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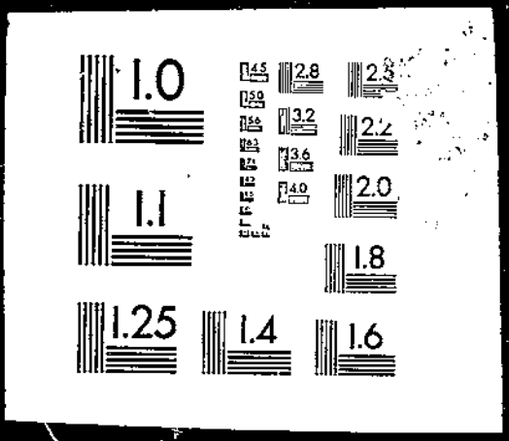

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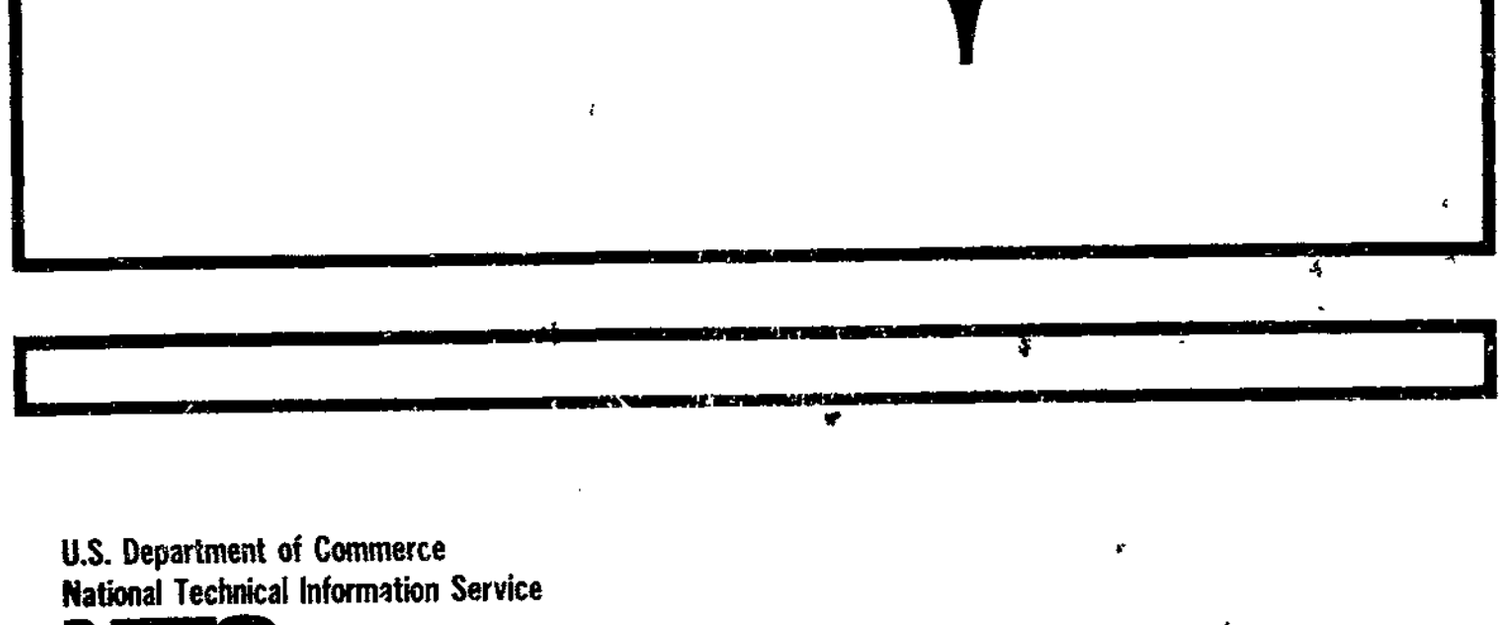

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Jamaica: Factors Affecting Its Capacity to Import Food

H. Christine Bolling

JAMAICA: FACTORS AFFECTING ITS CAPACITY TO IMPORT FOOD.
By H. Christine Bolling, International Economics Division, Economic Research Service, U.S. Department of Agriculture.
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ABSTRACT

The 1985 U.S. share of Jamaica's food import market could reach $120 million, up substantially from the $72-million level in 1980. Jamaica's total food import bill has increased elevenfold since 1960 reaching $198 million in 1980. Although real food import prices have moved up and down substantially, they were lower in 1980 than they had been in 1960. The net effect was that a 10-percent drop in the real price of food imports increased per capita food imports by 3 percent. This report looks at Jamaica's food imports and factors affecting them.

Key words: Jamaica, food imports, income, prices, import policy.

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SUMMARY

The 1985 U.S. share of Jamaica's food import market could reach $120 million, up substantially from the $72-million level in 1980. This report on Jamaica's food imports and factors affecting them finds that:

- Jamaica's total food import bill has increased elevenfold since 1960 to reach $198 million in 1980, and is expected to reach $320 million by 1985.

- During the past two decades, population growth alone has increased total food imports by 1.6 percent per year, a trend expected to continue.

- Per capita real GDP was a major factor affecting the growth of the market. Whether real income rose, as during the sixties and early seventies, or fell, as during the late seventies, each 10-percent change in per capita real income resulted in a 6-percent change in the quantity of food imports. More than half of the yearly change in per capita food imports was attributable to income variation.

- Although real food import prices moved up and down substantially, they were lower in 1980 than they had been in 1960. The net effect was that a 10-percent drop in the real price of food imports increased per capita food imports by 3 percent.

- Foreign exchange reserves slid badly in the late seventies. Even so, each 10-percent fall resulted in only a 1-percent drop in food imports.

- There has been little change in per capita food production over the years, but what did occur had little impact on food imports.

- Jamaica received little U.S. P.L. 480 aid until 1978. The aid received since then, however, has proven largely competitive with commercial imports.

Jamaica: Factors Affecting Its Capacity to Import Food

H. Christine Bolling

INTRODUCTION

The Caribbean Islands continue to be growing markets for U.S. agricultural products. The islands, a food-deficit area, depend on imports for about half of their food supply. Together, they are the second largest Latin American market for U.S. farm products. The Caribbean is also of strategic importance to the United States, as exemplified by the President's Caribbean Basin initiative and the region's proximity to the United States.

Jamaica ranks with the Dominican Republic and Trinidad-Tobago as the Caribbean's leading food importer. Imports, in fact, account for more than half the food consumed in Jamaica, but the United States has only a 37-percent share. U.S. food exports to Jamaica in 1980 amounted to $72 million.

This study, focusing on a market important to U.S. agriculture, examines some of the major growth factors that have been at play during the sixties and seventies (mainly population, income, and domestic food production), and examines the country's external purchasing power as reflected by a changing foreign reserve position, food aid, and import prices.

This analysis provides a useful framework for projecting the size of the market in light of the expected growth and development of each of the critical variables examined. It also evaluates the extent to which growth in domestic production has or has not competed with imported foods. And, of particular importance for U.S. agriculture, it evaluates the extent to which P.L. 480 aid has competed with commercial imports.

FOOD IMPORTS IN THE SEVENTIES

Until the late seventies when food imports in Jamaica were disrupted by general economic hardships and corrective policies aimed at cutting back imports, the gap between domestic demand for food and a stagnating food production sector grew. Jamaica imports more than half of its food needs, and particularly depends on imports for wheat, flour, corn, rice, beef, and skim milk. 1/ This situation has persisted for more than a decade. 2/

1/ App. tables 2 and 3 show quantity and value of major food import items.

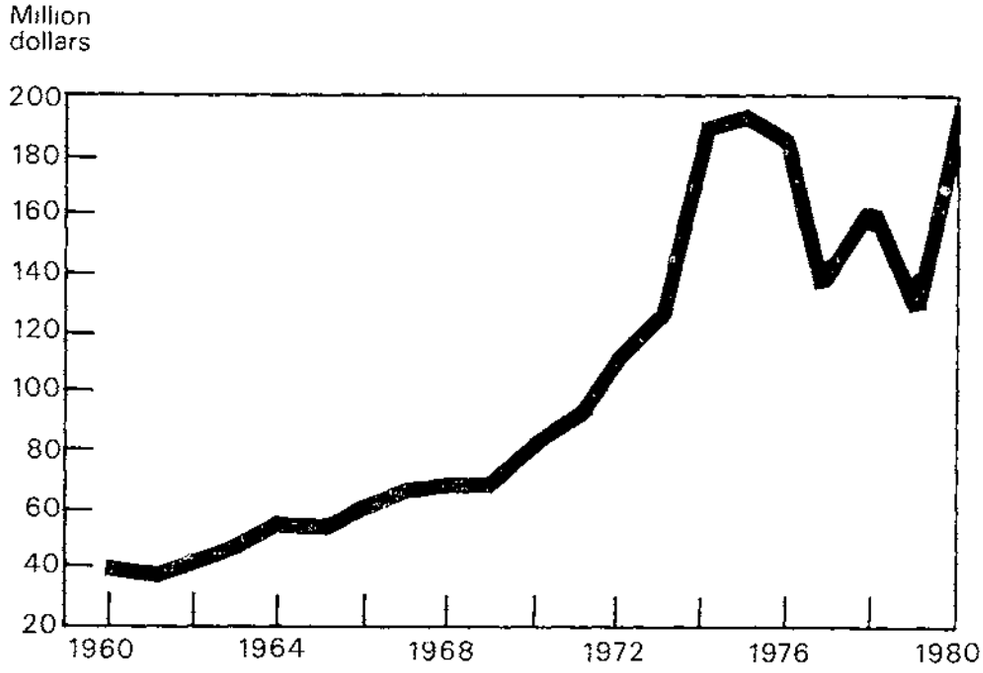
2/ Food imports amounted to 50 percent in terms of calories and 65 percent in terms of protein during 1964-66 and 1972-74, and 54 percent of the calories and 68 percent of the protein during 1975-77, according to calculations from (3) and (4). (Underscored numbers in parentheses refer to items in the references.)

The 1980 food import bill was $198 million, $72 million of which represented food imported from the United States (fig. 1). 3/ The cost of food imports in Jamaican dollars has increased nearly elevenfold since 1960, but because of inflation and a progressive deterioration of the Jamaican currency, the U.S. dollar value increased only fourfold and the quantity of food imports only doubled (table 1).

Food imports represented 17 percent of Jamaica's total imports in 1980. Food imports increased at a faster rate than population growth for most of the 1960-80 period. 4/ The quantity (excluding P.L. 480) hit a peak in 1974 and 1975, but has been lower since.

Figure 1

Jamaica: Value of food imports



3/ All currency is listed in U.S. dollars unless otherwise noted.

4/ Population grew at an annual rate of 1.6 percent and food imports at an annual rate of 3.4 percent from 1960 to 1980 (despite the downturn at the end of the period).

During the late seventies, Jamaica experienced an extended period of inflation, unemployment, and higher food prices, exacerbated by even more rapidly increasing energy costs. The cost of food imports in Jamaican dollars quadrupled during the decade and the cost of oil imports increased thirteenfold. This, coupled with the decline of bauxite exports, led to a deterioration of the country's foreign exchange reserves and a decline in real incomes and employment.

Table 1--Jamaica: Food imports 1/

Year	Value of food imports		Quantity index of food imports	Population index
	J$1,000	US $1,000	---1960=100---	
1960	29,162	40,820	100	100
1961	28,874	40,423	96	101
1962	32,390	45,346	109	102
1963	34,268	47,975	109	104
1964	41,582	58,215	122	107
1965	40,774	57,083	118	108
1966	45,202	63,283	127	109
1967	48,584	67,206	135	111
1968	57,972	69,566	160	112
1969	58,024	69,628	151	113
1970	69,093	82,911	156	115
1971	76,606	93,252	167	117
1972	90,205	112,801	171	118
1973	115,109	126,620	153	121
1974	175,214	192,735	180	123
1975	178,402	196,242	182	125
1976	166,417	183,059	182	127
1977	123,849	136,233	147	129
1978	234,500	163,400	194	131
1979	226,639	128,262	121	133
1980	351,740	197,429	182	135

1/ Total imports including P.L. 480 sales to Jamaica.

Source: (9).

The Jamaican Government imposed a ceiling on total imports of $990 million in 1975 to cope with its economic hardships (table 2). Consumer goods, including food, were given a large allocation on the basis that a significant cut there, without a contraction of consumer purchasing power, would cause domestic inflation to increase markedly (8, 1975).

Jamaica's international reserves fell to only one-fourth of their 1975 level by late 1976 (fig. 2). In 1977, they were only slightly higher, causing the Government to tighten its commodity import controls even further, this time extending them to food (table 2).

Import controls clearly had a significant effect on the level of food imports. Food imports rose sharply through the early seventies, reaching a plateau during 1974-76, and were noticeably cut in 1977 (fig. 1).

The control on food imports was enforced by the Jamaica Nutrition Holdings (JNH), a government corporation founded in 1974 to purchase bulk grains and other foodstuffs. This agency became Jamaica's sole importer of basic foodstuffs by early 1978. Internal distributors were required to obtain import licenses, place an order with JNH, and then take possession

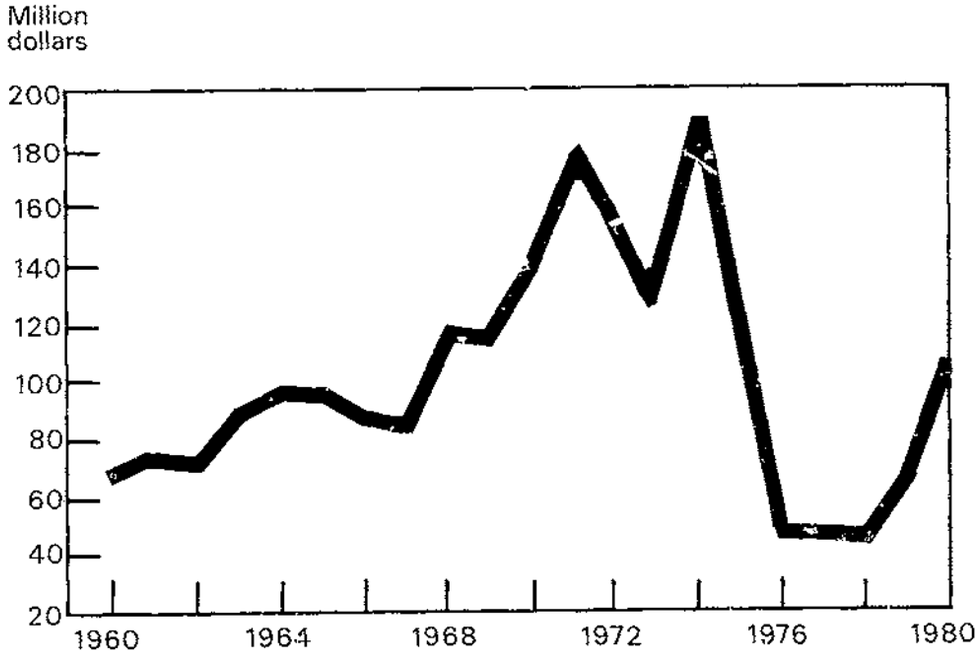
Table 2--Jamaica: Value of import limitations and total imports

Year	Import limitation	Total imports	Food imports
		Million dollars	
1971	0	559	93
1972	0	611	113
1973	0	677	127
1974	0	935	193
1975	990	1,123	196
1976	930	912	183
1977	880	860	136
1978	800	916	163
1979	906	992	128
1980	0	1,177	197

Source: (8), various issues.

Figure 2

Jamaica: Foreign reserves



of the goods when they arrived in port (12). 5/ Food import controls were loosened later in 1978, only to be tightened again in 1979 and 1980.

FACTORS AFFECTING FOOD IMPORTS

Factors cited in this section are the economic variables in the econometric model described in the appendix. The ordinary least squares statistical method was applied to data of these variables for the years 1960-80. An important economic factor in import demand is the growth in population. Jamaica currently has about 2.2 million people compared with 1.6 million in 1960; population has grown 1.6 percent annually.

Real per capita gross domestic product (GDP) was the single most important economic determinant of food imports. 6/ A 10-percent rise in real per capita GDP was found to generate about a 6-percent increase in food imports.

5/ Prior to 1974, food imports were managed entirely by private firms. Both private firms and JNH imported food during the 1974-77 transition period.

6/ Measured by GDP deflated by Jamaica's consumer price index.

Real income rose sharply for more than a decade, reaching a plateau in 1972 and declining sharply thereafter, ultimately causing food imports to fall (fig. 1 and table 3). By 1977, income from trade and finance was only two-thirds of its 1972 level (18). Construction, already declining by 1972, fell by nearly 50 percent in the ensuing 5 years. Mining increased through 1974, but sharp cutbacks in bauxite and aluminum exports caused declines from this source as well. Manufacturing also

Table 3--Jamaica: Gross domestic product

Year	GDP	Per capita GDP	CPI 1/	Per capita real GDP
	J$ million	J dollars	1960=100	1960 J$
1960	474	291	100	291
1961	508	308	107	287
1962	528	318	108	294
1963	559	329	110	299
1964	589	339	112	303
1965	636	361	115	314
1966	691	388	118	329
1967	745	412	121	340
1968	820	448	128	350
1969	993	540	136	397
1970	1,170	626	150	417
1971	1,279	673	151	429
1972	1,440	746	164	455
1973	1,735	881	196	449
1974	2,170	1,079	244	442
1975	2,611	1,279	286	447
1976	2,716	1,312	314	418
1977	2,986	1,421	350	406
1978	3,749	1,768	472	374
1979	4,289	1,986	609	326
1980	4,731	2,160	773	279

1/ Consumer price index.

Source: (6).

declined (table 4). Income from agriculture showed little downward trend after 1972, but exports of agricultural products, which had been declining since the midsixties, continued to drop another 25 percent between 1972 and 1977. Public administration was the only sector to exhibit a rather steady increase, but not enough to offset declines in other sectors.

Declines in real GDP originating from trade and finance represented 54 percent of the total, construction 33 percent, mining 5 percent, and manufacturing 9 percent. These were aggravated by sharp declines in private foreign investment and increases in food and energy costs, causing a rapid deterioration in Jamaica's balance of trade and balance of payments.

Domestic food supplies have grown slowly in the last 20 years--only 1.9 percent annually and barely keeping up with population growth. However, the effects of changing food production on imports have not been significant; domestically produced foods tend not to be competitive with imported products. Jamaica's best land has been used traditionally for sugar and banana production for export, while domestic food production has been a residual concern with just enough

Table 4--Jamaica: Real gross domestic product by industry

Industry	1972	1973	1974	1975	1976	1977
	Million Jamaica dollars					
Agriculture	170.7	159.4	162.7	164.9	126.3	176.6
Mining	232.1	261.9	297.3	227.6	183.3	214.5
Manufacturing	384.9	379.9	386.5	385.8	373.0	352.6
Construction	259.9	230.8	213.6	214.8	176.2	143.3
Electricity, gas, and water	21.0	22.2	22.2	23.2	23.8	23.4
Transportation and communications	121.7	123.9	137.1	141.6	135.1	140.6
Trade and finance	596.5	577.8	503.4	533.5	436.1	404.6
Public administration	186.1	222.9	251.3	265.2	311.7	286.9
Other sectors	287.5	280.1	291.3	287.1	288.7	268.6
GDP at factor cost	2,260.4	2,258.9	2,265.4	2,243.7	2,094.2	2,011.1

Source: (18).

production to satisfy domestic needs. Potatoes, sweetpotatoes, corn, and cassava are Jamaica's staple crops, while wheat, rice, and corn are almost entirely imported (tables 5 and 6). There has been a growing demand for these imports consistent with growing incomes.

A 10-percent drop in the real price of food imports was found to increase food imports by nearly 3 percent (table 7). Nominal

Table 5--Jamaica: Adjusted domestic food production index

Year	Food production index	Per capita food production index
	1960=100	
1961	100	99
1962	112	110
1963	107	103
1964	107	100
1965	112	104
1966	115	106
1967	111	100
1968	113	101
1969	112	99
1970	109	95
1971	116	99
1972	123	104
1973	124	102
1974	135	110
1975	127	102
1976	136	107
1977	130	101
1978	143	109
1979	141	106
1980	145	107

Source: (14).

Table 6--Jamaica: Production index quantities

Commodity	1961	1965	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
	1,000 metric tons													
Rice	5	2	1	1	1	1	1	2	2	3	4	4	6	7
Corn	4	4	4	4	5	5	9	11	11	9	13	13	14	7
Pulses	4	5	5	5	7	5	6	5	4	6	9	8	9	9
Potatoes	8	12	9	9	16	15	16	14	15	15	15	15	15	15
Cassava	13	12	8	20	18	18	19	17	18	18	18	30	30	30
Sweet-potatoes	160	150	150	150	175	170	180	170	175	180	180	180	180	180
Tobacco	1	2	2	2	2	2	1	1	1	1	2	2	2	2
Bananas	50	50	62	66	71	90	87	72	79	85	91	102	115	125
Sugar	550	850	760	930	980	740	1,070	1,070	1,350	820	1,090	1,031	1,136	1,100
Beef	11	13	12	12	10	11	12	11	12	12	12	12	12	12
Mutton	2	2	2	3	3	3	3	3	3	3	3	3	3	3
Pork	3	4	4	5	5	8	8	7	7	8	8	8	8	8
Milk	39	43	45	42	45	46	47	46	47	48	48	48	48	48
Total index	100	112	109	116	123	124	135	127	136	130	143	141	145	145

Source: (14).

Table 7--Jamaica: Price indexes of food imports

Year	Import price index	Import tariff	Adjusted import price index 1/	Real import price index 2/	Year	Import price index	Import tariff	Adjusted import price index 1/	Real import price index 2/
	1960=100	Percent	---1960=100---			1960=100	Percent	---1960=100---	
1960	100	9	100	100	1970	112	8	111	74
1961	96	9	96	90	1971	150	8	149	95
1962	95	9	95	88	1972	140	7	138	84
1963	98	9	98	89	1973	231	7	227	116
1964	99	9	99	88	1974	337	7	330	135
1965	103	10	104	90	1975	324	6	315	110
1966	103	9	103	87	1976	319	6	310	99
1967	103	9	103	85	1977	302	6	294	84
1968	108	8	107	84	1978	422	2	394	83
1969	101	8	100	74	1979	612	3	578	95
					1980	774	3	731	94

1/ Taking tariffs into account.
2/ Adjusted import price index deflated by Jamaica's consumer price index.
Source: Calculated from (9).

food import prices, represented by a composite index, held steady until 1970, when they began to climb. Real food import prices followed a similar pattern in the sixties but then rose sharply to peak in 1974 and declined slightly during 1975-78. This followed the trends in international food prices.

Jamaican food imports were subject to tariffs throughout the seventies, but before reaching the consumer, these imports were subsidized consistent with prevailing price controls. The average import levy was 2 percent in 1979. This level was lower than the 6 percent prevailing during 1975-77 and much below the level of the sixties when the levies averaged 8 to 10 percent.

Prices for many basic foods are set by the Jamaican Price Commission. Bread, rice, flour, salted fish, chicken, cheese, butter, sugar, cornmeal, and dried, canned, and fresh milk are some of the foods with controlled prices. This has maintained an effective demand for food higher than it would have been under declining income levels. The effect was extended to imported foods.

Food subsidies initiated in 1978 cost the Jamaican Government about $25 million the first year, primarily for payments to wholesalers. Direct subsidies were also paid to processors for flour, condensed milk, and other items; this was done by fixing sufficiently high margins on goods with a relatively low purchase price to accumulate funds for subsidizing others considered essential to low-income consumers. Corned beef, flour, chicken backs, skimmed milk powder, and rice were some of the imported commodities subsidized in this manner.

Food aid from the United States during the sixties and seventies came from P.L. 480 sales and donations of nonfat dried milk, wheat flour, and cornmeal. In terms of total food imports, the amount was significant only in 1978-80. U.S. P.L. 480 aid reached $11 million in long-term loans for the purchase of wheat and corn in 1980 (table 8). The 1980 U.S. policy initiative toward the Caribbean region as well as Jamaica's need for basic foodstuffs contributed to the upsurge in P.L. 480 aid. However, most of the U.S. aid in other years was given as donations distributed through voluntary agencies or as direct grants. This usually represented less than 2 percent of total imports and was in addition to similar aid granted by the European Community, the World Food Program, and other donors. A 10-percent increase in food aid was associated with a less than 1-percent decline in Jamaica's commercial food imports. This suggests that, even though the heavy shipments were made when commercial imports were restricted to save foreign exchange, the food aid virtually displaced commercial purchases.

Table 8--Jamaica: P.L.-480 receipts

Year	P.L.-480 sales		Per capita P.L. 480 sales	
	US$ 1,000	J$ 1,000	J$	1960 J$
1960	1,213	866	0.53	0.53
1961	486	347	.21	.20
1962	902	644	.39	.36
1963	1,472	1,051	.62	.56
1964	2,056	1,469	.84	.75
1965	1,298	927	.53	.46
1966	1,661	1,186	.67	.57
1967	1,246	901	.50	.41
1968	1,811	1,509	.82	.64
1969	1,269	1,058	.57	.42
1970	1,439	1,199	.64	.43
1971	1,731	1,422	.75	.48
1972	2,140	1,711	.89	.54
1973	1,584	1,440	.73	.37
1974	1,410	1,282	.64	.26
1975	199	181	.09	.03
1976	1,326	1,205	.58	.18
1977	2,871	2,610	1.24	.35
1978	13,344	18,355	8.62	1.83
1979	16,120	28,480	13.18	2.16
1980	11,427	20,356	9.29	1.20

Source: (6), (15).

Foreign reserves reflect a country's ability to pay for imports. When reserves are high, a country should have no problem meeting the demands for food imports but when reserves are low, imports must be curtailed and assessed in light of other import needs. This was the case in the late seventies when Jamaica's reserves reached critically low levels (table 9). Normally, reserves had been high enough to pay for 4 to 5 months of imports, but they fell to the value of about half a month of imports during 1976-78. 7/ This was the aftermath of unfavorable trade balances of the late sixties and the first half of the seventies. The situation was exacerbated in 1975-77

7/ This is calculated by dividing reserves by imports (annual) and multiplying by 12.

Table 9--Jamaica: Composition of foreign reserves account

Item	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
					Million dollars						
Balance of trade, f.o.b.	-89.9	-107.6	-131.9	-151.9	-178.3	-59.2	-161.[illegible]	-131.8	93.5	22.2	-67.8
Other goods and services	-48.6	-67.8	-61.9	-73.6	-96.7	-57.6	-149.5	-176.8	-181.7	-181.2	-402.5
Travel 1/	93.5	95.5	109.3	134.7	127.3	133.2	128.5	105.8	72.0	146.7	195.4
Shipment 2/	-59.7	-70.6	-74.0	-82.4	-89.2	-120.5	-149.5	-116.2	-87.6	-106.6	-111.4
Private unrequited transfers	18.2	26.9	27.0	35.5	34.7	33.9	22.7	2.0	15.1	16.3	69.9
Official unrequited transfers	-3.3	-4.4	-5.4	-6.7	-7.3	-9.0	5.0	3.9	5.0	4.8	10.5
Capital and other reserves	129.4	160.3	175.0	170.8	213.4	176.8	296.1	154.1	75.2	94.0	NA
Direct investment 3/	102.6	162.1	174.7	89.8	61.5	25.4	-1.5	-.5	-6.0	-21.3	-20.4
Drawings on loans received	NA	9.4	16.8	17.2	39.8	99.0	131.3	138.8	82.0	220.0	135.0
Government loans 4/	NA	NA	NA	17.2	39.8	82.4	108.4	87.2	74.9	208.5	135.0
Repayment on loans	NA	-3.1	-3.4	-5.6	-7.8	-5.7	-3.3	-25.3	-40.0	-82.9	-85.8
Drawing on other long-term loans 5/	0	0	0	2.0	65.4	74.0	94.8	49.2	28.4	NA	NA
Repayment on long-term loans	0	0	0	-1.0	-4.4	-11.	-17.2	-24.5	-31.9	NA	NA
Other short-term capital 6/	NA	NA	NA	15.5	-6.1	-55.5	53.7	9.5	4.7	NA	NA
Total reserves	117.9	139.2	179.0	159.7	127.4	190.4	125.6	32.4	48.3	58.8	68.6

Note: These subcategories are not inclusive, but are given here to show where major changes occurred in Jamaica's foreign reserve accounts.

NA = Not available.

1/ Travel includes receipts from visitors based on estimates by National Planning Agency of Ministry of Finance.

2/ Shipment includes freight and insurance costs on imports.

3/ Direct investment includes foreign long-term capital investment in bauxite mining and processing and hotel construction.

4/ Drawings on government loans received include loans extended by Canada, International Bank for Reconstruction and Development (World Bank), International Development Bank and the United States to Jamaican Government.

5/ No definition given for drawing on other long-term loans.

6/ Other short-term capital loans include changes in trade credits.

Sources: (6), (7).

by a decline in tourist trade, higher debt servicing costs due to rising interest rates, outflows of private capital and people, and curtailment of investment resulting in part from reduction in government guaranteed loans (8, 1977, p. 46) (table 10).

Moderate ups and downs in reserves were not a major influence on the volume of food imported during normal periods in Jamaica's trade history. Under free trade conditions, a 10-percent increase in reserves would increase food imports by about 1 percent. However, when extreme reserve shortages occurred, such as those of 1977-78, the Government took drastic action to restrict all imports, including food.

Table 10--Jamaica: Terms of trade between food and oil imports and bauxite exports

Year	Food price index	Bauxite price index	Oil price index	Bauxite/ food index	Oil/food index	Oil/ bauxite index
				1970=100		
1965	91	78	100	85	109	129
1966	91	85	100	93	109	118
1967	91	100	100	109	109	100
1968	94	102	100	109	106	98
1969	89	100	100	112	113	100
1970	100	100	100	100	100	100
1971	131	118	125	89	95	106
1972	123	127	137	104	111	107
1973	211	145	206	69	977	142
1974	297	170	587	57	197	345
1975	285	250	625	88	218	250
1976	283	276	650	98	229	234
1977	265	317	718	120	270	222
1978	376	326	718	88	190	218
1979	546	359	969	67	177	269
1980	691	500	1,594	72	230	319

1/ Terms of trade are calculated to show increases in prices of major commodities in relation to each other.

Sources: (4), (6).

An integral part of Jamaica's foreign reserves position results from the balance of trade between food and oil imports and bauxite exports (17). 8/ Within the bauxite-food-oil triangle, import oil prices increased relative to export bauxite prices during the seventies, despite an upsurge in bauxite prices during 1975-78 (table 11). Food import prices stayed ahead of export bauxite prices for most of these years, while oil prices rose generally faster than food or bauxite prices. Although the trade balance between bauxite exports and food and oil imports has been positive, so many other demands such as imports of chemicals, manufactured goods, and machinery and equipment were put on the export earnings from bauxite and aluminum that Jamaica ended up with a negative balance of trade.

CAPACITY TO IMPORT FOOD

A number of variables must be observed in estimating Jamaica's capacity to become a strong importer of food and a customer for U.S. farm products again. Mining (largely bauxite), manufacturing, distributive trade, and government services, which make up about 75 percent of Jamaica's GDP, are the major sectors to watch. The balance in the food-bauxite-oil triangle is also a key factor in determining Jamaica's balance of trade and, ultimately, reserve position. Progress in fostering tourism and foreign investment and in reducing the debt service burden will also be important.

Political factors are always important, not only in terms of market intervention, but also in creating a favorable climate for private investment. In early 1981 the political philosophy shifted from a socialist orientation under Michael Manley to a free market concept under Edward Seaga.

Jamaica must increase its GDP and foreign exchange reserves in real terms to provide the purchasing power to develop its commercial food import market. This may be difficult to achieve soon. Commercial food imports at best can be expected to grow slowly. The Government allowed food imports to increase by 30 percent in 1981, but these were financed largely by foreign government loans such as P.L.-480.

The following assumptions about major economic developments in Jamaica support contentions that Jamaica is not likely to be a strong growth market for U.S. commodities in the next 3 to 4

8/ The exceptions were 1975 and 1976; export sugar prices nearly doubled in 1975.

years. Based on current economic trends, estimates for 1985 indicate that:

1. Real GDP will increase only slightly at a maximum growth rate of 2 percent annually.

2. Foreign reserves will reach $100 million.

3. Domestic per capita food production will remain at the 1978 level.

4. Real import prices will increase 2 percent annually from 1978.

5. P.L. 480 imports will continue at about their 1978 level.

6. Inflation will be held in check after 1982 at 5 percent annually.

7. The U.S.-Jamaican currency exchange rate would remain at its 1980 level of $1.78 Jamaican per U.S. dollar.

If these assumptions hold, Jamaica will import commercially about one-third more food in 1985 than in 1980 for a population increasing at about the same rate. This, however, would represent a recovery in the quantity of food imports to nearly 1974-76 levels. Jamaica's food imports would reach a value of $320 million in 1985 if nominal food import prices continue to rise as in recent years. Based on historic patterns and shares, Jamaica's food imports from the United States would reach $120 million. The U.S. share of Jamaica's food imports reached 37 percent in 1980, compared with 26 percent in 1960. In 1968, 1969, and 1974, the U.S. share reached as high as 40 percent.

The United States has been virtually the sole supplier of salted beef, chicken backs, corn, and for some years, wheat, certain types of rice, certain wheat flours, onions, soybeans, soybean meal, poultry feed, cattle feed, and hog feed (table 11). Australia and New Zealand are major sources of fresh beef and mutton. Canada supplies salt pork, dried skim milk, codfish, herring, potatoes, and onions and competes with U.S. livestock feeds, wheat, wheat flour, and malt. The European Community supplies milk solids, butterfat, oats, counterflour, cattle feed, and horse feed. Other countries have their special exports to Jamaica: Brazil, corned beef; New Zealand, cheese and butter; and Guyana, rice (table 12).

Table 11--Jamaica: U.S. share of food imports

Commodity	1960	1965	1970	1975	1979
			Percent		
Beef	24	22	19	25	31
Mutton	15	14	5	3	5
Chicken backs	100	93	100	97	99
Salted pork	85	95	91	96	0
Salted beef	92	66	42	11	100
Corned beef	5	7	2	2	3
Milk solids	3	43	0	14	8
Dried skim milk	16	33	33	5	4
Butter	0	8	3	0	2
Cheese	4	76	5	5	3
Codfish	0	1	0	0	0
Mackerel	5	0	0	0	0
Sardines	0	4	0	0	0
Herring	0	0	0	0	0
Wheat	8	65	37	99	12
Rice	12	61	73	0	100
Other rice, milled	0	0	0	0	13
Corn	100	98	100	100	91
Oats	45	41	12	16	31
Baking flour	25	17	56	87	54
Counterflour	32	18	1	2	22
Corn flour	96	87	79	0	0
Other wheat flour	99	95	94	96	65
Corn meal	0	0	0	100	100
Malt	7	20	8	0	6
Seed potatoes	0	0	14	0	0
Kidney beans	16	57	49	82	0
Onions	81	72	83	97	6
Glucose	1	35	66	38	78
Poultry feed	98	98	99	81	15
Ingredients for poultry feed	0	0	0	45	71
Cattle feed	64	100	95	51	0
Ingredients for cattle feed	0	0	0	94	0
Pig feed	100	100	98	74	67
Horse feed	0	0	0	93	0
Animal feed preparations	66	55	54	94	22
Soybean meal	100	100	100	100	100
Soybeans	0	0	100	100	100

Source: (9).

Table 12--Jamaica: Major sources of food imports, 1979

Commodity	United States	Canada	Australia	New Zealand	Nether-lands	Other
			Percent			
Beef	31	5	48	16	0	0
Mutton	5	0	4	90	0	0
Chicken backs	99	0	0	0	0	0
Salted pork	0	100	0	0	0	0
Salted beef	100	0	0	0	0	0
Corned beef	3	2	0	0	0	90 Brazil
Milk solids	8	12	0	0	0	1 Ireland
Dried skim milk	4	67	5	0	10	4 Ireland
						3 West Germany
Butterfat	0	0	0	0	0	100 France
Butter	2	0	0	78	10	0
Cheese	3	0	0	79	0	0
Codfish	0	88	0	0	0	9 West Germany
Mackerel	0	0	0	0	0	81 Japan
Sardines	0	0	0	0	0	0
Herring	0	95	0	0	0	0
Wheat	12	81	0	0	0	0
Rice	100	0	0	0	0	0
Other rice, milled	13	0	0	0	0	87 Guyana
Corn	91	0	0	0	0	9 Guyana
Oats	31	0	0	0	0	66 Denmark
Buckwheat	61	39	0	0	0	0
Baking flour	54	24	0	0	0	3 St. Vincent
						3 Trinidad
						3 Puerto Rico
Counterflour	22	0	0	0	38	33 West Germany
Other wheat flour	65	35	0	0	0	0
Flour from other grains	24	70	0	0	0	0
Cornmeal and groats	100	0	0	0	0	0
Malt	6	54	4	0	0	10 Denmark
						7 France
Seed potatoes	0	100	0	0	0	2 Ireland
Onions	6	94	0	0	0	0
Glucose	78	0	0	0	0	10 Trinidad
Poultry feed	15	85	0	0	0	0
Ingredients for poultry feed	71	25	0	0	0	0
Cattle feed	0	0	0	0	88	0
Ingredients for cattle feed	0	58	0	0	0	0
Pig feed	67	33	0	0	0	0
Horse feed	0	0	0	0	0	0
Other animal feeds	22	73	0	0	0	0

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APPENDIX: METHOD AND ESTIMATING PROCEDURES

Variables included in the model to explain changes in Jamaica's food imports were real income, real food import prices, population, food supplies from domestic food production, food aid, and foreign reserves. These variables are suggested by the classical theory of demand.

Expected signs of these variables are:

1. The quantity index of food imports was expected to be inversely related to real import prices.

2. The quantity index of food imports was expected to be directly related to per capita real GDP.

3. The quantity index of food imports was expected to be directly related to per capita real foreign reserves.

4. The quantity index of food imports was expected to be inversely related to food aid.

5. The quantity index of food imports was expected to be indirectly related to per capita domestic agricultural production.

The model is a single-equation model and is specified in the following way:

Where:

PCQIIMP = f (PCREALGDP, PCAGPROD, PCREALRES, PCREALAID, REALIMPPR).

PCQIIMP = Per capita quantity index of commercial food imports (such as excluding P.L. 480 imports).

REALIMPR = Food import price index adjusted for import tariffs in constant 1960 prices.

PCREALGDP = Per capita GDP in constant 1960 prices.

PCREALRES = Per capita foreign reserves in constant 1960 Jamaican dollars.

PCREALAID = Per capita real value of P.L. 480 exports to Jamaica.

PCAGPROD = Per capita domestic food production index.

Annual observations for 1960-80 are the data base of this model, and an ordinary least squares method of estimation was used.

Several of the indexes were calculated by the author: PCQIIMP, REALIMPPR, AND PCAGPROD.

PCQIIMP was obtained from the quantity index calculated by using the quantities of 48 imported commodities weighted by their 1975 import unit values, using 1975 food imports (SITC 0) as the base (see app. tables 1, 2, and 3) (5). The index was then expressed on a 1960 base. This import quantity index was adjusted by shipments of P.L. 480 commodities to obtain a quantity index of commercial food imports.

REALIMPPR was obtained from the price index calculated by using the import unit values of the same 48 imported commodities weighted by their 1975 quantities, using 1975 food imports as the base (see app. tables 2 and 3) (5). The index was then expressed on a 1960 base.

This import price index was adjusted by the tariff rate using an adaptation of the approach used by Jorge Garcia Garcia (5, p. 73). The tariff is incorporated in the following way:

$$P = (1 + t)\ PI/PD$$

t = tariff rate

PI = price index of imports

PD = domestic price level, that is CPI for Jamaica

PCAGPROD was obtained by adjusting the USDA food production index for Jamaica by recalculating the index after sugar and banana exports were subtracted from production--to represent better the domestic food supply that originates from domestic agricultural production (app. table 4) (14).

PCREALAID was defined as P.L. 480 sales to Jamaica, expressed in Jamaican dollars, deflated by Jamaican CPI and put on a per capita basis.

PCREALRES was defined as Jamaica's foreign reserves, deflated by Jamaican CPI and put on a per capita basis (app. table 4).

A dummy variable was also added to recognize the changes in policies that occurred in 1974-76. Despite the cutback in total imports, food imports were allowed to remain at a high level to hold down inflation that could result from a shortage in food

supplies coupled with strong domestic demand. Moreover, the country was in a transition from importing conducted by private individuals to importing by a public sector company.

Real income appears to be the most significant variable in determining Jamaica's demand for food imports, as evidenced by the "best" equation obtained by using ordinary least squares.

PCQIIMP = 11.315 + 0.343 PCREALRES
(t = 2.585*)

+ 0.235 PCREALGDP + 0.494 PCAGPROD
(t = 9.462*) (t = 1.195)

- 0.411 REALIMPPR - 5.969 PCREALAID + 19.548 Dummy
(t = 3.210*) (t = 1.741*) (t = 3.024*) 1/

F = 37.7311

R^2 = 0.946 R^2 (corrected for degrees of freedom) = 0.921

Durbin-Watson = 2.152

Number of observations = 20 (1960-80, excluding 1968)

Sum of squared residuals = 409.494

Standard error of the regression = 5.612

The relative importance of each independent variable can also be expressed by the elasticity around the mean of the variable with respect to the per capita quantity index of imports:

Variable :	Elasticity
REALIMPPR	-0.319
PCREALRES	.078
PCAGPROD	.425
PCREALAID	-.030
PCREALGDP	.713
DUMMY	.015

1/ * = significant at a 95-percent confidence level.

The fitted equation yields income, reserves, real import prices, and aid as highly significant variables. The reserves and income variables, which would add to the purchasing power of Jamaica, are positively correlated to the food imports. The model yields an income elasticity of food imports of 0.713, consistent with the findings of the Jamaican Institute of Social Science and Economic Research (16, p. 159), particularly since cereals and cereal products make up a substantial share of Jamaica's food imports.

The price variable is inversely related to food imports, to the extent that a 10-percent increase in real food prices would result in a 3-percent decline in food imports. Domestic agricultural production is directly related to food imports in this model, but is not statistically significant. Domestically produced foods do not really compete with imported foods since the type of foods produced is quite different from the imported foods. A 10-percent increase in food aid resulted in a less than 1-percent decline in commercial food imports.

The study covers several time periods difficult to characterize in an econometric model. The year 1968 had unusually high food imports, when wheat abruptly became a significant food import; 1973 was the year of the first large increase in international food prices. During the period 1974-76, Jamaican policy for food imports was in transition from private trading to government intervention, when food imports were permitted to remain high despite falling real incomes and reserves because of high internal inflation. In 1977 and again during 1979-80, apparent import cutbacks in the first year were compensated for in the second as the country sought to build up its reserves.

App. table 1--Jamaica: Indexes of food imports and population

Year	Quantity index of food imports	Population index	Per capita quantity index of food imports	Per capita quantity index of food imports adjusted for P.L.-480 imports
			1960=100	
1961	96	101	95	94
1962	109	102	108	103
1963	109	104	105	103
1964	122	107	115	112
1965	118	108	109	108
1966	127	109	117	115
1967	135	111	122	120
1968	160	112	142	141
1969	151	113	134	132
1970	156	115	136	133
1971	167	117	143	140
1972	171	118	144	143
1973	153	121	126	126
1974	180	123	146	146
1975	182	125	146	145
1976	182	127	143	143
1977	147	129	114	107
1978	194	131	148	132
1979	121	133	91	75
1980	182	135	112	93

Source: Calculated from (6), (9).

App. table 2--Jamaica: Quantity of food imports, 1960-79

Commodity	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
					1,000 pounds					
Livestock products:										
Beef	2,469	1,873	3,354	4,794	6,094	4,784	5,623	4,847	5,143	6,795
Mutton	751	794	872	739	1,015	1,470	1,506	1,545	1,887	4,086
Goat meat	0	0	0	0	0	0	0	0	0	0
Chicken backs	1,491	1,345	2,327	3,121	3,291	3,850	5,863	6,741	7,449	7,784
Other edible offals	1,592	1,889	2,588	3,325	5,164	4,732	4,948	5,400	6,335	6,664
Salted pork	3,075	3,199	3,295	4,077	4,230	4,113	2,806	3,595	3,640	2,634
Salted beef	1,138	1,687	1,409	2,089	2,269	2,128	1,741	2,023	1,720	1,715
Corned beef, canned	3,805	932	2,454	2,044	2,771	2,565	2,720	2,439	3,378	3,708
Milk solids	258	207	486	455	525	2,029	1,256	1,911	684	502
Dry skim milk	10,105	8,773	13,291	11,635	13,461	12,360	11,318	14,114	19,583	16,072
Butterfat	0	0	0	0	0	0	0	0	0	0
Butter	4,323	4,632	6,030	6,318	8,699	6,874	7,646	9,612	9,925	9,305
Cheese and curds	1,857	1,977	2,391	3,077	3,739	2,867	4,429	4,554	5,255	5,345
Fishery products:										
Codfish	18,769	19,259	20,463	19,653	17,040	14,587	16,918	18,434	18,011	21,511
Mackerel	4,588	4,271	4,442	6,266	9,014	10,888	11,970	9,992	10,266	8,004
Sardines	7,201	3,185	3,942	3,531	4,516	4,905	5,466	4,961	4,712	4,743
Herring	0	2,333	2,474	3,013	3,181	2,674	4,403	3,781	4,006	4,522
Other fish	0	344	322	291	772	1096	862	883	1,607	2,271
Grains and grain products:										
Wheat	969	1,070	2,201	2,245	3,101	1,623	1,635	1,435	75,675	119,117
Rice, milled	48,359	41,063	41,899	49,745	60,573	73,924	60,484	73,289	52,618	58,398
Other rice, milled	0	0	0	0	0	0	0	0	0	0
Corn	28,494	30,723	33,114	36,972	57,605	50,784	109,376	103,092	104,983	127,932
Oats	1,874	1,583	2,000	2,159	2,291	2,361	2,660	3,759	4,724	4,706
Buckwheat and other grains	33	35	37	42	48	658	0	0	0	0
Baking flour, 1,000 cwt	862	855	839	840	998	948	914	987	700	140
Counterflour, 1,000 cwt	768	776	834	830	712	832	931	935	1,029	939
Corn flour	4,766	6,800	8,838	6,477	10,464	8,471	5,694	8,098	11,227	8,618
Other flour from wheat	17,221	15,121	22,938	17,024	25,526	25,451	16,956	23,566	26,217	25,798
Flour from other grains	190	99	81	310	72	69	29	17	1,140	7,546
Cereal groats and cornmeal	0	0	0	0	0	0	0	0	0	0
Other grain products	0	0	0	0	0	0	0	0	0	0
Malt	5,496	5,986	6,571	6,491	7,407	8,851	12,003	11,884	11,254	14,325
Vegetables:										
Seed potatoes	7,943	11,301	12,005	10,787	7,042	3,138	11,295	5,456	6,432	11,159
Red kidney beans	5,699	5,379	7,405	6,641	9,192	6,633	3,013	3,793	4,867	8,159
Onions	7,618	6,955	7,086	7,834	8,503	9,076	9,096	9,617	10,531	10,421
Sugar and sugar products:										
Other refined sugar	0	0	0	0	0	0	0	0	0	0
Glucose	1,065	1,006	1,335	374	1,625	2,012	2,528	2,902	2,719	4,218
Livestock feeds and ingredients:										
Poultry feed	34,530	40,220	44,366	39,468	39,537	30,194	40,645	39,329	84,093	63,622
Ingredients for poultry feed	0	0	0	0	0	0	0	0	0	0
Cattle feed	600	703	394	873	1,312	822	1,757	2,395	7,407	3,287
Ingredients for cattle feed	0	0	0	0	0	0	0	0	0	0
Pig feed	314	657	1,142	1,812	1,012	805	0	0	0	0
Horse feed	0	0	0	0	0	0	0	0	0	0
Animal feed preparations	1,330	2,037	2,624	1,555	2,101	2,361	0	0	0	0
Soybean meal	378	210	137	248	2,500	2,639	2,743	10,125	8,068	8,157
Soybeans	0	0	0	0	0	112	0	69	3,230	0

Continued--

App. table 2--Jamaica: Quantity of food imports, 1960-79--Continued

Commodity	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
						1,000 pounds					
Livestock products:											
Beef	9,042	7,938	8,355	9,835	8,670	11,058	9,888	9,501	17,695	5,915	3,353
Mutton	5,156	6,866	7,416	2,497	2,498	4,992	3,477	2,486	2,812	1,721	2,078
Goat meat	0	0	0	2,197	2,291	900	393	396	123	106	92
Chicken backs	12,912	15,744	13,734	16,866	21,461	33,262	41,108	41,293	48,232	32,183	49,416
Other edible offals	6,672	11,064	10,212	4,035	4,983	10,972	12,096	6,823	13,065	4,250	4,294
Salted pork	2,155	3,019	100	1,174	158	517	0	410	0	0	1,803
Salted beef	3,470	2,258	3,506	798	1,671	2,595	3,185	963	0	1,957	1,602
Corned beef, canned	4,622	4,682	6,843	4,059	5,990	8,822	8,458	5,696	8,915	1,519	619
Milk solids	2,511	0	5,464	177	6,388	3,988	3,140	2,409	1,369	0	0
Dry skim milk	19,004	19,368	23,347	13,850	26,238	12,847	24,197	17,238	30,060	22,716	25,985
Butterfat	0	0	0	1,451	3,378	3,047	2,455	1,232	3,083	4,700	5,652
Butter	10,859	4,682	8,544	8,137	8,861	8,363	7,260	4,969	2,620	1,841	1,587
Cheese and curds	6,092	8,017	5,487	4,475	7,202	6,833	5,303	4,956	4,139	4,277	2,367
Fishery products:											
Codfish	12,575	12,461	16,207	9,472	6,206	5,805	6,635	4,010	2,040	791	1,791
Mackerel	3,681	5,275	6,635	6,713	6,928	10,838	10,262	6,818	5,690	18,179	5,773
Sardines	4,145	2,621	3,057	8,071	2,973	6,204	3,031	2,482	7,079	12,205	5,302
Herring	4,310	5,374	5,917	2,000	1,775	1,931	1,359	1,593	1,142	698	368
Other fish	6,643	8,274	25,202	10,356	11,376	6,847	185	51	90	0	12,069
Grains and grain products:											
Wheat	129,372	120,473	62,138	119,295	94,763	85,036	137,557	134,014	124,079	58,422	199,218
Rice, milled	70,995	4,660	80,181	9,346	9,934	12,505	3,389	2,444	601	0	2,334
Other rice, milled	0	79,812	0	60,368	77,061	96,085	97,600	60,707	94,798	58,649	114,735
Corn	148,201	252,089	246,043	241,500	232,781	258,400	352,865	350,404	437,176	151,248	463,854
Oats	5,428	3,636	3,363	5,046	5,194	4,745	4,741	4,951	2,865	4,409	4,113
Buckwheat and other grains	7,581	4,220	23	12,655	7,472	27,418	16,618	13,194	13,190	34,613	4,325
Baking flour, 1,000 cwt	127	219	217	294	660	516	409	290	598	422	362
Counterflour, 1,000 cwt	1,031	959	898	1,051	971	1,049	986	869	1,058	849	1,204
Corn flour	9,249	8,419	8,027	4,532	4,918	73	97	0	0	64	0
Other flour from wheat	61,319	48,158	50,189	33,576	44,300	22,600	2,900	0	0	2,094	20,489
Flour from other grains	14,182	8,444	8,658	8,358	4,300	14,439	4,547	2,229	3,200	1,119	4,997
Cereal groats and cornmeal	0	0	0	4,154	1,670	5,557	536	0	31	2,127	1,362
Other grain products	0	0	0	811	3,192	1,872	5,094	3,342	2,010	1,415	1,450
Malt	15,735	15,986	17,930	20,979	22,888	23,080	19,072	20,479	21,219	20,551	20,075
Vegetables:											
Seed potatoes	11,356	7,002	6,341	5,679	12,126	5,132	7,132	7,343	3,485	1,504	3,291
Red kidney beans	6,400	3,136	3,220	4,007	3,370	4,380	2,966	465	114	84	77
Onions	10,173	11,162	10,661	6,932	7,032	7,766	5,663	544	70	341	789
Sugar and sugar products:											
Other refined sugar	0	0	0	837	14,317	8,130	11,456	22,048	55,911	55,336	9,775
Glucose	2,455	2,841	2,849	926	2,411	2,583	1,374	2,180	2,295	1,135	266
Livestock feeds and ingredients:											
Poultry feed	43,779	25,454	20,176	4,524	2,936	6,888	5,772	2,672	4,274	3,086	86
Ingredients for poultry feed	0	0	654	3,987	16,069	382	86	557	515	4,188	1,827
Cattle feed	394	687	302	160	276	427	308	68	9	110	458
Ingredients for cattle feed	2,698	0	100	800	217	76	14	121	294	220	0
Pig feed	0	3,409	6,534	139	452	1,575	1,655	496	723	1,102	0
Horse feed	0	0	1,738	1,642	3,354	2,309	1,670	939	344	0	0
Animal feed preparations	0	7,900	4,205	0	10,841	9,465	9,935	13,576	10,776	5,932	3,607
Soybean meal	6,726	12,151	11,721	46,390	12,527	71,101	39,474	72,352	8,020	33,369	14,543
Soybeans	16,348	0	36,418	0	60	140	34,862	76,116	104,415	158,133	138,939

App. table 3--Jamaica: Value of food imports, 1960-79

Commodity	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
					J$1,000					
Livestock products:										
Beef	658	550	820	1,108	1,602	1,508	2,054	1,766	2,118	2,656
Mutton	120	122	134	124	198	282	216	298	526	762
Goat meat	0	0	0	0	0	0	0	0	0	0
Chicken backs	276	106	180	218	22	272	420	448	552	632
Other edible offals	296	298	120	456	768	694	878	862	1,328	1,248
Salted pork	392	492	446	510	546	704	562	510	570	440
Salted beef	154	254	220	314	298	384	376	362	384	406
Corned beef, canned	1,170	300	762	620	882	880	918	816	1,270	1,378
Milk solids	72	64	112	124	132	155	204	368	122	110
Dry skim milk	922	672	968	858	1,130	1,370	1,270	1,698	1,966	1,555
Butterfat	0	0	0	0	0	0	0	0	0	0
Butter	1,512	1,322	1,778	1,854	2,680	2,478	2,486	2,980	2,904	2,576
Cheese and curds	522	494	622	824	1,028	868	1,236	1,274	1,244	1,324
Hatching eggs	0	0	0	0	0	0	0	0	0	0
Fishery products:										
Codfish	2,478	2,710	2,958	2,910	2,784	2,390	2,962	3,254	3,626	4,348
Mackerel	438	404	428	630	938	1,052	1,236	1,142	1,182	986
Sardines	1,248	662	786	686	822	942	1,046	1,018	1,150	1,194
Herring	0	376	460	470	502	488	750	656	780	866
Other fish	0	96	82	72	140	196	182	204	358	428
Grain and grain products:										
Wheat	34	36	88	94	110	76	70	62	2,250	3,424
Rice, milled	2,916	2,624	2,778	3,436	4,020	4,990	4,158	5,644	4,730	5,770
Other rice, milled	0	0	0	0	0	0	0	0	0	0
Corn	630	642	808	946	1,316	1,174	2,664	2,248	2,804	3,396
Oats	58	44	60	64	70	74	72	162	250	248
Buckwheat and other grains	2	2	2	2	2	14	0	0	0	0
Baking flour	3,576	3,486	3,490	3,668	4,532	4,420	4,306	4,886	3,858	866
Counterflour	2,110	2,072	2,450	2,534	2,196	2,406	2,758	3,154	3,416	1,702
Corn flour	186	254	318	272	442	358	250	422	702	808
Other flour from wheat	440	352	548	422	660	566	396	688	1,010	192
Flour from other grains	2	8	8	18	8	6	4	2	115	192
Cereal groats and cornmeal	0	0	0	0	0	0	0	0	0	0
Other grain products	2	2	2	2	2	0	0	0	0	0
Malt	264	276	304	314	366	444	626	662	714	840
Vegetables:										
Seed potatoes	230	282	266	258	176	102	350	234	276	370
Red kidney beans	488	356	0	512	778	546	260	258	524	438
Onions	224	238	292	308	296	336	362	430	506	522
Sugar and sugar products:										
Other refined sugar	0	0	0	0	0	0	0	0	0	0
Glucose	52	48	62	20	98	128	134	176	168	254
Livestock feeds and ingredients:										
Poultry feed	1,280	1,550	1,658	1,528	1,610	1,332	1,922	1,854	3,888	3,380
Ingredients for poultry feed	0	0	0	0	0	0	0	0	0	0
Cattle feed	30	30	22	42	62	48	92	110	320	136
Ingredients for cattle feed	0	0	0	0	0	0	0	0	0	0
Pig feed	12	26	40	78	44	32	0	0	0	0
Horse feed	0	0	0	0	0	0	0	0	0	0
Animal feed preparations	84	114	144	110	150	166	0	0	0	0
Soybean meal	6	4	2	5	48	48	29	190	179	187
Soybeans	0	0	0	0	0	46	0	*	348	0

Continued--

App. table 3--Jamaica: Value of food imports, 1960-79--Continued

Commodity	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
						J$1,000					
Livestock products:											
Beef	3,425	3,851	3,751	6,305	6,253	5,913	5,561	4,691	10,858	12,147	8,753
Mutton	1,082	1,396	2,121	1,130	1,299	1,827	1,346	974	1,493	2,174	2,060
Goat meat	0	0	0	994	1,178	372	163	182	75	116	138
Chicken backs	968	1,304	1,095	2,217	3,338	4,796	6,455	4,705	8,146	10,410	14,808
Other edible offals	1,525	2,597	2,545	1,751	1,882	3,325	4,213	2,379	5,758	3,824	4,369
Salted pork	509	532	26	533	76	209	0	83	0	0	1,117
Salted beef	870	597	1,045	455	810	1,136	1,591	372	855	1,577	1,836
Corned beef, canned	1,769	4,023	3,405	2,503	5,529	7,586	6,571	4,096	8,683	2,574	1,516
Milk solids	348	0	979	81	0	1,810	1,623	1,411	1,511	0	0
Dry skim milk	2,136	3,312	5,224	3,820	10,876	4,412	6,364	4,174	10,029	12,663	17,306
Butterfat	0	0	0	727	2,202	2,071	1,426	620	2,799	5,545	7,625
Butter	2,760	2,489	3,919	519	4,738	3,738	4,141	2,843	2,022	2,353	2,937
Cheese and curds	1,372	2,141	1,855	1,895	3,817	4,113	3,824	3,100	3,499	6,099	3,923
Hatching eggs	0	0	0	0	2,509	3,162	3,263	2,983	5,934	9,153	9,448
Fishery products:											
Codfish	2,840	3,280	4,856	5,012	4,915	4,314	4,668	2,380	1,707	1,166	6,649
Mackerel	516	903	1,120	1,297	1,847	3,164	3,439	2,174	2,405	10,012	2,959
Sardines	1,147	704	1,340	3,071	1,650	4,329	1,852	1,650	5,280	11,272	7,930
Herring	1,450	1,192	1,387	443	989	979	584	887	702	862	661
Other fish	1,114	1,466	1,454	2,947	4,738	2,703	162	92	178	0	8,505
Grain and grain products:											
Wheat	4,202	3,509	4,509	6,995	9,480	6,350	12,234	8,813	12,407	9,253	33,614
Rice, milled	6,661	357	8,838	1,252	1,718	2,071	589	302	158	0	903
Other rice, milled	0	7,651	0	9,539	20,594	23,567	18,297	11,460	25,825	18,913	44,662
Corn	4,203	5,690	6,085	10,265	14,628	16,790	20,157	14,959	30,676	18,123	58,117
Oats	315	243	258	575	817	611	729	930	1,277	1,553	1,468
Buckwheat and other grains	183	107	1	515	518	1,519	1,094	766	504	4,117	736
Baking flour	844	1,208	1,049	2,589	6,290	7,081	5,624	3,280	10,117	10,093	11,528
Counterflour	3,373	3,429	3,248	7,677	12,716	13,052	11,491	8,250	16,753	18,961	33,868
Corn flour	587	621	616	351	459	13	16	0	0	4	0
Other flour from wheat	2,258	1,746	1,988	2,880	4,899	2,426	441	0	0	414	4,405
Flour from other grains	385	274	691	381	4,509	1,576	1,018	416	483	382	1,404
Cereal groats and cornmeal	0	0	0	455	218	391	29	0	7	520	348
Other grain products	0	0	0	207	497	362	557	547	572	461	752
Malt	970	1,128	1,187	1,802	3,272	4,690	3,319	3,997	5,167	6,254	8,229
Vegetables:											
Seed potatoes	503	299	302	538	1,332	466	786	1,416	630	254	825
Red kidney beans	828	420	477	801	1,126	973	794	123	53	39	120
Onions	907	1,187	1,101	1,165	2,328	1,595	837	104	18	108	246
Sugar and sugar products:											
Other refined sugar	0	0	0	112	1,972	1,391	1,639	3,416	8,428	188	5,183
Glucose	167	213	218	125	449	602	299	491	826	595	121
Livestock feeds and ingredients:											
Poultry feed	2,573	1,745	1,366	614	560	1,186	1,578	944	1,695	2,234	117
Ingredients for poultry feed	0	0	59	690	1,275	117	44	123	163	1,827	1,568
Cattle feed	36	65	45	10	43	66	80	16	1	81	91
Ingredients for cattle feed	0	0	15	125	24	18	5	18	93	196	1
Pig feed	0	235	524	29	29	298	393	160	271	575	1
Horse feed	5	1	85	207	348	255	165	121	44	0	0
Animal feed preparations	0	675	456	0	1,361	1,141	1,495	2,653	2,982	2,059	2,735
Soybean meal	23	375	655	5,595	1,381	5,577	3,762	8,071	1,692	4,573	3,426
Soybeans	1,358	0	1,771	5,595	11	58	3,009	7,134	19,553	36,859	33,814

Source: (9).

App. table 4--Jamaica: Total and per capita foreign reserves

Year	Foreign reserves		Per capita foreign reserves	
	US$ million	J$ million	J$	1960 $J
1960	69.2	49	30	30
1961	76.1	54	33	31
1962	74.2	53	32	30
1963	89.9	64	38	35
1964	96.9	69	40	36
1965	95.8	68	39	34
1966	87.6	63	35	30
1967	85	61	34	28
1968	120.2	100	55	43
1969	117.9	98	53	39
1970	139.2	116	62	41
1971	179	147	77	49
1972	159.7	128	66	40
1973	127.4	116	59	30
1974	190.4	173	86	35
1975	125.6	114	56	19
1976	32.4	29	14	4
1977	48.3	44	21	6
1978	58.8	84	40	8
1979	63.8	112	52	9
1980	105.0	187	85	11

Source: (6).

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