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A REVIEW OF AGRICULTURAL
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and

Elizabeth Erickson

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GENERAL WORKING DOCUMENT #2

**A REVIEW OF AGRICULTURAL
MARKETING IN JAMAICA**

**Dr. Frank Erickson
Dr. Elizabeth Erickson**

Development Planning Group

**Office of International
Cooperation and Development**

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January 1980

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1.0 INTRODUCTION

1.1 SCOPE AND LIMITATIONS

Agricultural marketing is a broad and complex topic and in Jamaica it has been studied in some depth. Therefore, this paper is to be limited in scope to those areas with which the author has direct experience and potential insights. The reader will be referred to other studies for detailed descriptions and discussions. This report endeavors to point out the major issues and problems of agricultural marketing, especially as they relate to the income and livelihood of small farmers and marketers. The study is not directly concerned with the sociology of the fascinating small trader of Jamaica - the higgler - about whom so much has been written. A further limitation is the focus on problems of domestic food marketing with little concern for the situation of export crops, although reference will be made to the literature in this area.

The first section of this paper will introduce the marketing system in the perspective of the Jamaican agricultural economy. The second section is a review of the major recent studies of marketing in Jamaica and a related appendix provides an annotated bibliography of all studies encountered in this investigation. The third section comprises the authors interpretation and analysis of major problem areas in domestic food marketing. Section four is an analysis of the question of whether marketing margins in Jamaica are excessive. The last section deals with the author's recommendations for constructive changes in the marketing system.

1.2 AGRICULTURAL SITUATION

Jamaican agriculture is in a chronic situation of insufficient production, both to meet domestic demands and export commitments. In addition most domestic food production comes from small farms, produced at high costs on generally poor lands with steep slopes and thin soils. The large farm

population, beset by low incomes, poor services and lack of general opportunity has little incentive to produce more or to stay in agriculture. The drift of rural people to the cities, high food costs and low rural incomes combine to create a problem situation in agriculture and to give it a high priority for development.

In recent years production of export crops has generally decreased and there has been a significant increase in domestic food production. However, demand for quality foods (e.g. improved rice, meats, dairy) has expanded demands for food at a much more rapid rate and thus food imports have dramatically increased while exports have fallen, aggravating an already critical balance of payments crisis. This situation has focused governmental and societal attention on agricultural problems.

The Government of Jamaica (GOJ) has a policy of promoting high prices at the farm gate and low prices to the consumer. There is some obvious conflict in this policy and it brings emphasis to the marketing function, the costs of which largely determine the difference in prices between farm gate and consumer. It is often asserted that marketing costs are high in Jamaica and much of the blame for this is attributed to the inefficiencies of the higgler system which handles about 80 percent of the internally produced domestic food. The question of marketing margins as a measure of efficiency will be investigated in a later section.

The Government of Jamaica established in 1963 an Agricultural Marketing Corporation (AMC) in an attempt to 'modernize' the internal marketing system. The AMC was to simultaneously support farm prices, provide low-cost food for the poor, operate facilities for transport, storage, washing, packaging, and retailing of food and to provide market information, establish grading systems, import and export food, etc. The AMC has only partially fulfilled its charter, has lost money and has never controlled more than 20 percent of the overall

food distribution. Many questions and controversies surround its broad role in agriculture and marketing.

Relatively low-cost food and high farm prices can only be achieved through subsidy to either or both farmers and consumers or by reduction of the marketing costs. Subsidy is expensive to the public purse and an undesirable though often necessary policy. To the extent possible an increase in marketing efficiency is a better option.

2.0 REVIEW OF STUDIES AND DATA ON MARKETING IN JAMAICA

This review does not attempt to provide a summary report of information on the present situation of agricultural marketing in Jamaica. Numerous recent reports of this type already exist. Instead, the section has two purposes. First it provides a guide to the literature and data on marketing in Jamaica. This will hopefully bridge an information gap. A great deal has been written in areas related to marketing, but there are many disparate sources, which means that useful studies can be easily overlooked. Second, it attempts to identify some of the areas in which further study seems needed. References to marketing studies discussed are to be found in the partially annotated bibliography at the end of this paper, which is abstracted from a larger bibliography of agricultural development literature on Jamaica (Erickson:1979).

Studies on marketing topics in Jamaica can be divided into four groups. First there are studies of food demand in the context of more aggregate economic analysis or macro models - studies which include estimates of price and income elasticities of demand for food-groups or specific foods, and look at import/export policy, export multipliers etc. Second, there are descriptions and analyses of specific crops or products, mostly export crops - bananas, coffee, sugar etc. These analyses often include fairly sophisticated demand and marketing sections. Third, there is an extensive

literature on marketing channels for domestic crops. 'Higglers' in Jamaica have been studied by anthropologists and others since the early 1950's. Since its inception there have also been descriptive and analytical studies of ANC, and its role in the total system.

Fourth, there are numerous reports and evaluations of the total marketing system, listing problems and making recommendations for change. These may be based on secondary sources, conventional wisdom or involve primary data search.

2.1 FOOD DEMAND STUDIES AND AGGREGATE ECONOMIC ANALYSIS

2.1.1 DOMESTIC PRICE AND INCOME ELASTICITIES AND FORECASTING MODELS

Several recent reports (Kutish:1978, Zenny:1978) have suggested that in Jamaica there has been no estimation of price and income elasticities of demand, or any other information needed for significant demand forecasting. In fact there are estimates, perhaps not perfectly adapted for the specific purposes the report writers have in mind, but certainly of a depth and quality unusual for many LDC's. Much of this work has been carried out by academic economists and published by the University of the West Indies. It perhaps then insufficient interaction between economists at the Ministry of Agriculture (MOA) and at UWI which has led to lack of consideration of at least three major studies (Adams:1968, Cumper:1966, Harris:1964). Certainly these analyses are not very recent, but they are still a significant source.

Adams (1968) as part of an analysis of food consumption and food import trends in Jamaica for 1950-63, used national accounts data and retail price data developed for the Consumer Price Index to estimate income and price elasticities for various food groups. He used 1958 Household Survey weights to develop price indices for major groups of food products: bread and cereals, meat, fish, oils and fats, fruits and vegetables, root crops. The equations used were consumption expenditures per capita of each group as a function

of per capita disposable income and price indices. Prices of substitutes were not included, but for commodity groups it could be reasonable to assume independence of demand between groups. For rootcrops and fruits, vegetables and pulses the income elasticities were negative, an unusual result. Adams suggests that because of the provision by purely local supply the data are simultaneous and the demand function is not appropriately specified by a simple single equation.

The results of Adams estimates are shown in Table 1, and technically apply specifically to the income levels of the period of estimation. Given overall income and price elasticities, Adams went on to estimate import price and income elasticities for the period (1950-63) for specific items. Use of these for forecasting assumes continuation of the overall domestic supply situation which occurred over the time period studied, an assumption with little validity. However, at least one of his findings is of interest; that import demand for food was price elastic over the overall time period. Given that overall demand elasticities are not greater than 1, the results suggest a fairly elastic domestic supply response - that is that at higher prices, consumers reduce demand somewhat, but that the greater drop in imports come from increased domestic production.

An earlier study by Harris (1964) used the 1958 Consumption Expenditure survey data to estimate income elasticities. Mean consumption per capita and estimated per capita income for ten income groups were used as variables for estimates of rural, urban, and main town areas. This settlement breakdown allowed for differences in behaviour and alternative response to income changes. Harris also suggested that the semi-log Engel curve provided the 'best' theoretical description of behaviour for each group; that is, that elasticity of consumption declines with income. The elasticities are reasonably similar to those of Adams (though commodity groupings are not exactly the same),

except in the case of root crops and vegetables in which negative elasticities were not found. The data are shown in Table 1. It is not clear from the article the nature of the sample used for estimation. A stratified random sample would require consideration of weighting.

This problem is considered by Cumper (1966) in an article discussing alternative methods of computing income elasticities. He used the same data as Harris and compared estimates in log and semi-log form, using weighted and unweighted consumption group means plus a non-regression method. The estimates, which differed as would be expected, but those which were the most acceptable statistically (weighted semi-log and log) gave similar results. Again the estimates are listed in Table 1.

Potential data sources exist for new estimation efforts. Unpublished consumer survey data exist in the Department of Statistics for 1971-2, 1975, and 1977¹ from which income and expenditure elasticities could be calculated. The data are sufficiently detailed to allow separate estimates for rural, urban and town groups - an important requirement. These same data could be used for indirect estimation of price elasticities using Ragnar Frisch's method (Frisch 1959). Despite the limitations of this method, World Bank economists have used it where no time series data were available (e.g. Le Si and Pomerada, 1976). Given that the consumer survey data are available for several years it is possible to use these data to get a direct estimate of some group price elasticities, sufficient at least to allow a direct calculation of money flexibility (θ) a value needed for the Frisch estimation (Kinstrop-Anderson, de Londono, Hoover (1976)).

1

See Appendix in Annotated Bibliography, under Jamaica, Dept. of Statistics and Jamaica, Ministry of Agriculture for data sources for this and other quantitative analysis.

Table 1

Estimated Income and Price Elasticities for Food Products in Jamaica

Food Products ¹	Income Elasticities				Food Products	Income Elasticity Adams ² (1950-61)	Price Elasticity
	Urban	Harris (1958) ² SubTown	Rural	Cumper (1958) 'Best Estimate'			
Fresh Meat & Poultry	1.08	1.07	1.46	0.73 ^a			
Tinned & Pickled Meat	0.79	1.31	0.21	0.53 ^b	Meat	1.43	NA
Fresh Fish	0.11	-0.09	1.61				
Tinned & Pickled Fish	0.17	0.52	0.61		Fish	0.58	NA
Starchy Foods	0.13	0.42	0.52	0.25	Root Crops	-0.5	-1.34
Fresh Vegetables	0.60	0.61	0.59	0.56			
Fresh Fruits	0.93	1.07	1.01	0.56	Fruit, Veg. and Pulses	-0.4	-0.74
Other Fruits & Vegetables	0.65	0.63	0.65	0.47			
Dairy Products and Eggs	0.85	0.76	1.48	0.72	Dairy Products	1.07	-0.65
Oils and Fats	0.20	0.25	0.70	0.39	Oils & Fats	0.46	-0.47
Cereals and Baked Products	0.35	0.65	0.69	0.51	Breads and Cereals	.62	-1.16
Sugar and Condiments	0.67	0.53	0.48	0.45	NA		NA
Outside Meals	0.51	1.21	1.71	0.92	NA		NA

Sources: Harris (1964), Cumper (1966), Adams (1969)

¹ Standard errors are not included. It is important that these data only be for use after examination of report with these error terms.

² Semi-log form of linear regression

^a Fresh meat and fish

^b Tinned meat and fish

For direct price elasticity determination clearly time series data are needed. Direct intra-year data on crop prices is only of recent origin (MOA 1976), but some inter-year series (of varying quality) do exist. It is even possible to use Adams national account series. Quantity estimates are also limited, although survey data are now being obtained for production estimates, previously estimated by MOA technicians (MOA 1976). Consumption estimates can be made if storage, export and import data are reasonably accurate.

For forecasting, data on economic growth on supply response and on elasticities of substitution are needed at minimum. In fact demand, supply and price determination in essence occur in a simultaneous system. Although there are not detailed disaggregate models of multiple agriculture products, and as we shall see, few individual product supply estimates - there are a number of economy-wide models in which agriculture is taken as a single-sector, or where there is a breakdown within agriculture.

For demand and marketing studies knowledge of interaction with the rest of the economy is important. There are at least four multi-equation econometric models on the Jamaican economy (Carter:1970, Harris:1970, Jolly:1973, Manhertz:1970) with which to determine interaction between agriculture and other sectors and to measure effects of import substitution and export policies. Few countries have such a wealth of models for intersectoral analysis.

Harris (1970) develops a two-gap model with 57 equations to test the importance of foreign exchange compared to lack of domestic savings as constraints on growth in Jamaica for the period 1950-1965, and to determine aggregate resource requirements. An aggregate import demand elasticity for food (1.1) is estimated directly for the period. Among exports, sugar and bananas are included separately. It is assumed that exports are limited by demand conditions in

developed countries. In fact Harris admits that non-responsiveness could be due to supply problems. Hence the income elasticities of 1.15 and 1.49 for sugar and bananas respectively are not really relevant. Overall results of the model suggested that the import-export gap has been the significant constraint over most of the time period.

Carter's (1970) model is build to evaluate the effect of exports and tourism - a 33 equation model using 1959-66 data. Again aggregate import demand for food is estimated, with similar elasticity estimates to those of Harris. Exports are considered exogenous in this model. Import demand for food is considered a critical variable.

Jolly (1973) develops a model using 1959-1968 data to determine the feasibility of alternative growth rates. Total food demand and supply equations are included. With an assumed 4% growth rate for the economy, sectoral labor and capital coefficients are developed which suggest that agricultural growth can reduce unemployment. Manhertz (1971) uses data from 1959-1967 to build a even more aggregate model, but which includes the monetary sector.

None of these studies have a detailed breakdown of agriculture beyond examination of exports and imports, and as intersectoral studies they do not specifically study that one sector. Worrell (1973) suggests that break-down to look at consumption and imports by income group, an examination of export destinations, and a more detailed specification of sectoral links would improve their usefulness for policy purposes, and that applies certainly for analyses of marketing strategy and demand in agriculture. However, the stress on exports and import substitution and determination of growth rates are important, and the models provide information into which a more detailed analysis of the agricultural sector could be fitted.

A part of such an analysis would be a more disaggregate examination of intersectoral links, using for example input-output analysis. There is no such I/O study, but there has been work done on aspects of employment potential in agro-industry. Gurley (1974) in a Ph.D dissertation surveys 26 presently operating firms on techniques, research and development, labor use, and source of inputs. Results suggested that local firms rather than multinationals were more likely to re-invest and obtain resources from local sources. In a 1977 article using census and labor force statistics to examine choice of technique, Gurley suggests that mechanization rather than labor-intensive production is increasing over time.

Overall questions of agricultural export trade have been addressed by a number of development exports. Important statements have been made at various times by Demas (1976) and Buckmire (1971, 1973) on the need for intra-Caribbean trade and the political problems in its achievement. Roache (1976) in a review paper looks favorably at the potential for development and trade of specific crops within CARICOM and McIntosh (1975) looks at CARICOM marketing constraints which affect trade development, although in fairly general terms.

For a somewhat different view of the prospects of intra-Caribbean trade, there is the study, Andic et al (1971) which developed a model which incorporates regional price and income elasticities for major agricultural products used in the region, plus export elasticities, to estimate losses from lack of trade. Their results indicate there were losses due to lack of free trade, but also that CARIFTA, association with the EEC, and CARICOM institutional alternatives did not bring about much improvement.

2.1.2 EXPORT AND SINGLE CROP ANALYSES

The second group of articles and studies are again mostly academic in origin though not exclusively, but have in common their stress on a particular

crop, mostly those for export, though some specific import substitutes are considered. Not all material relates to demand or to specific marketing estimations or problems. In a number of cases, supply conditions are also analyzed - an obvious requirement for the determinations of import substitute or export potential. The crops covered are: a) for exports - sugar, bananas, coffee, vegetables, citrus, mangoes, ginger, pimentos; b) for import-substitute - meat, vegetables, fish. Some of the studies are descriptive, other analytical, and they range from old to recent.

For most export crops in Jamaica there are marketing boards which publish forecasts and make internal studies. As the major emphasis of the paper is on domestic market crops, material of this kind on export crops has not been studied in detail. All boards have a series of annual reports with production and consumption data. Anyone analyzing these export crops would be provided with this internal material by the agency - it is the other relevant but external studies which require to be noted.

The most important agricultural export of Jamaica is sugar. The most recent detailed study is by Hagelberg (1974) in which costs, productivity, and potential for technological change are evaluated. Data for Jamaica are considered, along with others in the Commonwealth Caribbean. Unlike Murphy (1972) who considers that the industry has some potential, Hagelberg concludes that there are higher costs in this area than among its competitors, with limited potential change likely. Lawson (1971) provides a further detailed survey.

More recent cost data have been developed by the World Bank (1978). The problem of marketing sugar under rising costs with loss of Commonwealth preference as Britian joined the EEC, are reviewed by Girwar (1973). One suggested additional market is more emphasis on sugar - by - product utilization. Uses for pulp and paper, cattle feed and anyhydrous alcohol have been evaluated

in detail in a recent OAS study (OAS 1978). The recommendations of this study suggest that opportunities are limited. It should be noted that problems in the sugar industry are not new. Detailed information on difficulties in the industry can be found in Commission of Inquiry held in 1960 and 1966 (GOJ; 1960, 1966).

A second major export crop is bananas. This crop is produced in the main on small farms, and has been declining in production, both of which make it significant for analysis. Early studies were made by Rodriguez (1955) who included a long historical series on supply going back to the early part of the century, and by McFarlane (1964), who made fairly simple supply and demand forecasts for all of the West Indies including Jamaica for 1965 and 1975.

One marketing area in which studies have been made is that of market structure. Arthur et al (1968) looked at concentration in the international banana market which included a discussion of its effects on Jamaica. High concentration in the marketing of Jamaican bananas, is determined a problem in a later (1971) study (North London and Haselmere Group), with a recommendation for nationalization. These studies relate to problems of the whole industry rather than to additional problems of the small farmer.

Issues of export demand for bananas have been analyzed by Coley (1971) who estimated a low price elasticity of demand for exports for the whole Commonwealth Caribbean. Phillips (1973) provides some addition to this analysis for the Commonwealth Caribbean by comparing costs with those of alternative suppliers to the EEC. His results suggest that the Caribbean has cost disadvantages.

For coffee several descriptive studies for Jamaica have been published (Rodriguez (1955) and Thomas (1964)). These both include discussion of 1954-5 survey results on production practices. No later detailed survey

seems to have been carried out. These studies are useful for their historical analysis and the documentation of problems over time. However the most important recent work, for overall industry analysis and for marketing and policy analysis is the Ph.D study by Williams (1972, 1973, 1975) in which he develops a model of coffee supply, as a function of lagged prices, wage rates and the prices of substitutes and complements (bananas, cocoa, etc.), which is fitted using time-series data. The long run supply elasticity estimate is .82 and the crops elasticity with respect to the price of cocoa is .28. This shows some quite significant effect of price on production. The second part of the study attempts to estimate the long-run average cost curve for coffee processing, using data from plants administered by the Jamaican Coffee Board. These estimates indicate economics of scale in processing which might justify the Board's investment in facilities, although at present these remain under-utilized and the economics therefore not exploited.

There has been recent interest in the potential for vegetables in Jamaica - both for export and to substitute for imports. Several recent studies try specifically to analyze export potential for these crops. Sarfaty (1978) looks at potential demand and comparative cost data for exports to the U.S. from Jamaica and includes a discussion of specific marketing problems like contacts with brokerage firms, quality requirements, etc. He uses as one source a shorter study by Baldwin et al (1975). Due and Gehring (1973) look at import substitution potential. Data from the 1960's is used in a discussion of the potential for increased production of vegetables which are in part imported. Cost comparisons are not made.

Descriptive studies of not very recent data exist for smaller export crops - citrus (McFarlene 1964), pimento (Rodriguez) and ginger (Rodriguez).

In meat excellent work on developing demand data has been done by Mayers of the UWI Department of Agricultural Economics (Mayers 1970). A

series of statistics has been developed by island by meat type for the period 1950-1968. In a later study Mayers (1973) evaluates marketing and demand for meat in the West Indies, and using income elasticity estimates, projects demand for 1980. At the micro-processing level the construction of a meat marketing slaughter-house for Kingston has been evaluated in a recent IDB study (Guerrero et al 1977).

2.1.3 MARKETING CHANNELS FOR DOMESTIC CROPS

In Jamaica there are now two major channels available to the producer for the sale of domestic crops - a) the traditional system of small trader intermediaries (usually women) called 'higglers' and b) the Agricultural Marketing Corporation, the Government buying and selling agency. This second channel has only been in existence since 1963.

The 'higgler' system has been the object of considerable anthropological and sociological research. Mintz (e.g. 1974) has outlined its historical development from the time of slavery and (1954, 1955) has compared it to similar systems in the Caribbean which he suggests are efficient in the context of the small peasant farmer.

Katzin (1959, 1960) has described the Jamaican system of the late 1950's in impressive detail, based on field study. She defined higglers in Kingston's Coronation Market into eight categories, which are still the basis of present classification. The study remains the basic source against which changes over time are measured. The categories defined were country people, who sell their own farm produce; country and town weekend higglers, who buy wholesale at Kingston markets and sell at retail at the end of the week; country higglers, who buy produce from growers and sell at wholesale or retail; town higglers who rent market stalls and sell from them; tray girls, who sell from trays outside markets and vendors who rent several stores and specialize in only one item. Katzin detailed the activities undertaken by each type

of higgler; and estimated, (on a case study basis), costs and returns for both country and town higglers. She concluded that the system provided sufficient information to producer and consumer, consisted of many buyers and sellers, and could be characterized as perfectly competitive and efficient.

Norvell and Thompson (1959) challenged the market characterization but not necessarily its efficiency. They contended that Katzin's statements indicate cost plus pricing, reservation pricing, non-price competition, indivisibility and returns to scale, none of which are part of the perfectly competitive model. They suggested spatial market operating under uncertainty with an 'unorganized oligopoly'. Arguments would seem to be possible on both sides, but in both studies the conclusion is that the result roughly meets efficiency criteria.

However, not all those who evaluated the system reached that conclusion. As a result of a 1960 FAO study, the AMC was set up to provide an alternative marketing channel, to operate at prices above costs, but with only a minimal or 'fair' margin, and to provide modern storage, quality control, access to institutional buyers etc. The arguments in that study and in a MOA report by Johnston and Coley (1966) were stated as high markups by higglers, excessive losses through waste, lack of economies of scale, etc.

At the present time AMC controls the marketing of only about 20% of production and has had an increasing deficit over recent years. Studies of various aspects of AMC's operations have been carried out, and also studies and surveys on the higglers as they operate in the 1970's, in order to determine the problems of the total system and to suggest improvements.

In this recent literature there are numerous reports commenting on higglers and suggesting changes in the marketing system, but less primary studies or reviews of such studies.

Among this latter group, two of the most important are a large survey of higglers carried out by the Planning Unit of the MOA (Smikle and Taylor (1977)) (S&T) and a less-extensive more case-oriented study but one which reviews other research, done by Locher and LaGra for IICA (1977) (L&L). These two national investigations are supplemented by work in particular areas and/or particular issues. Farquarson (1977) and later investigators have data on Allsides and Kutish (1978) on Portland Parish. Norton and Symansky (1973) review Ministry of Planning and unpublished UWi Geography Department data to look at periodicity of parish markets; Erodsky (1978) evaluates spatial price differential in markets using MOA collected data while Wilson (1971) has done some work on mark-ups and market loss.

The two national studies require closer review, both because of their data relative to various issues and because their overall conclusions about the market system are so different.

This review looks first at the objectives and data of each study; then at the issues which are addressed and evidence provided; the overall view presented and finally the recommendations. The two studies will be compared and critiqued. Evidence from the other studies will be introduced when appropriate. Hopefully this should help determine where questions (and therefore further research needs) remain.

2.1.3.1 DATA AND OBJECTIVES

The survey of higglers carried out in October-November 1976 by the Planning Units of the MOA is the first real survey of this sector. Data was collected from a stratified random sample of 960 taken from a population frame of higglers using parochial markets. The authors note that there were problems with accurate population identification because of changes

in those using the market, but they feel it was a reasonable close count. Population enumeration is likely to be a problem in any such survey. Clear documentation is provided for review. This survey was supplemented by another of curbside higgler in January 1977. However, this was carried out for the corporate area of Kingston only, not elsewhere, although a country-wide estimate is made. The S&T report does not give data on survey size or methods of identifying the population frame.

In addition 100 farmers were interviewed on a case-study basis and market clerks and officials were also sources of information.

On the other hand the L&L study used much more limited data, but from multiple sources: (1) the existing literature (2) case study observations of market transactions and semi-structured interviews with higgler and farmers in different situations (3) case study inspection of buying stations observation of transactions and interviews with AMC officials. Transactions data were limited to those involving yams and tomatoes.

The authors' literature search is extensive and includes unpublished primary data from markets, and from UWI undergraduate geography classes, as well as published studies from numerous sources. L&L in fact stress the value of such search and evaluation of previous work before new research is done - a point well taken.

To turn to the objectives of the two studies: - S&T were required to investigate the current activities of higgler, more specifically "to make distinction between different types of higgler," - - "to investigate margins and mark-ups" and to make an "examination of higgler as customers of the AMC." L&L are interested also in characterizing the present system, but more in terms of the changes which have occurred, especially the effect of the AMC. Given the fact that the AMC only handles 20% of the produce, one goal was to determine why the higgler have been so successful in maintaining such a high share.

An examination of the data indicates the importance of the S&T report with its results from the higgler survey - the first real statistical description of the higgler population. In many areas there is no other comparable data, and it is therefore immensely valuable. However, as in all first attempts, there are limitations. Mention needs to be made of these, not as criticism of the survey, but for improvement in any further effort.

A look at the major descriptive areas indicates both results and remaining questions. From the population data collected S&T estimated that there were 11,000 traders in rural and urban government owned markets and 2,000 in leased outside and free markets throughout the island. This estimate does not include those dealing exclusively in meat, fish and dry goods. This omission is one reason given for a total which is lower than the conventional wisdom.

Locher and LaGra also make an estimate of higgler numbers, though only for Kingston. Their estimates for parish-market higglers, based on fee records and UWI survey data with modifications for weekend volume, error etc. are very similar to those of the S&T report. It is for higglers outside parish markets that the two estimates differ. For curbside higglers S&T report estimates 1,400 higglers (in 210 locations). L&L report 1,600 from a 1975 Town Clerk "illicit vendor" study. To these L&L added their own estimate of 1,000 "tray girls", who move from place to place rather than selling at one location, giving a total of 2,600. Both authors indicate that there has been rapid expansion in selling outside parish markets. It would seem that more data are needed for a reliable estimate of the present size of this group to be made. The number of higglers is important to determine the effect of marketing changes on employment.

The majority of data in S&T are those collected in the sample survey through its questionnaire. Data include description of age, personnel

characteristics, residence, markets used, days/week at market, source of produce etc; plus attitudinal questions; and economic questions related to prices received and paid, transport costs, income etc. In the Appendices of the study are 43 tables mostly cross tabulating, frequency of characteristics by parish market used by higgler. These tables, and even more the original data, are an enormous potential source for analysis.

It should be noted that the data do have limitations. The major one is noted by the authors. A study over 2 months cannot identify crops sold and their prices - nor even intra-year differences in margins or income. The time of the crop year can also affect such things as sources of produce - for example a higgler may buy from the AMC in off-season more than in mid-season. Another limitation refers in part to the same information. Higglers, knowing that the AMC does not want to be used as a wholesale source by higglers, have some incentive to lie about their buying sources. AMC data on this question suffers from the same potential bias. The authors mention that higglers were sometimes unwilling (as well as in some cases unable) to give net income data or data from which it could be calculated. This reflects a similar problem. Finally, there are the limitations caused by the nature of the questions. This last problem is better discussed under analysis of particular issues - but for example attitudinal questions like those on problems and on reasons for entering the profession, may reflect those who wrote the questionnaire unless they are open ended enough. Also the tabular analysis leaves out important cross-classification. Data that indicate only 15% of higglers operate purely at wholesale does not indicate the volume of produce going through these sellers nor their size distribution.

However, for those sellers in parish markets, important characteristics are identified. 88% resided outside Kingston/St. Andrews and of those almost

80% sell in rural areas (exclusively? it is not clear from the report). Essentially, all those residing in Kingston sell in Kingston. The majority of these higgler are middle aged (60% over 45) and women (83% of the total) and only 22% have entered the business within the last 4 years.

The pattern for curbside higgler is somewhat different, at least for the estimated 80% who operate in Kingston and St. Andrews. Most of them are women (88%) - but 50% of them live in the urban area (plus 36% more in adjoining parishes). Fifty-five percent were less than 44 and 20 percent were in the 25-34 year age group. Supporting the idea of the recent growth in this market group - 45% had been in higglering less than 4 years.

Further, the study updates the classifications of higgler and other sellers in the market - breaking down rural and urban higgler by source of purchase and whether sales are wholesale or retail; plus farmer/vendor or/higgler and supper higgler (discussed later). Unfortunately the tables only show the number of higgler by source, rather than source and volume, and only characterize by a single source, while admitting that multiple sources are used by each higgler. With these limitations they report 50 percent of higgler buy directly from the farmgate.

Locher and LaGra do not have data to provide detailed descriptions of higgler characteristics. However, they do discuss the higgler classification in fairly similar terms, but stress the change in function brought about by the AMC. Town or country higgler with difficulty in finding produce can buy through the AMC. L&L consider these sales important - again raising the question - can the AMC or survey figures identify all higgler buying? Some higgler buying may be in AMC retail figures.

They also stress the growth of the curbside and private markets - but suggest that there is close proximity to other sellers in these markets - up to 30 in one place. S&T suggest that there are less sellers in a location and less price competition with the growth of street sellers.

One final major descriptive part of the L&L report is an attempt to summarize the linkages from producers to retailers through and between the various intermediaries. These linkages are important to the study of efficiency, for identifying AMC influence and for employment effects. L&L did not have the data to identify volume of produce or numbers of people associated with each linkage and unfortunately the Higglers survey was not structured to try to obtain this data either.

2.1.3.2 ISSUES AND EVIDENCE

Rather than cover all the data in the two studies, it would seem more relevant to discuss several issues addressed in the reports - both in terms of data and interpretation.

The first of these is employment alternatives open to higglers. Any proposed change to the marketing system must be evaluated in terms of its effects on employment - given present 25% urban unemployment rates. Both reports recognize the employment dilemma - if there are potential efficiencies in further changes in the system, such changes may reduce the number of higglers needed, and what are the employment options open to women in Jamaica with only higgler skills? The potential options are different for urban and rural women. Several hypotheses exist for urban higglers: a) domestic, or factories/industrial employment b) non-employment - that increases in job opportunities for males could mean more jobs for other family members and women leaving the labor force; for rural: a) increased work on family farm, with increased production b) increased hiring for women on farms with increased production c) increased hiring of rural women for new marketing practices (e.g. grading etc.) d) farm wives becoming non employed with higher family income e) non-farm higglers becoming non employed as other family members increase income. The likelihood of any of these options actually occurring is not examined in any organized way in either report, and unfortunately the S&T study has limited data with which to examine these issues.

The major question in the survey relating directly to employment is that on reasons for entering higglering. However, there are only three options given: "lack of availability of alternatives, preference for self-employment, feeling of lack of skills," which do not necessarily get at underlying issues affecting entry, like previous family income status, loss of family employment, higher incomes than alternatives etc. "Family" is underlined because only 20% of higglers are single and a large percentage have families with up to 6 members. Lack of family questions relates to other relevant data. Only 15% of higglers have other occupations (chiefly farm) - but do rural higglers come from farms or from the rural-non farm? And are they chief or major earners for family as suggested in earlier sociological literature? It is interesting to note that only a small percentage of higglers are listed as farmer/vendors or farmer/higglers that is, big enough for sales of their own produce to be a significant portion of total sales. S&T indicate that the highest incidence of this group is in yams and green bananas. Studies including that by Farquarson (1978) in the Allsides area, indicate a high percentage of higglers in this category, but this is a major yam growing area, so the conclusions should not be generalized to an island level.

L&L suggest that country higglers have less options than urban, but without statistical data. Given that many surveys show farmers are short of labor and while there is high urban unemployment, the alternative hypothesis is also possible. However, would women who are now higglers, be absorbed into jobs in an expanded agriculture is one important unanswered question. Equally, in the urban scene, would expansion of urban employment directly or indirectly (through increased family income) absorb curbside higglers? These remain important unanswered questions requiring further

research. One point should be noted. Higgler who reap and package crops in the field are at present providing agricultural labor, and at probably much less than the current wage rate.¹ Given the labor shortages in rural areas it is not clear where substitute labor would be found (see later) if the higgler system were reduced.

A related area is that of higgler income. Both L&L and S&T point out that the volume per higgler (and hence even gross income) is low. S&T try to use their data to estimate net weekly income. They admit the difficulty in making such an estimate from 2 months data, and where higgler's estimates of costs may need to be used. However, it is a useful attempt which can be used as a basis for improved estimates. One item which is not included is loss in transit - gross income is based on higgler purchases. Given estimates of 10-30% loss, S&T calculated incomes are likely to be over-estimated. On the other hand, there is also reason to suggest that the income figures are under-estimated. The estimates are for purely higgler income, rather than family income. Certainly a higgler head of household with \$20 per week or less would be in the lowest income bracket, but the data do not indicate what percentage are in that category. Neither are data collected on the income of other family members. For any real estimate of income a survey would need to be carried out for this specific purpose - using quantity data collected from higgler and price data at least checked against other sources. Even a range of cash studies to indicate the variables would be a useful step.

A third major area at issue is the reason or reasons for locational and intraseasonal prices and quantity variability. It is clear from

¹ It is unlikely to be 'free' - a reaped crop probably is paid a higher price.

S&T survey data, and that of the MOA Planning Unit that such variability exists. On a locational level it means that at one market a product may be in surplus while another market has a shortage. Price and quantity variability between seasons is also stressed by L&L as a major characteristic of Jamaican domestic crops. Brodsky (1978) has analyzed price data to determine whether price differences between markets are significant and has shown in a number of cases that they are greater than could be expected under competitive conditions.

It is the reasons given for such variability that differ in the two national reports. S&T state that price differences exist because of lack of centralized co-ordination, caused by there being a large number of higglers, each operating independently for self-interest. This would seem to indicate a lack of understanding of the working of the competitive market - in which price differentials would be eliminated as higglers seeking profit would move to markets in which shortages occurred and prices would become close to equal, given differences in demand and in transport cost. L&L suggest the problems are with inadequate storage and transportation. Added to this could be lack of information with all three preventing movement of produce from surplus to shortage areas. S&T report that higglers themselves stress that insufficient storage and transportation are major problems. No questions were asked concerning price information sources. L&L suggest that higglers have an informal communication network but provide no details. Certainly MOA does not provide any daily or weekly data.

Unfortunately also, little direct transportation data has been collected. S&T report only range in miles travelled, and estimated weekly cost, rather than data on type, or on particular problems as viewed by the higgler. Neither do L&L report such data, although they indicate the need for improved containers and methods of transport to reduce loss.

There are several further interesting findings in Brodsky's reports. Prices in market fairly close to each other are highly correlated, indicating access over short-distances. He recommends therefore that transport improvement be selective. Farquarson (1978) suggests that trains could be utilized for marketing if handling could be improved. He discusses problems of yam handling. Clearly more information and study is needed on transportation alternatives.

The ability of well-operating competitive market to do away with price fluctuations, especially intra-seasonal ones, should not be taken too far. Production of perishable crops can be modified to try to get harvest at times of higher prices, but climate may prevent much change. In this case, without central intervention, price variability will remain given that variability, small farmers must diversify and it is only the small higgler, also dealing with risk by diversifying, who can profitably pick up the small amounts of each crop that are produced.

The fourth issue to which data in the studies refer is that of margins. It is asserted in numerous reports that the marketing margin in Jamaica is 'too high', and is an indication of the inefficiency of the system. However, there has been little detailed study of this margin - either measurement and comparison by products and country; or analysis of its components: transport, marketing and processing costs and profit margins, and including post-harvest loss estimates.

Unfortunately neither of the major recent studies address this issue. S&T include a section on margins but there seems to be some confusion in the report on its definition. 'Margin' variously described as the difference between selling price and purchase price (Table 33) (with no differentiation between farm-gate and wholesale purchase or wholesale and retail sale prices); as higgler net weekly income; and as rate of return on outlay. This confusion

is unfortunate because the survey data should be able to help determine the range of margins, and whether transport or waste or profits vary, and what are the factors involved. For example it should be possible to examine what costs increase, decrease or remain constant with scale of operation. Certainly there are data problems: - a 2-month survey provides limited data; and it is difficult to sort out the operation of higgler who sell both wholesale and retail. Nevertheless, the tables in the report are disappointing because they are in a form which adds very little indeed to knowledge of margins. The only cost breakdown is into components of weekly costs for an average higgler by parish. This does not allocate costs to the products traded, nor does it try to divide data into wholesale and retail components. Extra data are tabulated for transport, but again it is in a form which has limited significance - a frequency distribution for higgler of overall costs/week and miles travelled.

The authors do try an 'average' profit margin estimate by commodity based on allocating costs of average mix of products sold in the two months. Implicitly this is an estimate of the joint wholesale and retail profit markup. These data are shown in Table 39. Unfortunately, a major cost has not been included - post harvest loss, variously estimated at 10 to 30% so 'profits' are likely to be overestimated.

The L&L study only gives two case study estimates of overall margins - one for a rural higgler¹ - insufficient for reasonable estimation. They also state (without references) that studies have shown markups are 20-25%. Only two further studies were found in our literature search - one a list of farm-gate and retail prices from MOA (Zenny 1978) and the other a 1971 study by Wilson. This last study has several problems. First, the author looks

¹These happen to be a farm-gate price which are 60 and 50 percent of retail respectively.

at an 'average' margin - over all crops and all sources, when in fact this margin will vary over these variables. Further, although post-harvest losses are included; 10% is the highest estimate, which seems very low. Thirdly, the sample on which the study is based is unspecified.

A fifth area important to marketing problems has been referred to already in this section - both measurements of and reasons for post-harvest loss. This was not an objective of the higgler survey and is therefore not referred to in S&T. Inclusion of even higgler estimates of losses would have been useful, as regressions of losses against variables like distance travelled, type of transport, availability of storage, would have allowed some hypotheses to be explored a little further. L&L do not examine this problem either, except by referring to studies indicating little difference in post-harvest losses between higgler and the AMC. Farquarson on the other hand does look at this question fairly technically for yams at Allsides, and has useful suggestions for improvements in storage, transport and retail marketing which would reduce losses. An even more technical report reduction of loss is provided by Bennet (1977) for AMC cooling and large scale storage facilities. This study complements that of Smith (1977), which gives detailed cost analyses of AMC losses.

Finally, both S&T and L&L provide in many ways similar descriptions of the reasons farmers choose higgler or the AMC for their sales. First the AMC provides, or tries to provide higher 'guaranteed' prices in a glut, while the higgler pays higher prices during shortages. Second the higgler may provide reaping processing or transport services, which can be important to the small farmer faced with labor shortages. Thirdly, where the farmer needs frequent pickup of small amounts of various crops, the higgler has the advantage - where quantities are larger and more specialized the AMC has the capacity. Fourthly, the higgler may provide small amounts of credit for inputs (e.g. fertilizer) which they now also provide. The AMC provides

inputs, but for cash. The two sources differ on the role of quality: S&T state that the AMC uses standards and higglers accept all, L&L suggest that it is the poor quality that the AMC must accept in a glut.

L&L have an excellent summary table (p. 66) of the relationship between the small farmer and each of the marketing institutions: AMC, export boards and higglers. Both reports indicate that small farmers use higglers, the AMC and export boards in selling their produce. L&L add that larger farmers have more characteristics favoring use of the AMC.

There is one controversial area in this analysis. S&T assert that as only small amounts can be collected by a single higgler, and few higglers will be seen in a given week, so farmers may limit their production increases (despite higher prices) because of lack of marketing facilities. L&L assume causality in the opposite direction - small farmers must diversify and therefore produce small amounts which can only be collected efficiently (at low cost) by the higgler. Neither study provides enough evidence to really test these hypotheses. Further research is necessary to compare the cost and capability of higglers to deal with more production, compared with the AMC or any other alternative systems. Complementary work is needed on the nature of production constraints - for example it may be that lack of harvest labor (potentially or actually provided by higglers) is a greater constraint than inadequate collection for market. Again, credit and its cost may or may not constrain production increases. Also would farmers increase specialization or continue to diversify?

The farmer relation to AMC and to higglers leads to one related issue addressed by both studies - the role and problems of the AMC. Both studies describe its functions as buying from farms at guaranteed, contract, or monthly price, and with standard weights and measures; selling at wholesale to institutional buyers and selling retail at outlets at lower than market

prices. Further there is agreement on the description of the reality - AMC as buyer of surpluses because of its pricing policy; frequent failure to buy all at guaranteed minimum; very large deficits; poor operation of storage; inefficiency in management, and labor unrest; seller at retail to higgler, with little effect on consumer prices. The reasons for and solution of AMC problems as discussed by the authors are best seen in their overall evaluation of domestic marketing.

2.1.3.3 OVERALL VIEW

The previous sections have set out much of the data and issues examined in the two studies. It is interesting that such agreements as to specific issues and problems should also lead to very different conclusions.

S&T conclude the higgler system has not been subject to processes of planning and organization; that is is disorganized; has lacked flexibility and has failed to function efficiently. Further "there is little or no hope for evolutionary improvement - - because of the low levels of skills and education" and because of the advanced age group in which 75% of the higgler fall".¹ They state as its principal weaknesses, mostly attributable to the decentralized, unplanned nature of its system, as a) small purchases preventing increased farm production b) margins which are too high c) surpluses and shortages which exist at the same time. S&T also criticize the AMC in terms similar to those set out in the previous section. They conclude that only a strong centralized approach will improve the system, although necessarily it will have to accommodate the higgler.

On the other hand L&L conclude that "higgler on the whole are efficient and perform essential functions in the agricultural sector, Policies should start from this premise". They suggest that the higgler system has characteristics which are often needed by the small farmer and not duplicated by AMC. Needing

¹ S&T, page 2.

to diversify to reduce risk, the amounts of each crop he produces are small. He also needs small amounts of accessible credit or inputs, often provided by the higgler. They assert that the higgler system has shown great flexibility in adapting to the AMC, by buying from its outlets, by modifying its pricing, by reproducing its extra services (like fertilizer), and by developing its own credit system to handle larger volumes. This adaptive capacity should be regarded as an asset. Further the higgler system is essentially competitive with low mark-up and is socially efficient because for small-scale trading it is the only source of abundant cheap labor. AMC personnel would not accept such low returns. The AMC on the other hand has advantages in grading, transport, storage and wholesaling.

Most of the reasons for these differences in opinion have been already discussed. It is worth re-iterating however that it is essentially a difference in perhaps understanding, and certainly in judgement, of the classic competitive market with many small buyers and sellers and its role compared to that of a large centralized government agency. It relates too to a difference in faith in the potential of the small peasant farmer and trader, and what he and she can achieve. Despite these differences, both authors recognize the likelihood for the continued existence of both higgler and AMC though with differing enthusiasm.

2.1.3.4 RECOMMENDATION

In some areas specific recommendations are shared by both studies, as constraints to efficient operation and improved storage facilities at parish markets; and that transport and packaging be improved to reduce losses and that better crop and price forecasting be instituted.

However, S&T wish the higgler role to be confined to the retail level, with AMC working more aggressively in both price and reliability to capture

the major share of the market. Higglers would then buy from the AMC at parish markets. AMC low-income retail stores would remain, and the AMC power to apply temporary price controls at the retail level.

On the other hand L&L recommend concentration of the AMC at the wholesale level - grading, storage and transport (where they feel it could exploit economies of scale). The AMC or marketing co-ops should run regional collection centers to which higglers or individual farmers would bring produce. The AMC should also get out of retail selling, allowing higglers this level of marketing also, making limited areas of Kingston centers for street marketing.

These suggestions, other modifications of the two approaches and this author's recommendations will be discussed in a later section.

2.1.4 REPORTS AND RECOMMENDATIONS ON THE MARKETING SYSTEM

There have been numerous reports written over time on domestic marketing and/or export marketing. A number of them are listed in the bibliography for Jamaican agricultural development. Of the more recent overall studies a few seem worthy of reference in a review of literature: - two FAO/IDB studies (1976, 1977); a study of the Agricultural Sector, prepared for the 1973 Green Paper on agriculture (Wood et. al 1973); the agricultural Five Year Plan (1976-1982)(MOA 1978) and a report prepared by Kutish for the AID Agricultural Sector Assessment (Kutish 1978). These are in most cases reports rather than research studies, and only short comments will be made here on any but the Kutish study, which is the most recent.

More technical reports or studies exist for particular topics, like that by Barrett (1978) which discusses in detail applications of refrigeration for AMC storage of perishable crops; or those by Smith (1977) which has a detailed management analysis of the AMC sales of its retail shop operations.

The FAO/IDB study, (1976) which uses the Higglers survey data agrees with the L&L approach - i.e. that the higgler is "probably the only national system capable of handling the dispersed, mixed and fragmented production" of Jamaica. The authors suggest that the AMC should only act as a stabilizing wholesaler, buying perhaps 5 percent of crops, in order to provide the kind of guaranteed minimum price which reduces price fluctuation in glut periods. The retail and farmgate collections should be by higglers. The AMC could contract groups of higglers for its purchasing, and should lease storage and perhaps provide credit for improved assembly and transport by higglers. On the production side they suggest production zoning to supplement subsidy prices to take into account comparative advantage in production in particular areas.

The 1977 FAO/IDB report is on provision of new parish market buildings.

The 1973 Sector study is a succinct locally produced report covering major channels of both domestic and export trade. There is a familiar description of the structure and problems of domestic marketing, again suggesting the competitive nature of the higgler system. Changes in AMC organization are suggested, with concentration on effective wholesaling recommended, but without specific discussion of how this would be achieved. Specific higgler changes are not discussed but the authors unlike L&L feel that there is a lack of evolutionary change in the higgler system due to low education.

The MOA 5 Year Plan lists as objectives a) food at the cheapest possible price to consumer in form and time when needed b) generation of employment c) catalyze production d) reduce gluts and shortages e) ensure structural safety of market buildings f) reduce shortage g) raise standards of hygiene. The AMC strategy suggested stresses retail competition by the

AMC to reduce higgler retail and farmer prices. This implicitly accepts the S&T model of the marketing system, with 'too high' margins. At the wholesale level it is felt that AMC growth will come from efforts to expand production, (with higher prices and credit for example) and that higglers will be absorbed into other employment with economic growth (specifics are not provided). The major improvement for the higgler system is the improved parish markets discussed by FAO/IDB.

That there are two overall alternative strategies resulting from different models of the system is a valuable observation by Kutish at the beginning of his report (1) to dismantle the present system and replace it (2) to stay within the present framework as much as possible, and to overcome its shortcomings in an evolutionary way. The S&T study recommends a version of (1), while L&L favor (2). Kutish favors (2) adding that (1) has negative political and social implications, plus an impossible financial cost, a point well made.

Before looking at specific constraints Kutish describes and evaluates the institutions. The discussion of the AMC is succinct and consistent - and echoes the list of problems found elsewhere: - from the problem that the AMC has conflicting goals in assisting producers and consumers, to its problems with management and bureaucracy. Like the FAO/IDB study he recommends that the AMC should concentrate on price stabilization and turn retail operations for low incomes areas over to a new agency. Further, that the AMC should not try to compete with higglers for supplies but stand by to buy at a minimum in glut, and where possible store and sell to reduce later shortages. These supplies would be sold to lower income stores or to private sector. These seem a rational and consistent set of suggestions, based on the general evidence available. He also makes a set of consistent suggestions on supermarkets - improved storage, education, and encouragement of direct contacts.

The discussion and recommendations on the higgler sector are less and somewhat confusing. He describes the system as "disorganized and uncoordinated" - a very questionable criticism - as this would describe in many senses the economist's ideal of the perfectly competitive market. A statement like this suggests that the number of higglers and lack of central co-ordination is the problem, whereas it may be that it is the constraints to the effective working of the system that need to be stressed. Kutish certainly goes on to list these constraints, such as lack of consistent grading, marketing loss, unnecessary and costly movement of products to and from Kingston and high markups (a controversial point) and he goes on to make general recommendations which are consistent with acceptance of the institution - that is changes to make the system more efficient and to provide conditions to increase each higgler volume.

In fact Kutish identifies some 29 constraints which act to impede the marketing system and increase cost. It is one of the most complete summaries of the problems of the marketing system.

Policies are then suggested to overcome these constraints. In some cases these proposals raise questions which have not yet been addressed by present research. First there is the suggested use of local assembly points to which small farmers would bring their products, as a way of reducing the assembly costs involved in higgler pickup. Both S&T and L&L suggest that in many cases small farmers face time and labor constraints. They value the services of the higgler in harvest assistance and pickup for this reason. Would these farmers have time and labor to take produce to the assembly points? If not they would use the higgler as at present. The unanswered question then is how many farmers might be in this situation and what are their characteristics? Certainly Blue-Mountains Coffee Co-op farmers whom Kutish studied do their own harvesting - are their time constraints similar or different from

other farmers? Unfortunately there are no recent detailed studies of small farmers and their specific constraints. Again, farmers may be prepared to take their produce some distance - but not long distances as they perceive them. How many assembly points would be necessary to take into account this factor? This is not to say that the suggestion has no merit, just that some questions remain on its likelihood of success given farm labor problems.

Kutish argues that assembly points would need to be combined with producer co-ops to be effective. This assertion also raises several questions. First, what would be the estimated savings with and without co-ops - i.e. what would the specific budgeted cost savings be, based on realistic assumptions on volume, transport cost and efficiency of operation? On alternative to be costed is that of the higgler renting AMC storage and transport. Evidence on this point is needed. Second, what is the likelihood of effective co-ops? The Jamaican experience is very mixed - ranging from the difficulties in the sugar co-ops to the excellent Blue Mountain co-ops, but certainly success cannot be assumed. Co-operation must clearly be shown to have tangible benefit. Given these questions the Kutish recommendation that the Blue Mountain area be used for a pilot assembly point scheme seems eminently reasonable - perhaps augmented by a trial elsewhere with assembly points being available both to higglers and the co-op.

The second set of Kutish proposals relate to reduction of post-harvest loss by better storage, and quality premiums. These seem eminently reasonable, as long as changes are monitored to determine what losses remain after improvements are inaugurated.

Equally, the third set of recommendations - detailed advice on improving grades and standards - also seems unexceptional, especially the need to determine whether quality can be improved as a necessary first step. The workshops suggested for farmers could be useful, but they would also be applicable to higglers who also need to know the qualities worth a premium.

Fourthly, the role of increased volume in reducing per unit selling costs is clearly important. More credit is one way of increasing the volume of the individual higgler. However, unless there is increased production, increased volume for some higglers means less for others and problems of income and alternative employment become important. These problems are not mentioned directly by Kutish. He does suggest increased production may reduce the number of farm wives who wish to be higglers, but at this stage it is not clear how important this reduction would be to the total higgler employment picture.

Fifthly, recommendations for market intelligence and data for production planning are clearly essential and Kutish also makes useful suggestions for MOA and University of WI co-operation on demand forecasts. Again, publicizing of all information should clearly include higglers as well as farmers.

3.0 AN INTERPRETATION OF THE DOMESTIC MARKETING SYSTEM AND ITS PROBLEMS

Given the data in all studies and reports in 2.1.3 and 2.1.4, what are the basic structures and problems of domestic agricultural marketing in Jamaica? We can at this stage, given all the gaps in data only present a working hypothesis. Certainly it can be criticized but we feel that the burden of proof should be on the critics.

The private sector of marketing consists of many buyers and many sellers, interacting in such a way that is it unlikely that any one can influence price. It therefore has the basic characteristics of the 'perfectly competitive' market, in which buyers and sellers acting in their own self-interest interact to cause demand to be met at least cost.

In this we agree basically with Mintz et al., and Locher and LaGra that the basic structure of the higgler system is competitive and efficient.¹ However in the real world there are constraints and imperfections which reduce efficiency and which need to be modified for the market to operate more effectively. Thus the Government, working through the AMC can reduce the problems of intra-seasonal price variation, with its associated gluts and shortages, by providing a minimum price in gluts, and buying the surpluses. Where possible these supplies can be stored to reduce later shortages, although this is not possible for perishable crops.

Other important problems and constraints on the efficiency of the higgler system include: 1) a lack of marketing information for farmers and marketers. This is discussed in more detail in a later section. 2) High costs of farm gate collections and curbside sales which are due to long distances travelled and large labor inputs per unit of throughput. 3) A lack of grading standards and packaging leading to multiple handling and lack of quality incentives. 4) Lack of storage, transfer handling and transport facilities and services with major damage and spoilage losses. 5) Unavailability of supply to large buyers - exporters, institutions and food processors.²

The relatively high costs of higgler collection of small and mixed purchases at the farm gate of many scattered farms are undeniable. However, as many investigators have pointed out to the AMC and other policy makers who would advocate displacing them from this role, who else or what institution could provide this service at a competitive rate? The farmer himself generally lacks the labor time or the sales skills to market his own produce and when

¹ It is possible to characterize the system as disordered oligopoly, but the efficiency of the outcome is still achieved.

² Kutish, op.cit.

volumes of sales per farm are low, a single seller could not spread the overhead of his costs as the farmer-wife-higgler can over several farms. The very low returns for her labor time that the higgler accepts are in fact a form of subsidy to farmers and food consumers and a rational labor use in an oversupplied labor market, not an undue cost as is often assumed. Likewise the retail higgler who spends many hours to sell her goods and who transports produce from the central market to a residential neighborhood is providing a convenience service to the consumer at a low hourly wage rate. Other options exist for the consumer who prefers travelling longer distances or restricting his purchases to the limit of market hours.

Other activities of higglers, such as repeatedly hand sorting purchases (in the absence of standard grading, sorting and packaging), or transporting herself and her purchases long distances and suffering loss from poor packing, rough handling and improper storage, are not appropriate or efficient higgler functions. It is precisely these storage, transport, handling, grading, washing, packaging, etc. functions which better organized and capitalized middle men and public agencies such as AMC and Parish Markets can handle more efficiently. Higgler marketing represents a true service and the group of persons who practice it are low income individuals who need to have their way of life and livelihood maintained as much as any other group.

Produce which is not graded, as in Jamaica, generally fails to provide incentives to the farmer or marketers to provide a quality product. It is possible that a part of the reported high waste is due to this factor. As previously noted the lack of grading and sorting forces each buyer to handle and evaluate individually each piece of produce each time it is brought or sold. One study estimated that oranges were handled seven times in this way between farm and consumer.

Storage, transfer, handling and transport facilities and procedures are cited by most studies as deficient. Each of these contributes to a high

spoilage and wastage rate as well as a more subtle but equally great problem of sub-critical quality decline of goods in transit. Bennett (1977) in his report points out the problems of current storage and the needs for specialized facilities to meet the needs of many types of commodities. The problem of seasonal surpluses and shortages and accompanying price fluctuations could be greatly aided by better controlled storage. In the public market, no cold or other controlled or even secure, sanitary storage exists for goods which are being wholesaled or transferred to be kept for subsequent local marketing. Better designed facilities and crates for packing, storage and transport would simplify handling and reduce costs and damage. Reduction in seasonality and losses could also be achieved by more agricultural processing. Small, local-scale, multiple function and mobile processing would help this industry adapt to the vagaries of unavailable supplies.

Higglers report in the S&T study that transport costs are a major factor in their operations. Rationalization of transport facilities would be accomplished by more efficient marketers outbidding the higgler for her produce at the local market, so that she need not continue on with her goods to a more distant and hopefully higher priced market.

The availability of supplies to large buyers has been noted as a problem. Farmers and higglers will generally sell in the higgler priced market despite any contracts or obligations they may have previously made. The basic causes of this situation may be found in chronic underproduction, lack of information for farmers to plan planting decisions, and dependence on many small, scattered producers with irregularly occurring and small surpluses. There are no easy, direct solutions to these problems as they are a part of the fundamental agricultural structure.

In this section we have reviewed assertions that the inefficiencies and resulting high costs of marketing (marketing margins) in Jamaica are so

reat that the system needs to be greatly altered. In the view of many of the Jamaican-oriented studies the role of the higgler should be greatly reduced or eliminated. The following section makes a critical investigation and comparison of the relative costs of these marketing margins.

4.0 MARKETING MARGINS

Almost every writer on Jamaican agriculture has asserted that the costs of agricultural marketing are high. 'High' is a comparative term, so we may ask, high compared to other agricultural costs?, to the costs of marketing other goods? or high compared to international standards for produce marketing? The most common way of measuring marketing costs is relative to farmgate prices and to final consumer prices. Absolute costs are difficult to use for crop-to-crop or country-to-country comparisons. It will be shown that when compared with other national systems the Jamaica marketing proportional mark-ups are not relatively high, but the absolute costs may be high. It is perhaps this aspect that people refer to when they declare that marketing costs are large in Jamaica.

Comparisons between crops and countries are also difficult because of the different storage and handling requirements for different crops and because of differing transport distances and costs, road conditions and size of loads. In addition, the degree of services, such as grading, sorting, washing, bagging, boxing, trimming, and quality of product may vary from crop to crop and country to country. Nonetheless, some comparisons are possible and meaningful. Table 1 allows comparison with nearby islands which have at least grossly comparable agricultural situations and with Bolivia's Cochabamba area. Figures for Tanzania, which as a markedly less developed transport system, show the effects of these costs for even a non-perishable like corn. Some other data from Africa in areas with a better transport system, are provided from studies by Stanford Food Research Institute (Jones 1972) for Nigeria and Kenya. Figures for the U.S. are included and they reflect the costs of long distance transport, long storage times, higher

TABLE 1
Marketing Margins in Selected Countries

Country Commodity	Percent of Retail Price To Producer	Percent of Retail Price to Marketer Transport, Processing, etc.
<u>Jamaica</u> ¹		
Red Pea	61	39
Peanut	52	48
Carrot	53	47
Cucumber	48	52
Pumpkin	52	48
String Bean	69	31
Tomato	70	30
Onion	54	46
Pineapple	54	46
Plantain	47	53
Potato	67	33
Sweet Potato	86	14
Negro Yam	68	32
Yellow Yam	66	34
White Yam	80	20
Cassava	83	17
Sweet pepper	31	69
<u>Haiti</u> ²		
Potato	60	40
Onions	75	25
Banana	60	40
Mango	34	66
Oranges	40	60
<u>Dominican Republic</u> ³		
Plantain	47	53
Potato	39	61
Tomato	46	54
Onion	73	27
Green beans	47	53
Pineapple	44	56
Grapes	33	67
Red Pea	71	29
Cassava	60	40

1. From 1976 Farm Gate and Retail Prices published by the Jamaican Ministry of Agriculture

2. Doreville, 1975 from Roe, Terry L. An Economic Evaluation of the Haitian Agricultural Marketing System

3. Secretaria de Estado de Agricultura, Diagnostico Del Sistema Mercadeo Agrícola en Republica Dominicana, Santo Domingo, 1977

Bolivia

Onion	34	66
Tomato	45	55
Carrot	48	52
Banana	52	48
Potato (Local)	61	39

Tanzania⁵

Corn	48	52
Sembe	37	63

Nigeria⁶

Rice	54	46
Corn	63	37

Kenya⁶

Corn	56	44
Corn	63	37
Yams	59	41
Potatoes		

United States⁷

Sweet Corn	37	63
Cucumber	46	54
Lettece	31	69
Green Peppers	39	61
Onions	30	70
Carrots	39	61

4. Zuvekas, Clarence, A Survey of Crop and Livestock Marketing in Bolivia. SIAG/FDS/ERS/USDA, September, 1977.

5. Kriesal, Herbert; et. al. Agricultural Marketing in Tanzania (USAID) June, 1970.

6. Jones, William D. Marketing Staple Food Crops in Tropical Africa. Cornell University Press, 1972.

7. ERS/USDA. U.S. Fresh Market Vegetable Statistics, 1949-75. Washington, 1976.

labor costs plus full services to the degree of domestic dyeing and waxing and individual wrapping of fruit.

Analysis of Table 1 does not support any ~~conclusions~~ that marketing costs in Jamaica are high compared to the countries mentioned. In only 3 of 18 cases do Jamaica producers receive less than 50 percent of the final retail price. By that rough measure, this is the 'best' performance for any country surveyed. According to Riley, (1970), 50 percent is the general level of marketing costs reported in a study of four major markets in South America.

The very high producer shares noted in the cases of sweet potato, cassava and white yam are likely due to AMC pricing subsidy actions which have depressed retail sales prices.

Anyone who asserts that Jamaica marketing margins are too high must in the future carefully specify and justify their claims. Because prices change from year to year at both the farmgate and in the retail market, these margins are subject to constant variation. However, the general comparisons would not likely change.

5.0 RECOMMENDATIONS

The analysis just presented in the previous section should not be considered a statement that all is well with the higgler dominated marketing system. There is evidence that considerable improvement in costs is possible. Four major areas of desirable change are evident to this writer. The first of these is related to the emergence of a new style of higgler and a parallel opportunity for rationalization of the roles of the major marketing institutions. The second set of improvements cluster around market information and its effects. The third area is a matter of facilities and procedures and the fourth is producer oriented provision of co-operatively controlled marketing of output and supply of agricultural inputs.

5.1 SUPPERHIGGLER AND INSTITUTIONAL RATIONALIZATION

Wilson (1971) has shown in his analysis that the most efficient marketers in Jamaica belong to an emerging medium-scale middle-man: higgler whose forté is high prices to the farmer, fast handling of produce with a minimum of fixed costs in inventory, minimum wastage, minimum equipment or fixed labor force and reliable service to buyers. The 'superhiggler' deals in information, an adequate flow of product to spread overhead, and great flexibility in place, time and conditions of sales. Wilson presents the following Table which compares the operations of a Supperhiggler, a Mrs. Cowan, to operations of the AMC and small higglers.

TABLE 2*

	Mrs. Cowan	Small Higgler	AMC
Average Purchase price/lb.	8.9¢	7.9¢	5.8¢
Average Selling Price	11.5¢	11.5¢	8.1¢
Average Mark-up	2.6¢	4.2¢	2.3¢
Mark-up as a % of			
Market Price	22.6%	36.5%	28.4%
% Waste	2%	10%	12%

*Wilson, W.L., The Marketing Costs of Fresh Fruits, Vegetables and Tubers., The Jamaica Industrial Development Centre, The Productivity Center, Kingston, June 1971, p. 14

Table 2 shows that the superhiggler, Mrs. Cowan, paid a significantly higher price to the farmer and sold at the prevailing market rate (A.M.C. retail prices are subsidized). The supperhiggler, who makes a fair return on her time and investment, gets by with an absolute margin approximately the same as the heavily subsidized AMC and of course the percentage margin

is better. To some degree the superhiggler is skimming-the-cream from the market, leaving the small higgler to deal with the high cost collections from small farmers who are remotely located and produce small amounts of mixed type, low quality produce. The AMC is likewise left to deal with the surpluses; the low quality and the untimely producer. This is as it should be. Each marketing group should specialize in what it does best.

The superhiggler is destined to handle the bulk of the trade and they do handle this better, i.e. with lower costs, less waste, faster and more reliably than small higglers or the AMC. Governmental policy should reflect this desirable efficiency and near inevitability of the growing role of the superhiggler.

The small higgler is the best at collecting odd lot commodities from the small and remote areas. They should be aided and revered for this role. Policy and organization should help them to interface efficiently with the superhiggler and AMC for all the intermediary services of storage, sorting, grading, washing-packaging and bulk transport which small higglers are not well equipped to do. Convenience marketing is the other great service provided by higglers and public investments and controls could significantly aid this function also.

More reports done by outside agencies (see section of reviews) and some by Jamaican sources, recommend reducing and redirecting the AMC role to allow it to function appropriately and avoid its current charge to make a profit while subsidizing farmers and consumers. Policy should explicitly recognize these functions and should concentrate on delivering its services as a buyer of last resort and seller to the poor in the most effective way. If the AMC is capable of a non-subsidy role in the market it is likely to be as a storage, transport and wholesaling agent and as an importer/exporter. AMC should concentrate on these areas and integrate its services with those of the higgler and public markets. The minimization of geographic and seasonal price differences would be an important and appropriate function for the AMC.

5.2 MARKET INFORMATION

Farmers in Jamaica operate with a highly unsatisfactory, primitive and unreliable information system. The major source of farmer price information appears to be higglers, who have a vested interest in the transaction. Surveys of farmers show that they feel at a disadvantage to higglers in trading and that they long ago called for the dissemination of unbiased marketing information (Jamaica Agricultural Society Development Program 1963) via radio. The Daily Gleaner does irregularly publish prices for a dozen major commodities for four major markets.

Higglers also have information problems. Several studies have attempted, without success, to define how higglers gather and disseminate price information. Even more difficult to determine and completely unknown is the quality of the information they do have in relation to its timeliness and its specificity as to variety of crop, quality, time of day, which market, and at what point in the distribution chain.

Country higglers are likely at a information disadvantage to those who function nearer to the retail point where prices are ultimately determined.

There is persuasive evidence from the market prices published in the Daily Gleaner that price information that higglers utilize either is badly flawed or that they do not react major price incentives. Price differences of 30-80% may exist between markets in Kingston and other cities for major commodities and they may persist for several days. These differences are much greater than can be explained by transport costs. Indeed, Coronation market in Kingston performs major wholesaling services for the entire island and much cross and backhauling is evident. This is itself evidence for underdeveloped wholesale functions and lack of market information at regional markets.

Through the pattern of difference in prices is ever changing the persistence of major price differences between markets one to three hours

apart is prima facie evidence of a lack of timely, reliable price information to the marketers.

Information about future prices is even more scarce and unreliable for all participants in the market than are current prices. The governmental agencies such as AMC, the Ministry of Agriculture and the Commodity Import Board do collect some information on inventories, import policy and plans and crop production estimates as well as data on supply and price elasticities. However, it is not evident that this information is of sufficient quality (crop estimates are relatively poor) or is brought together in a timely way to make useful future price estimates. Current policy is to collect and use data for internal governmental purposes, but it does not seem to have occurred to anyone that farmers and private marketers need such information for rational decision making about production. The decision a farmer makes today about what to plant is his best guess about what the market prices will be in six months in the future. For lack of knowledge about the actions of others and of governmental policy, collectively the farmers often guess wrong. This results in surpluses and shortages, great price fluctuations and huge social-economic waste.

The solution to this marketing problem is simple, cheap, uncontroversial and has been conventional wisdom for several decades. Daily (or even twice daily as in Paraguay) market prices for major commodities and major regional markets need to be collected in a reliable, consistent way and broadcast by radio that same day to all who care to listen. Thus the farmer, the country higgler, the city higgler all would share the same information base. This would remove a source of great irritation and unfairness which plagues the current system. Secondly, regional price variations should be greatly reduced and much better regional wholesaling situations should be possible. No one is served by St. Elizabeth tomatoes moving past Mandeville market to Kingston only to be shipped back to Mandeville the next day.

Future price information and news of planting decisions, stocks and policy on imports and price supports could be periodically interpreted and discussed with farmers via the same radio show which broadcasts daily price information.

The lessening of gluts and shortages would do much to reduce waste and spoilage, AMC budgetary deficits, would provide opportunity for better future planning and enhance food processing development. It would in fact contribute somewhat to the cure of both the immediate and the longer-term structural problems that currently beset agriculture in Jamaica.

5.3 FACILITIES AND PROCEDURES

The studies reviewed earlier in this report do a better and more detailed job of analyzing the deficiencies of the public markets in Jamaica. The IDB/FAO felt that they were a bottleneck in the overall distribution system which required remedy before other improvements could have an effect. Based on those reports, most of the major markets of the island seem to be in some state of reconstruction or planning.

Procedures and technicalities of market layout, systemic boxing standards, grading standards, weights and measures, location and size of controlled storage environments, etc., all need improvement. Collectively these types of changes should contribute substantially to lowering marketing costs, reducing spoilage and improving quality. Improved conditions in this part of the system is likely to be a necessity but not in itself sufficient condition for overall marketing success.

5.4 CO-OPERATIVE MARKETING AND INPUT SUPPLY

From the point of view of the very small farmers, with small and mixed type surpluses for sale, even the aforementioned changes will not solve all his problems of information access, credit and transport. Perhaps the best access for small farmers would be through participation in local co-operatives. Ideally such a co-operative, serving all farmers in a given

area would provide access to quality marketing services, credit, information and inputs. There are currently functioning examples of marketing co-ops in Jamaica and these could be studies for ideas and practices which work in the Jamaican context. Hopefully, this procedure would allow the avoidance of the pitfalls as noted earlier in the critique of Kutish's study.

A key element in the success potential of a marketing co-op would be the provision of a full-time professional manager with the freedom of action to emulate the methods of the Superhiggler, the most efficient marketers in Jamaica. The marketing agent and the co-op's physical facilities would be located in the most accessible place. Necessary facilities would include a small office, a small storage-handling area with truck access and importantly a telephone for access to marketing information and contracts.

The marketing agent would maintain a position to exercise any and all marketing options, ranging from contracts with institutions to direct transport to any market on the island to utilizing hired storage. The marketing agent, like the Superhiggler and unlike the AMC, would minimize fixed overheads in facilities, equipment and permanent labor force. The agent should also be paid in part or totally on a proportion of the net returns which he realized for the co-op. Every effort must be made to structure this operation to give the agent incentives to make the best deals possible and to keep costs to a minimum.

The co-op would benefit from a large throughput of produce over which its fixed overhead costs could be spread. Normally, the co-op would buy from all comers, not just farmer members. In times of glut, co-op members should have preference for sales to the group, but would receive any price subsidy other than that which might be subsequently realized by sales to AMC. In times of normal markets however small higglers should find advantage in selling to co-op and the co-op should find advantage in buying from them. Presumably the co-op

can store, transport, sell and collect information more efficiently than small rural higgler can. In this system then the higgler would continue to earn her small income and to provide the valuable service of collection of small irregular quantities at the farm gate. No other system can match the higgler in this portion of the marketing system. Likewise no organization or business would be able to or want to compete with the higgler in street corner sales in the city market.

Produce received from members and non-members would be accepted on a consignment or partial payment basis. Full payment would not be made until after sales were made. This would reduce risks to the co-op organization. If the marketing co-op were integrated with the proposed inputs system, then withheld payments for crops can be sued to pay for purchased inputs. This is currently the practice of the Blue Mountain Coffee Co-op.

APPENDIX
ANNOTATED BIBLIOGRAPHY ON
MARKETING

Apart from containing the bibliographic references to work cited in this paper this Appendix includes material from several subject categories of F.A. Erickson, An Annotated Bibliography of Agricultural Development in Jamaica. Working Document, Jamaica #1, Agency for International Development, Bureau for Latin America and the Caribbean, Rural Development Division, January 1979. The 'Marketing' subject section (M) is included in toto as Part I entries under 'Statistical Series' (SC) which refer to marketing and items from other categories which are cited in the Report are listed in a following section (Part II). Actual citations are marked with an asterisk *. Entries are listed alphabetically in each section.

PART I

AGRICULTURE: MARKETS, MARKETING

- *ADAMS, Nassau A. "An Analysis of Food Consumption and Food Import Trends in Jamaica, 1950-1963." Social and Economic Studies 17, No. 1 (March 1968): 1-22. [MOF/JAM; UWI/ISEP] M,J,S

Uses 1950-1963 data from National Accounts, plus weighted price elasticities to estimate overall income and price elasticities (.45 for food and .67 for food drink and tobacco). Food prices rose faster than non-food and the substitution coefficient was .35. Derives import demand and estimates that the function has a higher income elasticity and price elasticity greater than 1. Derives income and price elasticities for major groups (bread and cereals, meat, fish, dairy, oils and fats, fruits and vegetables, root crops). Data again from National Accounts and price indexes from 1958 Household Survey weights. Compares results with Harris' cross-sectional estimates. Finds some differences with root crops and fruits and vegetables. Also estimates import demand elasticities by food groups and forecasts higher imports in future. (Note that for period covered food imports remained at 20 percent of total imports.)

- *---. "Import Structure and Economic Growth in Jamaica, 1954-1967." Social and Economic Studies 20, No. 3 (Sep. 1971): 235-266. [MOA/JAM; UWI/ISEP] M,J

Looks at import structure changes over the period designated. In order to measure imports at constant prices, develops price and quantum series by commodity group. Uses this information with income elasticities of importation. Results suggest imports underwent limited changes.

- ALI, D.A. "The Scope for the Utilisation of Industrial and Agricultural By-Products. Proceedings of the Ninth West Indies Agricultural Economics Conference Held at the Regency Hotel, New Kingston, Jamaica, April 3-5, 1972, and at the Jamaica School of Agriculture, Tricketham M,J

Park, April 7-10, 1974. St. Augustine, Trinidad, Department of Agricultural Economics and Farm Management, University of the West Indies. Pp. 71-80. [UWI/ISEP]

Examples of by-product utilization are found in the sugar industry, e.g. rum. More recent examples of industrial spin-offs are the production of particle-board from bagasse, the production of wheat middlings for animal feeds from wheat milling operations, the manufacture of citrus meal from citrus juice operations and the production of spent brewer's grain from the brewery industry as an input into animal feed formulations. In general, however, there is a lack of examples of successful commercial spin-offs. The potential for by-product utilization is examined, first in the traditional agricultural sector and then in the new sectors. It is concluded that there is scope to develop and expand the ways in which raw materials and their by-products are utilized in the Caribbean but that an urgent problem to be tackled is the need for much more indigenous research and development.

ANDERSON, A.M. "The Marketing Situation for Fish and Fish Products in the Caribbean." Cajanus 3, No. 1 (Feb. 1970): 17-31. [MAL PA784.AIC3] [MOA/JAM]

M,J

---. "The Marketing Situation for Fish and Fish Products in the Caribbean." Cajanus 3, No. 1 (1970): 17-31. [MOA/JAM]

M,J,C

Gives per capita consumption estimate for 1967, and discusses supply, demand and possible marketing changes.

*PENNETT, A.H. "Report to the AMC and the PDC/AID, Kingston, Jamaica. September 1977, 11 pp.

M

Contains useful specific and technical recommendations concerning needs for controlled temperature storage at AMC to reduce crop loss and deterioration.

*POLTON, William E. Untitled report on agricultural export opportunities from Jamaica to the U.S. (Typed, letter form, bound looseleaf) Alexander and

M

Baldwin Agribusiness Corporation,
Jan. 12, 1978. 9 pp. + 4 exhibits.
[PDS/AID/JAM]

A report on the feasibility of organizing production and marketing of Jamaican agricultural produce in the U.S. Contains an evaluation of existing marketing channels. Reports favorably on export potential.

- *BUCKMIRE, George. "Rationalization as an Instrument for the Development of Caribbean Agriculture." Proceedings of the 8th West Indian Agricultural Economics Conference, Held at St. Augustine, Trinidad 1-7 April, 1973. St. Augustine, Trinidad: Dept. of Agricultural Economics, 1973. M,J
- . "The Future Possibilities of Caribbean Export Crops in the Metropolitan Markets." Proceedings of the 6th West Indian Agricultural Economics Conference, Held at Georgetown, Guyana 29 March-2 April, 1971. St. Augustine, Trinidad: Dept. of Agricultural Economics, 1971. M,J
- BURTON, C.L. "The Emergence and Growth of the Bowden Wharf, St. Thomas." Unpublished undergraduate thesis. Dept. of Geography, University of West Indies, Mona, 1968. [GD/UWI/JAM] M
- *CALLAM, M. "Functional Study of a Small Town--Brown's Town." Unpublished undergraduate thesis. Dept. of Geography, University of West Indies, Mona, 1975. [GD/UWI/JAM] M
- *CLAPKE, E.G. "The Role of a Central Procurement Agency in Stabilizing the Price of Food with Special Reference to Jamaica Nutrition Holdings." Proceedings of the Tenth West Indies Agricultural Economics Conference Georgetown, Guyana, 1975. St. Augustine; Trinidad: University of West Indies, Department of Agricultural Economics, 1975. pp. 180-185. M,P
- Describes the activities of Jamaica Nutrition Holdings and its attempts to stabilize prices.
- CLARKE, S. St. A. The Competitive Position of Jamaica's Agricultural Exports. Kingston: M

Institute of Social and Economic Studies, 1962. [MOA/JAM]

- COLLINS, E.C. and CLOSE, E.C. "Caribbean Islands Offer Farm Export Opportunities." Foreign Agriculture 13, No. 42 (Oct. 20, 1975): 8-9, 16. M
- CRIPPS, M.H. "Spice Oleoresins: The Process, the Market and the Future." In Proceedings of the Conference on Spices, 10-14th April, 1972. London: Foreign and Commonwealth Office, 1973. M,T,C
- * CUMPER, G.F. "An Experimental Comparison of Some Alternative Methods of Computing Demand Elasticities." Social and Economic Studies 15, No. 2 (June 1966): 92-102. [MOA/JAM; UWI/ISEP] M
- Gives alternative estimates of income elasticities using 1958 Household survey and different (and clearly described) estimation methods.
- DIXON, J. "Structure Functional Importance and Field of Influence of Black River and Santa Cruz--St. Elizabeth." Unpublished undergraduate thesis. Dept. of Geography, University of West Indies, Mona, 1975. [GD/UWI/JAM] M
- DUPANT-GONZALEZ, Victoria. "Role and Status of Rural Jamaican Women: Higglering and Mothering." Unpublished Ph.D. dissertation, University of California, Berkeley, 1976. M
- Examines the participation of women in social organization in a Jamaican rural area, including a description of recruitment into higglering. Status of higglering is high in local community, low in national.
- EINNEP, W.G. The Marketing of Domestic Food Crops of Jamaica. Food and Agriculture Organization, 1961. [SDS/AID/JAM] M
- EUROPEAN ECONOMIC COMMUNITY. Bulletin of the European Communities 8, No. 1 (1975): pp. 6-10. M

The Lome Convention concluded on 28 February 1975 between the European

Community and 46 African, Caribbean and Pacific (ACP) countries focuses on four main areas (1) trade co-operation; (2) stabilization of export earnings (including sugar); (3) industrial co-operation; and (4) financial and technical co-operation. In respect of agricultural products exported by the ACP which come under CAP, the Community offers similar advantages with most products enjoying free access and the rest covered by a preferential scheme. A major feature of the trade co-operation agreement is that the EEC relinquishes a reciprocal requirement in trade concessions, though the ACP states must guarantee the EEC treatment as good as the most favoured nation in their trading and must not discriminate between member states.

- * FAPQUHAPSON, Neville. The Production and Marketing of Yams From Allsides and the Christiana Area of Jamaica, Instituto Internaccional de Ciencias Agrícolas, Kingston, 1978, 96 pp. * ,C

An intensive study of all aspects of producing and marketing a major crop from a specialty production area. Provides figures and insights relevant to marketing problems in general.

- FOOD AND AGRICULTURE ORGANIZATION. Jamaica, Food Crops Development and Marketing Feasibility Survey. ESP: SF/JAM 6 Terminal Report, Rome, September 1970. 50 pp. + 3 appendices, bibliography. [FDS/AID/JAM] M

Contains brief discussions of each commodity group, the sector demands for agricultural commodities, nutrition and the internal marketing system. Further description of market potential in North Atlantic markets and the functioning of the food processing industry is provided.

- * FOOD AND AGRICULTURE ORGANIZATION/INTER-AMERICAN DEVELOPMENT BANK COOPERATIVE PROGRAMME. Jamaica Agricultural Marketing. Report 4/76 Jamaica-2, June 1976, Washington, D.C. (Circulation restricted), 62 pp., bibliog. appendices A-G. [FDS/AID/JAM] M

The most important current source on

Jamaican marketing. Presents a comprehensive plan for consolidating and reorganizing the A.M.C., changing its role to complement the efforts of the traditional sector. This paper was done partially as background to the IDB investments in 33 Cornwall parish markets.

FOOD AND AGRICULTURE ORGANIZATION/U.N.
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Rome, 1971. [UNDP/JAM]

M, T, C

Looks at soil and climatic limitations for crops, and then evaluates crops: sugar, cocoa, coconut, pimento, ginger, maize, sorghum, rice, roots, pulses, fruits, vegetables, tobacco pasture and livestock. Information provided on cultural practices, fertilization, yield, site needs, research, etc. Very good introduction to agronomic feasibility and research needs.

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Economic Analyses. ESF: SF/JAM6
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Covers domestic raw produce uses in local canning by product and structure of industry. Also looks at markets and potential for citrus, cocoa and coffee, as well as oil-seeds, cereals, meat and dairy. Includes discussion of refrigerated storage.

*GIRLING, Robert K. "Education, Technology and Development/Underdevelopment: A Case Study of Agro-Industry in Jamaica." Unpublished Ph.D. dissertation, Stanford University, 1974.

M, E

Focus of empirical sections is on survey of 26 firms in the Jamaican food processing industry. Each was questioned in regard to policy affecting choice of technology as well as general nature of

their operations. Results are analysed in terms of production, employment, research training, technological choice and contribution to national development. Locally-owned firms showed different results than multi-national firms. For example they were more likely to be involved in research and development of indigenous resources, to reinvest their earnings and to obtain a larger proportion of their raw materials from local sources.

- *---. "Technology and Dependent Development in Jamaica: A Case Study." Social and Economic Studies 26, No. 2 (June 1977): 169-189.

M, P

Looks at employment performance (using census and labor force statistics) of the food processing industry, local research work, earnings re-invested and capacity utilization by ownership. Concludes that trend is towards more mechanization, critiques present policies and presents a radical alternative.

- SPUHN, I.V. "The Lome Convention: Inching towards Interdependence." International Organization 30, No. 2 (1976): 241-262.

M, J

The trade agreement between EEC and forty odd African, Caribbean and Pacific States in 1975 is discussed. Innovative techniques such as STABEX, sugar indexing and rural development are analyzed.

- GUERRERO, Pablo, et al. Pilot Study on National Accounting Parameters: Their Estimation and Use in Chile, Costa Rica and Jamaica. Vol. 2, Country and Project Case Studies. Project Methodology Unit, Country Studies Division, Economic and Social Development Department, Inter-American Development Bank, Draft 6. Oct. 1977, Washington, D.C. [PDS/AID/JAM]

M, J

Derives a series of measures for efficiency accounting ratios and social accounting prices for inputs, exports and domestic production.

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up-to-date slaughter house for Kingston
area. Analysed at efficiency prices,
market prices and social prices.

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Jamaica, Ministry of Finance and
Planning, Town Planning Department,
Kingston, 1970. (Mimeo) [PDS/AID/JAM]

*HAPPIS, Donald J. "Econometric Analysis M, P
of Household Consumption in Jamaica."
Social and Economic Studies 13, No. 4
(Dec. 1964): 471-487. [MOA/JAM; UWI/ISFR]

Estimates income elasticities of
demand for major food groups from 1958
Household Survey for urban, rural, and
main town groups.

HAWTHORNE, P. "The Hierarchy of Small M
Towns in Westmoreland." Unpublished
undergraduate thesis. Dept. of Geography,
University of West Indies, Mona, 1974.
[GD/UWI/JAM]

HUBBARD, Raymond. "A Note of Factors M, P
Influencing the Present Distribution
of the Jamaican Road Network." Caribbean
Studies 12, No. 4 (January 1973): 36-55.

Uses 1960 Population census, data and
road mileage for multiple regression
in which road mileage is determined by
population distribution and areal
extent of reporting units. Found that
only areal extent was significant.
Looks at forecast and actual values of
road mileage (plus and minus) and
suggests more actual roads than predicted
reflects geographical distribution of
sugar and fruits. Less than predicted
depends on adverse terrain. Uses a
basic gravity model to predict future
road improvements. Priority determined
was Kingston to Spanish town and extensions
Old Harbour, May Pen, instead.

---, and FRYMON, John. "Landslides on M, P
Jamaican Roads. An Appraisal of
Causes." Geographical Survey 1, No.
3 (July 1972): 16-30.

Authors suggest slides are result of
poor road route selection, poor road

construction, and slope gradient cuts. Slides costly to farmers who cannot transport perishable crops to market.

JAMAICA. Banana Board. Annual Report. Kingston.

M, C

Gives export amounts, and a few items on finance, changes in price etc.

---. Jamaica Nutrition Holdings. Grain Bulletin. Kingston. [MOP/JAM]

M

Has mostly world data but also a page or so of information on Jamaica on inventories, etc., collected from manufacturers, especially on wheat and feed grains.

* ---. Preparation of Parish Markets Project, Vol 1 FAO/IDB cooperative programme, Final Report No. 4/77 Jamaica 4, Washington, D.C., (1977) 69 pp. and annex.

M, Pr

Contains a review of agricultural marketing policy and description of the distribution system. The major content deals with the program to design new parish markets and a consideration of the functioning of the system of markets. The project will replace 16 parish markets and construct one completely new market. A major change includes providing the AMC space in the parish markets for wholesaling activities and developing facilities for small processing equipment. Includes list of 14 public agencies involved in agricultural marketing and estimates of food waste in marketing. This is one of the best and most up to date sources available.

- . Ministry of Industry and Tourism. M
Development of the Food Processing
Industry in Jamaica. A Preliminary
Appraisal. (Mimeo) May 1972. 38 pp.
 and appendix. [PDS/AID/JAM]

Details the situation and problems of food processing, e.g. unreliable supply, inadequate capital. Deals with industry sectors by commodity group. Appendix has a list of all food processors and crops handled by each.

- JENNEP, G.K. Comments and Recommendations
Concerning Wholesale Terminal Market
Buildings in the Agricultural Marketing
Corporation of the Ministry of Agri-
culture and Lands. Sept. 1965. 30 pp.
 [AID/LA/WPSH JM 380.141 J54] M

Includes much technical information and recommendations but also has general insight into technical marketing problems.

- JOHNSON, I.E. "Some Aspects of the Food Pro- M
 cessing Industry in Jamaica" Proceedings of
the Sixth West Indian Agricultural Economics
Conference, Georgetown, Guyana, 1971. St.
 Augustine, Trinidad: University of West Indies,
 Department of Agricultural Economics, 1971.

- * ----. and COLEY, B.G. Marketing of
Agricultural Commodities Produced
for Domestic Consumption in Jamaica. M
 Division of Economics and Statistics,
 Ministry of Agriculture and Lands,
 Kingston, March 1966.

- * ---. "Marketing of Agricultural Commodities M
 Produced for Domestic Consumption in
 Jamaica." Proceedings of the First West
Indian Agricultural Economics Conference,
University of the West Indies, St.
Augustine, Trinidad, March 28-April 2,
1966. St. Augustine, Trinidad, Dept. of
 Agricultural Economics, 1966. pp. 274-
 300.

Most domestic food plus a substantial proportion of export commodities are produced by small farmers on low quality soils in hill slope lands. Estimates are the 70 to 75 percent of all food produced internally. Major weaknesses

of the higgler system are identified:

1. The small quantities increase costs of marketing,
2. in times of surplus large quantities are unmarketed,
3. poor transport methods result in spoilage and damage,
4. traveling costs for groups of higgler are higher than for bulk handling.
5. Higgler do not package.

Provides a consideration of establishment, functions and problems of the A.M.C.

JOHNSON, Paul E.; SCHOENHERR, William H.; and WILBUR, Donald A. Jr. Seminar in Food Storage and Handling Practices, Kingston, Jamaica, June 19-21, 1973. (Mimeo) 15 pp. and 2 appendices. [RDS/AID/JAM]

M

Major concern is storage and handling of U.S. grain exports after arrival in Jamaica to avoid contamination losses. Contains an inspection checklist (exhibit C-2) which would be useful for any storage facility and procedure that might be part of a domestic food marketing program.

JONES, J. The Market for Mango Products with Particular Reference to the United Kingdom. London: Tropical Products Institute, No. G74, 1973. 51 pp. and v.

M

The mango is available in more processed forms than any other minor tropical fruit. Products derived from it include mango slices in brine, canned mangoes in syrup, mango juice, pulp, nectar, flour, jam, dried slices and an assortment of various mango based pickles, chutneys and sauces. India is by far the world's most important producer and exporter of mango products, followed by Jamaica and South Africa. "either total world production nor trade figures are available for any of the products considered in this report due to the dearth of related national statistics.

*KITZIN, Margaret Fisher. "The Business of Higglering in Jamaica." Social and Economic Studies IX, (September 1960): 297-331. [MOA/JAM; UMI/ISEP]

M

"Most country higgler take their loads to markets at some distance from their homes because they could be undersold in the local market by country people selling their own crops." This article offers a classification system of types of traders and describes how the system functions.

- * ----. "The Jamaican Country Higglee." M
Social and Economic Studies 8, No. 4
 (Dec. 1959): 421-440. [MOA/JAM;
 UWI/ISPP]

Micro-level case study--one week in the life of a farm family, including higgling. The higgler-farmwife bought from farms on two days, each requiring a full day's walk over rough trails carry the accumulated load. Most in this district use a mule to collect produce and carry it to a motorable road where a truck picks them up. Normal market days are Thursday, Friday, and Saturday. Price information is carried daily by returning higgler and truckers back to rural areas. In the market, thievery is a major problem.

- * KUTISH, Francis A. "Assessment of Agricultural Marketing in Jamaica with Special Reference to Small Farmers in Portland Parish." 1978 83 pp. (Unpublished internal report of the USDA/USAID Agricultural Sector Assessment Team.) M

Provides an insightful discussion of market structure and list of marketing constraints. Favors a declining role for AMC and predicts dominance of 'superhiggler'.

- * LOCHER, Uli. The Marketing of Agricultural Produce in Jamaica. Instituto Interamericano de Ciencias Agrícolas (IICA), Kingston, Jamaica, 1977, 76 pp. M
 [FDS/AID/JAM]

An excellent overview of marketing and insightful field work by sociologist Locher in the Kingston markets. Details the functioning and problems of the city distribution part of the marketing system. Major recommendation is to support the higgler marketer and to co-ordinate government services (transport, credit, physical market

facilities) to improve traditional system.

- LUMSDEN, F. "The Agricultural Marketing Corporation: Its Location and Distribution Networks." Unpublished undergraduate thesis. Dept. of Geography, University of West Indies, Mona, 1970. [UWI/WIC] M
- MUNDGFEN, J.C. "Agricultural Marketing and Distribution Arrangements with Respect to the Pesort Hotel in the Caribbean." Proceedings of the Sixth West Indian Agricultural Economics Conference, Georgetown, Guyana, 1971. St. Augustine, Trinidad: University of West Indies, Department of Agricultural Economics, 1971. pp. 158-175. M
- looks at the supply sources of a sample of hotels on North Coast of Jamaica. Data in article relate to one hotel.
- MCDONALD, Vincent. "Innovation: The Basis for a Program of Rationalization of Caribbean Agriculture (with Special Reference to the Livestock Sector)." Proceedings of the 8th West Indian Agricultural Economics Conference, Held at St. Augustine, Trinidad 1-7 April, 1973. St. Augustine, Trinidad: Dept. of Agricultural Economics, 1973. M,C,J
- McFARLANE, J. "Linear Development in a Rural Area--Savanna-la-mar to Petersfield Westmoreland." Unpublished undergraduate thesis. Dept. of Geography, University of West Indies, Mona, 1975. [GD/UWI/JAM] M
- McINTOSH, Curtis F. "Food Marketing in the Commonwealth Caribbean." PAG Bulletin 4, No. 4 (Dec 1975): pp. 22-25. M,J
- * ---. "Marketing Constraints to Agricultural Rationalisation in the Caribbean." Cajanus 8, No. 4 (1975): 237-244. [MCA/JFM] M,J

This paper attempts to (a) identify constraints originating in the marketing of agricultural products, which militate against the achievements of a rationalized agricultural sector in the Caribbean Area, and (b) offer some suggestions for removing these constraints.

----. and LIM CHOY, M. The Performance of Selected Marketing Agencies in the Caribbean. St. Augustine, Trinidad: Occasional Series No. 11 Department of Agricultural Economics and Farm Management. University of West Indies, 1975.

M, J

An evaluation of marketing agencies in Barbados, Jamaica, St. Vincent, and Trinidad and Tobago. Compares economic environment and provides a short evaluation of procurement policies, distribution practices, and performance criteria. Concludes that performance is poor generally. Useful for comparative purposes.

MAGNUS, V. "Spatial Patterns of Food Purchasing by North Coast Hotels." Unpublished undergraduate thesis. Dept. of Geography, University of West Indies, Mona, 1971. [GD/UWI/JAM]

M

MAYEPS, J.M. "The Marketing and Demand for Meat in the Commonwealth Caribbean." In Proceedings of the 7th West Indian Agricultural Economics Conference, Georgetown, Guyana, March 28-April 2, 1971. St. Augustine, Trinidad: University of West Indies, Dept. of Agricultural Economics, 1971. [MOP/JAM]

M, J, C

This paper examines the consumption of meats, discusses current marketing structures and suggests a likely demand pattern over the next decade. Gives comparative estimates of per capita consumption of meats by type for 1956 and 1957 by country. Suggests with rising income 60 lbs per head will be demand by 1980 with beef expected the major item, followed by pork, and meat preparations. Demand is expected to be more elastic in the long-run than the short-run. Goat meat is not analysed.

MINTZ, Sidney W. Caribbean Transformation. Chicago: Aldine Press, 1974. 35^e pp. xii, bibliography. [UWI/WIC]

M, J

Includes a chapter on the historic development of marketing in Jamaica. Discusses basis of role of women in

marketing. Has very little post 1900 material.

- . "The Jamaican Internal Marketing Pattern." Social and Economic Studies, No. 1 (March 1955): 95-103. [MOA/JAM; UWI/ISEF] M

Generally attributes Jamaica marketing pattern to African origins, noting the prevalence of women as marketing agents in both areas. Barter is reported rare, all transactions use money. An important characteristic of the higgler system is that the trader always accompanies his goods. A characteristic feature is the handling of a variety of goods to spread risk and dealing in small quantities.

- * ---. "The Role of the Middleman in the Internal Distribution System of a Caribbean Peasant Economy." Human Organization XV, No. 2 (Summer 1956): 18-23. M

- MOPROW, Felicia. U.S. Produce Market. (Mimeo) April 1978, USDA Working Document, 60 pp. [FDS/AID/JAM] M

This report reviews the U.S. as market potential for Jamaican exports of fresh produce. Also problems of market information, transportation and brokerage are discussed. Finally specific commodity situations are reviewed: garlic, tomatoes, cucumbers, melons, okra, broccoli and peanuts.

- NOBLE, M. "Food Canning in Kingston." Unpublished undergraduate thesis. Dept. of Geography, University of West Indies, Mona, 1974. [GD/UWI/JAM] M

- * NOPTON, A. and SYMANSKI, P. "The Internal Marketing Systems of Jamaica." Geographical Review 65, No. 4 (1975): 461-475. M

Agricultural marketing and marketing reform in Jamaica is discussed, drawing on general comparisons with other parts of the region. Traditional, periodic markets are first described and integration of the entire system is suggested. The work of the Agricultural Marketing Corporation (AMC) is examined.

- * NORVELL, Douglass G. and THOMPSON, Marian Kay. "Higglering in Jamaica, and the Mystique of Pure Competition." Social and Economic Studies. M
- A not too convincing attempt to show that Katzin was incorrect in assuming that many sellers in the Jamaica traditional market fulfilled classic requirements for perfect competition.
- ORGANIZATION OF AMERICAN STATES. Inter-American Institute of Agricultural Sciences. Hemishperic Agricultural Marketing Program. 1974. 15 pp. M, J
- IICA headquarters are in San Jose, Costa Rica. Since 1972 there has been a permanent program on Agricultural Marketing--with services relating to training, research and program service.
- PETEFKIN, O. "Spatial Organisation and Operation of the Small Town Market and Supply Area--Falmouth." Unpublished undergraduate thesis. Dept. of Geography, University of West Indies, Mona, 1975. [GD/UWI/JAM] M
- BRITCHARD, Norris T.; HUTH, W.P.; and HAVAS, Nick. Prospects for U.S. Agricultural Exports to Jamaica. Washington, U.S. Govt. Print. Off., 29, 1.p., 1969. M
- * BARKINE, Lloyd E. Extra and Intra-Caribbean Trade in Root Crops. Occasional Series No. 9. St. Augustine, Trinidad: Department of Agricultural Economics and Farm Management, University of West Indies, 1973. M, C, J
- Examines market institutions and marketing processes in 4 countries, including Jamaica. The crops studied in Jamaica are yams, sweet potatoes, dasheen, and Irish potatoes. For root crops as a whole, the export trend in the region was slightly downward, especially for intra-Caribbean trade.
- . Some Features of the Market for Root Crops Produced in the Commonwealth Caribbean. Proceedings of the 10th Annual Meeting of the Caribbean Food Crops Society, 1972: 103-112. M, C, J
- FOGERS, Claudia. "Illegal Entrepreneurship and Social Networks in Rural M

Jamaica." Unpublished Ph.D. dissertation, Columbia University, 1976.

Provides a case study of one village and one town in Jamaica. Covers use of cannabis and case studies of two major dealers in the study sites.

- SAMMY, G.M. "The Scope for the Development of Food Processing." Proceedings of the Ninth West Indies Agricultural Economics Conference, Held at the Pegasus Hotel, New Kingston, Jamaica, April 3-6, 1974 and at the Jamaica School of Agriculture, Twickenham Park, April 7-10, 1974. St. Augustine, Trinidad, Department of Agricultural Economics and Farm Management, University of the West Indies, 1974. Pp. 61-70. [UWI/ISER]

M

Suggests the lack of processing technology is due to the colonial past as producers of raw materials and consumers of processed goods. Indicates scope for food processing development, the main objective being a high degree of self-sufficiency in food production, linked with social improvement for the lower income section of society.

- * SAPPATY, David. "Feasibility of a Caribbean Export Program for Fresh Market Vegetables: Aspects of Demand and Supply Potential." USDA/IDS/LA/SAIG Working Document, March 1978. Approx. 80 pp., tables, appendices, bibliog. [PDS/MID/JAM]

M

Includes an analysis for 6 crops of the supply and demand situation in Jamaica and the U.S. Considerations of seasonality, transport costs, regional competition and regulatory constraints are considered.

- SAWYER, W. "A Study of the Constant Spring Market." Unpublished undergraduate thesis, Dept. of Geography, University of West Indies, Mona, Jamaica, 1968.

M

- * SHILLINGFORD, J.D. and H.W. BLADES "Prospective Demand for Food in the Commonwealth Caribbean," Proceedings of the Tenth West Indian Agricultural Economics Conference, Georgetown, Guyana, 1975. St. Augustine, Trinidad: University of West Indies, Department of Agricultural Economics, 1975, pp. 40-53.

M, J

Develops estimates of demand for each country from population projections, income projections, and income elasticities. Includes base level per capita consumption and nutrition estimates.

SINCLAIR, M. "The Cocoa Industry and Chocolate Manufacturing in Highgate." M.C.
Unpublished undergraduate thesis. Dept. of Geography, University of West Indies, Mona, 1975. [GD/UWI/JAM]

*SMITH, C. and TAYLOR, H. Higgler Survey, Agricultural Planning Unit, Ministry of Agriculture May 1977, Kingston, 105 pp. and 47 appendices. M

An analysis of a large field survey of higgler in all parts of the Island. Includes a careful description of the marketing system and a great deal of data on many aspects of higgerling. Does not consider higgler transport problems or information systems. Includes an analysis of the economics of the higgler operation. This survey provides an extremely valuable body of data. Some of the analysis and conclusions drawn from it are questionable and should not be used by readers unable to make their own inferences from the data provided. Many serious errors of interpretation are evident.

* SMITH, D.F. and GARVIS, C.A. Ministry of Marketing and Commerce. Agricultural Marketing Corporation: Organization and Management Functions. Management Services Division, Ministry of the Public Service. May 1976. 113 pp. appendices A-P. [PDS/AID/JAM] M

This is a critical evaluation of the A.M.C. with detailed recommendation for changes in plant, operation and personnel. It also clearly spells out the structure, functions and objectives of each part of the organization.

* ---; WALWYN, F.; and TRACY, J. Ministry of Industry and Commerce. Agricultural Marketing Corporation: Basic Shops and Mobiles Department Review of Organization, Systems and Procedures. (Confidential) Management Services Division, Ministry of Public Service, November 1977. 100 pp., appendices A-P. [PDS/AID JAM] M

Detail of organizational structure, facilities, operational costs and problems. Gives recommendations.

SUTHEPLAND, C. "Spatial Structure of Brown's Town, St. Ann." Unpublished undergraduate thesis. Dept. of Geography, University of West Indies, Mona, 1974. [GD/UWI/JAM] M

SYMANSKI, Richard. "God, Food, and Periodic Market Systems." Proceedings, Association of American Geographers, Vol. 5, 1973. Pp. 262-266. M

Jamaica, in contrast to Colombia, has almost no Sunday markets and few mid-week market days. Most periodic markets occur on Friday and/or Saturday. In larger, continuous markets, Friday and Saturday experience much greater volumes of trade.

TAYLOR, Leroy. "A Study of Consumer's Expenditures in Jamaica, 1832 to the Present Day." Unpublished Ph.D. dissertation, University of London, 1963. M

---. Consumer's Expenditures in Jamaica. Kingston: Institute of Social and Economic Research, 1964. [MOB/JAM] M, J

THOMAS, F.D. (Editor). "The Role of Marketing in Caribbean Agricultural Development." Proceedings of the Sixth West Indian Agricultural Economics Conference Held at Georgetown, Guyana, March 28-April 2, 1971. St. Augustine, Trinidad: University of the West Indies, Department of Agricultural Economics and Farm Management, 1971. Pp. 220 + x. M, B

Several papers on Guyana were followed by contributions on individual islands, and on such aspects of marketing as: the marketing and demand for meat in the Caribbean; the Jamaica dairy industry; transport; tourism and hotels; export crops; food processing. The workshop reports, linked with the main theme of the Conference, discussed: (1) agricultural co-operative marketing arrangements; (2) (a) the role of Marketing Boards; (b) extra-regional

marketing arrangements; (3) priorities for marketing research.

- THOMPSON, A.K. "Marketing and Handling Practices in the Tropics. 5. West Indies: Handling of Some Tropical Crops." In Postharvest Physiology, Handling and Utility of Tropical and Subtropical Fruits and Vegetables, E. R. Pantastico, ed., 1975. Pp. 542-545. M
- TUTTLE, Wynn; and SEEBORG, Edward F. "The Caribbean: A Promising Market for U.S. Wheat Exports." Foreign Agriculture 9, No. 4 (Jan. 25, 1971): 6-7. M
- UNITED STATES. Dept. of Agriculture. Economic Research Service. Prospects for U.S. Agricultural Exports to Jamaica. USDA Foreign Agr. Econ. Rep. 56, (Dec. 1969): 30pp. M
- . ---. Foreign Agricultural Service. "Demand for U.S. Wheat Expanding in Caribbean Area." Foreign Agriculture, U.S. Foreign Agric. Serv. 13, No. 50 (Dec. 15, 1975): 16 pp. M
- . ---. ---. "U.S. Food Products Find Wide Acceptance in Three Caribbean Markets." Foreign Agriculture 11, No. 9 (Feb. 26, 1973): 9-10, 16. M
- WANDS, S.F. "The American Spice Market, 1972." In Proceedings of the Conference on Spices, 10-14th April, 1972. London: Foreign and Commonwealth Office, 1973. M, C
- WHITELOCKE, M.B. "The Agricultural Marketing Corporation in Jamaica-- A Geographical Appraisal." Unpublished undergraduate thesis. Dept. of Geography, University of West Indies, Mona, 1970. [GD/UWI/JAM] M
- *WILSON, W.I. "The Marketing Costs of Fresh Fruits, Vegetables and Tubers"; The Productivity Centre, Jamaica Industrial Development Corporation, Kingston. June, 1971. 20pp. and 4 appendices. [PDS/AID/JAM] M

Based on an islandwide sample survey of marketing outlets to investigate marketing mar-

gins and cost services. Major finding demonstrates the better farm prices and lower marketing costs of small group of 'superhigglers' over AMC and small higglers. An excellent course.

*WOOD, A., et al. Marketing, Agricultural Sector Study, 1973--Report of the Services to Agriculture. Mimeo, 1973. 41 pp. [RDS/AID/JAM]

The origins of this report are obscure. It was conducted by a six-man team, but who they represent and to whom they were reporting is not specified. This is the most complete compilation available of the organization, role and functions of the various commodity boards. Additionally, there is a good discussion of the problems of the parish council markets; their history, organization and function. An insightful discussion of the Higglers System is provided and an identification of 11 specific problems. An evaluation of the AMC is provided, including specific problem areas reported in a survey of users.

PART II

ABBOTT, George C. "Stabilization Policies in the West Indies Sugar Industry." Caribbean Quarterly 9, No. 1/2 (1963): 53-66. (UWI/ISER)

Describes Commonwealth sugar agreement and effect on pricing and production.

----. "The West Indian Sugar Industry with Some Long-Term Projections of Supply." Social and Economic Studies 13, No. 1 (March 1964): 1-37. (MOA/JAM; UWI/ISER)

Describes acreage changes, yields, factory efficiency of each island. Projects output from past trends and from likely acreage, yield, efficiency changes and gets 'technically feasible' production. Does not include detailed cost and has optimistic attitude to export market and comparative costs.

* ALL ISLAND JAMAICA CANE FARMERS' ASSOCIATION. Annual Report. Kingston, Jamaica. (MOA/JAM)

Gives cane deliveries per factory, basis for final payments (estates versus farmers), factory time accounts and efficiency. Gives a graph of production but no tables or data sources.

* ANDIC, Faut; ANDIC, Suphan; and DOSSER, Douglas. A Theory of Economic Integration for Developing Countries: Illustrated by Caribbean Countries. London: George Allen and Unwin Ltd., 1971. Pp. 176.

Develops a theory on benefits and costs of trade area creation. Measures losses due to lack of free trade for alternatives suggested or present unions (CARIFTA, EEC associates, CACM), and simple protection for several Caribbean countries including Jamaica. Price and income elasticities were estimated for rice, flour and a number of non-agricultural products (1959-67) and used with export elasticities to estimate losses from the various trade alternatives. Results showed present situation represents a substantial loss of trade compared to free trade and that alternative groupings would do little to ameliorate this loss.

* ARTHUR, Henry B.; HOUEK, James P.; and BECKFORD, George L. Tropical Agribusiness Structures and Adjustments--Bananas. Boston: Division of Research, Graduate School of Business Administration, Harvard University, 1968, XI. 210 pp. (NAL: HD 9259.B2A7) (MOA/JAM)

A descriptive analysis of factors that affect performance of international banana industry. Has sections describing Jamaican industry. Some of comparative data useful, but no real cost data.

BRODSKY, Harold. "Role of Jamaican Urban Centers in Marketing", Kingston, 1978. (Unpublished internal report of the USDA/USAID Agricultural Sector Assessment Team)

Examines price fluctuations for seven commodities (bananas, coconuts, peas, cucumbers, pumpkins, yams and sweet potatoes). Variation between

parishes is much greater than variation between commodities. Using 'greater than 20% variation' as a measure of poor performance indicates that the total system does not work efficiently. Western towns have lower prices than Eastern. Port Antonio has the highest coefficient of variation. Correlation between neighboring towns is high and positive, in this case prices are similar and the market efficient.

*CARTER, Nicholas G. "A Macro-Economic Model of Jamaica 1959-1966." Social and Economic Studies 19, No. 2 (June 1970): 178-201. (MOA/JAM; UWI/ISER)

Provides a 33 equation model to describe the structure of the economy over that period. Author categorizes the model as descriptive (to help understand the economy), rather than for use for forecasting or policy purposes. Model shows how economy reacts to exogenous factors such as exports and tourism. Has elasticities for food imports which are considered by author to be very high (1.11) and indicative of 'overall inadequacy' of agricultural sector.

FRISCH, R. "A Complete Scheme for Computing All Direct and Cross Demand Elasticities in a Model with Many Sectors; Econometrica, 27 (1959).

*GIRWAP, S.N. "The Role and Future of Sugar in the Commonwealth Caribbean in the Light of Britain's Entry into the EEC." Proceedings of Eighth West Indian Agricultural Economics Conference, Port-of-Spain, Trinidad, April 1-7, 1973. St. Augustine, Trinidad: University of West Indies, 1973.

Analysis is made of the world sugar situation affecting the Caribbean producers. Sugar markets are analyzed: (a) negotiated price quota, (b) U.S. quota. The UK and EEC systems are discussed and compared. The Assurances offered to the Caribbean producers are examined (Brussels formula, to Lancaster House declaration, Protocol 22), and anxieties arising out of Britain's entry into EEC discussed. Examination of the alternatives open to the Caribbean sugar industry indicates that at present the Commonwealth Caribbean countries are so heavily committed to sugar production, in terms of both men and materials, that any disruption of market outlets can cause severe economic and social dislocation.

*HAGELBERG, G.B. The Caribbean Sugar Industries: Constraints and Opportunities. Occasional Papers No. 3. New Haven, Connecticut: Antilles Research Program, Yale University, 1974. 173 pp.

This study discusses the changing character of the plantation, the possibilities of further intensification of land use with sugar versus other food crops in the Commonwealth Caribbean. Potential for technological change in processing is also covered. Sugar statistics are reviewed, and trends in costs of production, factor use and productivity analyzed. Commonwealth Caribbean does not now have lower costs than competitors.

- *HARRIS, Donald J. "Savings and Foreign Trade as Constraints in Economic Growth: A Study of Jamaica." Social and Economic Studies 19, No. 2 (June 1970): 147-177. (MOA/JAM; UWI/ISER)

Reports on construction and estimation of an aggregate macro-economic model of the Jamaican economy (57 equations and 63 variables) using data for the period 1950-1965. Main purpose is to make projections of future resource requirements of the economy in terms of the potential export-import and saving-investment gaps, based on trends of past performance in the economy. Includes estimates of income demand elasticities for aggregate imports (food is 1.1) and for exports (including bananas and sugar). Assumes Jamaica cannot affect price, and industry structure monopsonistic.

- *JAMAICA, Government of. Report of the Commission of Enquiry on the Sugar Industry of Jamaica. Kingston, January 1960. 93 pp. (MOA/JAM: 664.1 (729.2))

Covers production marketing quotas and constraints, the sugar law, organization, labor (conditions, productivity, etc.), unions, etc. Has financial results for 1954-58. The report describes industry at that point in time, and includes a great deal of data (of historical value). There is some evaluation, mostly on wage stability.

- *----. Report of the Sugar Industry Enquiry Commission (1966). Kingston, October 1967. 229 -p. (MOA/JAM)

As for previous report, has a lot of information on structure of industry, breakdown by size, costs, problems, at that point in time. General tenor is worry over 'high cost' Jamaican production and the factors affecting it.

- , and Department of Statistics. Consumer Price Indices: Rural and Urban. (Monthly or Biannually?) (RDS/AID/JAM; MOA/JAM)

Note that methodology is set out in February 1975 issue. Gives price changes in groups and gives unit prices for the current year. More detail for Kingston than elsewhere. Base 1975, and based on 1971/72 household survey. Takes price changes each month.

- , ----. Expenditure Pattern of Working Class Households 1963-64. Kingston, 1966.

- , ----. External Trade (Quarterly, Cumulative), Kingston (254.8 J223E)

Totals for external trade by month; imports, exports and re-exports by generalized commodity breakdown; imports, exports and re-exports by value and country of origin/destination direction of trade by countries in currency and trading areas; detailed breakdown of imports, exports and re-exports by quantity and value of items by country of origin/destination.

- , ----. Household Expenditure Survey 1971-72, 1975, 1977 (On data tape, unedited as of December 1977).

A copy of the very detailed, 40 page questionnaire is in RDS/AID/JAM library. The Department of Statistics has the data tapes, though they were not in a useable form in March 1978. An editing tape was being tested at that time with plans to have the report readied by mid-1978. The survey has a highly detailed employment classification (the same as used for published labor statistics) and identification of rural/urban, parish and Kingston metropolitan area is included. The survey was applied twice within a two week period to the same households. The follow-up, Schedule B, is a repeat of the first five sections of Schedule A and deals with basic consumption and income questions.

The 1971-72 survey covered 3,800 households (planned sample 4,000); the 1975 survey 4,300 (5,500), and the December 1977 survey 1,700 planned.

----, ----. Household Expenditure Survey, 1958. Kingston, 1959. (MOA/JAM)

Sample survey (720 rural, 400 Kingston, 130 Main towns). Covered two weeks family expenditures. Quantities published only for rural home consumption, otherwise values per week and percentage of total expenditure on commodity.

----, ----. Household Expenditure Survey 1956. Kingston (data unknown).

Provides data on rural expenditure.

----, ----. Household Expenditure Survey 1953-1954. Kingston, 1955. (MOA/JAM)

Survey carried out on 1,500 sample from Kingston alone. Has shillings per week per commodity and percentage of total expenditure on that commodity.

JAMAICA. Ministry of Agriculture. The Agricultural Sector Five-Year Plan, 1978-1982. Kingston, 1978.

Has section on domestic agricultural marketing. Present performance is critiqued for spoilage, artificial shortages and surpluses, structural deficiencies in the AMC (low prices unsatisfactory grades, and not purchasing all quantities made available). List objectives for system (see Report). Recommends expanded role for AMC retailing; improved parish markets; updating minimum prices; provision of market information; decentralization of AMC.

----, ----. Forecast of Production for Selected Agricultural Commodities, December 1977. Kingston, November 1977. RDS /AID/JAM)

Presents crop forecast for the following month based on extension agent reports. There is a table for each parish and an all-island summary is given for 50 major crops.

----, ----. Data Collection Statistics and Evaluation Department. Indices of Domestic Agricultural Production and Farm Gate Prices, 1970, 74. Kingston, 1975. RDS /AID/JAM)

- , ----. Agricultural Planning Unit. "Agricultural Subsidies." 1955-1972. (Unpublished) 1973 (?). Pp. 17 + Tables. (MOA/JAM)

Report lists subsidies, amounts used, administrative expenditures, etc. and a critique and recommendations. This is historical, but provides a useful though not detailed analysis and discussion of problems for present and future programs.

- , ----. Farm Subsidies. June 1975 (Printed, looseleaf folder) Pp. 8 (RDS/AID/JAM)

This folder contains a series of brochures which show the level and type of various types of subsidy programs, mostly crop specific.

- , ----, ----. Indices of Domestic Agricultural Production and FarmGate Prices 1970-1976. Kingston, June 1977. (PDS/AID/JAM, 2 copies)

The third in a series of agro-economic indicators published annually. Data collected monthly by extension agents and market intelligence officers. Estimated annual prices by commodity are given for 1976. Contains summary evaluation of trends. Data presented by quarter and major crop for 1976 are not given by parish. In 1978 this survey will report input prices.

- *JOLLY, Desmond Ansel. "Sectorial Growth and Employment in the Jamaican Economy, 1959-1968." Unpublished Ph.D. dissertation, University of Oregon, 1973.

Develops econometric model of key macroeconomic variables using 1959-68 data. This is used to evaluate feasibility of alternative growth rates. Growth is limited by savings and foreign exchange. Takes constrained growth rate of 4 percent and develops sectoral labor and capital coefficients and sectoral growth to reduce unemployment. This involves emphasis on agriculture and construction.

- JONES, Edwin. "The Role of Statutory Boards in the Political Process in Jamaica." Social and Economic Studies 19, No. 1 (March 1970): 114-134. (MOA/JAM)

Discusses political processes in formulation and administrative efficiency of such boards, etc.).

- JONES, William O. Marketing Staple Food Crops in Tropical Africa. Ithica: Cornell University Press, 1972.

- KRIESEL, Herbert; et al. Agricultural Marketing in Tanzania. U.S. Agency for International Development. June, 1970.

- KUNDU, A. "Rice in the British Caribbean Islands and British Guiana, 1950-1975." Social and Economic Studies 13, No. 2 (June 1964): 243-281. (MOA/JAM)

Provides a short description of rice industry in each territory, including the 4,000 acres in 1960 in Jamaica. British Guiana at that time had monopoly on exports to other islands. Fough demand and supply projections are made.

*LAWSON, Stanley. "Jamaica's Sugar Industry: An Inquiry into the Social and Economic Repercussions of a Declining Industry." Unpublished M.Sc. Thesis. New York University, 1971. Xerox. (UWI/WIC: HD 9114.J3L3)

LE-SI, Vihn and Carlos POMAREDA. "Direct and Cross-Price Elasticities from Expenditure Elasticities: Some Estimates for Food in Zambia: Washington, DC:, World Bank, Development Research Center, 1976.

McCALMON, J.C.E. "Prospects for Intra-regional Trade in Fish and Fish Products" Proceedings of the Tenth West Indies Agricultural Economics Conference Georgetown, Guyana, 1975. St. Augustine, Trinidad: University of West Indies, Department of Agricultural Economics, 1975. Pp. 112-123.

McFARLENE, Dennis. "The Future of the Banana Industry in the West Indies: An Assessment of Supply Prospects for 1965 and 1975." Social and Economic Studies 13, No. 1 (March 1964): 38-93. (MOA/JAM; UWI/ISER)

Has sections on resource allocation and distribution; disposal and prices; institutional framework; technical problems and practices; the internal and international markets. Available data by country (including Jamaica) is described. Supply projections to 1965 and 1975 are made.

----. "The Foundation for Future Production and Export of West Indian Citrus." Social and Economic Studies 13, No. 1 (March 1964): 118-156. (MOA/JAM; UWI/ISER)

Has sections on resource allocation and distribution, capital availability and economic structure, institutional framework: disposal and prices and the international market, using available to 1964 for each country including Jamaica.

*MANHERTZ, Huntley G. "An Exploratory Econometric Model for Jamaica." Social and Economic Studies, 20 No. 2 (June 1971): 198-226. (MOA/JAM; UWI/ISER)

Uses 1959-1967 data to fit a 42-equation (24 stochastic) structural model of the Jamaican economy covering consumption, private investment, foreign trade sector; monetary sector, government sector, tax functions, employment, manufacture production function and retail price determination.

----. "The Price Determination Process in a Small Open Economy - the Jamaican Experience." In Inflation in the Caribbean, Compton Bourne (ed.). Mona, Jamaica, Institute for Social and Economic Studies, 1977, pp. 1-27. (UWI/ISER)

Examines the movements of consumer prices in Jamaica, looking at rural and urban prices separately. Develops a mark-up-model for empirical analysis. Due to limited data author was unable to quantify all appropriate variables for his equations. Concludes that the two most important factors affecting price determination are import prices and the long-run normal cost of labor. Supply variation were of minor importance. Higher mark-ups for food exist in rural areas, and the effect of a change in import prices is greater.

- MAYERS, J.M. "Some Aspects of the Rationalization and Livestock Development in the Commonwealth Caribbean" Proceedings of the Eighth West Indies Agricultural Economics Conference, Port-of-Spain, Trinidad, 1973. Pp. 71-77.
- MAYERS, J.M. Meat Consumption Statistics of the Commonwealth Caribbean. Department of Agricultural Economics and Management, University of West Indies, 1970.
- Develops consumption data by island 1950-68 by type of meat. Also has prices.
- ORGANIZATION OF AMERICAN STATES. Sugar By-Product Utilization in Jamaica. Vol. I: Pulp and Paper, and Animal Feeds; Vol. II; Alcohol 1977 and 1978 (RDS/AID/JAM)
- Provides an assessment of the techno-economic potential for utilization of sugar by-products to produce useable products. A detailed and specific analysis of projected benefits and costs of each alternative is set out.
- PERSUAD, B. "Market Prospects for Commonwealth Caribbean Sugar in the EEC" Proceedings of the Eighth West Indies Agricultural Economics Conference, Port-of-Spain, Trinidad, 1973. St. Augustine, Trinidad. Department of Agricultural Economics, 1973.
- PHILLIPS, W.J. "Some Interpretations of Banana Statistics Relating to the EEC Markets and the Commonwealth Caribbean Industry." In Proceedings of Eighth West Indian Agricultural Economics Conference. Port-of-Spain, Trinidad, April 1-7, 1973. St. Augustine, Trinidad: University of the West Indies, 1973. (UWI/ISER)
- The study has some comments on, and interpretation of, the available data in relation to Commonwealth Caribbean bananas. Tables cover such aspects as: production conditions and structure and productive capacity; costs and cost competitiveness and possible repercussions on the Commonwealth Caribbean industry of factors such as market shares and market structure within the EEC, given an assumed relatively more open situation than that which prevailed in the UK.
- PINSTRUP-ANDERSON, Per, RUIZ de LONDONO, and Edward HOOVER. "Impact of Food Supply on Nutrition." American Journal of Agricultural Economics 58, No. 2 (May 1976): 131-142.
- RILEY, Harold M. Improving Internal Marketing Systems as Part of National Development Systems. Occasional Paper #3, Latin American Studies Center, Michigan State University, 1970.
- REPUBLICA DOMINICANA, SECRETARIA DE ESTADO DE AGRICULTURA. Diagnostico de Sistema Mercadeo Agrícola en República Dominicana. Santo Domingo, 1977.
- ROACHE, K.L. "Prospects for Agricultural Growth in the Commonwealth Caribbean for the Next Ten Years." Development Prospects and Options in the Commonwealth Caribbean. Report of the conference jointly sponsored by the British-North American Research Association and the

Overseas Development Institute at Ditchley Park, Oxfordshire, February 20-22, 1976. London: Overseas Development Institute, 1976. Pp. 21-29.

The paper aims to isolate some of the prospective growth areas for agriculture in the Commonwealth Caribbean (CARICOM) and to discuss constraints to growth. Suggests stress on national specialization rather than regional specialization involving narrow range of plantation crops which are dependent on protective tariffs. The livestock sector is identified as an area of priority. Impediments to its development include price control, land tenure and marketing. Suggests that growth prospects also exist in vegetables and fruit processing if an export market can be found.

RODRIGUEZ, D.W. Bananas: An Outline of the Economic History of Production and Trade with Special Reference to Jamaica. Kingston: Dept. of Agriculture, Jamaica. Commodity Bulletin No. 1, 1955. 69pp. (MOA/JAM)

Historical account of bananas--production, marketing, exports to 1954.

*----. Coffee: A Short Economic History with Special Reference to Jamaica. Kingston, Ministry of Agriculture and Lands, 1960, Commodity Bulletin 2. 77 pp. (MOA/JAM)

Covers history of coffee production in Jamaica, some discussion of factors affecting the industry, a summary of results of 1953 coffee farm survey, prices and exports to 1959.

*----. Pimento: A Short Economic History. Kingston: Ministry of Agriculture and Fisheries, 1969, Commodity Bulletin 3. 52 pp. (MOA/JAM)

Describes plant and its method of production, pests, etc. acreage and number of farms, marketing, production, prices and exports (estimates from 1691).

*----. Ginger. A Short Economic History. Jamaica: Commodity Bulletin, Ministry of Agriculture and Fisheries, 1971. No. 4 36 pp. (MOA/JAM)

Ginger is the oldest crop in continuous production in Jamaica and is also an export crop of some importance. In the group of spices produced locally it ranks second to pimento, and provides an important source of income for the small farmers who are engaged in its production. Much of the crop is grown in areas of the Christiana Area Land Authority which have suitable soil and climatic conditions.

ROE, Terry. "An Economic Evaluation of the Haitian Agricultural Marketing System". (Unpublished report for Haitian Agricultural Sector Assessment, USAID, 1978)

THOMAS, Clive Y. "Coffee Production in Jamaica." Social and Economic Studies 13, No. 1 (March 1964): 188-217. (MOA/JAM; UWI/ISER)

Provides a history of production in Jamaica, a description of current production practices and trends in plantings. Provides information by parish on coffee acreage from 1953 survey. Estimates productivity and yields at farm in processing.

WALKER, Carol. "The Why's and Wherefores of Food Shortages." Cajanus 10, No. 5 (1977): 256-259.

Statement by an information officer of Agency for Public Information. Asserts higglers and consumers are hoarding, and that higglers are buying at controlled price and reselling.

UNITED STATES, DEPARTMENT OF AGRICULTURE, Economic Research Service. U.S. Fresh Market Vegetable Statistics, 1949-75. Washington, DC: 1976.

WILLIAMS, Randolph L. "Jamaican Coffee Supply, 1953-1968. An Explanatory Study." Social and Economic Studies 21, No. 1 (March 1972): 90-103. Bibliography. (MOA/JAM; UWI/ISER)

Provides summarized description of industry, but major portion develops supply model and estimates using time series data. Coffee output in one year is considered a function of potential to produce in the year (flow of capital services or number of bearing coffee trees) and the intensity of production (measured in labor time applied). This results in a formulation of supply as a function of coffee price (lagged), wage rates, and prices of substitutes and complements. Estimates gave significant positive response to own price lagged and cocoa price lagged, and a negative effect of banana prices. Wages were significant with expected negative sign.

*----. The Coffee Industry of Jamaica. Institute of Social and Economic Research, University of West Indies, 1975. (RDS/AID/JAM) (MOA/JAM)

Research carried out in 1970-72 for dissertation at Columbia. Covers development and structure of production and marketing since World War II. (Note that there is no recent survey on coffee). Estimates a supply function for Jamaican coffee with elasticity of .82 on quantity supplied and crossprice elasticity for cacao of .28. Discusses processing of coffee, looks at question of economics of scale and evaluates performance of the Coffee Board and the industry.

*----. "The Growth, Structure and Performance of the Coffee Industry in Jamaica." Unpublished Ph.D. dissertation, Columbia University, 1973.

Study includes all growers registered with Coffee Industry Board, and all processing plants administered by Board. Excludes growers of Blue Mountain coffee who account for a negligible proportion of output, and manufacturers of instant coffee. Analysis in study reported in Williams (1972) and (1975). Conclusions are: a) coffee growers are consistent profit maximizers, b) quality responds positively to price differentials, c) long run average cost estimates for processing suggest rational resource allocation and economics of scale, d) investment in plant etc. by Board consistent with long-run average cost minimization, d) policy has contributed to national savings, to extent that constrained income and foreign exchange objectives.

WOOD, A. et. al. "Agricultural Sector Study, Report of the Services to Agriculture". Kingston, 1973.

A succinct, locally produced report, covering export and domestic marketing - major channels; producer/marketing arrangements and listing problems. For export crops: does not deal with sugar, for bananas looks at marketing and transport cost (from plant) as percentage of gross revenues and also discusses cocoa, citrus (problems), pimento, tobacco (problems) and coffee, and an evaluation of a boxing plant. Includes some interesting and less usual comments on domestic marketing. "Abhorrence of the middle class for associating with the local market - operated by poor uneducated people, has to pre-occupation of the AMC with the export market to the detriment of domestic distribution". Authors suggest it is unreliability which leads to periods of oversupply and shortages as farmers cannot phase production. The neglected studies of parish markets is attributed to their relegation to local government levels.

★WORLD BANK. Sugar Rehabilitation Project, Jamaica, Staff Appraisal Report. Report No. 1732-Jm, Jan. 19, 1978, 79 pp. + 2 annexes.

Contains an overview of the agriculture sector performance, policy and program. The sugar industry is reported in detail - physical, historical, political, technical and social aspects.

★WORRELL, Puppet Delisle. "Comment on Three Econometric Models of the Jamaican Economy." Social and Economic Studies 22, No. 2 (June 1973): 272-286. (MOA/JAM; UWI/ISER)

Suggests models used do not incorporate the theory of working of Caribbean economies, and that aggregated used hide some important inter-relationships related to income distribution, export bias, sectoral investment bias, etc. Considers disaggregated analysis of sectors more useful.

YOUNGJOHNS, B.J. "Primacy Co-operatives in Jamaica." Year Book of Agricultural Co-operation 1975. Oxford, U.K.: Basil Blackwell, 1975. Pp. 163-175.

There are 246 primary co-operatives in Jamaica with an aggregate membership of about 160,000. There are also 125 credit unions. Apart from bananas, coffee and cocoa the most important co-operative market organizations are concerned with potatoes and fishing.

ZENNY, F. Memorandum on Five Year Agricultural Sector Plan, (Internal Document, Ministry of Agriculture) March 1978, 115 pp.

This document is an analysis and critique of the 1978-1982 Five Year Development Plan. Carefully done, detailed and specific. It provides an alternate view concerning nearly every aspect of agricultural policy, structure, plans and potential. Must reading as a companion to the 5-year Plan. Points out clearly problems with the Plan's expanded role in AMC in marketing.

ZUVEKAS, Clarence. A Survey of Crop and Livestock Marketing in Bolivia, Working Document #3, U.S. Agency for International Development, Bureau for Latin America and the Caribbean, Rural Development Division, September 1977.