IMPORT SUBSTITUTION AND WEST INDIAN AGRICULTURE
Theoretical Issues

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Introduction

The term import substitution is often used in a simple and literal way to denote the reduction or elimination of certain imports and their replacement by domestic products. This definition often leads to the conclusion that an import substitution strategy of development is one aimed at autarky—a development objective which is for most economies, unachievable. For the purposes of this paper, we define import substitution very broadly as the strategy of development which links the overall development process to the import structure and induces the type of internal development which eventually makes the level and composition of imports consistent with excess demand within the economy.

The central issues of an import substitution strategy of development are clearly outlined in the leading arguments in support of and in opposition to this development policy. The rationale for the policy, on the other hand, can be highlighted within the framework of an aggregative model of the economy constructed to facilitate a test of the hypothesis that in the under-developed economy characterized by rigidity of its production structure, the capacity to import represents the main limitation on the growth of output. Such a model is outlined in Appendix I.

Strategies for Import Substitution

In what follows we undertake a brief examination of the arguments advanced by some of the main participants in the debate relating to this development strategy. The main supporting arguments for an import substitution policy are put forward by Prebisch, Nurske, Seers, Hirschman and Chenery.

Prebisch[1] finds that foreign trade has not made an impressive contribution to the economic development of the peripheral countries in the twentieth century because these countries have experienced long-run deterioration in their terms of trade with the centre.[2] Deteriorating terms of trade restrains development in the periphery by curtailing foreign exchange earnings so essential for capital formation in these economies. The adverse movements in the terms of trade is attributed to disparate forces shaping international demand and supply. On the side of demand, there is disparity between the income-elasticity of demand for imports at the centre and at the periphery.

He claims that whereas the income elasticity of demand for imports is less than one in the centre countries taken together, the rate of growth of imports is greater than the rise in income for the countries on the periphery. There are a number of reasons for this. Basically, the imports of the centre countries are essentially food and raw materials. The sluggish growth in the demand for food can be explained by the workings of Engel's Law and the excessive growth of demand for raw materials is explained by the development of synthetic substitutes and the reduction of the input requirements of industry. On the other hand, the imports of the countries on the periphery are essentially manufactured goods which have a high consumer demand, and machinery which are of vital importance in the development process.

Prebisch maintains that as a consequence of the behaviour of the terms of trade, the centre countries are able to keep the whole benefit of the technical development of their industries while the peripheral countries transfer to them a share of the fruits of their own technical progress.[1] Industrialization on the basis of import substitution is thus put forward as an important and effective counter.

Industrialization on the basis of the guide provided by the import structure has been emphasized by Hirschman.[2] The industrialization process in the underdeveloped countries is seen as progressing from the "final touches stage to the domestic production of intermediate goods and finally to that of basic industrial materials". In this pattern of industrial development, the growth of output is accompanied by the establishment of backward or forward linkages.

Imports play an important role in this development. As Hirschman puts it "they bring with them a powerful development stimuli". Imports are reliable indicators of domestic market size and as such they engender confidence in a wide range of industrial products. Implicit in the Hirschman proposition is the point that for the underdeveloped countries, the easiest approach to industrial development is the adoption of an import substitution programme in which there is no excessive restriction of imports.

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1 Prebisch, Raul, 'Commercial Policy in the Underdeveloped Countries', **American Economic Review,** Papers, May 1969

2 The centre is represented by all the advanced industrialized countries — Western Europe, North America, Japan, etc. The periphery is comprised of the unindustrialized countries specializing in agricultural and other primary production.

1 The Prebisch thesis has been strongly challenged by Professor Gottfried Haberler in **International Trade and Economic Development** (1959). Haberler asserts that the Prebisch theory is based on grossly insufficient evidence; that it has misinterpreted the facts upon which it is based; that the attempted explanation of the alleged facts is fallacious and that there is no presumption that the alleged unfavourable tendency of the terms of trade will continue.

2 Hirschman, Albert O., **The Strategy of Economic Development,** Yale University Press, 1961

Seers[1] suggests that in order to prevent the dissipation of a country's export earnings and to improve the indirect employment effect of export development, the developing country should seek to reduce its propensity to import by adapting an import substitution strategy of development. The danger of the dissipation of foreign exchange earnings arises from the social and political pressures which build up as an open developing country grows — pressures which tend to raise the economy's propensity. Import propensity will be raised by the following factors :—

(a) higher wage rates and significantly higher domestic cost and imports;

(b) the growing inequality of income distribution and the relatively high propensity to import of the higher income groups within the country; and

(c) the shift in population from rural to urban areas where the propensity to import is higher.

It is this rise in import propensity which makes appropriate the pursuit of a policy geared towards securing the internalization of the multiplier effects of income growth through the development of import replacement industries.

Chenery[2] is another of the strong proponents of import substitution as an industrialization strategy. He makes the point on the basis of cross-country data, that import substitution is the most important explanation of growth and change in the relative importance of manufacturing output in the developing economies. He finds that import substitution accounts for 50 per cent of industrialization and is more important than the pure increase of demand. The increase in import substitution, Chenery maintains, is a result of changes in comparative advantage. "If a country has an increase in income with no change in comparative advantage, the analysis suggests that only a third of the normal amount of industrialization will take place. Changes in supply conditions, resulting from a change in relative factor costs as income rises, cause a substitution of domestic production for imports."

Some of the major theoretical issues concerning a programme of deliberate import substitution relate to the real income and other effects of the tools of policy implementation (protective tariffs, import quotas, etc.). In what follows, some of these issues are briefly examined. They are then related to the main problems in West Indian economic development.

Experience has shown that all developing countries which resort to a policy of deliberate import substitution, seek to preserve their local markets for domestic producers. In this policy of market protection, resort is had to tariffs, exchange controls, import restrictions and tax concessions. The basis of support for market protection as a development strategy is well documented and will not be repeated in this paper. We seek to examine, however, those arguments which have been advanced against import substitution as a development strategy based on market protection.

Johnson[1] maintains that "the rate of protection of value added in a production process can differ widely from the tariff rate applicable to the commodity produced by that process". Thus the cost of import substitution may greatly exceed that indicated by the difference between the protective tariff rates and the import price of the goods produced within the local economy. Johnson's argument is outlined within an input-output framework. The divergence between the "implicit" and "explicit" rates of protection is shown to arise because a given tariff, while providing a subsidy to domestic production of the commodity on which it is placed, imposes at the same time a tax on the domestic production of those goods which use the protected commodity as an input.

The implications of the foregoing analysis for the development of the agricultural sector seems very clear. In so far as the agricultural sector uses manufactured inputs, the prices of which are inclusive of the protective tariff or the tax imposed on the final product the input of which absorbs the protective duty, the consumption by agriculture of such inputs is discouraged. Some of the important manufactured inputs used by the agricultural sector are fertilizers, machinery and other implements. The modernization of the sector is heavily dependent on the extent of their use. The discouragement of their use by an import substitution policy based on protection tends to inhibit structural transformation of the sector. The possible divergence between the "implicit" and the "explicit" rates of tariff protection examined by Johnson, and the inferences drawn from the related analysis, recommends the pursuit of an import substitution policy which seeks to afford maximum protection to industries on the basis of the supply of inputs at the lowest possible prices. This stipulation recommends, therefore, that in so far as local consumer goods industries use imported inputs, such inputs should be accorded duty free entry.

Sheahan[2] in an examination of Columbia's development focuses attention on the investment allocation aspects of protection and at the same time, outlines what could be regarded as a view which when considered in relation to the propositions outlined by Johnson, represents an antithesis. He maintains that by fostering the growth of industries producing consumer goods through the restriction of consumer goods imports, and the grant of tariff concessions on raw materials, investment is biased away from indus-

1 Seers, Dudley, 'The Stages of Economic Development of a Primary Producer in the Twentieth Century', **The Economic Bulletin of Ghana**, Vol. VII, November 1963

2 Chenery, Hollis B., 'Patterns of Industrial Growth', **American Economic Review**, September 1960

1 Johnson, Harry G., **The Theory of Tariff Structure, with Special Reference to World Trade and Development, (Trade and Development Studies)**, L'institut Universitaire de Hantes, Etudes Internationales, No. 4, Geneva, 1965

2 Sheahan, John, 'Imports, Investment and Growth: Columbian Experience Since 1950', **Research Memo. No. 4**, Centre for Development Economics, Williams College, September 1966

tries the development of which is crucial to an industrialization process with high backward linkage effects. The growth of industrial production leads, therefore, to greater import intensity of the development process and an intensification of the control on consumer goods imports. The apparent conflict between the objectives of fostering development of end products (consumer goods) on the basis of the maximization of implicit tariff rates (the according of duty free entry to intermediate inputs used in their production) and the dynamization of the import substitution process (on the basis of market protection) highlights the dilemma faced by West Indian and other developing economies in their present effort to diversify.

Sligo and Stern,[1] on the basis of their analysis of development trends in Pakistan, maintain that the growth of real income is inhibited by the chanelling of investment in consumer goods industries "because, at world market prices, the marginal productivity of domestic capital and labour is below their opportunity cost and may even be negative". The inefficient use of factors of production is encouraged by the policy which seeks to correct the rising trade imbalance in the face of the growing import demand for intermediate and capital goods, by the application of high tariffs to non essential consumer goods—tariffs which tend to encourage the establishment of import substitution industries in respect of this group of commodities. Sligo and Stern maintain also, that the protection of import substitution industries has the effect of turning the inter-sectoral terms of trade against agriculture. In so far as the terms of trade move against agriculture, it is maintained, industrial development is inhibited since the agricultural sector is potentially a very important market for industrial goods.

It is against the background of the equally powerful arguments by the proponents and opponents of an import substitution strategy of development and the model outlined in Appendix I of the paper, that we turn to an examination of the issues in relation to West Indian economies and in particular agricultural development in these economies.

Import Substitution Policy in the West Indies

The conventional arguments concerning the efficacy of an import substitution strategy of development emphasize import substitution as an approach to industrialization. They are arguments which essentially question or support the Chenery proposition that import substitution is the basis of industrial growth in the developing economies. Some of these arguments are so put as to suggest agricultural development as an alternative to industrial development. The balanced growth thesis in so far as it focuses attention on the simultaneous development of the agricultural and industrial sectors, is mainly concerned with the expansionary effect of agricultural and industrial growth on domestic demand as well as constancy of the relative prices of agricultural and industrial goods.

1 Sligo, R. and Stern, Joseph H., 'Tariff Protection, Import Substitution and Investment Efficiency', **The Pakistan Development Review, Vol. V, No. 2**

The structure of West Indian economies as described by the model, suggests that whether the policy emphasis is on export stimulation, import substitution or both, the agricultural sector is crucial. Its importance can be guaged in the first instance, on the basis of the significance of export agriculture in net exportable surplus. As has been indicated by Equation (6) in the Appendix, one of the important ways in which net exportable surplus can be raised is through an increase in primary agricultural exports. For the developing economies taken as a group, this approach to export development is rejected on terms of trade grounds.[1] We note, however, that the existing marketing arrangements for West Indian primary exports constitute a shelter against a significant overall decline in primary export prices (Commonwealth Sugar Agreement). Given the existing level and relative stability of export prices under the impact of protective marketing arrangements, net exportable surplus as well as net national import capacity could be significantly increased by raising the rate of growth of export agricultural output.

The appropriateness of a policy aimed at expanding net national import capacity on the basis of an expansion of primary export production is also supported by the fact that the imported intermediate input requirement (R) of the sector is relatively low. We emphasize, however, that notwithstanding the inducements provided for the expansion of export agricultural production in the West Indies and the significance of this group of exports in net national import capacity, import substitution remains an appropriate and very important strategy within the Region. Its importance is indicated by Equation (6) in the Appendix. If imports of consumer goods in final (M_c) and intermediate forms (M_r) proceed at the same or at a higher rate than the growth in exports then the economy does not increase its exportable surplus by increasing exports. Import substitution therefore becomes relevant. Visible import substitution in respect of consumer goods (M_r and M_c) releases foreign exchange to facilitate capital formation. In so far as an import substitution strategy of development in the West Indies is justifiable, the agricultural sector and in particular the domestic agricultural sector becomes a crucial factor.

The importance of domestic agriculture derives in the first place from the significance of food products in total consumer goods imports (M_c and M_r). In the second place its capital intensity is quite low. In examining the question of the significance of food imports in total consumer goods imports, it is proposed that where the ratio of food imports to total domestic food supply is high, the economy could raise net exportable surplus by securing a substantial reduction in the food import co-officient. A decrease in the food import co-efficient calls for a rate of growth of food production which far outstrips the rate of growth of food imports. We observe that development in the West Indian economies has been accompanied by

1 Prebisch, Raul, **op. cit.**

rising food import co-efficient — a trend which has tended to inhibit the development process. The reasonableness of the above proposition is examined below on the basis of available data for the year 1966.

Some indication of the scope for food import substitution in selected West Indian countries is provided by the data in Appendix I, Table I. The data which relate to the year 1966, show that for the group taken as a whole, food imports were 15.7 per cent of total imports. The significance of food imports in the total imports structure was the greatest in the cases of St. Vincent (approximately 40 per cent), St. Lucia (approximately 20 per cent), Jamaica (approximately 20 per cent) and Barbados (approximately 30 per cent). Viewed in absolute terms, the total food imports is classified as competitive imports (products which can be produced or replaced by acceptable substitutes). The extent of the dependence of West Indian territories on food imports and thus the scope for food import substitution is provided by the fact that imports of food as a percentage of food consumption exceeded 25 per cent in 1966. There was an increase of more than 10 per cent in this ratio during the period 1950 to 1966. The substantial rise in this ratio is indicative of the failure of domestic agriculture to grow at a rate warranted by the growth in disposable income.

The data suggest, therefore, that since food products represent a significant percentage of consumer goods imports and in the light of the low direct and indirect intermediate import requirement of domestic agricultural production, net exportable surplus (Q) or the capacity to import capital goods could be significantly raised by acceleration of the growth of domestic agricultural output. The implications of a rise in domestic agricultural output for the capacity to import capital goods and in effect the overall growth in output are rendered even greater by the fact that the capital intensity of the activity is relatively low. In a situation where the economy's ability to import capital goods is the basic limitation on growth thus making capital intensity an important basis on which to allocate investment, the importance of domestic agriculture in the development schema cannot be overemphasized.

The relatively slow growth of domestic agricultural output in the Region has been ascribed to structural rigidity of the sector. Changes in the structure of production, on the other hand, have important implications for the level of employment in the Region as well as the terms of trade of domestic agricultural products. In what follows we examine some of these implications very briefly if only with a view to focusing attention on some of the problems (real or imagined) which are linked to structural changes in agriculture as part of an overall development strategy.

High unemployment throughout the West Indies in the face of impressive rates of growth of gross domestic product especially in Jamaica and Trinidad and Tobago, has focused attention on the question of the labour absorption effect of the development process within the Region. It is clear that given the high capital intensity of the development process and the technological dependence of the Region, a Lewis-type employment development may not be achievable in the foreseeable future. This point is supported by the manpower absorption effect of industrialization in Jamaica as well as Trinidad and Tobago and the observable technological advance which is taking place in respect of the construction and services sectors. These trends clearly focus attention on the role of agriculture in an import substitution schema geared to the achievement of overall development.

We put forward for investigation the proposition that the achievement of high efficiency in the export and domestic agricultural sectors, thus an adequacy of supply of domestic food products at reasonable prices and a significant improvement in the competitive position of primary exports, may not be compatible with an overall reduction in unemployment in the Region. The examination of this proposition is undertaken at the outset with reference to the foreign exchange limitation proposition and the relative stability of some primary export prices which make logical a policy geared to the maximization of primary export production; and since efficiency in both agricultural subsectors cannot be significantly raised without aggravating the unemployment situation, we are led to the conclusion that from an employment point of view, domestic agriculture within the Region must remain relatively inefficient. Such a policy choice has important implications for domestic food prices and in the light of Equation (6), the economy's capacity to import capital goods. It is inferred from the foregoing, therefore, that the choice open to West Indian economies is the acceptance of a relatively inefficient domestic agriculture sector as an important part of the employment strategy of the Region. The acceptance of an inefficient domestic agricultural sector means relatively high cost of production and therefore high food prices and in so far as the West Indian consumers are compelled to rely more and more on domestic food products, they are in effect taxed in order to facilitate the subsidization of agricultural employment.

We are compelled to consider in addition to the labour displacement effect of efficient export and domestic agricultural production, the limitations imposed by the size of the local market for food products. It appears that the modernization of the domestic agricultural sector throughout the West Indian economies may lead to a rate of growth in output in excess of the level and rate of growth of demand for food products within the Region. The level of food imports suggests, however, that the terms of trade may not in the short run change against agriculture given that the whole range of items presently imported within the Region can be substituted. The substitutability of these items, we have noted, is indicated by the fact that approximately 80 per cent of the food items imported are classified as competitive imports. A great deal depends, however, on the export opportunities for domestic agricultural products. Indeed, it may be found that the income elasticity of demand for vegetables and tropical fruits (processed) may be much higher than that relating to the traditional agricultural exports.

The implications of agricultural development for an import substitution strategy of development can be further examined in relation to the proposition that:

(a) size is one of the main constraints on structural transformation;[1]

(b) market size is the main constraint on growth in the developing economy thus the solution of the development problem can be outlined in terms of a balanced pattern of investment in a number of different industries so that people working more productively with more capital and improved techniques of production become each other's customers.

The link between market size, development of the agricultural sector, and in particular, the domestic agricultural sector and the effectiveness of the import substitution programme becomes clear where, as is the position in West Indian economies, a significant percentage of the population is dependent for their livelihood on the agricultural sector. In such an economy, market size is closely linked to the level and rate of growth of agricultural incomes — a proposition which brings into focus agriculture's terms of trade and level of productivity.

The implications of a significant increase in agricultural incomes for the demand for industrial products is illustrated by the fact that in 1961, 58.6 per cent of the population of Jamaica was dependent for their livelihood on income generated in the agricultural sector. Per capita income in the sector was then about $121.1. This represents only 20.5 per cent of income per head of population for the economy as a whole. The obvious inference is that if sectoral per capita income were raised to even 50 per cent of overall national capita income, the economy's demand for final use goods and services and in turn, the demand for intermediate and capital goods would rise significantly. Dynamic import substitution or transformation of the structure of production in the West Indies is thus intricately linked to the expansion of domestic agricultural production.

The full implication of structural transformation is made clear by Equations (6) and (9) of Appendix I. If in discussing the question of structural transformation we restrict ourselves to the domestic production of capital goods in final and intermediate forms (I_D), it becomes clear that a rise in the domestic production of capital goods tends to reduce the importance of net exportable surplus or the economy's capacity to import capital goods. This is especially so where capital goods are produced from basic indigenous raw materials. We maintain, however, that given the nature of technological development in metropolitan countries and the known resources of the Region, the limitation imposed by the level of net exportable surplus or the economy's capacity to import capital goods remains crucial even if market size were expanded to an extent which facilitates the expansion of a local capital goods producing sector.

Conclusions

A number of conclusions, the majority of which are tentative, can be drawn from the issues raised in this paper.

The most important of these are outlined :

(1) The structural rigidity of West Indian economies makes the capacity to import capital goods the main determinant of the growth of output.

(2) Capital import capacity can be increased through an expansion of export production, a decrease in domestic consumption, or import substitution in respect of consumer goods in primary and intermediate forms.

(3) While the protective shelter enjoyed by the primary exports of the West Indies makes the expansion of primary export production a logical policy objective, the possibility of a fall in net exportable surplus or the capacity to import capital even with impressive rates of growth of primary exports makes import substitution an important development strategy in the West Indies.

(4) Even where an import substitution strategy is adopted, there is no clear choice between the promotion of industrial development since the limitation imposed by the capacity to import capital goods, the relatively low import intensity of capital formation in agriculture and the significance of food in the import structure make domestic agricultural development a crucial factor in national development programmes in the West Indies.

(5) It may be that food imports remain at significant levels in the West Indies because of failure to effect structural changes in domestic agricultural production. The likely employment effect of structural changes in domestic agricultural production raises the question of conflicting development objectives and underscores the significance of overall planning in the effort to secure diversification of Caribbean economies.

(6) In the final analysis, the most important policy objective of West Indian economies is the removal of the limitation on development imposed by capital import capacity. This calls for policies which succeed in changing the structure of domestic production to an extent which permits the domestic production of capital goods. Feasibility of the domestic production of capital goods is dependent to an important extent on a significant increase in per capita income within the agricultural sector. Supply inadequacy of basic indigenous raw materials makes the foreign exchange constraint irremovable even where market size permits the domestic production of capital goods.

Acknowledgement

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[1] Demas, William G., **The Economics of Development in Small Countries, with special reference to the Caribbean**, McGill University Press, Montreal, 1965

APPENDIX I

THE MODEL

(a) Output

Equation (1) establishes the relationship between output and the primary inputs (Labour and Capital):

$$O = f(KL) \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

where O = total output of goods and services

K = the capital stock

L = the labour force.

The proposition is that in a developing economy whose import content of capital formation is significant primarily on account of the non-existence of a local capital goods producing sector, foreign exchange availability represents an important limitation on the growth of output. The crucial relationship between foreign exchange and the growth of output is illustrated by Equations (1a) and (2).

$$O = kK \quad \ldots\ldots\ldots\ldots\ldots\ldots (1a)$$

where k = the output/capital ratio.

Chenery[1] justifies the use of a single input production function by maintaining that where inputs are complementary, output is limited by whichever input is first exhausted. In the underdeveloped economy, this input is capital.[2] The weakness of the assumption when applied to a short-run situation is recognized but by limiting the production function to capital the central problem in the development process is highlighted.

We turn next to a statement of the investment demand function. Equations (2) and (2a) make profit and the utilization of capital capacity the main influences on the demand for capital goods in any given period.

$$K^t = \frac{O_*}{O} K^{t-1} + cP^t + cP^{t-1} \quad \ldots\ldots (2)$$

$$I^t = K^t - K^{t-1} \quad \ldots\ldots\ldots\ldots\ldots\ldots (2a)$$

where $\frac{O_*}{O} = 1$ and

O = actual output

O^* = capacity output

P = total profit

c = the proportion of total profit related to net capital formation.

Where the ratio $\frac{O_*}{O}$ is less than unity in period (t–1), gross capital formation in period (t) will obviously fall short of the amount warranted by the level of profit in periods (t) and (t–1). The stipulation relating to unused capacity ignores, however, the questions of the lumpiness of capital and technological changes in those countries which supply the capital goods. As a consequence of the lumpiness of capital, fixed investment in period (t) may well exceed that warranted by the level of profit and the extent of capacity utilization.

This is by no means a completely satisfactory investment demand function. Empirical studies might reveal that other important determinants of capital formation are announced government plans, the policy of parent firms in the metropolitan centres, the institutional structure of the capital market and the historical rate of expansion of each sector. Some notion of the influence of the policy of metropolitan firms on capital formation in Caribbean economies is provided by the expansion in alumina production capacity in Jamaica during the 1957/68 period. The influence of the rate of profit is indicated by the policy instruments which have been used to induce development within the manufacturing sector—tax incentives. The objective of the tax incentive programme is to raise the rate of profit above the normal level permitted by the size and structure of the local economy. The policy is based on the important assumption that in the decision on plant location, the rate of return on capital is the central consideration.

Where the import content of capital formation is significant as is the case in West Indian economies, the relationship between capital and imports can be expressed in the following form :

$$I = I_D + M_I \quad \ldots\ldots\ldots\ldots\ldots\ldots (3)$$

where I = gross fixed investment

I_D = locally produced capital goods

M_I = capital goods imports comprised of machinery and equipment as well as intermediate goods used in capital formation.

Equation 2, it should be noted, is an investment supply function. By making domestically produced capital goods (I_D) a constant, the function directs attention to the underdevelopment of the local capital goods producing sector thus making imports the determinant of the permissible level of fixed investment within the economy and in effect, therefore, the main determinant of the level of output. The import content of capital formation rises or falls depending on whether the domestic capital goods industry expands faster or lags behind the level of investment activity during a particular period. This is explained by Equation 4 :

$$I = a + bM_I \quad \ldots\ldots\ldots\ldots\ldots\ldots (4)$$

where a = a constant which is related to the ratio of imported capital goods to total fixed investment;

b = the rate of growth of capital goods imports.

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[1] Chenery, Hollis B., 'Patterns of Industrial Growth', American Economic Review, September 1960

[2] In the short run capital equipment is specific. This makes the assumption of perfect substitutability between capital and labour an extremely weak one.

Equation 5 and 6 explain the determination of capital goods imports (M_I):

$$M = f(Z) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$$

where Z = net national import capacity; and

$$M_I = M - M_c \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (6)$$

where M_c = imports of consumer goods in final and intermediate forms.

Equation (5) makes total imports a functon of net national import capacity. Equation (6) highlights the fact that import capacity can be utilized for the acquisition of both investment and consumer goods thus the level of importation of consumer goods is another of the important determinants of the capacity to import capital goods.

By making foreign exchange availability an important restraint on the growth of output in the economy characterized by rigidity in the production structure, the import demand function assumes great importance.

Three import demand functions are first outlined corresponding to the three broad groups into which imports have been classified: consumer goods (MC), intermediate goods (M_r) and capital goods (M_I):

$$M^t c = m_c C^t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (7)$$

$$M^t r = m_r R^t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (7a)$$

$$M_I = m_i I^t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (7b)$$

where m_c = the import content of total consumption expenditure in period (t)

m_r = the import content of total expenditure on intermediate inputs

m_i = the import content of gross capital formation

R^t = total expenditure on intermediate goods in period (t)

I^t = gross capital formation in period (t)

C^t = total consumption expenditure in period (t).

Equations (8), (8a) and (8b) could be merged into a single demand function for imports without there being a loss of clarity :

$$M^t = m_c C^t + m_r R^t + m_i I^t \quad \ldots\ldots\ldots (7c)$$

It will be noted from the formulation of Equations (8) to (8c) that the demand for imports within the economy has been made a function of the various components of total demand. The import co-efficients, it will be recognized, are important parameters of the model. The behaviour of these co-efficients is largely influenced by the relationship between the growth in domestic demand and the growth of domestic production. The import co-efficient is in increasing or decreasing relationship with the level of demand for the given import category depending on whether domestic production rises faster or lags behind domestic demand.

(b) National Capacity to Import

National capacity to import is given as :

$$Z^t m = \frac{PxX^t}{Pm} + \frac{E^t_1}{Pm} + \frac{E^t_2}{Pm} + \frac{K^t_n}{Pm} - \frac{R^t_m}{Pm} \quad \ldots (8)$$

where Px = unit value of exports of goods

Pm = unit value of imports of goods

E^t_1 = net balance on services account in period (t)

E^t_2 = net factor income remitted from abroad

K_n = net long term capital inflow.

R_m = imports of intermediate goods used by the export sector

X^t = volume of total exports.

Equation (8) makes net national import capacity equal to net exports of goods and services plus net long term capital inflow. It will be noted that net exports of goods and services correspond to gross exportable surplus.

The majority of the variables and parameters of Equation (8) are influenced very largely by factors which are outside of the control of the local economy. The important exceptions are the volume of exports and the intermediate input demand of the export sector. The volume of exports, it can be maintained, is influenced by such 'local' factors as the structure of the export sector and policy decisions regarding the choice between export development and import substitution. Export volume depends also on the economic conditions prevailing abroad and the import policy of metropolitan countries.

The intermediate input demand of the export sector is a crucial variable in the system. Its importance derives from the fact that it focuses attention on the important proposition that the substitution of domestic intermediate inputs for imported intermediate inputs used by the export sector constitute a meaningful device for raising net national import capacity—a proposition the validity of which is self-evident. This variable in Equation (8) gives further indication, therefore, of the implication of the import substitution process for national import capacity.

(c) Saving

By identifying the availability of foreign exchange as the main restraint on the growth of output in Caribbean economies, the significance of the role of domestic saving in the development process would seem to be reduced. In what follows it is sought to clarify this point.

The supply of domestic savings is defined by Equation (9) as follows :

$$Sd^t = Sd^{t-1} + s(Y^t - Y^{t-1}) \quad \ldots.(9)$$

where Sd^{t-1} = total savings in the previous period (household plus business plus government savings)

s = the marginal propensity to save

and Sd^t = total saving in the current period.

It is recognized that each major group of savers may be subject to a different set of influence (the marginal propensity to consume, government policy and the depreciation provision and dividend policies of the business sector) thus bringing into question the validity of a single equation relating to total domestic savings. This problem will not be investigated, however, since the main concern is not with an explanation of the determination of the level of savings as such. The main focus is on the true role of saving in the development process, an issue made crucial by the foreign exchange limitation proposition outlined above.

When the role of saving is examined strictly in terms of the Harrod-Domad type-model[1] and in relation to the structural limitations of the underdeveloped economy, there is the tendency to conclude that the saving limitation model becomes relevant only where the economy has undergone structural transformation.

Kennedy's[2] argument relating to this question deserves special mention here. He maintains that "the orthodox notion that domestic saving should replace foreign borrowing is both muddled and mistaken : muddled in suggesting that domestic saving is a straightforward alternative to foreign borrowing; mistaken in implying that higher domestic saving makes foreign borrowing less necessary or desirable — the opposite is the truth". In demarcating the role of saving, Kennedy contends that while domestic saving facilitates the release of "scarce resources, especially imports for use in investment", foreign borrowing facilitates imports of both consumption and investment goods. Foreign borrowing cannot therefore be replaced by domestic saving without inducing a deflationary situation which can be prevented only if the increased domestic saving is absorbed by a rise in the level of investment which is not compatible with a reduction in foreign borrowing.

We maintain that the foregoing does not represent a completely acceptable view of the role of saving in the development process. It will be sought therefore to outline a more satisfactory relationship.

Saving can be defined in a manner to make it indistinguishable from net exportable surplus as follows :

$$Q = Y - C_r - I_D - M_r - M_c \quad \ldots\ldots.(10)$$

where Y = gross final demand output

C_r = total final demand output consumed locally

I_D = total final demand output invested

Q — net exportable surplus

M_r = imports of consumer goods in intermediate form

M_c = imports of finished consumer goods.

$$S = Y - C_r - M_r - M_c \quad \ldots\ldots\ldots\ldots.(11)$$

where S = gross domestic saving.

It will be seen from Equations (6) and (7) that the basic difference between gross domestic saving (S) and net exportable surplus (Q) is represented by gross final output relaxed to domestic investment. If it is assumed that local capital goods production is insignificant the difference between S and Q becomes small. The relevance of saving in the foreign exchange limitation propositon can now be shown on the basis of Equations (6) and (7). The formulation of these equations makes net exportable surplus equal to M_I which is in turn equal to S given that $I_D = O$. It is clear that an increase in net exportable surplus could be secured by reducing M_I, M_R and/or C_r. On the other hand, a reduction in C_r, M_R and M_c would in effect mean an increase in gross domestic saving (S). It is maintained therefore that a rise in domestic saving implies, in terms of the type economy represented by our simple model, a rise in exportable surplus thus a rise in the economy's capacity to import capital goods. This finding clearly weakens the Kennedy proposition that for the developing economy which has not experienced structural transformation, a rise in the level of investment is not compatible with a reduction in foreign borrowing.

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1 In this model the growth of output is determined by the size of the marginal propensity to save and the output-capital ratio. It suggests then, that if the rate of growth of capital inflow is zero, then output will tend to increase at the limit, at a rate equal to the product of the marginal propensity to save and the output-capital ratio.

2 Kennedy, Charles, 'Keynesian Theory in an Open Economy', **Social and Economic Studies**, Vol. 15, No. 1, March 1966

Appendix I Table I *Food Imports by Selected Territories: the West Indies, 1966*

SEC. & DIV.	Economic Class	Antigua	Barbados	Guyana	Jamaica	St. Lucia	St. Vincent	Trinidad and Tobago
		(.....thousand dollars.....)						
0	Food							
00	Live animals chiefly for food	21.3	32.1		242.2	46.5		646.1
01	Meat and meat preparations	1,320.9	8,877.0	2,655.7	18,148.6	1,130.1	305.5	1,438.2
02	Dairy products, eggs and honey	992.8	5,404.1	13,032.0	16,912.7	806.1	615.9	1,756.0
03	Fish and fish preparations	632.2	1,650.9	1,866.1	17,100.3	963.3	276.2	4,420.7
04	Cereal and cereal preparations	1,501.1	6,163.9	5,571.3	38,630.3	1,605.2	1,441.5	28,839.2
05	Fruits and vegetables	365.9	4,442.2	8,399.3	6,856.1	642.7		9,999.5
06	Sugar and sugar preparations	401.3	451.0		1,027.0	912.1	937.7	1,107.4
07	Coffee, tea, cocoa, spices and manufacturers thereof	237.9	1,319.9	833	2,136.2	158.9		3,364.3
08	Feeding stuff for animals (not including unmilled cereals)		4,137.2		6,087.5	178.7	176.6	6,025.8
09	Miscellaneous food preparations	528.6	1,609.9		1,347.7	631.4	179.5	3,525.5
	Total, food imports	6,351.3	34,088.2	33,356.4	108,488.4	6,988.6	3,932.8	76,927.0
	Total, all imports	40,982.1	119,197.0	195,088.5	547,455.9	28,520.5	10,008.1	744,106.3

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