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PRODUCTION OF FOOD
 for
 CONSUMPTION AND EXPORT:
 the need to achieve optimal balance



UNITED NATIONS
 ECONOMIC COMMISSION FOR LATIN AMERICA Office for the Caribbean



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F O R E W O R D

The Caribbean countries are normally typified as primarily agricultural countries dependent on the exportation of food products but at the same time heavily dependent on food imports for consumption. It is this relationship of the agricultural sector to the external sector, that is the focus of this paper - expenditures for imports of food as against the earnings of foreign exchange from food exports. There is no question that there needs to be a saving of foreign exchange by reducing the level of food imports; expansion of "domestic" food production thereby achieving a measure of import substitution and import replacement; and maintenance (and expansion where feasible) of foreign exchange earnings from food exports.

The acute problems faced by Caribbean countries deriving from foreign exchange constraints at the same time that there are high and rising imports of food, make it necessary to consider the food-provider role of agriculture. To highlight this, "export agriculture" is set in opposition to "domestic agriculture", which inevitably exposes the basic differences in structure and orientation of these two aspects of agriculture; and invites thoughts about approaching desirable levels of food self-sufficiency.

A further purpose of this paper is to expose the structural deficiencies and rigidities that limit the mobility of resources between these two sub-sectors, and to emphasize the need for specific actions to correct that structural situation.

Oddly enough there are few voices in the Caribbean promoting the thesis that agriculture's first job is to feed the people. There is nothing radical in this view which is the normal pattern in the older countries; but which is not part of the Caribbean ethos, where agriculture was initially established purely for the purpose of supplying certain products to the metropolises. In this respect the Caribbean's agricultural orientation is still influenced by this abnormality which distorts production and resource utilization.

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INTRODUCTORY NOTE

The presentation adopted has been to highlight the significance of the food import bill: in terms of its absolute size; its relationships to total earnings from merchandize exports; and inevitably to make direct comparison of expenditure for food imports with earnings from food exports. For these purposes the definition used for food was that of the Standard International Trade Classification (SITC) category "0". Limitations in terms of available and current trade data prevented a fuller analysis, especially in identifying the ways in which these relationships were affected by various economic and non-economic events. However, the prime purpose has been served, of giving perspective to the importance of food in terms of imports and of exports. Generous use was made of charts primarily because of the facility they offer to summarize the many countries over a time span, and show the individual and relative situations.

In the second section the relative importance of agriculture, which has been mainly food producing, was examined to bring out its situation in the economic structure, and the place within this of "export agriculture" and "domestic agriculture". Here two sets of limitations in the data were encountered in respect of some countries - first the difficulty of statistically isolating food from the rest of agricultural activity where agriculture was shown separately from forestry and fishing, and equally the difficulty of isolating forestry where the single class "agriculture, forestry and fishing" was adopted in the national statistical aggregates.

In addition there was the consideration that "export agriculture" and "domestic agriculture" are not as strict a division as may appear. This categorization derives from the customary approach that farm activities relating to the traditional export staples are regarded as comprising the first category, and the rest of agriculture as comprising the second category. No great harm is done so long as it is recognized that some part of non-staples agricultural production passes into overseas trade but that this is only a small part of domestic agriculture. Nearly all of domestic agriculture of course passes into local consumption. Despite these statistical limitations, it was considered that a more than sufficient basis existed for accepting this traditional division (of "export agriculture" and "domestic agriculture") as a basis for considering the role of these two broad aspects of agriculture.

The point is made that more optimal balance between these two aspects of agriculture needs to be achieved.

In the third section, the central problem of flexibility of factor movements between "export agriculture" and "domestic agriculture" has been addressed, along with the question of products mix. Very clearly, agriculture has to continue to meet the two prime needs of 'food-provider to the nation' and 'earner of foreign exchange'. Much use has been made of empirical information, to extract the basic relationships directly relevant to the range of considerations here. Where the available data permitted, the empirical information was supplemented by a measure of analysis, not just to test the validity of the empirical information, but also to extract such other relationships as are germane to the tendencies evident in the Caribbean economies.

In the last section, the implications for planning in the agriculture sector was reviewed. The case for maximizing the returns from agriculture by approaching optimal balance between its two aspects remains self-evident. The issue is that some deliberate steps need to be taken to achieve higher factor mobility and more appropriate products mix.

It would be discerned that the first two sections are devoted to statistically substantiating the basis for the thesis that there is the need to arrive at more optimal balance in agriculture between the export sub-sector and the domestic sub-sector. The paper may well have stopped there - but that would have left a less than adequate appreciation of the several transformations in the uses of resources that would be necessary to induce a trend towards optimization between the two sub-sectors.

For this reason the third section on mobility of factors and products mix was deemed necessary to bring out the implications for planning. No attempt has been made to formulate optimization models. Given the diverse characteristics of the Caribbean countries, each will have to develop its individual approach to the problem introducing the organizational and management changes that are required.

I.

THE FOOD IMPORTS BILL

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I. THE FOOD IMPORTS BILL

In 1970 the CDCC countries as a group spent some US\$935 million on food imports. By 1975 this had risen to an estimated US\$1300 million and by 1980 was of the order of US\$2000 million. While these current prices estimates were affected by the rising prices that characterized the decade of the seventies, it has to be appreciated that the expansion in the annual food imports bill also reflects expansion of food demand and the high dependence on external sources. In per capita terms, using the same current prices data, this means that the food import bill rose about 30 percent over the decade; and if comparable rates of increase are maintained would mean a further similar increase at least by 1990. Against the background of the financial and balance-of-payments difficulties of these countries and their low growth performance, the prospect of allocating some US\$3000 million to US\$3500 million for food imports in a single year, is daunting.

Importance of food in imports

Behind this total picture, one finds wide differences between the Caribbean countries, in the relative importance of food imports within total imports. For the majority of the countries food items currently comprise, on average, some fifteen to eighteen percent of the total import bill. There are some cases where the ratio of food in total imports has been consistently lower (Netherlands Antilles about 5 percent, Trinidad and Tobago about 9 percent); and others that have been consistently higher (Grenada, St. Vincent and the Grenadines, Antigua and Barbuda - all around 30 percent of total imports). The situation for the various countries is reflected in Chart 1, which endeavours to depict the general situation even though for some countries and some periods no published trade data exists.

It is immediately evident that those countries which have large imports of crude petroleum e.g. Netherlands Antilles, Trinidad and Tobago, have smaller food import ratios. This factor has affected the Antigua and Barbuda food import to total imports ratio, which rose after the cessation of petroleum refining activities in the 70's, and which therefore might be expected to fall again as petroleum refining activities are re-established and expanded. A further marked feature, is that the ratio of food import to total imports, though restrained under the pressure of their payments problems, remains

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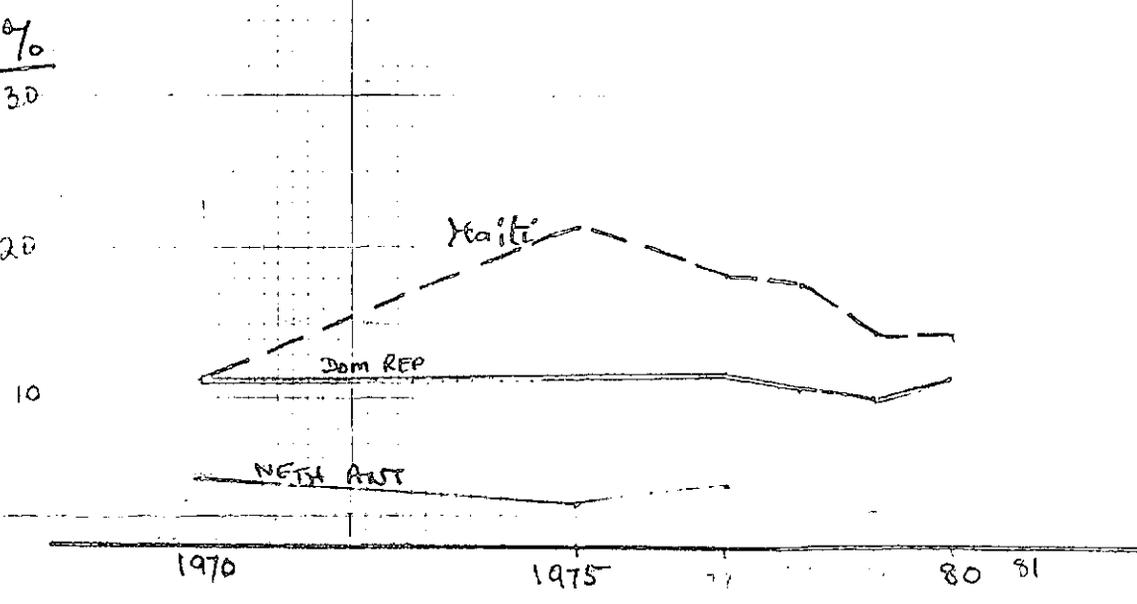
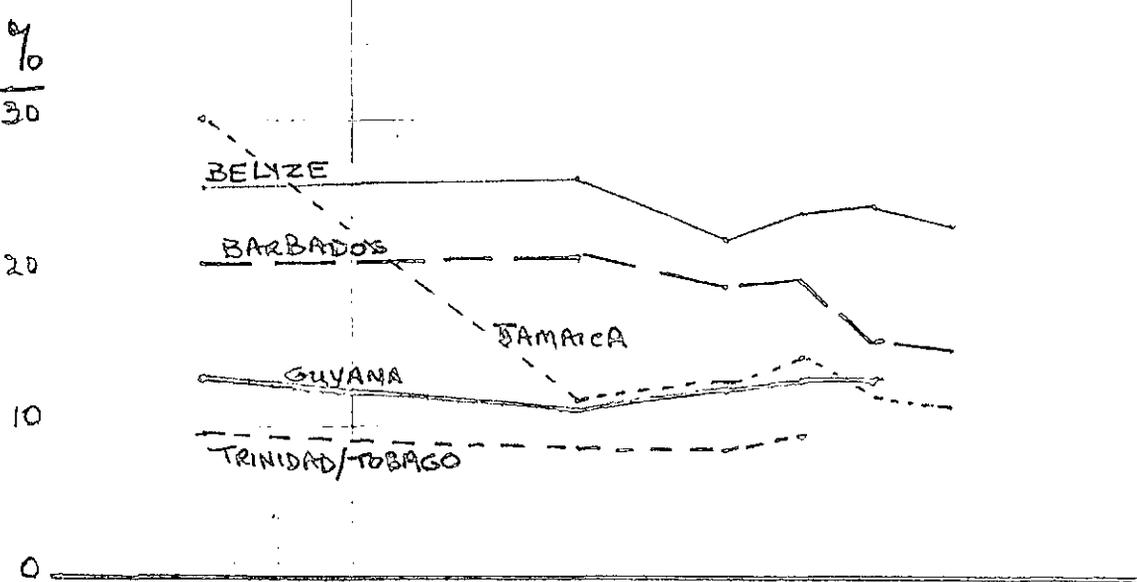
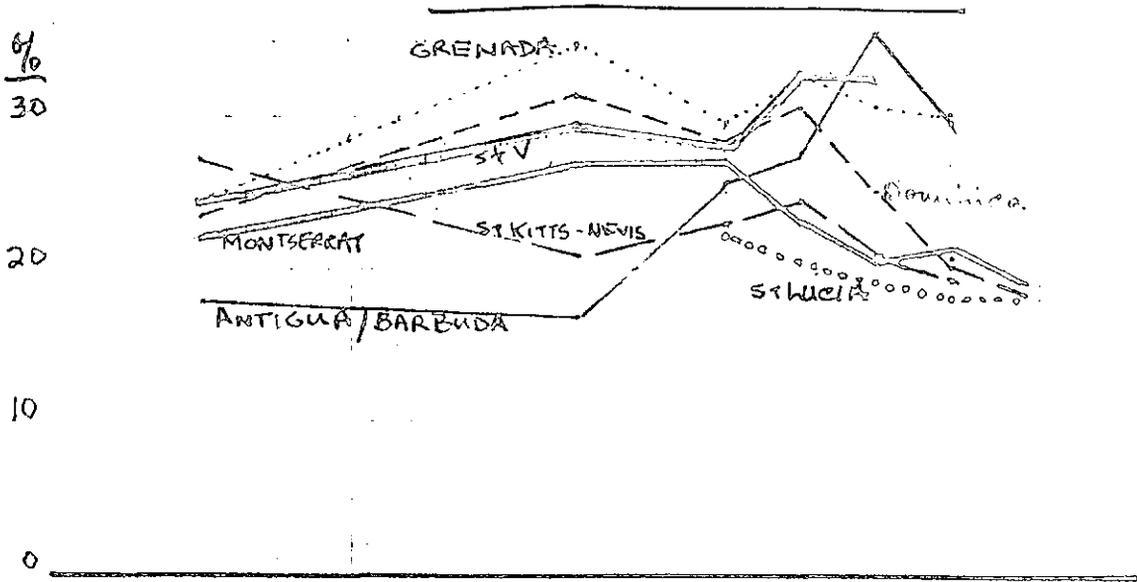
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% share of Food in Imports (SITC-0)

CHART 1



1970 1975 77 80 81

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high in nearly all the Caribbean countries, particularly in those countries with a substantial tourism orientation.

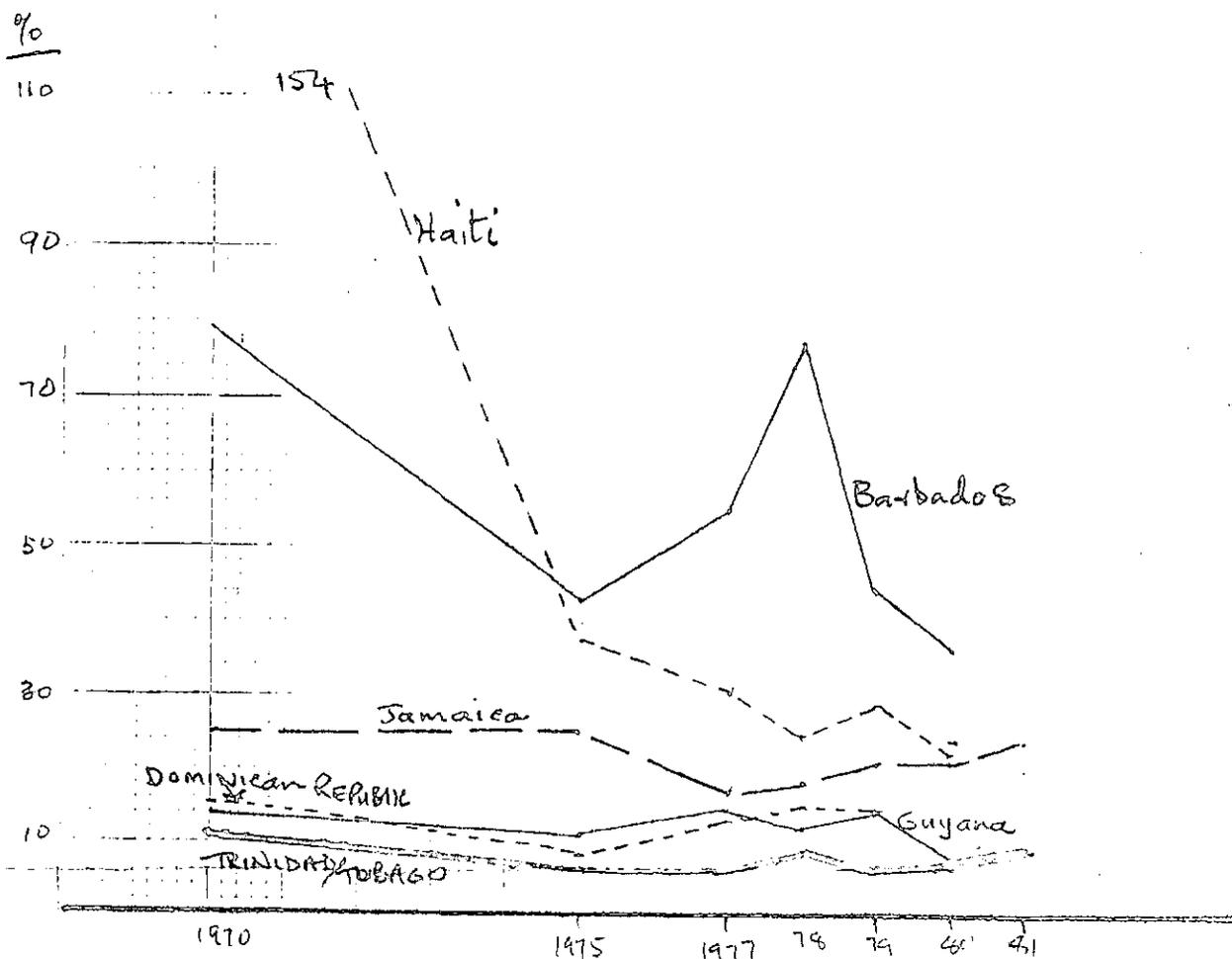
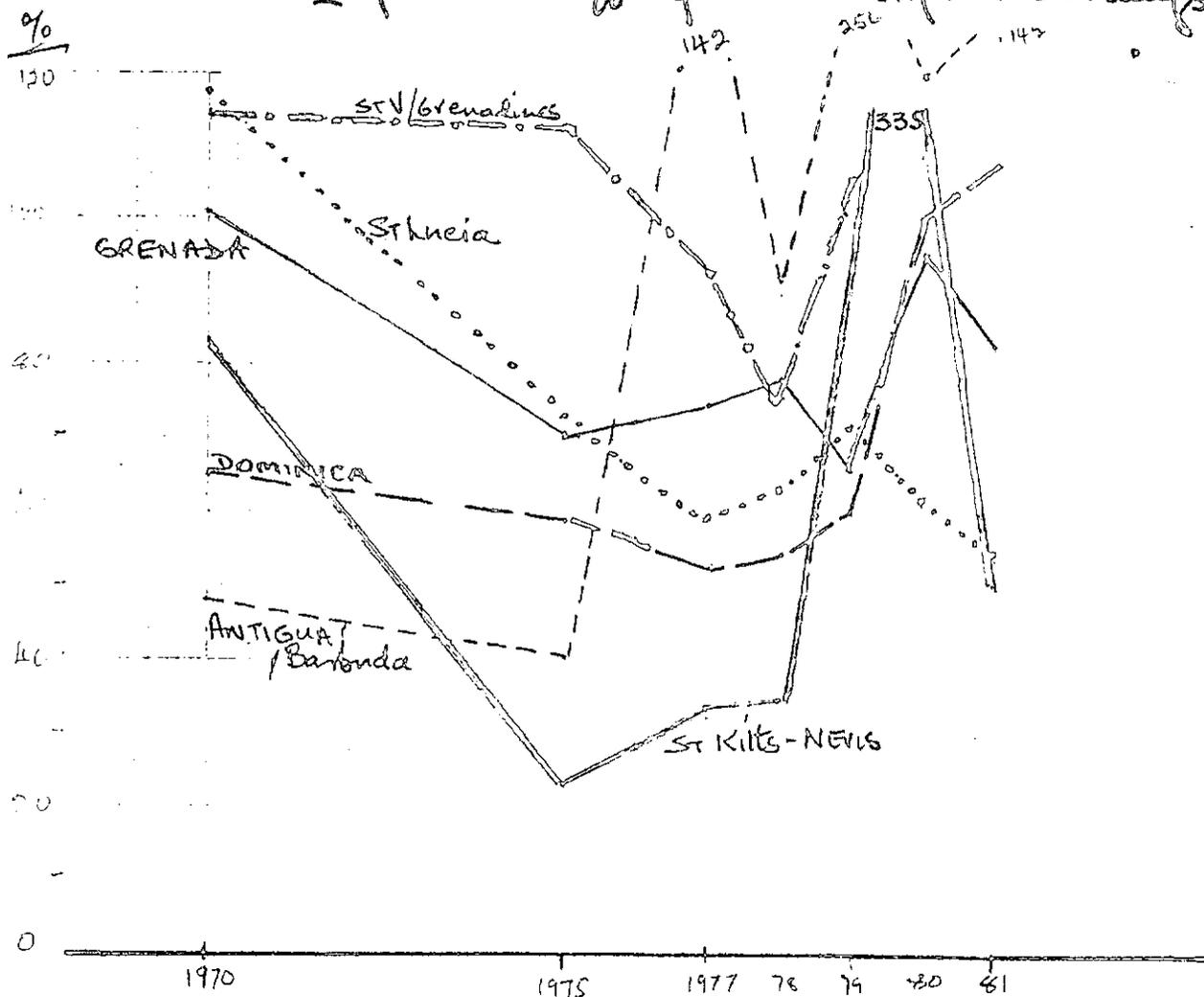
Food imports and merchandize exports

But the gravity of the situation is more starkly revealed when comparison is made between expenditure on food imports and total earnings from merchandize exports. While the implications from such a comparison varies according to the structure of the economy, it does, however, give some indication of the ability to make foreign purchases from export earnings, and the share of such purchases accounted for by items of food. In this regard, the Caribbean countries can be classified into two broad groups: those where food imports absorb 10 percent to 30 percent of export earnings (Dominican Republic, Guyana, Jamaica, Trinidad and Tobago, Netherlands Antilles) and those where food imports absorb over 50 percent of export earnings (mainly the countries in the Eastern Caribbean). In fact, there are cases where the food import bill not just exceeds the total earnings from merchandize exports, but has on occasion reached double or triple that figure. The available information is summarized in Chart 2.

This relationship of food imports as a ratio of total export earnings, fluctuates quite substantially, depending on the output and sale of export products and the movements in import and export prices. Generally, the mineral exporting countries utilize a smaller proportion of their export earnings for food imports. But again it is the smaller countries, with less diversified economic structures that are in the position that the bulk or all of their earnings from merchandize exports go to buy food. This is due not only to unfavourable prices for the export staples, but also to quantitative declines in output and exports, in some cases made even worse by natural disasters. The countries facing the most acute situation are those that are most heavily dependent on agriculture. In general as the economies become more diversified and food items form a smaller proportion of exports, this situation though it remains serious tends to become a little less acute.

Nevertheless, the Caribbean countries remain highly dependent on food exports, in the majority of cases food items comprising from 40 percent to 80 percent of exports. This is evident from Chart 3 where the marked

Food imports as % of total Export Earnings





exceptions are Antigua and Barbuda which is heavily tourist-oriented, and Trinidad and Tobago which is petroleum-oriented. The high group of countries that derive more than 70 percent of export earnings from food items are Belize, Dominica, the Dominican Republic St.Kitts/Nevis and St.Vincent and the Grenadines. In the 40 percent to 60 percent range fall Barbados, Guyana, Haiti and Saint Lucia.

Inevitably, one is constrained to make the dollars and cents comparison of what is spent for food imports with what is earned from food exports; and what emerges in many cases is a higher level of expenditure than of earnings, as seen in Table 1. Not surprisingly the discrepancy is greatest for the heavily tourist-oriented countries (Antigua and Barbuda, Bahamas, Montserrat); but the current situation in almost all the Caribbean countries should be cause for concern excepting perhaps Cuba and the Dominican Republic which show a large surplus of earnings over expenditure, though even here other factors would need to be taken into account. Despite the incompleteness of the information it can be concluded by and large for the majority of Caribbean countries, expenditure for food imports were running ahead of earnings from food exports, by 1980.

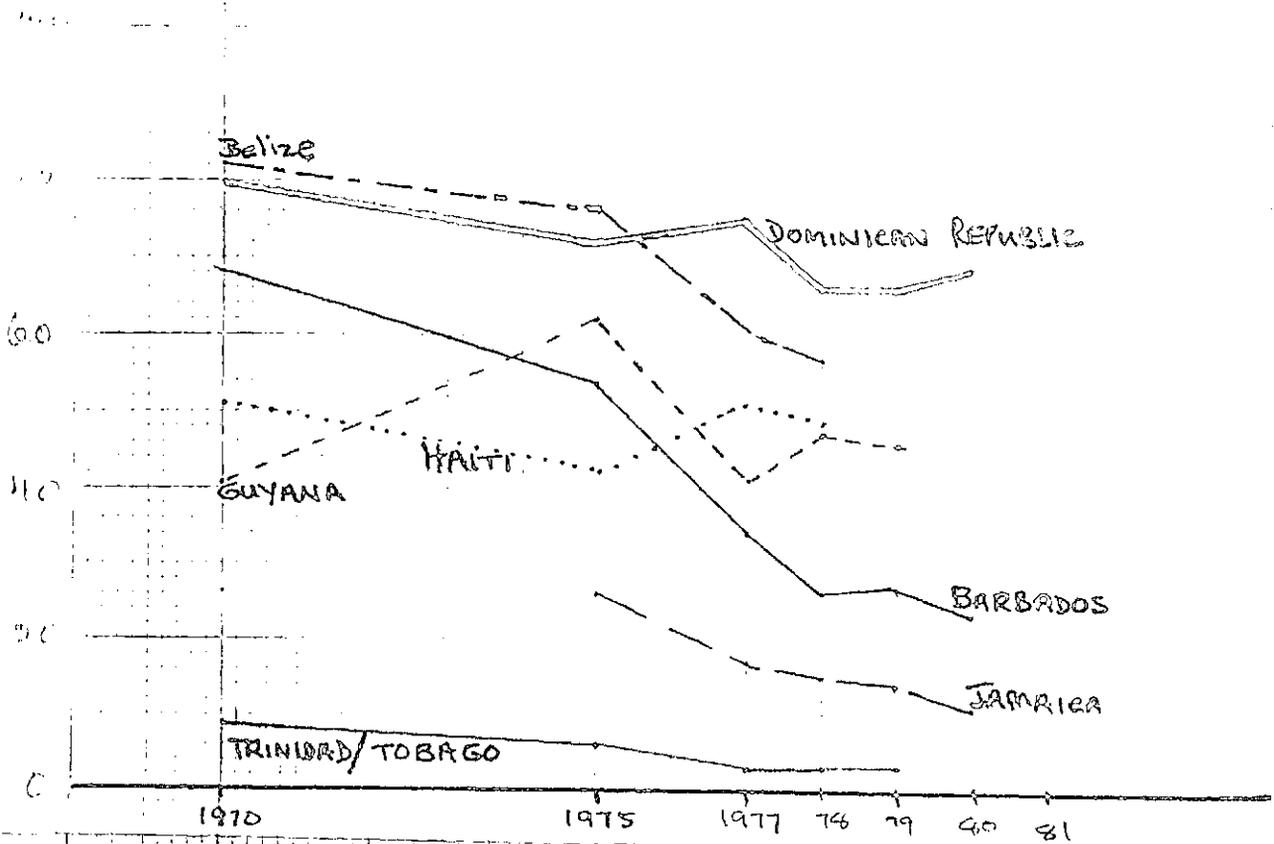
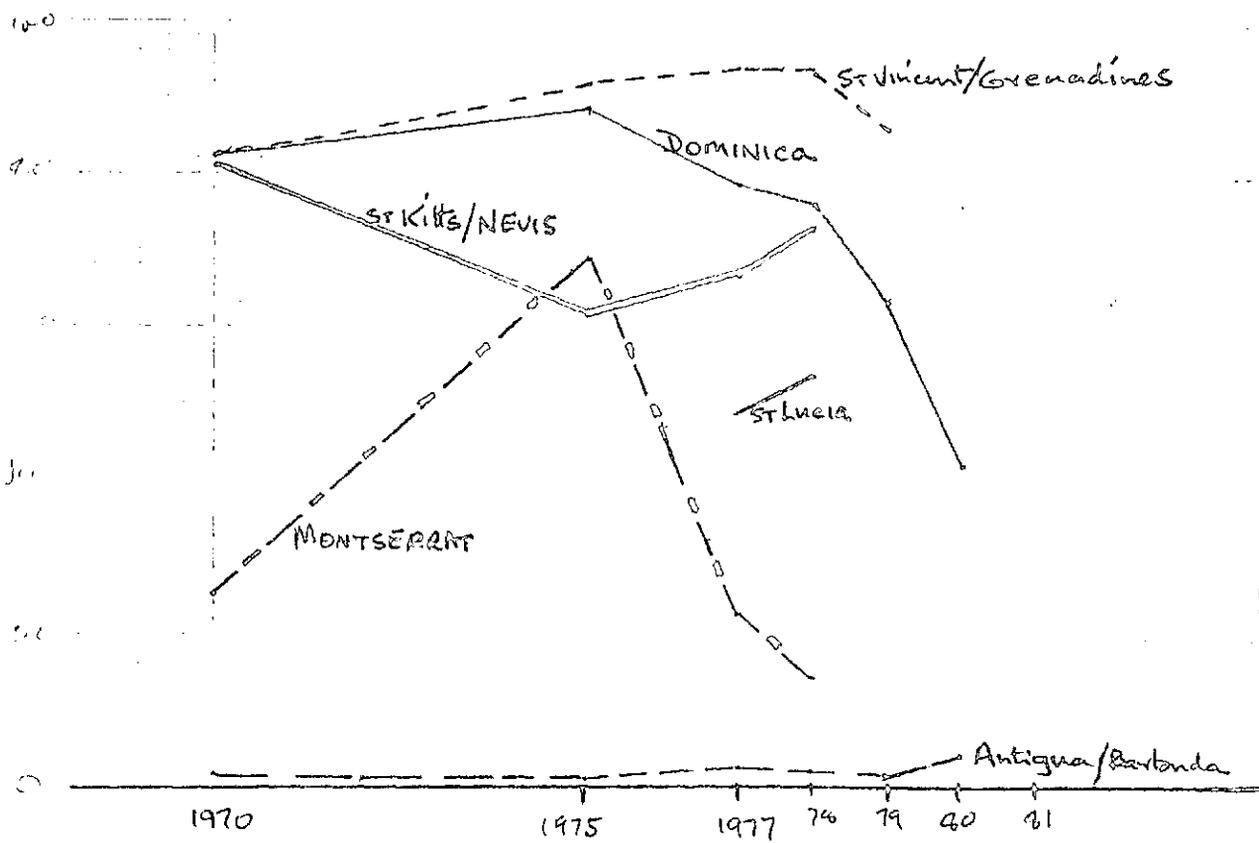
It is true that this relationship between earnings and expenditure fluctuates with the movements of the food prices for imports and exports; and that the general trend is for prices of the staples being exported to be depressed, while the import prices rise (the latter in large part being much affected by high cost of services of freight and insurance). This movement in the food terms of trade implicitly unfavourable to the Caribbean countries, cannot be treated as being merely a short-term phenomenon.

Appreciation (Summing up)

The purpose in this section has been to arrive at an appreciation of the significance of food imports for the CDCC countries. While there has to be dissatisfaction with the completeness of the trade data, there is sufficient to bring out the considerable importance of food imports whether looked at in terms of total imports or from some aspect of exports. Except in a few cases food items comprise some 15 percent to 18 percent of total imports for the majority of countries, with higher averages (in the 30 percent range) for some of the Eastern Caribbean countries.



Percentage share of Food in Exports



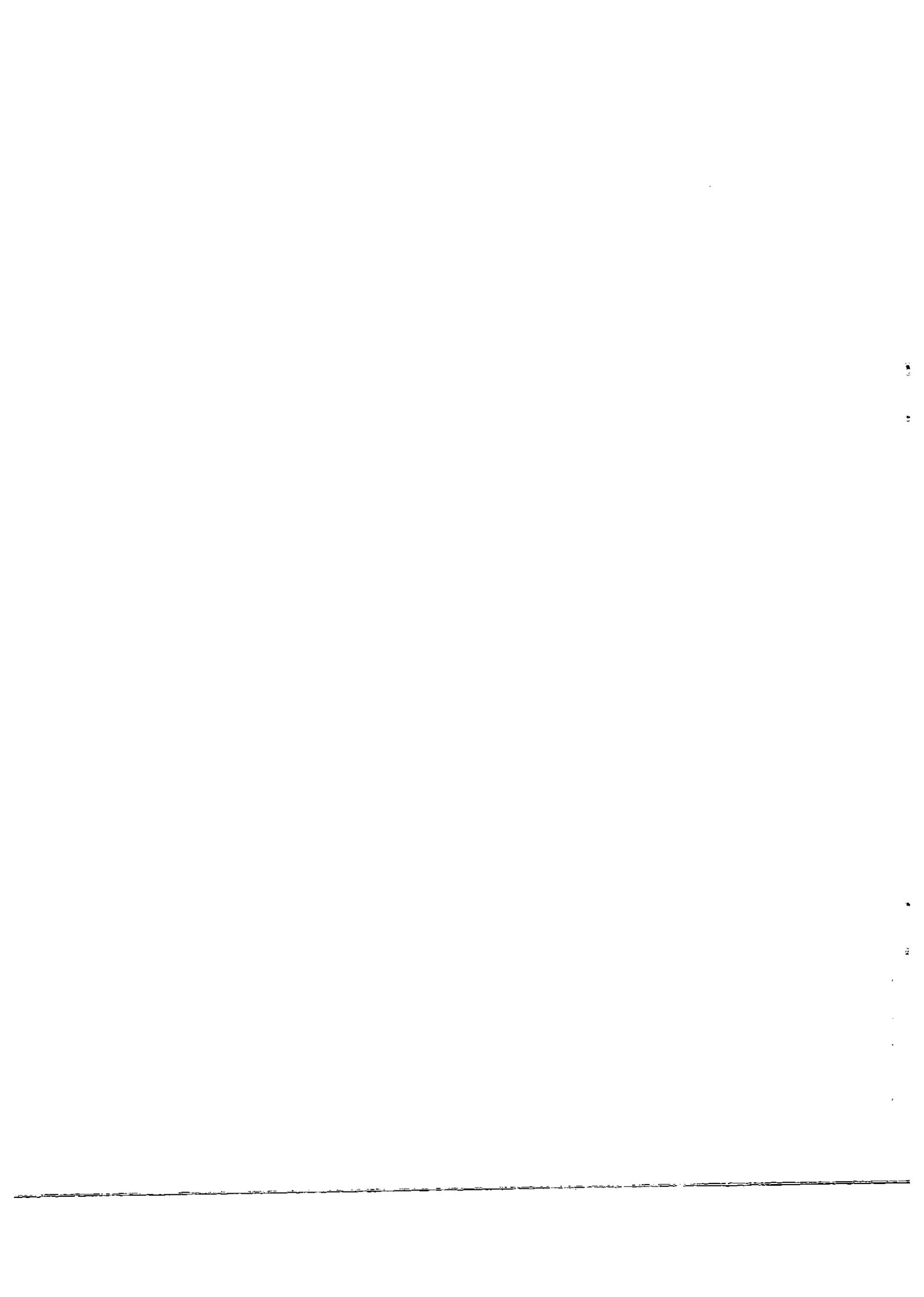


Table 1

Food (SITC-0): Exports and Imports
(OECS in EC\$m all others US\$m)

	1970	1975	1980	1970	1975	1980
	Food Exports			Food Imports		
<u>OECS:</u>						
Antigua and Barbuda	0.4	0.5	3.8	13.1	24.5	90.2
Dominica	9.4	21.1	10.5	7.4	14.2	25.7
Grenada	11.0	25.5	42.3	11.0	18.3	39.1
Montserrat	.1	0.3	0.2	1.9	4.5	9.3
St.Kitts/Nevis	6.2	29.0	32.1 ^{1/}	6.4	10.7	24.0
Saint Lucia	5.7	19.6	35.8	10.4	25.2	60.0
St.Vincent and the Grenadines	5.4	14.1	32.7 ^{1/}	7.5	17.4	40.4 ^{1/}
<u>OTHER CARICOM:</u>						
Belize	11.4	51.1	...	6.4	18.8	...
Bahamas	2.9	3.5	...	47.7	59.7	...
Barbados	21.0	58.1	68.7	24.5	46.0	78.1
Guyana	43.4	201.1	136.2 ^{1/}	14.6	35.5	42.1 ^{1/}
Jamaica	32.4	101.0	99.7	38.8	100.2	197.6
Trinidad and Tobago	34.0	96.7	71.3 ^{1/}	43.1	118.7	182.6 ^{1/}
<u>OTHER CDCC</u>						
Dominican Republic	171.1	645.3	479.9	315.4	...	165.3
Cuba	833.1	340.7	...	241.9	...	...
Haiti	20.8	34.1	...	...	30.3	50.0
Suriname	13.3	...	...	133.9	...	...
Netherlands Antilles	...	0.9	...	35.5	81.5	...

^{1/} 1979.

As regards the relationship of food imports to total earnings from merchandize exports, there are two broad categories: those where 10 percent to 30 percent of export earnings are expended on food imports, and others for which the comparable ratio is in excess of 50 percent, in a few cases far exceeding total exports earnings. Again Eastern Caribbean countries are prominent among the high percentages. At the other end of the scale are the more diversified economies, mainly the minerals exporters - with low dependence on food exports for earnings and also relatively low ratios of food imports as percentages of total export earnings. But even for these countries the food import bill assumes a greater burden as their primary products face falling prices and shrinking markets.

In addition we are enabled to see and to what extent individually, the countries are net food importers and those that are net food exporters. Of the 18 countries only seven can be considered as being, consistently, net exporters of food - Belize, Cuba, Dominican Republic, Grenada, Guyana, Haiti and St. Kitts/Nevis. Two countries, Barbados and Dominica, traditionally net food exporters, were for different reasons by 1980 net food importers. The remaining nine countries (Antigua and Barbuda, Bahamas, Montserrat, Saint Lucia, St. Vincent and the Grenadines, Jamaica, Trinidad and Tobago, Suriname and the Netherlands Antilles) have been, consistently, net importers of food. Of these last nine countries, perhaps only the Netherlands Antilles would be regarded as not having in place substantial food production potential, exploitation of which could tip the balance from being net food importer to becoming net food exporter.

Against a background of scarce foreign exchange coupled with heavy disbursements on food imports, it would seem eminently desirable that the Caribbean countries give somewhat greater attention to food production for consumption, not only because domestic food shortages are likely to be offset by expanded food imports (provided that foreign exchange or credits are available), but also because if available food supplies fail to expand in pace with the growth in demand, one result is likely to be a substantial rise in food prices. And it is worth bearing in mind that the inflationary impact of a given percentage increase in food prices is more severe in a lower-income country than in a higher-income country; (which derives from

the fact that in the lower income country a larger proportion of total consumption expenditure is devoted to food consumption).

This is not meant to deny recognition of the fact that for most Caribbean countries items of food comprise a large (and for some the greatest) element of exports. There is therefore a parallel pressure to expand the capability of food exports to increase foreign exchange earnings. And this condition is most true for those countries that have few alternative means of earning foreign exchange, even if they are net food importers, as is the case for some of the Caribbean countries. These countries consequently have a more acute set of decisions to make to arrive at the best foreign exchange position.

It is the balancing of these two contending claims on agriculture that is the central concern of this paper, for with the increase in population averaging 2 percent per annum, even a modest rise in per capita incomes could result in the annual rate of increase in the internal demand for food approaching 3 percent - a formidable challenge to agriculture.^{1/} When the need to maintain export earnings is taken into account, the required real growth exceeds agriculture's recent performances - and therein lies the dilemma.

^{1/} The annual rate of increase in demand for food is given by $D = p + ng$ where p and g are the rate of growth of population and per capita income and n is the income elasticity in demand for these agricultural products.



II.

FOOD IN THE PRODUCTION STRUCTURES

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Food's relative significance

In nearly all the Caribbean countries the agricultural effort is almost exclusively devoted to food production. For practical purposes the term agriculture in macro-economic data can be used interchangeably with food except for a few limitations. The standard category "agriculture" (in some countries defined to include also "fishing and forestry") except in a few cases, is formed on the estimates of crop and livestock production, and can generally be accepted as an indicator of food output. This is so for two reasons - first because there are few non-food agricultural items directed to manufacture (e.g. sisal, cotton) and where this occurs it is a small proportion of the sector's output. Secondly, only in the mainland countries, (Belize, Guyana, Suriname) does forestry amount to a substantial sub-sector activity, and for these countries separate estimates for forestry are prepared. While it is true that in several of the islands forestry is of some significance, (Dominica, Jamaica, Trinidad) it is a great deal less so than in the case of the mainland countries, and constitute a relatively small part of the total of the agriculture sector.

It is with these limitations in mind, and accepting the great preponderance of food in agricultural output that reference is made to comparative macro-economic data for the period covering the last two decades. These data bring out not only the varying extent to which overall economic performance of the respective Caribbean countries has been dependent on agriculture, primarily food production, but also the secular decline in the relative share of the sector as the non-agricultural sectors evolve.

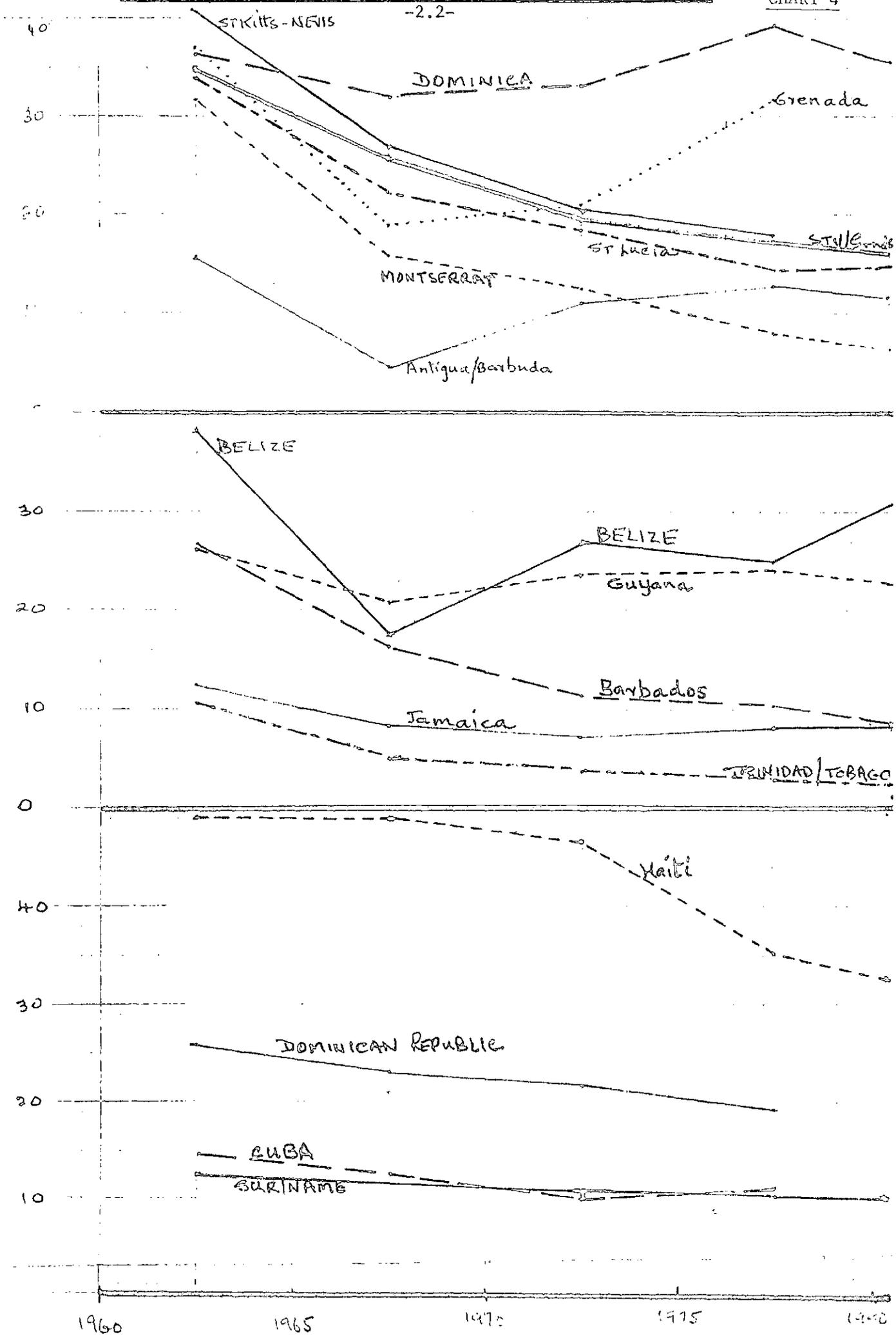
The relevant data have been summarized in Chart 4, which allows an overview of the situation for the CDCC countries, even though the information is not complete.

Examining first the question of the relative significance of agriculture, it is evident that some of the Eastern Caribbean countries and Haiti and Belize have consistently generated higher proportions of their GDP in agriculture than have the other Caribbean countries. In a middle category fall Guyana, Dominican Republic and Barbados, with the others ranging downwards to the lowest ratio of agriculture in GDP which is recorded by Trinidad and Tobago.



SHARE OF AGRICULTURE IN GDP - %

CHART 4



Although similar data is not available for the other countries, there is sufficient information to indicate that the Netherlands Antilles situation would be similar to Trinidad and Tobago's; and that Cuba would fall in the middle category.

Concerning the second aspect, the secular decline in the relative share of agriculture in GDP marks a characteristic that is evident for all the Caribbean countries. In every case the agriculture sector's relative contribution to GDP (measured at current factor cost) was lower at the end of the 70's than it was at the beginning of the decade of the 60's. In the majority of cases it has been a marked and consistent decline; and only for four countries (Dominica, Belize, Guyana, Haiti) is there still that high relative significance which characterized the earlier period.

Classification of the countries into groups as is done in Table 2, reveals that in the sixties there was no country where agriculture accounted for less than 10 percent of GDP, and the majority fell in the wide range of 25 percent to 50 percent. By 1980 the spread was greater; however, only five of the countries were in a 24 percent to 41 percent range, the majority being below 20 percent, with five countries at less than 10 percent. This summarization is a reflection of the extent to which non-agricultural activities expanded faster relative to agriculture, over the 20-year period. It also brings out the fact that for some countries there were no substantial structural changes, notably Grenada and Guyana. Looking at all the countries together, the general pattern has been that the non-agricultural sector expanded at more than double the rate achieved by agriculture. In short, the non-agricultural sectors have gradually had to generate an increasing share of the foreign exchange needed to meet the expanding food imports bill.

Behind this very generalized situation, however, closer analysis would reveal that there were marked fluctuations in agriculture's relative share in output. And even more important, that there have been in some cases the suggestion of a resurgence of agriculture. Dominica; Grenada, Antigua and Barbuda, Belize show this in a marked degree, as is evident in Chart 4; and to a lesser extent this is also true for Saint Lucia, Guyana, Jamaica and Cuba.

Table 2

Agriculture, as % of Total GDP

<u>Above 30%</u>	<u>1961-65</u>	<u>Above 30%</u>	<u>1976-80</u>
Haiti	49.4	Dominica	41.0
St.Kitts/Nevis	41.0	Haiti	35.1
Belize	38.4	Grenada	31.7
Grenada	36.7		
Dominica	36.2	<u>20% - 30%</u>	
St.Vincent and the Grenadines	35.0	Belize	25.0
Saint Lucia	34.0	Guyana	24.0
Montserrat	31.8		
		<u>10% - 20%</u>	
<u>20% - 30%</u>		Dominican Republic	19.1
Barbados	26.8	St.Kitts/Nevis	17.6
Guyana	26.1	St.Vincent and the Grenadines	17.4
Dominican Republic	25.9	Saint Lucia	14.3
		Cuba	11.1
<u>10% - 20%</u>		Suriname	10.5
Antigua and Barbuda	15.5	Barbados	10.2
Cuba	14.7		
Suriname	12.6	<u>Below 10%</u>	
Jamaica	12.3	Montserrat	9.8
Trinidad and Tobago	10.2	Jamaica	8.1
		Antigua and Barbuda	7.8
		Bahamas	4.3
		Trinidad and Tobago	3.0

An interesting aspect is that where there has been an increase in the significance of agricultural production whether very marked or only limited, it was recorded in a period of not very favourable market prices for the staple products exported by those countries. In other cases, however, like Barbados and Antigua/Barbuda, it is at least in part due to declines in non-agriculture, for example drop in tourism and cutback in oil refining. In a few cases, the higher ratio for agriculture is explained by real expansions, particularly bringing of new land into cultivation and the introduction of measures for diversification of agricultural activity oriented to the enhancement of export earnings. This latter situation is particularly true for Belize and to a lesser extent for Grenada and Dominica. But in nearly every country there has been some measure of expansion in agriculture output responding to domestic food consumption requirements.

Agriculture - "exports" and "domestic"

Most Caribbean countries have from time to time endeavoured to allocate the GDP generated by "export agriculture" and by "domestic agriculture" within the overall performance of the agriculture sector. For the purposes of this paper, this rough division is useful while recognizing the imperfections which derive from the traditional interpretation of what is destined for export as against what is directed to local consumption. Inevitably a neat division between the two is difficult as there always are some diversions.

First it is necessary to recognize that the division into "export agriculture" and "domestic agriculture" is based on isolating production of the traditional staple crops (sugar, bananas, coffee, cocoa, spices, tobacco, cotton) from the rest of agricultural activity. Being primarily produced for export and with specific marketing arrangements, they are easily identified and separable from the rest of agricultural crops, the latter being broadly labelled domestic. Account must be taken that for some countries, e.g. Guyana, Haiti, rice appears among the major exports; and for Belize and Dominican Republic, the exports include beef. Secondly, some portion of the products in the "domestic agriculture" category are not locally consumed but pass into foreign trade, mainly within the Caribbean. Notwith-

standing these imperfections the weight of the export staples is so large as not to seriously affect the usefulness of this division of the data for drawing broad conclusions about these two aspects of agriculture.

A further technical consideration is that in the data prepared by some countries forestry and fishing are included along with the "domestic" crops. In the first section it was pointed out that forestry was of significance and estimated separately for the mainland countries, and was of more limited significance for only a few island countries. In those cases where separation of forestry is not made, the effect would be to give an estimate for the "domestic agriculture" sub-sector a little larger than the actual output of food from this sub-sector. However, for the few islands where this occurs, there is no evidence that it substantially distorts the picture. A similar consideration arises with fishing - but in this case it is a food product and the countries where there is an export content are fewer. In nearly all the countries the catches are retained for domestic consumption. In addition and purely from the technical standpoint it would have been more satisfactory if trend comparisons between "export agriculture" and "domestic agriculture" could have been made with random fluctuations removed, and at constant prices.

Notwithstanding these imperfections and the further constraint that this information was available only for twelve of the eighteen countries, and for only five of the twelve for the full period 1961-1981, it is instructive to consider the allocation within the GDP between "export agriculture" and "domestic agriculture". It would be observed immediately that in some countries (notably Antigua and Barbuda, Montserrat) "domestic agriculture" accounts for over 90 percent of the GDP generated by the agriculture sector. In the preceding section when the food imports bill was examined it was pointed out that these countries not only spent more for food imports than they earned from food exports, but also that their expenditures for food imports far exceeded their receipts from total merchandise exports. These countries in addition showed relatively low dependence on agriculture, in terms of its ratio in GDP, and had the highest dependence on external sources for their food supplies.

A second feature that emerges is a consistent trend towards increasing emphasis on "domestic agriculture" in many of the countries. Barbados and

Jamaica were particularly notable in this respect as is evident in Table 3. Both these countries are sugar exporters, and it would be expected that the movements in sugar market prices, buoyant in the mid-seventies and depressed in the later years, would have affected the balance between "exports" and "domestic" - but this is scarcely evident. It is however, necessary to bear in mind that there were other internal factors resulting in some reductions in sugar output.

In a few cases, the effort to expand "export agriculture" to enhance foreign exchange earnings is evident, so that the balance is against "domestic agriculture" as in the cases of Dominica and the Dominican Republic. A central consideration then is the extent to which resource diversion to "export agriculture" retards the growth of domestic food supplies, and the extent to which export earnings of those staples can compensate for this diversion by paying for food imports. For these two countries, however, one must give greater credibility to the pre-1979 data, as they were both affected by natural disasters which seriously set back their agricultural performance.

Table 3

Percentage of GDP generated
in Agriculture attributable
to "domestic agriculture"

Countries	1961-65	1967-71	1972-74	1975-79	1980-81
Antigua and Barbuda	30.8	...	78.0	89.7	92.2
Dominica	46.9	45.1	42.0	...	(71.1)
Grenada	45.5	40.0	34.3	44.6	...
Montserrat	85.7	94.1	95.4	95.7	92.9
St. Kitts/Nevis	29.2	33.8	44.6	43.2	...
Saint Lucia	31.8	30.2	36.7	...	...
St. Vincent + tge Grenadines	46.1	48.3	43.9	16.0	...
Barbados	23.2	32.2	35.6	38.3	39.0
Guyana	36.7	22.9	28.3	29.2	42.3
Jamaica	54.7	66.5	78.3	81.6	86.4
Dominican Republic	...	32.3	30.3	27.2	...
Cuba	...	...	60.7	63.1	...

But the more interesting instances are those where the focus shifts from the one sub-sector and back again. This tendency occurs most for the more highly agriculturally dependent countries, and moreso for those in the Eastern Caribbean. Guyana, Grenada, Saint Lucia and St. Vincent and the Grenadines fall in this group. The attempt to arrive at greater analytical precision encountered difficulties with interpretation of the year to year data due to markets and prices movements (sugar for Guyana and bananas for the other three countries). It did, however, emerge that the relative significance of the "domestic" sub-sector was strongly influenced by the overall agricultural performance, which in turn was influenced by the "export agriculture" sub-sector. By and large most of the fluctuations in agricultural performance occur in "export agriculture".

Appreciation (Summing up)

Generally the relative significance of agriculture (in terms of GDP generated in the economy) has declined in the Caribbean countries, the pace being dependent on the rate of expansion of the non-agricultural sectors. Where in the 1960's only five countries (Antigua/Barbuda, Cuba, Suriname, Jamaica, Trinidad and Tobago) had agriculture total GDP ratios of under 20 percent, by the end of the 1970's only five countries had ratios of over 20 percent (Dominica, Haiti, Grenada, Belize and Guyana); and five others were below 10 percent (Montserrat, Jamaica, Antigua/Barbuda, Bahamas, Trinidad and Tobago).

Within this broad generalization, as the countries become relatively less dependent on agriculture, they also reflect relationships between "export agriculture" and "domestic agriculture" such that the latter assume greater significance. By and large "domestic agriculture" has shown some expansion in most of the Caribbean countries; but it is also evident that the Caribbean countries are yet to achieve a consistent balance between these two aspects of agriculture.

From the data analyzed emerges confirmation of the standard relationship between agriculture and development, that as the economy expands and becomes more diversified, the relative significance of agriculture declines. Within this broad relationship there also appears another relationship - that as agriculture declines relatively, production for local consumption increases relatively to production for export.

This second relationship is less clear-cut for the more highly agriculture-dependent countries, because it is the resultant of the pressure to earn foreign exchange from food exports (necessary to effect the purchases of imports) and the countervailing pressure to achieve measures of imports substitution and imports replacement to moderate the food imports bill. Naturally, as other avenues for earning foreign exchange open up, the conflict between these two objectives in agriculture becomes less intense.

It is evident that in the situation of rising food imports prices and depressed food exports prices, the logic is that there should be some shift in production emphasis from the export food sub-sector to the domestic food sub-sector. That is, as the imports purchasing capacity of food exports declines, greater emphasis would be given to meeting consumption requirements from domestic sources. This consideration remains valid unless the economy is in the exceptional position of being able to export raw materials.

As a consequence, there must be increasing concern with the allocative efficiency of resources within the agricultural sector as a whole. And this is most true for those countries where earnings from food exports provide the wherewithal for nearly all imports purchases (not just food imports alone) and there is heavy pressure to expand export-food production.

Table 4

GROSS DOMESTIC PRODUCT

(Current factor cost)

Note: All 1980-81 data are preliminary

	Total GDP	Agriculture		Agric.% of GDP	Agric.allocation		
		Total	Export		Domestic	Export %	Dom. %
<u>Antigua and Barbuda (EX\$m)</u>							
1961-65	25.2	3.9	2.7	1.2	15.5	69.2	30.8
1967-71	59.3	2.6	...	...	4.4	...	...
1972-74	98.6	5.9	1.3	4.6	6.0	22.0	78.0
1975-79	149.3	11.7	1.1	10.5	7.8	9.4	89.7
1980-81	(203.2)	(14.1)	(1.0)	(13.0)	6.9	7.1	92.2
<u>Dominica (EC\$m)</u>							
1961-65	22.4	8.1	4.3	3.8	36.2	53.1	46.9
1967-71	34.7	11.1	6.1	5.0	32.0	54.9	45.1
1972-74	48.9	16.2	9.3	6.8	33.1	57.4	42.0
1975-79	88.2	36.2	...	...	41.0	...	...
1980-81	(120.5)	(42.6)	(12.3)	(30.3)	(35.4)	(28.9)	(71.1)
<u>Grenada (EC\$m)</u>							
1961-65	30.5	11.2	6.1	5.1	36.7	54.5	45.5
1967-71	47.8	13.5	8.1	5.4	18.9	60.0	40.0
1972-74	65.1	13.7	9.0	4.7	21.0	65.7	34.3
1975-79	116.0	36.8	20.4	16.4	31.7	55.4	44.6
1980-81							
<u>Montserrat (EC\$m)</u>							
1961-65	4.4	1.4	0.2	1.2	31.8	14.3	85.7
1967-71	10.7	1.7	0.1	1.6	15.9	5.9	94.1
1972-74	17.6	2.2	0.1	2.1	12.5	4.6	95.4
1975-79	23.4	2.3	0.1	2.2	9.8	4.3	95.7
1980-81	42.0	2.8	0.2	2.6	6.7	7.1	92.9

	Total	Agriculture		Agric. %	Agric. allocation		
	GDP	Total	Export	Domestic	of GDP	Export % Dom. %	
<u>St. Kitts/Nevis (EC\$m)</u>							
1961-65	21.7	8.9	6.3	2.6	41.0	70.8	29.2
1967-71	29.0	7.7	5.1	2.6	26.6	66.2	33.8
1972-74	49.6	10.1	5.6	4.5	20.1	55.4	44.6
1975-78	71.1	12.5	7.1	5.4	17.6	56.8	43.2
1980-81							
<u>Saint Lucia (EC\$m)</u>							
1961-65	31.5	10.7	7.3	3.4	34.0	68.2	31.8
1967-71	52.3	11.6	8.1	3.5	22.2	69.8	30.2
1972-74	81.7	15.0	9.5	5.5	18.4	63.3	36.7
1975-79	163.8	23.4	...	...	14.3	...	...
1980-81	279.8	41.8	...	...	14.9	...	...
<u>St. Vincent (EC\$m)</u>							
1961-65	25.4	8.9	4.8	4.1	35.0	53.9	46.1
1967-71	35.6	9.1	4.7	4.4	25.6	51.7	48.3
1972-74	50.9	9.8	5.5	4.3	19.3	56.1	43.9
1975-79	86.3	15.0	12.6	2.4	17.4	84.0	16.0
1980-81	152.8	24.4	...	...	16.0	...	...
<u>Belize (B\$m)</u>							
1961-65	44.3	17.0	...	...	38.4	...	...
1967-71	97.6	17.2	...	...	17.6	...	...
1972-74	110.3	29.7	...	...	26.9	...	...
1975-79	193.9	48.5	...	...	25.0	...	...
1980-81	130.0	40.0	...	...	30.8	...	...
<u>Bahamas (Bh\$m)</u>							
1961-65							
1967-71							
1972-74							
1975-79	897.7	38.6	...	...	4.3	...	...
1980-81							

	Total GDP	Agriculture		Agric.% of GDP	Agric. allocation		
		Total	Export	Domestic	Export %	Dom. %	
<u>Barbados (B\$m)</u>							
1961-65	144.6	38.8	29.8	9.0	26.8	76.8	23.2
1967-71	254.4	41.0	27.8	13.2	16.1	67.8	32.2
1972-74	472.8	54.0	34.7	19.2	11.4	64.3	35.6
1975-79	906.7	92.6	57.1	35.5	10.2	61.7	38.3
1980-81	1553.8	134.9	82.0	52.3	8.7	60.8	39.0
<u>Guyana (G\$m)</u>							
1961-65	300.7	78.4	49.6	28.8	26.1	63.3	36.7
1967-71	437.4	87.8	67.7	20.1	20.7	77.1	22.9
1972-74	656.9	156.7	112.2	44.4	23.8	71.7	28.3
1975-79	1089.9	261.7	185.3	76.5	24.0	70.8	29.2
1980-81	1343.0	306.0	176.5	129.5	22.8	57.7	42.3
<u>Jamaica (J\$m)</u>							
1961-65	1246.2	153.0	69.3	83.7	12.3	45.3	54.7
1967-71	990.3	82.0	27.5	54.5	8.3	33.5	66.5
1972-74	1781.2	132.4	28.8	103.6	7.4	21.8	78.3
1975-79	3274.5	266.0	48.9	217.1	8.1	18.4	81.6
1980-81	5033.1	408.6	55.7	352.9	8.1	13.6	86.4
<u>Trinidad and Tobago (TT\$m)</u>							
1961-65	1068.1	109.0	...	...	10.2	...	...
1967-71	1578.7	78.2	...	...	5.0	...	...
1972-74	2898.7	114.3	...	...	3.9	...	...
1975-79	8174.1	241.7	...	...	3.0	...	...
1980-81	16182.3	402.6	...	...	2.5	...	...
<u>Cuba (Pesos m)</u>							
1961-65	8356.0	1229.5	...	...	14.7	...	...
1967-71	8966.5	1152.5	...	...	12.9	...	...
1972-74	11894.3	1205.7	473.3	732.4	10.1	39.3	60.7
1975-78	14747.6	1640.9	606.1	1034.8	11.1	36.9	63.1
1980-81							

	Total GDP	Agriculture		Agric.% of GDP	Agric.allocation		
		Total	Export		Domestic	Export %	Dom.%
<u>Dominican Republic (DR\$m)</u>							
1961-65	932.9	241.7	...	...	25.9	...	...
1967-71	1350.8	312.7	211.8	100.9	23.2	67.7	32.3
1972-74	2419.3	526.1	366.7	159.4	21.8	69.7	30.3
1975-79	4453.8	849.1	618.0	231.2	19.1	72.8	27.3
1980-81							
<u>Haiti Gourdes m)</u>							
(a) 1961-65	1549.4	765.1	...	...	49.4	...	...
(a) 1967-71	1631.0	803.0	...	...	49.2	...	...
(b) 1972-74	2403.3	1125.3	...	...	46.8	...	...
(c) 1975-79	4603.0	1615.3	...	...	35.1	...	...
(c) 1980-81	5061.5	1636.0	...	...	32.3	...	...
<u>Suriname (\$fm)</u>							
1961-65	225.2	28.4			12.6		
1967-71	...	...			...
1972-74	624	68			10.9		
1975-79	1102	116			10.5		
1980-81	1617	166			10.2		

- (a) Constant producers' values of 1954-55.
 (b) Constant 1970 prices.
 (c) Constant 1976 prices.

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III.

CONSIDERATIONS AFFECTING FACTORS ALLOCATIONS
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PRODUCTS MIX

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III. CONSIDERATIONS AFFECTING FACTORS ALLOCATION

Mobility of production factors

The central concern then becomes the mobility of factors of production (land, labour, capital) between "export agriculture" and "domestic agriculture". Note can be taken at the outset that there has been a marked inflexibility in bringing the larger farming units into domestic food production; and at the same time there is the persistence of labour unemployed and land under-utilized, both of which suggest structural imbalances in the market for these productive resources. To this can be added the patterns of ownership and rigid land tenure structures which work to reduce mobility between the two subsectors.

It is also the situation that these two subsectors exhibit different characteristics that generally are associated respectively with "large farms" and "small farms". The pattern that the food staple export crops are produced mainly on the larger farming units and domestic food crops produced on the smaller units, owes its origin to the estate/plantation system that had been characteristic throughout the Caribbean. In that context the domestic food crops were produced by subsistence farmers. The plantation system has declined but the overall patterns are still very evident. While recognizing that there are some exceptions to this broad generalization (for example, that a proportion of the export staples, sugar and bananas notably, derives from small farms in many of the Caribbean countries), the broad generalization remains true in the context of overall agricultural activity. It is therefore necessary when considering the two subsectors to bear in mind the background situation within the individual countries.

The extreme cases of ascendancy of "domestic agriculture" over "export agriculture" arise where there have been withdrawals of resources (capital, labour, land) from the production of export crops. Inevitably, such withdrawals of resources result in reduction in output of the export staple crops and contraction of the "export agriculture" subsector, so that "domestic agriculture" becomes relatively more important even if it has not expanded. The situation of sugar in Antigua was initially of this character, although it would be noted that subsequently there was significant growth in the "domestic agriculture" subsector.

The usual situation is a slowing down of "export agriculture" either as specific-related factories or plants are due for replacement and the implementation is postponed because of market or other low-prospect considerations (e.g. in the case of sugar), or as inroads are made into crops by biological circumstances (e.g. plant diseases in bananas, cocoa). In such instances, there may not have been an initial intent to withdraw resources from the export agriculture sector; but progressively this occurs, even beyond the extent that they can be redeployed.

Account must also be taken of the cases where deliberate attempts are made to expand the "domestic agriculture" subsector, either without contraction of "export agriculture", or even more unusual while at the same time endeavouring not just to maintain but to expand "export agriculture". These latter cases could have the net effect of bringing additional resources into agriculture, or could mean higher levels of utilization of the resources that already are available to agriculture, or some combination of these two approaches. But whatever is the policy adopted, the two primary considerations are: the degree of mobility of the factors of production, and the mechanism for effecting their reallocations.

From the standpoint of expanding "domestic agriculture" the problems that are to be encountered in moving resources between the two subsectors of agriculture are not as simple as might be imagined. In fact it becomes a challenge to move from a process that tends to be limited to output adjustments for one or two particular crops, to a more flexible deployment of resources over a range of production possibilities (hopefully in line with differential marginal productivities). For "domestic agriculture" to gain an ascendancy, there must be adjustments in the methods of farm organization and management; and revisions of access to, and the respective

roles of, capital, land and labour. The importance of this basic consideration is clearly seen when account is taken of the respective natures of the two subsectors.

Where "domestic agriculture" is characterized by diversifications with farming activity based on mixed cropping often combined with some livestock rearing, in contrast "export agriculture" is based on crop specialization (to the extent that even the food requirements of the farm population are brought in from outside). And directly related to this high specialization the export crops have well developed infrastructures .

As regards resources availability and how the various production factors are used, there is first the access to capital, that the "export agriculture" subsector has, which "domestic agriculture" does not enjoy; the differences in management and labour requirements - the "export agriculture" subsector using low skills with high level of supervision, whereas the "domestic agriculture" subsector requires a greater degree of skilled adaptive labour; and the differences in land utilization and mechanization where in "export agriculture" there is a measure of underutilization of land and mechanization of field operations where feasible, as against "domestic agriculture" where the pattern is towards over-exploitation of the land and retention of the simplest methods of cultivation. These several differences are very real constraints on the extent to which resources can be reallocated between the two subsectors.

In addition it has to be noted that the technological knowledge which is acquired and disseminated in export agriculture is generally directly related to the requirements of the staple crops. Thus a considerable fund of technical knowledge relating to the particular crop is accumulated, while very little is known of possibilities relating to other crops. In consequence, resources cannot really be deployed in an optimal fashion.

There is the further consideration that the traditional practice in export agriculture was for the farm operator to hold a concentration of capital in the form of land. There has been a modification of this pattern, some of the land going into non-agriculture uses, but there still remain substantial acreages that could be allocated to domestic agriculture. Since the sixties much of the land and fixed resources devoted to sugar-cane cultivation has passed from expatriate owners to the public sector in several of the Caribbean countries. Antigua and Barbuda, St. Kitts/Nevis, Cuba, Guyana, Jamaica, Trinidad and Tobago come to mind, where there has been this shift in ownership within the sugar industry. But the shift in land ownership does not very much simplify the problem of reallocation from the "export" subsector to the "domestic" subsector, for there are numerous institutional bottlenecks in addition to the consideration that these resources are part of the export or foreign exchange sector and their vigorous pursuit must continue.

The need not just to maintain but to expand export earnings has stimulated in several countries an effort to re-establish sugar-cane cultivation. To the extent, however, that a shift of land to the "domestic" subsector can be achieved, it is a gain of better lands and should show higher productivity for "domestic agriculture" than was evident in the past. (It has to be borne in mind that export agriculture had pre-empted the best agricultural lands, and that domestic food production, even now, tends to be concentrated on inferior lands). However, while it is true that for a variety of reasons there has been a withdrawal of land from export crop cultivation in several of the Caribbean countries, there seems to be a consensus in most countries, that such withdrawal was not a planned action to benefit domestic agriculture and further that this is not necessarily a prior requirement for higher outputs from domestic crops cultivation.

Aside from the few remarks already made concerning labour, there are several other aspects that need to be recognized. First, the highly seasonal nature of labour requirements for the export crops which results in much underemployment. Second, export agriculture relies to a large extent on labour services of some small farm operators, who use that work to supplement their earnings from own-account production. Third, that the skill content of the labour that might

be released from the "export agriculture" would tend to be generally low, and generally not sufficiently flexible and self-reliant to cope successfully with the demands of "domestic" agriculture on a commercial basis.

It would seem too that in the interaction of land and labour there is the constraint on domestic agriculture that shortage of land has been a restriction on the fuller use of family labour in own account farming. And with expanding population on a limited land base the tendency has been toward increasingly smaller farm sizes in the domestic agriculture sub-sectors; consequently the small farm units become increasingly incapable of fully utilizing the supply of labour, skills and entrepreneurship available from non-traditional farmers.

Further, as regards capital, the institutional framework does not presently permit for substantial transfers from "export agriculture" to "domestic agriculture". The more general situation is that a measure of capital mobilization is necessary to provide inputs for expansion of "domestic agriculture". Historically, it would appear that one of the chief obstacles to increased investment in domestic agriculture is that the rates of return on new investment are low. In part, this has been attributable to the poor quality of land which is available to small farms as a result of the monopoly of good lands by the large farms, and to the low techniques of cultivation; but account should also be taken of the lack of distributional infrastructure and the inadequacy of inputs necessary for higher levels of productivity.

Some further analytical considerations

Against the background of the structures of the Caribbean economies, the experiences of the past two decades, and the numerous analyses that have been done, there should not be a need to demonstrate that for economic growth to be sustained a continuous increase in agricultural output and productivity is essential. It is evident that if the growth induced by non-agricultural activity is not soon accompanied by an increase in agricultural output, then either food prices will rise and in turn eventually become a limitation on further non-agricultural expansion, or food supplies will have to be imported. In either event the real growth process slows down.

The Caribbean countries, which from the tradition of plantation agriculture have long followed the second path, of importing food supplies, are increasingly finding that this is not a sufficient hedge against food shortages and internal rising food prices. In fact, the higher prices they have had to pay for food imports in the seventies, have been a prime contributor to internal inflation; and this has been in a situation of depressed prices for export products.

It is worth noting that even where growth is initiated by agricultural exports under very favourable conditions, there still would be the situation of rising prices for the internal food supply or the necessity to rely on imported supplies. In short, the same result obtains. Consequently, without responsive domestic food production, the earnings from exports are drained away on food imports. Whether the country will be better off or worse off by importing its food supplies, at any point in time, entirely depends on the terms of trade between food exports and food imports.

But as already has been pointed out, the main trends in the terms of trade have been and will continue to be unfavourable in the foreseeable future; and all the evidence confirms that the Caribbean countries are worse off in this condition. The inescapable conclusion is that increase in agricultural output for consumption in the home market is essential no matter how growth is initiated.

To reinforce this point, it can be easily demonstrated that generally the producers of these tropical staple crops cannot escape from the unfavourable terms of trade by substantially increasing productivity in the main products they export, since this works in the direction of stimulating reductions in the prices they receive for those commodities.

Within this overall situation, the Caribbean countries are in the position that their food exports are made within managed price and quota arrangements, arrived at through negotiation. Nevertheless, free market prices affect the levels and movements of the negotiated prices, and dictate the trend. In addition the quota levels are affected by the internal situations in the metropolitan countries where the products are sold in competition against other producers of the same items, product substitutes, and alternate products that compete for consumer demand. And to complete the picture it must be noted

that in most of the Caribbean countries high and rising production costs in the export agriculture subsector make the products increasingly uncompetitive abroad. In some cases the production costs per unit far exceed the selling price.

Within the quota limits the negotiated prices operate, and up to that point within any year fluctuation in the terms of trade is determined by movements in imported foods prices. Beyond the quota limits, lower export prices will obtain as such quantities will need to be disposed of under freer market conditions. Up to the limits of quotas, therefore, there is scope for exports of the staples to earn foreign exchange with the terms of trade effect ameliorated; but beyond that point the relationship is markedly adverse.

Recognizing then that agriculture has a fundamental role in sustaining economic growth and development, account has to be taken of its roles as: the chief source of food; a provider of factor supplies for the growth of other sectors; a market for the output of other sectors; and an important earner of foreign exchange. The focus in this paper is on its roles as food provider, and as earner of foreign exchange. And within this area of focus, to look at the characteristics of these two roles, and the need to balance the one against the other.

The question becomes one of finding the desirable output mix that is required of the agricultural sector; and for this purpose achieving a more optimal mix of the production factors - land, labour, capital - between domestic agriculture and export agriculture.

The question of products mix

So far attention has been directed to deriving an appreciation of the relative significance of the two aspects of economic activity broadly classified as "export agriculture" and "domestic agriculture"; the linkages to large farms and small farms characteristics; the changing relationship in the medium-term; the impediments to mobility of production factors; and the importance of better factors allocations within the wider role of agriculture's capability to sustain economic growth and development.

In the earlier sections, the export products were identified; but equal identification was not given to the products of the domestic agriculture subsector. Similarly, the products that comprise food imports were not identified. But the three groups must be taken together if a desirable output mix from agriculture is to be obtained - desirable in the sense of maintenance of export earnings, and reduction of the food imports bill. Unless these are achieved, the other desirable objectives like generating an agriculture surplus that can provide factor supplies for the growth of other sectors, and the agriculture sector providing a market for the output of other sectors, will remain elusive.

In short, it is not simply a question of Caribbean agriculture providing more of the food it produces, for to a greater or lesser extent Caribbean countries do not eat much of the food they produce, and do not produce much of the food they eat.

It would be recalled too that in the earlier sections, "export agriculture" was broadly equated with the staple crops and large farms, while "domestic agriculture" was equated with small farms that had their origin in traditional subsistence farming. While there have been some modifications from the nature of subsistence farming, the bulk of output from domestic agriculture is still the mixture of pulses, legumes, economic tree crops, and root crops with the last group, the dominant element. By and large domestic agriculture produces starchy foods. The bulk of these "domestic crops" is consumed locally, although in recent years there have been some quantities exported outside the region - these quantities are, however, only a small part of output. The imported food items are imported for direct consumption, although there are a few situations where a proportion passes into entrepôt trade.

In contrast to the food items locally produced, the food imports show a high preponderance of cereals and cereal preparations, meat and meat preparations, fish and fish preparations, dairy products, and eggs, fruit and vegetables. Statistics showing disaggregation into these food sub-groups are not readily available on continuing basis for all of the Caribbean countries. However, the available data (of which a summary is provided at Table 5) is sufficient to demonstrate that these items account on average for some two-thirds to three-quarters of the value of food imports in nearly all the Carib-

Table 5
Compositions of Food Imports

	Year	Meat and Meat Prepara- tions	Dairy Prods. and Eggs	Fish and Fish Prepara- tions	Cereal and Cereal Prepara- tions	Fruit and Vegs.	01-05 as % of total Imports SITC 0 %
		01	02	03	04	05	
(US\$m)							
Antigua/Barbuda ^{2/}	1975	1.7	1.5	0.9	2.6	1.4	80.2
Dominica ^{2/}	1978	1.8	1.4	0.6	1.8	0.4	73.2
Grenada ^{2/ 3/}	1973	2.4	2.1	1.3	3.0	1.2	69.0
Montserrat ^{2/}	1978	0.6	0.3	0.1	0.4	0.1	65.2
St. Kitts/Nevis ^{2/3/}	1976	2.8	1.5	0.9	4.3	0.9	79.0
Saint Lucia ^{2/}	1978	4.3	2.1	0.8	4.0	1.7	75.4
St. Vincent and the Grenadines ^{2/}	1976	0.9	0.9	0.4	2.7	0.3	68.4
Belize ^{2/}	1978	2.5	9.1	0.5	4.2	2.4	72.5
Bahamas ^{2/}	1977	13.9	...	...	7.0	9.8	(56.8)
Barbados ^{2/}	1978	14.7	5.4	3.2	14.1	9.4	57.8
Guyana ^{2/}	1979	...	14.5	...	13.9	1.9	(72.0)
Jamaica	1980	20.9	23.8	17.7	115.5	4.4	92.4
Trinidad + Tobago	1980	44.6	45.4	10.3	74.9	54.2	77.8
Cuba ^{1/}	1974	39.7	80.8	26.5	349.3	70.3	89.3
Dominican Republic	1980	17.8	15.5	23.6	75.8	9.8	86.2
Haiti ^{2/}	1978	0.8	11.1	2.7	16.4	1.9	84.4
Suriname ^{2/}	1974	1.8	2.5	1.3	5.6	3.5	70.7
Netherlands Antilles ^{2/}	1977	27.3	12.7	...	19.1	19.0	63.3

Note: 1/ No further data for Cuba conforming to this classification.

2/ Last available disaggregation of data

3/ National currency

bean countries. No less important is the consideration that the level of availability of these products is determined by the availability of foreign exchange, credit and aid.

From the standpoint of consumption, food intake in each of the Caribbean countries is composed of some combination of all these three groups. Some proportion of the export staples pass to direct consumption whether retained on farms or marketed locally. In the case of bananas or citrus for example, the portion of output, retained for domestic consumption can in some cases be quite large. This also holds true for the non-traditional exports, beef and rice. For the others, coffee, cocoa, spices, the proportion retained is usually small; but they all show increased level of retention when food processing and preparation are introduced in the production processes.

It becomes immediately apparent that the product scope of domestic agriculture has to be broadened so that it becomes a more efficient food provider and foreign exchange saver. And that broadening should be such that over the medium to long run the mix of products increasingly approximates to the food consumption pattern. Within this broad generalization there is a further consideration, the familiar one, normally stated in the terms that as consumer incomes increase, expenditures on different kinds of foods change - away from root crops and similar starchy foods and towards cereals, meat, dairy products, fruits and vegetables. Consequently, over the medium to long term, the products mix will need to be more responsive to differential changes in the demand for different types of food.

It follows that not only must there be greater mobility of factors between the agricultural subsectors, but also that if the food supply is to be continuously adjusted to changes in products mix, then even within "domestic agriculture" resources have to be gradually shifted away from root crop production towards livestock, fruit and vegetables. If there is not sufficient flexibility in resource use to achieve these adjustments, then the result again will be that the demand for those higher-income preferred products will have to be met by imports (again draining away export earnings and incurring balance-of-payments pressures).

The need to lower the import bill in the case of accustomed food consumption dietary habits, has stimulated efforts to introduce various measures of backwards and forwards integration; for example, the milling of flour based on imported wheat, and the processing of local farm produce. Unfortunately, the available

information was not sufficiently adequate for a conclusion to be formed as to the extent of the foreign exchange savings effected in food imports (and beyond that on total imports when account is taken of the foreign exchange content of purchases of plant and equipment and for factory construction and maintenance services). By 1980, flour mills were in operation in about half the Caribbean countries, although some have not been able to maintain output levels, in most cases due to shortage of foreign exchange to purchase the necessary inputs, and to acquire spare parts for equipment maintenance.

Some of the deliberate policies of food import replacement and food import substitution that have been introduced and implemented, have been directed towards achieving a better product mix locally, among which can be included compositions of flour to reduce the import bill deriving from consumption of pure wheat flour. But despite such efforts the crucial problem that has to be addressed is the balancing of earnings from exports against disbursements for imports; and central to this is heightening the capability of agriculture to arrive at a higher level of self-sufficiency. This implies on the one hand a more positive role for domestic agriculture, and on the other substitution or replacement of various items of imports, most obviously those that are producible under Caribbean conditions.

Some additional observations

There are several important societal aspects that have not been explicitly mentioned in this paper. For example, there are those relating to the institutional arrangements surrounding the production and marketing of the traditional export crops, as distinct from what obtains for domestic agriculture. Generally the former group have been more influential in policy formulation, have close links to financing mechanisms and have been integrated into their transport and market services. The latter group, however, have few such "institutional" linkages, and the flow of products from farm to consumer depends on more localized and less sophisticated systems. These attributes are also reflected in the place that they occupy in the social hierarchy.

In addition account must be taken of the further fact that imported foods pass into highly systemized commercial channels; and it becomes immediately

evident that a higher level of marketization has got to be introduced for the output from domestic agriculture. To enhance the extent to which domestic agriculture can effectively exercise an import substitution/replacement role, there has to be development of off-farm activities associated with local food production. As foods leave the farm they have to be sorted, graded, processed, packaged, stored, transported. The demand for these off-farm services, will rise faster than the demand for food itself.

This observation derives from the expansion in urban population dependent on purchased food, which makes the growth of demand for marketed supplies a good deal more rapid than the rate of increase in food demand. Rural/urban migration has played an important part in the evolution of food production/food consumption patterns. Migrants from rural areas in urban centres must buy food through commercial channels. Some previously produced their own food on subsistence farms, while others have migrated from export crop areas. Thus, there are the additional aspects of developing transportation links and marketing facilities to satisfy the requirements of the non-agricultural population.

IV.

IMPLICATIONS FOR PLANNING

IV. IMPLICATIONS FOR PLANNING IN AGRICULTURE

A convenient point of departure is the acceptance of some basic premises. The available evidence suggests there is basis for acceptance of the generally held consensus that agriculture has not attained its potential. This is based on the recognition of labour underemployed and land under-utilized within the agricultural sector itself. While there have been constraints on production because of the shortages of various inputs, the more important constraints have been those governing how available resources are used.

A second central consideration which emerges is that the dynamic for sustained growth in agriculture is in the domestic subsector; not only because of its foreign exchange saving potential, but also because of the linkages it creates. To this is related the marked inflexibility in bringing the larger farming units into domestic food production; and which to a large extent is explained by the contrasting characteristics of the export agriculture subsector and the domestic agriculture subsector. This has a range of implications in terms of the substitutability of factors between the two subsectors.

It also has to be borne in mind that the emphasis on agricultural development is not only for the purpose of generating a surplus to stimulate non-agriculture, but for its own absorption of labour and its own increase of real income among small farmers and landless labour.

Planning Objectives

Given the persistent adverse imbalance in the payments situation of the Caribbean countries, their growing indebtedness, and the inadequacy of investment funds, it becomes increasingly imperative that there be savings of scarce hard currency in respect of the food import bill - this has to be the immediate objective. While there are other sectors of the economy in which immediate savings can be made by placing limitations on imports, few of them are, to the same extent as agriculture, within the local control to stimulate compensating increases in local output.

Such actions as are taken to meet that immediate objective, should rationally be integral to the medium-term objective of generating a larger surplus in agriculture. Only in this way can the agriculture sector become a more

viable market for the output of other sectors, and a supplier of inputs for the growth of other sectors. Implicit in this, is the development of the inter-sectoral linkages which are markedly absent in most of the Caribbean countries.

In turn, the immediate objective and the medium-term objective have to be seen within the strategy for the longer term objective of setting export agriculture and domestic agriculture on production paths which converge towards an optimal relationship, bearing in mind that an optimal balance between the two subsectors is dynamic - not static.

The key to the achievement of such objectives lies in better resources utilization, which means that attention must be focused on improving the allocative efficiency within the agricultural sector as a whole. This in turn requires a higher degree of factor mobility. It is therefore necessary to introduce adjustments in those elements that inhabit the factor mobility which is necessary for structural transformation.

Planning Policies

Policies designed to "modernize" domestic agriculture must take account of all the factors, if the policies are to succeed. For example, the provision of credit can be doomed to failure because additional input on poor quality land will not yield expected returns. The limited viability of domestic agriculture has not been entirely unrelated to the quality of land. The same inputs will yield far higher returns once good quality land is available. This implies a measure of land reform including review of land tenure practices.

Bearing in mind the interaction of land and labour, there is the interesting phenomenon observable in some Caribbean countries where there has been a marked shift from export agriculture to domestic agriculture relatively, that there also has been some increase in the proportion of the active labour force engaged in agriculture. Cases in point are St. Kitts/Nevis, Saint Lucia, Jamaica, between 1970 and 1980. But left on its own, labour from the export subsector will not move to the domestic subsector to the degree that is required. There has to be a mechanism for adapting the labour to the new circumstances. This implies some kind of training. It is there-

fore vital that the planning strategy incorporate a training component, of scope and type suited to the socio-economic situation.

It is the fact that the difficulty of absorbing estate labour into domestic agriculture has led to situations where there is continued subsidization of export crops that in each succeeding year make greater losses, at the same time that substantial outlays have to be made for imports of food supplies. It cannot be overstressed that the movement of labour from export agriculture to domestic agriculture will not happen by itself - they are two different types of labour; and some programme for making the outflow of labour from export agriculture more skilled and adaptive, will have to be put in place.

Beyond this, the social and economic institutions must be capable of ensuring a continuous extension of technical knowledge related to the changing patterns within agriculture. Much of the specialized knowledge developed in export agriculture, is not transferrable to domestic agriculture. And the inadequacy of knowledge and technology in the domestic subsector can be overcome only by deliberate stimulus.

Parallel with this, there has to be the development of the off-farm services for marketing and transportation, to provide the links to the urban consumer. Domestic agriculture output has to be made to flow easily into the highly systematic commercial channels that link imported food supplies to consumers. This entails enhancing such marketing mechanisms as exist, and in some situations putting in place services which in most countries barely exist, so that the domestic products are competitive on the shelf with the imported ones.

Finally, and most important, there has to be a review of the existing mechanisms to identify and correct those that so operate as to turn the terms of trade against domestic agriculture. This includes price controls on agriculture products, taxation, or the use of other devices that discriminate against domestic agriculture.

Concluding remarks

The arguments put forward in this paper do not deny that when the food terms of trade are favourable there is a margin of gain obtainable through the sale of staples and the purchase of food. But even to be aware of when such a situation is developing requires a level of marketing expertise and the utilization of a body of current detailed information, neither of which the Caribbean countries possess. What is more, such situations are short-term and cyclical, often much shorter than the cropping cycles - hardly a sufficient basis for national food policies.

Of even greater importance, the secular trends in the overall terms of trade have been and will continue to be against the staple products, on which most Caribbean countries rely for substantial portions of their earnings of foreign exchange. Against this background planning for the future must focus on the medium and long-term evolution of the Caribbean countries, recognizing that in terms of both food imports and food exports these countries are "price takers", not "price makers".

Sheer inertia can be the cause of continuing to perpetuate traditional patterns, even when it is clear that the losses far outweigh the gains, for it is a great deal easier to continue doing what was always done, than it is to innovate and accept change. The challenge for the planner is to stimulate change that improves the factoral terms of trade in favour of domestic agriculture, and increasing its productivity.

