THE EXPANSION OF TOURISM AND ITS CONCOMITANT UNREALISED POTENTIAL FOR AGRICULTURAL DEVELOPMENT IN THE BARBADIAN ECONOMY

Frank Alleyne
(Lecturer, University of the West Indies, Cave Hill, Barbados)

Introduction

An essential aspect of development programming is the forging of intersectoral linkages in the domestic economy. In this paper we intend to investigate the extent of linkage between Agriculture and Tourism in the Barbadian economy. We are primarily concerned with identifying the extent to which favourable spill-over effects of Tourism on agriculture went unutilized, and analysing the factors which created such a farming environment. The approach generally employed in this kind of exercise is the econometric method, but data inadequacies preclude the feasibility of this method. The econometric method utilizes data relating to income elasticities and consumption functions in order to predict demand for future years. In our case we know what is the level of per capita consumption but we have no information on current and projected per capita income of visitors, and income elasticities for the various food groups.

Operating within the data constraints already indicated food demand by visitors was estimated on the basis of data collected in a sample survey of hotels by size, location and class. The survey provided information on the menus of various classes of hotels, the categories of food consumed by visitors, and per capita consumption. Out of this data a weighted average of per capita consumption for each type of food was derived (Appendix Table 1). Next data on actual number of bed-nights spent in the country by tourists was brought together to derive the demand for the various categories of food by tourists in a calendar year.

Food Demands of the Tourist Industry

The tourist industry has been expanding at a phenomenal rate over the past nine years. Appendix Table 2 indicates that total bed-nights increased from 276,343 in 1965 to 804,940 in 1973. Accompanying this substantial increase in the number of bed-nights there was a significant increase in the demand for food in the industry. Appendix Table 3 indicates that the demand for food by the industry increased by some 191 per cent over the past nine years. The absolute increments in the tourist sector demand for food over 1965-73 cannot by itself provide us with a clear picture of its potential for agricultural development. We must also take into consideration the income elasticities of the various categories of food entering into tourist consumption. Apart from some starchy staple root crops like sweet potato, yams and eddoes, the income elasticities of the commodities in this case are relatively high. On the basis of these two bits of data we can safely conclude that the agricultural potential of the tourist demand for food is relatively high. Consequently a strong case can be made for shifting resources into the production of these high income elasticity commodities mainly because demand for these commodities will grow more rapidly than other lower income elasticity goods as welfare level rise and their prices are likely to rise more rapidly.

Appendix Tables 4 and 5 indicate the extent to which the agricultural potential of the tourist market has been fritted away. The statistics indicate the high and rapidly rising food import bill especially in the area of high income elasticity commodities like meat, meat products, and vegetables. One estimate suggests that two-thirds of the food consumed in the tourist industry is imported (2). Unfortunately the researchers suggest that there is nothing amiss in such a situation. The study supports its assertion by pointing to the necessity for serving tourists dishes with which they are familiar. The validity of the researchers' assertion must be questioned at two levels, namely: (i) what are the consumption patterns of tourists and (ii) what is the feasibility of producing these imported commodities within the country? Concerning the consumption patterns of tourists, Appendix Table 1 provides the required information. The point one needs to note here is that a significant proportion of the food which is served is canned stuff. However the important point is that with the exception of *Asparagus* all of the commodities are produced in commercial quantities within the country. It seems that the only justification for Doxey Associates' claim is the unfounded assumption that there is a fundamental difference between fresh and canned foodstuff, and tourists will prefer the canned foodstuff. Even if that is the case, then the establishment of a cannery would seem to be the logical response, to the extent that there is no desire to interfere with the tourists' taste.

Response to the Agricultural Sector

Appendix Table 6 indicate the responsiveness of the agricultural sector to a buoyant food demand. In the high protein category of meat there has been a significant reduction in output between 1971 and 1972. When the statistics for 1973 and 1974 become available indications are that the reductions may be even more significant. Over the period 1958 to 1972 increases in output have been relatively small in the face of a rapidly rising demand for meat, meat products and vegetables, resulting in the persistently high import food bill in these areas.

Perhaps our most important task is to analyse why did the agricultural sector fail to capitalise upon the opportunities for development offered by the rapid growth in high income elasticity foodstuffs. The case that the imports could not be replaced by domestic production cannot be substantiated. A study conducted by International Development Service not only indicated the feasibility of import substitution, but detailed what land resources would be required in 1971 (1). Appendix Tables 7 and 8 indicate acreages required to substitute importations of fruit and vegetables in 1971.

The constraints on the performance of the farm sector are basically of an institutional and structural nature. Land is a basic input in agriculture and the distribution of land ownership in Barbados to some extent explains the weak response of the sector to new opportunities being offered for development. Some 70 per cent of arable lands is owned by the estates which concentrate on the production of sugar. They produce some root crops on preparation lands, and a few experiment with vegetable production, but by and large their main concern is with sugar cane cultivation. These estates control the flat fertile lands which are best suited for agriculture. To the extent that these operators are reluctant to shift resources out of

sugar and into other new and more profitable areas, the response of the sector will be weakened for the simple reason that the operators who control resource allocation in the sector are reluctant to shift resources to capitalise upon changing market opportunities.

Why is there this reluctance to shift resources from sugar cane cultivations to the production of meat, meat products, vegetables and fruits? It is not the case that the large farmers are not motivated by price differentials. We need to note that a shift from sugar cane cultivation to production of poultry, vegetables, fruit, corn, etc. require a totally different and more intensive type of husbandry, which demands the kind of effort and mental adjustment which the large-scale operators may not be inclined to make. Resources are moving out of sugar cane cultivation, but not into other forms of agriculture, the main beneficiary being the real estate sharks who siege upon the opportunity if permitted by Government to sub-divide good agricultural land into plots ranging between 8,000 to 15,000 square feet at phenomenal prices.

Apart from the rapid shift of resources out of sugar to the detriment of domestic agriculture, the high price of agricultural land ranging between Bds.$6,000 and $10,000 per acre is a major deterrent to peasant farmers. Few peasant farmers are capable of raising the required collateral to qualify for credit to acquire a plot of the appropriate size taking into consideration his enterprises, technology and a socially acceptable level of income for an efficient farmer. The Agricultural Credit Bank and the Barbados Development Bank will *assist* farmers in acquiring lands as long as the project is *economically sound*. The record of both institutions in this sphere of their activity is not an outstanding one.[1]

Hand in hand with the high cost of agricultural land is the feeling that as long as commodities are domestically produced the prices should be much lower than their imported counterparts. This attitude tends to depress returns to producers thereby discouraging domestic production. Low prices are generated by factors more fundamental than attitudes, as there is the almost total dissarray of marketing facilities. The underdevelopment of marketing facilities compel the producer to incur a high perishability factor in his operations. For one, produce like lettuce and tomatoes must be sold immediately upon harvesting because of the inadequacy of storage facilities, and the absence of agro-industry to take up the surplus for canning purposes. The main consequence of this situation is the existence of very uneconomic prices during good harvests, high prices during shortages and high import levels of canned foodstuffs. Because the farmer in the majority of instances has to provide his own transport which is least suited for transporting vegetables the perishability factor is unnecessarily high. Without belabouring the point it is obvious that the marketing system works severe hardships on the producers thereby generating much wastage, and disincentives to production. In fact the marketing situation has hardly changed since Nurse and Brathwaite produced their study on agricultural marketing in Barbados 1971 (3).

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[1] Reports of the Agricultural Credit Bank.

The failure of the agricultural sector to respond adequately to the existing favourable market opportunities is essentially a function of two factors, namely, a perception of what is possible and desirable in the interest of agricultural development, and a highly deficient approach to development programming. There is the view that tourists do not come to Barbados to eat dishes with which they are unfamiliar and that they desire to sample new dishes (2), and worse yet that no one should bemoan the fact that expansion of tourism generates an increase in food imports because tourists do not come to these shores in search of food. Such notions are the product of a faulty perception of what is desirable in the national interest. Development programming is not a substitute for deficient perception; however it seems to be the case that increments in domestic food consumption (indigenous, tourists) were met by food imports because the distribution of the increases were not anticipated, or even if they were anticipated the appropriate policy mechanisms were not employed. The seasonal pattern of production is a significant feature of the statistics on production trends. The peak period of vegetable imports is directly related to the dry season. This phenomenon highlights the problem of inadequate capital to finance irrigation, small size of plots which make investment in irrigation facilities uneconomic, and the high degree of uncertainty inherent in the marketing system.

Land is a basic input in farming and unless land is made available to technically efficient farmers on the right conditions, the agricultural sector will continue to watch favourable opportunities bypass it. Land is a single input and by itself can produce nothing. Until we bring together all the inputs employed in the production process (land, management farmer education, credit, marketing, infrastructure, etc.) in the right proportions and under conditions conducive to increased production especially in new high income elasticity products, agriculture will continue to stagnate and regress. Under the present structure where Tourism in Barbados attracts labour from agriculture, and raises the reserve price of labour in agriculture, the prospects are that expanding tourism in the present circumstances will generate a dying farm sector.

References

1. *Analytical Study of the Agricultural Sector of Barbados:* International Development Series, Inc., 1971.

2. Doxey, G.V. and Associates. "The Tourist Industry in Barbados - A Socio-Economic Assessment."

3. Nurse, J.O.J. and Brathwaite, A. "Marketing in the Agricultural Diversification Programme in Barbados." 1971

Appendix Table 1. Food Demand by Visitors: South and West Coast Hotels, Barbados: 1965-1973

Commodity	Quantity Per Week (lb.)						Approx. Quantity Per Person Per Day (Weighted Average)
	South Coast				West Coast		
	20 Beds Occupied	50 Beds Occupied	85 Beds Occupied	160 Beds Occupied	240 Beds Occupied	250 Beds Occupied	
Meat:							
Fresh Beef	40	114	65	650	920	675	0.38
Fresh Pork	40	45	30	210	200	235	0.15
Processed Meat		73	12	608	700	370	0.28
Lamb	30	25	30	120	240	25	0.10
Fish	30	73	110	765	400	510	0.31
Fresh Vegetables:					300		
Lettuce	7	40	20	300		475	0.14
Cabbage		50	28	30		50	0.06
Carrots	10		14	50		50	0.04
Egg Plant		5		30		75	0.03
Pumpkins		30	15			50	0.05
Tomatoes	20	50	38	300		400	0.17
Cucumbers	15	20	20	70		175	0.07
Beetroot			15	30			0.03
String Beans	15	20	12	20			0.06
Canned Vegetables		44		375		160	
Fresh Fruit:		210	136	400	2,000	1,615	0.66
Canned Fruits & Juices		15	60	750	240	400	
Root Crops:					1,000		
Yams	10	10	25	100		150	0.06
Sweet Potatoes	10	10	25			100	0.05
English Potatoes	20	155	168	1,000		600	0.42
Onions		50	56	150			0.11
Eddoes			14				0.02
Plantains			33	150		75	0.07
Dairy Products:							
Fresh Milk	40	235	66	568	1,120	1,050	0.49
Evaporated Milk					195		
Butter	10	28	16		420		
Cheese	10	10	9	100	100		
Chicken	15	35	76	260	800	200	0.19
Eggs	15		63	500	1,250	1,000	0.39
Duck					600	50	
Turkey					480	135	
Cornish Game Hens					72		
Sugar	5	30	14	230		240	0.14

Sources: (i) Estimates from Food & Beverage Managers, (ii) Gooding, E.G. "Tourism & Food Consumption".

Appendix Table 2. Growth of Tourism in Barbados, 1965-73

('000)

Year	No. of Bednights
1965	276.3
1966	290.1
1967	286.0
1968	405.8
1969	489.4
1970	498.9
1971	602.4
1972	787.8
1973	804.9

Source: Barbados Statistical Survey: *Bednight Survey of Hotels and Guest Houses.*

Appendix Table 3. Estimated Food Demand by Tourists; Barbados, 1965-73[1]

Commodity	Approx. Quantity Per Person Per Day	Approx. Quantity Reqd. 1965 ('000 lb.)	Approx. Quantity Reqd. 1973 ('000 lb.)	Absolute Change ('000 lb.)	% Change
Beef	0.38	105.0	305.9	200.9	191
Pork	0.15	41.5	120.7	79.3	"
Processed Meat	0.28	77.4	225.4	148.0	"
Lamb	0.10	27.6	80.5	52.9	"
Fish	0.31	85.7	249.5	163.9	"
Lettuce	0.14	38.7	112.7	74.0	"
Cabbage	0.06	16.6	48.3	31.7	"
Carrots	0.04	11.1	32.2	21.1	"
Egg Plant	0.03	8.3	24.1	15.9	"
Pumpkins	0.05	13.8	40.2	26.4	"
Tomatoes	0.17	47.0	136.9	90.0	"
Cucumbers	0.07	19.3	56.3	37.0	"
Beetroot	0.03	8.3	24.1	15.9	"
String Beans	0.06	16.6	48.3	31.7	"
Yams	0.06	16.6	48.3	31.7	"
Sweet Potatoes	0.05	13.8	40.2	26.4	"
English Potatoes	0.42	116.1	339.1	223.0	"
Onions	0.11	30.4	88.5	58.1	"
Eddoes	0.02	5.5	16.1	10.6	"
Plantains	0.07	19.3	56.3	37.0	"
Fresh Fruit	0.66	182.4	531.3	348.8	"
Milk	0.49	135.4	394.4	259.0	"
Chicken	0.19	52.5	152.9	100.4	"
Eggs	0.39	107.8	313.9	206.2	"
Sugar	0.14	38.6	112.7	74.1	"

Source: Same as above.

[1] Based on No. of bednights: 1965 - 276,343; 1973: 804,940.

Appendix Table 4. Imports of Vegetables and Root Crops into Barbados, 1965-72

('000 lb.)

Commodity	1965	1966	1967	1968	1969	1970	1971	1972
Beans, Dry Peas, Lentils	3,068	3,249	2,993	3,353	3,145	3,919	3,308	3,419
Onions (dry)	3,567	3,791	3,607	3,794	3,498	3,309	3,115	3,841
Garlic	n.a.	n.a.	n.a.	n.a.	25	17	21	32
Tomatoes			118	149	180	195	209	174
Beets, Cabbage, Carrots	495	945	616	481	792	471	666	610
Vegetables (frozen)	n.a.	n.a.	n.a.	n.a.	145	155	227	352
Potatoes (white)	9,123	9,374	1,288	12,710	13,294	12,264	13,130	
Corn	3,274	2,584	1,451	2,230	3,372	5,339	7,682	
Vegetables (in vinegar canned)	n.a.	n.a.	n.a.	n.a.	130	59	97	86
Other Vegetables (preserved canned)	n.a.	n.a.	n.a.	n.a.	1,459	1,480	1,708	1,440
Other Fresh Vegetables (including Peas, Beans, Lettuce, Asparagus, Cauliflower etc.)	468	447	285	312	432	511	492	356
Peanuts					636	607	481	203

Source: Barbados Trade Statistics.

Appendix Table 5. Meat Imports for Domestic Consumption in Barbados

('000 lb.)

Commodity	1958	1960	1962	1964	1967	1969	1971	1973
Beef & Veal	2,592	1,816	2,837	3,962	3,922	4,486	4,264	5,540
Pork & Pork Products	4,909	5,084	5,094	5,500	4,449	5,714	4,180	5,472
Mutton & Lamb	164	10	197	268	519	1,007	1,133	1,653
Poultry Meat	756	789	1,482	1,484	4,228	5,662	7,929	6,482
Meat N.E.S.	1,326	1,231	1,102	1,942	552	2,004	2,020	2,374

Source: *Barbados Overseas Trade Reports*.

Appendix Table 6. Estimates of Domestic Production, Meat and Other Selected Items* 1969-73

('000 lb.)

Commodity	1969	1970	1971	1972	1973
Beef & Veal	1,234	1,246	1,258	985	n.a.
Pork & Pork Products	3,680	3,753	3,795	3,805	n.a.
Mutton & Lamb	296	306	316	252	n.a.
Poultry Meat	1,212	1,250	1,625	3,300	n.a.
Yams	24,259	34,000	31,640	23,978	16,327
Potatoes	10,901	12,553	14,908	10,121	10,074
Tomatoes	1,128	690	804	862	1,086
Onions	400	1,198	2,000	2,500	1,800
Cotton		23	10	51	113
Peanuts		200	320	500	250
Pumpkin[1]	160	240	771	800	850
Cabbage	450	668	1,426	1,343	1,748
Cucumber	768	780	1,295	1,944	2,238
Carrots	320	1,062	1,536	2,176	3,072
Beets	n.a.	300	300	1,198	1,797

Notes: * These are rough estimates and hence subject to change.
[1] Grown on farms of ten acres or more.

Source: Ministry of Agriculture, Science and Technology, Barbados.

Appendix Table 7. Acreages Required to Substitute for Importations of Vegetables etc. in Barbados, 1971

Crop	Imports ('000 lb.)	Yield Per Acre* ('000 lb.)	Acres Needed for Import Substitution
Onions	3,308	10	331
Tomatoes	195	8	24
Other Vegetables	910	6	151
Peanuts	514	3	171
Pulses	3,605	1.4	2,570
White Potatoes	14,177	10	1,417
Total			4,664

* Yield data estimated from unpublished data by International Development Services, U.K.

Source: Imports taken from Trade Reports.

Appendix Table 8. Estimated Acres of Planting Required to Substitute Imports of Fresh Fruits and Nuts; 1968

Commodity	Imports 1968 (tons)	Yield Per Acre	Trees Per Acre	Yield Per Acre	Acreage Required to Replace Imports
Oranges & Tangerines	2,000	200	10	10 tons	200
Orange Juice (fresh fruit equivalent)	2,250	200	100	10 "	225
Lemon & Limes	25	100	100	5 "	5
Grape Fruit	1,000	250	80	10 "	100
Grape Fruit Juice (fresh fruit equivalent)	600	250	80	10 "	60
Bananas & Plantains	200	45	540	12 "	17
Mangoes	280	250	35	4 "	70
Cashew & Brazil Nuts	16	10	35	350 lb.	100
Copra Equivalent	2,100	60 nuts	70	15 cwt.	2,800
	1,300	60 "	70	15 "	1,800
	-	-	-	-	5,277

Source: U.K. Development Services Inc.