment to gross domestic fixed capital formation.

4. Ratio of imported consumer goods to total consumption expenditures.

Souces: See Tables 3-13, 3-14 and 3-18

Table VIA

Per Capita Gross Domestic Product and National
Income; Import and Export Ratios

Selected Countries 1965

($ U.S. and Percent)

	Per Capita GDP	Per Capita National Income	X/GDP	M/GDP
	$	$	%	%
Canada	2,155	1,824	23.9	24.3
Jamaica	465	414	39.7	41.9
Puerto Rico	1,086	959	50.8	70.9
Barbados	369	357	57.4	74.7
Venezuela	917	745	31.7	22.3
Belgium	1,583	1,280	41.1	41.0
Luxemburg		1,616	84.0	89.1
Guyana	297	255	61.8	64.8
Mauritius	228	213	51.9	53.2
Trinidad & Tobago	702	556	70.8	79.0

Source: Yearbook of National Accounts Statistics 1967,
          United Nations, New York 1968.

It would appear therefore that the general characteristics of the Caribbean economies outlined above are clearly discernible in the case of Trinidad. However, a closer examination of the performance of the economy in the period reveals that some basic changes in its structure were being effected in the 1960's.

The period 1951-65 can be divided into two distinct phases: the first extending from 1951 to 1959 and the second from 1959 to 1965.[2] The first period was one of extrerdinary expansion in the economy, the gross domestic product growing at a rate of 12.5 percent annually. The economy slowed down during the second period particularly after 1962, and the growth rate fell to 6.7 percent per annum. (See Table 3-13). The results of our analysis suggest that the earlier period was characterized by growth

2.   It has been suggested in Appendix 2 that the growth of gross domestic output followed closely the growth of production of indigenous crude oil and that four different periods could be observed. (See Table 2-2) However it will be shown that the trends in the major macro-economic aggregates indicate two distinct periods. Moreover, by using longer time periods we are in a better position to observe the full effects of economic changes in any one sector on the pattern of development in the economy as a whole.

without transformation, whereas the later period witnessed considerable structural transformation. Whether the structural changes in the period following 1958-60 were due to the slowing of the petroleum boom or the commencement of governmental development planning is an interesting question.

Whereas the rate of growth of total output fell in the second period, this decline was largely attributable to the petroleum sector. The public sector as well as the private domestic sectors grew much faster than the petroleum sector and indeed faster than the economy as a whole. The non-petroleum industries were significantly less dependent on the petroleum industry and were thus becoming more propulsive. This can be see from Figures 7 and 8 which illustrate the average relationship between the value added in the petroleum sector on the one hand and the value added in the government and private domestic sectors on the other. The regression coefficient relating the value added in the public sector to the value added in the petroleum sector was 0.23 in 1951-59 and increased to 1.56 in 1959-65. In the case of the private domestic sector the coefficient similarly rose from 1.42 in the first period to 4.86 in the second period.[3]

3.   In the relevant equations the value added in the petro-
leum sector has been treated as the independent variable
while the value added in the public and private domestic
sectors are   dependent variables, (See Table 5-16)

These developments required a series of adjustments in the domestic economy. Since the petroleum industry continues to be the principal source of foreign exchange for the economy as a whole, the sluggish growth of petroleum in relation to the domestic sectors tended to put some strain on the foreign balances of the economy. One consequence was that it became necessary to draw heavily on foreign exchange reserves in the period 1959-65. Whereas in the earlier period large reserves of foreign exchange were accumulated, drawings were made from this fund in the second period. (See Table 3-14)

Furthermore the public sector was forced to borrow externally to finance its development programmes as well as to service debts previously contracted. Starting in 1962 major loans were raised by the government in every single year. This contrasts with the preceding decade when only two such loans were negotiated: one in 1951 and a second in 1954. Government borrowing was not however restricted to foreign sources. Prior to 1959 the government engaged in no internal borrowing whatever. Between 1959 and 1965 internal public borrowing accounted for approximately 27 percent of general government capital expenditures. (See Table 3-15).

A third consequence of the shortage of foreign exchange has been a reduction in the propensity to import.[4] In the period 1951-59 the marginal propensity to import was 0.33 while in the period 1959-65 the ratio fell to 0.21; the elasticity of merchandise imports with respect to the gross domestic product declined from 0.76 in 1951-59 to 0.55 in 1959-65. (See Table 3.16)[5]

Fourthly, there were changes in the composition of commodity imports. Imports of capital goods as a proportion of total commodity imports rose; conversely, imports of consumer goods (including intermediates) as a proportion of commodity imports declined. This is illustrated in Figure 8. During the first period an average of 31.8 percent of merchandise imports consisted of capital goods; in the second period

4. The propensity to import is defined as the ratio of imported goods other than crude petroleum to the gross domestic product. Unless otherwise specified, subsequent reference to merchandise imports will assume the exclusion of imports of crude petroleum.

5. All references to regression and other coefficients are derived from Table 3-16.

the average proportion increased to 35.2 percent.

The relative decline of consumer merchandise imports resulted primarily from the slower growth of goods other than foodstuffs. Indeed the marginal propensity to import foodstuffs (including beverages and tobacco) in relation to total consumer imports increased from 0.32 in 1951-59 to 0.35 in 1959-65. The structure of imports had therefore shifted in favour of capital goods on the one hand and foodstuffs on the other. In all appearances the use of foreign exchange for the purchase of less essential consumer items had to some extent been rationed.

These adjustments may also be observed by comparing the import content of investment and private consumption in the two periods. The marginal propensity to import capital goods in gross domestic fixed capital formation[6] rose from 0.39 in 1951-59 to 0.59 in 1959-65. On the other hand the marginal propensity to import consumer goods[7] fell dramatically from 0.34 in the first period to 0.14 in the second.

6. The regression coefficient relating the trend in imported capital goods to the trend in gross domestic capital formation.

7. Indicated by the regression coefficient relating the trend in imported consumer goods to the trend in private consumption expenditure.

Finally there were changes in the composition and flow of domestic investible funds. The marginal propensity to save in the household sector rose from 1 percent in the first period to 4 percent in the second. However, the national savings ratio (i.e. ratio of national savings to national income) declined from an average of 13 percent in 1951-59 to 10 percent in 1959-65 indicating a decline in public and local business savings. The increase in household savings therefore appears to have financed the higher level of investment in the public and domestic sectors.

Whereas no domestic funds were mobilized prior to 1959, the public sector borrowed regularly from domestic sources in the period 1959-65. With respect to the private domestic sector the flow of funds takes place through the financial intermediaries, principally the commercial banks. In the early period the ratio of local assets to total deposits averaged only 41.2 percent, indicating a substantial outflow of capital through the banking system. In the second period the average ratio of local assets to deposits rose to 64.2 percent. The growth of personal savings was therefore associated with a reduction in the outflow of doemstic funds through financial intermediaries..

In the sections that follow, the performance of the economy is examined in greater detail. The first section deals with the period of petroleum-based growth (1951-59); the second with the period in which the public sector seeks to play an active and leading role (1959-65); in the third section we seek to examine trends in employment and the factors influencing these trends.

Petroleum-based Growth: 1951-59.

The most striking feature of the 1950's was the rapid
growth of domestic output. The gross domestic product rose
from $312.1 million in 1951 to $799.1 million in 1959, a rate
of increase of 12.5 percent per year. (See Figure 9). The
increase was most pronounced after 1954, the annual rate being
13.9 percent in 1955-59 as compared with a rate of 10 percent
in 1951-54.

This expansion was generated almost totally by the
petroleum sector. The trends in petroleum output were discussed
at length in the preceding chapter. In the period 1951-59 the
value added by the petroleum industry increased at a rate of
13.7 percent per year, which was faster than the increase in
respect of the economy as a whole. The industry as a result
increased its share in total value added from 30 percent in 1951
to 32.7 percent in 1959.

The fact that the petroleum industry dominated the economy
implies that any significant change in petroleum production
must inevitably be reflected in the trend in total output.
However, the influence of the industry on the domestic sectors
(i.e. the non-petroleum sectors) depends on the nature of the
linkages between them. The domestic sectors may conveniently
be arranged into two groups: the public sectors which include
general government services, public utilities and other public

enterprises; and the private domestic sectors which include
all private industries with the exception of petroleum. The
correspondence between value added by the petroleum sector
on the one hand and the value added both by the public sector
and by the private domestic sector on the other, was very
high. In relation to the public sector the coefficient of
correlation was 0.93 while the coefficient was even higher
with respect to the private domestic sector (0.97). Changes
in domestic output whether public or private were attributable
to variations in petroleum output.

Petroleum and the Public Sector

The relationship between value added in the petroleum
industry (X) and value added in the public sector (Y) is
expressed by the following equation:

$$Y = 25.79 + 0.23 \ X$$

The relatively low regression coefficient indicates that a
unit increase in the value of petroleum output generated
only 0.23 percent of a unit increase in the public sector.
An alternative measure of the relationship between petroleum
earnings and the public sector is given by the equation
relating general government revenues (Y) to the net export
earnings of the petroleum industry (X):

$$Y = 12.18 + 0.47 \ X$$

Although Seer's assumption that all government revenue derives
from the petroleum sector in the form of royalty and tax does

not fit the case of Trinidad, it nevertheless appears to be the case that central government revenues vary directly with petroleum earnings. (Note the correlation coefficient of 0.93). Whereas government oil revenues contributed only some 40 percent to total government current revenues in this period (See Figure 10), it would appear that other major sources of government revenue such as personal income taxes and import duties increased as expansion in the petroleum sector generated higher domestic income levels and - inequitably distributed - generated an increase in imports. The regression coefficient of 0.47 indicates that an increase of 100 in net export earnings is associated with an increase of 47 in government revenues.

The relationship between petroleum net export earnings and total government expenditures (i.e. current and capital) was very similar to that observed in the case of current government revenues. Here the coefficient of correlation was 0.94 while the regression coefficient was 0.47. The reason for the similarity lies in the fact that the level of capital expenditures undertaken by the government was relatively low and for the most part financed out of the surplus on current account. (See Figures 10 and 11). There was no internal governmental borrowing and very little external borrowing. The correspondence between revenue and expenditures was almost complete.

Petroleum and the Private Domestic Sector

The relationship between value added by the petroleum industry and the private domestic sector was more impressive. In the following equation (X) represents petroleum output and (Y) the output of the private domestic sector. (The correlation coefficient was 0.98).

$$Y = 51.72 + 1.42 \ X$$

Thus an increase of 100 in petroleum output was associated with an increase of 142 in private domestic sector output. There is evidently some kind of multiplier at work here.

The response of individual industries to petroleum sector growth varied. Growth was fastest in the construction sector (20 percent per annum) and resulted directly from the major expansions in the petroleum industry especially after 1955. Next to taxes and labour payments, construction expenditures formed the largest item of costs in the petroleum industry. The construction sector however remained relatively small in relation to total output; 2.7 percent in 1951 and 4.5 percent in 1959.

The services sectors showed an exceptionally fast rate of growth (12.4 percent) [8]. This growth, particularly in transportation and distribution was symptomatic of increasing personal incomes as well as the slow growth of domestic commodity-producing sectors.

8. All growth rates cited in this discussion are annual average growth rates.

Thus ownership of dwellings (6.2 percent), agriculture
(7.5 percent) and sugar manufacturing (7.7 percent) grew
relatively slowly. 'Other manufacturing' however increased
appreciably (12.1 percent) but consisted primarily of
industries processing agricultural output. The only new
industries to appear at this time were textiles and cement.
The former responded to a high degree of protection and
similar incentives, while the latter was induced by the expan-
sion of the construction sector as well as by incentives
offered.

The pattern of growth suggests that there was no basic
transformation in the period. The petroleum industry became
even more dominant in total production while the role of the
public sector was largely one of levelling off the fluctuations

in petroleum output. (Note pervese trends in Figure 12).
Private domestic sector expansion was confined mainly to the
construction and services sectors. The former benefited directly
from the expansion of the petroleum industry, while the latter
was stimulated by the growth of incomes associated with the
booming petroleum sector. It is no exaggeration to say that
growth of the private domestic sector was derivative and induced
and that Trinidad up to 1959 was a typical petroleum economy.

Composition of Gross Domestic Expenditures

An indication of the pattern of development is also provided by the composition of gross domestic expenditures.[9] (See Table 3-18). These increased from $326.0 million in 1951 to $827.3 million in 1959, representing an average annual rate of increase of 12.8 percent. This is slightly in excess of the rate of growth of gross domestic output (12.5 percent). Expenditures on consumption did not rise as fast (11.6 percent per annum) but the share of consumption in total expenditure nevertheless remained in the area of 70 to 80 percent. In 1951 consumption expenditures were 73.7 percent of gross domestic expenditures; the proportion increased to 78 percent in 1954 before falling again to approximately 70 percent in 1959.

Public consumption expenditures as a proportion of a total consumption expenditures remained virtually unchanged. In 1951 the proportion was 14.6 percent while in 1959 it was 14.1 percent. However, public expenditures tended to increase relatively in the period 1952-54 at a time when the growth of petroleum output appeared to be flagging. Labour payments comprised the largest item of government current outlays

9. This consists of expenditures on consumption (private and public), gross domestic fixed capital formation and stocks.

accounting for 73 percent of the total in 1951 and 77.9 percent in 1959.

Private Consumption Expenditures

Private consumption expenditures grew at a rate of 11.7 percent which was just as fast as the increase in respect of total consumption expenditures. However, these expenditures exceeded the growth of personal disposable incomes. In 1951 consumption expenditures were 89.4 percent of personal disposable incomes while in 1959 the proportion was 94.5 percent. Changes in the pattern of expenditures however were not significant although some shift in expenditures from services to foodstuffs and household goods could be observed. Expenditures on food as a share in total consumer expenditures increased from 36.3 percent in 1951 to 37.7 percent in 1959, while expenditures on durable and non-durable household goods increased from 6.3 percent to 9.9 percent. Expenditures on services correspondingly declined from 28.9 percent in 1951 to 25.5 percent in 1959.

The marginal propensity to import consumer goods is indicated by the regression coefficient in the following equation. Here (Y) represents imports of consumer goods and (X) private consumption expenditures:

$$Y = 39.31 + 0.34 \ X$$

The coefficient of 0.34 would have been slightly higher if imported services were included. Foodstuffs and manufactured goods together constituted more than 70 percent of total consumer goods imports. (See Figure 14).

Fixed Capital Formation

Expenditures on gross domestic fixed capital formation grew from $69.8 million in 1951 to $242.6 million in 1959. (Figure 15). This represents an annual average rate of growth of 16.9 percent per annum, significantly higher than the rate of increase of consumption expenditures. Investment as a proportion of gross domestic expenditures increased from 21.4 percent in 1951 to 29.3 percent in 1959.

Fixed capital formation in petroleum averaged 40 percent of total gross investments in the period. The fastest rate of increase however was in respect of public sector investments. Here the average annual increase was 21 percent, resulting in a rising share of total gross investments from 13.1 percent in 1951 to 17.2 percent in 1959. Investment in the private domestic sector including manufacturing and agriculture lagged behind both petroleum and public sector expansion. Investments in sugar manufacturing and in services, however, were relatively high. (See Figure 15)

An interesting feature of the investment pattern in this period was the increase in the share of capital formation

supplied from domestic sources. (See Figure 16). Whereas
imported capital goods increased at an average annual rate
of 12.3 percent, capital expenditures against local sources
of supply grew almost twice as fast, at 22.2 percent per
annum. This is further seen in the regression series relat-
ing expenditures on gross domestic fixed capital formation on
the one hand, to expenditures on imported and local capital
goods on the other. The marginal propensity to use imported
capital goods in gross domestic capital formation was 0.39;
whereas the marginal propensity to use domestic capital goods
and associated services was 0.61.

The relatively faster growth of locally produced capital
goods and services appears surprising at first view since
imported capital goods became cheaper after 1955 on account of
a general decline in prices, and the subsidies implicit in
incentive legislation which granted highly favourable terms for
the importation of such goods as well as by the relaxation of
restrictions on the use of foreign exchange.[10] The explanation
probably lies in the fact that during this period growth was
fastest in the construction industry including residential
construction and in public sectors. Investment in both of
these sectors tends to have a relatively low import content.

10.   There was indeed a fast increase in imported
      machinery and transportation equipment of 13.7
      percent per annum reflecting the growth of
      investment in petroleum as well as the expansion
      of the transportation and distribution sectors.
      (See Table 3.21)

Moreover increases in money wage rates had not reached the proportions that characterized the 1960's and led to the substitution of imported for domestic investment outlays.

Sources of Funds

The sources of finance for investment are given in Figure 17. Approximately 37 percent of total gross investment was financed from domestic savings;33 percent from depreciation; and the remaining 30 percent from net foreign capital inflows. Household savings provided the largest share of domestic savings (21 percent) with relatively minor amounts coming from public sector savings (10 percent) and local business savings (6 percent). The third source of finance was net foreign capital inflows which consisted primarily of reinvested profits of foreign owned firms. Because large proportions of depreciation provisions in fact accrued to foreign owned firms and are for all practical purposes similar to the reinvestment of retained earnings of foreign firms, an alternate calculation of the contribution of foreign capital in financing gross domestic investments can be made. When depreciation of foreign owned firms is treated as a foreign capital inflow, the share of investment financed externally rises from 30 percent to 60 percent.

However, whereas depreciation provisions and net capital inflows together constituted over 63 percent of the finance for gross investments in this period, these funds tended to be concentrated in the export sectors of the economy. The oil and sugar industries alone absorbed 80.3 percent of total depreciation provisions and 58.3 percent of net capital inflows.

The financing of investment by sectors is shown in Table 3-22. Three broad categories are used: the petroleum sector, the public sector and the private domestic sector. The petroleum sector was completely foreign-owned and its investments were financed partly by depreciation provisions (64 percent) and partly by reinvested profits (36 percent). The public sector on the other hand financed itself primarily out of surplus on current account. Thus public savings covered 66.5 percent of public sector investments; while depreciation provisions accounted for another 6 percent and internal borrowing for only 5.7 percent - the result of a solitary loan in 1959. The residual financing came from foreign loans and grants. There was however no net change in the foreign reserve position of the government in this period.

The private domestic sector was financed principally from domestic savings. Local business savings contributed 13 percent; household savings 42 percent; and depreciation

provisio ns 15 percent. Net foreign capital inflows financed
the remaining 30 percent of gross investment of the private
domestic sector. The ratio of direct foreign investments
(including reinvested profits) to total investments in the
sector however was 58 percent which was much higher than that
in respect of net private capital inflows. This is an
indication of the phenomenon described as excess borrowing.[11]
A partial illustration of excess borrowing is provided in
Figure 18 which compares the trend in gross capital inflows
into the sector with the net changes in the foreign assets
of the local commercial banks. Except for the years 1955 and
1958, there was an annual net outflow of domestic savings
through the commercial banks totalling some $33 million over
the period. Moreover the fluctuations in the gross inflow of
private investment capital were associated with converse move-
ments in the external flow of investible funds through the
banking system. This suggests that the net inflow of private
investment capital was much more evenly distributed than
appears at first glance.

Balance of Payments

The main feature of the external account of Trinidad and
Tobago has been the perpetual deficit in current account and
the corresponding dependence on capital inflows to balance

11. Demas, op. cit., p. 64.

this deficit. Whereas the balance on visible trade has been negative throughout, the balance on services was positive for the period 1951-55. The negative balance in subsequent years has been associated with sharp increases in the outflow of investment income. (See Table 3-14).

Merchandise imports constituted approximately 70 percent of total imports of goods and services in this period.[12] These imports rose from $153.3 million in 1951 to $315.9 million in 1959, an average rate of growth of 9.5 percent per annum.

There was a very close correspondence between the trend in merchandise imports and the trend in gross domestic output as indicated by a correlation coefficient of 0.99. The propensity to import on the other hand was 0.33 and is expressed in the equation[13]

$$Y = 50.62 + 0.33 \ X$$

The regression coefficient of 0.33 suggests that for every increase of 100 in gross domestic output, an increase of 33 in merchandise imports resulted.

12. In these accounts imports of crude oil for processing have been excluded from total imports as well as exports.

13. In this relation Y represents the trend in merchandise imports and X the trend in gross domestic product.

The major items of imports were foodstuffs, manufactured goods, machinery and transport equipment. As a proportion of total merchandise imports during the period, imports of foodstuffs (including beverages and tobacco) were 25.4 percent, manufactured goods for consumption and investment, 37.9 percent, and machinery and transport equipment 20.7 percent. However, there were some distinct changes in the composition of these imports between 1951 and 1959. The share of foodstuffs as a proportion of the total declined from 26.4 percent in 1951 to 23.3 percent in 1959. Imports of manufactured goods similarly declined from 41.2 percent to 36.6 percent over the same period. On the other hand, imports of machinery and transport equipment increased from 17.2 percent in 1951 to 23.4 percent in 1959. (See Table 3-17).

In terms of the distribution of imports between capital goods and consumer goods (including intermediates) there was a shift in imports towards the former items. Imported capital goods as a proportion of total goods imports increased from 29.9 percent in 1951 to 34 percent in 1959, consumer goods imports correspondingly falling from 70.1 percent to 66 percent over the same period.

Imports of services accounted for 30 percent of total imports of goods and services. The largest item on this account was investment income which comprised approximately 61 percent of imported services and 18.5 percent of imports of good and services. Investment income rose at an annual rate of 15.9 percent, amounting to $557.2 million in the period.

Sources of Foreign Exchange

Net commodity exports increased from $116.6 million in 1951 to $259.2 million in 1959. The annual rate of growth was 10.5 percent which wasfaster than the increase in merchandise imports (9.5 percent) although not as fast as for imports of goods and services (11.6 percent). The composition of commodity exports (including petroleum bunkers) is illustrated in Figure 19. Approximately 70 percent of net merchandise exports originated in the petroleum sector. The other major export industry, sugar and rum, provided a further 12.1 percent while exports of manufactures, although four times as great in 1959 asin 1951, still constituted an insignificant proportion of export earnings. (1.9 percent).

The other major source of foreign exchange was foreign private capital inflows. Receipts from this source moved upwards rather eratically summing to $492.1 million for the period. Gross foreign private capital inflows were thus 92.5 percent of private foreign investment incomes. The balance of payments shows reinvested earnings as an outflow of property income on current account and an inflow of capital on capital account. In fact there was a relatively high degree of reinvestment of profits by foreign-owned firms. Foreign borrowing by the public sector on the other hand was small and consisted of a loan of $12.2 million in 1951 and another of $20.4 million in 1954.

Figure 20 provides a comprehensive picture of the sources of foreign exchange. Sectoral foreign exchange earnings are shown exclusive of the remitted profits of foreign-owned firms and the imported inputs of the petroleum industry.[14] On this basis the oil and sugar industries provided 54.3 percent of the available foreign exchange; services 22.1 percent; and net capital inflows to industries other than petroleum 12.6 percent. Over the period as a whole total foreign exchange earnings exceeded foreign payments resulting in an increase in foreign reserve balances of $103.6 million.

Summary of the Period 1951-59

The characteristic feature of the economy in this period was its high rate of growth generated by the rapid expansion of the petroleum industry. The impact of derived growth in the domestic economy was most evident for the public sectors and construction and services industries. Domestic expenditures grew at virtually the same rate as domestic output; over 70 percent of domestic expenditures went into consumption; public consumption expenditures were a relatively small proportion of total consumption expenditures and consisted primarily of labour payments.

14. These items have been excluded on the grounds that they are necessary costs of operation.

An average of 45 percent of private consumption expenditures
was spent on imported commodities. During the period the
ratio of private consumption expenditures to disposable incomes
tended to rise.

More than 40 percent of total capital investments went into
the expansion of the petroleum industry, most of it into oil-well
drilling. The growth of investments however was fastest in the
public sector, while high rates of increase were also experienced
in the sugar and services industries. An increase in the local
content of gross capital formation was also noted. Domestic
savings (including depreciation) provided approximately 70 percent
of the funds for these investments while the remaining proportion
consisted of net foreign capital inflows. Approximately 80 per-
cent of all depreciation provisions and 58.3 percent of net foreign
capital inflows went into the petroleum and sugar industries.
The economy in this period behaved like the classical mineral staple
economy in a golden age. There was no shortage of foreign exchange,
personal spending was high in relation to income, and there was
virtually no conscious effort to achieve structural transformation.

The Second Period 1959-65

After the rapid expansion of the 1950's the economy slowed down. Domestic output grew from $799.1 million in 1959 to $1,175.9 million in 1965 at an annual rate of increase of 6.7 percent. A major factor in the decline of the growth rate was the stagnation of the petroleum industry. The annual rate of growth of value added in petroleum during this period was 1.4 percent as compared with a rate of 13.7 percent over 1951-59. The share of petroleum in total value added fell from 32.7 percent in 1959 to 24.2 percent in 1965.

The fact that the economy as a whole grew so much faster than the petroleum sector indicates that the domestic sectors had become significantly less dependent on the petroleum industry. This was accompanied by a decline in the correlation coefficient relating public sector output to petroleum from 0.93 in 1951-59 to 0.77 in 1959-65. The correlation coefficient in respect of the private domestic sector and the petroleum industry similarly declined from 0.97 to 0.78 over the same period. These coefficients reflect the fact that petroleum sector output fluctuated more than the output of the public and other domestic sectors.

Changes in petroleum output were associated with greater changes in the output of the latter sectors. This was reflected in an increase in the regression coefficient. The equation relating public sector output (Y) to petroleum output (X) over the period was:

$$Y = -303.96 + 1.56 \ X$$

In respect of private domestic sector output (Y) and petroleum output (X) the corresponding equation was:

$$Y = -796.79 + 4.86 \; X$$

Corresponding regression coefficients for the earlier period 1951-59 were 0.23 and 1.42. Given the stagnation in the petroleum industry during the second period the higher regression coefficients indicate that the faster rate of growth in the domestic sectors were in fact internally generated.

The structural changes were reflected in the fact that export earnings of the petroleum industry ceased to show any significant correlation either with the current revenues or total expenditures of the central government.[15] This was a marked departure from the earlier period and may be understood with reference to Table VII below.

Table VII

	1951-59	1959-65
Petroleum Value Added	13.7	1.4
Petroleum Export Earnings (Net)	14.6	-0.1
Petroleum Payments to Government	10.9	3.1
General Government Current Revenues	10.9	7.5
General Government Expenditures (Current and Capital)	10.4	11.1

Whereas in the period 1951-59 there was a marked similarity in the growth trends of the various items, in the period 1959-65

15. This is shown by a very low value which suggests that in a large number of cases the variance must be attributed to chance. (See Table 16)

general government revenues grew more than twice as fast as
oil revenues while the net export earnings of the petroleum
industry suffered an absolute decline. What is more, general
government expenditures increased at a much faster rate than
revenues.

One of the reasons for the change in these relationships
was the tendency noted earlier for profits to absorb the major
fluctuations in petroleum earnings. Thus when net earnings of
the industry declined during the 1960's payments to the govern-
ment by the industry were not as seriously affected.

Secondly, although government oil revenues as a proportion
of total revenue had increased (from 40 percent in 1951-59 to
43 percent in 1959-65), total government spending (including
capital expenditures) increased much faster than current revenues.
The major development programme initiated in the First Five-Year
Plan of 1958-62 was financed by a very large increase both in
local and foreign borrowing. Loans and grants constituted
approximately 18 percent of total government expenditures (1959-65)
as compared with 6 percent in the earlier period.

The relative growth of the various sectors of the economy
in the two periods is shown in Table VIII. Only in the case of
public utilities, ownership of dwellings and the banking and
financial sector did the rate of growth in the 1959-65 period
exceed that of the earlier period. In relation to the overall
aggregate rate of growth, the only sectors to grow faster than

Table VIII

Average Annual Rates of Growth of Output

Sector	1951-59		1959-65		1951-65	
	A	B	A	B	A	B
Economy	12.5	-	6.7	-	10.0	- -
Public Sector	11.0	-1.5	12.1	5.4	11.5	1.5
General Government	11.8	-0.7	9.0	2.3	10.6	0.6
Public Utilities	8.5	-4.0	20.4	13.7	13.4	3.4
Petroleum	13.7	1.2	-1.4	-5.3	8.2	-1.8
Private Domestic Sector	12.1	-0.4	8.0	1.3	10.4	0.4
Sugar Manuracturing	7.7	-4.8)	9.6	2.9	10.7	0.7
Other Maunfacturing	12.1	-0.4)				
Construction	20.0	7.0	8.3	1.6	14.9	4.9
Ownership of dwellings	6.2	-6.3	23.4	16.7	13.2	3.2
Agriculture	7.5	-5.0	1.0	-5.7	4.7	-5.3
Transport and distribution	16.7	4.2	8.0	1.3	14.9	4.9
Banking and Finance	12.4	-0.1	16.1	9.4	14.0	4.0
Other Services	12.1	-0.4	6.9	0.2	9.8	0.2

A Average   annual rates of growth.

B Deviation fromaverage rate for the total economy,

Source: See Table 3-13

average in the early period were petroleum, construction,
transportation and distribution. By way of contrast in the second
period all sectors save petroleum and agriculture grew faster
than the average rate for the economy. The only lag throughout
was agriculture.

Petroleum and the Private Domestic Sector

Whereas in 1951-59 growth was generated almost exclusively
by the expansion of the petroleum industry, in 1959-65 the
individual sectors responded to different stimuli. The effect
of the public sector five year development programmes and the
growing demand for private housing ensured the continued expan-
sion of the construction sector, although at a rate much below
that of the first period. (This sector however showed signs of
stagnating after 1963). The effects of the government programme
of slum clearance, and of the housing loans schemes of the govern-
ment and the sugar estates were reflected in the substantial
contribution of ownership of dwellings to gross domestic product
in 1959-65.

The expansion of the construction sector stimulated the
growth of industries supplying building materials, particularly
cement. The most important advance in the manufacturing sector
however was in petrochemicals, an industry related to the petroleum
industry. The value of exports in two major products - fertilizer
and amonia-increased from $1 million in 1959 to $22.4 million in

1965. Sugar manufacturing on the other hand appeared to have levelled off after 1961.

In the services sectors growth was fastest in banking and finance. This was associated with higher levels of personal incomes, the growth of hire purchase transactions, and the increased channelling of domestic savingss into domestic investments, particularly housing. The growth of other services reflected the inceasing mobility of the population as well as the tendency of service sectors to absorb the growing volume of disguised unemployment.

Agriculture continued its decline. The share of this sector as a proportion of gross domestic product fell from 17.8 percent in 1951 to 12.4 in 1959 and to 9 percent in 1965. Sugar cultivation remained the dominant activity. In real terms, the contribution of sugar cane cultivation to gross domestic product originating in agriculture :rose from 21.4 percent in 1951 to 24.7 percent in 1961. The share of export tree crops (cocoa, citrus coffee, copra etc.) on the other hand declined from 27.7 percent in 1951 to 21.9 percent in 1961; the share of domestic agriculture similarly fell from 34.2 percent to 26.6 percent over the same period. There was a relative increase in the contribution of livestock (particularly poultry) and fishing from 13.2 percent in 1951 to 21.8 percent in 1961.[16]

16. See Frank Rampersad, "Growth and Structural Change in the Economy of Trinidad and Tobago 1951-61", Research Papers C.S.O., Government of Trinidad and Tobago. December 1963 pp. 101-106.

During the 1960's sugar cane cultivation maintained its dominance, contributing about 25 percent of gross domestic output originating in the sector. However although the external price of sugar was pegged at a relatively high level under the International Sugar Agreement, unfavourable weather conditions and plant disease seriously affected output. Tree crops in general continued to decline, despite the improvement in external demand and the favourable arrangements guaranteed by international commodity agreements between producers and consumers. Domestic production of cocoa fell from 14.7 million lbs. in 1962 to 11.1 million lbs. in 1965, largely on account of inefficient methods of production. The production of citrus has been erratic in spite of substantial preferences received in the U.K. market. The only tree crop to show any significant increase was coffee which towards the end of the period benefited from the price stability afforded by the International Coffee Agreement.

Whereas traditional agriculture tended to decline in import-ance, domestic agriculture appeared to be gaining some ground after 1961. Significant increases were achieved in the production of root crops, pulses, milk and eggs while poultry production had advanced to the stage where self-sufficiency in the domestic market was possible.

It could be argued that there is evidence of a partial trans-formation in agriculture towards the end of the second period. The fact that domestic agriculture grew in relation to a heavily

subsidized plantation agriculture is in itself an achievement.
The growth of domestic agriculture however was to some extent
facilitated by government incentives in the form of guaranteed
prices.[17]

Although the rate of economic growth was slower in the
period 1959-65, it appears that the economy was undergoing some
structural transformation. During the early period the petroleum
industry increased its dominance of the economy, while the private
domestic sectors passively responded to this expansion. The public
sector acted merely to cushion the effects of fluctuations in
petroleum production. In the second period the domestic sectors
appeared more propulsive, the dominant sectors being government
and the construction industry.

Composition of Gross Domestic Expenditures

In this period gross domestic expenditures grew at an annual
rate of 7.7 percent from $827.3 million in 1951 to $1,293.6
million in 1965. This contrasts with a rate of increase of 12.8
percent in the previous period. However these expenditures
exceeded the growth of gross domestic output (6.7 percent) indicat-
ing an increase in the dependence on imported goods and services.

17.   For discussion on the trend in agricultural production
      after 1962. See Draft Third Five-Year Plan 1969-1973,
      Government of Trinidad and Tobago 1968. pp. 26-30.

The relatively fast growth of gross expenditure was due mainly to the growth in consumption expenditures (private and public) which increased at an annual rate of 8.9 percent thus raising its share in the total from 70 percent in 1959 to 75 percent in 1965. The increase was faster in respect of public consumption; here the growth rate (11 percent) was sustained at the levels of the 1951-59 period, despite the substantial slowdown of the overall growth rate. Labour payments as a proportion of total public consumption declined somewhat from 77.9 percent in 1959 to 71.5 percent in 1965. Interest and amortization payments on the other hand grew from 7.6 percent of current government expenditures in 1959 to 13 percent in 1965. This reflects extensive borrowing by the public sector during the period.

Private Consumption Expenditures

Private consumption grew at a rate of 8.6 percent per annum, considerably slower than public consumption spending. Its share in the total thus declined from 86 percent in 1959 to 84 percent in 1965. The marginal propensity to save from personal disposable income increased from 1 percent in the period 1951-59 to 4 percent in the second period.

Whereas in the early period the share of foodstuffs in total private consumption tended to rise while that of services was declining, this trend was reversed in the second period 1959-65.

In these later years the share of foodstuffs in total consumer expenditures fell from 37.7 percent in 1959 to 30 percent in 1965. Conversely, the share of services increased from 25.5 percent to 32.1 percent over the same period. However the share of durable and non-durable consumer goods continued to grow from 6.3 percent in 1951 to 9.9 percent in 1959 and to 13.1 percent in 1965.

The marginal propensity to import consumer goods also fell dramatically during the period. The relationship between imports of consumer goods (Y) and private consumption expenditure (X) was:

$$Y = 41.69 + 0.14 \, X$$

The regression coefficient indicates that the marginal import content was 14 percent, less than one-half the figure for the earlier period (34 percent). While there were no major changes in the composition of consumer merchandise imports a small increase was observed in the share of manufactured goods, chemicals and private motor cars and cycles, and a decrease in foodstuffs,[18]

18. Although imports of foodstuffs as a proportion of total consumer goods imports declined, there was a small increase in the propensity to import foodstuffs out of expenditures on imported consumer goods. This is shown by an increase in the regression coefficient from 0.32 in 1951-59 to 0.35 in 1959-65. (See Table 3-16)

beverages and tobacco. (See Table IX below).

Table IX

Composition of Imports of Consumer Goods
(Percent)

Item	1951-59	1959-65
Food, Beverages, Tobacco	37.6	36.2
Manufactured goods	38.7	39.3
Chemicals	10.4	11.1
Private Motor cars, cycles	3.1	3.5
Other commodities	10.2	9.9

Source: See Table 3-17

Fixed Capital Formation

Expenditures on gross domestic fixed capital formation moved erratically from $242.6 million in 1959 to $325.6 million in 1965, representing an average annual rate of growth of 5.1 percent. This was very much slower than in the first period when the rate of increase was 16.9 percent. As a result, whereas in 1951-59 the share of these expenditures in gross domestic expenditures increased, the reverse obtained in 1959-65. Expenditures on fixed capital formation constituted 21.4 percent of gross domestic expenditures in 1951, increased to 29.3 percent in 1959 then fell to 25.4 percent in 1965.

The most striking feature of the industry composition of gross domestic fixed capital formation was the slow growth of

investments[19] in the petroleum industry in 1959-65. These
investments increased at a rate of 2.1 percent per annum in
1959-65 as compared with a rate of 16.3 percent in 1951-59.
As a proportion of gross fixed capital formation petroleum
investments thus declined from 40 percent in the first period
to 36 percent in the second. Fixed capital formation in the
public sectors grew at 8.6 percent per annum. This was much
slower than in the earlier period when the rate was 21 percent
but was faster than the increase in respect of the petroleum
industry as well as the economy as a whole. The share of public
sector investments in total investments increased from 16 percent
in 1951-59 to 21 percent in 1959-65.

Gross fixed capital formation in the private domestic sectors
as a proportion of the total changed little in the two periods;
this proportion was 44 percent in the first period and 43 percent
in the second. Of the private domestic sectors, the rate of growth
was fastest in respect of dwelling construction (12.8 percent)
and sugar manufacturing (13.4 percent). The other sectors on the
other hand lagged at 3.1 percent per annum. The sluggish growth
of investments in the latter sectors was most pronounced after
1962. Between 1959 and 1962 the annual rate of growth of fixed

19.   Investments and gross fixed capital formation are used
       interchangeably in this section.

capital formation in these sectors was 7.6 percent with manufacturing growing at 13.6 percent and agriculture declining at20 percent; in the period 1962-65 there was an absolute decline in fixed capital formation in these sectors from $89.8 million in 1962 to $86.8 million in 1965.

Whereas the rate of growth of fixed capital formation was more than three times as fast in the first period as in the second, the marginal propensity to use imported capital goods in gross domestic fixed capital formation was much higher in the second period. This is indicated by an increase in the regression coefficient from 0.39 in 1951-59 to 0.59 in 1959-65. The marginal propensity to use domestic capital goods correspondingly declined from 0.61 in the first period to 0.41 in the second. These trends are the opposite of what one would expect in the early periods of economic development.

An explanation probably lies in the changing composition of investments in the individual sectors over the two periods. Whereas the import content of investments in petroleum tends to be continuously high in relation to investments in the domestic sectors, in all appearances investments in the domestic sectors became much more capital intensive in the second period. In the manufacturing sector the establishment of the petrochemical industry must have greatly increased the demand for imported machinery by this sector after 1959. The outstanding increase in

investments in public utilities (26 percent per annum) must
have had a similar effect on the import content of public
sector investments[20]. Furthermore the construction sector
appeared to have mechanized considerably from the end of the
1950's.[21] The result of these factors would be to reduce the
marginal increase in expenditures on domestic goods and services.
However, expenditures on domestic capital goods and services
as a proportion of gross domesctic fixed capital formation did
increase to 57 percent in the second period from 43 percent in
the first.

Sources of Funds

A summary of the sources of funds for the financing of gross
investment (including changes in stocks) is shown in Table X.
The reader may also wish to refer to Figure 17 and to Table 3-21
for more detail.

Table X

Sources of Finance for Investment

(Percent)

Source	1951-59	1959-65
Depreciation	33.5	39.0
Local Business Saving	6.1	3.0
Household Saving	20.7	17.7
Public Saving	9.9	4.5
Net Foreign capital inflows	29.8	35.8

Source: See Table 3-21

20. General government fixed capital formation which tends
to have a lower import content than public utilities in
fact declined during the second period at 2.7 percent
per annum.

21. See Frank Rampersad, op.cit., pp. 142-160

The most significant changes were the increases in the share of depreciation and net foreign capital inflows and the decline in the share of domestic savings. The flow of investible funds has been influenced by several factors. Firstly, the liberal terms of depreciation provisions and other incentives for industry and the fast growth of the manufacturing sector during the second period, tended to increase the share of depreciation in the total. Further the rapid expansion of the petroleum industry in the 1950's was reflected in a high level of depreciation allowances in the later period. Secondly, the level of savings in the public sectors and to a lesser degree, the private domestic sectors, declined as the level of investment financed from current incomes increased.[22] Thirdly, customs duty rebates, heavy depreciation allowances and other industrial incentives seriously impaired government revenues. Customs duties rebated to pioneer industries totalled $31.0 million between 1959 and 1964 while accelerated depreciation allowances of these pioneer industries amounted to $101.2 million in the three years 1959-61.[23]

22. With respect of the public sector this could be seen from Table 3-15, while in the case of the private domestic sectors an indication is given by the relatively faster growth of private consumption expenditures as compared with expenditures on imported merchandise consumer goods.

23. See Eric Armstrong, Import Substitution in Jamaica and Trinidad and Tobago, I.S.E.R., University of the West Indies, Jamaica. 1967. pp. 7-8.

However, the share of depreciation provisions absorbed by the petroleum industry fell from 77.3 percent in 1951-59 to 66.7 percent in 1959-65 while petroleum net investments as a proportion of capital inflows declined from 48.2 percent in the first period to 29 percent in the second. This change resulted primarily from the growth of public sector borrowing and the expansion of the petrochemical industry and a lesser degree sugar manufacturing both of which are foreign-owned. The financing of gross domestic investments by sectors is illustrated in Table XI.

Table XI
Financing of Gross Domestic Investments by Sectors

	Percent	
	1951-59	1959-65
Petroleum: Depreciation	64.3	71.4
Saving (i.e. retained earnings)	35.7	28.6
Total	100	100
Public Sector: Depreciation	6.0	7.4
Saving (i.e. excess of current revenue over current expenditure)	66.5	21.7
Internal borrowing	5.7	23.3
Net Foreign Borrowing	21.8	47.7
Total	100	100
Private Domestic Sectors:		
Depreciation	14.9	26.1
Saving	13.4	7.7
Net Borrowing from households	41.9	24.6
Net Foreign Borrowing	29.8	41.6
Total	100	100

Source: See Table 3-22

In the petroleum industry the proportion of gross invest-
ments financed by depreciation allowances increased while there
was a corresponding decline in the share of retained earnings
(savings). However the share of after tax petroleum profits
remitted abroad was virtually the same in both periods. (29 per-
cent in 1951-59 and 28 percent in 1959-65. See Table 3-3 and
3-5). Public Sector savings fell drastically and was matched by
significant increases in the proportion of public expenditures
financed by both internal and external borrowing. In the financ-
ing of private domestic sector investment gross savings (including
depreciation allowances) increased in importance although the
composition of these internally generated funds changed. Deprecia-
tion allowances grew in proportion while retained earnings
correspondingly fell. The proportion of capital expenditure
financed by local borrowing also declined while net foreign borrow-
ing increased markedly.

There were significant changes in the flow of domestic invest-
ible funds. In the first period there was a net outflow of domestic
savings through the banking system. During the second period how-
ever, this trend was reversed. Except for the year 1963 there was
repatriation of capital by the commercial banks. Between 1959 and
1965 the net inflow of investible funds by the commercial banks
amounted to $48.1 million which in absolute terms was greater than
the outflow of $33.2 million during the early period.

Balance of Payments

The deficit on the current account continued throughout this
period. The negative balance on visible trade declined from

$56.7 million in 1959 to $37.6 million in 1964 but rose

dramatically to $106.4 million in 1965. The balance on services

was also negative, fluctuating between $21.4 million in 1960

and $50.7 million in 1963.

The share of merchandise imports as a proportion of total

imports of goods and services decreased during the period from

70 percent (1951-59) to 66 percent in 1959-65. Moreover there

was a decline in the degree of correspondence between merchandise

imports and gross domestic product, as well as a reduction in the

propensity to import. The correlation coefficient referred to

fell from 0.99 in 1951-59 to 0.79 in 1959-65. This indicates that

whereas in the early period annual changes in merchandise imports

were almost completely related to changes in gross domestic output,

souces of foreign exchange were less rigidly tied to changes in

domestic output during the second period. This reflects the

increasing importance of capital inflows in the financing of imports.

The relative decline in foreign exchange earnings may be illustrated

with reference to the petroleum industry, the principal earner of

foreign exchange. The national capacity to import of the industry

rose from 100 in 1951 to 207.6 in 1959 but fell to 179.9 in

1965.[24]

24. See section on "National Capacity to Import" in Chapter
    2.

The propensity to import in the period 1959-65 is given
by the following equation where Y represents merchandise imports
and X gross domestic product.

$$Y = 140.64 + 0.21 X$$

The propensity to import thus fell from 0.33 in 1951-59 to 0.21
in 1959-65.

The composition of merchandise imports suggests that there
were adjustments both in the distribution of imports between
consumer and capital goods and in the commodity composition of
both these categories. Imported consumer goods as a proportion of
total merchandise imports fell from 70.1 percent in 1951 to 66
percent in 1959 and 62.3 percent in 1965. Whereas the share of
imports of food as a proportion of total consumer goods imports
declined slightly(from 37.6 percent in 1951-59 to 36.2 percent in
1959-65), there was a small increase in the share of imports of
consumer manufactures (from 38.7 percent in 1951-59 to 39.3 per-
cent in 1959-65). Imports of capital goods correspondingly
increased in proportion to total merchandise imports from 29.9 per-
cent in 1951 to 34 percent in 1959 and 37.7 percent in 1965. This
was largely due to an increase in importation of machinery and
transportation equipment which rose from 64 percent of total im-
ports of capital goods in 1951-59 to 70 percent in 1959-65.

The share of imported services in total import of goods and
services increased from 30 percent in 1951-59 to 34 percent in
1959-65. This was caused by an increase in investment income

which rose from 61 percent of total services in the first period
to 67 percent in the second. However, the rise in investment
income outflows tended to level off after 1961 with the stagna-
tion of petroleum profits in the period 1962-65. A relative
increase was also observed in respect of expenditures on
foreign travel. This item rose from $80.1 million in 1951-59 to
$130.4 million in 1959-65 representing an increase from 9.3
percent of total services in the earlier period to 10.4 in the
second.

Moreover whereas expenditures on foreign travel were less
than local expenditures by foreign tourists ($83.7 million) in
1951-59, during the period 1959-65, the situation was reversed,
creating a net deficit of $6.9 million in the foreign travel
account.

The relative increase in investment income as a proportion
of total imports of goods and services (from 18.5 percent in
1951-59 to 22.6 percent in 1959-65) is not surprising. Whereas
imports of inessential commodities were effectively reduced
through fiscal policy,[24] the government policy of encouragement
to foreign private capital ensured the continued rise in remitted
investment incomes. Moreover to the extent that these incomes are

24. In 1962 relatively severe duties were imposed on imports
   of inessentials and commodities capable of being produced
   locally, while in 1963 purchase taxes were levied on a
   wide range of inessential goods imports. See Draft Second
   Five Year Plan 1964-1968, Government of Trinidad and
   Tobago, 1963. p. 106.

not reinvested there is a total loss to the domestic economy
of funds generated locally. The growth of expenditures on foreign
travel on the other hand resulted from rising and inequitably
distributed personal incomes as well as the increase in public
expenditures associated with the status of nationhood.

Sources of Foreign Exchange

Net merchandise exports increased at a rate of 3.3 percent
per annum from $259.2 million in 1959 to $315.3 million in 1965.
This was in striking contrast to the previous period when the
annual rate of increase was 10.5 percent. The main factor contri-
buting to this sluggishness in growth was the decline in export
earnings of the petroleum industry. During the 1960's petroleum
earnings had been affected by the slowing down of domestic crude
oil production as well as the weakening of world petroleum prices.
Thus whereas the net earnings of the industry increased at 10.5
percent per annum in 1951-59, by 1965 the dollar value of net
industry earnings had fallen below the level of 1959. Sugar
levelled off after a sizeable increase in export earnings between
1959 and 1961, while exports of cocoa, coffee and citrus declined
absolutely from $13.2 million in 1959 to $8.0 million in 1965.

The only significant advance in exports during this period
was in respect of manufactures, particularly petrochemicals.
Exports of fertilizer and amonia grew from $1 million in 1959 to

$22.4 million in 1965 while exports of other manufactures rose from $8.2 million to $11.5 million over the same period.

The inflow of private capital in 1959-65 was more variable than during the first period. Here a peak appeared to have been reached with an inflow of $109.2 million in 1959. Gross inflows over the whole period amounted to $601.3 million and were exceeded by the outflows of investment income. The ratio of capital inflows to investment income outflows was .72 as compared with a corresponding ratio of .93 in 1959-65. This suggests that reinvestment of profits by foreign-owned firms declined. This was certainly the case in the petroleum industry where reinvested profits as a proportion of investment income declined from 37 percent in 1951-59 to some 30 percent in 1959-65.

There was a significant increase in foreign borrowing by the public sector resulting partly from the extensive programme of investment and partly from the loss of potential revenue on account of the policy of incentives to industry. In the 9 year period 1951-59 gross government borrowing amounted to $32.6 million; in the 7 year period 1959-65 the figure jumped to $129.0 million. This higher level of foreign borrowing was the principal reason for the fast growth of interest payments from $2.8 million in 1959 to $11.3 million in 1965, and of amortization payments from $3.4 million to $8.5 million over the same period.

Table XII compares sectoral foreign exchange earnings in the two periods. These exclude the remitted profits of foreign owned firms and imported inputs of the petroleum industry. In relation to the total, a significant increase was registered in respect of

Table XII

Foreign Exchange for Imports

(Percent)

	1951-59	1959-65
Petroleum	41.7	38.8
Sugar and Rum	12.6	11.0
Transportation	7.3	8.5
Other Services	14.8	14.2
Net Inflows to foreign-owned industries other than petroleum	12.6	7.5
All other sources	11.0	20.0

Source: See Table 3-25

'other sources'. The relative rise in this item reflects the growth of exports of petrochemicals, the increase in public sector borrowing and drawings from the reserve funds built up in the earlier period. (See Figure 20). The corresponding though smaller decline in net inflows to foreign-owned industries other than petroleum suggests a lower rate of reinvestment of profits. In the period 1951-59 net inflows into these industries totalled $253.8mn. the figure for 1959-65 was $258.0 million. As a proportion of gross inflows to private industries other than petroleum, net inflows fell from approximately 80 percent in 1951-59 to some 65 percent in

1959-65. Foreign exchange earnings from the petroleum, sugar and rum industries also declined relatively reflecting the tendency for export earnings in these industries to level off.

Summary of the Period 1959-65

After the rapid expansion of the earlier period the economy slowed down in the 1960's. This decline was largely a result of the stagnation of the petroleum industry. However the rate of growth of both the public sectors and the private domestic sectors exceeded that of the petroleum industry as well as that of the economy as a whole. Moreover, whereas in the early period the growth of the public and private domestic sectors was almost totally induced by the expansion of petroleum production, during the second period the main stimuli came from the public sector and the expansion of household construction.

The rate of growth of gross domestic expenditures declined during the second period but nonetheless grew faster than gross domestic output. Domestic consumption expenditures increased in relation to gross domestic expenditures. This increase resulted primarily from the growth of public consumption expenditures. Private consumption declined both in relation to gross domestic expenditures and personal disposable incomes. In this period there was a shift in private consumption expenditures from foodstuffs to services and to durable and non-durable consumer goods. The marginal propensity to import consumer goods in relation to total

private consumption declined substantially while there was a small increase in the propensity to spend on foodstuffs out of expenditures on imported consumer goods. Expenditures on gross domestic fixed capital formation declined in relation to gross domestic expenditures. A major factor has been the sluggish growth of petroleum investment. However investment in the public sectors, house building and manufacturing increased. The marginal propensity to use imported capital goods in gross domestic fixed capital formation increased over the period. This increase was mainly in respect of machinery and transport equipment. With regard to the sources of funds, the proportion derived from depreciation and net capital inflows increased while domestic saving as a proportion of the total fell. Whereas in the first period there was a net outflow of domestic savings through the commercial banks, this condition was reversed during the second.

The deficit in the current account of the balance of payments continued throughout the period. The rate of growth of net merchandise imports exceeded the growth of net merchandise exports. However, the marginal propensity to import out of gross domestic output declined. Imports of services increased in relation to total imports of goods and services. This was due to the relative rise of investment income outflows. A small increase was also observed with respect to foreign travel. Commodity exports grew sluggishly and net exports of petroleum and traditional agricultural exports declined. Exports of manufactures increased but this increase was largely confined to the new petrochemicals industry. Inflows of private capital were not as steady as in the

first period. The rate of reinvestment of foreign capital
appeared to have fallen. Inflows of capital into the public sector
were substantial particularly in comparison with the first period.

The economy in the 1960's can no longer be described as a
typical petroleum economy; the growth of domestic production was
no longer petroleum-led. The public sectors and household
construction had become the main generators of growth. The relative
decline in petroleum resulted partly from fortuitous circumstances
and partly from policy measures of the government. It may be
argued however that the decline in petroleum facilitated the growth
of the domestic sectors by dramatizing the need to diversify. In
the section that follows we examine the impact of these developments
on the level of employment.

Employment, Wage Rates and Productivity, 1955-1965

The most critical problem of the Trinidad economy since the middle of the 1950's has been the growing rate of labour unemployment. For this reason we attempt an examination of changes in employment, wage rates and labour productivity in the decade 1955-65, although this task is made extremely difficult by the absence of employment data for a number of years and by lack of consistency and comprehensiveness in published data.

Population and Labour Force Growth

The active labour force[26] increased at an annual rate of 2.3 percent from 275,000 persons in 1955 to 348,000 persons in 1965. The number of persons employed[27] on the other hand increased more slowly at 1.8 percent per annum from 250,000 in 1955 to 300,000 in 1965. The number of unemployed doubled from 25,000 in 1965, or 9 percent of the active labour force, to 48,000 in 1965, or 14 percent of the labour force. (See Table 3-12)

The rapid growth of the labour force is related to the rate of growth of total population. In the case of Trinidad the

26. The active labour force includes all persons engaged in, or willing and able to be engaged in the production of economic works and services.

27. Includes all persons who worked or had a job during the survey week or other reference period.

population increase has been remarkably high since the 1930's.
Between 1931 and 1946 the population grew at an annual rate
of 2.1 percent, a rate that was considered abnormal at the
time.[28] Population growth accelerated during the 1950's and
early 1960's. In the decade 1955-65, the population increased
at an average annual rate of 3 percent from 720,800 to 973,900.
Within recent years however the population growth has slowed
appreciably to an estimated 1.6 percent per annum between
1965 and 1968.[29]

The high rate of population growth prior to 1955 was
the result both of a rising birth rate and a declining death
rate. The birth rate was 31.0 in 1930; 38.3 in 1946; and
41.9 in 1955. The death rate on the other hand declined
from 18.5 in 1930 to 13.7 in 1946 and 10.4 in 1955. [30] More-
over, in most of these years there was a net gain in population
through migration. In the period 1955-65 the death rate
continued its decline to 6.9 in 1965. The upward trend in the
birth rate however, was reversed - the rate falling to 32.8
in 1965.

Furthermore starting in 1963 there was a consistent
net out-migration rising from 2,100 in 1964 to 11,300 in 1968.
The decline in population growth from 3.3 percent in 1954-55

28. See for example: West Indies Royal Commission
     Report, H.M.S.O.; July 1945. pp. 10 - 12, 245.

29. See Draft Third Five-Year Plan,1969-1973,Government
     of Trinidad and Tobago. 1968. p. 166.

30. Birth and death rates are given per 1,000 of population.

to 2.4 percent in 1964-65 was therefore primarily due to the significant fall in the birth rate and to a lesser degree to the reversal in migration.

The proportion of the population of working age[31] participating in the active labour force fell from 70 percent in 1955 to 66 percent in 1965. It should be added however, that the participation rate reached a low point in 1960 of 64 percent. before rising again. The principal cause of this rise during the 1960's appeared to be increased female participation in the labour force. The proportion of females in the total labour force increased from 23 percent in 1960 to 32 percent in 1965. Moreover, the trend towards increased female participation tends to be self-reinforcing; male unemployment is aggravated as females are substituted for males. As a result families are forced to depend increasingly on female wage earners resulting in an even higher level of female participation.[32]

However, while employment grew by only 1.8 percent per annum, domestic output grew more than five times as fast at 9.5 percent. (See Table 3-28). The sluggish growth of employment was therefore associated with significant increases in the productivity of labour. This is illustrated in Table 3-29.

31. The population of working age includes persons 15 years old and over, but less than 65.

32. For a fuller discussion on the population and labour force trends, see Draft Third Five-Year Plan, 1969-1973, Government of Trinidad and Tobago 1968. pp. 165-177.

In the three-year period 1955-57, the average output per man was $2,292; while the average for the period 1963-65 was $3,856.4. This represents an increase of 68 percent. Moreover the pattern appeared to have been rather different in the years 1955-60, and the period 1960-65. During the former period (1955-60) value added by all industries grew by 12.7 percent per annum while total employment advanced by only 0.2 percent per annum. In the second period (1960-65) the rate of growth of vlaue added was substantially lower at 6.3 percent but employment grew at 3.5 percent per annum which was significantly faster than in the first period.

The Period 1955-60

Employment was virtually stationary between 1955 and 1960. Bearing in mind our earlier warning concerning the reliability of the data, it appears that total employment increased by only 1,900 between 1955 and 1960. During subsequent years (1960-65) employment increased by 48,600. The contrast is striking and bears out an earlier observation that the post-war economy of Trinidad did undergo significant structural changes as it passed from petroleum-led growth in the fifties to a pattern of development strategy in which the public sectors played a very much more active role.

The small increase in total employment of 1,900 over the five-year period(1955-60) was the result of simultaneous employment, destruction in some sectors and employment creation in others. Petroleum shed 4,600 workers; agriculture (including

sugar cultivation) 21,000 and sugar manufacturing shed another
1,800. In compensation employment in construction increased
by 11,100, public sectors by 9,900, manufacturing other than
sugar by 1,500, commerce by 1,100 and all other services by
6,600. This large scale reallocation of labour during the years
1955-60 is reflected in the changing industry composition of
value added. In spite of its low and declining level of employ-
ment, the petroleum industry contributed more to total value
added than any other sector. Value added grew by 13.7 percent per
annum and the share of the sector in total gross domestic product
increased from 29.2 percent in 1955 to 30.4 percent in 1960.
The contribution of the sector to total employment however
declined from 7.9 percent in 1955 to 6 percent in 1960.

Although the private domestic sectors experienced a very
high growth rate (12.4 percent per annum) there was an absolute
decline of employment of 8,000; their share in total gross domes-
tic product declined slightly from 57.5 percent in 1955 to 56.8
percent in 1960 and their share in total employment fell fraction-
ally more from 79.1 percent in 1955 to 77.2 percent in 1960.

There were however very large changes in the sectoral allocat-
ion of employment and sectoral contribution to output. Agricult-
ural employment decreased at 7.1 percent per annum resulting in
the displacement of 21,900 persons. The contribution of agric-
ulture to total employment fell from 30.1 percent in 1955 to
21.2 percent in 1960, while output grew by 5.3 percent per annum.
The contribution of the sector to total output fell from 17.5

percent in 1955 to 12.5 percent in 1960.

Construction on the other hand registered the fastest
increase in employment. Here the annual rate of increase in
employment was 9.4 percent induced by an annual rise in output
of 23.6 percent. As a consequence , 11,100 new jobs were
created representing an increase in contribution to total
employment from 7.8 percent in 1955 to 12.2 percent in 1960.
The number of new jobs created in the public sector was second
only to the employment creation in construction activity.
Employment by the public sectors increased by 5.4 percent per
annum and the contribution of public sector employment to total
employment rose from 13 percent in 1955 to 16.8 percent in 1960.
The rate of growth of value added was 10.9 percent.

The Period 1960-1965

In these 5 years employment increased by 48,600 in spite
of continuing retrenchment in the petroleum sector (700) and
in sugar manufacturing (1,900) and a very large decline in the
number of persons employed in the private services sectors other
than commerce (11,200). 20,700 jobs or 42.5 percent of the total
increase in employment were provided by the public sectors; the
declining trend in agricultural employment was, if data are
reliable, arrested and reversed. Thus agricultural employment
increased by 13,700 between 1960 and 1965. Manufacturing provided
10,100 new jobs; the commercial sectors 16,800; and construction
the remaining 1,100.

Value added in petroleum stagnated while the level of
employment in the industry continued to decline. In 1965 the
industry contributed 24.2 percent to gross output and 4.8 percent
of total employment compared with 30.4 percent and 6 percent in
1960. The private domestic sectors showed an appreciable rise
both in output (7.6 percent per annum) and in employment (2.8
percent per annum). While the share of these sectors in total out-
put increased from 56.8 percent in 1960 to 60.2 percent in 1965
their contribution to total employment declined from 77.2 percent
to 74.2 percent over the same period.

Agriculture appears to have absorbed a significant number of
persons despite an absolute decline in value added. Agricultural
employment grew at a rate of 4.7 percent per annum, probably due
to the growth of peasant agriculture towards the end of the period.
Employment in the manufacturing sectors rose at an annual rate of
4.2 percent while value added increased at 12.1 percent. However
there was an annual decline of employment - in the sugar manufacturing
of 12.1 percent per annum. The increase in employment in manufact-
uring thus occurred in the other industries which registered an
increase of 8 percent per year. An important factor in this growth
was the expansion of the textile industries where the level of
employment is relatively high, particularly amongst females.

The public sectors again provided the most significant
increases in employment. The annual rate of growth of employment
during this period was 8.2 percent which was only slightly lower

than the growth of value added (10.9 percent per annum). The share of public sector employment rose from 16.8 percent in 1960 to 21 percent in 1965. Employment growth in the public sectors was partly the result of the development programmes of the government, and partly the result of crash programmes specifically designed to relieve the pressure of mounting unemployment.

The changing composition of domestic output was thus a major factor in shaping the demand for labour in the economy. During the first period (1955-60) the petroleum industry increased its dominance of domestic production but employment by this sector was both small and declining. Agriculture, the country's second largest industry in terms of gross domestic product lagged in production while employment declined absolutely. The limited growth in agricultural output was associated with growth in the cultivation of the traditional crops. Here there was considerable rationalization and mechanization. The more labour-intensive domestic agriculture was stagnating. The construction sector, as well as the public sectors showed substantial increases both in output and employment. However these sectors together commanded only 16 percent of gross domestic output and 21 percent of total employment in 1955.

During the second period petroleum production stagnated while employment continued to decline although not as rapidly as in the first period. The domestic sectors in which employment grew the fastest were manufacturing other than sugar, agriculture and the

public sectors. However whereas growth of employment in the manufacturing and public sectors was associated with rapidly increasing output, there was a decline in value added by the agricultural industry. A possible explanation lies in the increase in domestic agriculture in the second period as compared with the first when the expansion was primarily in traditional agriculture.

Labour Productivity, 1955-57 and 1963-65

The trends in output and employment are reflected in changes in output per man in the major sectors as between the period 1955-57 and the period 1963-65 (See Table 3-29). Average output per man for all industries was $2,292 in 1955-57 and $3,856.4 in 1963-65. Labour productivity was highest in respect of petroleum, the average rising from $10,725.7 in 1955-57 to $20,704.2 in 1963-65. Labour productivity in the private domestic sectors was significantly lower : $1,585.9 in 1955-57 and $3,080.7 in 1963-65. Productivity was highest for manufacturing and services, and lowest in construction ($727.5 in 1955-57 and $1,916 in 1963-65). In the public sectors, labour productivity was $1,992.1 in 1955-57 and $2,704.3 in 1963-65, less than the productivity of the private domestic sectors or the overall average. The fastest increase however, was in the manufacturing, (108 percent) construction (103 percent) and service (113 percent) sectors. In these sectors labour productivity more than doubled over the

eight-year period. As is to be expected labour productivity rose by only 30 percent in the case of agriculture and 36 percent for the public sectors. These were the sectors which expanded employment significantly.

Increases in labour productivity were associated with substantial increases in capital investments. This is indicated in Table 3-29 which gives crude estimates of the capital-labour and capital-output relationships.[33] For all industries the average value of new capital per unit of employment was $529.7 in 1955-57 and $997.4 in 1963-65. This represented an increase of 88 percent as compared with the 68 percent increase in the average value of output per unit of employment. Capital investments per unit of employment in petroleum were not only very high but the increase over the decade was substantial. The figures were $2,975.2 in 1955-57 and $7,145.5 in 1963-65 an increase of 140 percent compared with an increase of 93 percent in respect of labour productivity.

Capital investments per unit of employment in the private domestic sectors averaged $300.3 in 1955-57 and $559.0 in 1963-65. These were well below the average for all industries. However, whereas the figure for manufacturing was relatively high ($517.7 in 1955-57) capital investments per man in agriculture were extremely low ($93.4 in 1955-57).

33. To derive these estimates average annual gross investment is divided by total employment in the one case and total output in the other.

The value of investments per unit of employment in the public sectors was higher than the average for the economy. In 1955-57 the figure was $584.2 and in 1963-65 $1,112.7. This represented an increase of 93 percent compared with an increase of 49 percent in labour productivity. (See Table 3-29)

In the final measure we compare the ratios of gross annual investment to industry output. For all industries the ratio was 0.23 in 1955-57 and 0.26 in 1963-65. The ratios were highest for the public sectors (0.29 in 1955-57 and 0.41 in 1963-65) reflecting the heavy investments in infrastructure. The investment output ratio for petroleum was also high, 0.28 in the first period and 0.34 in the second. The ratio in respect of the private domestic sectors was extremely low (0.19 in 1955-57 and 0.18 in 1963-65). Within the private domestic sectors there was again a wide range in the performances of the individual industries. Thus whereas the investment-output ratio was 0.45 in sugar manufacturing in 1955-57, the ratio for agriculture in the corresponding period was only 0.07.

Wage Rates and Labour Productivity

It is clear therefore that the increases in labour productivity were associated with the volume of capital inputs. In all appearances capital was being substituted for labour in production.

We now turn to an examination of the relationship between wage rates, labour productivity and employment. Average trends

for all industries are shown in Figure 22. Again we can observe
a distinct difference between the periods 1955-60 and 1960-65.
During the former period labour productivity increased at the
very fast rate of 12.6 percent per annum. Money wage rates on
the other hand, grew much slower at 4.3 percent per annum, while
real wage rates were relatively constant, the annual rate of
increase being 1.7 percent. During the period 1960-65 the rate
of growth of labour productivity declined appreciably to 2.7
percent per annum, whereas money wage rates increased at an annual
rate of 12.4 percent and real wage rates at 10 percent. Over the
period as a whole the average annual rise in labour productivity
was 7.5 percent which was less than the annual rise in money wage
rates (8.2 percent) but exceeded the rise in real wage rates
(5.8 percent). (There are no estimates for the increase of product-
ivity in real terms).

The trends in labour productivity and wage rates suggest that
the substitution of capital for labour in the period 1955-60 was
not due to increases in wage rates. Indeed the gap between
labour productivity and both real and money wage rates widened at
this time. However, during the second period 1960-65 the gap
between labour productivity and wage rates was reduced with money
wage rates exceeding labour productivity in 1963-64. It could be
argued therefore that the fast increase in money wage rates might
have induced the substitution of capital for labour. The decline
in employment in services other than commerce might be related to

such substitution.

The impact of rising money wages varied from sector to
sector. In the petroleum industry, although the increase in
money wage rates was very high (160 percent between 1955 and
1965) the rise in labour productivity was even higher (179 per-
cent). In manufacturing the average increase in labour product-
ivity was 147 percent; whereas money wage rates rose by only 127
percent in the food, drink and tobacco industries; 79 percent in
the garment industry and 124 percent in other manufacturing
industries. In the public sectors however labour productivity
rose by only 49 percent while the increase in money wage rates
was 136 percent.

The trend in money wage rates is further illustrated in
Figure 23. Here the tendency for wages to rise sharply after
1959-60 is clearly seen. Moreover the influence of the petroleum
wage structure on the other sectors can be detected. The influ-
ence is most noticeable in the case of government services and
construction, two key sectors in the domestic economy. The
effect appears to be lagged. Increases in petroleum wage rates
are followed by increases in the public sectors and later by
increases in the construction industry.

The rise in money wage rates cannot therefore account for
the sluggish growth of employment over the decade. Indeed employ-
ment grew faster in the period 1960-65 when wage increases were
most substantial. The explanation for the slow growth of employ-
ment is likely to be in the relative decline in the cost of

capital goods and tendency to import foreign technology. This
certainly seemed to be the case in 1955-59. In this period the
price of imported capital goods fell by some 9 percent, while
revisions in 1955 to the Aid to Pioneer Industries Ordinance and
the Income Tax (In Aid of Industry) Ordinance of 1950 made it
extremely attractive to import capital through rebates on customs
duties, and liberal capital depreciation allowances. The effect
is most clearly seen in respect of the new manufacturing industries.
Here the value of investments per man was $14,817.5 in 1951-59
and rose to $47,845.3 in 1960-66.[34]

Another important feature of the wage structure was the low
level of wages in manufacturing relative to the petroleum construct-
ion and public sectors. The low wage level in the wearing
apparel industries is significant and must have facilitated the
growth of that sector over the period. However the particular
wage structure would be influenced by the high participation rates
of females in the industry.

34. See Eric Armstrong op.cit, p. 9.

Conclusion

We may conclude that there were two major influences on the
level of unemployment during the decade. The first was the fast
growth of population in preceding decades. Whereas the number
of persons of working age as a proportion of the total population
declined, the increase in the burden of dependency had forced a
higher proportion of females and the very young into the labour
force. There was a distinct tendency for the labour force to
rise in relation to the population of working age after 1960.
This was primarily due to the rise in female participation.

The fast growth of the active labour force was only partly
responsible for the rising rate of unemployment. Over the period
domestic output grew more than five times as fast as labour
employment. The increase in labour productivity was associated
with a higher ratio of capital per unit of employment and output.
Capital was being widely substituted for labour in production.
Whereas this change in the factor proportions has been influenced
by the fast rise in money wages in the period 1960-65, during
the preceding period 1955-60 the gap between labour productivity
and money wages was increasing. Moreover real wages remained
virtually constant during the first period.

It appears therefore that the substitution of capital for
labour was to a large extent due to the relative decline in the
price of capital goods and the utilization of technology less
suited to domestic factor proportions.

CONCLUSION

The main thesis of this study has been that the economy
of Trinidad and Tobago was the typical petroleum economy only
during the 1950's. During this period growth was generated
almost totally by the petroleum industry. There was a high
degree of correspondence between the growth of petroleum out-
put and the growth of output both in the private domestic
sectors and the public sectors. Construction and service
activity expanded very rapidly during this period. The former
is directly attributable to investment expenditures by the
petroleum industry; the latter to the rise in personal incomes
resulting from the expenditures of the petroleum industry on
wages, taxes and local purchases.

The close correspondence between petroleum and public
sector growth has been attributed to the large fiscal contribu-
tion of the petroleum sector to the current and the capital
expenditures of the public sector. For these same reasons we
found a close correlation between petroleum net export earnings
and both government revenues and expenditures.

There was no shortage of foreign exchange in this period.
The net foreign exchange earnings of the petroleum industry were
rising rapidly as output was being expanded in response to
inflated world prices. Indeed the foreign reserve funds of the
economy were built up during this period.

However, the rapid rise in national income and the easy availability of foreign exchange produced economic growth but no development. The marginal propensity to save out of personal incomes was extremely low while expenditures on imported consumer goods were high in relation to total personal expenditures. This served to frustrate the development of domestic consumer goods industries. A substantial amount of domestic savings thus flowed abroad through the banking system. This was facilitated by the policies of the foreign-owned commercial banks which were largely oriented towards investments in real estate and commerce and loans for expenditures on consumer goods, chiefly inessential goods of a high import content.

Meanwhile there was a heavy inflow of private capital for direct investment in the petroleum and sugar industries. In the case of the petroleum industry the capital inflows in fact represented exclusively reinvestment of profits made on local operations. Furthermore to the extent that foreign firms received incentive benefits such as customs duty rebates and very liberal terms for the depreciation of capital, a transfer of domestic savings was effected through the public sector to the foreign sectors of the economy. The inflow of private foreign capital resulted in a heavy outflow of funds in the form of investment incomes. During the period 1951-59 remitted investment incomes exceeded gross private capital inflows by some 13 percent.

The sluggish growth of employment during the second half of the 1950's was a direct consequence of the pattern of growth

during the period. The fast rate of growth of gross domestic
output was made possible by exceptional expansion of the
petroleum industry. Whereas petroleum contributed almost
one-third of total domestic output, it employed a small and
declinig number of persons. The only sectors to show any
significant increase in employment were construction and the
public sectors, both of which received their growth impetus from
the petroleum industry. With regard to agriculture, traditional
export crops remained the dominant form of economic activity,
although the level of production was depressed by inefficient
farming practices, plant diseases and stiff competition from new
producing areas. The plantations adjusted by introducing
mechanized techniques and shedding surplus labour. Domestic
agriculture however was unable to absorb the discards from planta-
tion agriculture. The incentive to develop domestic agriculture
was frustrated by a cultivated taste for foreign foodstuffs, an
inequitable distribution of income and the availability of foreign
exchange which made these importations possible. Furthermore the
agricultural labourers were being lured away by the higher incomes
prevailing in the urban and oilfield areas. Migration to these
areas thus produced a growing pool of urban unemployed.

There was no vigourous response by the manufacturing sector
to the wide range of incentives provided or the relatively low
level of wages. The only two industries to show any significant
advance were cement and textiles, the former stimulated by high

demand from the construction industry and the latter existing
under heavy protection from foreign competition. The rate of
unemployment thus increased but did not develop into a critical
social problem because high levels of personal incomes enabled
families to survive inspite of rising unemployment, and under-
employment.

Whereas the incentive to transform was weak during the
petroleum boom, transformation became a political imperative
when growth levelled off and the industry stagnated. The decline
in petroleum output during the 1960's initiated a slowing down of
the growth of domestic output. However the domestic sectors of
the economy, the public sectors in particular, assumed a more
propulsive role. The degree of correlation between petroleum
value added on the one hand and the value added by the public and
private domestic sectors on the other declined. Moreover petroleum
export earnings ceased to show any significant correlation with
either government revenues or expenditures.

The decline in the net foreign exchange earnings of the
petroleum industry meant that new sources of funds had to be found
for the financing of imports. The public sectors borrowed heavily
during this period while huge drawings were made from accumulated
foreign exchange reserve funds. More importantly, the outflow of
funds through the banking system was reversed. The extensive
external borrowing particularly by the public sectors in the
1960's has been illustrated by a reduction in the degree of

correspondence between merchandise imports and gross domestic output.

Changes were also effected in the use of foreign exchange. The marginal propensity to import goods out of gross domestic output declined appreciably. Moreover there was a shift in incremental expenditures on imports from consumer goods to capital goods. However, imports of services as a proportion of total imports of goods and services increased. This was a direct consequence of the inflow of private investment capital under conditions which facilitate the outflow of investment income.

Employment rose at a much faster rate during this period. This/employment was associated with the relatively faster growth
rise in
of the domestic sectors of the economy. Nearly one-half of the increase in employment during the 1960's was generated by the public sectors. This was promoted by the government programme of development as well as by specific public works projects designed to improve the employment situation. However, the growth of employment was adversely affected by the substitution of capital for labour in production. This tendency was encouraged by rising wages on the one hand, and an industrial policy that cheapened the relative cost of capital goods on the other. The rise in money wage rates was fastest in the petroleum industry, and tended to spread first to the public and then to other sectors. The reduction in the cost of capital goods is attributable to programmes of incentives to industry which provided for customs duty rebates, attractive depreciation allowances and other inducements.

The most amazing performance however came from the agricultural sector. Here employment increased substantially despite an absolute decline in the value added. This expansion in employment was probably associated with the growth of domestic agriculture which appeared to have been stimulated by marketing incentives in the form of guaranteed prices.

While it is clear that the economy had undergone considerable structural transformation during the 1960's, there still existed some of the characteristics of the typical petroleum economy and the plantation economy in general. For one thing there still remained wide disparities in the average income of paid employees in different industrial and occupational groups. The median monthly income of paid employees for all industries in 1965 was $133. Earning more than this average were employees in petroleum ($254), transportation and communication ($172), construction ($148) and commerce ($139.5). The average incomes of paid employees in services ($130.5), manufacturing ($108.5) and agriculture ($66.5) on the other hand were below the median for all industries. (See Table 3-32a). Workers employed in the petroleum industry were earning about four times as much as those engaged in agriculture.

The income inequalities can also be observed by comparing the average monthly earnings of paid employees in the main sectors by income group. The average monthly income of most employees

was less than $200; 37.2 percent of paid employees in all
industries earned less than $100; while a further 38.7 per-
cent earned between $100 and $199. The proportion of the
total earning more than $300 per month was 9.6 percent. Wage
and earnings differences between sectors are highlighted by
comparing the average incomes of workers in petroleum and in
agriculture. In the petroleum sector only 4.2 percent of paid
employees earned less than $100; 14.7 percent between $100 and
$199; 57.3 percent between $200 and $299; while 23.8 percent
earned $300 and more. In agriculture, by comparison , 74.6
percent of paid employees earned less than $100; 21.9 percent
between $100 and $199; 1.9 percent between $200 and $299; and
only 3.5 percent more than $200. Other industries with a heavy
concentration of employees in low-income jobs were manufacturing ,
commerce and other services. In all these industries more than
one-third of paid employees earned less than $100 and more than
two-thirds less than $200. (See Table 3-32b).

The income disparities between males and females were also
substantial. The median monthly income of paid female employees
in all industries was $83.5 or slightly more than half (57 percent)
of the average for all males. The difference was sharpest in
respect of services where the average for females was $77.5 as
compared with $168 in the case of males.[35]

35. See <u>Continuous Sample Survey of Population - No.6,</u>
     C.S.O., Government of Trinidad and Tobago, October
     1966. p. 8.

A similar range is encountered when we examine the income structure by occupational group. (See Table 3-33). Here the significance of 'white collar' employment is clearly seen. Professional and technical employees earned the highest median monthly income of $240; the group consisting of administrative, executive, managerial and clerical workers was next with an average of $189. The lowest median monthly incomes were paid to service workers($80) and agricultural workers ($64). The only other group to be below the average for all industries consisted of commercial, financial and insurance workers whose monthly average was $128.

We may further compare the income distribution amongst workers in the highest paid group (i.e. professional and technical workers) with that of the lowest paid (i.e. agricultural workers). 6.5 percent of the former group received incomes of less than $100; 43.2 percent less than $200; while 40.0 percent earned $300 and more. In agriculture, by contrast 77.6 percent of the total received less than $100; 97.4 percent received less than $200 while only 1.2 percent received $300 and more.

The inequitable distribution of income would tend to retard the process of transformation for several reasons. Firstly, ability to save out of income would be limited to a relatively small proportion of the income earners. Moreover it is precisely this group that is likely to spend heavily on luxury items (largely imported) and on foreign travel. Secondly, the higher

incomes of the workers in the urban and oilfield areas attract
the low-paid workers from the rural agricultural areas. The
problem of disguised as well as open unemployment is magnified
in the urban areas requiring an increase in the social expenditures
of the public sector. Moreover the rural-urban drift is not necess-
arily followed by an increase in agricultural productivity.
Thirdly, the peculiar structure of incomes reinforces an educ-
ational system geared to 'white collar' employment rather than
the more urgent 'skilled' employment.

A second feature of the petroleum economy that persists is
the lack of diversity in exports. Merchandise exports are still
dominated by petroleum (64.5 percent in 1965) and to a lesser
extent sugar and rum (11.9 percent in 1965). The only signifi-
cant new export industry to emerge has been petrochemicals.
Exports of two products, manufactured fertilizer and amonia,
rose to 6.2 percent of net merchandise exports in 1965. The
manufacturing industry failed to develop as a significant foreign
exchange earner. Rather, the industry survives under the umbrella
of heavy tariff protection.

Significantly only in respect of petrochemicals was any
real linkage effected with the rest of the economy. This linkage
between petrochemicals and petroleum remains to be fully explored
however. [36] Of the other manufactures the garment industry, which
has grown in importance within the last decade, operates on the
basis of imported inputs. Manufactures of foodstuffs consist
primarily of the

36. See Draft Third Five-Year Plan 1969-73, Government
of Trinidad and Tobago 1968. pp.225-228, 317-320.

processing of traditional export crops. The processing of output from domestic agriculture remains virtually non-existent.

Although the propensity to import out of gross domestic product has declined considerably there has been a corresponding rise in imports of services, in particular investment income. In 1965 merchandise imports (net of crude oil) were 35.9 percent of gross domestic product while imports of services accounted for another 14.7 percent. A further reduction in the import propensity will require a greater mobilization of domestic savings for investment by nationals; a more dynamic entrepreneurial class; research geared towards utilizing local materials in domestic industry; a more diversified agriculture; and less-alien taste patterns.

Finally, there remains the problem of creating approximate institutions for chanelling domestic savings into productive investments by medium and long-term credits. The establishment of the Central Bank in 1964 has facilitated the repatriation of domestic capital and the development of the market for treasury bills, while the Agricultural Development Bank has recently been trying to channel a heavier flow of funds into the agricultural sector. However the establishment of a capital market is difficult in an economy in which large multi-national corporations predominate. The petroleum industry for instance only retains that proportion of its earnings committed to wages and other current local costs. Similarly the ability of a Central Bank

to control. the operations of foreign-owned commercial banks is constrained by the ready access of these banks to the funds of their parent concerns.

The Trinidad economy in the period 1951-65 thus provides an insight into two contrasting forms of development, the one petroleum-led, the other triggered by public sector expenditures. The development of the economy during the last few years appears to be of particular interest. In this period the rate of growth accelerated with significant increases in the output of both the petroleum and domestic sectors. Moreover the industrial Stabilization Act (1965) aimed at controlling the rise in wage rates was now showing its effect. Finally a step towards regional economic integration was initiated with the Caribbean Free Trade Association in 1968.

Although important preliminary steps towards transformation have been taken since 1960, some of the basic features of plantation economy remain. Their eradication would appear to require a level of mobilization of national entrepreneurship which may prove to be inconsistent with the bureaucratic structures of decision-making inherited from the colonial past and reinforced by the continued domination of the private sectors by external metropolitan enterprise. Of the three objectives of the Third Development Plan, the "localization of economic decision-making" may prove to be the key to the other goals - the elimination of structural unemployment, and the creation of a more diversified structure of production.

APPENDIX I

HISTORY AND STRUCTURE OF THE WORLD PETROLEUM INDUSTRY

The petroleum industry as a large scale commercial under-
taking dates back to 1859 with the discovery of the Pennyslvania
fields in the United States. The subsequent development of the
industry could be divided into three major periods. The first
was the 'kerosene era' which extended to the turn of the century.
Kerosene was first introduced towards the middle of the nineteenth
century as an illuminant for saw-mills, but after the introduction
of the kerosene lamp in 1863 it displaced all other illuminants
except gas. This era is linked with the name of John D. Rocke-
feller in the United States and the Nobels, Rothschilds and others
in Russia and Rumania.

The 'fuel oil era' was the second major period and heralded
the linkage between oil and transportation. The discovery of
large new fields in East Texas in 1901 and the search for new
outlets for the heavier oils from this source led to the intro-
duction of petroleum as a supplier of energy for railroads, ships
and industries. The largest single consumer of fuel oil at this
time was the British Navy.

The 'fuel oil era' was superseded by the 'gasoline era'
around 1911. In the early years of the industry's development
gasoline was considered a nuisance because of its highly inflam-
mable nature. However, after Henry Ford perfected a useful and
economical automobile in 1911, the demand for gasoline for trans-
portation developed rapidly. In 1895 there were only 4 gasoline

automobiles in the United States, but the number grew to 619
thousands in 1911, 23 millions in 1930 and 86 millions in 1941.

Within the last forty years the growth of the market for
petroleum products has outstripped that of any other source of
commercial energy. Compared with solid fuel, its major competi-
tor, petroleum has a higher thermal content per ton and a form
which enables it to be handled and stored more easily and cheap-
ly; it leaves no residue to be disposed of and in many applica-
tions can be burned more efficiently. The relative cheapness of
oil since 1958 and the declining cost of its transportation have
further enhanced the competitive position of petroleum. The grow-
th of world production of commercial sources of energy and the
growing importance of petroleum is shown in Table I-I below.

Table I-I

World Production of Commercial Sources of Energy.
(Million Metric Tons Coal Equivalent and Percent)

	Total Production (mn. tons)	Coal and Lignite %	Crude Petroleum %	Natural Gas %	Hydro Electricity %
1913	–	90	6	2	2
1929	1,412	79	16	4	1
1937	1,404	74	20	5	1
1949	1,476	62	26	10	2
1954	1,670	55	31	12	2
1965	2,260	42	39	17	2

Sources: 1913-1954, C. Issawi and M. Yeganeh, The Economics
of Middle Eastern Oil, Faber and Faber, London 1962.
p. 5. Figures for 1965, J. E. Hartshorn, Oil Com-
panies and Governments, Faber and Faber, London,
1967, p. 389.

Integration in the Petroleum Industry

The origin of combinations in the petroleum industry could be traced to the kerosene era and John D. Rockefeller's Standard Oil Trust. Rockefeller was originally little interested in the production of crude petroleum, and confined his activities to the organization of the market for petroleum products. His initial fortune was built up from the marketing of kerosene and lubricants which were at the time the main refined products.

Rockefeller's next move was to organize the transportation activities of the U.S. industry. On this O'Connor writes:

> "Competitors were bought out or ruined, legislators and public officials were also bought out (and many ruined), laws were flouted with impunity or with stealthy indirection.... He allied himself with the railroads and then forced them to give him not only rebates on his own product, but rebates on the oil his competitors shipped. After others pioneered pipelines to escape his exactions, he bought them up to secure complete control of all oil that flowed from Western Pennsylvania to Tidewater."[1]

By controlling the transportation of crude oil from the fields to the refinery Standard Oil Trust also controlled the marketing of crude oil. Despite this large element of control by the Rockefeller organization, Standard Oil Trust only became a fully integrated concern at a later stage. However, independent producers could only escape Rockefeller's marketing apparatus by finding new outlets for their supplies. Indeed, in order to exploit the East Texas fields, Guffey Petroleum (later reorganized into Gulf Oil) was forced to promote the fuel oil market and

1. Harvey O'Connor, <u>The Empire of Oil</u>, Monthly Review Press, N.Y., 1962, p. 10.

in the process became the first fully integrated petroleum company. It was the growth of independent fully integrated companies as much as the anti-Trust judgment of 1911 that broke the Standard Oil monopoly in the United States.[2]

There were other factors contributing to integration in the petroleum industry. Although the marginal cost of producing oil when found is low, the risk involved in exploration and discovery tends to be high and heavy capital outlays are required even before oil has been located. Large integrated companies have therefore been better placed to finance the cost of exploration and production and to obtain the substantial economies deriving from larger scale. Moreover, integrated companies are able to minimize the risk involved in exploration and discovery by spreading these costs over the full range of operations.

Whereas the developed countries have been the major consumers of petroleum, most of the world's proven reserves are located in the less developed areas. It is not surprising therefore that the development of the resources of these regions has been undertaken by large integrated metropolitan companies. Seven such companies dominate the world industry. These are Standard Oil of New Jersey, Gulf Oil Corporation, Socony Mobil Oil Company, Standard Oil of California and the Texas Oil Company (Texaco), all of the United States; British Petroleum Company of the United Kingdom; and Royal Dutch-Shell, a joint British-Dutch venture. The French-owned company, Campagnie Francaise des Petroles, while not being of comparable size with the other seven, is also in control of large resources particularly in the Middle East and has concurred

2. The Standard Oil Trust was dissolved into 33 separate corporations by court order in 1911.

with the major seven to dictate the terms under which the international industry has functioned.

These companies operating in most cases with the support of their respective governments[3] control the full range of processes, from the exploration of reserves to the marketing of the finished product. The eight companies in 1956 together controlled 99% of crude oil production, 90% of refining, and 90% of marketing in countries outside of the United States and the Soviet Bloc. Moreover, while they owned only 34% of the world's tanker fleet they controlled a substantial proportion of the independently owned tankers by means of charter.[4]

Commenting on the strength of these companies, a report by the United States Federal Trade Commission in 1952 claimed:

> "...these major oil companies, through the high degree of concentration of control, through direct ownership, through joint ownership, through purchase and sales contracts, and through production and marketing agreements, have been able to limit production, divide up markets, share territories and carry on other activities designed to stabilize markets and control production."[5]

O'Connor has similarly commented, "so closely are the Big Seven and their major subsidiaries bound together in interchange of production and marketing that both their financial interests and their crude become inextricably intermingled."[6]

3. The French company C.F.P. and B.P. are in fact partly owned and controlled by their governments.

4. J. E. Hartshorn, Oil Companies and Governments, Faber and Faber, London 1967, p. 107.

5. Federal Trade Commission, International Petroleum Cartel, U.S. Congress, Washington 1952, p. 349.

6. Harvey O'Connor, World Crisis in Oil, Monthly Review Press, New York, 1962, p. 5.

Towards the end of the 1950's however a series of events
operated to erode the strength of this cartel in the world pet-
roleum industry. First, Russian and Rumanian producers took
advantage of the high prices prevailing at the time of the Middle
East Crisis and entered the markets of the 'free world'. Second,
a large number of independent companies from the United States,
France, Italy and Japan were successful in breaking into the
international industry by securing control of vast reserves in
new producing regions. Third, national companies privately or
state-owned have organized their own enterprises to undertake
domestic production either as monopolies or in combination with
foreign companies. As a result of these developments the share
of world supply and reserves controlled by the cartel was reduced
and they were less able to manipulate the production and marketing
of the industry's output. Table 1-2 indicates the regional dis-
tribution of reserves and production by these companies in 1963.

TABLE 1 - 2

CRUDE OIL RESERVES AND PRODUCTION, MAJOR INTERNATIONAL COMPANIES, 1963
(Percent)

	C R U D E O I L R E S E R V E S						C R U D E O I L P R O D U C - T I O N		
	U.S.A. & Canada	Venezuela	Middle East	Africa	World Incl. U.S.A. & Canada	Total Excl. U.S.A. & Canada [a]	Western Hemisphere	Eastern Hemisphere	World[a] Total
Gulf Oil Corporation	5.2	4.1	16.7	2.3	12.4	13.8	4.3	13.2	7.8
Socony Mobil	3.5	2.1	5.9	4.7	5.0	5.2	3.3	5.6	4.2
Standard Oil of California	5.2	2.1	10.0	-	8.5	9.1	3.6	8.0	5.3
Standard Oil of New Jersey	10.4	52.1	11.6	13.9	13.5	13.9	16.9	12.8	15.3
Texaco	7.0	2.1	10.0	-	8.9	9.2	7.3	8.1	7.6
British Petroleum	-	-	28.2	9.3	19.8	23.0	0.3	23.7	9.5
Royal Dutch/Shell	3.5	22.9	5.9	9.3	7.2	7.8	10.8	8.6	9.9
Campagne Francaise des Petroles	-	-	5.6	9.3	4.3	5.0	-	6.9	2.8
Eight Major Companies	34.8	83.4	93.9	48.8	79.6	87.0	46.5	86.9	62.4
Other Companies	65.2	16.6	6.1	51.2	20.4	13.0	53.5	13.1	37.6
Total all Companies	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a. Excluding U.S.S.R., Eastern Europe, China

Source: J.E. Hartshorn, Oil Companies and Governments, Faber and Faber, London, 1967. p. 391.

APPENDIX 2

The Petroleum Industry of Trinidad and Tobago

Growth of Production

In relation to the world industry, the petroleum industry of Trinidad and Tobago is marginal in size. Table 2-1 shows that the domestic industry contributes less than 1% of the world's production and reserves of crude oil and natural gas and just over 1% of total refinery throughput.

Table 2-1

World Petroleum - Selected Data

	Trinidad	Venezuela	United States	Middle East	World Total
Crude Oil Reserves[a] - 10^6 bbl.	612	15,500	31,442	266,955	453,526
Crude Oil Production- 10^3 bbl/day	178	3,542	10,220	10,034	36,852
Refinery Capacity[a] - 10^3 bbl/day	406	1,248	12,067	2,209	44,900
Refinery Throughput 10^3 bbl/day	381	1,166	9,805	1,660	29,555
Natural Gas Reserves[a] 10^{10} scf/day	200	3,200	29,295	22,485	132,826
Natural Gas Production 10^6 scf/day	384	2,506	49,464	375	80,803

a. These data are for 1968. All other data relate to 1967.

Source: International Petroleum Encyclopedia 1969, The Petroleum Publishing Company, Oklahoma, 1969. Annual Review of Petroleum Development in 1967, C.S.O. Government of Trinidad and Tobago, 1968.

Early Developments

The domestic petroleum industry became a commercial undertaking in 1909 with the development of fields near Aripero in the South-Western area of the island. However, drilling activities had been undertaken as early as 1857 at La Brea, two years before the Pennsylvania discoveries in the United States. On this occasion the shortage of capital and the inadequacy of the equipment used brought an early end to exploration works. For similar reasons drilling operations at Aripero had to be abondoned nine years later despite the discovery of oil deposits in the area.

For the first two decades of commercial production there was considerable consolidation and expansion in the industry. In this period crude oil production increased from 47 thousand barrels in 1909 to 9,000 thousand barrels in 1930. Growth was even more rapid during the 1930's and by 1939 production reached 19 million barrels, more than twice the total for 1930. World War II brought an end to this expansion however. Shortages of capital were experienced and drilling activities were curtailed. The number of rigs in operation as a result declined from 36 in 1939 to 15 in 1945. In the decade 1940 - 50 production stagnated at 20 - 22 million barrels.

Petroleum refining was introduced locally as early as 1914 when the first refinery was constructed to supply fuel for the Allied Navies during World War I. Since that time the growth of refinery capacity has more than kept pace with the growth of domestic crude oil production and has made possible the importation of a substantial volume of foreign oil for processing. In

1940 less than 1% of refinery throughput consisted of foreign crudes but by 1950 the proportion increased to approximately 28% of total throughput.

There were also major changes in the composition of product output during this period. In the earlier years of refining the emphasis was on fuel oil, the main consumer being the British Navy. In the 1920's and 1930's however the composition of output shifted to motor gasoline and reflected the demand of the major consuming areas during the gasoline era of the international industry. During World War II the emphasis was changed once more, this time to aviation gasoline for the Allied air force. In subsequent years the product range of the refineries was further expanded although heavy fuel oils comprised the major proportion of product output.

Structure and Production 1951 - 65

The domestic petroleum industry has from its inception been completely foreign owned. The nine companies at present engaged in the production of oil are all affiliates of large international corporations with head offices in the North Atlantic. The industry has however been dominated by four companies, Texaco (T'dad) Ltd., Shell (T'dad) Ltd., British Petroleum (T'dad) Ltd., and Trinidad Northern Areas Ltd.[1] Together these companies controlled 98.3% of domestic crude oil production and 91.0% of natural gas production in 1967 and 99.5% of the proven crude oil reserves in the

1. These companies will hereafter be referred to respectively as T.T.I., S.T.L., B.P. and T.N.A. The last mentioned company is jointly owned by the other three on an equal share basis.

territory in 1963. Similarly, the two local refineries are
owned by T.T.I. and S.T.L. while the domestic product market is
distributed amongst T.T.I. (37.8%), S.T.L. (28.0%), B.P. (9.4%)
and Esso, the Standard of Jersey affiliate, (24.8%).[2]

The effect of this ownership pattern is that decisions in
respect of the technology used in production, the quantity pro-
duced, and the marketing of the output are all taken by foreign
entrepreneurs. Moreover, by their control over how much is pro-
duced and the price at which the output is lifted the companies
in effect dictate the revenues received by the national govern-
ment from the industry. A more serious implication however is
that developments in the domestic industry are likely to be
determined less by the interests of the country's nationals than
by the profitability of local affiliates in relation to the
diverse international interests of the parent company.[3]

It is in recognition of this aspect of the industry's struc-
ture that the local government in its Third Five Year Plan has
outlined specific proposals "to ensure that the petroleum industry

2. Source: <u>Annual Review of Petroleum Development in Trini-
    dad and Tobago, 1967</u>, C.S.O. 1968.; <u>Report of the Com-
    mission of Enquiry into the Marketing of Petroleum Pro-
    ducts in Trinidad and Tobago</u>, Government Printery, 1965.

3. For discussions on the relationship between the large
    international companies and small countries see: Edith
    Penrose, "Profit Sharing between Producing Countries and
    Oil Companies in the Middle East." <u>Economic Journal</u>,
    June 1959, pp. 238-254; also by the same author, "Middle
    East Oil: The International Distribution of Profits and
    Income Taxes," <u>Economica</u> May 1960, pp. 203-213. Dudley
    Seers, "Big Companies and Small Countries: A Practical
    Proposal", <u>Kyklos</u>, 1963, pp. 599-607.

of the country can expand and develop economically in harmony with the national interests".[4] These include measures to safeguard the government's revenue from the industry, to influence the labour policy of the companies, and to ensure a supply of adequately trained personnel for employment in the relevant government departments as well as at the higher technical and managerial levels in the local industry.

The most important proposal however, is to establish a National Petroleum Company wholly-owned by the Government. This company will have two functions, first to ensure that "concessions and leases are granted on the best national terms for exploration, development and exploitation"; and secondly to act "as a holding company establishing wholly-owned or joint-venture subsidiaries for producing crude oil, products, natural gas, petrochemicals and other related products".[5] This company is already being prepared for the task of operating the land and marine assets of B.P. which are to be acquired by the government.

Crude Oil Production

The mining sector is most important in relation to the growth of the domestic industry and indeed the growth of output of the economy as a whole. This is shown in Table 2-2 which compares the rates of growth of crude oil production, refinery throughput, natural gas production, the 'value added' by the

4. Draft Third Five Year Plan 1969-1973, Government Printery, Trinidad and Tobago, 1968, p. 236. See also pp. 3-10 and 236-238.

5. Ibid., p. 237.

industry and the domestic output of the economy.

Table 2-2

Comparative Rates of Growth

(Percent)

	Crude Oil Production	Refinery Throughput	Natural Gas Production	Petroleum Sector Value Added	G.D.P.
1951-54	4.3	2.1	6.7	8.6	9.6
1955-57	16.9	12.2	26.6	30.6	17.7
1958-61	7.1	19.6	8.9	7.0	9.9
1962-65	-	7.8	3.7	-0.9	5.4

Source: See Tables

The similarity of these trends results from certain factors which are peculiar to the petroleum industry in general and the Trinidad industry in particular. Firstly, in Trinidad unlike most of the producing countries of the world almost all the oil produced in the territory is processed at the local refineries; secondly in the domestic industry natural gas is in most cases a joint product of crude oil; thirdly, crude oil production in general contributes more to the value added of the industry than does refining; finally, the demand for labour and other domestic resources is greater in respect of crude oil production than in the case of refining.

In the period 1951-65 domestic production grew at an annual rate of 6.3% from 20.8 million barrels in 1951 to 48.9 million barrels in 1965. (See Table 2-3) There were however four dis-

TABLE 2 - 3

SELECTED DATA ON THE PRODUCTION OF CRUDE OIL IN TRINIDAD AND TOBAGO 1951 - 1965

	Units	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
1. Total Crude Oil Production	mn bbls	20.8	21.3	22.3	23.6	24.9	28.9	34.0	37.3	40.9	42.3	45.8	48.9	48.7	49.7	48.9
(a) Land Production	mn bbls	20.8	21.0	21.5	22.5	23.4	26.7	31.3	33.1	34.5	33.0	32.8	32.6	29.9	29.4	29.5
(b) Marine Production	mn bbls	-	-	-	-	-	0.2	0.5	2.1	4.3	7.5	11.1	14.6	17.3	19.0	18.1
(c) Marine deviated from land	mn bbls	-	-	0.8	1.1	1.4	2.0	2.2	2.1	2.1	1.8	1.9	1.7	1.5	1.3	1.3
2. Total Number of Wells Completed	Units	140	182	224	202	213	262	314	295	278	312	288	280	232	194	222
3. Total Number of Producing Wells	Units	2,280	2,407	2,536	2,674	2,745	2,857	3,048	3,141	3,210	2,202	3,247	3,275	3,128	3,171	3,221
4(a) Production obtained from flowing wells	%	49.6	48.4	52.0	54.5	58.1	61.2	68.2	66.2	68.1	70.2	71.7	71.6	70.6	68.6	61.0
(b) Production obtained from artificial lift wells	%	50.4	51.6	48.0	45.5	4.19	38.8	31.8	33.8	31.9	29.8	28.3	28.4	29.4	31.4	39.0
5. Average depth per completed well	Feet	4,481	4,286	4,206	4,544	4,413	4,237	4,151	4,604	5,141	4,599	5,041	5,274	5,633	5,577	4,823
6. Total footage drilled	'000	665	736	918	911	988	1,111	1,322	1,365	1,447	1,408	1,426	1,506	1,246	1,056	1,059
7. Success Ratio in drilling	%	93.6	97.2	94.2	93.6	89.7	85.4	88.5	87.1	88.8	88.8	85.0	91.0	85.8	89.7	88.7
8. Av. daily production per well	Units	25.1	24.1	24.1	24.2	24.8	27.7	30.6	32.6	34.9	36.1	38.7	40.9	42.6	42.4	4.15
(a) Land	Units	-	-	-	-	-	-	-	-	-	-	-	29.2	28.6	27.6	27.7
(b) Marine	Units	-	-	-	-	-	-	-	-	-	-	-	306.7	271.3	248.1	216.4
(c) Marine deviated	Units	-	-	-	-	-	-	-	-	-	-	-	56.1	45.1	44.4	40.6

Sources

1. Annual Review of Petroleum Development in 1967 in Trinidad and Tobago,
   C.S.O. 1968
2. Annual Statistical Digest, C.S.O.' Gov't of Trinidad and Tobago, several years.
3. Draft Third Five-Year Plan 1969-1973, Gov't. of Trinidad and Tobago, 1968 .

tinct phases in production. The first was in the period 1951-54
which saw a return to active drilling and exploration after the
stagnation brought on by the war. Output increased moderately
at an annual rate of 4.3% over the four-year period.

The growth of production during the second phase 1955-57
has been the most remarkable in the history of the industry. In
response to exceptionally high prices generated by the Suez
crisis and the attendant inflation of world demand, domestic
output grew at a rate of 16.9% per annum. This expansion was
also facilitated by an extensive reorganization of the local
industry. In 1956-57 T.T.I. acquired the British company Trini-
dad Leaseholds Ltd. as well as the minor producers Antiilles
Petroleum Company Ltd. and Siparia Trinidad Oilfields Ltd. with
an explicit undertaking to intensify local drilling efforts and
to operate its refineries at full capacity. In the same year
B.P. acquired Trinidad Petroleum Development Company, Kern Trini-
dad Oilfields Ltd. and Apex Trinidad Oilfields Ltd. and set about
rationalizing the diverse operations of the group. These two
companies (T.T.I. and B.P.) had previously combined with S.T.L.
to form Trinidad Northern Areas Ltd. for the purpose of exploiting
their marine holdings.

Production grew at a much slower rate during the third phase
1958-61. This may be attributed to factors both internal and
external to the domestic economy. At the international level
petroleum prices weakened as a condition of excess supply develop-
ed in the world industry. This situation continued throughout
most of the 1960's. Under these conditions, it was more profitable
for the international companies to direct their incremental invest-

ments to those regions where the cost of recovery was lowest.

With respect to the local industry, the more accessible land reservoirs had already been exploited and the cost of recovery was high by international standards. Drilling efforts were therefore concentrated in the more productive marine areas. Land production as a result declined absolutely after 1959, increases in aggregate output coming solely from marine production.

Stagnation overcame the local industry in the fourth phase, crude oil output being the same in 1965 as it was in 1962. Land production continued its downward trend, and whereas this was being compensated for by the growth of marine production, output from the latter source was levelling off as the Soldado fields showed signs of maturity. In 1965, approximately 39% of locally produced crude oil was being obtained from marine sources.

Table 2-3 also provides the trend in activities related to crude oil production. This falls roughly into two periods. During the first period, 1951-59 the total footage drilled increased at a rapid rate, while the number of completed wells grew almost as fast. There were also substantial improvements in drilling techniques and the proportion of crude oil output derived from flowing wells increased appreciably.

In the second period 1960-65, there was a decline in the total footage drilled, the number of well completions, and the proportion of crude oil output obtained from flowing wells. However, the average daily production per well continued to rise, thus averting an absolute fall in the level of domestic production.

The performance of individual companies in respect of crude oil production and footage drilled is given in Tables 2-4 and 2-5. The dominance of T.T.I., B.P., S.T.L. and T.N.A. is vividly seen. It is clear however that T.N.A. and to a lesser degree Texaco have been the companies mainly responsible for the growth in production achieved after 1958. Whereas the footage drilled by all companies tended to decline over the period, the trend was most pronounced in the case of B.P. and S.T.L., with the result that crude oil production by these two companies fell absolutely. T.N.A. on the other hand increased its output from 2 million barrels in 1958 to 15.7 million barrels in 1965, approximately 32% of domestic output in the latter year.

Refining

One of the more important features of the local industry has been the fast increase in refinery production. In the period 1951-65 refinery throughput grew at a rate of 10.4% per annum reaching 138.0 million barrels in 1965. (See Table 2-6) Mainly responsible for this performance was a major expansion of processing facilities. Expansion was most extensive in the period 1957-61 during which time the throughput of the refineries was doubled.

There was however a substantial growth in the proportion of foreign crude oil processed locally. Between 1951 and 1959 imported crude oils were on average 45% of domestic throughput, but the proportion grew continuously during the 1960's rising to 67% in 1965. Refining had thus developed essentially into a

Table 2 - 4

FOOTAGE DRILLED OF COMPANIES TRINIDAD AND TOBAGO 1958 - 66

(thousand feet)

		1958	1959	1960	1961	1962	1963	1964	1966
1.	BP (Group)	540.9	541.1	584.5	531.7	469.2	344.5	386.3	328.6
2.	Dominion Oil Ltd.	55.9	40.9	38.7	15.3	4.2	46.5	16.2	16.2
3.	Premier Consolidated Oilfields Ltd.	20.7	43.0	47.1	14.7	14.8	16.6	15.7	5.0
4.	Shell Trinidad Ltd.	202.1	229.7	165.7	83.2	56.9	53.2	28.7	40.5
5.	Trinidad Canadian Oilfields Ltd.	12.3	15.5	0.2	9.5	7.8	12.8	--	--
6.	Texaco Trinidad Inc.	473.9	463.8	427.9	499.0	657.0	558.7	428.3	648.5
7.	Trinidad Northern Areas Ltd.	59.2	104.4	142.3	272.6	284.6	213.8	181.2	148.5
8.	Pan American Trinidad Oilfields Ltd.	--	--	--	--	11.6	--	--	--
9.	Stekoll S.A. Ltd.	--	8.2	--	--	--	--	--	--
10.	TOTAL	1,365.1	1,446.6	1,406.4	1,426.0	1,506.2	1,246.2	1,056.3	1,187.2

Sources
1. Report of the Commission of Enquiry into the Oil Industry of Trinidad and Tobago 1963 - 64.
   Andre Deutsch Ltd., London 1964. p. 75.
2. Monthly Bulletin, Ministry of Petroleum and Mines, Government of Trinidad and Tobago.

TABLE 2 - 5

PRODUCTION OF CRUDE PETROLEUM BY COMPANY TRINIDAD AND TOBAGO 1951-65

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
1.Texaco Trinidad Inc.	(7.4)	(7.4)	(7.9)	(8.3)	(8.6)	(10.8)	13.3	16.0	17.7	17.2	17.9	18.4	18.4	17.4	17.6
2.Trinidad Leaseholds Ltd.[1]	6.1	6.1	6.1	6.4	6.4	6.8									
3.Antilles Petroleum Co. (T'dad) Ltd.[2]	0.6	0.7	1.2	1.3	1.3	2.4									
4.Siparia (T'dad) Oilfields Ltd.[3]	0.7	0.6	0.6	0.6	0.9	1.6									
5.Shell Trinidad Ltd.[4]	5.4	5.3	5.4	5.9	6.5	7.3	9.0	8.0	7.4	7.2	6.4	5.6	5.1	4.9	4.8
6.British Petroleum (T'dad) Ltd.[5]	(6.7)	(7.1)	(7.2)	(7.3)	(7.5)	(8.2)	8.5	9.3	10.1	10.0	10.5	10.3	8.4	9.5	9.7
7.Apex (T'dad) Oilfields Ltd.	3.1	3.1	3.0	3.0	3.0	3.0	(3.0)	(3.1)	(2.9)	(2.8)	(3.2)	(3.2)	(2.5)	(2.7)	(2.6)
8.Kern (T'dad) Oilfields Ltd.	0.7	0.8	1.0	1.0	1.0	1.1	(1.1)	(1.1)	(1.1)	(1.0)	(1.0)	(0.9)	(0.7)	(0.8)	(0.8)
9.Trinidad Petroleum Development Co. Ltd.	2.9	3.2	3.2	3.3	3.5	4.1	(4.4)	(5.1)	(6.1)	(6.3)	(6.3)	(6.2)	(5.2)	(6.0)	(6.3)
10.Trinidad Northern Areas Ltd.[6]	-	-	-	0.1	0.4	0.6	1.0	2.0	3.8	6.0	9.4	13.1	15.3	16.6	15.7

TABLE 2 - 5 (contd.)

PRODUCTION OF CRUDE PETROLEUM BY COMPANY TRINIDAD AND TOBAGO 1951-65

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
11. Trinidad Canadian Oilfields Ltd.	1.1	1.1	1.5	1.6	1.5	1.6	1.8	1.6	1.5	1.3	1.2	1.2	1.0	0.9	0.8
12. Premier Consolidated Oilfields Ltd.	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.3
13. Dominion Oil Ltd.	-	-	-	-	-	-	-	-	-	0.2	0.1	0.02	0.03	0.06	-
TOTAL ALL COMPANIES[7]	21.0	21.3	22.3	23.6	24.9	28.9	34.0	37.3	40.9	42.3	45.8	48.9	48.7	49.7	48.9

Notes

1. Trinidad Leaseholds Ltd. had its name changed to the Trinidad Oil Company Ltd. in 1956, immediately after which it was purchased by the Texas Oil Company of the U. S. The company was renamed Texaco Trinidad Incorporated in 1958.

2.& 3. These companies were acquired by Texaco T'dad Inc. (then T.O.C. Ltd.) in 1956.

4. The name of this company was changed from the United British Oilfields of Trinidad Ltd. in 1956.

5. The British Petroleum Company Ltd. purchased the remaining 50% of the T P D stock in 1967/57. The B.P. Group now comprises Apex (T'dad) Oil-fields Ltd., Kern (T'dad) Oilfields Ltd., and Trinidad Petroleum Development Company Ltd.

6. This company is jointly owned by Texaco Trinidad Inc., Shell Trinidad Ltd, and B.P. (T'dad) Ltd. as equal partners.

7. Includes Jones/Jade Ltd., production from which is negligible.

Sources
Administration Reports of the Department of Petroleum, C.S.O., Government of Trinidad and Tobago.
Umpublished data from The Ministry of Petroleum and Mines, Trinidad and Tobago.

Table 2-6 179

COMPOSITION OF REFINERY THROUGHPUT, TRINIDAD AND TOBAGO
1951-1965
(million barrels)

	Domestic Production (1)	Crude Oil Exports (2)	Crude Oil Imports (3)	Refinery Throughput (1)+(3)-(2)	Imports as Percent of Throughput
1951	20.8	1.9	16.0	34.9	45.8
1952	21.3	2.0	16.9	36.2	46.7
1953	22.3	2.3	16.5	36.5	45.2
1954	23.6	3.1	16.6	37.1	44.7
1955	24.9	2.9	17.8	39.8	44.7
1956	28.9	3.9	18.3	43.3	42.2
1957	34.0	3.4	19.5	50.1	38.9
1958	37.3	2.1	25.5	60.7	42.0
1959	40.9	3.3	31.3	68.9	45.4
1960	42.3	5.1	45.3	82.5	54.9
1961	45.8	4.3	62.5	104.0	60.1
1962	48.9	4.0	65.2	110.1	59.2
1963	48.7	3.8	74.1	119.0	62.2
1964	49.7	4.6	83.2	128.3	64.8
1965	48.9	4.3	93.4	138.0	67.7

Sources: Overseas Trade Reports, C.S.O., Government of Trinidad and Tobago.
Annual Review of Petroleum Development in 1967. C.S.O., Government
of Trinidad and Tobago, 1968.
Annual Statistical Digests, C.S.O.' Government of Trinidad and Tobago.

manufacturing operation with the raw materials being imported from foreign countries and the products oriented to foreign markets. The sources of imported crude oil are given in Table 2-7.

There were also qualitative extensions to the local refineries. Through the erection of new plants and the modernization of old ones a wider and more valuable range of products is now obtainable from a barrel of crude oil. The composition of refinery output however remains heavily biased towards the heavier fuel oils as can be seen from Table 2-8. This production pattern results partly from the quality of the crude oil inputs which tend to give a low yield of lighter products, and partly from the structure of market demand which within recent years has been more favourable for heavier oils.

There are at present three refineries in the territory. Two of these (located at Pointe-a-Pierre and at Brighton) belong to T.T.I. while the third (at Point Fortin) is owned by S.T.L. The Pointe-a-Pierre refinery is the largest and most complex and is geared to derive a complete line of finished products from crude oil of different properties. Plants-have also been installed for the production of a wide range of basic petrochemical intermediates for export. This refinery had a capacity of 360 barrels per stream day in 1963 but has subsequently undergone major expansions. In 1968 it was rated as the fifth largest complex in the world.

The refineries at Point Fortin and Brighton are much smaller, the former having a capacity of 55 thousand barrels and the latter a capacity of 5 million barrels in 1963. Unlike the Pointe-a-Pierre refinery however processing is confined to indegenous crude oil while the product range is more restricted.

Table 2-7   181

IMPORTS OF CRUDE PETROLEUM-TRINIDAD AND TOBAGO 1951-65

(million barrels)

	Venezuela	Columbia	SaudiArabia	Other Countries	Total
1951	14.4	0.9	--	0.7	16.0
1952	15.7	1.0	--	0.2	16.9
1953	15.1	0.9		0.5	16.5
1954	16.0	0.6	--	--	16.6
1955	17.1	0.7	--	--	17.8
1956	16.6	1.7	--	--	18.3
1957	17.0	2.3	0.2	--	19.5
1958	17.8	1.6	6.1	--	25.5
1959	23.4	2.3	3.1	2.5	31.3
1960	27.4	2.2	9.3	6.4	45.3
1961	30.5	4.3	27.2	0.5	62.5
1962	27.9	4.3	32.1	0.9	65.2
1963	29.8	11.2	27.2	5.9	74.1
1964	39.7	12.0	30.4	1.1	83.2
1965	46.7	12.0	33.9	0.8	93.4

Source: Overseas Trade Report, C.S.O.,
          Government of Trinidad and Tobago. Several Years.

Table 2-8   182

COMPOSITION OF REFINED PRODUCTS TRINIDAD AND TOBAGO 1951-65

	1951		1965	
	'000 bbl	Percent	'000bbl	Percent
Aviation spirits (100octane)	423	1.2	997	0.8
Aviation spirits (other grades)	1,317	3.8	9,384	7.4
Motor spirits	5,485	15.8	17,208	13.5
White spirit and Vaporising Oils	2,678	7.7	196	0.2
Kerosene	668	1.9	2,846	2.2
Gas and Diesel Oils	5,042	14.6	19,447	15.3
Fuel Oils (all grades)	17,857	51.5	75,442	59.3
Lubricating Oils and Greases	2	--	835	0.6
Bitumen	452	1.3	328	0.3
Other finished products	317	0.9	416	0.3
Feed or Blending Stock for Transfer	456	1.3	--	--
Liqified Petroleum Gas	--	--	182	0.1
Total Production	34,697	100	127,281	100

Source Annual Statistical Digest, C.S.O., Government of Trinidad and Tobago

Natural Gas

Since natural gas is in most cases associated with the production of crude petroleum, the trend in production of the two resources has been somewhat similar. However the gas-oil ratio tended to rise during the period indicating a faster growth of gas production. (See Table 2-9)

The demand for natural gas on the other hand has not kept pace with the growth of production. Thus in 1951 39% of the gas produced was vented of flared, the proportion growing to 61% in 1961. Among reasons advanced for this wastage have been the low pressure of some fields and the lack of transportation and compression facilities.

Prior to 1954 natural gas was utilized exclusively within the oil industry as fuel for the refineries and for reinjection into the reservoirs to facilitate the recovery of oil. Since that time however, Trinidad Cement Limited, and the Trinidad and Tobago Electricity Commission have become substantial consumers of gas as a fuel while Federation Chemicals Ltd. (established in 1959) has been using the product both as a fuel and as a raw material.

A considerable inprovement in gas utilization was effected in the period 1960-65. Federation Chemicals Ltd. made major additions to its plant with the result that its utilization of gas for processing grew at an average rate of 47% over the five-year period. The consuption of gas as a fuel also increased substantially, its utilization in industries other than petroleum increasing at an annual rate of 22% over the same period. Because

TABLE 2 - 9

PRODUCTION AND UTILIZATION OF NATURAL GAS TRINIDAD AND TOBAGO 1951-65

$(10^9$ cubic feet)

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
1. Production	31.7	31.5	34.6	38.5	40.8	51.7	65.4	79.2	92.0	97.7	102.3	99.9	99.7	110.7	111.5
2. Gas-Oil Ratio (sc ft./bbl)	1,525	1,479	1,551	1,631	1,641	1,790	1,924	2,123	2,240	2,309	2,236	2,045	2,042	2,227	2,282
3. Used as Fuel	16.6	16.9	17.7	18.2	17.6	19.3	20.9	23.2	24.9	26.1	28.6	29.3	28.6	37.9	41.5
(a) In Refineries	-	-	-	-	(9.5)	(10.3)	(11.4)	(12.7)	(21.7)	(15.0)	(17.5)	(17.1)	(16.6)	(20.5)	(22.7)
(b) In Fields	-	-	-	-	(7.3)	(7.4)	(7.8)	(8.1)		(7.0)	(6.9)	(6.7)	(5.8)	(6.0)	(6.7)
(c) In other Industries	-	-	-	-	(0.8)	(1.6)	(1.7)	(2.4)	(3.2)	(4.1)	(4.2)	(5.5)	(6.2)	(11.4)	(12.1)
4. Used as Process Gas	-	-	-	-	-	-	-	-	0.1	0.7	0.7	0.7	0.7	4.2	4.5
5. Injected Into Formation	2.6	2.8	2.5	3.2	5.4	7.4	9.5	11.2	12.5	10.8	11.7	13.2	15.8	14.7	13.9
6. Converted into C.H.P.S.	-	-	-	-	-	-	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
7. Vented and not Collected	12.5	11.8	14.4	17.1	17.8	25.0	34.7	44.6	54.3	59.9	61.1	56.5	54.0	53.7	51.4

Sources:

(1) Administration Reports of the Petroleum Department, Government of Trinidad and Tobago.

(2) Quarterly Economic Reports., C.S.O., Government of Trinidad and Tobago.

(3) Annual Review of Petroleum Development in 1967 in Trinidad and Tobago, C.S.O., 1968.

of these expansions the proportion of gas vented was reduced to
46% of the total produced in 1965. This level of wastage is still
very high however considering the potential of this resource in
the development of petrochemical manufacturing industries and of
industries requiring very cheap supplies of electric power.

TABLE 3 - 1-

OUTLAY OF THE PETROLEUM INDUSTRY TRINIDAD AND TOBAGO 1951-65

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
1. Wages and Salaries	27.2	31.5	35.9	40.2	44.7	46.5	48.9	50.6	52.0	53.4	55.2	54.9	55.4	60.4	66.1
2. Local Purchases & Payments															
(a) Materials	4.8	5.7	5.9	7.0	7.2	8.1	9.2	9.0	14.6	14.7	15.1	18.5	18.5.	N.A.	N.A.
(b) Contractors	1.2	0.8	0.7	0.3	0.5	2.2	5.8	14.8	23.8	30.8	31.6	46.5	53.5	N.A.	N.A.
(c) Govt. payments (excl. direct taxes)	8.4	9.2	9.6	11.0	11.4	13.6	17.8	20.6	21.1	22.5	24.2	26.4	26.9	27.9	27.4
(d) Other Payments	10.4	13.1	11.5	13.2	13.8	15.5	20.7	13.0	18.1	18.6	16.6	12.7	15.1	N.A.	N.A.
(e) TOTAL	24.8	28.8	27.7	31.5	32.9	39.4	53.5	57.4	77.6	86.6	87.3	104.1	114.0	97.7[a]	108.5[a]
3. Foreign Purchases															
(a) Crude Petroleum	65.2	71.3	65.3	65.3	73.8	76.5	88.0	116.0	131.1	158.5	266.6	272.0	295.6	362.6	395.2
(b) Materials	22.3	31.5	30.9	30.2	31.3	32.7	47.2	49.7	46.0	42.0	34.4	37.6	29.9	29.9[a]	34.8[a]
(c) TOTAL	87.5	102.8	96.2	95.5	105.1	109.2	135.2	165.7	177.1	200.5	301.0	309.6	325.5	392.5	430.0
4. Depreciation	19.8	23.1	28.9	27.2	33.9	43.0	36.8	48.8	56.2	73.1	72.8	79.9	74.1[a]	74.8[a]	80.4[a]
5. Gross Profit															
(a) Direct Taxes	13.7	17.1	15.6	14.7	18.8	19.6	27.7	36.8	29.6	29.8	29.1	34.5	35.3	37.7	33.6
(b) Net Profit	24.4	17.4	31.2	27.0	30.1	64.4	105.9	76.5	102.5	84.6	105.0	95.8	105.2	100.2	76.6
(c) TOTAL	38.1	34.5	46.8	41.7	48.9	84.0	133.6	113.3	132.1	114.4	134.1	130.3	140.5	137.9	110.2
6. Error	+5.3	+2.7	+8.2	+7.0	+7.0	+7.0	+1.4	+0.4	+0.1	+6.2	-6.4	+1.5	-12.7	-	-
7. Gross Output[b]	202.7	223.4	243.7	243.1	272.5	329.1	409.4	436.2	495.1	534.2	644.2	680.3	696.8	763.3	795.2

a. Estimates based on unpublished data from the Central Statistical Office, Trinidad and Tobago.
b. This is equal to the sum of industry receipts (Table 3-7), gross capital formation (Table 3-4) and changes in stocks.

Sources: The National Income of Trinidad and Tobago 1951-1961, 1952-,962, C.S.O.
Draft Third Five Year Plan 1969-1973, Government of Trinidad and Tobago. 1968.
Annual Administration Reports, Trinidad and Tobago Petroleum Department, Government Printery.
Annual Returns of the Petroleum Association of Trinidad, C.S.O., Government of Trinidad & Tobago.
Annual Overseas Trade Reports, C.S.O., Government of Trinidad and Tobago.

TABLE 3 - 2

GROSS OUTPUT IN MINING AND REFINING 1961-62*

	1961		1962	
	$mn	Percent	$mn	Percent
Oil Mining				
Imports	17.3	8.1	21.6	9.0
Services	6.5	3.1	6.8	2.8
Other Manufacturing	2.1	1.0	2.1	0.9
Households	3.8	1.8	3.8	1.6
Wages and Salaries	32.9	15.5	31.9	13.4
Depreciation	57.9	27.2	64.7	27.1
Government	37.8	17.8	38.0	15.9
Profit	54.2	25.5	70.0	29.3
Total Mining	2.215	100.0	238.9	100.0
Refining				
Imports	281.7	71.0	292.9	74.2
Services	13.6	3.4	15.6	3.9
Other Manufacturing	1.5	0.4	1.8	0.5
Wages and Salaries	22.3	5.6	23.0	5.8
Depreciation	11.4	2.9	12.5	3.2
Government	14.3	3.6	1717	4.5
Profit	52.2	13.1	31.2	7.9
Total Refining	397.0	100.0	394.7	100.0

Total Mining and Refining	609.5		633.6	
Mining as % of Total		34.9		37.7
Refining as % of Total		65.1		62.3

*The estimates in this table differ from thos of Table 3 - 1, in that lower values are given for local payments other than wages and salaries and government taxes.

Source: Input-Output Tables for Trinidad and Tobago, 1961-62. C.S.O.

Table 3-3a

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VALUE ADDED IN THE PETROLEUM SECTOR   1961-65
($mn TT)

	Wages & Salaries	Payments to Government	Depreciation	Profit*	Total
1951	27.2	22.1	19.8	24.4	93.5
1952	31.5	26.3	23.1	17.4	98.3
1953	35.9	25.2	28.9	31.2	121.2
1954	40.2	25.7	27.2	27.0	120.1
1955	44.7	30.2	33.9	30.1	138.9
1956	46.5	33.2	43.0	64.4	187.1
1957	48.9	45.5	36.8	105.9	237.1
1958	50.6	57.4	48.8	76.5	233.3
1959	52.0	50.7	56.2	102.5	261.4
1960	53.4	52.3	73.1	84.6	263.4
1961	55.2	53.3	72.8	105.0	286.3
1962	54.9	60.9	79.9	95.8	291.5
1963	55.4	62.2	74.1	105.2	296.9
1964	60.4	65.6	74.8	100.2	301.0
1965	66.1	61.0	80.4	76.6	284.1

* This is a residual item and includes payments in respect of management fees, patents and other minor foreign payments.

Source: The National Income of Trinidad and Tobago 1951-1961, 1952-1962. C.S.O. Government of Trinidad and Tobago.
Draft Third Five Year Plan 1969-1973, Government of Trinidad and Tobago 1968.
Unpublished Data, C.S.O., Government of Trinidad and Tobago.

Table 3-3b

VALUE ADDED IN THE PETROLEUM SECTOR   1951-65

PERCENT

	Wages & Salaries	Payments to Government	Depreciation	Profit	Total
1951	29.1	23.6	21.2	26.1	100
1952	32.0	26.8	23.5	17.7	100
1953	29.6	20.8	23.9	25.7	100
1954	33.5	21.4	22.6	22.5	100
1955	32.2	21.7	24.4	21.7	100
1956	24.9	17.7	23.0	34.4	100
1957	20.6	19.2	15.5	44.7	100
1958	21.7	24.6	20.9	32.8	100
1959	19.9	19.4	21.5	39.2	100
1960	20.3	19.9	27.7	32.1	100
1961	19.3	18.6	25.4	36.7	100
1962	18.8	20.9	27.4	32.9	100
1963	18.7	20.9	25.0	35.4	100
1964	20.1	21.8	24.8	33.3	100
1965	23.2	21.5	28.3	27.0	100

Source: See Table 3-3a

Table 3-4
GROSS AND NET FIXED CAPITAL FORMATION-PETROLEUM INDUSTRY 1951-65
$mn TT

	GROSS FIXED CAPITAL FORMATION				NET FIXED CAPITAL FORMATION		
	Oil-well Drilling	Plant&Fixed Equipment	Roads,Bridges, Buildings	Total	Oil-well Drilling	Other Activities	Total
1951	14.5	13.0	3.1	30.6	2.9	7.9	10.8
1952	17.5	9.7	2.9	30.1	3.7	3.3	7.0
1953	23.9	6.8	1.5	32.2	4.9	-1.6	3.3
1954	20.9	12.1	2.2	35.2	4.3	3.7	8.0
1955	24.7	14.5	1.4	40.6	4.6	2.1	6.7
1956	31.1	15.9	1.9	48.9	5.4	0.5	5.9
1957	32.0	30.4	4.3	66.7	6.0	23.9	29.9
1958	40.5	27.1	4.1	71.7	7.1	15.8	22.9
1959	45.4	53.4	3.8	102.6	8.4	38.0	46.4
1960	54.5	42.6	4.6	101.7	12.0	16.6	28.6
1961	48.3	31.6	5.9	85.8	6.9	6.1	13.0
1962	57.5	41.6	8.2	107.3	11.1	16.3	27.4
1963	48.7	39.4	8.6	96.7	9.8	12.8	22.6
1964	47.4	36.2	9.0	92.6	9.5	8.3	17.8
1965	47.4	58.2	9.5	115.1	9.5	25.2	34.7
1951-65	554.3	432.5	71.0	1,057.8	106.1	178.9	285.0

Source
The National Income of Trinidad and Tobago 1951-1961, C.S.O., Government of Trinidad and Tobago.
The National Income of Trinidad and Tobago 1952-62, C.S.O., Government of Trinidad and Tobago.
Unpublished data, C.S.O., Trinidad. Government of Trinidad and Tobago.

Table 3-5

FINANCE OF GROSS FIXED CAPITAL FORMATION
PETROLEUM INDUSTRY 1951-65
($ mn TT)

	DEPRECIATION			Reinvested Profits	Total Capital For mation	Depreciation as % of Capital Formation	Reinvested Profits as % of Capital Formation
	Oil-well Drilling	Buildings, Plant Equipment	Total				
1951	11.6	8.2	19.8	10.8	30.6	64.7	35.3
1952	13.8	9.3	23.1	7.0	30.1	76.7	23.3
1953	19.0	9.9	28.9	3.3	32.2	89.7	10.3
1954	16.6	10.6	27.2	8.0	35.2	77.2	22.8
1955	20.1	13.8	33.9	6.7	40.6	83.5	16.5
1956	25.7	17.3	43.0	5.9	48.9	87.9	12.1
1957	26.0	10.8	36.8	29.9	66.7	55.2	44.8
1958	33.4	15.4	48.8	22.9	71.7	68.1	31.9
1959	37.0	19.2	56.2	46.4	102.6	54.8	45.2
1960	42.5	30.6	73.1	28.6	101.7	71.9	28.1
1961	41.4	31.4	72.8	13.0	85.8	84.8	15.2
1962	46 4	33.5	79.9	27.4	107.3	74.5	25.5
1963	38.9	35.2	74.1	22.6	96.7	76.6	23.4
1964	37.9	36.9	74.8	17.8	92.6	80.8	19.2
1965	37.9	42.5	80.4	34.7	115.1	69.9	30.1
1951-65	448.2	324.6	772.8	285.0	1,057.8	73.0	27.0

Source
The National Income of Trinidad and Toabgo 1951-61, C.S.O. Government of Trinidad and Tobago.
The National Income of Trinidad and Toago 1952-1962, C.S.O. Government of Trinidad and Tobago.
Unpublished data, C.S.O. Government of Trinidad and Tobago.

Table 3-6
PETROLEUM INDUSTRY
PAYMENTS TO LOCAL GOVERNMENT AND INDUSTRY PROFITS. 1951-1965
($mn TT)

	PAYMENTS TO LOCAL GOVERNMENT				Net Profit * of Industry (5)	(1)as percent of(1&5) (6)	(4) as percent of (4&5) (7)
	Direct Taxes (1)	Royal- ties (2)	Other Payements (3)	Total (4)			
1951	13.7	6.6	1.8	22.1	24.4	35.9	47.5
1952	17.1	6.7	2.5	26.3	17.4	49.5	60.2
1953	15.6	7.0	2.6	25.2	31.2	33.3	44.7
1954	14.7	8.3	2.7	25.7	27.0	35.2	48.8
1955	18.8	8.7	2.7	30.2	30.1	38.4	50.1
1956	19.6	10.5	3.1	33.2	64.4	23.3	34.0
1957	27.7	13.9	3.9	45.5	105.9	20.7	30.0
1958	36.8	16.0	4.6	57.4	76.5	27.5	42.9
1959	29.6	16.9	4.2	50.7	102.5	22.4	33.1
1960	29.8	18.1	4.4	52.3	84.6	26.0	38.2
1961	29.1	19.8	4.4	53.3	105.0	21.7	33.7
1962	34.5	20.8	5.6	60.9	95.8	26.5	38.9
1963	35.3	21.2	5.7	62.2	105.2	25.1	37.1
1964	37.7	21.8	6.1	65.6	100.2	27.3	39.6
1965	33.6	20.8	6.6	61.0	76.6	30.5	44.3
TOTAL 1951-65	393.6	217.1	60.9	671.6	1,440.4	29.6	41.6

* See note Table 3-3
Source. Draft Third Five Year Plan, 1968-1973. Government of Trinidad and Tobago.

TABLE 3 - 7

GROSS RECEIPTS OF THE PETROLEUM INDUSTRY 1951 - 1965

($mn TT)

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Exports															
Crude Petroleum	6.3	7.4	9.7	12.4	11.7	15.3	16.0	12.3	13.4	21.9	27.4	33.6	36.9	50.4	51.2
Products	155.5	168.1	184.9	180.9	200.9	246.5	298.0	327.6	350.7	370.7	466.5	460.7	488.8	523.5	512.1
Valuation Adjustment[a]	-	-	-	-	-	-	-	-	-	-	35.4	34.0	37.7	47.2	63.0
TOTAL	161.8	175/5	194.5	193.2	212.6	261.8	314.0	339.9	364.1	392.6	529.3	528.3	573.4	621.1	626.3
Domestic Sales	9.5	11.0	10.8	11.6	15.1	16.4	21.2	21.2	27.4	30.6	34.2	35.6	36.7[b]	49.6[b]	53.8[b]
Gross Receipts	171.3	186.5	205.3	204.8	227.7	278.2	335.2	361.1	391.5	423.2	563.5	563.9	600.1	670.7	680.1

Notes:

a. Represents difference between the values computed on the basis average realized product prices and the values declared by companies for products transferred under processing agreement.

b. Estimates based on the volume sold and the trend in domestic prices.

Sources: Overseas Trade, C.S.O., Government of Trinidad and Tobago.
Quarterly Economic Reports, C.S.O., Government of Trinidad and Tobago.
Balance of Payments - Trinidad and Tobago 1956-1966, C.S.O., Government of Trinidad and Tobago.

TABLE 3 - 8

PETROLEUM PRICES -- TRINIDAD 1951 - 1965
$TT

	1951	1953	1955	1957	1959	1961	1963	1965
Crude Petroleum								
Trinidad[a]	3.83	3.78	4.24	5.20	4.37	4.68	4.37	4.27
Trinidad[b]	3.37	4.07	4.09	4.89	4.05	4.33	4.35	4.27
Venezuela[c]	3.93	3.84	3.93	4.37	4.00	3.93	-	-
Refined Products - Trinidad[b]								
Aviation Spirits (100 Octane)	12.46	12.71	12.61	13.85	12.44	10.79	10.04	9.11
Gasoline	7.33	8.06	7.80	8.11	7.37	7.75	7.12	6.49
Dieselene	3.88	8.10	8.13	7.87	8.53	5.88	6.02	5.25
Gas Oil	6.28	6.39	6.42	6.83	6.49	5.93	5.65	4.40
Diesel Oil	3.68	5.28	5.84	5.28	6.68	5.52	5.65	5.20
Bunker C Grade Fuel Oil	3.08	4.39	3.52	3.73	3.56	3.46	3.44	3.30

Notes

a. Average prices for royalty evaluation-based on prices of derived products on the U.S. Gulf Coast.
b. Average realized prices as reported in Overseas Trade.
c. Posted prices for crudes of 26-26.90 API gravity. Trinidad crudes are of similar quality.

Sources

1. Annual Administration Reports, Trinidad and Tobago Petroleum Department.
2. Annual Review of Petroleum Development in 1967 in Trinidad and Tobago, Ministry of Petroleum of Mines, Government of Trinidad and Tobago, 1968.
3. Overseas Trade, C.S.O., Government of Trinidad and Tobago, several years.
4. Sources of Energy A Review, Commonwealth Economic Committee, H.M.S.O. London 1966. p. 138.

Table 3-9

EXPORTS OF CRUDE OIL AND REFINED PRODUCTS - TRINIDAD AND TOBAGO 1951, 1965

	1951 $'000	1951 Percent	1965 $'000	1965 Percent	Average Annual Increase 1951-65 Percent
Crude Oil	6,467	4.0	51,181	9.1	16.0
Aviation spirits (100 Octane)	5,361	3.3	20,293	3.6	10.0
Aviation spirits (other grades)	10,077	6.2	75,835	13.5	15.5
Gasoline	35,456	21.9	45,658	8.1	1.8
Kerosene	19,436	12.0	6,144	1.1	-8.6
Dieselene	59	0.06	49,333	8.7	61.7
Gas Oil	18,130	11.2	33,764	6.0	4.6
Diesel Oil	9,454	5.9	10,392	1.8	0.7
Bunker C Fuel Oil	45,200	27.9	202,093	35.9	11.3
Other Fuel Oils	7,507	4.6	54,732	9.7	15.3
Lube Oils and Greases	42	0.04	11,710	2.1	49.5
Other	4,611	2.9	2,184	0.4	-
Total	161,800	100	563,319	100	9.3

Note

Data for 1965 do not include the valuation adjustment of $63 mn. and the total will therefore differ from the figure in Table 3-7

Source: Overseas Trade 1951, C.S.O. Government of Trinidad and Tobago.

TABLE 3 - 10

DISTRIBUTION OF PETROLEUM EXPORTS BY TRADING GROUPS TRINIDAD AND TOBAGO 1951-65
$mn TT

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
1. U.S.A.	4.3	2.1	4.3	2.6	1.3	10.6	19.7	67.9	59.9	83.1	125.5	127.9	154.3	167.5	194.3
2. Canada	7.0	8.0	9.7	10.9	11.3	12.0	5.3	8.6	16.2	15.4	18.0	22.2	16.4	22.3	22.3
3. United Kingdom	41.0	45.6	67.6	66.3	72.8	83.1	90.4	60.7	102.7	111.2	106.3	95.8	95.8	107.9	68.3
4. EFTA (excluding the U.K.)	5.5	4.6	7.7	4.6	13.0	20.0	24.8	14.9	23.1	14.3	17.8	20.7	33.0	29.3	44.4
5. E.C.M.	0.3	.4	2.0	.8	2.2	2.4	10.3	9.2	12.8	26.8	49.9	65.0	73.0	64.2	61.1
6. Commonwealth Caribbean	8.2	8.2	9.7	11.4	13.9	14.5	15.6·	17.7	20.1	21.5	31.7	35.5	23.6	18.9	18.9
7. Other Caribbean and Latin America	38.8	36.4	32.2	39.4	30.8	36.0	44.2	43.3	45.5	26.4	25.9	18.2	50.5	58.7	59.3
8. Africa	17.8	20.6	13.0	14.6	23.7	28.8	26.6	21.5	13.6	24.7	26.1	19.3	20.2	30.7	35.0
9. Other	6.2	11.6	11.0	9.4	11.1	12.8	13.0	38.6	9.9	15.6	ᴗ64.1	68.1	50.0	70.2	77.6
0. Ships Stores and Brokers	32.7	38.0	37.3	33.2	32.6	41.6	64.1	57.5	60.3	53.6	64.0	55.6	46.6	51.4	45.1
TOTAL	161.8	175.5	194.5	193.2	212.6	261.8	314.0	339.9	364.1	392.6	529.3	528.3	563.4	621.1	626.3

Source: Overseas Trade, C.S.O., Government of Trinidad and Tobago.

TABLE 3 - 11

FOREIGN EXCHANGE ACCOUNT OF THE PETROLEUM INDUSTRY TRINIDAD AND TOBAGO
1951 - 1965

$mn TT

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
1.Gross Value of Exports[a]	161.8	175.5	194.5	193.2	212.6	261.8	314.0	339.9	364.1	392.6	529.3	528.3	563.4	621.1	626.3
2.Less Imports of Crude[b]	65.2	71.3	65.3	65.3	73.8	76.5	88.0	117.0	131.1	158.5	266.6	272.0	295.6	362.6	395.2
3.Net Value of Exports[c]	96.6	104.2	129.2	127.9	138.8	185.3	226.0	223.9	233.0	234.1	262.7	256.3	267.8	258.5	231.1
4.Less Other Merchandise Imports[b]	22.3	31.5	30.9	30.2	31.3	32.7	47.2	49.7	46.0	42.0	34.4	37.6	29.9	29.9	34.8
5.Less Investment Income[b]	24.4	17.4	31.2	27.0	30.1	64.	105.9	76.5	102.5	84.6	105.0	95.8	105.2	100.2	76.6
6.Less Depreciation[b]	19.8	23.1	28.9	27.2	33.9	43.0	36.8	48.8	56.2	73.1	72.8	79.9	74.1	74.8	80.4
7.Plus Capital Inflows[d]	31.4	36.9	38.4	38.3	44.8	50.9	74.2	75.1	103.6	111.0	80.7	116.4	96.7	92.6	115.1
8.National Foreign Exchange Earnings	61.5	69.1	76.6	81.8	88.3	96.1	110.3	124.0	131.9	145.4	131.2	159.4	155.3	146.2	154.4
Index 1951=100	100	112.3	124.5	133.0	143.6	156.2	179.3	201.6	214.5	236.4	213.3	259.2	252.5	237.7	251.0
9.Import Price Index (Goods other than oil)1951=100[f]	100	108.1	85.4	96.0	102.0	105.7	111.1	107.1	103.3	118.2	149.1	152.0	132.8	130.0	139.5
0.National Capacity to Import[g]	100	103.9	145.8	138.5	140.8	147.8	161.5	188.2	207.6	200.0	143.0	170.5	190.1	182.8	179.9

Notes and Sources

a. See Table 3-7
b. See Table 3-1
c. (1) minus (2)
d. See Table 3-4
e. (1) + (7) - (2) + (4) + (5) + (6)
f. ANNUAL STATISTICAL DIGEST, C.S.O., Government of Trinidad and Tobago. Unpublished Date, C.S.O. Government of Trinidad and Tobago.
g. (8) (9)

TABLE 3 - 12

LABOUR FORCE STATISTICS - TRINIDAD AND TOBAGO 1955 - 65

(thousand persons)

	1955	1956	1957	1960	1963	1964	1965
Total Population	720.8	742.5	764.9	840.3	924.2	951.0	973.9
Population of Working Age	394.9	402.7	414.0	448.7	497.0	512.5	524.9
Active Labour Force	275.0	275.0	268.0	289.0	324.0	346.3	348.4
Unemployed	24.9	24.9	30.2	37.0	45.0	47.3	47.8
Total Employed	250.1	250.1	237.8	252.0	279.0	299.0	300.6
Public Sectors	32.4	33.5	35.6	42.3	59.5	62.5	63.0
Petroleum	19.7	16.6	16.2	15.1	14.2	14.0	14.4
Agriculture	75.4	65.2	62.7	53.5	56.5	76.1	67.2
Manufacturing	35.9	39.6	35.8	35.6	41.4	44.7	43.8
of which: Sugar	(16.0)	(15.4)	(14.8)	(14.2)	(12.2)	(13.7)	(12.3)
Other Manufacturing	(19.9)	(24.2)	(21.0)	(21.4)	(29.2)	(31.0)	(31.5)
Construction	19.6	26.4	25.2	30.7	33.0	29.3	31.8
Commerce	32.7	28.5	27.9	33.8	39.2	42.5	50.6
All Other Industries	34.4	40.3	34.4	41.0	35.2	29.9	29.8

Sources: Jack Harewood, "A Comparison of Labour Force Data in Trinidad and Tobago 1946-1964", Research Papers, No. 2, C.S.O., Government of Trinidad and Tobago.
Continuous Sample Survey of Population, C.S.O., Government of Trinidad and Tobago.
Annual Statistical Digest, C.S.O., Government of Trinidad and Tobago.
Report on the Manpower Situation in Trinidad and Tobago, Nos. 1-3, Govt. of Trinidad & Tobago.
Draft Third Five-Year Plan 1969-1973, Government of Trinidad and Tobago 1968.

TABLE 3 - 13a

GROSS DOMESTIC PRODUCT AT FACTOR COST
$mn TT
Trinidad and Tobago 1951-65

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Agriculture, Forests, Fisheries and Quarrying	55.6	61.0	69.3	76.9	83.6	84.1	93.6	98.5	99.0	108.4	112.5	108.3	115.7	111.8	105.5
Petroleum	93.5	98.3	121.2	120.1	138.9	187.1	237.1	233.3	261.4	263.4	286.3	291.5	296.9	301.0	284.1
Sugar Manufacturing	7.7	8.9	11.2	12.4	13.5	11.0	13.2	13.4	14.1	16.8	18.2	15.5	N.A.	N.A.	N.A.
Other Manufacturing	35.7	37.9	39.6	42.2	45.9	50.2	64.7	77.9	89.0	91.4	101.3	116.6	141.7	161.8	179.2
Construction	8.4	9.3	8.1	10.1	14.1	17.0	20.7	32.3	36.3	40.6	49.7	55.3	64.4	57.3	58.6
Transport & Distribution	38.7	44.2	45.3	48.3	69.9	89.4	104.2	119.3	133.2	149.6	162.1	173.7	175.9	193.0	211.7
Public Utilities	11.1	12.4	13.1	13.5	14.9	16.2	18.7	19.6	21.3	28.4	36.6	41.5	43.8	53.5	64.9
General Government	29.0	36.2	40.7	47.9	48.6	51.2	52.6	63.4	70.8	82.5	93.1	100.5	104.3	115.2	118.6
Ownership of Dwellings	8.3	9.0	9.6	10.4	10.8	11.0	11.0	11.5	13.4	16.8	19.6	21.6	42.3	44.3	47.3
Banking and Finance	6.3	7.1	7.3	7.2	9.6	10.7	12.2	15.1	16.1	20.0	19.8	21.0	34.7	37.6	39.4
Other Services	17.8	19.1	20.9	21.5	27.3	28.4	31.1	35.1	44.5	48.0	55.6	60.2	56.4	58.5	66.6
TOTAL	312.1	343.4	386.3	410.5	476.1	556.3	659.1	719.4	799.1	865.9	954.8	1005.7	1076.1	1134.0	1175.9

1. Includes sugar manufacturing in 1963, 1964 and 1965

Source :   National Income of Trinidad and Tobago 1951-1961, C.S.O., Government of Trinindad and Tobago 1963.

National Income of Trinidad and Tobago 1952-1962, C.S.O., Government of Trinidad and Tobago, 1964.

Draft Third Five Year Plan 1969 - 1973, Government of Trinidad and Tobago, 1968.

TABLE 3 - 13b

GROSS DOMESTIC PRODUCT AT FACTOR COST

Trinidad and Tobago 1951-65   (Percent)

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Agriculture, Forests, Fisheries and Quarrying	17.8	17.8	17.9	18.7	17.5	15.1	14.2	13.7	12.4	12.5	11.8	10.8	10.8	9.9	9.0
Petroleum	30.0	28.6	31.4	29.3	29.2	33.6	36.0	32.4	32.7	30.4	30.0	29.0	27.6	26.5	24.2
Sugar Manufacturing	2.5	2.6	2.9	3.0	2.8	2.0	2.0	1.9	1.8	1.9	1.9	1.5	N.A.	N.A.	N.A.
Other Manufacturing	11.4	11.0	10.3	10.3	9.7	9.0	9.8	10.8	11.1	10.6	10.6	11.6	13.2	14.3	15.2
Construction	2.7	2.7	2.1	2.5	2.9	3.1	3.1	4.5	4.5	4.7	5.2	5.5	6.0	5.0	5.0
Transport & Distribution	12.4	12.9	11.7	11.8	14.7	16.1	15.8	16.6	16.7	17.3	17.0	17.3	16.3	17.0	18.0
Public Utilities	3.5	3.6	3.4	3.3	3.1	2.9	2.8	2.7	2.7	3.3	3.8	4.1	4.1	4.7	5.5
General Government	9.3	10.5	10.5	11.7	10.2	9.2	8.0	8.8	8.8	9.5	9.7	10.0	9.7	10.2	10.1
Ownership of Dwellings	2.7	2.6	2.5	2.5	2.2	2.0	1.7	1.6	1.7	1.9	2.1	2.1	3.9	3.9	4.0
Banking and Finance	2.0	2.1	1.9	1.7	2.0	1.9	1.9	2.1	2.0	2.3	2.1	2.1	3.2	3.3	3.3
Other Services	5.7	5.6	5.4	5.2	5.7	5.1	4.7	4.9	5.6	5.6	5.8	6.0	5.2	5.2	5.7
TOTAL	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

N.A. - No data Available

Source :   See Table 3-13a.

TABLE 3 - 14

BALANCE OF PAYMENTS - TRINIDAD AND TOBAGO 1951 - 65
($mn TT)
Current Account

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
1. Merchandise Exports (adjusted)	181.8	190.9	218.4	228.3	252.7	288.9	327.8	368.6	390.3	437.3	553.6	559.9	595.0	693.4	710.5
a. less Crude Petroleum Imports	65.2	71.3	65.3	65.3	73.8	76.5	88.0	116.1	131.1	158.5	266.6	272.0	295.6	362.6	395.2
b. Net Merchandise Exports	116.6	119.6	153.1	163.0	178.9	212.4	239.8	252.5	259.2	278.8	287.0	287.9	299.4	330.8	315.3
2. Merchandise Imports (adjusted)	218.5	243.9	236.3	249.5	294.7	300.7	355.0	411.6	447.0	502.1	584.0	606.2	644.0	731.0	816.9
a. less Crude Petroleum Imports	65.2	71.3	65.3	65.3	73.8	76.5	88.0	116.1	131.1	158.5	266.6	272.0	295.6	362.6	395.2
b. Net Merchandise Imports	153.3	172.6	171.0	184.2	220.9	224.2	267.0	295.5	315.9	343.6	317.4	334.2	348.4	368.4	421.7
3. Balance on Visible Trade	-36.7	-53.0	-17.9	-21.2	-42.0	-11.8	-27.2	-43.0	-56.7	-64.8	-30.4	-46.3	-49.0	-37.6	-106.4
Exports of Services															
4. Transportation	45.0	51.3	51.2	47.7	46.3	60.2	90.2	83.5	85.4	85.2	99.0	93.3	79.6	87.7	78.8
a. Stores & Bunkers	(33.0)	(38.9)	(38.6)	(34.0)	(33.2)	(43.6)	(66.6)	(59.3)	(61.9)	(55.4)	(66.0)	(57.6)	(48.6)	(52.9)	(43.1)
b. Other	(12.0)	(12.4)	(12.6)	(13.7)	(13.1)	(16.6)	(23.6)	(24.2)	(23.5)	(29.8)	(33.0)	(35.7)	(31.0)	(34.8)	(35.7)
5. Tourism	6.0	5.8	6.7	6.2	8.4	10.0	12.1	13.7	14.8	15.2	16.3	17.5	18.7	19.9	21.1
6. Other Services	14.5	15.9	16.5	18.7	19.7	25.1	29.3	34.9	39.2	31.7	36.0	33.8	35.9	35.0	39.8
7. Total Exports of Services	65.5	73.0	74.4	72.6	74.4	95.3	131.6	132.1	139.4	132.1	151.3	144.6	134.2	142.6	139.7

TABLE 3 - 14 (contd.)   198·1

BALANCE OF PAYMENTS - TRINIDAD AND TOBAGO 1951 - 65

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Imports of Services															
8. Investment Income	33.2	28.0	39.8	36.1	43.0	72.9	113.8	82.5	107.9	100.6	128.5	126.5	127.1	130.2	114.7
9. Other Services	16.7	18.9	21.3	23.8	22.9	38.9	48.4	59.2	66.5	52.9	58.4	65.0	57.8	59.9	57.8
0. Total Imports of Services	49.9	46.9	61.1	59.9	65.9	111.8	162.2	141.7	174.4	153.5	186.9	191.5	184.9	190.1	172.5
1. Balance on Services	15.6	26.1	13.3	12.7	8.5	-16.5	-30.6	-9.6	-35.0	-21.4	-35.6	-46.9	-50.7	-47.5	-32.8
2. Balance on Goods & Services	-21.1	-26.9	-4.6	-8.5	-33.5	-28.3	-57.6	-52.6	-91.7	-86.2	-66.0	-93.2	-99.7	-85.1	-139.2
3. Net Transfer Payments	0.6	0.1	0.5	0.1	-0.5	-2.3	-2.0	-4.2	-3.6	-1.6	-6.3	-3.9	-2.7	+1.2	+21.3
4. Balance on Current Account	-20.5	-26.8	-4.1	-8.4	-34.0	-30.6	-59.8	-56.8	-95.3	-87.8	-72.3	97.1	-102.4	-83.9	-117.9
5. Capital Inflows	28.1	34.9	25.4	40.5	35.5	48.3	100.6	69.6	109.2	89.0	63.8	73.4	100.7	57.7	107.4
6. Capital Outflows	2.4	3.0	4.1	3.2	4.7	4.6	4.9	5.5	2.1	19.8	9.5	6.1	5.4	5.4	5.4
7. Net Capital Movements	25.7	31.9	21.3	37.3	30.8	43.7	95.7	64.1	107.1	69.2	54.4	67.3	95.3	52.3	102.0
Public Sector															
8. Capital Inflows	12.2	⌐	⌐	20.4	⌐	⌐	⌐	⌐	⌐	⌐	⌐	13.8	45.9	45.0	24.3
19. Capital Outflows	-	-	-	-	-	-	-	-	-	-	-	1.8	3.8	22.1	7.0
20. Net Capital Movements	12.2	-	-	20.4	-	-	-	-	-	-	-	12.0	42.1	22.9	17.3

TABLE 3 - 14 (contd.)

BALANCE OF PAYMENTS - TRINIDAD AND TOBAGO 1951 - 65

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
21. Net Capital Flows - Public and Private (non-monetary)	37.9	31.9	21.3	37.3	30.8	43.7	95.7	64.1	107.1	69.2	54.4	79.3	137.4	75.2	119.3
22. Errors and Omissions	-5.3	+1.3	-8.2	-17.5	-12.3	-8.9	+2.1	+7.0	-8.5	-9.1	-2.9	+3.8	+5.4	-22.9	+5.9
23. Monetary Movements (Net) Increase (-) Decrease (+)	-12.1	-6.4	-9.0	-31.8	+15.5	-4.2	-38.0	-14.3	-3.3	+27.7	+20.8	+14.0	-40.4	+31.6	-7.3

Source: National Income of Trinidad and Tobago 1951-1961. C.S.O., Government of Trinidad and Tobago 1963.

National Income of Trinidad and Tobago 1952-1962. C.S.O., Government of Trinidad and Tobago 1964.

Draft Third Five Year Plan 1969-1973. Government of Trinidad and Tobago 1968.

Balance of Payments Summary 1956-1966. C.S.O., Government of Trinidad and Tobago 1967.

Annual Estimates of Expenditure, Government of Trinidad and Tobago.

I.M.F. Report 1965, Tables and Worksheets, Government of Trinidad and Tobago 1966.

Financial Statistics 1966, C.S.O., Government of Trinidad and Tobago 1967.

Unpublished Data, Government of Trinidad and Tobago.

TABLE 3 - 15

CENTRAL GOVERNMENT REVENUE AND EXPENDITURE—TRINIDAD AND TOBAGO
1951-65

$mn TT

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Current Revenue															
a. Total Direct Taxes	22.4	27.3	26.9	27.3	31.0	35.1	42.2	57.4	53.0	56.6	57.5	63.3	69.2	80.4	75.3
(i) Petroleum	13.7	17.1	15.6	14.7	18.8	19.6	27.7	36.8	29.6	29.8	29.1	34.5	35.3	37.7	33.6
(ii) Other Company	4.7	5.4	6.4	7.3	8.0	11.1	9.1	12.1	15.0	14.6	14.8	14.1	14.4	19.9	17.7
(iii) Personal	4.0	4.8	4.9	5.3	4.2	4.4	5.4	8.5	8.4	12.2	13.6	14.7	19.5	22.8	24.0
b. Royalties on Oil	6.6	6.7	7.0	8.3	8.7	10.5	13.9	16.0	16.9	18.1	19.8	20.8	21.2	21.8	20.8
c. Import Duties	13.3	14.2	15.2	17.6	20.1	20.7	22.5	26.9	29.1	33.4	30.8	40.0	38.7	43.5	47.2
d. Other	15.7	17.9	18.0	19.5	21.5	21.6	22.4	29.5	34.2	40.6	37.4	41.5	55.7	58.1	62.9
Total Current Revenue	58.0	66.1	67.1	72.7	81.3	87.9	101.0	129.8	133.2	148.7	145.5	165.6	184.8	203.8	206.2
Current Expenditure															
a. Personal Emoluments	16.1	17.0	18.1	22.7	25.7	27.3	35.8	32.2	40.2	43.6	48.4	53.6	68.4	68.1	70.5
b. Other Labour Payments	9.6	15.2	17.3	19.5	17.4	19.8	12.6	25.0	23.4	26.1	35.9	35.7	33.4	37.8	38.9
c. Supplies and Services	16.5	16.1	12.7	13.8	13.6	13.4	18.0	20.7	24.7	31.6	33.3	37.4	32.1	37.8	35.1
d. Interest Payments	1.2	1.7	1.7	1.8	3.1	3.5	2.8	2.8	2.8	3.3	4.1	5.3	7.0	8.3	11.3
e. Amortization Payments	0.9	1.5	1.5	1.7	1.9	1.9	1.7	1.7	3.4	2.8	3.0	5.0	7.0	8.2	8.5
f. Current Transfers	5.6	6.4	8.9	9.5	10.6	10.8	12.3	14.9	14.1	15.3	18.5	22.1	25.6	34.5	34.0
g. Total Current Expenditures	49.9	57.9	60.2	69.0	72.3	76.7	83.2	97.3	108.6	122.7	143.2	159.1	173.5	193.7	198.3

TABLE 3 - 15 (contd.)

Financing of Capital Expenditure	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
a. Surplus Current Account	8.1	8.2	6.9	3.7	9.0	11.2	17.8	32.5	24.6	26.0	2.3	6.5	11.3	10.1	7.9
b. Internal Borrowing	-	-	-	-	-	-	-	-	12.3	12.7	2.1	24.7	4.2	27.9	14.0
c. Foreign Grants	1.2	0.7	1.1	0.9	0.6	0.6	0.5	0.2	1.6	1.3	0.4	9.2	0.7	2.0	26.2
d. Foreign Borrowing	12.2	-	-	20.4	-	-	-	-	-	-	-	13.8	45.9	45.0	24.3
e. Increase (-) Decrease (+) in Cash Balance	-11.1	-	-	-14.1	-	-	-	-	-	+5.7	+7.6	-1.6	-4.4	+3.5	-5.8
f. Increase (-) Decrease (+) in Accumulated Surplus	-	-0.2	+2.8	-	+7.3	+9.3	+2.4	+3.0	-14.4	-12.1	+46.3	-	-	-	-
g. Other Transfers and Adjustments	+1.5	+0.8	+0.9	+1.3	+1.7	+2.4	+1.5	+1.3	+3.7	+3.8	+3.0	+3.5	+3.6	-26.0	-8.8

Source:

Financial Statistics 1966, C.S.O., Government of Trinidad and Tobago, 1967.

I.M.F. Report 1965, Tables and Worksheets, Government of Trinidad and Tobago 1966

Draft Third Five Year Plan 1969-1973, Government of Trinidad and Tobago, 1968.

Unpublished Data, Government of Trinidad and Tobago.

National Income of Trinidad and Tobago 1951-1961. C.S.O., Government of Trinidad and Tobago. 1963.

National Income of Trinidad and Tobago 1952-1962, C.S.O., Government of Trinidad and Tobago 1964.

Table 3-16

CORRELATION AND REGRESSION COEFFICIENTS 1951-59, 1959-65.

Independent Variable(X)	Dependent Variable(Y)	Values	Years	Intercept	Correlation Coefficient	Regression Coefficient	Computed T Value
GDP - Petroleum Sector	GDP - Public Sectors	$	1951-59	25.79	0.932	0.234	6.8
			1959-65	-303.96	0.767	1.563	2.67
		Logs	1951-59	0.46	0.934	0.611	6.93
			1959-65	-6.43	0.815	3.494	3.14
GDP - Petroleum Sector	GDP - Private Domestic Sectors	$	1951-59	51.72	0.976	1.425	11.80
			1959-65	-796.79	0.782	4.861	2.81
		Logs	1951-59	0.67	0.980	0.806	13.13
			1959-65	-121.69	0.451	1.328	1.13
Petroleum Export Earnings (less crude oil imports).	General Government Expenditures (current and capital).	$	1951-59	17.73	0.940	0.471	7.29
			1959-65	-121.69	0.451	1.328	1.13
		Logs	1951-59	0.21	0.954	0.796	8.41
			1959-65	-2.18	0.494	1.874	1.27
Petroleum Export Earnings (less crude oil imports)	General Government Current Revenues	$	1951-59	12.18	0.932	0.469	6.82
			1959-65	87.40	0.178	0.330	0.40
		Logs	1951-59	0.14	0.945	0.818	7.67
			1959-65	0.86	0.209	0.567	0.48

Table 3-16 Cont'd

200·1

Independent Variable (X)	Dependent Variable(Y)	Values	Years	Intercept	Correlation Coefficient	Regression Coeficient	Computed T Value
Private Consumption Expenditures	Imports of Consumer Goods	$	1951-59	39.31	0.998	0.337	38.28
			1959-65	141.69	0.846	0.138	3.55
		Logs	1951-59	0.36	0.996	0.721	28.81
			1959-65	1.31	0.837	0.373	3.41
Imports of Consumer Goods	Imports of Foodstuffs	$	1951-59	8.54	0.990	0.319	19.10
			1959-65	2.64	0.931	0.350	5.72
		Logs	1951-59	-0.14	0.988	0.870	16.94
			1959-65	-0.39	0.926	0.979	5.49
Gross Domestic Fixed Captial Formation	Imports of Capital Goods	$	1951-59	23.12	0.965	0.388	9.81
			1959-65	-43.82	0.799	0.586	2.97
		Logs	1951-59	0.34	0.976	0.726	11.88
			1959-65	-0.98	0.770	1.248	2.70
Gross Domestic Fixed Capital Formation	Expenditures on Domestic Capital Goods and Services	$	1951-59	-23.12	0.986	0.612	15.48
			1959-65	43.82	0.684	0.413	2.09
		Logs	1951-59	-1.19	0.984	1.378	14.87
			1959-65	0.33	0.719	0.765	2.31
Petroleum Export Earnings (less Crude Oil Imports)	Economy Wage Rate	$	1951-59	66.57	0.956	0.442	8.61
			1959-65	128.86	0.1313	0.511	0.29
		Logs	1951-59	71.51	0.953	0.379	8.36
			1959-65	22.69	0.282	0.843	0.66

Table 3-16 Cont'd

Independent Variable(X)	Dependent Variable(Y)	Values	Years	Intercept	Correlation Coefficient	Regression Coefficient	Computed T Value
Personal Incomes	Direct Taxes	$	1951-59	-0.68	0.903	0.018	5.55
			1959-65	-12.47	0.949	0.041	6.72
Disposable Personal Incomes	Private Consumption Expenditures	$	1951-59	-24.38	0.999	0.989	75.35
			1959-65	-22.73	-.994	0.962	20.05

TABLE 3 - 17

COMPOSITION OF COMMODITY IMPORTS[a] - TRINIDAD AND TOBAGO 1951-65

$mm T.T.

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Food, Beverages Tobacco[b]	40.5	47.4	47.0	50.8	56.9	60.0	63.5	69.5	73.6	78.8	80.9	83.5	84.1	90.9	94.0
Manufactured Consumer Goods[c]	47.0	47.2	46.6	50.8	56.7	56.9	64.4	72.8	82.3	91.4	86.5	90.2	88.4	94.7	101.9
Chemicals[d]	10.9	11.5	11.5	12.8	15.9	17.4	19.5	20.9	20.8	22.7	23.0	23.8	25.5	29.0	34.5
Other Commodity Imports[e]	9.0	9.2	10.8	11.1	16.9	17.3	17.5	21.3	24.8	25.8	19.4	21.0	20.4	26.3	22.4
Machinery & Transport Equipment Consumption[f]	3.3	3.1	3.4	3.4	5.1	4.9	5.8	6.5	6.9	10.9	8.2	8.4	5.5	7.8	9.8
Capital[g]	26.4	31.3	29.8	35.1	45.1	42.9	63.7	66.7	73.9	78.2	65.6	70.1	90.1	87.9	119.3
Other Capital Goods[h]	16.2	22.9	21.9	20.2	24.3	24.8	32.6	37.8	33.6	35.8	33.8	37.2	34.4	31.8	39.8
Total Commodity Imports	153.3	172.6	171.0	184.2	220.9	224.2	267.0	295.5	315.9	343.6	317.4	334.2	348.4	368.4	421.7

Notes:

a.   This total excludes imports of crude petroleum

b.   Items included in SITC, Sections 0 and 1

c.   Items included in SITC Sections 6 and 8, excluding those divisions and subdivisions included in Row 6

d.   Items included in SITC Section 5

e.   Residual Item

f, g, h.   See notes to Table 3 - 21

Source: Overseas Trade, C.S.O., Government of Trinidad and Tobago.

TABLE 3 - 18

GROSS DOMESTIC EXPENDITURES - TRINIDAD AND TOBAGO 1951 - 65

($mn TT)

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Consumption															
Public	35.2	44.7	49.9	56.4	60.6	67.7	66.1	77.7	81.6	87.8	109.5	122.7	135.0	145.0	153.0
Private	205.0	230.6	243.3	268.7	328.9	354.3	402.6	443.7	496.4	555.1	588.2	622.2	727.0	739.0	813.0
TOTAL	240.2	275.3	293.2	325.1	389.5	422.0	468.7	521.4	578.0	642.9	697.7	744.9	862.0	884.0	966.0
Fixed Capital Formation															
Public	9.1	10.9	13.6	14.6	18.9	18.8	21.6	33.2	41.8	47.0	47.6	64.3	68.5	70.6	68.6
Private	60.7	63.9	65.2	69.8	89.9	102.0	139.7	162.4	200.8	221.3	211.2	231.1	207.3	203.7	257.0
TOTAL	69.8	74.8	78.8	84.4	108.8	120.8	161.3	195.6	242.6	268.3	258.8	295.4	275.8	274.3	325.6
Changes in Stock	16.0	19.7	7.1	7.3	6.7	4.7	11.2	10.6	6.7	.7.6	-2.5	2.8	-4.0	5.0	2.0
Total Investment	85.8	94.5	85.9	91.7	115.5	125.5	172.5	206.2	249.3	285.9	256.3	298.2	271.8	279.3	327.6
Expenditure on Consumption and Investment	326.0	369.8	379.1	416.8	505.0	547.5	641.2	727.6	827.3	928.8	954.0	1043.1	1133.8	1163.3	1293.6

Source:

National Income of Trinidad and Tobago 1951-1961, C.S.O., Government of Trinidad and Tobago 1963

National Income of Trinidad and Tobago 1952-62, C.S.O., Government of Trinidad and Tobago, 1964.

Draft Third Five Year Plan 1969-1973, Government of Trinidad and Tobago, 1968.

TABLE 3 - 19

PERSONAL INCOMES - TRINIDAD AND TOBAGO 1951 - 65   ($mn TT)

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Private Consumption															
Food	76.7	89.1	94.8	104.3	126.7	138.0	152.5	169.2	186.2	203.5	221.8	234.6	239.3	235.5	254.7
Alcoholic Drinks and Tobacco	21.6	23.8	25.2	26.8	33.2	35.9	38.3	40.6	45.9	57.8	59.1	62.1	64.9	64.9	69.0
Household Goods (Durable & Non-Durable)	13.4	15.4	17.3	19.1	32.3	35.0	43.4	43.8	48.7	53.1	57.3	60.2	78.8	96.5	111.2
Clothing & Footwear	28.3	30.4	31.0	32.9	38.4	38.6	42.5	46.7	50.7	57.0	58.0	61.0)			
Other Goods	10.3	10.8	11.8	12.6	17.4	18.1	23.8	28.4	33.6	30.4	29.7	31.3)	107.1	130.6	141.8
Services	54.7	61.1	63.3	73.0	80.9	88.7	102.1	115.0	131.3	153.3	162.3	173.0	236.9	211.5	236.3
TOTAL	205.0	230.6	243.4	268.7	328.9	354.3	402.6	443.7	496.4	555.1	588.2	622.2	727.0	739.0	813.0
Personal Savings	24.4	23.6	31.1	34.5′	25.7	25.5	29.1	32.0	28.7	43.9	67.3	60.9	49.7	37.7	54.2
Direct Taxes	3.2	3.8	4.9	5.2	6.0	7.1	5.0	8.4	9.6	14.0	15.5	13.2	19.5	22.8	24.0
Total Personal Incomes	232.6	258.0	279.3	308.4	360.6	386.9	436.7	484.1	534.7	613.0	671.0	696.3	796.2	799.5	891.2

Source: National Income of Trinidad and Tobago 1951 - 1961, C.S.O. Government of Trinidad and Tobago

National Income of Trinidad and Tobago 1952 - 1962, C.S.O., Government of Trinidad and Tobago.

Unpublished data, C.S.O., Government of Trinidad and Tobago.

.TABLE 3 - 20

INDUSTRY COMPOSITION GROSS DOMESTIC FIXED CAPITAL FORMATION
TRINIDAD AND TOBAGO 1951-1965
($mm TT)

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Petroleum	30.6	30.1	32.2	35.2	40.6	48.9	66.7	71.7	102.6	101.7	85.8	107.3	96.7	92.6	115.1
Sugar and Rum	1.5	1.6	1.7	1.6	5.3	5.1	6.4	7.3	6.8	4.1	4.6	4.5	6.2	9.6	14.5
Other Manufacturing	8.8	9.0	4.9	5.9	7.9	11.4	14.4	16.6	15.0	13.1	22.6	22.0	N.A.	N.A.	N.A.
Agriculture	3.3	3.0	3.7	3.9	5.3	5.1	8.6	9.6	9.5	6.0	5.9	5.5	N.A.	N.A.	N.A.
New Dwelling Houses	8.0	9.2	11.7	12.4	13.7	16.1	16.2	16.6	19.4	22.7	26.0	29.5	30.6	32.3	40.6
Other Private Sector	8.5	11.0	11.0	10.8	17.1	15.4	27.4	40.6	47.5	73.6	66.3	62.3	73.8[a]	69.2[a]	86.8[a]
Public Utilities	2.7	3.0	4.0	4.4	5.7	5.5	5.3	6.5	10.4	17.1	15.9	15.4	27.9	35.1	41.8
General Government	6.4	7.9	9.6	10.2	13.2	13.3	16.3	26.7	31.4	30.0	31.7	48.9	40.6	35.5	26.8
Gross Domestic Fixed Capital Formation	69.8	74.8	78.8	84.4	108.8	120.8	161.3	195.6	242.6	268.3	258.8	295.4	275.8	274.3	325.6

N.A.   No account available

a   Includes 'other manufacturing' and agriculture

Source :   National Income of Trinidad and Tobago 1951-1961, C.S.O., Government of Trinidad and Tobago

National Income of Trinidad and Tobago 1952 - 1962, C.S.O., Government of Trinidad and Tobago

Unpublished Data, C.S.O., Government of Trinida and Tobago.

TABLE 3 - 21

LOCAL AND FOREIGN CONTENT OF GROSS DOMESTIC FIXED CAPITAL FORMATION
TRINIDAD AND TOBAGO 1951-65

$mn TT

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Imported Capital Goods															
Wood, paperboard, non-metallic minerals[1]	3.8	3.4	3.5	3.0	1.8	1.6	2.3	2.2	2.9	3.2	3.8	2.9	3.2	3.8	4.1
Manufactured Goods of Iron and Steel Case Metals[2]	10.4	17.4	16.3	14.8	18.9	19.4	26.0	30.3	23.8	24.6	22.7	27.2	24.1	21.3	28.1
Machinery and Transport equipment[3]	26.4	31.3	29.8	35.1	45.1	42.9	63.7	66.7	73.9	78.2	65.6	70.1	90.1	87.9	119.3
Miscellaneous[4]	2.0	2.1	2.1	2.4	3.6	3.8	4.3	5.3	6.9	8.0	7.3	7.1	7.1	6.7	7.6
TOTAL	42.6	54.3	51.7	55.3	69.4	67.7	96.3	104.5	107.5	114.0	99.4	107.3	124.5	119.7	159.1
Local Capital Goods[5]	27.2	20.6	27.1	29.1	39.4	53.1	65.0	91.1	135.1	154.3	159.4	188.1	151.3	154.6	166.5
Gross Domestic Fixed Capital Formation	69.8	74.8	78.8	84.4	108.8	120.8	161.3	195.6	242.6	268.3	258.8	295.4	275.8	274.3	325.6

Notes:
1. Includes items listed under SITC Nos. 631, 641/05/06/07, 661 and 662.
2. Includes items listed under SITC No. 681
3. Includes items listed under SITC Section 7, less item No. 732-02 and 60% of 732-01. It is assumed that 40% of the last mentioned item (road passenger vehicles) goes into capital formation)
4. Includes items listed under SITC No.s 811, 812, 821, 861-03 and 861-09.
5. This is a residual Item.

Source: Overseas Trade, C.S.O., Government of Trinidad and Tobago.
National Income of Trinidad and Tobago 1951-1961, C.S.O., Government of Trinidad and Tobago 1963.
National Income of Trinidad and Tobago 1952-1962, C.S.O., Government of Trinidad and Tobago, 1964.

TABLE 3 - 22

SOURCES OF FINANCE FOR GROSS DOMESTIC INVESTMENTS
$mn TT

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Depreciation	24.1	29.3	38.5	37.3	43.8	53.8	48.6	63.3	72.4	93.1	98.5	112.7	115.6	126.7	148.0
Local Business Saving	3.2	3.4	5.1	5.6	3.5	9.1	14.2	16.8	13.2	10.4	6.8	9.3	8.8	6.7	9.6
Household Savings	24.4	23.6	31.1	34.5	25.7	25.5	29.1	32.0	28.7	43.9	67.3	60.9	49.7	37.7	54.2
Public Saving	8.1	8.2	6.9	3.7	9.0	11.2	17.8	32.5	24.6	26.0	2.3	6.5	11.3	10.1	7.9
Net Foreign Inflows	26.0	30.0	4.3	10.6	33.5	25.9	62.8	61.6	110.4	112.5	81.4	108.8	86.4	98.1	107.9
Gross Domestic Investments[a]	85.8	94.5	85.9	91.7	115.5	125.5	172.5	206.2	249.3	285.9	256.3	298.2	271.8	279.3	327.6

a   Includes stocks

Source :   National Income of Trinidad and Tobago 1951-1961, C.S.O., Government of Trinidad and Tobago, 1963.

National Income of Trinidad and Tobago 1952-1962, C.S.O., Government of Trinidad and Tobago, 1964.

Unpublished Data, C.S.O., Government of Trinidad and Tobago.

TABLE 3 - 23

SOURCE OF FINANCE OF CAPITAL FORMATION BY SECTORS[a]

TRINIDAD AND TOBAGO 1951-65   ($mn TT)

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Petroleum															
Depreciation	19.8	23.1	28.9	27.2	33.9	43.0	36.8	48.8	56.2	73.1	72.8	79.9	74.1	74.8	80.4
Retained Earnings	11.6	13.8	9.5	11.1	10.9	7.9	37.4	26.3	47.4	37.9	7.9	36.5	22.6	17.8	34.7
TOTAL	31.4	36.9	38.4	38.3	44.8	50.9	74.2	75.1	103.6	111.0	80.7	116.4	96.7	92.6	115.1
Public Sector															
Depreciation	0.6	0.8	1.4	1.2	1.0	1.1	1.8	1.4	1.7	2.6	3.7	4.5	5.2	5.9	6.8
Public Savings	8.1	8.2	6.9	3.7	9.0	11.2	17.8	31.8	24.6	26.0	2.3	6.5	11.3	10.1	7.9
Internal Borrowing	-	-	-	-	-	-	-	-	10.4	11.9	2.1	24.7	4.2	27.9	14.0
Foreign Services	0.4	1.9	5.3	9.7	8.9	6.5	2.0	-	5.1	6.6	39.5	28.6	47.8	26.7	39.9
TOTAL	9.1	10.9	13.6	14.6	18.9	18.8	21.6	33.2	41.8	47.1	47.6	64.3	68.5	70.6	68.6
Private Domestic Sector															
Depreciation	3.7	5.4	8.2	8.9	8.9	9.7	10.0	13.1	14.5	17.4	22.8	28.3	34.5	44.0	58.4
Private Savings[b]	27.6	27.0	36.2	40.1	29.2	34.6	43.3	48.8	18.3	32.0	65.2	36.2	54.3	16.5	49.8
Net Capital Inflows	14.0	14.3	-10.5	-9.2	13.7	11.5	23.4	36.0	11.1	78.4	40.0	53.0	17.8	55.6	35.7
TOTAL	45.3	46.7	33.9	39.8	51.8	55.8	76.7	97.9	103.9	127.8	128.0	117.5	106.6	116.1	143.9
Gross Capital Formation[a]	85.8	94.5	85.9	91.7	115.5	125.5	172.5	206.2	249.3	285.9	256.3	298.2	271.8	279.3	327.6

a   includes stocks
b   excludes local business savings and savings of households including incorporated business but includes loans to the public sector.

Source :   See TAble 3 - 22

TABLE 3 - 24

COMPOSITION OF DOMESTIC COMMODITY EXPORTS - TRINIDAD AND TOBAGO 1951-65
($mn TT)

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Petroleum[a]	96.6	104.2	129.2	127.9	138.8	185.3	226.0	223.9	233.0	234.1	262.7	256.3	267.8	258.5	231.1
Manufactured Fertilizer and Amonia	-	-	-	-	-	-	-	-	1.0	6.8	7.5	8.5	7.0	17.8	22.4
Sugar and Rum	21.9	21.1	26.6	29.2	31.9	26.4	31.2	32.5	32.8	38.1	47.0	35.1	48.0	46.7	42.7
Other Manufactures	1.8	1.8	1.5	2.2	5.0	5.8	6.4	7.2	8.2	7.8	5.9	7.9	8.8	10.5	11.5
Coca, Citrus, Coffee	13.1	10.2	14.7	19.6	14.5	13.0	11.5	17.1	13.2	11.5	9.1	10.9	12.9	10.5	8.0
Other Exports	16.2	21.2	19.7	18.1	21.9	25.5	31.3	31.1	32.9	35.9	20.8	26.8	3.5	39.7	42.7
TOTAL[a]	149.6	158.5	191.7	197.0	212.1	256.0	306.4	311.8	321.1	334.2	353.0	345.5	348.0	383.7	358.4

a   Includes stores and bunkers.

Source: Overseas Trade Report, C.S.O., Government of Trinidad and Tobago.

TABLE 3 - 25

SOURCE OF FOREIGN EXCHANGE FOR IMPORTS - TRINIDAD AND TOBAGO 1951-65
($mn TT)

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Petroleum[a]	61.5	69.1	76.6	81.8	88.3	96.1	110.3	124.0	131.9	145.4	131.2	159.4	155.3	146.2	154.4
Sugar and Rum (export earnings)	21.9	21.1	26.6	29.2	31.9	26.4	31.2	32.5	32.8	38.1	47.0	35.1	48.0	46.7	42.7
Transportation[b]	10.1	11.1	12.0	13.1	12.5	16.6	23.6	24.2	23.5	29.8	33.0	35.7	31.0	34.8	35.7
Other Services	20.5	21.7	23.2	24.9	28.1	35.1	41.4	48.6	54.0	46.9	52.3	51.3	54.6	54.9	60.9
Net Private Capital Inflows[c]	8.9	11.9	8.7	21.7	13.7	33.9	57.3	39.3	58.4	37.1	34.5	9.2	61.5	16.9	40.4
All other sources	26.0	26.5	15.7	8.5	40.0	24.3	6.4	38.5	37.8	59.2	45.4	73.9	31.2	105.9	116.4
Imports of goods and Services[d]	148.9	161.4	162.8	179.2	214.5	232.4	270.2	307.1	338.4	356.5	343.4	364.6	381.6	405.4	450.5
Movements in Foreign Exchange Reserves	+12.1	+6.4	+9.0	+31.8	-15.5	+4.2	+38.0	+14.3	+3.3	-27.7	-20.8	-14.0	+40.4	-31.6	+7.3
TOTAL SOURCES	161.0	167.8	171.8	211.0	199.0	236.6	308.2	321.4	341.7	328.8	322.6	350.6	422.0	373.8	457.8

a   excludes intermediate and investment income but includes bunkers.

b   excludes petroleum bunkers.

c.   excludes inflows to the petroleum sector

d.   excludes remitted profits and imported intermediates of the petroleum industry

Source: See Table 3 - 14. Also Overseas Trade, C.S.O., Government of Trinidad and Tobago

TABLE 3 - 26

ASSETS, DEPOSITS, LOANS AND ADVANCES OF THE COMMERCIAL BANKS
TRINIDAD AND TOBAGO 1951 - 1965

	Total Assets	Total Deposits	Local Assets	Loans and Advances	Local Assets as Percentage of Total Assets	Total Deposits	Loans and Advances as Percentage of Total Assets	Local Assets
1951	88.7	80.0	36.6	26.2	41.3	45.8	29.5	71.5
1952	91.3	85.7	37.4	28.1	40.9	43.6	30.7	75.1
1953	100.4	94.2	39.7	29.6	39.6	42.2	29.5	74.6
1954	112.4	105.1	43.5	31.4	38.7	41.4	27.9	72.2
1955	118.8	111.5	52.2	41.3	44.0	46.8	34.8	79.2
1956	131.1	121.5	52.0	40.4	39.7	42.8	30.8	77.7
1957	174.0	163.9	51.8	40.2	29.8	31.6	23.1	77.5
1958	172.5	162.8	57.8	44.8	33.5	35.5	26.0	77.4
1959	199.5	190.3	78.5	61.2	39.3	41.2	30.7	78.0
1960	205.0	193.9	99.1	83.0	48.4	51.1	40.5	83.7
1961	199.9	189.9	115.8	101.0	57.9	61.0	50.5	87.2
1962	212.2	202.8	147.1	113.9	69.3	72.6	53.7	77.4
1963	253.0	240.5	153.8	118.0	60.8	63.9	46.7	76.7
1964	267.1	247.7	194.2	133.6	72.7	78.4	50.0	68.8
1965	286.1	267.7	219.4	167.4	76.0	81.2	58.5	77.0

$mn TT

Source: Annual Statistical Digest, C.S.O., Government of Trinidad and Tobago.

TABLE 3 - 27

GROWTH OF POPULATION - TRINIDAD AND TOBAGO 1955-65

('000 persons)

	Mid-Year Population	Birth rate per 1,000 of Population	Death rate per 1,000 of Population	Net Migration (100 persons)	Annual Percent Increase
1955	720.8	41.9	10.4	-1.6	3.3
1956	742.5	36.9	9.6	+4.3	3.0
1957	764.9	37.7	9.5	+8.8	3.0
1958	788.6	37.6	9.2	+37.5	3.1
1959	817.0	37.4	9.1	+48.4	3.6
1960	840.3	39.1	7.9	-1.4	2.8
1961	866.7	37.9	7.9	+3.9	3.1
1962	900.4	37.9	7.1	+26.0	3.9
1963	924.2	35.6	7.2	+23.2	2.6
1964	951.0	34.7	7.0	-21.2	2.9
1965	973.9	32.8	6.9	-30.5	2.4

Source: Annual Statistical Digest, C.S.O., Government of
          Trinidad and Tobago.

TABLE 3 - 28

COMPARATIVE RATES OF GROWTH OF VALUE ADDED AND EMPLOYMENT
TRINIDAD AND TOBAGO 1955 - 1965

	Value Added	Employment	Value Added	Employment	Value Added	Employment
All Industries	12.7	0.2	6.3	3.5	9.5	1.8
Public Sectors	10.9	5.4	10.9	8.2	10.9	6.9
Petroleum	13.7	-5.4	1.5	-0.9	7.4	-3.1
Private Domestic Sectors	12.4	-0.3	7.6	2.8	10.0	1.2
Manufacturing	18.0	-0.2	12.1	4.2	11.6	2.0
Sugar	4.5	-2.4	N.A.	-2.9	N.A.	-2.7
Other Manufacturing	14.8	1.5	N.A.	8.0	N.A.	4.7
Agriculture	5.3	-7.1	-0.6	4.7	2.3	-1.2
Construction	23.6	9.4	7.6	0.7	15.3	5.0
All other Industries	14.8	2.2	9.2	1.5	12.0	1.8

Source: See Tables 3 - 12, and 3 - 13.

TABLE 3 - 29

OUTPUT PER MAN, CAPITAL PER MAN AND CAPITAL/OUTPUT RATIO
TRINIDAD AND TOBAGO 1955 - 1957, 1963 - 1965

($TT)

		Output per Man $	Capital per Man $	Capital Output Ratio[a]
All Industries	A	2,292.0	529.7	0.23
	B	3,856.4	997.4	0.26
Petroleum	A	10,725.7	2,975.2	0.28
	B	20,704.2	7,145.5	0.34
Public Sectors	A	1,992.1	584.2	0.29
	B	2,704.3	1,122.7	0.41
Private Domestic	A	1,585.9	300.3	0.19
Sectors	B	3,080.7	559.0	0.18
Manufacturing	A	1,783.5	453.7	0.25
	B	3,715.9	N.A.	N.A.
Sugar	A	816.0	363.6	0.45
	B	N.A.	793.2	N.A.
All Other Manufacturing	A	2,470.0	517.7	0.21
	B	N.A.	N.A.	N.A.
Agriculture	A	1,285.3	93.4	0.07
	B	1,666.6	N.A.	N.A.
Construction	A	727.5	N.A.	N.A.
	B	1,916.0	N.A.	N.A.
All Other Industries	A	2,091.8	N.A.	N.A.
	B	4,447.0	N.A.	N.A.

Notes:

A - 1955-57; B - 1963-65

a This is not that the conventional ratio of the stock of capital to the marginal increase in output. It is a ratio of average annual investment to average annual output.

Source: See Tables 3-12, 3-13, 3-20.

TABLE 3 - 30

NUMBER OF NEW JOBS BY INDUSTRY

Industry	1955-60	1960-65	1955-65
All Industries	+1,900	+48,600	+50,500
Public Sectors	+9,900	+20,700	+30,600
Petroleum	-4,600	- 700	- 5,300
Agriculture	-21,900	+13,700	- 8,200
Manufacturing	- 300	+ 8,200	+ 7,900
of which Sugar	(-1,800)	(-1,900)	(-3,700)
Other	(+1,500)	(+10,100)	(+11,600)
Construction	+11,100	+1,100	+12,200
Commerce	+1,100	+16,800	+17,900
Other Services	+6,600	-11,200	-4,600

Source: See Table 3-12

TABLE 3 - 31

INDEX OF MONEY WAGE RATES - SELECTED INDUSTRIES 1955-1965
(1955 = 100)

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Combined Total	100	107.6	110.2	118.3	118.4	123.7	164.5	172.2	190.5	209.4	221.7
Petroleum	100	115.6	116.0	126.2	126.2	156.7	170.2	170.2	209.1	227.5	260.1
Government Services	100	102.8	104.1	111.1	124.6	131.6	181.6	185,2	189.8	229.1	236.2
Construction	100	107.5	109.4	116.0	119.7	141.2	146.5	170.9	178.9	184.5	202.0
Food, Drink and Tobacco	100	112.1	113.9	122.7	128.3	148.7	178.1	180.9	196.6	217.6	226.9
Wearing Apparel	100	106.5	111.6	117.4	120.7	135.4	158.6	163.1	165.0	177.6	179.0
Other Manufacturing	100	108.8	111.6	119.0	128.0	142.8	170.4	184.6	198.9	213.4	223.9
Services	100	107.4	111.4	126.0	127.7	149.7	178.2	188.4	192.7	193.5	202.9
Transportation and Communication	100	103.9	108.8	110.2	118.2	136.2	136.6	174.5	182.7	204.0	213.7
Sugar	100	101,8	106,3	114,3	114,3	114,3	128,1	135,8	151,7	168,1	169,2

Source: Annual Statistical Digest, C,S.O., Government of Trinidad and Tobago.

TABLE 3 - 32a

PAID EMPLOYEES BY INDUSTRIAL GROUP AND INCOME GROUP - 1965

('000 persons and $TT)

Industrial Group	Total Paid Employees	Income Group Per Month					Median Monthly Income $
		Under $100	$100-199	$200-299	$300-499	$500 +	
Total All Industries	205.7	76.4	79.7	29.8	13.8	6.0	133.0
Petroleum	14.0	0.6	2.1	8.2	2.1	1.3	254.0
Transport and Communication	18.6	3.2	8.4	4.4	2.2	0.4	172.0
Construction	33.4	6.1	22.0	3.7	1.4	0.2	148.0
Commerce	28.5	9.9	11.1	3.4	2.3	1.8	139.5
Services	51.6	20.2	18.3	6.7	5.0	1.4	130.5
Manufacturing	28.1	13.1	11.0	2.8	0.6	0.7	108.5
Agriculture	31.2	23.2	6.8	0.6	0.3	0.2	66.5

Source: Continuous Sample Survey of Population No. 6., C.S.O., Government of Trinidad and Tobago.

TABLE 3 - 32b

PAID EMPLOYEES BY INDUSTRIAL GROUP AND INCOME GROUP - 1965

(Percent)

Industrial Group	Total Paid Employees	Income Group per Month				
		Under $100	$100-199	$200-299	$300-499	$500 +
Total All Industries	100	37.2	38.7	14.5	6.7	2.9
Petroleum	100	4.2	14.7	57.3	14.7	9.1
Transport & Communication	100	17.2	45.2	23.6	11.8	2.2
Construction	100	18.3	65.8	11.1	4.2	0.6
Commerce	100	34.7	38.9	11.9	8.1	6.4
Services	100	39.1	35.5	13.0	9.7	2.7
Manufacturing	100	46.5	39.0	9.9	2.1	2.5
Agriculture	100	74.6	21.9	1.9	1.0	0.6

Source: See Table 3 - 31a.

TABLE 3 - 33a

PAID EMPLOYEES BY OCCUPATIONAL GROUP AND INCOME GROUP - 1965

('000 persons and TT $)

Occupational Group	Total Paid Employees	Income Group Per Month					Median Monthly Income $
		Under $100	$100-199	$200-299	$300-499	$500 +	
Total All Occupations	205.7	76.4	79.7	29.8	13.8	6.0	133.0
Professional and Technical	15.5	1.0	5.7	2.6	3.6	2.6	240.0
Administrative, Executive, Managerial and Clerical Worker	25.1	2.3	11.5	5.6	3.6	2.1	189.0
Craftsman, Production, Process Worker and Labourer	41.2	14.5	12.8	10.7	2.8	0.4	148.5
Worker in Transportation and Communication	22.8	5.9	12.3	3.3	1.2	0.1	145.0
Worker in Construction	25.1	5.4	17.5	1.8	0.4	-	141.0
Commercial, Financial and Insurance Worker	11.6	4.8	3.6	1.7	1.1	0.4	128.0
Service Worker	36.6	21.1	10.9	3.5	0.9	0.2	80.0
Worker in Agriculture	27.7	21.5	5.5	0.4	0.2	0.2	64.0

Source: Continuous Sample Survey of Population No. 6., C.S.O., Government of Trinidad and Tobago.

TABLE 3 - 33b

PAID EMPLOYEES BY OCCUPATIONAL GROUP AND INCOME GROUP - 1965

(Percent)

Occupational Group	Total Paid Employees	Income Group per Month				
		Under $100	$100-199	$200-299	$300-499	$500 +
Total All Occupations	100	37.2	38.7	14.5	6.7	2.9
Professional and Technical	100	6.5	36.7	16.8	23.2	16.8
Administrative, Executive Managerial and Clerical Worker	100	9.2	45.8	22.3	14.3	8.4
Craftsman, Production, Process Worker and Labourer	100	35.2	31.1	25.9	6.8	1.0
Worker in Transportation and Communication	100	25.9	53.9	14.5	5.3	0.4
Worker in Construction	100	21.5	69.7	7.2	1.6	-
Commercial, Financial and Insurance Worker	100	41.4	31.0	14.6	9.5	3.5
Service Worker	100	57.6	29.8	9.6	2.5	0.5
Worker in Agriculture	100	77.6	19.8	1.4	0.6	0.6

Source: See Table 3 - 32a.

Figure 1

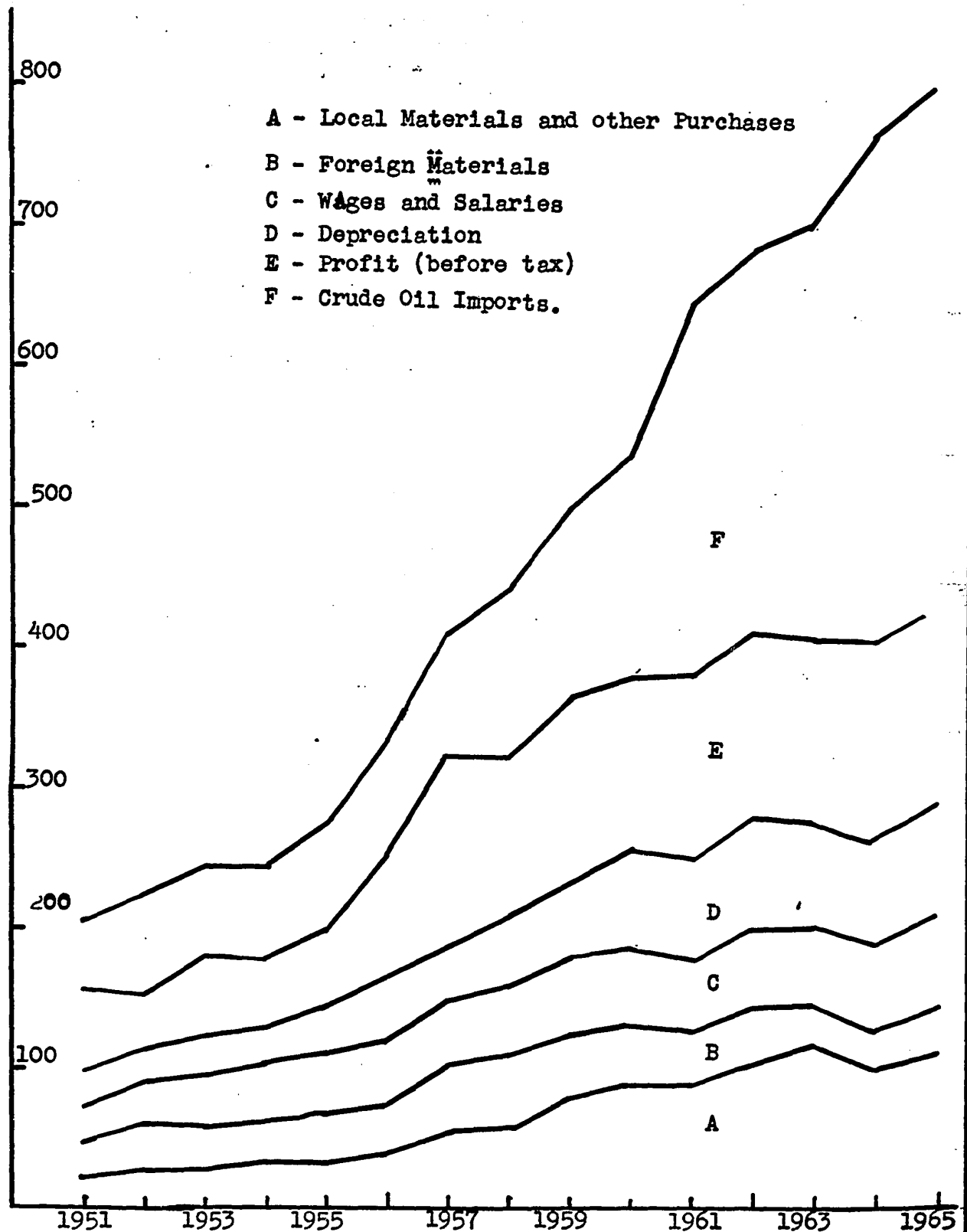$mn TT   Composition of Gross Output of Petroleum Sector.

A - Local Materials and other Purchases
B - Foreign Materials
C - Wages and Salaries
D - Depreciation
E - Profit (before tax)
F - Crude Oil Imports.

Figure 2.

Local and Foreign Content of Petroleum Outlays

$mn TT

750

600

450

300

150

Foreign (Crude Oil)

Foreign (Other)

Local

1951   1953   1955   1957   1959   1961   1963   1 965

Figure 3.

Petroleum Value Added
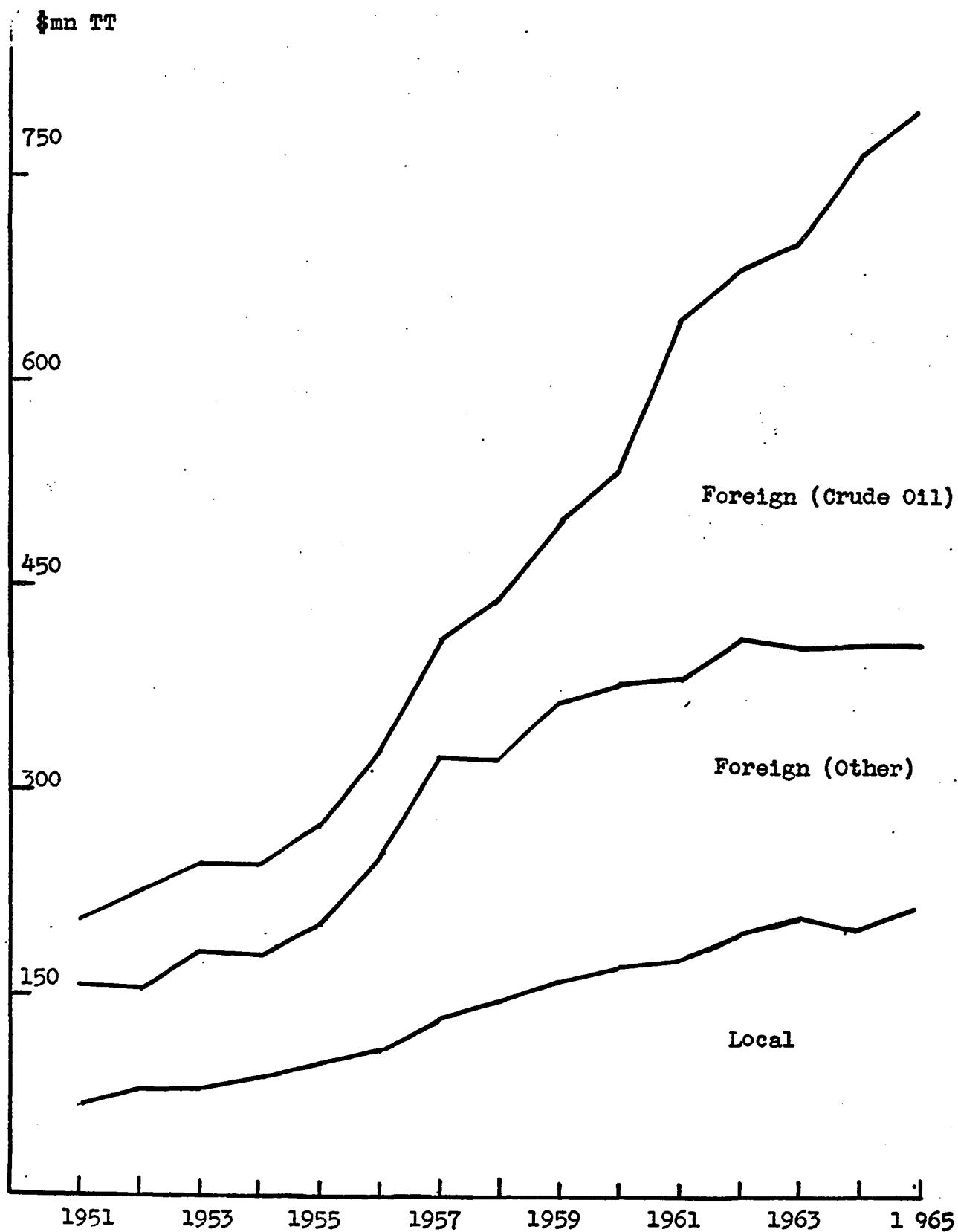
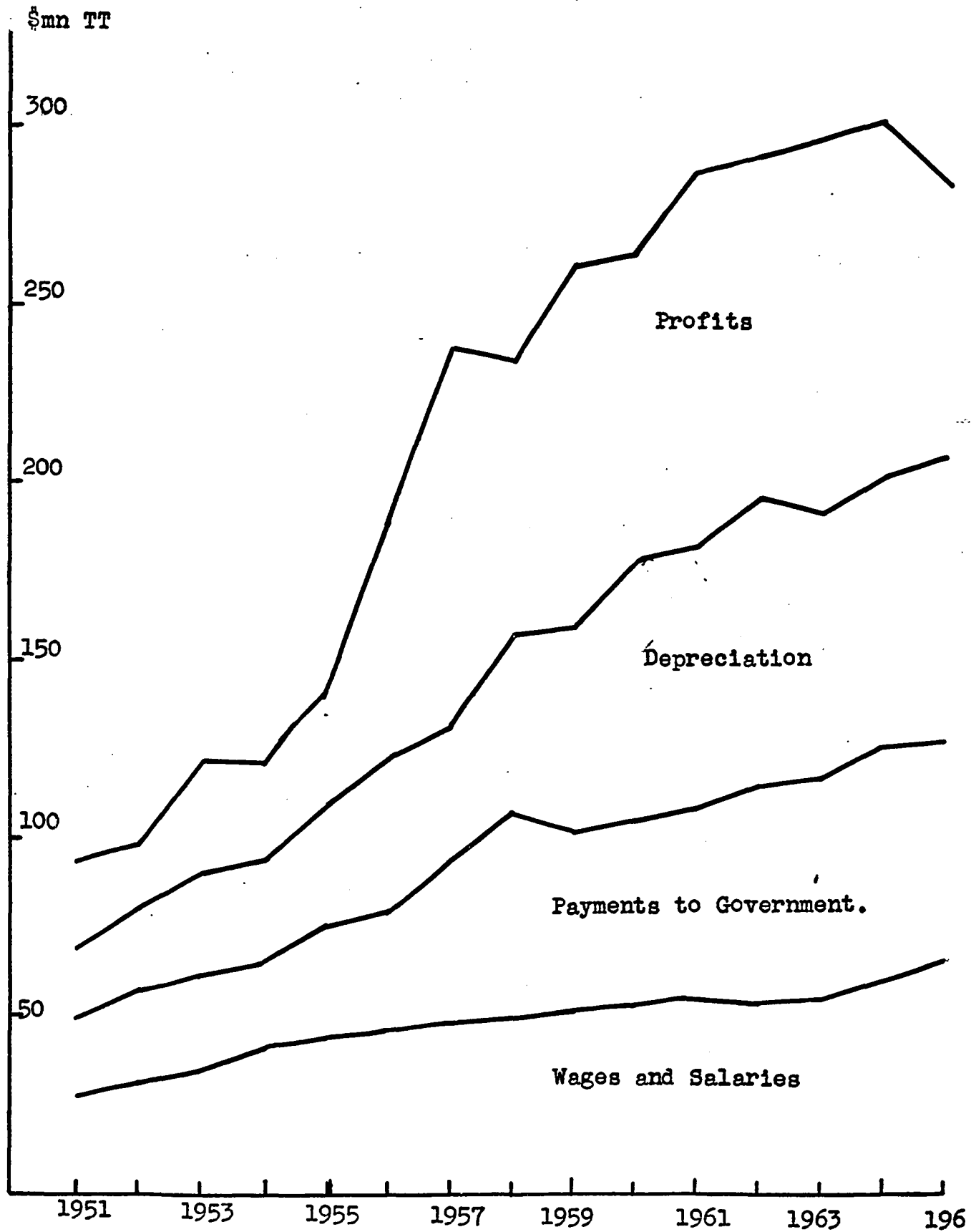Figure 3. Petroleum Value Added

Figure 4

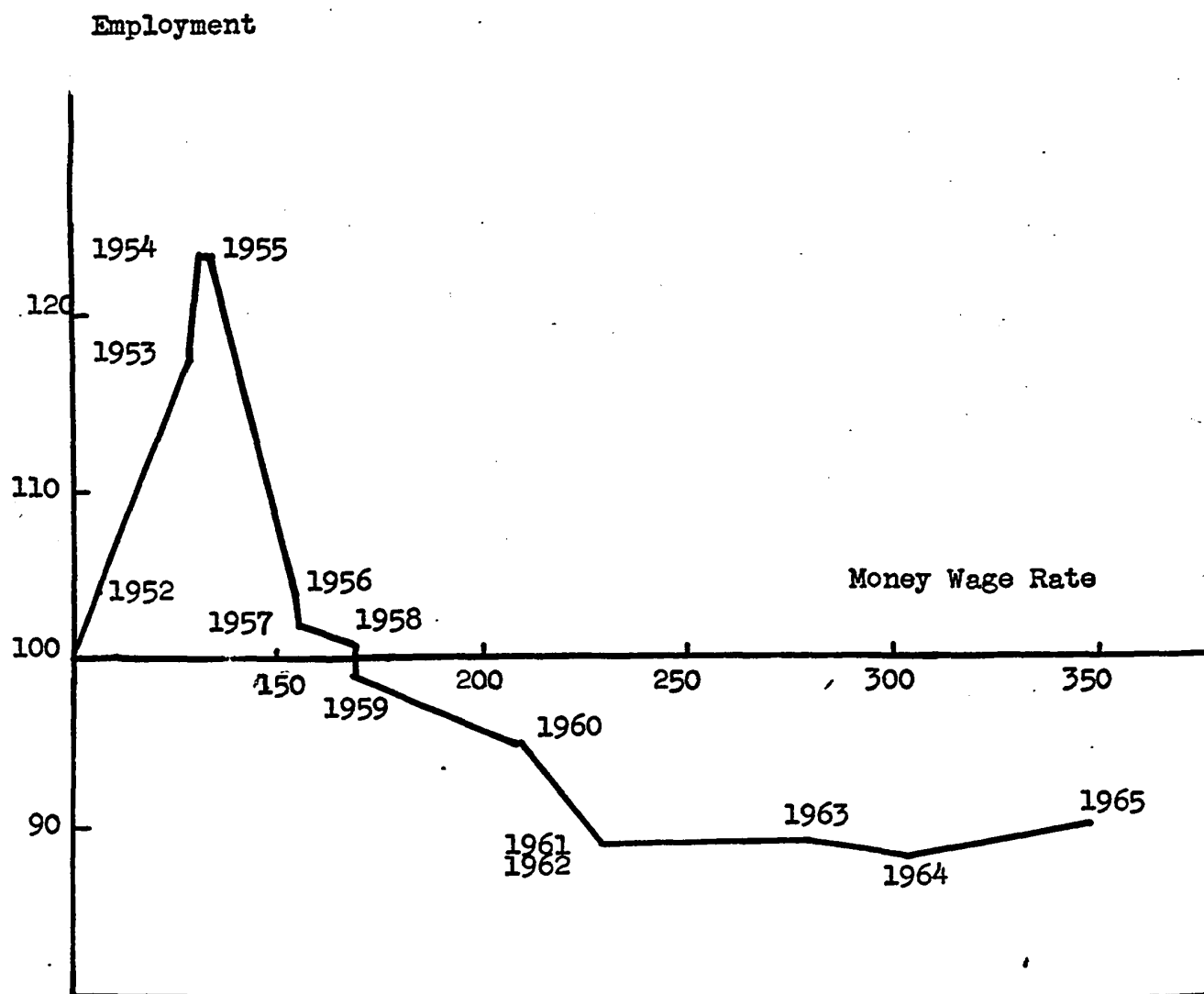## Money Wage Rate and Employment - Petroleum Industry.

Index - 1951 = 100

Employment

Figure 5.

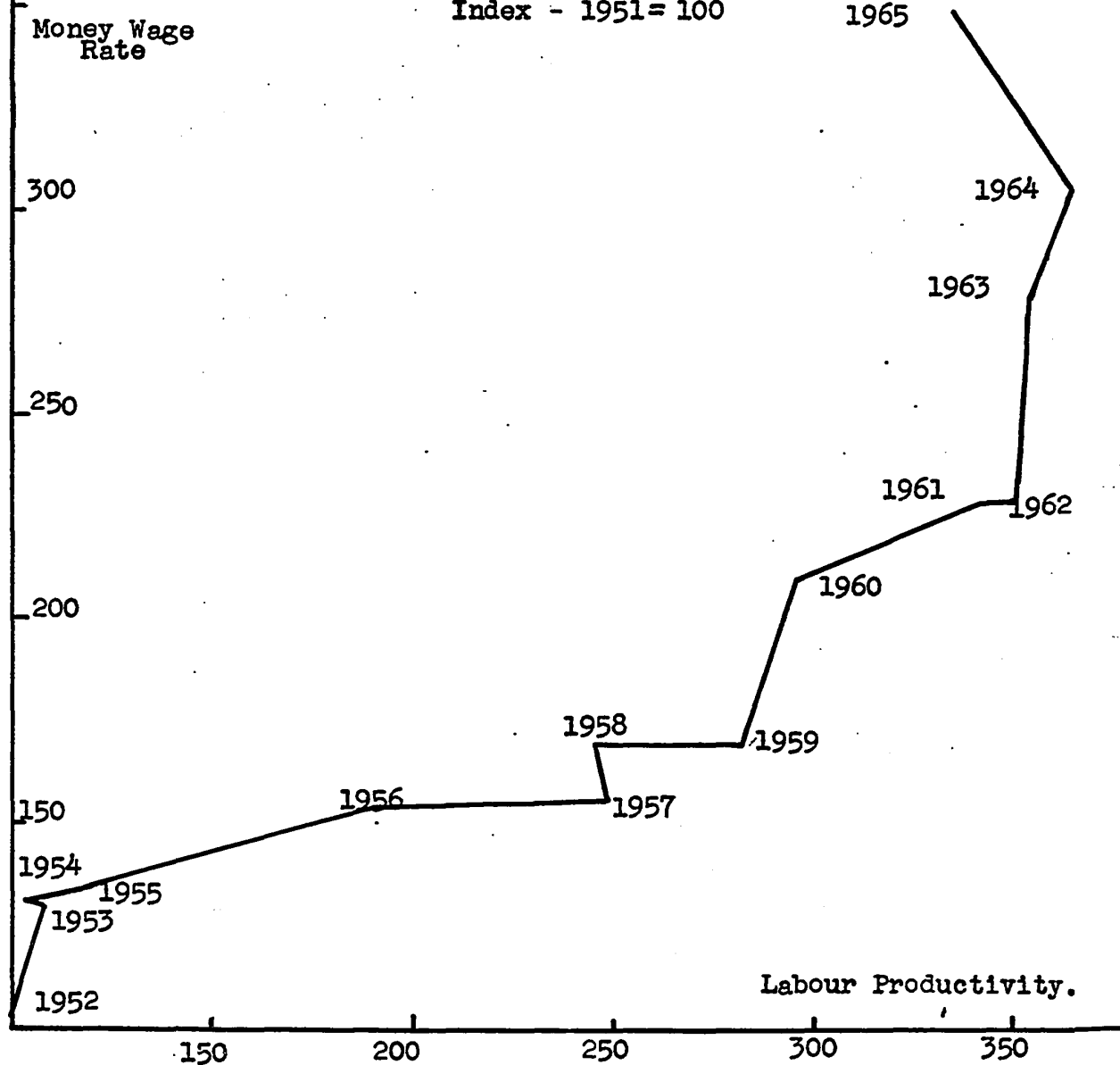## Labour Productivity and Money Wage Rate
Petroleum Industry
Index - 1951= 100

Money Wage Rate

Labour Productivity.

Figure 6.

Annual Percent Changes in Value Added, Net Export Earnings and Tax Payments of Petroleum.

Percent

————	Petroleum Surplus
— — —	Goverment Oil Revenues
—·—	Petroleum Net Export Earnings.
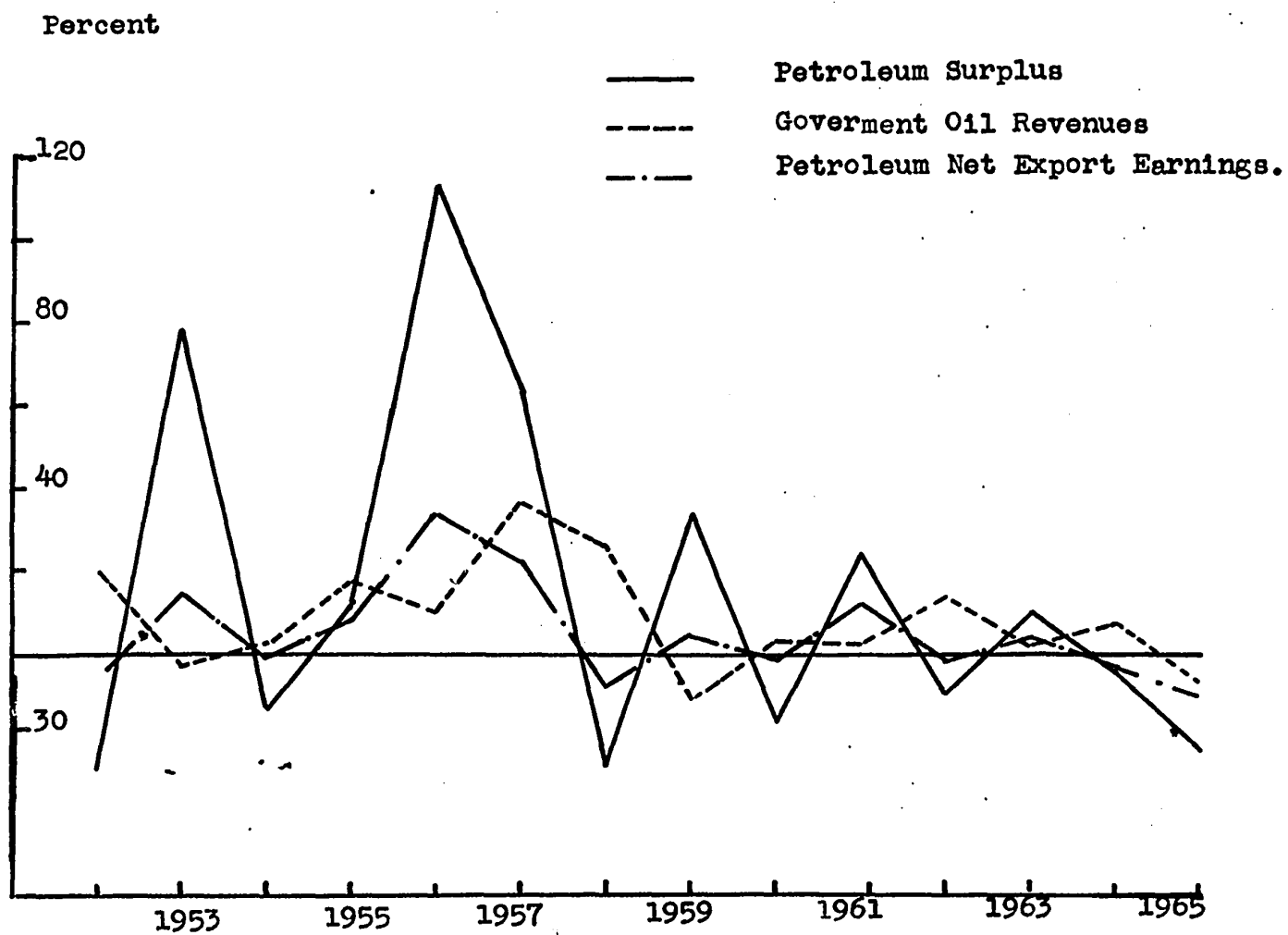
Figure 7.

Trend in Value Added in the Public and
Petroleum Sectors.

Public Sector G.D.P.
(Y)

200

1951-59
(Y = 51.7+1.42X)

150

100

1959-65
(Y= -796.8 + 4.86X)

50

Petroleum G.D.P
(X)

50   100   150   200   250   300
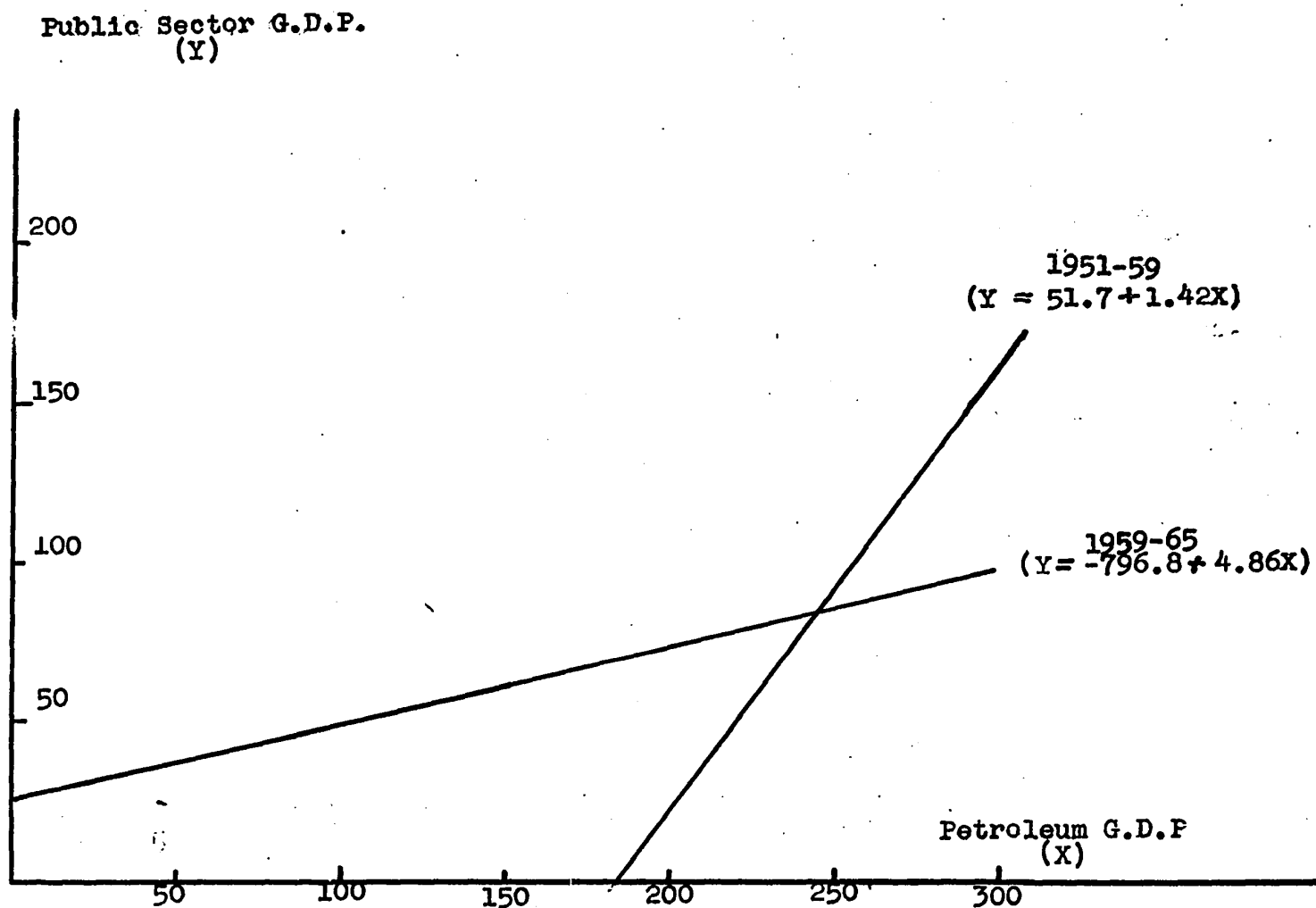
Figure 7a.

Trend in Value Added in the Petroleum and Private Domestic Sectors.

Public Sector
G.D.P.(Y)

1951-59
($Y = 25.8 + 0.23 X$)

450

300

1959-65
($Y = -303.9 + 1.56 X$)

150

Petroleum G.D.P.(X)

150   300
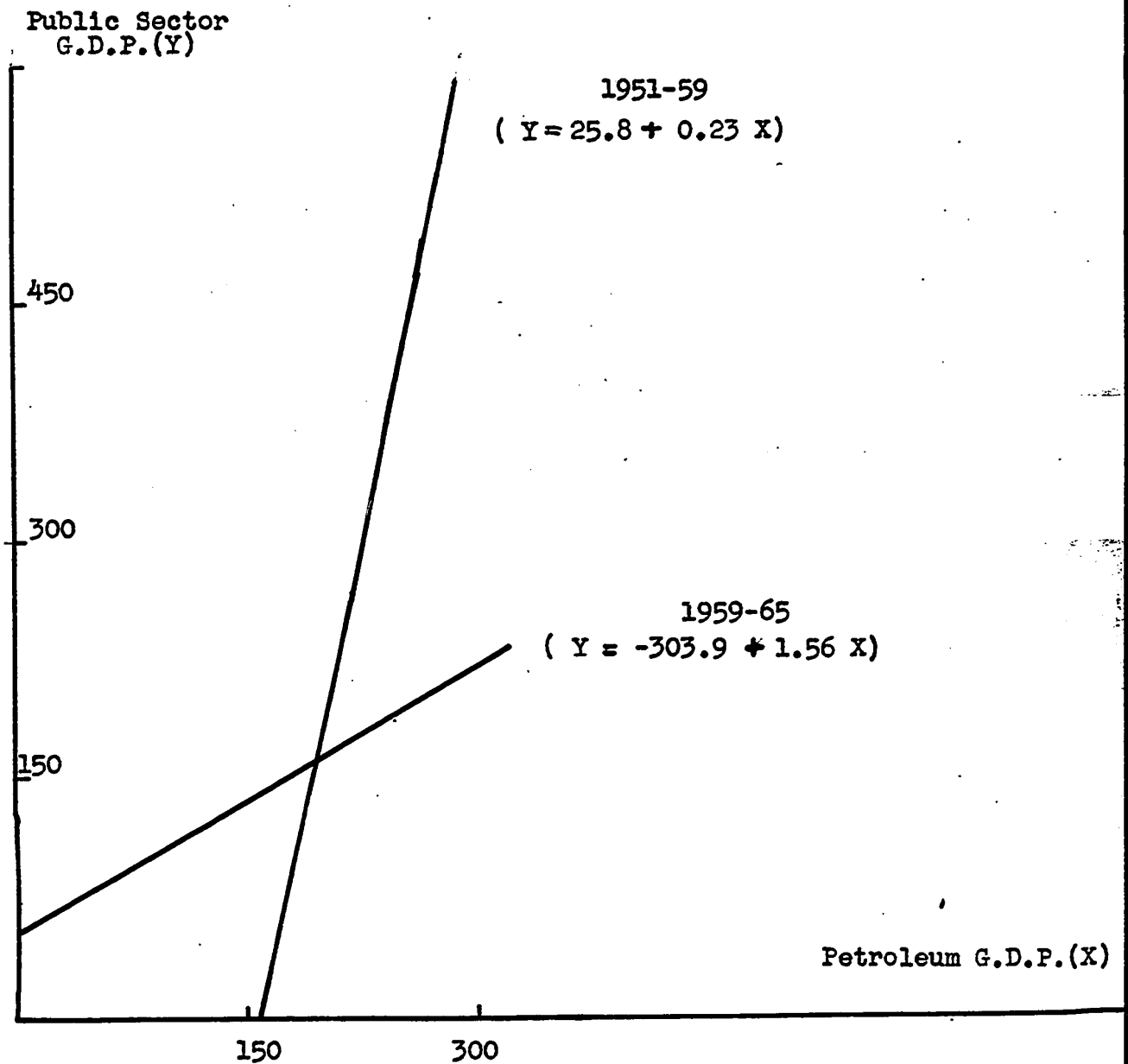
Figure 8.

Composition of Commodity Imports

$mn TT

400

300

Capital Goods

200

Other Consumer Goods and
Intermediates.

100

Food, Beverages and Tobacco.

1951   1953   1955   1957   1959   1961   1963   1965
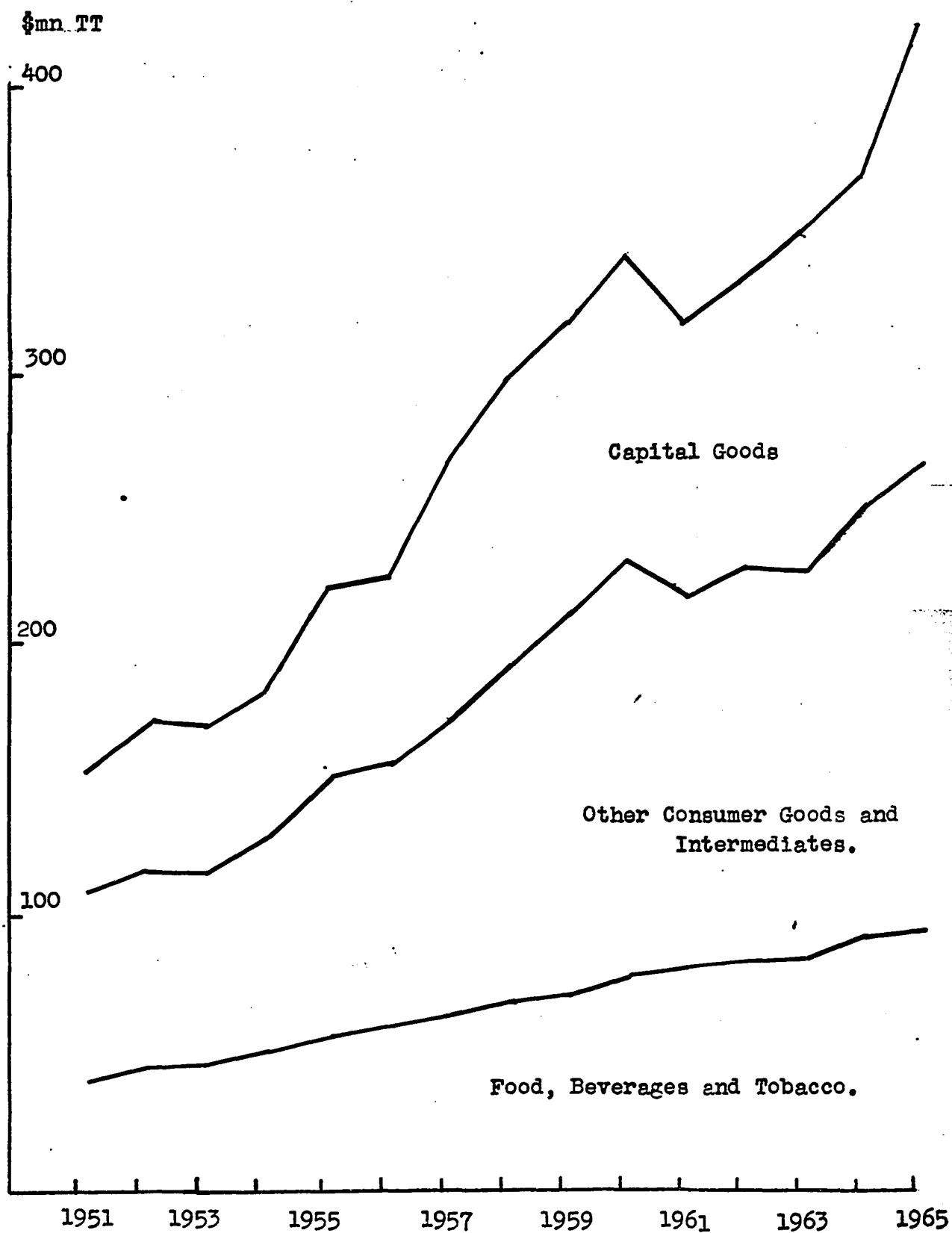
Figure 9.

Gross Domestic Product by Industries
(Factor Cost)

$mn TT

Other Sectors

Construction

Agriculture

Manufacturing

Public Sector

Petroleum
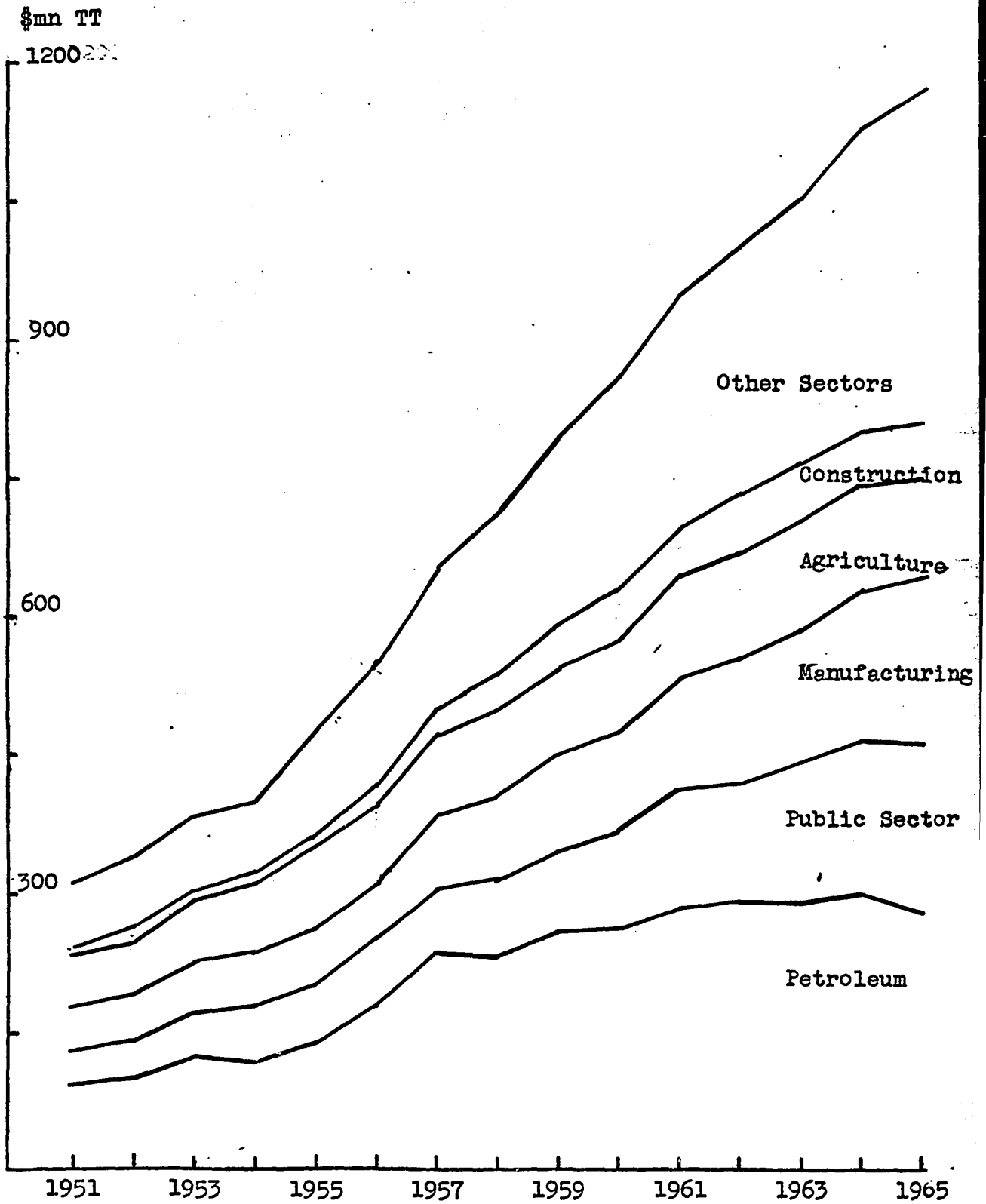
Figure 10.

General Government Revenues.

A - Petroleum Taxes
B - Import Duties (other than Petroleum)
C - Other Current Revenues
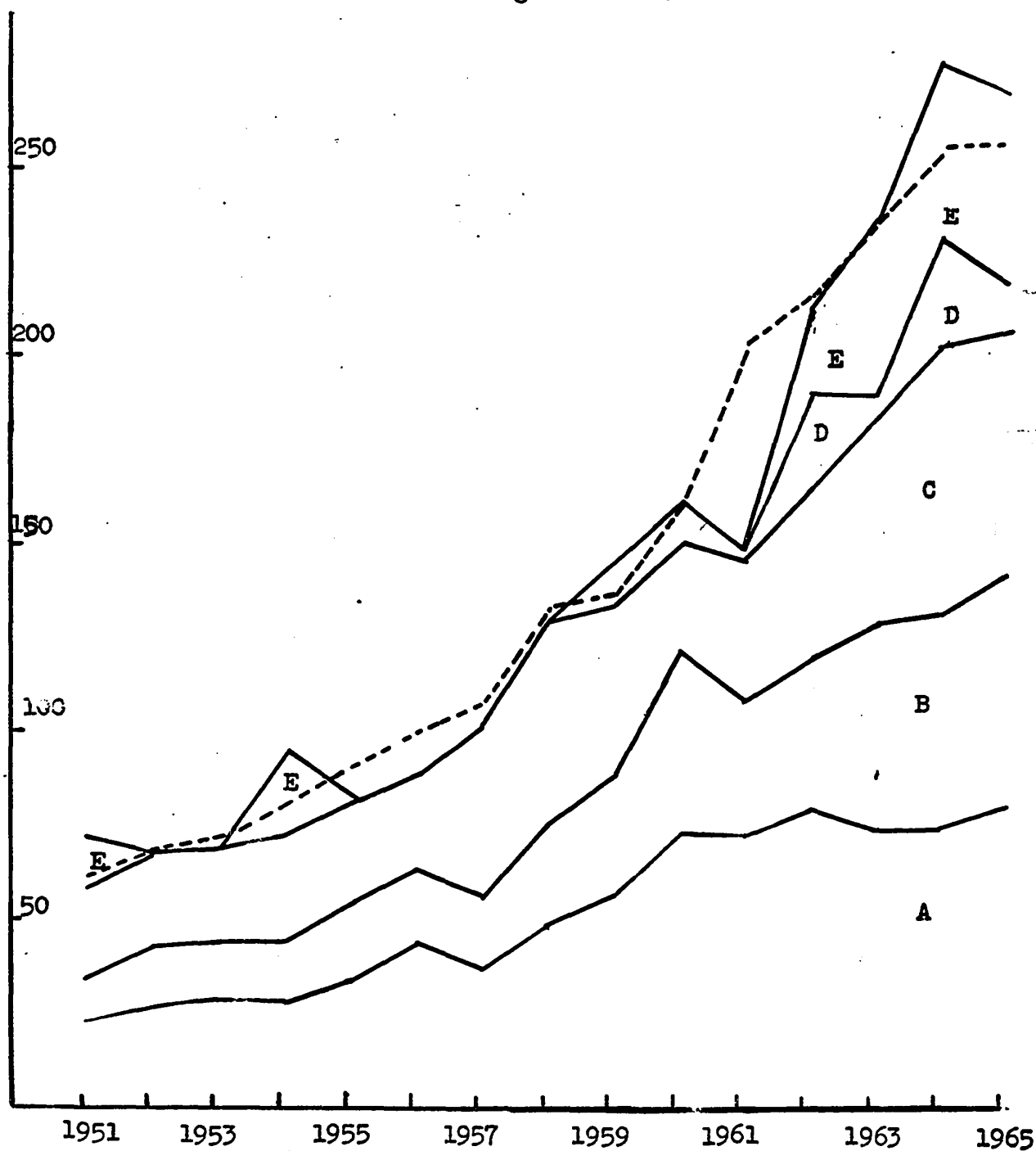D - Foreign Loans and Grants
------ Movements in Foreign Reserves

Figure 11.

General Government Expenditures.

A - Payments to labour
B - Supplies and Services
C - Interest and Amortization
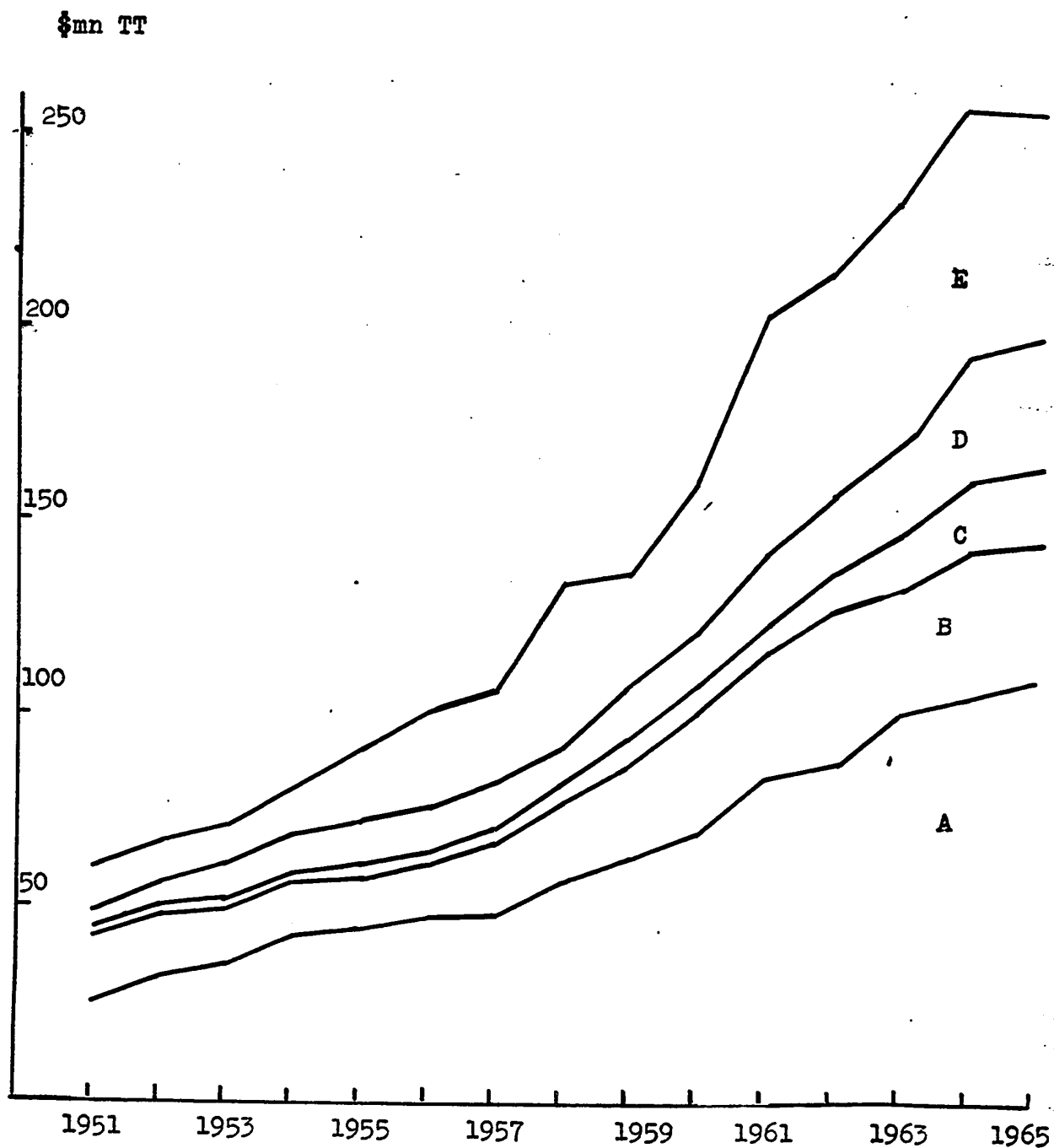D - Current Transfers
E - Capital Expenditures.

$mn TT

Figure 12

Annual Changes in Value Added in Petroleum
and the Public Sectors.

\$mn TT

Figure 13.

Composition of Personal Incomes

$mn TT

A - Consumption
A1- Food
A2- Alcoholic Drinks and Tobacco
A3- Household goods
A4- Clothing and Footwear
A5- Other Goods
A6- Services
B - Personal Savings
C - Direct Taxes

900

750

600

450

300

150

C

B

A6

A5

A4

A3

A2

A1
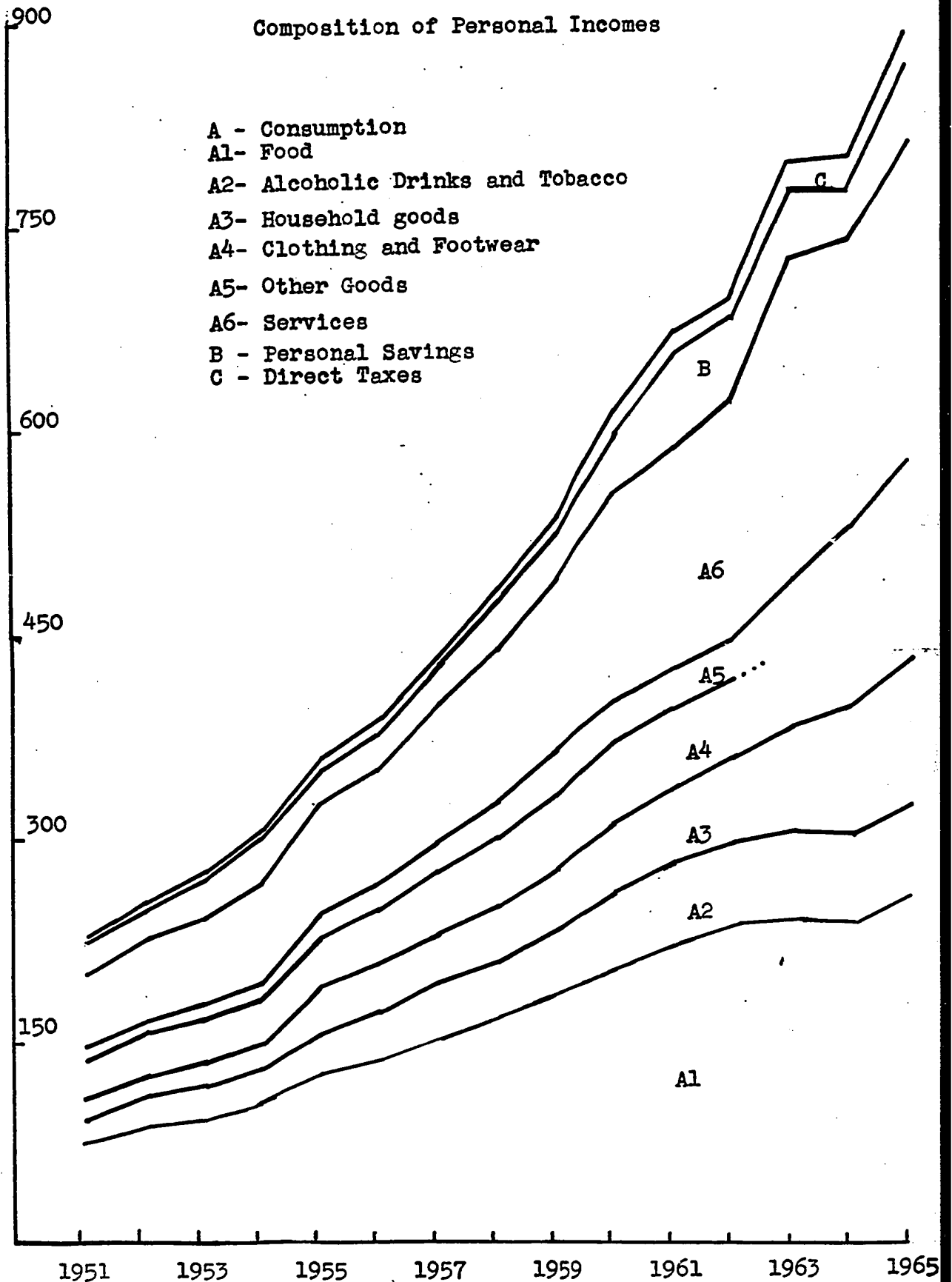
1951   1953   1955   1957   1959   1961   1963   1965

Figure 14.

Composition of Commodity Imports

$mn TT

A - Food, Beverages and Tobacco
B - Manufactured Consumer Goods
C - Chemicals
D - Other Consumer Goods.
E - Transport Equipment (Consumption)
F - Machinery and Transport Equipment (Capital)
G - Other Capital Goods.
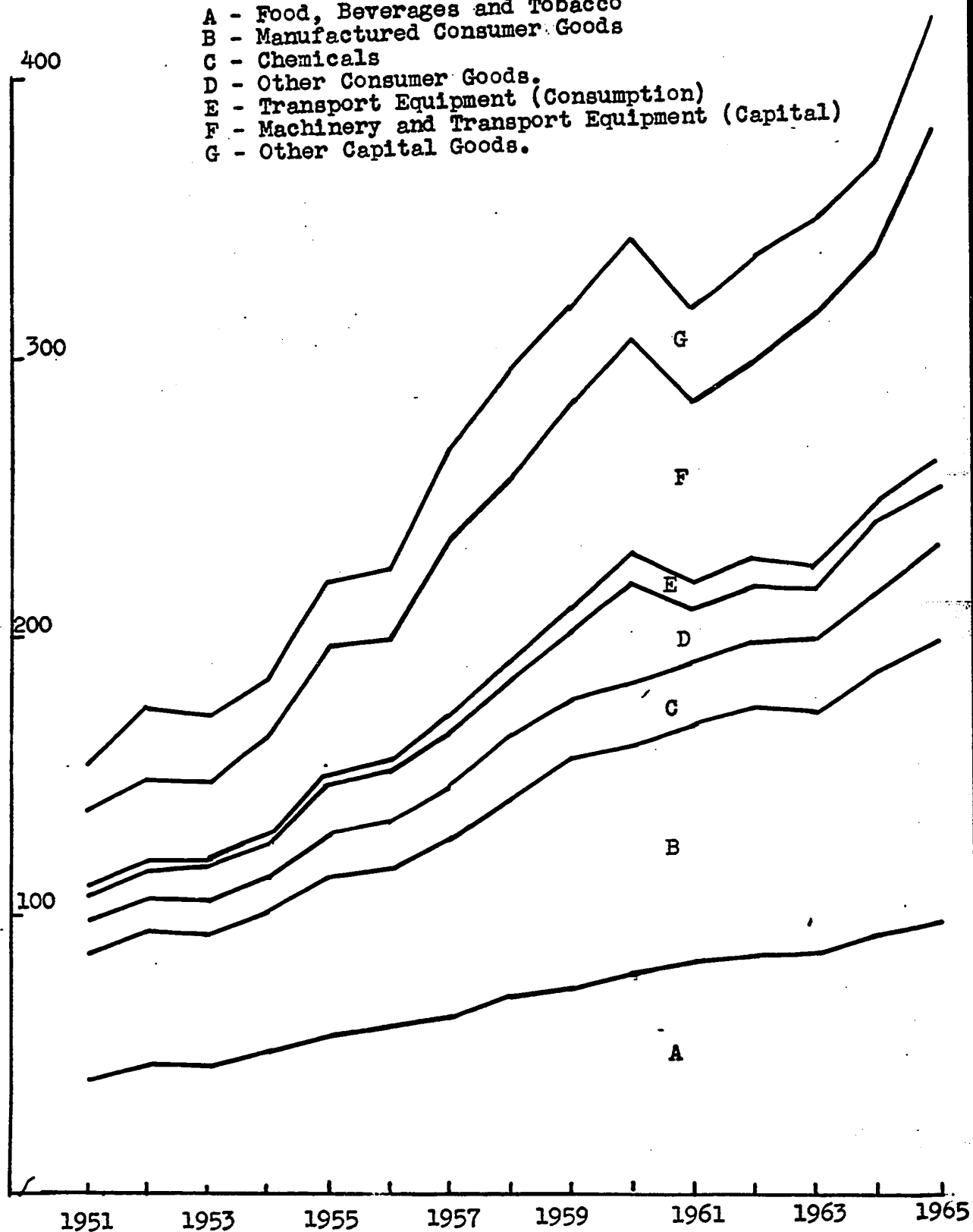
Figure 15.

Gross Domestic Fixed Capital Formation
by Industry.

$ mn TT

A - Petroleum
B - Housing
C - Sugar and Rum
D - Public Sector
E - Manufacturing
F - All other Private
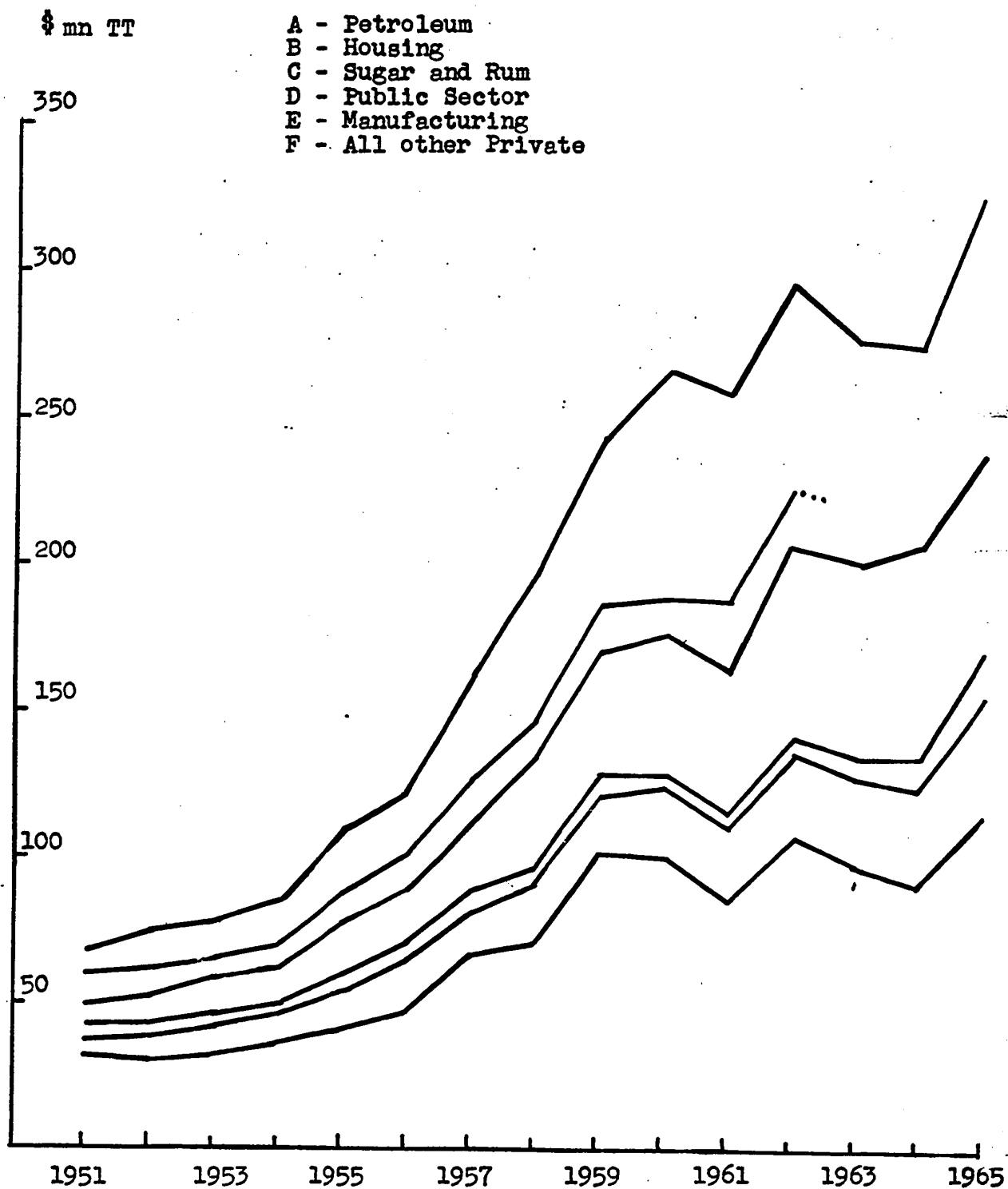
Figure 16

Gross Domestic Fixed Capital Formation

$mn TT

300

200

Local

100

Foreign

1951   1953   1955   1957   1959   1961   1963   1965
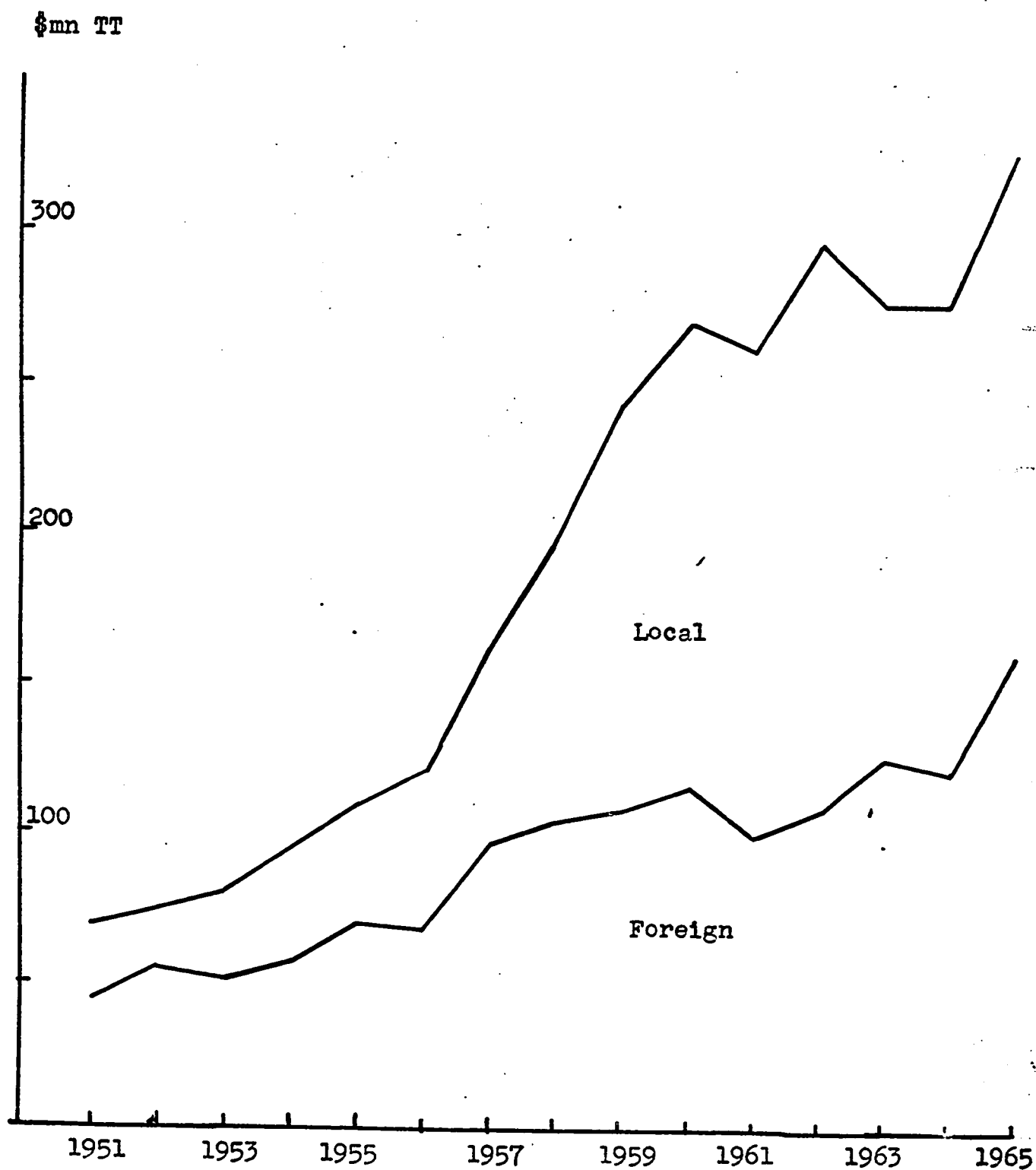
Figure 17.

Sources of Finance for Domestic Investments.

A - Depreciation
B - Local Business Saving
C - Household Saving
D - Public Saving
E - Net Foreign Inflows

$mn TT
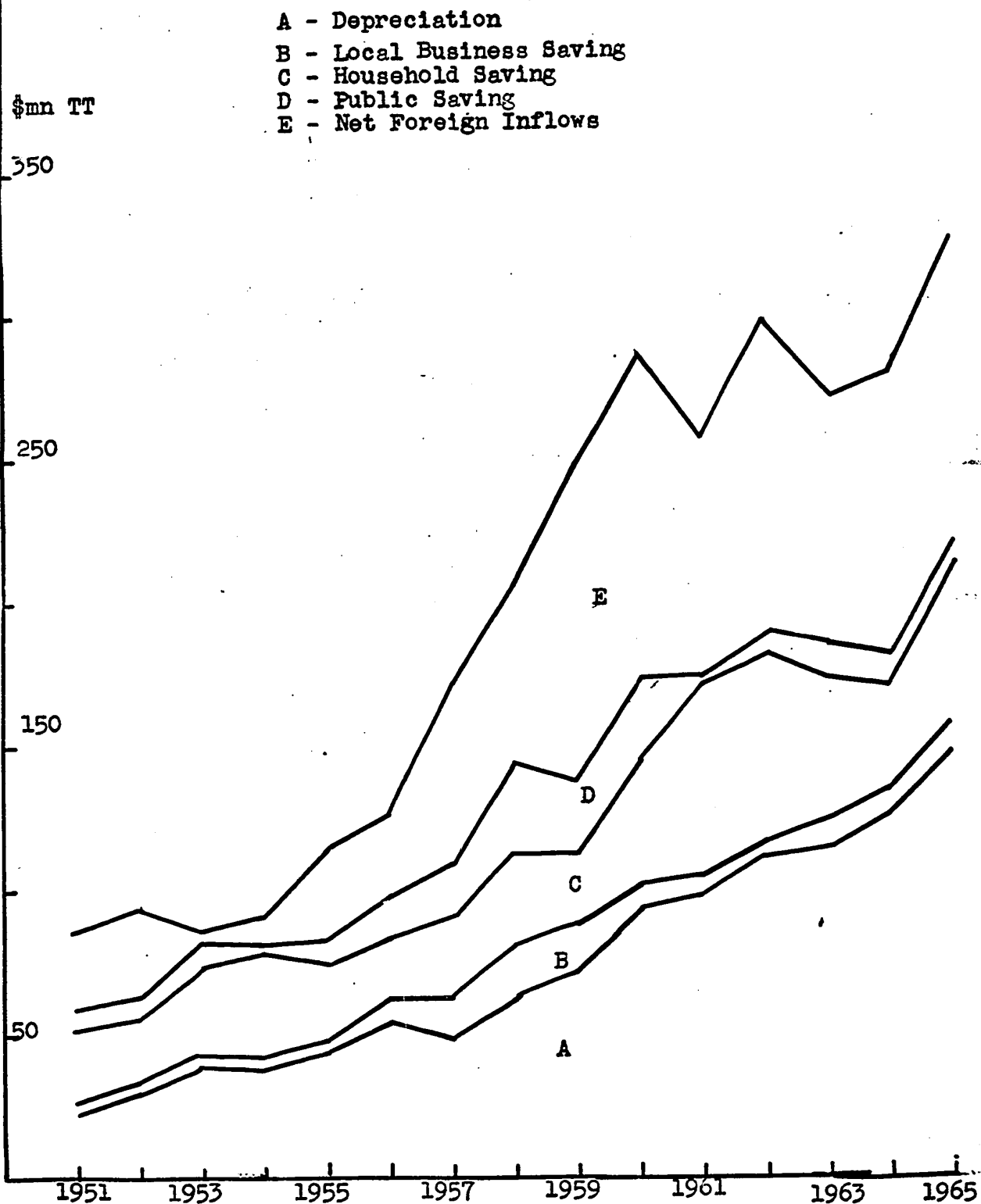
Figure 18

Private Domestic Sector

Inflow of Capital for Inves ment and Changesin Foreign
Assets of Commercial Banks

1. Private Domestic Sector Investments
2. Private Capital Inflows (excl. petroleum)
3. Annual changes in Foreign Assets of Commercial Banks
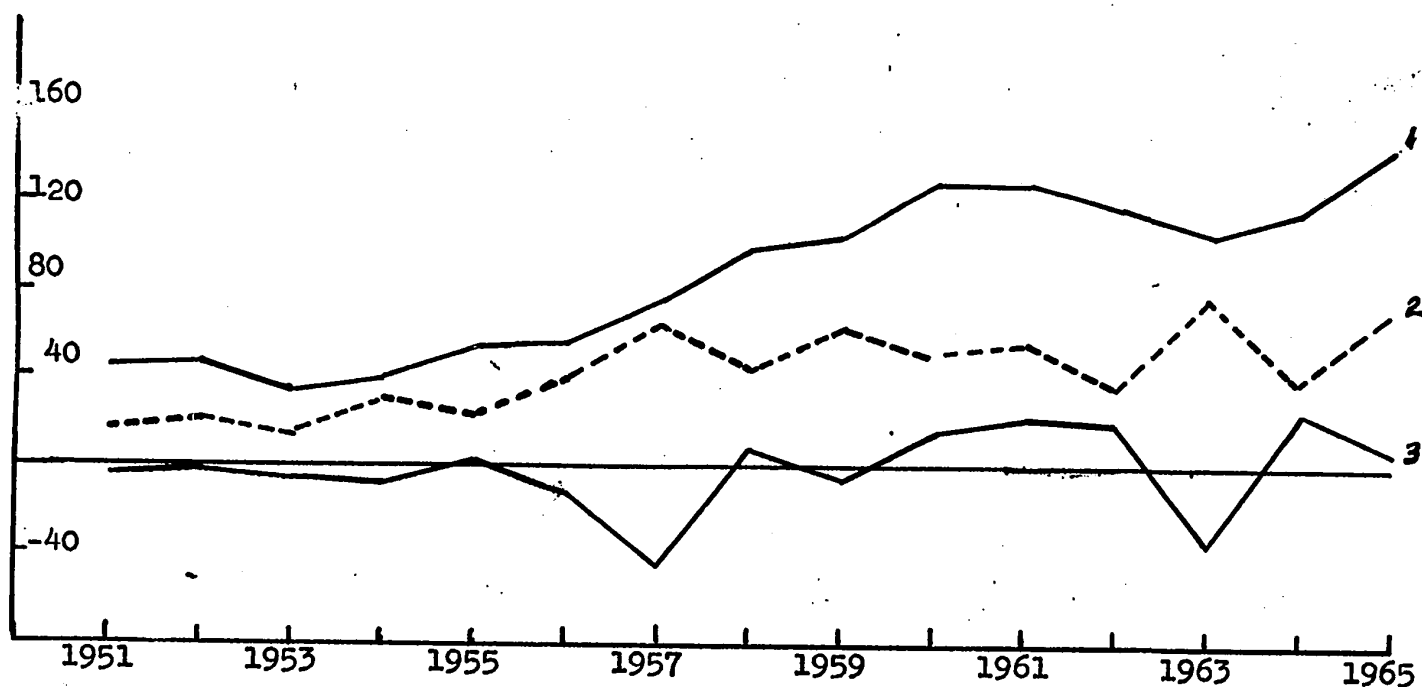
Figure 19.

Domestic Commodity Exports.

$mn TT

350

300

250

200

150

100

F

E

D

C

B

A

A - Petroleum
B - Manufactured Fertilizer
     and Amonia
C - Sugar and Rum
D - Other Manufactures
E - Cocoa, Citrus Coffee
F - Other Exports

1951   1953   1955   1957   1959   1961   1963   1965
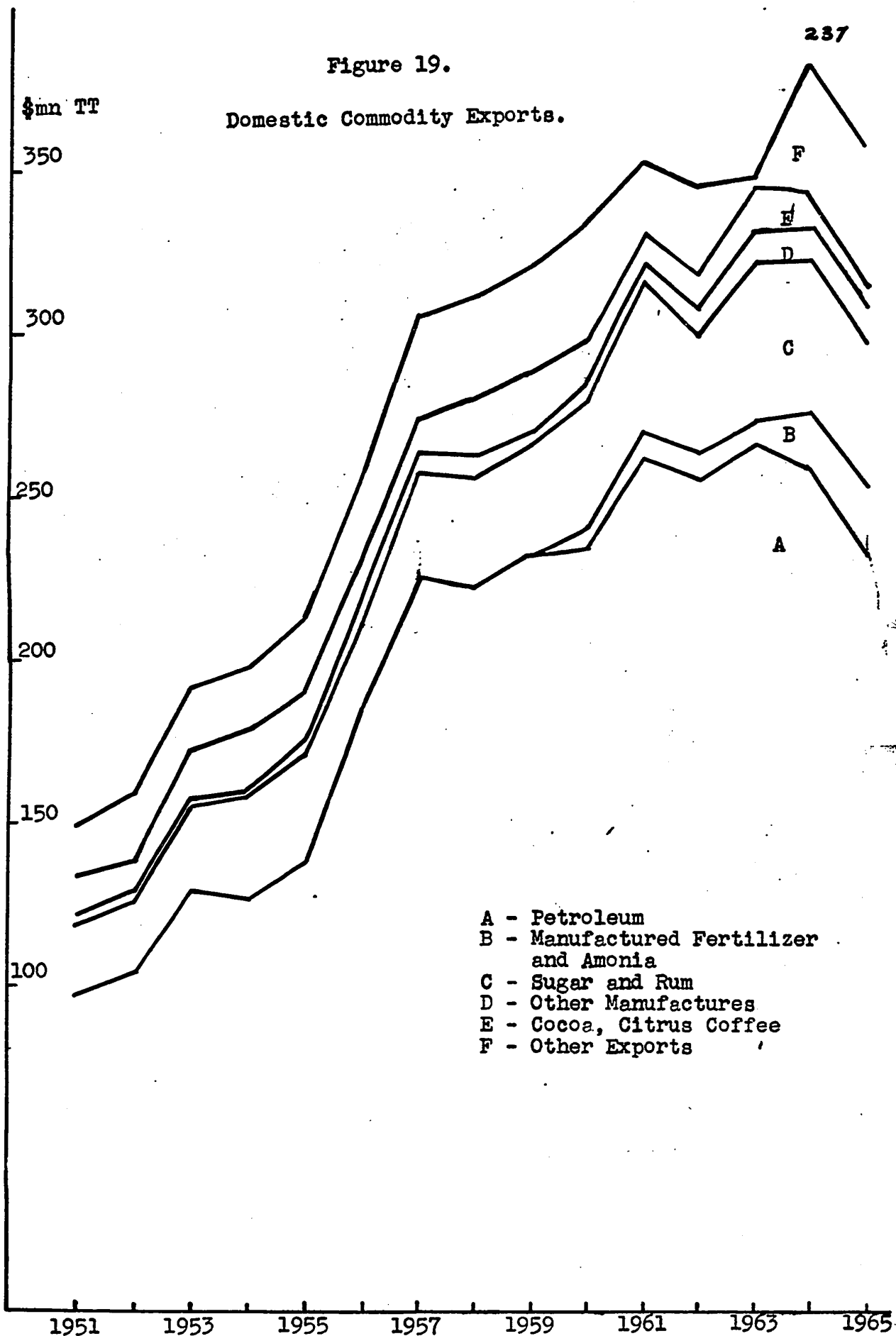
Figure 20

Sources of Foreign Exchange for Imports

A - Petroleum (excl. intermediates
      and investment income)
B - Sugar and Rum
C - Transportation(excl. petroleum
      bunkers)
D - Other Services
E - Net Private Capital Inflows
      (other than petroleum)
F - All other Sources
---- Movements in Foreign
      Exchange Reserves.

1951 1953 1955 1957 1959 1961 1963 1965
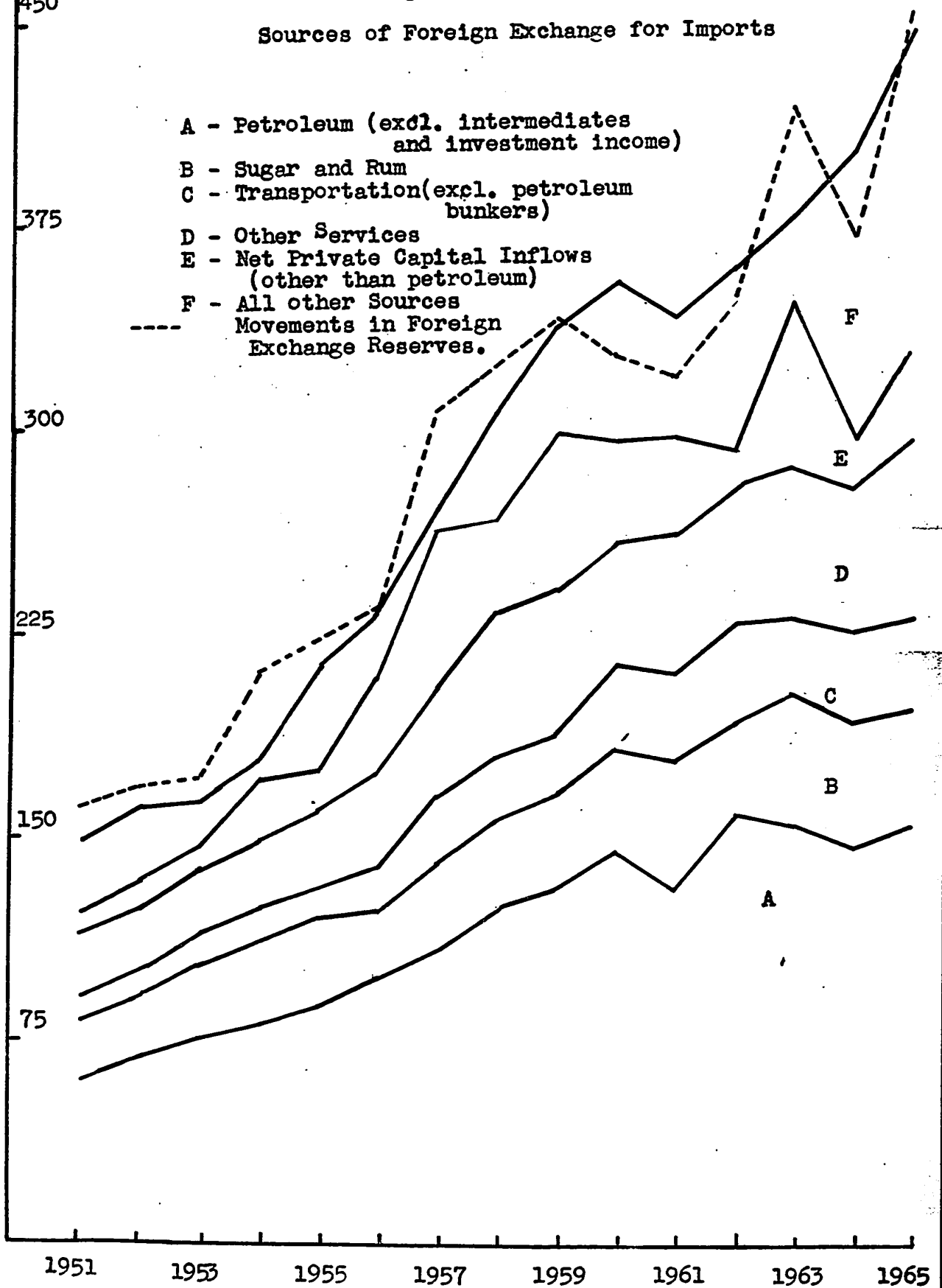
Figure 21.

Money Wage Rate, Real Wage Rate and Labour
Productivity.

A - Money Wage Rate
B - Labour Productivity
C - Real Wage Rate.

Figure 22.

Money Wage Rate in Selected Industries.

A - Petroleum
B - Govt Services
C - Construction
D - Manufacturing
E - Sugar
F - Wearing Apparel

(Index series ap plied to 1963 wage rates)

BIBLIOGRAPHY

Armstrong, E.   Import-substitution in Jamaica and Trinidad and
                 Tobago, Institute of Social and Economic Research,
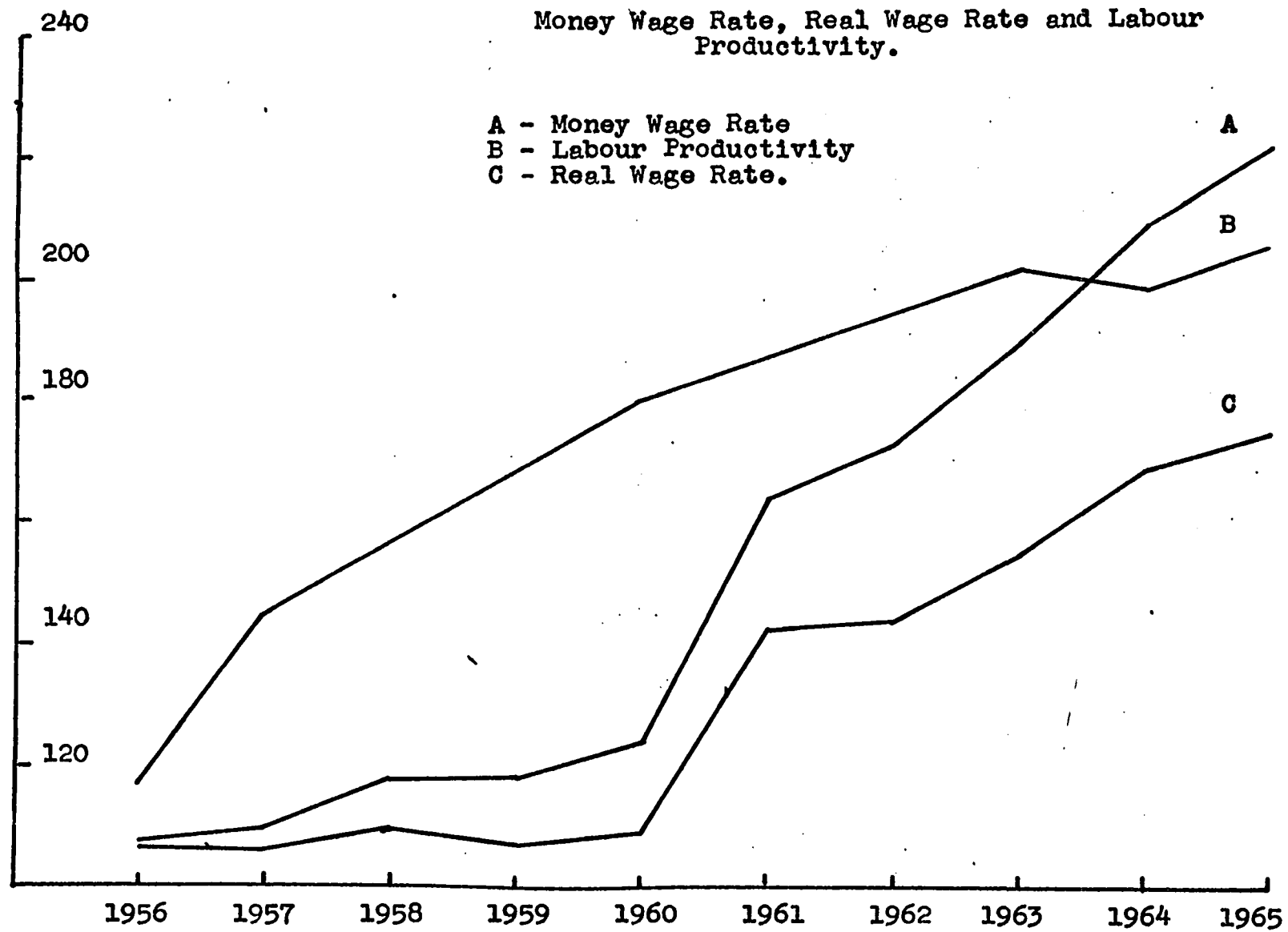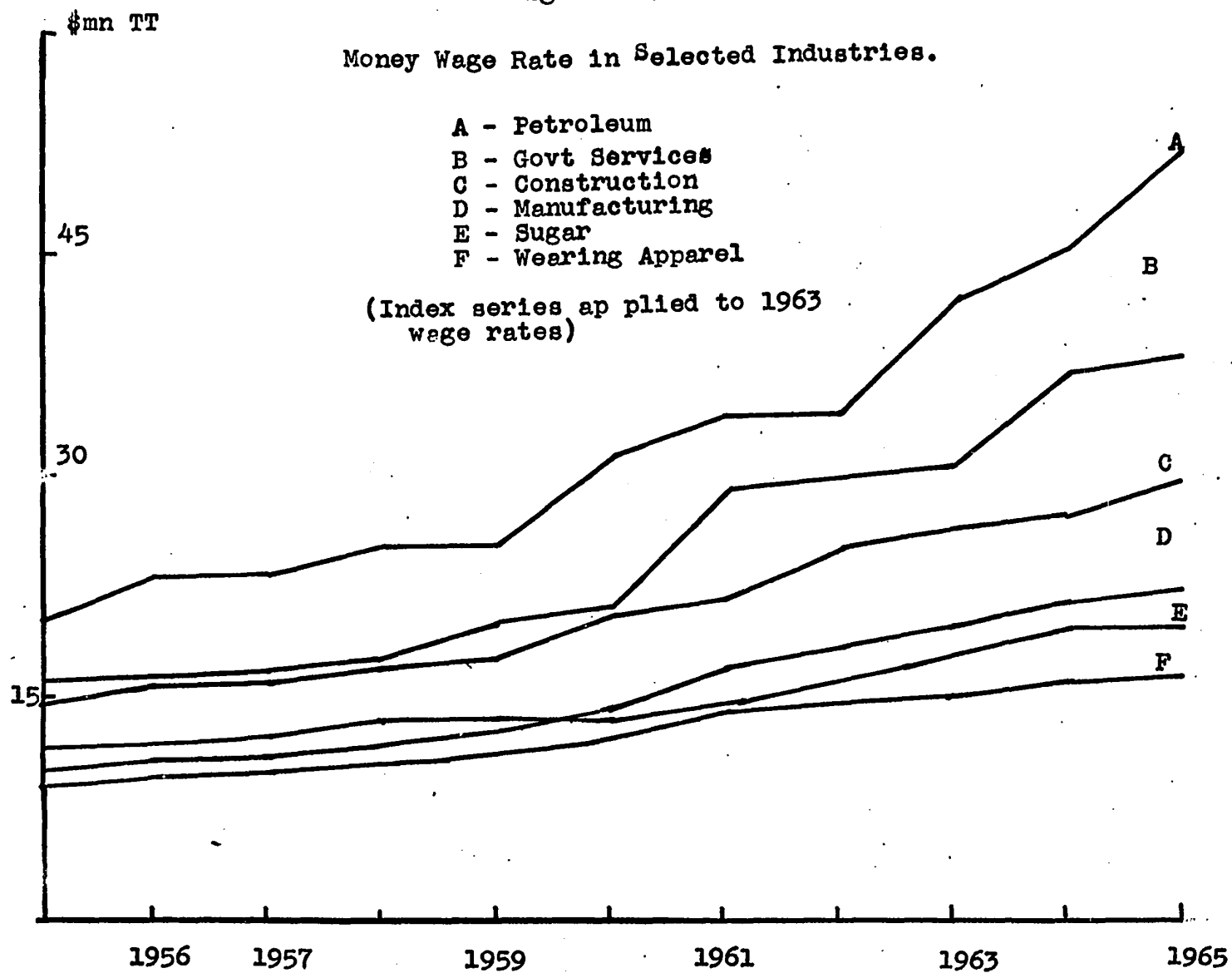   University of the West Indies. Jamaica. 1967.

Best, L.   The Emergence of a Structuralist School in the
                 Caribbean, Jamaica. 1966. (unpublished)

_____   The Economy of the Commonwealth Caribbean - An
                 Overview, Jamaica. 1967 (mimeo)

_____   "Size and Survival", New World, Guyana Independence
                 Issue, Guyana, 1966.

Best, L. and Levitt, K. "An Ideal Type Accounting Framework for
                 the Study of the Caribbean Economy", Report of the
                 Second Conference of Commonwealth Caribbean Statis-
                 ticians, Georgetown, Guyana. 1968.

_____   Export-Propelled Growth and Industrialization
                 in the Caribbean, Montreal, 1969. (unpublished)

_____   Measuring the National Capacity to Import,(unpublished)

Brewster, H.   "Exports, Employment and Wages: Trinidad and Tobago
                 and Mr. Seers' Model of the Open Economy". Research
                 Papers, No. 5. C.S.O. April 1968.

_____   Legislation and Economic Control: Wage Policy
                 Issues in an Open Underdeveloped Economy, Trinidad
                  and Tobago,University of the West Indies, Jamaica.
                 1968.

Brewster, H. and Thomas, C. The Dynamics of West Indian Economic
                 Integration, Institute of Social and Economic
                 Research, University of the West Indies, Jamaica.1967.

Cassidy, R.   Price Making and Price Behaviour in the Petroleum
                 Industry, Yale University Press. 1954.

Chase Manhattan Bank, Investment Patterns in the World Petroleum
                 Industry New York. 1966.

_____   Balance of Payments of the Petroleum Industry.
                 New York. June 1968.

_____   Annual Financial Analysis of a Group of Petroleum
                 Companies.1967New York June 1968.

Colonial Office Reports: West Indies Royal Commission Report,
                 H.M.S.O., London. July 1945.

Colonial Office Reports; An Economic Survey of Colonial Territories-
        VolumeIV H.M.S.O. London, 1953

Cumper, G.E. (ed) The Economy of the West Indies, United Press Ltd.
        Kingston , Jamaica. 1960.

De Chazeau, G. and Kahn, H., Integration and Competition in the
        Petroleum Industry, Yale University Press. 1959.

Dedeystere, G. Some Meas ures of the National Capacity To Import

Demas, W.   The Economics of Development in Small Countries,
                 - With Special Reference to the Caribbean,
                 Mc Gill University Press, Montreal, 1965.

Dorrance, G.S. "Income Terms of Trade", Review of Economic Studies,
        1948-1949.

Fanning, L.   Foreign Oil and the Free World, Mc Graw - Hill ,
        New York 1954.

Federal Trade Commission, International Petroleum Cartel, U.S
        Congress , Washington, 1952

Frankel, P.H. and Newton, W.L., "Profitability of International
        Companies" The Analysts Journal, November 1959.

Francis , A.A. "A Note on Inter-Industry Relations in the
        Economy of Trinidad and Tobago. 1962" Research
        Papers, No .2, C.S.O. Government of Trinidad
        and Tobago. 1965.

Franklin, H. and Miller, W.D., "Production Practices in Venezuela"
        Oil and Gas Journal, February 1958.

Galbraith, J.K. The New Industrial State, Houghton Miffin, Boston.
        1967.

Girvan , N. The Caribbean Bauxite Industry, Institute of Social
        and Economic Research, University of the West
        Indies. 1967.

Girvan, N. and Jefferson, O., "Corporate vs Caribbean Integration",
        New World Quarterly, Volume IV., No. 2, 1968

Government of Trinidad and Tobago

        - Annual Stastical Digest, Central Statistical Office
        - Annual Administrative Report of the Petroleum
          Department, Government Printery. (discontinued in 1958)

Government of Trinidad and Tobago (cont'd)

- Annual Review of Petroleum Developments, Ministry of Petroleum and Mines.
- Aspects of Commercial Policy (Interim Report), Economic Planning Divislin. 1966.
- Continuous Sample Survey of Population, Central Statistical Office.
- Draft First Five-Year Plan, 1968-1962, National Planning Commission, Government Printery.
- Draft Second Five-Year Plan, 1964-68. National Planning Commission, Government Printery.
- Draft Third Five-Year Plan, 1969-1973, National Planning Commission, Government Printery.
- Estimates of Revenue and Expendityre, Ministry of Finance.
- Financial Statistics 1966, Central Statistical Office, 1967.
- I.M.F. Report, Trinidad and Tobago, 1965. Tables and Worksheets, C.S.O.
- Industry 1957 (Vol. II), Central Statistical Office.
- National Income of Trinidad and Tobago 1951-1961. Central Statistical Office, 1962.
- National Income of Trinidad and Tobago 1952-1962. Central Statistical Office, 1963.
- Overseas Trade, Central Statistical Office.
- Quarterly Economic Reports, Central Statistical Office.
- Report of the Commission of Enquiry into the Marketing of Petroleum Products in Trinidad and Tobago, Government Printery, 1965.
- Report of the Commission of Enquiry into the Oil Industry of Trinidad and Tobago, 1963-1964. Andre Deutsch Ltd., London, 1964.
- The Structure and Output of Industry, 1953, Central Statistical Office, 1954.
- The Balance of Payments of Trinidad and Tobago 1956-1966, Central Statistical Office, 1967.
- The Trinidad Oil Industry, Government Printery, 1959

Harewood, J.   "Employment in Trinidad and Tobago", Research Papers No.1 December 1963.

_____   "A Comparison of Labour Force Data in Trinidad and Tobago 1946-1964" Research Papers, No. 2 December 1965

Hartshorn, J.E.   Oil Companies and Governments, Faber and Faber, London. 1967.

Issawi, C. and Yeganeh, M. *Economics of Middle Eastern Oil*,Faber
    and Faber. London. 1962.

Kennedy, C.   "Keynesian Theory in an Open Economy," Social and
               Economic Studies, University of the West Indies. Vol.
               15 , No.1. March 1966.
_____   "Domar - Type Theory in an Open Economy " Social and
               Economic Studies, University of The West Indies,
               Vol. 15. No. 3. September 1966.

Levitt, K.   Canada; Economic Dependence and Political Disihtegration"
              New World Quarterly, Vol.1V No. 2., 1968.

Lewis, W.A.   Industrial Development in the Caribbean,Caribbean
              Commission Central Secretariat, Trinidad. 1951

_____   "Economic Development with Unlimited Supplies of Labour"
              Manchestir School. January 1958.

_____   "Unlimited Labour: Further Notes " Manchester School
              January 1958..

_____   "Employment Policy in an Underdeveloped Area,"
              Social and Economic Studies, Vol.7. No. 3 September 1958

_____   "Jamaica's Economic Problems",Jamaican Gleaner, September
              1964.

Mc Intyre, A.,Aspects of Development and Trade in the Commonwealth
              Caribbean, Economic Commission for Latin America.
              March. 1965.

O'Connor, H. The Empire of Oil, Monthly Review Press, New York. 1962.

_____   World Crisis in Oil,Monthly Review Press, New York.1962.

Penrose, E.   "Profit - Sharing between Producing Countries and Oil
              Companies in the Middle East", Economic Jou rnal
              June 1959.

_____   "Middle-East oil - The International Distribution of
              Profits and Income Taxes", Economica. May 1960.

Rampersad, F. "Some Aspects of the External Trade and Paymentsof
              Trinidad and Tobago 1951-1959." Social and Economic
              Studies,University of the West Indies, June 1963.

_____   "Growth and Structural Change in the Economy of Trinidad
              and Tobago, 1951-1961. "Research Papers" No. 1,
              C.S.O., Government of Trinidad and Tobago. December1963.

Salera, V.   "On Mineral Development and Economic Growth",
                Inter-American Economic Affairs,Spring 1959.

Seers, D.   An Approach to the Short Period Analysis of Primary
                Producing Countries," Oxford Economic Papers,
                February 1959.
_____   "Big Companies and Small Countries : A Practical
                Proposal", Kyklos 1963.

_____   The Stages of Development of a Primary - Producing
                Country in the Middle of the Twentieth Century".
                The Economic Bulletin of Ghana , April 1963.

_____   " A Theory of growth and Inflation", Oxford Economic
                Papers, June 1962.

_____   "The Limitations of the Special Case", Bulletin of
                the Oxford University Institute of Economics and
                Statistics, May 1963.

_____   The Mechanisms of an Open Petroleum Economy, Social
                and Economic Studies, June 1964.

Sources of Energy, A Review, Commonwealth Economic Committee,
H.M.S.O. London 1966.

World Oil , A Short Survey,British Information Service, London, 1968.