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BIG FOOD PROCESSORS IN RURAL DEVELOPMENT

Saints or Sinners

by Hugh L. Cook

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Hugh L. Cook

Professor of Agricultural Economics

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Introduction of the Argument

Nigeria imports significant quantities of processed food especially for the higher-income groups and may be expected to import more as incomes increase. Most of these products could be grown and processed here, given the entrepreneurs.

Domestic products could be processed in larger quantities and at substantial cost savings, to meet standards of higher-income classes if the appropriate entrepreneurs were encouraged. In this paper, I am interested in the higher-income consumers chiefly for their purchasing power, to use it to develop Nigeria by operations in the marketplace. I am interested in developing smaller farmers, managers and skilled labour, merchants, and in various other benefits I shall name.

Entrepreneurs, to do this, may have to be foreign for industries which are essentially new to the culture. They should be companies with established plants abroad and with great experience and substantial resources.

I will argue that they should be encouraged to come in, under terms favourable both to Nigeria and to their home office. For firms in lines familiar to the local culture, the firms may not need to be foreign, though they may need to be large scale. Large scale is not envisioned here to mean large scale in an American context. I expect that ₦1 million investment in Nigeria could be adequate if the firm is large abroad. If it is largely domestic entrepreneurship, then it may need to be larger.

Now what are the magnitudes of agricultural imports and how do they compare with totals? In 1972 Nigerian imports amounted to ₦495,032,000.[1] Agricultural products were:

	(₦000)	*% total imports*
Foods	47,332)	
	)	10
Beverages & Tobacco	2,180)	
Fibres, Textiles and Clothing	39,485	8
	88,997	18

Categories of foods and spirits amounting to ₦1 million and above were:

	(₦000)
Milk and Dairy Products	12,798
Wheat and Spelt	11,009
Sugar	10,873

Cereal Preparations	3,117
Fish	2,644
Fruits and Vegetables	1,797
Alcoholic Beverages	1,737

Most of the above was imported in processed form, except wheat which is milled here.

The theme of this paper may not be popular with economists or others, because:

(a) Economists are overly concerned with avoiding the dualistic enclaves and have in mind the great mining companies and plantations that may leave the rest of the country generally undeveloped. They may not consider the fact that food processing concerns may not fit this model at all.

(b) Nigerian economists and the public may object to the implication that more industry may be placed in foreign hands, which may be construed as a new vestige of colonialism. Some may object to bigness as such, especially if foreign and alleged high profits are all shipped out of the country.

(c) Some will say that hot (non-refrigerated) meat and raw fruits and vegetables are cheapest for the poor and that processing industries provide something useful only for the wealthy. They may say that farm to consumer price spreads will be higher than at present.

My arguments will touch on these points. I certainly am not saying large-scale food processing is the key to economic development, but merely that it will help, and is relatively neglected.

I shall begin by summarizing a recent study I co-authored on Latin America, which I hope furnishes useful comparisons with Nigeria. This study made in the late 1960s has been accepted for publication but is still in press. I likewise shall refer to some earlier work I published on the food industries of the Philippines. I shall then look at the food industries of Nigeria with a view toward opportunities for larger-scale firms. And finally I shall pull together some conclusions and recommendations.

Some Latin American Experience

A survey of 62 foreign-owned food processing firms in 5 Latin American countries, selected so as to be reasonably typical, showed that these firms make an important contribution to the economic development of the host country.[2] They bring capital and new technology into the country. They help farmers to become better farmers, help improve handlers, train managerial and skilled labour, create rural employment and help create infrastructure. The firms studied are chiefly of American ownership followed by British, Dutch, Swiss and Italian in that order. As to the capital structure of the firms interviewed, of the 62 firms, 40 were wholly owned by foreign interests, 20 were joint ventures where foreign interests had a majority control and two were joint ventures with domestic control. Foreign investment in food processing in these five countries is relatively new, in the main, since 1958.

Logically it is asked, what constructively is done by these firms that would not be done by domestic entrepreneurs assuming the availability of capital? The evidence shows that they pioneer food industries that are not traditional to the agriculture of these countries. Usually these are industries concerned with perishable products such as milk bottling and manufacturing, fruit and vegetable canning and freezing, processing shortening and margarine, and modern meat packing. In these hot countries the technology for manufacturing sugar, milling rice or maize and such high volume traditional products is well understood by domestic investors. (Bear in mind that I am talking about Latin America, not West Africa.) Little foreign entrepreneurship enters these, although some investment may be made from abroad, especially in non-equity securities.

In terms of the usual market structure measurement, the food industries in which foreign firms engage are highly concentrated: 70% or more of the market is controlled by fewer than 4 firms, and some firms have no competition at all. These conditions suggest monopolistic behaviour such as restrictions on output, high prices, and perhaps collusion or at least "conscious parallelism". However, there is little evidence of this, even though they are not restrained by anti-trust legislation of the U.S. kind. Most firms seemed to follow price and output policies designed to increase their market or their share of the market as fast as possible. These firms are neither saints nor great sinners; they are businessmen interested in maximizing their survival as well as longer-run profits.

The barriers to entry into food processing in these countries are relatively high. There are many reasons for this, including the frictions involved in bringing in the machinery, replaceable parts and skilled engineers to establish a plant, the lack of social overhead investment, the problems of training a labour supply and developing supplies of raw materials. These are in addition to the costs of building up what is usually called the consumer franchise for products.

Of the 62 firms interviewed, 40 had been exporting their products into the host countries before they established a production facility. To reduce the problems of getting established in the host country, 30 of the 62 firms bought into or otherwise acquired existing facilities. Most continued to invest for expansion after initial entry.

The height of these entry barriers tends to increase as time wears on. This results from the effect of the growing internalization policies of most governments; established foreign firms increasingly have an advantage over new ones. A policy of internalization is aimed gradually to move the control of foreign industries into the hands of domestic entrepreneurs, to assure that a reasonable amount of the capital and of the profits stay in the host country and to assure that the labour and other resources are paid for at rates which are not unduly exploitive. The minimum size for entry with a reasonably efficient technology is fairly high in most of the industries represented in the Latin American study. Contrary to what might be expected, considering the cheap labour supply, the minimum scale apparently has to be near what would be required in the United States or Europe. Even so, these firms do employ more labour than a similar firm would in the United States.

Profits did not appear much higher than firms with high market shares would make in the United States, profits range between 10 and 33% on net worth, usually toward the lower side of the range. Most firms expected to recover their investment in 3 to 5 years which is considerably sooner than normally expected in the United States.

Those firms who work with local farmers to build up raw material supplies do most to "commercialize" domestic agriculture. Those who use raw materials already in abundant supply and of acceptable quality do less to improve local production. These would include firms who use rice, corn or dried beans, which already are widely available in Latin America. Even so, a firm such as Productos de Maiz in Venezuela becomes involved in improving varieties of local corn for its purposes which include cornflakes manufacture. Such firms also may encourage production of their raw material in areas nearer to their plants, so as to reduce transportation costs. Quaker Oats has done a good deal of this. Animal feed manufacturers who use the by-products from the milling industry are producing materials necessary as inputs for agricultural industries that did not flourish before they went into business. In developing a market for their feeds they work directly with poultry or hog producers and develop a commercial animal industry on farms.

Those who do the most to commercialize agriculture generally are processors of perishable products. Fruits and vegetables for canning and freezing, and milk for fresh sale and manufacturing, are typical examples. Such firms are very active in developing production by contracting with local farmers. They bring in or develop improved seeds, guarantee a market for the product, carry on a limited amount of financing of farmers, and teach them the necessary production and harvesting practices in order to produce high quality products. Sometimes these firms are instrumental in the development of a new kind of farm product. For example, in Venezuela, the Del Monte people developed the production of deciduous fruits, following a decree by the Venezuelan government that deciduous fruits and purees could no longer be imported. Del Monte found areas in Venezuela where the ecological conditions were appropriate. They then imported seeds and put farmers under contract to produce deciduous fruits for their canning operations.

The Nestle-Borden combination in Venezuela has developed milk production for their dry whole milk in the Lake Maracaibo region over a period of some two or three decades. They established a field service; sold imported bulls to the farmers on liberal financial terms; taught farmers to make hay and ensilage; taught them disease control; furnished them free milk cans, strainers, pads; and guaranteed price incentives. In general they furnished a great variety of services that were not available from any other source in Venezuela. Nestle-Borden by law could import 2 pounds of dried whole milk for every one they produced locally (proportions changed at times). Profit came from imports, but government policies gave strong incentives to build up local supplies. Actually, Nestle-Borden works mostly with small cattlemen, tenants or owners, because the big ones in the ranching business usually form a joint stock company and build their own dairy plants. Nelson Rockefeller did much to build a fluid milk bottling industry. He had his own development agency (Consejo de Bienstar Rural) but was in business as well. He pioneered supermarkets, integrated poultry operations and dairy plants which had contracts with producers. Significantly, he sold his dairy plants to local owners after they were developed.

All companies that have to depend on local supplies of perishable farm products have been engaged in the sort of activities described above. Heinz, for example, on farms they placed under contract in Mexico, increased the production per acre of tomatoes by 40 percent, of potatoes by 70 percent and of carrots by over 60 percent within two years after the contracts were effective. The firms do not seek out the largest farmers. In small fruits and vegetables they contract with any farmer who can plant 10–15 acres, and who are literate and financially responsible. Usually they are landowners.

This survey found that 75.6% of the foreign firms were buying 50% or more of their raw material inputs locally and 46.7% were buying over 90% locally. Actually, most were doing about all they could to buy or to develop their raw material needs locally.

Canning, freezing, and other processing of perishables, usually led by foreign-owned food processing firms, also forces progress toward grades and standards, packaging, labelling and stablizing prices.

Foreign-owned food processing firms likewise made contributions to the host economy by helping retailers and various other handlers of food products to improve their merchandizing ability. They maintained substantial sales forces for this purpose, furnishing valuable advice on such matters as store layout, stocking and inventory policy, display, etc. Not the least important among their contributions is their advertising policies and programmes. In many Latin American countries little advertising of any kind is done. Economists in general question the value of advertising on the grounds that it frequently is used merely to persuade consumers to turn from another product to that of the advertiser. However, advertising also performs a valuable role by informing the consumers of the characteristics of the products they buy. When the advertiser carries out the appropriate policies to maintain a good brand name this too is valuable; that is to say, assuring that the quality of the product is consistently good, properly labelled and efficiently distributed. Supermarket merchandizing is just beginning in most Latin American countries.

Some of these foreign food processing firms have integrated both backward and forward for the same reasons that this is done in the United States. However, a large percentage of their integrative activity is in terms of contracts rather than in terms of actual ownership.

Foreign-owned food processing firms contribute to some degree in creating rural employment through locating their production facilities outside of the capital city industrial complex. The principal types of processors that do this are in meat processing, canning and dairy processing. The obstacles to location of plants away from cities are many. In the country the plants have cheap land, cheap common labour and are near their farmers. But they don't have public water, electricity, police protection, good roads, and other infrastructure.

As I recall every company has a general office and sales office in or near the capital but nearly all except fluid milk bottling plants are "resource oriented". We could say that nearly all plants (80% or more) have some facilities outside the capital and at least 50% have their main plant outside.

With few exceptions the foreign-owned food processing concerns definitely prefer to train residents of host countries for their skilled trades, technical and managerial positions to the maximum extent possible. This is because local residents require lower pay and amenities and because it is usually desirable to give the firm as much identity as possible with the local economy. In fact the managers of several firms said their ultimate goal was to have on the staff only one or two from the home office. In general, middle management is sent to the location of the home office for training and other employees are trained on the job.

In summary I would say the following table would stand up under close scrutiny as an estimate:

Representative foreign-owned food manufacturing plant with 100 employees

Type personnel	*Total (Number)*	*Domestic Nationals (Number)*	*Foreign Office (Number)*
Top management	4	1	3
Middle management	8	6	2
Skilled Labour	12	11	1
Unskilled Labour	76	76	0
	100	94	6

These firms do not fit the pattern of enclaves as usually conceived for a dualistic economy in several critical respects. For example:

1. Most firms are training nationals and moving them into middle management and skilled labour positions as fast as possible.
2. Their products are manufactured to a major extent from domestic raw materials and sold in the host country.
3. Most firms work with local farmers to impart the new technology for producing their raw materials. These may be farmers of any size who are willing and able to innovate but usually are neither the largest nor smallest.
4. Most firms work with domestic middlemen and retailers to improve their skills in handling manufactured products.
5. There is not much repatriation of earnings or capital at present, perhaps because (a) over two-thirds of the firms are fairly new and are involved in paying for their initial investment or still investing to expand producting or marketing facilities. I doubt if one third of combined net earnings were being repatriated when I was there; and (b) the percentage of earnings they can send out of the country is frequently limited by law. Some of the older firms such as Unilever say they follow a policy of redeploying capital, which means that they sell out a going concern and reinvest in the same country to build up another one in a related but not directly competitive line. They may do this to avoid public resentment of a large, profitable, foreign-owned concern.

Canning and freezing of perishable food is not given much thought by development economists when the problem appears to them as that of producing enough calories for minimum subsistence. The case for food processing is not to be made in terms of effect on calories in the diet of very poor people, which is coarse, rough, poorly balanced nutritionally and contains little variety. Instead the case is made in terms of developmental processes:

(a) evolution of dietary habits,
(b) a cheaper total food supply because of improved efficiencies in handling and reduction of vitamin losses, waste and spoilage,
(c) higher average returns to farmers and more stable prices,
(d) the fact that brands and labels enable the market to reward specific farmers for better products,
(e) general stimulation to the economy brought by new industries and new employment.

To sum up particular points, many of the more recently established international firms were already selling their products in the countries before they came in with plants. Coming in with plants was a result of nationalization or internalization policies put into effect by the host Latin American country which tended to limit imports, especially of consumer goods. Under these circumstances the effect was not so much on new products made available to the consumers as on import substitution and its effect on growth in the agricultural and industrial sectors of the economy of the host country. Mexico and Venezuela especially have followed internalization policies to force or induce foreign firms to establish subsidiaries within their countries. Many observers feel that their policies have been successful.

Some Philippine Experience

In my work on the food, fiber and cigarette industries, I showed that concentration ratios were highest in the most highly developed segments, particularly those that were capital intensive and relatively new.[3]

A few efficient industries had low concentration, such as labour intensive ones, old industries with international markets and government-sponsored industries. However, low concentration industries were usually primitive and frequently shot through with monopoloid elements causing many rigidities resulting in poor performance. I will explain what I mean by monopoloid at a later point.

In conclusion, I argued that since the most highly developed industries, especially the newer and capital intensive ones tended to show the highest degree of concentration, underdeveloped countries may have to learn to live with monopoly as one price of self-sufficiency. This is partly because the market is small in terms of purchasing power in some subsets of demand, and can support only a small number of food firms of a size necessary to integrate into functions they must perform to make products that will replace imports. This means investment not merely in manufacturing facilities and technology, but to integrate into farm production and market development and to furnish many of the services which in a developed economy would be furnished by government as social overhead investment. Many of the new democratic governments lack the capital, the skills and the sense of public responsibility to develop these industries by direct controls and direct ownership and operation and therefore should rely chiefly on furnishing appropriate incentives, services and education for private investment.

The Nigerian Food Industries and Opportunities for Large-Scale Firms

Prof. George Mehren has observed that in nearly all countries agricultural industries are the least and last developed.[4] Mehren points to the ancient agricultural production, processing and distribution system which exists side by side with many modern sectors. Most importantly he points out that in agriculture and food, market structures do not induce co-ordinated adjustments among the several functional segments in response to changes in volume, cost, consumer preferences, purchasing power or supplies of related products in any segment.

Modern food processing is in its gestation period in Nigeria. Since I am arguing that large-scale firms will be required to do this, it is time to ask in which particular industries do opportunities exist for large-scale firms? We may first describe subsistence food production and marketing, after which I will proceed to the supermarket products and work backward to the industries that might supply them.

Subsistence Foods

Farm production, handling and distribution of subsistence foods in Nigeria follows the pattern of most of the L.D.C.'s. These foodstuffs are produced on small family enterprises and a relatively small proportion is sold, chiefly through petty traders, with transportation in West Africa being chiefly by headload. Nigerian subsistence foods are chiefly yam, maize, cassava, guinea corn, chilli peppers, onions. They also include some rice, leafy vegetables, tomatoes, okra, hot beef and fish. A few chickens, goats and sheep are raised as scavengers, but almost no pigs are raised in this manner. Fats are chiefly palm oil. Fruits are citrus, pineapple, plantain and banana. Essentially, these are sold fresh in small lots by personal scrutiny, ungraded, unstandardized. On most of these, quality is generally low and the little processing is crude, chiefly sun drying. Income elasticities of demand are fairly high on some of these but much lower than on well-processed foods, such as those imported and handled by supermarkets. Almost none of these products are produced in sufficient quantities or to high enough standards for processors such as canners and freezers. There is much waste in handling. Prices are fairly low because farmers and petty traders are very small and accept subsistence returns for their labour. Little capital is used in production or marketing and technology is traditional.

This may be a good point at which to explain my term "monopoloid elements" and why I use it. Some economists and others feel that in native markets pure and perfect competition prevails with all the good behaviour and performance that flows from it. Not so. The best and simplest analysis I know of this situation comes from Professor Willard Mueller who uses Professor Chamberlain's large numbers case to describe a monopolistically competitive market.[5] On the demand side he points to the large number of wholesalers and retailers selling what are actually differentiated products and services. Locational differentiation results from their immobility; credit differentiation results from their considerable reliance on credit; economic and social caste systems furnish unique differentiation opportunities, and differentiation is based on ignorance of market information.

On the supply side, it is easy to enter the trading business because of (a) the low ratio of capital to labour and (b) the low levels of technical and administrative skills required. Any suggestion of profits brings new people into the business. The result of the above structural conditions is that none of the middlemen are making excess profits, but marketing margins are higher than if differentiation were less. We could analyse this at length, referring to trade associations and such, but it is not necessary. The poor fellows make no money but I just want to dismiss arguments that this is the perfect market. It is a monopoloid market, with no great virtues for trader, farmer, consumer or public alike.

Food Supermarkets

A few large supermarkets have sprung up, usually as part of department store chains located in several of the larger cities. Their food departments appear as large as the small-size supermarkets, or superettes in the U.S. Those present are familiar with them. They are Kingsway, Leventis, Chellerams, U.T.C., Family Provision, and a few local ones such as Nigeram and a small number of Co-operatives. Supermarkets are heavily patronized by Nigerians as well as the 100,000 or so expatriates in the country. Supermarkets appear to be increasing both in volume and in numbers.

Their food business is chiefly canned foods, cereals, spirits, meats, poultry and fish along with some frozen, pre-packaged fish and dairy products such as ice cream, butter and cheese, margarine; and imported fats and oils such as corn oil, olive oil. They handle some traditional foods, in cleaned and packaged form, such as rice, gari, and cow peas and eggs. Of course they have such items as soaps, detergents, tobacco products, sugar and sweets, flour and breads.

They make no attempt to compete directly with the native markets as to prices. Their appeal is high, consistent quality including sanitation and service. As I said, they do handle small amounts of a few things that are handled in native markets. Most of what they handle is imported or manufactured in Nigeria by a very few large firms chiefly of foreign ownership. My point in mentioning them is that these supermarkets, perhaps 50 or so in Nigeria, are enough to support 2 or 3 economic-size plants in several processed food lines and up to a dozen in some lines, each with a growth potential. The latest data I have seen estimates that about 1% of the population has incomes above ₦200 per year. These, together with expatriates, mean perhaps $\frac{3}{4}$ million high-income patrons for food processing industries, with many more buying particular items.

Canned and Frozen Vegetables and Fruits

One of the biggest opportunities for a food processing industry may be in canned, temperate zone vegetables. Most of the temperate zone vegetables do grow in Nigeria and the technology is known in universities and to some Nigerian farmers especially in Kano and North Central States. The technology requires systematic fertilization and above all scheduled spraying for disease and insect control. Irrigation can be highly productive but is not a necessary condition. I expect that the following vegetables can be grown on a commercial basis with what is now known if farmers were put under contract by experienced commercial canners: tomatoes, cow peas, snapbeans, cabbage, sweet peppers, sweet corn, okra, cucumbers, potatoes (for chips and canning), egg-plant and possibly carrots. These include the bulk of imported canned vegetables. All of these canned products bear foreign labels, entirely non-African.

There also may be an opportunity for processed fruits especially deciduous ones such as peaches, grapes and possibly apples which might be grown around Jos with the right technology. These are grown in the higher altitude parts of some Latin American countries. One Nigerian firm cans some tropical fruits chiefly citrus, namely The Lafia Canning Factory, Ibadan, a Nigerian firm operated by the Western Nigeria Agricultural Investment Corporation. I think there may be an opportunity to develop a quality citrus in this country, for fresh and processed use for the high-income trade.

Dairy Products

For practical purposes there is no dairy industry in Nigeria. Perhaps a dozen herds could be called commercial dairy herds. There is a little milking of beef herds for a sort of soft, white cheese. The wisdom of encouraging dairying may be doubted because of high-priced concentrates, tsetse fly, lack of animal culture technology, health danger from bad milk, and the fact that animal protein can be obtained more cheaply from beef.

Nonetheless dairying cannot be ignored and very substantial amounts of butter, cheese, evaporated, sterile and dry milk preparations are imported from temperate zone countries. In fact nearly one-quarter of all food imports are dairy products. Consideration of a fresh milk industry may be put off, but an industry for some butter, dry milk and cheese may be feasible if large plants were established to foster the technology, as is done by Nestle-Borden in Venezuela. A drying plant needs milk from at least 4,000 fairly good cows (producing, say, 6,000—8,000 lbs. of milk each per year). Butter can be made from any fat that results from dry skim processes. A cheese plant can operate with milk from, say, 400 cows. Bear in mind that I am talking about dairy products that will compete with imports. The cattle probably should be the dual purpose types such as the milking shorthorn. Probably the strongest development feature of dairying is that it can fit so well with the family farm enterprise. I said a fluid milk industry can be put off; meaning that it can evolve out of a manufacturing industry as demand is built up and infrastructure is developed.

Poultry

Nigeria appears justifiably proud of the recent development of a commercial poultry industry which is said to supply domestic needs to the extent that imports are no longer necessary. Most of these chickens and turkeys reach the supermarket in frozen, dressed form, but are very high-priced compared to domestic beef or even pork.

Despite the development of the poultry industry thus far, there may be further opportunity because (a) Nigerians still think of poultry as a prestige food, which forecasts strong demand and (b) poultry is the most efficient converter of feed to meat (something like a 2 to 1 ratio can be achieved in temperate zones).

I would argue that grain rations for any livestock or poultry are almost prohibitively high-priced when those grains are directly acceptable and used for human food because in that case the grain price is determined by human food demand and animals are inefficient converters of already acceptable food to another food. I refer of course to maize, guinea corn and wheat (with fringe possibilities for cassava). However, if any animal can compete, poultry should be able to. Competition from an integrated poultry industry could drive prices down. In the U.S. in 1972, I was paying in supermarkets for dressed broilers 17k. per pound, compared with the cheapest pork chops at 43k., minced steak at 46k., and round steak at 73k. a pound. Note that all these were grain-fed. In Nigeria beef is cheaper by far, even the best grades, than poultry or pork. This is because beef can be grass-fed and does not have to be grain-fed in Nigeria even for premium markets, whereas premium markets do require a grain-fed poultry and pork.

I am saying that if Nigeria must turn to a grain-fed meat then poultry is more economical than grain-fed pork or any other grain-fed meat. Also integration between feed dealers, farmers and processors for poultry appears more feasible and productive than integration in other food animal lines, if I may judge partly from U.S. experience.

Beef

Very little meat or animals is imported (about ₦320,000), but there is potential in the native industry. There are an estimated 7.5 million cattle, chiefly in the northern region of Nigeria.[6] Most of these at about 7 years of age are driven to markets in the heavily populated states to the South, butchered and sold as hot meat. A large canner, The Bauchi Meat Products Company Limited, of Bauchi, North-Eastern State, processes Blue Ribbon corned beef of good quality. Stewed beefs and beef products made to Nigerian recipes are made by West African Cold Storage Co. of Nigeria Ltd. and the Nigerian Canning Company Limited, with Gala and Crescent brands respectively.

Beef is the chief source of animal protein and probably will continue as the cheapest. Though hot beef prices are fairly low by U.S. standards, about 30k. to 60k. per pound for most cuts, they still are dear for the majority of Nigerians who consume only about one-third of an ounce of beef per person per day. It is becoming recognized that much improvement is needed in the beef industry to finish the cattle much more rapidly and to get them to market more economically. What patterns this should follow is a source of speculation, but few would propose grain-finishing.

The federal beef feeding station at Mokwa in co-operation with the West German government is one technology that may be practical. This is a programme of finishing on improved grasses, grass silage and hay, cotton seed meal and hulls and molasses. Slaughtering is done on the premises under inspection; freezing or chilling and moving to market in refrigerated semi-trailers and selling through wholesale agents chiefly to supermarkets is part of the operation. This appears economical up to the point of sale. The supermarket meat price is at least 100% above the price at the Mokwa abattoir.

An alternative pattern is to grass finish the cattle at stations near the city markets and sell through local butchers in the present channel, as hot meat. The essential elements of improvement appear to be (a) finishing at early ages (4 years or less) on improved grasses and (b) eliminating the long cattle drives, sometimes up to 700 miles, which cause great weight losses and obstruct the highways now needed for wheeled traffic.

Though additional meat canning capacity may not be needed at present, any improved pattern of feeding and handling will require new entrepreneurs and some further integration with the Fulani cattle raisers. Whatever pattern may be used, substantial capital and technical competence will be required. Hopefully this could increase beef supplies at no higher prices.

To round out the list of major product lines handled by supermarkets we should name *pork, fish, wheat flour, bread and prepared cereals, rice, sugar and confections, fine soaps and detergents, margarine and imported fats and oils, spirits.* Income elasticity on most of these is high. I have given some thought to the potential of each of these, farm production, companies that manufacture them and such, and could name some opportunities. However, I have said enough about industries to illustrate my point of view.

Conclusion

I have shown where large-scale, foreign-owned food processing firms in Latin America have helped medium-sized farmers under contract to produce farm products that were not common to their culture, have helped handlers to merchandize better, have trained domestics for skilled and middle management jobs, and have helped toward bringing the countryside (or hinterland) into an exchange economy.

It seems to me Nigeria may offer some interesting comparisons. Nigeria imports items with a high income elasticity of demand. Companies that manufacture them abroad and sell them here might be induced to manufacture them here, under contracts with medium-sized farmers (5–25 acres) bringing benefits to Nigeria of the kind we found in Latin America. Some other items not heavily imported (such as livestock and poultry, sugar, rice, soya beans) will be more greatly demanded as incomes rise. Firms such as described, by working with local farmers, can introduce new technologies, improve quality of product, including sanitary standards, and increase efficiency all along the line. I have heard Dr. P. O. Ngody, Food Technology, say that Nigeria will soon be establishing food standards, product definitions and sanitary requirements. This means inevitable movement toward technological advance in processing, and stages before and after.

To quickly review what can be grown and handled this way: (a) Vegetables and small fruits can be grown on medium-sized farms (10–25 acres) under contract. In fact nearly all such production in the U.S. is under contract. (b) Poultry and swine under contract with packers or feed dealers can be produced on small acreages. (c) Dairy cattle can be handled in herds of 8 to 20 if they have integrative relations with large-scale processors. (d) Citrus can be grown to discriminating standards on as little as 5 acres, when farms are properly integrated. (e) The same could be said for cotton, wheat, rice, potatoes, tobacco and fish farms.

However, experience of world agriculture suggests that some enterprises usually require large scale to get an acceptable, efficient technology. I refer to bananas, tea, spices, rubber, pineapple, sugar and perhaps most types of cattle industry. Even here integrative relationships and other exceptions could be pointed out.

Many professional economists distrust monopolies for good reason and so do I. Large-scale firms are monopolistic almost by definition. But so far as I can tell, we distrust them because they are potentially exploitive, they *may* restrict output, they *may* unduly enhance their profits. Other fears are less widely shared. But few try to argue that they are not potentially efficient with their superior resources. Most potential anti-social effects apply to big firms whether foreign or domestic. There must be some safeguards.

Recommendations

The record I have described for Latin America suggests that Nigeria is likely to benefit by encouraging such foreign firms to enter the country under some conditions. The host country may benefit most if it follows internalization policies which encourage innovation, but still permit reasonable profits and furnish some security of expectations to the entrant. Reasonably the host government requires that:

1. The entrant have considerable experience in the business it proposes to introduce;
2. That it submit its plans for (a) developing local supplies of farm products, (b) training skilled labour and middle management from nationals, (c) providing technical assistance to handlers and merchandizers of its products, (d) expanding its facilities in the event the operation is profitable.

It would be well to establish a time schedule for these objectives to be brought about, say 5 years in the future for some, 7 years for others, and so on. A limit on profits that can be repatriated may be established, but this should be somewhat higher than expected profits in the home country of the firm, recognizing that this will be necessary to attract capital to move into a new situation fraught with uncertainties. The host country should avoid trying to interfere with prices paid or received by the new firm, at least in the earlier stages. Price administration is very complex and difficult in even the most mature governments. It may be well to permit the firm to import a percentage of its product for sale, fixed in proportion to what it manufactures locally, as Venezuela has done on dry milk. Foreign firms should have a maximum of flexibility in importing machinery and replaceable parts.

Nigeria now has an indigenization decree and some other indigenization policies. With adaptations, these might form a basis for encouragement and ground rules as suggested above. In brief, entry of the right firms may well be encouraged but under terms favourable to host country and entrant alike.

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