AGRICULTURAL EXPORT POTENTIALS AND BALANCE OF PAYMENTS ASPECTS OF THE NIGERIAN ECONOMY

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ABSTRACT

AGRICULTURAL EXPORT POTENTIALS AND BALANCE OF PAYMENTS ASPECTS OF THE NIGERIAN ECONOMY

By

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Agricultural exports have played a fundamental but multi-faceted role in the economic development of Nigeria. They have provided a basis for income and employment for the country's two - three million small, export-oriented farmers and for related industries. Until very recently agricultural exports supplied a major portion of foreign exchange earnings and government revenues for the development of other sectors of the economy.

A major agricultural policy issue presently facing Nigerian Government administrators is whether to accept and encourage the smallholder export sector as a major development agent over the next 15 - 20 years. This dissertation analyzes the export potentials for selected Nigerian agricultural commodities over the 1970-1985 period under three alternative sets of export and agricultural policy strategies.

The commodities considered are the present principal export crops--cocoa, palm products, groundnuts, groundnut products, and rubber--as well as the import substitute and

minor export crops of cotton, rice, hard fibers, feedgrains, and beef.

The three broad strategies are:

Strategy I. A continuation of present export policies while allowing food production and marketing to be guided by market forces.

Strategy II. Movement to higher producer prices and improved services for export and selected import substitute crops; expanded research on high-cost staple foods.

Strategy III. Harsher strategy than at present for private producers; large public investments in agricultural production; cheap food policies; and heavy taxation of agriculture.

A theoretical framework comparing the Vent for Surplus and Comparative Costs models of international trade is developed for analyzing the export performance and for projecting export growth in countries similar to Nigeria. The theoretical framework also provides a reconciliation between the two models which give the same results as to quantities traded, resources employed, and returns to factors of production when the same general sets of assumptions are used for both models.

The most fundamental conclusion of the study is that the overall outlook for Nigeria's present and known potential export crops is generally favorable over the next 15 years and that agricultural export production should be increased.

The market outlook for Nigeria's principal import substitute and minor export crops is especially favorable.

Projected export earnings, government revenues, government expenditures, and farmers' incomes are calculated for each of the three alternative development strategies over the 1970-1985 period. Export earnings and farmers' incomes from export crops would be expected to increase dramatically with the favorable Strategy II policies and to decline from the 1970 levels with either a continuation of the present Strategy I policies or the harsher policies of Strategy III.

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GENERAL ASPECTS OF NIGERIAN AGRICULTURAL EXPORT TRADE

CHAPTER I

INTRODUCTION

Agricultural exports have played a fundamental but multi-faceted role in the economic development of Nigeria. They have not only provided employment and a source of income for the 2-3 million small export-oriented farmers, but they have contributed the vast majority of the foreign exchange earnings of the country as well as millions of pounds of export taxes for financing development in other sectors of the economy. They have indeed served as what W. Arthur Lewis calls the prime mover of the economy.[1]

Lewis specifies four ways in which the prime mover influences the rest of the economy:

1. It buys the goods and services of the other sectors for use in producing or selling its product. It requires intermediate products, transport, distribution, banking, and port facilities.
2. It serves as an expanding market for other industries in the form of consumer goods, medical services, and entertainment.

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[1]W. Arthur Lewis, Reflections on Nigeria's Economic Growth (Paris: OECD, 1967), pp. 15-22.

3. It generates savings and pays taxes which can be used to develop other goods and services including the services provided by government.
4. It may serve as the base for expansion of output of other industries which use it as raw materials.

Agricultural exports have been the most dynamic element of the Nigerian economy in the past.

Lewis also lists large scale manufacturing based mainly on import substitution as the other, though largely potential, prime mover of the economy. This is apart from the rapidly growing petroleum industry which is just coming into being. Agricultural export production has contributed more than large scale manufacturing despite the rapid growth of the manufacturing sector in recent years. This is primarily because manufacturing in Nigeria is expanding from a small base.

To achieve development via agricultural exports is contrary to the early development experiences of most less developed countries.[2] Primary exports are not generally believed to serve as the important propulsive sector in the early stages of development because of the lack of backward and forward linkages that exists in many developing countries between export agriculture and the rest of the economy.

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[2]Gerald K. Helleiner, Peasant Agriculture, Government, and Economic Growth in Nigeria (Homewood: Richard D. Irwin, Inc., 1966), p. 44.

Export agriculture in the early stages of development is often limited to foreign enclaves which contribute little to the overall growth of the economy. This has not been the case in Nigeria. Peasant export agriculture has been part and parcel of the traditional economy.

One of the first major tasks of the development planner, according to Hagen,[3] is to determine the areas in which great advances in productivity, which will lead to greater comparative advantages, are likely to occur. It is then the job of the nation's leaders to help establish the conditions which will encourage and facilitate the growth of these most promising sectors. The point of departure in isolating areas of high potential is through a thorough examination of the previous points or areas of growth, or in Hagen's words, "to look at the previous comparative advantages of the country." In the case of Nigeria, this would mean a thorough examination of the agricultural export sector.

There are two important and related reasons why the study of past development is essential to an assessment of the future, according to Stolper.[4] One is that the accomplishments of the past serve as a useful benchmark against

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[3]Everett E. Hagen, The Economics of Development, (Homewood: Richard D. Irwin, Inc., 1968).

[4]Wolfgang F. Stolper, Planning Without Facts: Lessons in Resource Allocation from Nigeria's Development (Cambridge: Harvard University Press, 1966).

which to judge developments of the present and future. The other reason is that past decisions may largely influence future developments, and that new decisions have to come to terms with the inheritances of the past.

Purposes and Objectives of Study

It is with the past experiences and contributions of export agriculture clearly in mind that this study is framed. The study endeavors to point up the contributions of export agriculture in the past and to make projections of the most likely contributions over the 1970-1985 period under certain sets of supply, demand, and export policy assumptions.[5]

Specifically, this study has four primary objectives:

1. To conduct a projective analysis of the export potentials for selected Nigerian agricultural commodities over the 1970-1975-1985 period.
2. To calculate expected farm incomes, government revenues, and foreign exchange earnings to be derived from export agriculture under three alternative sets of export and agricultural policy strategies.

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[5]As Helleiner points out (op. cit., p. 46), it is impossible to simply designate one distinct part of the Nigerian economy as the agricultural export sector and another as the subsistence sector as the two are generally overlapping. Often Nigerian farmers engage at one and the same time, and on the same plot of land, in production for export, production for domestic trade within the country, and production for subsistence. Nevertheless, the terms "export sector" and "subsistence sector" will be used for the purposes of simplification while realizing the problems associated with the use of these terms.

3. To make policy recommendations as to the desired allocation of resources between the export and food production sectors within the Nigerian economy based upon research already completed by the Consortium for the Study of Nigerian Rural Development (CSNRD).
4. To develop a theoretical framework for analyzing export performances and for projecting export growth in countries such as Nigeria. This involves a reconciliation of the comparative costs and vent for surplus theories of international trade.

The Consortium for the Study of Nigerian Rural Development (CSNRD)

The analysis of Nigerian agricultural export potentials the subject of this study, is a part of the larger sectoral study of the Nigerian agricultural economy which was completed in 1969 by the Consortium for the Study of Nigerian Rural Development (CSNRD). The Consortium, composed of United States educational institutions and governmental agencies involved in rural development work in Nigeria and administered from Michigan State University, conducted research in cooperation with Nigerian agencies for over two years to meet the following objectives:

1. To summarize the relevant agricultural history of Nigeria with special emphasis on the period since Independence in 1960.

2. To present three alternative sets of projections and policies for Nigerian agricultural development from 1970-1985.
3. To identify major problems and to present recommendations for rural development in Nigeria.

The author did research under the guidance of Professor Glenn L. Johnson, Director of CSNRD, on Nigerian agricultural exports to be included in the overall sectoral study. The export section is a vital part of the overall CSNRD analysis and furnishes the basis for many of the CSNRD recommendations. The author's relationship to the CSNRD group and to the final agricultural sector analysis was a two-way relationship. He both contributed to and benefitted from the overall CSNRD effort. His principal task was to cover the agricultural export sector of the Nigerian economy. He was to assimilate and analyze data on past export growth and to present export projections over the 1970-1975-1985 period under three sets of alternative development strategies. The projections include foreign exchange earnings, farmers' incomes, and government revenues that would be expected under each of the development strategies. This necessitated projecting the world demand and supply conditions expected to prevail for the actual and potential export crops during the study period as well as supply and demand projections for the commodities within Nigeria itself. More of the specific methodology of how the export projections and

world demand and supply conditions were handled is included in Chapter III.

The writer also contributed in the assimilation of data and preparation of the export production campaigns which are included in the CSNRD final report, Strategies and Recommendations for Nigerian Rural Development, 1969/1985. He projected national income earnings based on his findings in the export sector using the Nigerian national income model developed for CSNRD by Cownie.[6] The author's research findings are included mainly in Chapter VII of the CSNRD final report: Recommended Production Campaigns.[7] This is not the sum total of his findings, however. His contributions are also found dispersed in other parts of the final CSNRD document.

The author, in turn, drew heavily from other CSNRD researchers and CSNRD publications for much of the data used in the export study. Many unpublished CSNRD working papers developed by researchers in Nigeria in cooperation with Nigerian personnel specifically for the purpose of understanding the Nigerian economy and developing the agricultural sector analysis were of great value. The information was simply not available in published form.

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[6]John Cownie, Nigerian National Income Accounts: Historical Summary and Projections to 1985. CSNRD No. 14 (East Lansing: CSNRD, 1968).

[7]Glenn L. Johnson, O. J. Scoville, G. K. Dike, and C. K. Eicher, Strategies and Recommendations for Nigerian Rural Development, 1969/1985. CSNRD No. 33 (East Lansing: CSNRD, 1969).

The agricultural export study presented here contains many public policy recommendations and other policy implications which are not specifically spelled out. Following the criteria established in the overall CSNRD study, it is more concerned with policies than with programs.

> To date, Nigeria's First Development Plan has been evaluated by numerous researchers in terms of whether the projected government capital and recurrent expenditures exceeded, equalled, or lagged behind the targets of the 1962-68 Development Plan. However, we contend that policies, especially those which affect the motivation of 5,000,000 Nigerian farmers, are much more important in determining the performance of the agricultural sector than the mere expenditures of monies. For these reasons, we stress strategies and policies in this report rather than evaluation of expenditures--capital and recurrent--on agriculture.[8]

The major agricultural policy decision facing Nigeria today is whether to accept and encourage the smallholder export producer as the principal development agent of the country over the next 15-20 year period. That decision has not been irrevocably made. The role of the Nigerian Governments, Federal and Regional, prior to the formulation of the 1962-68 Plan was primarily one of furnishing social-overhead and administrative services to the export and traditional agricultural sectors. The Ministry of Agriculture and other related agricultural agencies provided crop and livestock research, agricultural education, produce

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[8]Glenn L. Johnson, et. al., op. cit., p. 7.

inspection, some credit and other assistance. Also, the government provided roads, railroads, communications, port facilities, and marketing services.

National agricultural development policy changed from the social-overhead/administrative service philosophy of the 1900-60 period to one of "government directed investment" with the formulation of the 1962-68 National Development Plan.[9] Although industry and technical education shared the focus of emphasis with agriculture in the 1962-68 Plan, there was an increase in allocation of public funds to agriculture. Resources allocated to agriculture in Federal, plus Regional capital and recurrent budgets, increased from an average of 3.5 to 5.6 percent of the total resources during the 1949-62 period to 13.6 percent during the 1962-68 Plan period.[10] More than one-third of the public resources assigned to agriculture in the 1962-68 Plan were allocated to government directed investment projects such as farm settlements, plantations, and irrigation schemes.[11] Approximately 75 percent of the capital earmarked for agricultural projects in the Western and Mid-Western Regions and 20 percent in Eastern Nigeria was for the development of farm settlements.

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[9]Federal Government of Nigeria, National Development Plan, 1962-68 (Lagos: Government Printer, 1962).

[10]J. C. Wells, "Government Investment in Nigerian Agriculture: Some Unsettled Issues," Nigerian Journal of Economic and Social Studies, Vol. VIII (March, 1966).

[11]Ibid.

The efforts of the Southern Regional Governments to increase agricultural production and employment opportunities through directed land settlement and government-run plantations, as laid out in the 1962-68 Plan, have been largely unsuccessful, according to FAO and others.[12] The reasons generally given for the failure of these projects have been excessive costs, often totaling as much as £5,000 per settler, poor selection of settlers, below expected crop yields, and defection of settlers. The FAO report on Nigeria (cited above) maintains that even if settlement costs could be lowered to £1,000 to £2,000 per settler, the total cost still would be completely prohibitive for providing employment for the estimated one million new workers who enter the labor force each year. Other approaches must be found for increasing production and employment opportunities. Saylor, in a study for CSNRD in 1967, showed that all existing government owned oil palm plantations for which data were available were economically unviable.[13] The government palm plantations were unable to break even on recurrent expenditures, let along repay development costs.

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[12]Food and Agriculture Organization of the United Nations (FAO), Agricultural Development in Nigeria: 1965-80 (Rome: 1966).

[13]R. G. Saylor, A Study of Obstacles to Investment in Oil Palm and Rubber Plantations. CSNRD No. 15 (East Lansing: CSNRD, August, 1968).

The Nigerian Government has not irrevocably settled on one general policy for agricultural development. The alternatives are still open to Nigeria (a) to encourage the smallholder with price incentives, increased research and other agricultural inputs along with improved credit and marketing facilities, or (b) to continue with the governmental directed agricultural program started in the Western Region in 1959[14] and emphasized on a much wider scale in the 1962-68 Plan.

Agricultural Policy Alternatives

Agricultural policy alternatives in the less developed countries--all of which are still open to Nigeria--seem to fall into one of three general categories:

1. One general policy alternative, and the one presently followed by Nigeria, is to tax export agriculture to help finance the nonagricultural sector of the economy while at the same time permitting food production to grow under the guidance of market forces. Many developing countries have chosen this alternative. The obvious result of this type of policy with export taxation is to have unfavorable terms of trade for the export sector relative to the rest of the economy. A substantial portion of the income generated by exports is taken by government through a variety of devices including marketing board margins, export taxes, and taxes on production before it ever reaches the producer.

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[14] Future Policy of the Ministry of Agriculture and Natural Resources, Sessional Paper (Ibadan: Ministry of Agriculture and Natural Resources, 1959).

2. A second general type of strategy, and the one recommended by CSNRD, is to fully support agriculture, to provide incentives for agricultural production and to support agricultural producers with infrastructure, research, and modern services--realizing that a viable agriculture is a valuable asset that can only be attained at great costs even with wise policies. The specific features of this strategy, as well as the other two, will be presented at a later point in the paper.

3. A third type policy, and one often labelled as an "enlightened policy" because of a larger planning input, severely forces the terms of trade away from agriculture through the extensive use of export taxes, producer taxes, and marketing board policies often reinforced by ceiling prices, rationing, and heavy taxes on agricultural inputs. It is designed with the intention to extract large amounts of tax revenue from agriculture and to keep food prices low for urban dwellers rather than to further rural development. It provides for heavy direct governmental investment in agriculture and is considerably more negative toward private agriculture than is the present Nigerian policy.

The CSNRD agricultural sector analysis, of which this export study is a part, traces the consequences of following each of the three above alternative agricultural strategies through the 16-year period between 1969 and 1985. The CSNRD study projected the consequences of each of the three

strategies at three points in time--1970, 1975, and 1985. The export study follows the same procedure. It projects the export earnings, farmers' incomes and government revenues from following each of the "let drift," "more favorable," and "less favorable" agricultural policies as identified as alternatives 1, 2 and 3 (above). This necessitates the calculations of supply responses of the millions of smallholder producers; the Nigerian demand for crops and products that are normally exported, or can be exported; the demand for crops with import substitution or improved nutrition potentials; and world prices expected to prevail in 1970, 1975, and 1985.

The economic consequences of following each of the alternative policy approaches listed above will be quantified in this study to provide a basis for comparison among the policy alternatives so that the agricultural policy most conducive to overall Nigerian economic development may be selected and pursued. The agricultural policy approach taken, if it differs from present policy, may well affect or alter existing sectoral and structural relationships within the economy. It may call for non-Pareto better adjustments to be made among different groups in the Nigerian economy. An example of such an adjustment would be the substitution of some part of the nonagricultural sector as the main source of taxes which are now taken from the agricultural sector, or the trade-off between gains of farmers who would

receive more of the world value of their produce if taxes are reduced and others whose taxes would have to be increased.

Resource Allocation

One of the primary distinctions made by Johnson in identifying relevant kinds of research in support of African rural development is that between (1) problems which can be solved by the market mechanisms, and (2) problems which have to be solved by technological, institutional, or educational changes generated outside the market.[15] Johnson asserts that a very high proportion of the problems involving economic equilibria, including those of pricing, the rationing of consumption, and the allocation of productive resources, can best be settled in the market place. Such problems, if they are handled via governmental or other control programs instead of entrusted to the market mechanism, can consume an almost limitless amount of research and administrative talent. Quoting Johnson directly:

> Generally speaking, about all the research which West African countries can afford on problems which can be turned over to the market is research of a policy nature to identify how existing programs and policies interfere with the operation of the market, and in turn, what policy changes are needed in order to turn the problem over to the market place. As a corollary, the administrative burden of merely making the changes required to turn such problems over to the market generally taxes the administrative machinery and

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[15]Glenn L. Johnson, "Relevant Rural Development Research for West Africa," paper presented at the Seminar on Research on Agricultural Development in East and West Africa, East Lansing, Michigan, June, 1968.

> personnel of West Africa so heavily that obviously there would be little administrative and research capacity left over, either (1) to tackle the enormous problems of administering prices, consumption and production, or (2) to solve and execute decisions concerning problems which cannot be solved in the market place.
>
> . . .The problems, which the market cannot settle, are the kinds of problems about which men sometimes fight ignobly, seeking the self interest of groups and sometimes noble, seeking capacity to develop superior societies. In any case, the problems are so important, so relevant, and so numerous that they are worthy of the best attention of whatever research and administrative personnel are available.[16]

Following Johnson's line of thought, it is the hypothesis of this study that the decisions concerning pricing and resource allocations for Nigerian export agriculture can best be made by the market mechanism. At present, civil servants directly or indirectly help determine how many resources should be employed in export agriculture, in which particular exports, and what the returns to these resources will be. The agricultural sector has long been isolated from actual world demand and price considerations for its products. Farmers seldom realize the world market price for their products. They respond generally to arbitrary prices purposefully set low by administrative government personnel in the marketing board scheme designed to tax export agriculture and transfer resources out of agriculture to other parts of the economy.

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[16] Ibid., p. 5

Resources are not allocated in Nigeria today so as to maximize returns to the Nigerian economy principally due to the Marketing Board trading system which generally allows not more than one-half to two-thirds of the actual world market price to be paid for agricultural exports. The difference between what is paid by the Marketing Boards to the export producers for their goods and what is received for them on the world markets is deemed "Marketing Board Profits." These "profits," totaling £120 million over the 1947-54 period have been invested in many agricultural and nonagricultural projects, often of low return. The Marketing Board profits have been much less in recent years due primarily to the fall in world prices of many of the products exported. More on the Marketing Board philsophy, and its structure and role in economic development, will be included in a later chapter.

As previously stated, this is a policy paper based upon historical findings and projections of the Nigerian economy through time for three alternative sets of developmental strategies. It offers recommended policy changes such as the major one already mentioned--that is, to turn the resource allocation and pricing determinations of the agricultural export sector back to the market mechanism. This will bring about a more optimal allocation of resources within the economy as each resource will theoretically move to the employment where its Marginal Value Product (MVP)

is the greatest. A return to the market mechanism is sure to bring some adjustments of resource use within the economy. These might be described as follows.

Resource Employment in Export Agriculture

Increased resource employment in export agriculture--the primary concern of administrators and planners in an economy which has a dynamic smallholder agriculture must be the formulation of policies and priorities that will induce the millions of small farmers to invest their labor and savings into agriculture.

More resources can be expected to move into the export sector if, in fact, export agriculture is encouraged by greater provision of infrastructure and if export agriculture becomes more profitable as outlined in the CSNRD sectoral analysis. A change in the terms of trade between agriculture and the nonagricultural sectors of the economy would be a reversal of present policies whereby export agriculture is taxed to support development in other parts of the economy.

The owners of resources already in export agriculture or readily transferrable to export agriculture would benefit economically relative to the remainder of the population with such a change in policy. This would mean direct increases in farm income for the present 2.8-3.0 million small Nigerian farmers who now produce some crops for export. The increased farm income of the export oriented population

itself would generate greater demands for foodstuffs on the part of the producers themselves. An indirect effect of the extra income would be to increase the demand by smallholder producers for the simple products of Nigeria's growing indigenous industry.

Changes in resource allocation with changes in the profitability of certain crops may cause greater geographical specialization in export crops and resultant shifts in geographical location of food crop production. However, there is little reason to believe that domestic food production cannot continue to expand more or less parallel to export production as it has done in the past.

Timing and Availability of Inputs

The timing and availability of farm inputs becomes more important as greater emphasis and a planned effort is made to promote and encourage the export sector as the prime mover of the economy. The obvious contrast can be made between oil palm or rubber production from wild or semi-wild trees where farmers or itinerate laborers harvest the produce relating the marginal costs of harvest to the selling price per unit to reach the point of profit maximation and a more modern approach. In other words, in the first case there may be no spraying, weeding, planting or other cultural activities generally carried out in more modern farm technology other than harvesting. This requires one kind of planning and one kind of provision for inputs.

The more modern side of the production picture calls for research and dissemination of new crops varieties and cultural practices, the provision of fertilizers, extension personnel, and agricultural credit to develop a modern production framework within the institutional framework or farming system that has been chosen. The CSNRD group maintains that the decentalized nature of decision making in a country like Nigeria with wide variations in ecological zones and in systems of farming requires that the overriding concern of federal, state, and local governments should be in the formulating and execution of sound policies for the millions of farmers.[17] A production campaign approach was chosen by CSNRD to serve as the device for integrating the policy issues affecting the main crops with the bulk of Nigeria's farmers. The production campaigns provide off-farm inputs such as new varieties, fertilizers, insecticides, credit, and extension personnel necessary for the expected increase in production. They are also coupled with price incentives (generally through lower taxes) to make the exports more profitable. The campaigns were developed on a commodity-by-commodity basis according to the profitability of producing selected crops within specific geographical areas of Nigeria.

The resource allocation process is complicated even further by the long gestation and long lives of the export

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[17]Glenn L. Johnson, et. al., op. cit., p. 6.

tree crops which constitute the major part of the agricultural exports in the Southern area of the country.

Taxing Policies

Returning the pricing function and allocation of resources in export agriculture to the market mechanism requires a rethinking and a restructuring of present Nigerian tax policies. Present policies of export agriculture taxation will have to be changed if greatly expanded export production is to be achieved.

Agriculture has been an important contributor to public revenues through export duties and produce sales taxes. Approximately 10 percent of all Federal revenues, or £15.4 million, came from agriculture in 1965-66. Total taxes paid on agricultural products amounted to about 3 percent of Gross Domestic Product (GDP) from agriculture, or 15 percent of the value of agricultural exports from which they were largely derived.

Fortunately, the dramatic rise in petroleum exports from 1963-66 and the projected further increase in petroleum exports in the early 1970s provides policy makers with an alternative source of governmental revenues which may allow a re-examination of the heavy tax burden now placed on export agriculture.

Marketing Facilities and Marketing Policies

The facilities for assembling, transporting, processing, storing and selling Nigeria's agricultural exports are

presently strained to the limits. These facilities would have to be greatly expanded if export production were dramatically increased. The system would have to be altered in many ways to allow for greater volumes to be handled, quality control, and proper and timely transport and storage to prevent excessive deterioration of produce.

The licensed buyer approach to securing Nigerian produce should also be re-examined in light of any sustained program to increase agricultural production. More on the marketing boards and the licensed buying agents will be covered in a later chapter.

Political Implications of the Study

Any policy paper regarding income from agriculture, distribution of income, taxing policies, and resource allocation in agriculture and in the rest of the economy has political as well as economic implications. There are many reasons for this. Some of the reasons are discussed as follows.

Geographic Dependence on Certain Export Crops

Rainfall and soil types in Nigeria largely determine which individual crops may be grown and where. There are certain areas where two or more export crops such as rubber and palm oil compete for the available resources. A slight change in the pricing policy between oil palm and rubber, for example, may clearly shift the economic advantage

between the two. A case in point is the decision that rubber should not be subject to export tax when the world rubber price is below 18d per pound. There is no marketing board for rubber. With palm oil producers paying roughly 21.0 percent of their potential income in taxes and 28.1 percent for palm kernels, the former comparative advantage of palm produce may easily shift over to the untaxed rubber. Policy and price instruments may be very effective tools with large multiplier effects when dealing with as many as the 100,000 rubber producers or 1,000,000 export palm growers.

Linked with the geographic dependence on specific export crops is the fact that in the future it is imperative, in the interest of political stability, that all geographical sections of the country develop. The per capita income gap that now separates the North from the South must somehow be lessened. The complicating factor of reconstruction and reintegration of the former Eastern Region must be considered as well. Large numbers of people must be brought into the development effort and made to realize that they are a part of it. This can most efficiently and economically be done through the market mechanism and an expanded export program as described.

Programs such as recommended by this study and by CSNRD have internal political implications, and it is best to spell these out and be conscious of them as they and their consequences are assessed. Income distributions among

geographical areas and among individuals within the economy are always subjects for consideration of the political as well as the economic decision making processes. The domestic terms of trade between agriculture and the rest of the economy, domestic food production and food prices, and sources and kinds of taxation are not generally simple Pareto-better adjustments where all parties stand to gain from every particular policy decision.

Inter-Relationships Between the Export Sector and Other Sectors of the Economy

Likewise, the export sector is not an autonomous sector, but is interrelated with other sectors of the economy. As already discussed, there is no agricultural sector that can be simply defined as the export sector. Most small farmers in both the coastal, southern export areas as well as the cotton and groundnut producing areas of the North produce (1) food for home consumption, (2) food and other crops for internal trade, and (3) an export crop. These may all be grown on the same plot of land. Labor and capital are continually moving in and out of agriculture as economic opportunities change.

Nigeria now has the opportunity not often afforded a country to make major structural and institutional changes. Nigeria is already in a period of acute and large-scale institutional change. In addition to the costly Civil War just concluded, the division into states, and the reconstruction-reintegration efforts that will be demanded,

Nigeria appears to be on the brink of becoming one of the world's leading petroleum exporters. Petroleum exports increased from £4.4 million in 1960 to £92 million in 1966. In 1966, petroleum exports amounted to 32.4 percent of all Nigerian exports. The projected rapid increase in petroleum exports in the future will enable planners to shift a part of the tax burden now imposed upon agriculture over to the expanding petroleum industry.

CHAPTER II

THEORETICAL FRAMEWORK FOR THE STUDY OF NIGERIAN AGRICULTURAL EXPORTS AND THE METHODOLOGICAL APPROACH TAKEN

The major objective of this chapter is to develop a theoretical framework for analyzing agricultural export performance and for projecting export growth in countries such as Nigeria. Although the detailed approach outlined in this chapter was developed after the empirical analysis was completed, it is hoped that the theoretical analysis may aid other researchers who are pursuing similiar studies in other countries.

The Theoretical Framework

Although there has been, and still is, some controversy as to the applicability of the Classical Theory of international trade to the less developed countries, this body of theory still offers illuminating insights into the past and present patterns of international trade of many countries, such as Nigeria. Economists of today usually use one or the other of what they consider to be distinctive elements of the Classical Theory to explain the expansion of trade in less developed countries. One alternative doctrine is the comparative cost theory which had its beginning with

Ricardo and tends to dominate economic thinking even today. The other is the vent for surplus theory developed principally by Myint.

Caves, in commenting on the increasing number of theoretical models of the interaction of international trade and economic growth, noted that several of the models which have attracted attention for their apparent power to explain historical cases bear a basic structural similarity.[1] The staple theory, developed primarily with reference to the Canadian economy, but widely believed to apply to other temperate zone lands originally settled by European migrant labor and capital, the vent for surplus model of development as proposed by Myint, and Lewis' model of development with unlimited supplies of labor all have the same essential common denominator; that is, they exploit resources which in that time and place are lacking alternative uses of significant economic value. Thus, Caves maintains that the term "vent for surplus" provides a fitting generic name for these theories as it touches directly upon their most distinctive characteristic.

In this chapter, the author goes beyond the conclusions reached by Caves--that is, simply that the two models have the same common denominator--and argues that the

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[1]Richard E. Caves, "Vent for Surplus Models of Trade and Growth," in Trade, Growth and Balance of Payments: Essays in Honor of Gottfried Haberler on the Occasion of His 65th Birthday (New York: Rand McNally and Company, 1965), pp. 95-115.

comparative cost model as it applies to the developing countries implies the vent for surplus argument and that vent for surplus implies comparative cost. The comparative cost doctrine, as well as vent for surplus, applies to the exchange of goods in excess of those which could be absorbed without altered access to foreign markets, changed institutions or new technologies.

Adam Smith in The Wealth of Nations referred to exchange as one of the major benefits to a country from participating in international trade.

> It (international trade) carries out that surplus part of the produce of their land and labour for which there is no demand among them and brings back in return for it something else for which there is demand. It gives a value to their superfluities, by exchanging them for something else, which may satisfy a part of their wants, and increase their enjoyments.[2]

Continuing the line of thought expressed above, the author contends that the empirical results within the country from either the opening or increasing of trade will be the same regardless of whether the entry and participation in international trade is analyzed via the vent for surplus theory or by the conventional comparative cost model. The country will ultimately employ the same overall amount of productive resources, exchange its goods at the

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[2]Adam Smith, The Wealth of Nations, Vol. 1. Cannan Edition. (New York: Modern Library, Random House, Inc., 1937).

same overall amount of productive resources, exchange its goods at the same exchange rate, and receive the same income and welfare benefits no matter which of the two theories is used for analysis. The production of goods will expand because of the trade linkages. Resources, which were previously unused or under-used within the closed economy because of low returns on private account, will be drawn into production with the initiation and participation in trade. This is, of course, assuming that the marginal value products (MVPs) of the previously under-used resources rise with the expanded market outlet.

The conclusion that "comparative cost" implies the "vent for surplus" argument, and vice versa, (and that the two theories are in fact essentially the same) is reached through an examination and comparison of the two presently distinct and recognized theories themselves. The Heckscher-Ohlin formulation, the most highly developed form of comparative cost theory, and the vent for surplus theory developed largely by Myint are chosen as the most representative of the two bodies of theory and as the two to be compared and, hopefully, reconciled.

The Comparative Cost Model

The standard Heckscher-Ohlin model of comparative advantage assumes (1) two countries producing two commodities using two factors which are identical between the countries, (2) on production functions the same in both

countries with constant returns to scale and with either relative factor intensities that do not vary with respect to changes in factor price or are within the range of relative factor prices permitted by the assumedly fixed factor endowments of the countries. It further assumes (3) that identical tastes, free mobility of resources within countries, perfect competition, zero tariffs and zero transport cost exist in both countries.[3]

The assumptions of the comparative cost model concerning free mobility of resources within the country and perfect competition in both the factor and product markets provide major implications for the acquisition and disposal of resources which will be analyzed and discussed throughout this chapter. The assumptions state that there is a zero cost attached to transfer of resources from one use to another within the country and that the resources are free to make that move. This is contrary to empirical evidence which shows that factors of production typically cost more when purchased than can be netted for them when sold and that there is indeed a difference between acquisition costs and salvage values. Aside from the physical fixities of land, buildings, and stands of trees, in the case of agriculture, there are transport and transaction

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[3]Harry G. Johnson, "The Theory of International Trade." Paper presented at the Third Congress of the International Economics Association, Montreal, September, 1968.

costs involved when assets are purchased. The comparative cost implications for cost of transfer of factors and products may be summarized as follows:

(1) Within country transfer of resources

(a) Equal acquisition costs and salvage values for the resources which have zero transport costs (i.e. $\infty \geq P_{AX_i} = P_{SX_i} \geq -\infty$ for i = 1,. . .,d (the variable inputs))

(b) Infinite acquisition costs and $-\infty$ salvage values for fixed variables such as land, buildings, trees, fences, and drainage ditches which have infinite transport costs (i.e. $\infty = P_{AX_i} > P_{SX_i} = -\infty$ for i = d+1,...,n (the fixed inputs)) P_{AX_i} = acquisition cost of X_i and P_{SX_i} = salvage value of X_i assuming a one-to-one correspondence between stocks and service flows of X_i.

(2) Between country transfers

(a) Zero transfer cost for products

(b) Infinite transfer cost for factors of production.

The Heckscher-Ohlin model demonstrates that, under the conditions stated above, trade will originate from differences in relative factor endowments (of both kinds of factors--the variable and the fixed) between two countries and that each

country will export that commodity which uses relatively much of its abundant factors. Also, if factor endowments are not so different that one or more countries specializes in production, trade will result in complete equalization of factor prices and compensate for the immobility of factors between countries so that this will prove to be no impediment to the attainment of an equilibrium where output is a maximum given the prevailing distribution of resource ownership.

According to the Heckscher-Ohlin assumptions, the volume of resources within a country that is available for production is fixed at any given point in time.[4] Figure 2.1 shows the relationship between the amount of variable resources available at one point in time as illustrated in the box diagram in Figure 2.1(b) and the possible output that can be attained from these resources given in Figure 2.1(a).[5] TOT is the given international terms of trade.

The line 1'1' (the production possibility curve in Figure 2.1(a)) represents the total volume of Y_1 and Y_2

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[4]The possibility of drawing additional resources into production as the MVPs of the resources rise because of the international trade linkages will be discussed below.

[5]Much of the graphical presentation in this chapter is adapted from that of H. Robert Heller, International Trade, Theory and Empirical Evidence, (Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1968).

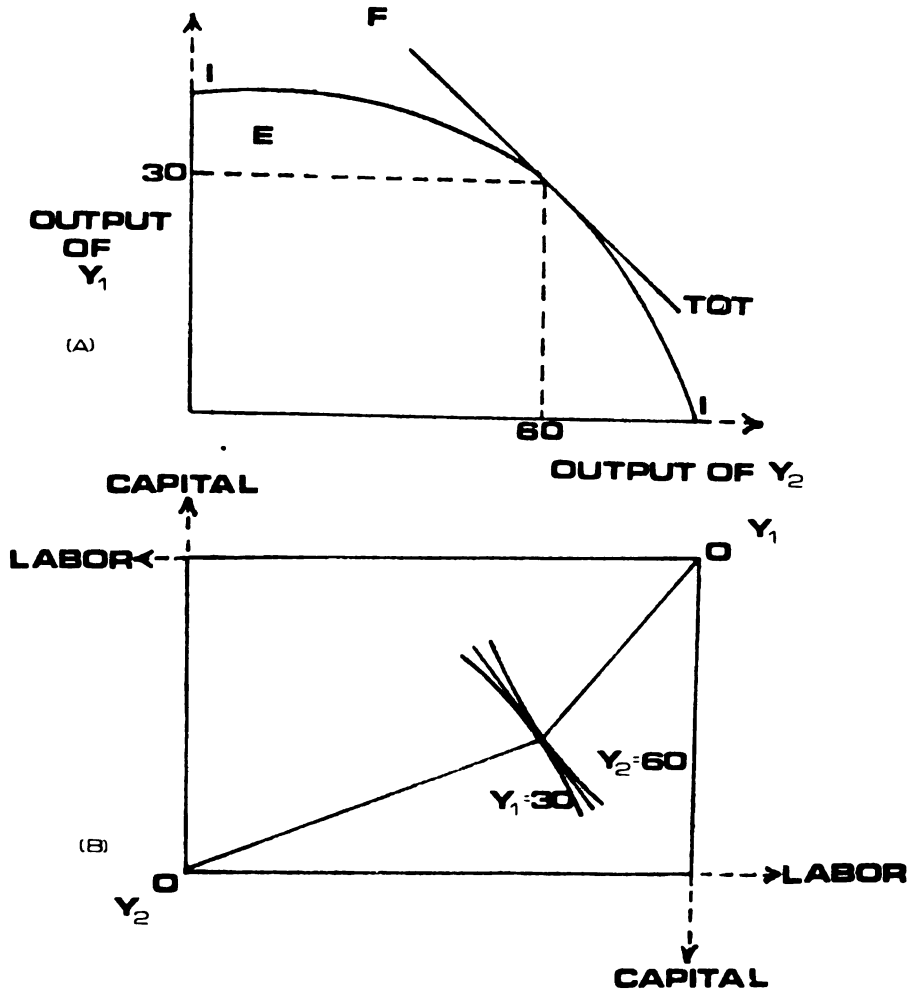

Figure 2.1(A) and (B). Production possibilities curve and Edgeworth box.

that can be produced given the amounts of resources available for their production at one point in time. Point E represents a combination of output of Y_1 and Y_2 that can be achieved although it is not the most efficient production that can be attained. The production points that lie along the 1'1' curve itself represent the maximum combinations

of production of Y_1 and Y_2 that can be reached. Point F represents a combination of production that cannot be attained with the quantity of resources shown in the production box in Figure 2.1(b).

The assumed fixed factor endowments which largely determine the shape and location of the production possibility curve under the comparative cost model (as illustrated in the box diagram in Figure 2.1(b)) hold only under certain and very specific assumptions regarding acquisition and disposal of resources. These assumptions are:

(a) $\infty \geq P_{AX_i} = P_{SX_i} \geq -\infty$ for $i = 1,\ldots,d$

(the variable inputs)

(b) $\infty = P_{AX_i} > P_{SX_i} = \infty$ for $i = d+1,\ldots,r$

(the fixed inputs)

Empirical evidence from Nigeria shows that the assumptions under which certain of the inputs are irrevocably fixed do not hold upon close examination. In the Classical, comparative cost model assuming a production function $Y = f(X_1,\ldots,X_d|X_{land}, X_{capital})$, in a closed economy, the point of greatest economic efficiency will be the point, which by using the opportunity cost principle, maximizes the return to the fixed factors given the constraint of no trade.

Applying the production function given above to Nigeria where, for example, $X_{capital}$ represents the stock

of living oil palm trees of producing age, it can be seen that the stock of trees is fixed at any point in time. Trees are both difficult to acquire and unprofitable to sell in any market except the palm market. It is costly to remove them should the land they occupy be desired for other uses. Thus, they may even have a negative salvage value, or a cost of removal.

Trees, especially of modern varieties, for producing palm oil or palm kernels have a high acquisition price relative to their private MVPs as it takes from three to seven years, depending upon variety, for them to come into production. But their acquisition costs are not infinite as the previously listed set of assumptions specifies. More palm trees can be planted and maintained as prices and palm technology dictate and the quantity of palm trees in production can vary over time.

Theoretical reasoning and empirical evidence both show that the assumptions of fixed factor endowments over a period of time as shown in Figure 2.1(b) are invalid in many instances in both the developed and the developing countries. Factor endowments do change with growth and development. As a matter of fact, economic growth often causes, or is caused by, changes in factor endowments and factor ratios. Trade itself can both increase the amount of factors available to a country for production as it works through capital production (and hence real

income), savings and investment, or it can influence the amount of factors available for production at any one time as it affects factor remuneration (if we consider that factor supplies are responsive to factor remunerations). The process by which additional resources are brought into export production because of rising MVPs that may come with trade will be explained in greater detail below. Assuming that factor endowments can change, the consequences of change will be the same in both the comparative cost and in the vent for surplus models; more will be said on this later.

The possiblity, or likelihood, of increasing factor endowments through population growth, capital production, savings and investment, and foreign aid has been largely accepted by proponents of the comparative cost theory. Rybcznski assumed this possibility in his 1955 article and went on to specify under most likely conditions what effect increased factor endowments would have on production and exports.[6]

Expanding the basic formulation of the comparative cost model to allow for increases in factor endowments under certain conditions necessitates the altering of assumptions concerning acquisition and disposal of fixed inputs from the assumptions listed above.

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[6]T. N. Rybcznski, "Factor Endowments and Relative Commodity Prices," Economica, (November, 1955), pp. 336-341.

The assumptions must be changed from

(1) $\infty \geq P_{AX_i} = P_{SX_i} \geq -\infty$ for i = 1,. . .,d

(variable inputs)

(2) $\infty = P_{AX_i} > P_{SX_i} = -\infty$ for i = d+1,. . .,n

(the fixed inputs)

to a more flexible and realistic set:

(3) $\infty \geq P_{AX_i} \geq P_{SX_i} \geq -\infty$ for i = 1,. . .,n

(all inputs)

The transport and transaction costs explain those acquisition costs which exceed salvage values as shown in (3) above. There are costs besides the cost of purchase involved in locating, contracting for, and transporting purchased inputs from the place of purchase to the place of use. This also includes the cost of overcoming the physical fixities of items such as land, stands of trees, buildings, and fences.

The comparative cost assumptions cited at the beginning of this chapter (and as shown in (1) and (2), above) hold that transport costs within the country are zero for one class of inputs and infinite for the other. This distinction underlies the differences between (1) and (2) above.

All inputs employed under the second set of assumptions (3 above) may be either fixed or variable depending upon the marginal value products (MVPs) that the resources earn

in production. Resources whose MVPs in production fall (after put on a comparable stock or flow basis) between acquisition price of additional units and salvage value for the units on hand will be truly economically fixed in production. Factors whose MVPs in production are greater than acquisition costs of additional units will be variable (regardless of the type of input, i.e., land, labor, or whatever). Likewise, resources whose MVPs in production fall below salvage value for the resource will be variable and at least part of the stock of these variables on hand will be sold.

The relationships are pointed up in mathematical symbols below:

(1) fixed inputs:

$$P_{AX_i} < MVP_{Xi} \text{ in production } > P_{SX_i}$$

(2) variable inputs:

(a) $P_{AX_i} \leq MVP_{Xi} > P_{SX_i}$

(b) $P_{AX_i} > MVP_{Xi} < P_{SX_i}$

with both input prices and MVPs on comparable stock or flow bases.

The use of variables in (2a), where the MVPs in production are greater than the acquisition cost of additional units, will be increased. In Nigeria this applies not only to the use of locally produced inputs but to the importation and use of inputs available from outside of

the country as well. Producer sales taxes, export duties, and marketing board surpluses have depressed the value of productive resources and restrained the importation and use of imported pesticides and fertilizers, for example, below the level that would maximize social returns to the country and below the level that would be achieved if the differences between social and private returns were eliminated.

The amount of resources employed in (2b), where the MVPs in production are less than salvage value, will be decreased.

The MVPs themselves are determined by product prices, initial quantities on hand for which $P_{AX_i} > P_{SX_i}$, the nature of the production functions that use the resources, and the prices (including opportunity costs) of other inputs.

Product prices received by Nigerian farm decision-makers are often determined by governmental pricing policy rather than by market forces. This is especially true for the export crops. As stated in Chapter I, the present general agricultural policy in Nigeria is to tax export agriculture to help finance the nonagricultural part of the economy while permitting food production to grow under the guidance of market forces. This type of policy, based on heavy export taxation via producer sales taxes, export duties, and marketing board profit-making operations,

creates a gap between the private and social marginal earnings from investment in export agriculture. The gap is caused by the difference between the world price received by the country for a unit of agricultural export and the much lower price received by the farm producer for the same unit. An empirical example can be given with oil palm. Suppose the world price of palm oil is £81.5 per long ton, as it was in 1963, and that £42.0 per ton is the price paid to the farmer. The difference between £81.5 and £42.0 is absorbed by the various export taxes and by transport costs to the export location. The gross social returns to the farmer being roughly half that amount--or £42.0 per ton. The farmer is interested not in the social returns to the country, but in the private net returns to his operation and will produce so as to maximize net returns to himself. Unwise Nigerian taxing policies have made it unprofitable for farmers to expand output to its socially optimal limit although the same farmers are probably now overcommitted in production on private account as shown by the low rates of return in agriculture for land, labor, and capital. Evidence for this includes marginal value products (MVPs) for labor in the neighborhood of 1 shilling per day and returns to land of £1 to £1.5 per acre in subsistence agriculture.[7] Okurume found somewhat higher

[7]Delane E. Welsch, "The Rice Industry in the Abakaliki Area of Eastern Nigeria." Ph.D. dissertation, Michigan State University, 1964.

returns to labor in the cocoa producing areas of the Western State in 1968 where they were estimated at 3 shillings to 3 shillings 6 pence per man-day of labor.[8] However, for many crops and areas, land has little or no market value and does not seem to carry a well established price for agricultural purposes.[9]

The prime agricultural concern in Nigeria is to motivate small farmers to do that which is socially desirable for the country as a whole. One way to move farmers to do that which is socially desirable is to close the gap that now exists between private and social returns. The closing of the gap would necessarily mean the elimination of the taxing burden which now creates the gap. This step would allow Nigeria to vent more of her surplus productive capability.

The Rybcznski modification of the original comparative cost possibility curve and production box showing that factor endowments can and do change is given in Figure 2.2.[10] Here it is assumed (following Heller's interpretation of

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[8]Godwin Okurume, The Food Crop Economy in Nigerian Agricultural Policy, CSNRD No. 31 (East Lansing: January, 1969).

[9]Glenn L. Johnson, Factor Markets and the Problem of Economic Development, Working Paper No. 3, CSNRD (East Lansing: November, 1967).

[10]Rybcznski, op. cit.

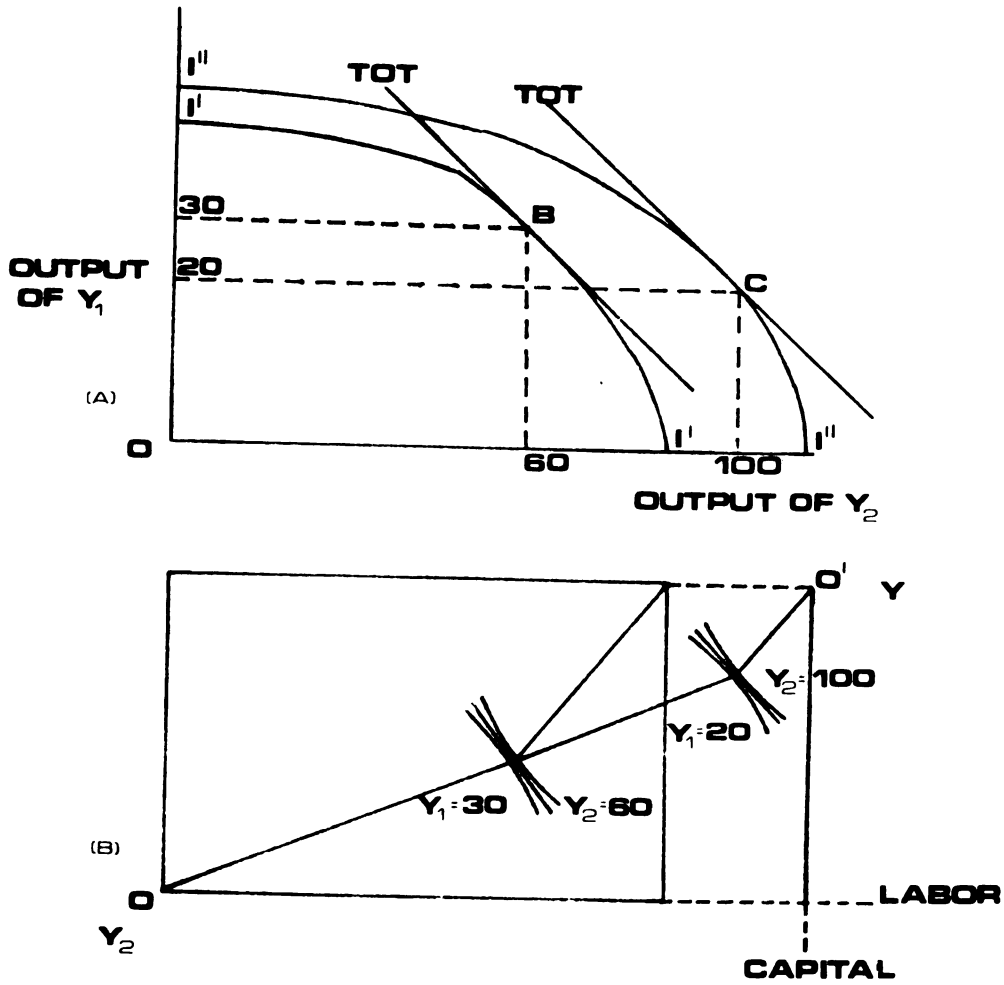

Figure 2.2 (A) and (B). Changes in factor endowment.

the Rybcznski result) simply that there is an autonomous increase in the labor force of the country due to population growth.[11] The increase in the size of the production box could have been brought about by the attraction and employment of factors of production which had previously been

[11]Heller, op. cit., pp. 112-116.

unemployed or underemployed but were pulled into export production by the increased MVPs occurring because of the trade linkages. The acquisition price for labor gained through population growth equals 0 as far as the market is concerned as the market has no control over its acquisition. The size of the production box in Figure 2.2(b) is increased by the size of the increase in the labor force. The increase is shown in dotted lines.

Before the increase in the labor force, the country was confined to production curve 1'1'. Given the international terms of trade, TOT, the country produced commodity bundle B. The increase in the labor force brought about an outward shift in the production possibility curve to 1" 1" and to commodity bundle C. The Rybcznski finding regarding the effects of an increase in one factor of production in the standard, Heckscher-Ohlin case can be summarized as "an absolute expansion in production of the commodity using relatively much of that (the expanding) factor, and. . .an absolute curtailment of production of the commodity using relatively little of the same factor."[12]

We are not so concerned with the Rybcznski finding as such but rather as a means of finding and showing that the comparative cost model (assuming that factor acquisition and disposal depend upon the MVPs of the resources in

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[12]Rybczynski, op. cit., pp. 337-338.

production and on acquisition costs and salvage values) has not just one given production possibility curve but rather a series of curves whose shapes and locations depend in large part upon the remunerations, and thus the opportunity costs, that are paid to factors of production relative to their acquisition costs and salvage values. The possible multiple production curves of the comparative cost model may be illustrated as in Figure 2.3 below.

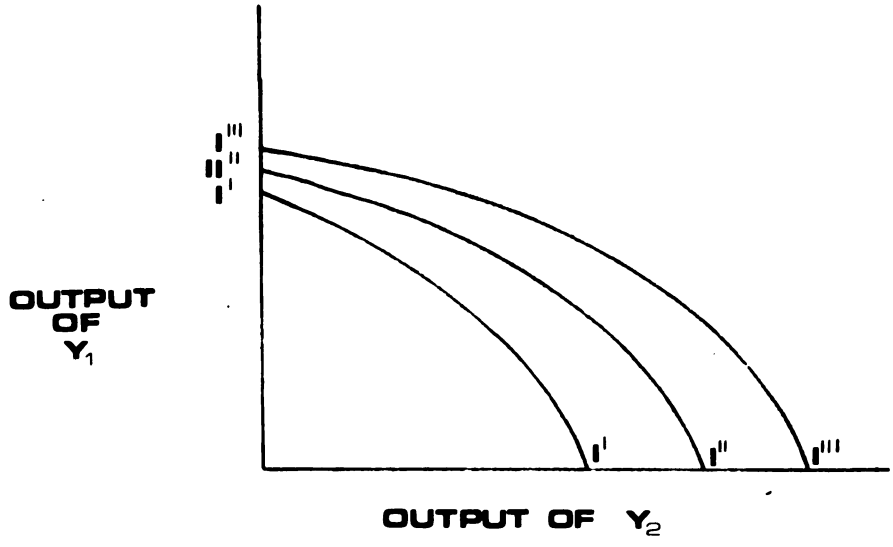

Figure 2.3. Effects of factor supplies changes on the production possibility curves.

The Vent for Surplus Model

The vent for surplus model as visualized by Myint[13] is less developed technically and logically than is the Heckscher-Ohlin theory. The Myint formulation merely assumes that a previously isolated country about to enter

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[13]Hla Myint, "The Classical Theory of International Trade and the Underdeveloped Countries," Economic Journal, (June 1958), pp. 317-337.

into international trade possesses some surplus productive capacity over and above that demanded for the domestic market. It assumes that large amounts of resources will remain idle or only partially used within the economy because of a lack of profitability on private account. These unemployed resources can be brought into use as the MVPs for these resources rise above their acquisition costs, if the country is linked to effective world demand through trade. Even before trade, these resources will be employed, as in the comparative cost case, to the point where their MVPs in production equal their opportunity costs in all alternative employment. The MVPs on private account before trade may be very low or even approaching zero, however.

Although the assumptions are not spelled out in great detail as in the Heckscher-Ohlin model, the vent for surplus model assumes a more general set of assumptions ($\infty \geq P_{AX_i} \geq P_{SX_i} \geq -\infty$ for $i = 1,. . .,n$) regarding the acquisition and disposal of factors of production. Greater quantities of resources will be brought into production as the MVPs in production exceed the acquisition price of additional units. In fact, this is the basis for the vent for surplus model as it assumes that the production possibility curve readily shifts outward as greater quantities of factors are brought into production through the tie to international markets. There is no assumption in the vent for surplus model, either explicit or implicit, that resources are absolutely fixed.

Trade and Product Mix

It is possible to use the conclusions already reached (that the production possibility curves of both the comparative cost and vent for surplus models shift outward in a like manner under the same general set of assumptions regarding resource acquisition and disposal) to take the analysis a step farther. This section will establish (1) how and where production and trade will take place on the frontier, (2) the economic determinants of resource employment, and (3) the fact that output can be increased through trade and a change in product mix even with resources already fully employed in a closed economy.

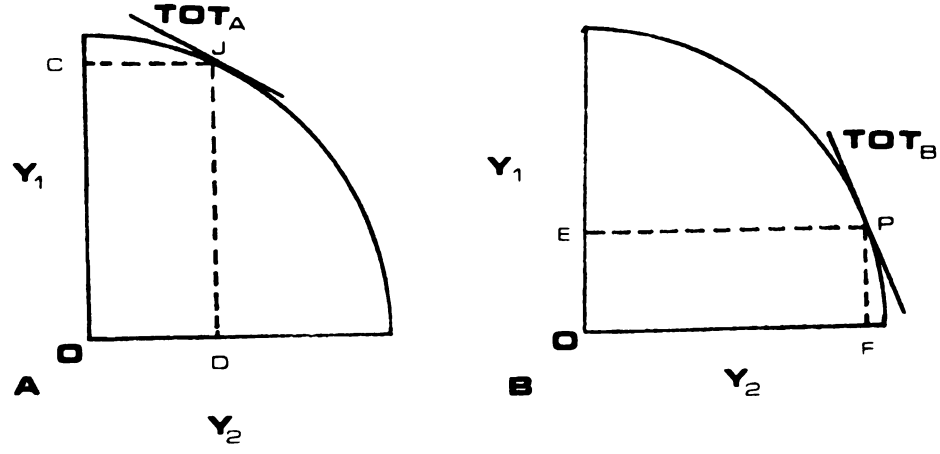

Figure 2.4. Production possibility curves, countries A and B.

Consider two countries (A and B, above in Figure 2.4) whose production possibility curves are shown for producing two products, Y_1 and Y_2. In isolation Country A produces

at point J on its production possibility curve and divides its production into Oc of commodity Y_1 and Od of Y_2. Country B also in isolation, but facing a different domestic price ratio from that of Country A, produces Oe of Y_1 and Of of Y_2. If the two countries are combined in a trading relationship as in Figure 2.5, one may see that production for both export and for domestic consumption can be increased by adjusting the points of production.

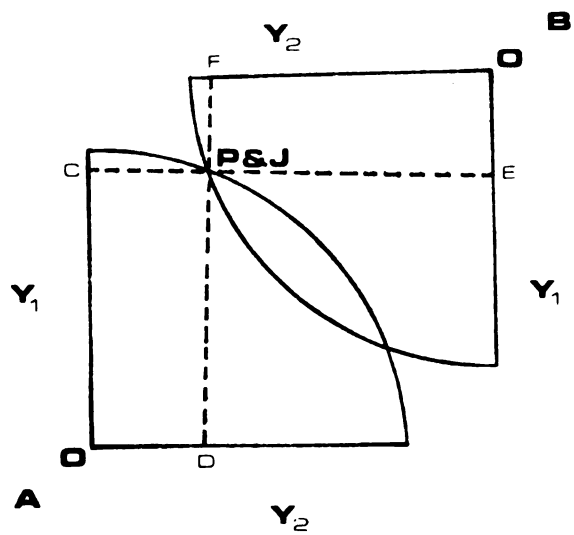

Figure 2.5. A trading relationship between countries A and B.

It can be seen from Figure 2.5 that the production possibility curves of the two countries intersect and that it would be profitable for both countries to move to a new position on their production possibility curves so that the curves of the two countries would be just tangent to maximize the overall quantities of Y_1 and Y_2 produced.

If the two origins of the production box, A and B, were pulled apart so that the production possibility

curves of the two countries were just tangent at point L, where they are also tangent to TOT_I, the international exchange rate between Y_1 and Y_2, one can see that the size of the production box would be increased. This possibility at TOT_I is shown in Figure 2.6. Alternatively, (1) mainly Y_1 could be expanded, or (2) both Y_1 and Y_2 could be expanded in more equal proportions if TOT_I were different.

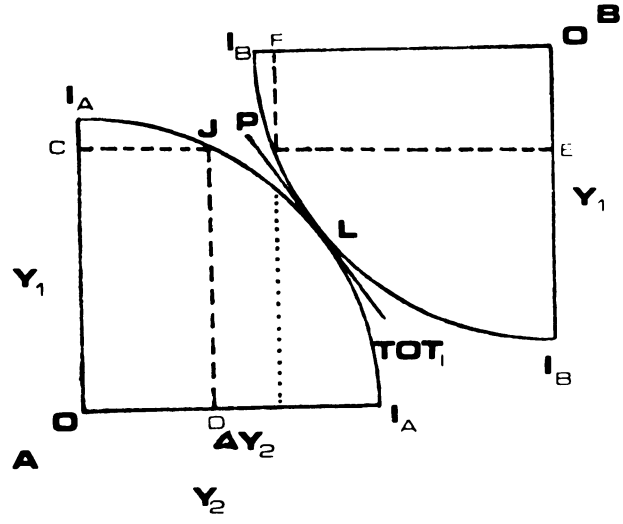

Figure 2.6. Optimizing the product mix.

The increase in production from changing the product mix as in Figure 2.6 is labelled ΔY_2 which is in fact the gain from optimizing the product mixes of the two countries. The production of Y_2 after specialization can be shown as $Od + Of + \Delta Y_2$. There is no increase in production of Y_1 in this particular example.

We know several things about the change in composition of production that has come about through the introduction of trade as shown in Figure 2.6. First, we know that the

proportion of production of domestic use declines in both countries as trade is introduced. Second, we know that the absolute production for home use may either increase or fall with the greater specialization. Third, we know that the overall increase in consumption within the two countries will be ≥ 0 with trade and specialization.

We also know that the factors (labor and capital) used in producing Y_1 and Y_2 in both the comparative cost and vent for surplus models (assuming $\infty \geq P_{AX_i} \geq P_{SX_i} \geq -\infty$) will be employed in both countries until the MVPs of the resources in use

= P_{AX_i} of additional units, or
= P_{SX_i} for some of the units on hand, or
= opportunity cost in other employment.

Figure 2.7 illustrates the results of outward shifts of the production possibility curves of both countries A and B as the MVPs of resources in use become greater than acquisition costs and more of the two resources are acquired in both countries--although not necessarily in the same proportions.

$l_A l_A$ and $l_B l_B$ are the original production possibility curves for countries A and B, respectively, with point L on both curves signifying the point of production and trade with the original resource base (see Figure 2.6). As the MVPs of capital and labor become greater than their acquisition price in the two countries, because of the

the link of international market, (again, assuming $\infty \geq P_{AX_i} \geq P_{SX_i} \geq -\infty$) more of each input is acquired and the production possibility curves shift outward to $l_A, l_{A'}$ and $l_B, l_{B'}$. Production and trade occur at M which is the point of tangency on both curves with the same international terms of trade, TOT_I, as seen in Figure 2.6. Country A does not change output of Y_1 with the increased resource employment but does increase output of Y_2 by the amount ΔY_2. Country B produces the same quantity of Y_2 as before the shift in its production possibility curve but expands production of Y_1 by the amount ΔY_1.

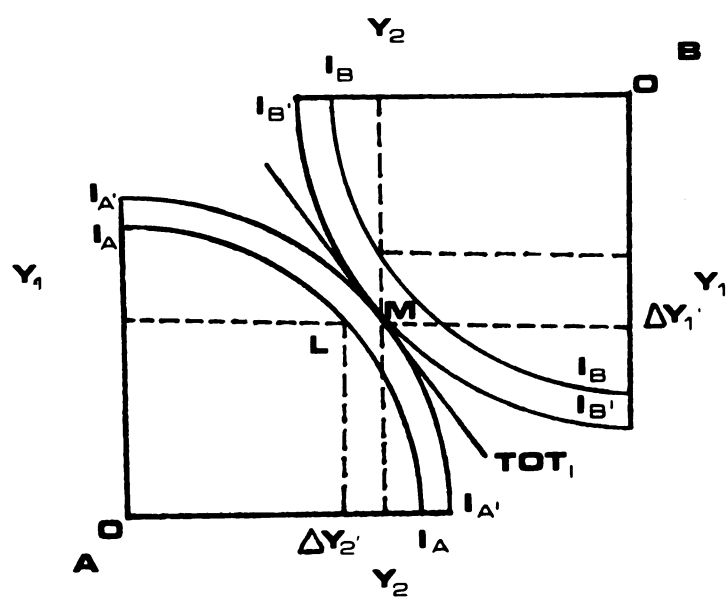

Figure 2.7. Shifts of production possibility curves and point of production and trade.

Other Uses of the Theory

Johnson and others have applied the theory used in this chapter (based on differentials between acquisition costs and salvage values under conditions of imperfect knowledge) to explain the tendency toward private over-investment in agriculture in many parts of the world that are characterized by private ownership of resources. Johnson maintains that the small Nigerian export farmer, like his U.S. farm counterpart, finds himself with substantial overcommitments of his own labor and resources to agricultural production in view of returns obtained from resources and effort in a nonfarm economy.[14] Due to the breadth of theoretical and policy implications connected with a discussion of an over-commitment of resources to agriculture, the subject will not be included in this dissertation although a footnote[15] provides references of work already done on this subject.

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[14]Glenn L. Johnson, "Factor Markets and Economic Development," Chapter 6 in Economic Development of Tropical Agriculture. Edited by W. W. McPherson, (Gainesville, University of Florida Press, 1968).

[15]Glenn L. Johnson and Lowell Hardin, The Economics of Forage Evaluation, Purdue Agricultural Experiment Station Bulletin #625, 1955; Clark Edwards, "Resource Fixity and Farm Organization," Journal of Farm Economics, November, 1959; Glenn L. Johnson, "Supply Functions--Some Facts and Notions," Agricultural Adjustment Problems in a Growing Economy, Iowa State University Press, 1956; Glenn L. Johnson, "The State of Agricultural Supply Analysis," Journal of Farm Economics, May, 1960, pp. 441-2; Glenn L. Johnson, "Implications of the IMS for Study of Responses to Price," A Study of Managerial Processes of Midwestern Farmers, edited by Johnson, et al., Iowa: Glenn L. Johnson,

Conclusions

The following conclusions are drawn from the comparison of the comparative cost and vent for surplus theories.

The models are essentially the same. Only the terminology, and not the basic structure or purpose, is different. Resources in both models are unused or under-used because of low returns to the farmer with their potential employment. Production will take place in both models at the point where the MVP of each resource in production equals its opportunity cost in all alternative employment--both before and after trade. International trade may help raise MVPs in both models and draw additional resources into production as the country's products are linked to international demand.

The production possibility curves of both models shift outward as larger quantities of resources are brought into production as the result of MVPs of the factors in production exceeding acquisition costs (assuming the second, more general set of assumptions is used for the comparative cost

"Overcommitment of Resources in the Production of Farm Production of Farm Products," Implications of Changes on Farm Management and Marketing Research, CAED Report 29, Iowa State University of Science and Technology, Iowa, 1967, pp. 180-217. Recent examples of policy and farm business applications of this theory include Dale Hathaway, Government in Agriculture, McMillan Co., 1963; and the Phase II Model of the NC54 Study of Feed Grain and Livestock Production in the Midwest. Other applications are by Theordor Heidues, "A Recursive Programming Model of Farm Growth in Northern Germany," Journal of Farm Economics, August, 1966, and Robert Young, "An Economic Study of the Eastern Beet Sugar Industry," Michigan State University, Agricultural Experiment Station, Bulletin #9, 1965.

model as are already implied for vent for surplus). The comparative cost model with its multiple producton possibility curves corresponds in purpose and structure to vent for surplus which in the literature has been based solely upon "expanding production possibilities" through the linking of previously unemployed resources to effective world demand.

Any difference in the results of the two models as to quantities traded, resources employed, or returns to factors, could be traced to the use of the more restrictive set of assumptions (involving infinite acquisition costs and $-\infty$ salvage values) with the comparative cost model and the more general set (where factor employment is based on the MVPs of the factors in production) in vent for surplus. Once the assumption is made of $\infty \geqq P_{AX_i} \geqq P_{SX_i} \geqq -\infty$ for all inputs, in both the comparative cost and the vent for surplus models, the models and the results are essentially the same.

In both cases, fixed resources will be more fully used after trade, and production will still take place at the point where the MVP for each resource equals its opportunity cost in alternative uses--just as it did before trade.

If there is any difference calculated for the consequences of the two theories (when the same, more general set of assumptions is used regarding the acquisition and disposal of resources), the difference must be due to an error in calculation.

CHAPTER III

EXPORT PROJECTION FRAMEWORK

The actual model for projecting Nigerian agricultural export growth is based on the impressive body of knowledge that Nigerian smallholder export producers are indeed "economic men." The concept of "economic man," as defined by Jones, refers to the idea that farmers are aware of and highly responsive to opportunities to "better themselves" and that their activities can be largely understood and analyzed within the framework of traditional economic analysis.[1] There is ample documented evidence of Nigerian smallholder responses to economic incentives to justify using the traditional form of economic analysis when dealing with the Nigerian export economy. Appendix A, entitled "Historical Performance of Agriculture", points up in detail various examples of smallholder profit maximizing, price responsive behavior. The Nigerian examples are widespread in geographical location and broad in time. They date back at least 60-70 years and cover such varied crops as oil palm, cocoa and groundnuts, and apply to the profit maximizing use of fertilizers and insecticides, as well.

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[1]William O. Jones, "Economic Man in Africa," Food Research Institute Studies, Vol. No. 2, May, 1960, pp. 107-134.

Supply Responses

The responses of farmers in less developed countries to changes in economic variables has been a topic for discussion and investigation for some years.[2] It has been found that their supply responses cannot be analyzed in simple, completely reversible terms as is outlined in most economic textbooks.[3]

According to the supply response concept found in most elementary economic textbooks, the supply curve--which relates price to output--is completely reversible for both upward and downward price movements. Thus, the decrease in production resulting from a decline in price is the negative of the response to an increase in price.

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[2]Merrill J. Bateman, "Supply Relations for Perennial Crops in the Less-Developed Areas," in Subsistence Agriculture and Economic Development, Clifton J. Wharton, Jr., (ed.), 1969.

[3]Glenn L. Johnson, et. al., op. cit., pp. 40-42. This section on responses to price and the general framework for the supply model draws heavily upon Chapter II of Strategies and Recommendations for Nigerian Rural Development, 1969/1985--that chapter being entitled "Nigerian Agriculture--Its Present State." The theoretical framework for the CSNRD supply response model draws from Johnson, Glenn L. and Hardin, Lowell, The Economics of Forage Evaluation, Purdue Agricultural Experiment Station Bulletin #623, 1955; Edwards, Clark "Resource Fixity and Farm Organization," Journal of Farm Economics, Nov. 1959; Johnson, Glenn L., "Supply Function--Some Facts and Notions," Agricultural Adjustment Problems in a Growing Economy, Iowa State University Press, 1956; Johnson, Glenn L., "Implications of the IMS for Study of Responses to Prices" in A Study of the Managerial Processes of Midwestern Farmers, (ed.) by Johnson, et al., Iowa State University Press, 1961; and Vincent, Warren (ed.), Economics and Management in Agriculture, Prentice Hall, New York, 1962.

This usual elementary supply analysis rests on the set of assumptions cited in Chapter II. The crucial assumptions necessary to insure that the supply curve is completely reversible are (1) perfect knowledge and foresight, (2) equal acquisition and salvage values for the variable inputs, and (3) infinite acquisition costs and $-\infty$ salvage values for the fixed resources. As a result of these assumptions not being met, supply responses in Nigerian agriculture, as in other parts of the world, differ greatly from the simple, fully reversible kind shown in general economics textbooks and shown in Figure 3.1 which depicts complete reversibility and independence from the direction, duration and size of price changes.

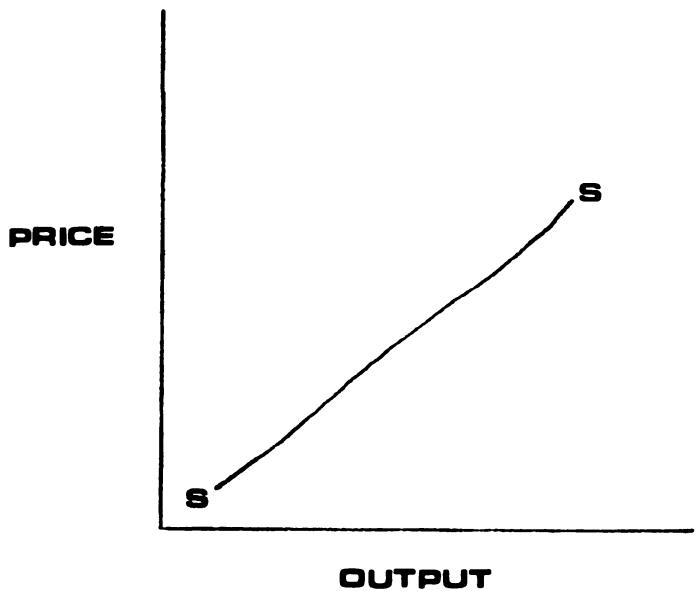

Figure 3.1. Fully reversible supply curve.

The difference between assumptions of the usual static economic theory, as expressed in the completely reversible curve, and reality are particularly great in Nigeria. First,

Nigerian producers are generally poorly informed about the prices that they should expect for their produce, as well as on the institutional arrangements for marketing their products and the pricing and supply of inputs. Also, they know little of the changes that are taking place in agricultural technology. Secondly, the acquisition costs of capital--such as cocoa stands, palm groves, and rubber trees--are generally substantially greater than the salvage value but less than infinite, so that resources may be either fixed or variable, depending upon price relationships and the past mistakes of poorly informed producers.

A more likely supply response from a firm in a country such as Nigeria would be the hypothetical one shown in Figure 3.2.

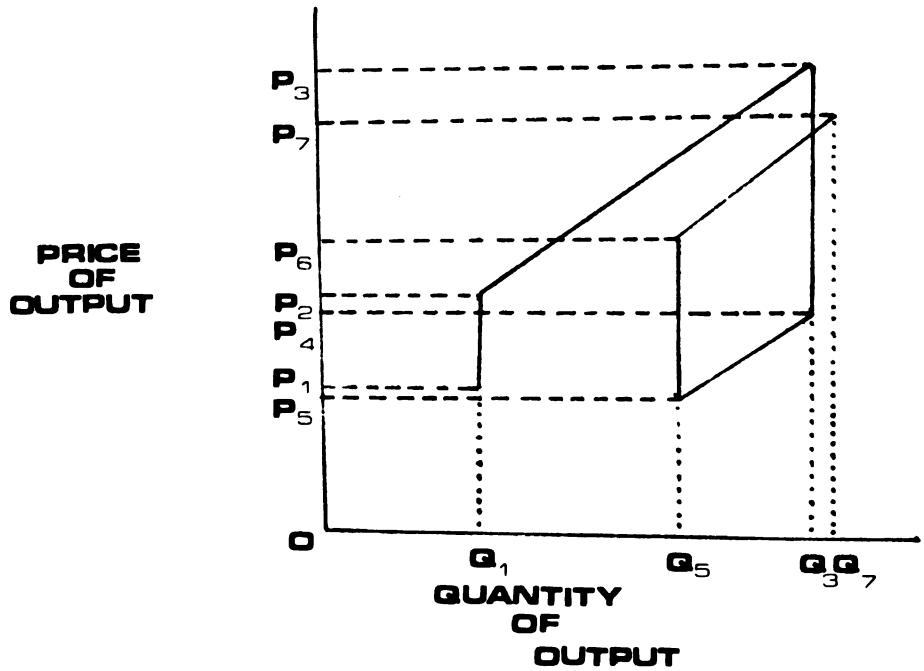

Figure 3.2. Expansion and contraction paths for a firm.

Output from the production process represented in Figure 3.2 depends not only upon the price level but upon the direction, magnitude and duration of price changes as well. At price P_1 the firm produces quantity OQ_1. Suppose in the Nigerian case that this is the production of palm oil from wild trees and that at price P_1 the farmer harvests all of the palm oil produced by the wild trees available to him. Even at the higher price P_2 the farmer continues to harvest the production of the same wild palms that were available to him before the price increase. Production does not increase with the higher price and remains at OQ_1 as the price moves to P_2. When the product price reaches P_3, the MVPs of some of the factors of production, such as improved palm planting material, begin to exceed their acquisition costs (assuming $\infty \geq P_{AX_i} \geq P_{SX_i} \geq -\infty$) and the firm begins to acquire units of inputs which were previously fixed for it. The input of improved planting material may have been fixed at zero for this particular firm before the price increase. As the firm acquires new inputs which were previously fixed for it (possibly at zero quantities), it moves to a new subproduction function and to output OQ_3. In other words, the size of the production box is increased as was shown in Chapter II to be theoretically and empirically possible. A fall in the price of palm oil might be expected after some time lag, assuming that many oil palm growers reacted positively to the

increased price and that they purchased new inputs and shifted to new subproduction functions as this firm has done. This might cause the price to fall to P_4. Again, the firm represented in Figure 3.2 might show no change in output although the price declines from P_3 to P_4. The firm has invested in improved palm trees at price P_3 which will continue in production at price P_4 as the MVPs of these trees in production are greater than the salvage values that could be realized for them if the trees were eliminated. (Figure 3.3 will show in greater detail how this case develops.) Thus, there is no cut-back in production even with the sizable drop in price--from P_3 to P_4. Output remains at OQ_3. An additional fall in price, say to P_5, may be sufficient to bring about some liquidation of investments made when prices increased from P_2 to P_3. At the price P_5, output stands at OQ_5. Assuming a later price increase to P_6, output again does not change due to the liquidation of assets that took place when the price dropped from P_4 to P_5. A further price increase (to P_7) may cause the MVPs of inputs which were fixed at both P_5 and P_6 to again exceed their acquisition costs and the firm to move to a new subproduction function and to output OQ_7 at price P_7.

It should be kept in mind that supply responses of most export oriented farmers in Nigeria are influenced by whether or not the producer finds it advantageous to

invest or disinvest in such items as palm trees, cocoa stands or simple processing machinery for palm oil or groundnuts.[4] Little or no response can be expected for small increases in price to farmers if the earnings (marginal value products--MVPs) of the durable capital items are still above their salvage values and below acquisition costs.

As already explained, factors of production used by farmers typically cost more when purchased than can be netted for them when sold. Aside from the costs of overcoming the physical fixities involved with buildings, tree crops and roads, there are transportation and transaction costs involved when assets are purchased. When two prices exist for an input, it is obvious that it pays to acquire more of it if its value in use exceeds its acquisition cost. Conversely, it is clear that at least part of the stock of an input should be disposed of if its salvage value exceeds its value in use. When its value in use is less than or equal to its acquisition cost and equal to or greater than its salvage value, it does not pay to vary use of the input--the factor is fixed in production. This may be illustrated in Figure 3.3 where two inputs, X_1 and X_2, are used by a single firm to produce product Y.[5]

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[4]Glenn L. Johnson, et al., op. cit., p. 42.

[5]Glenn L. Johnson, "Implications of the IMS for Study of Responses to Price," in A Study of Managerial Processes of Midwestern Farmers, (Iowa State University Press, Ames, Iowa, 1961).

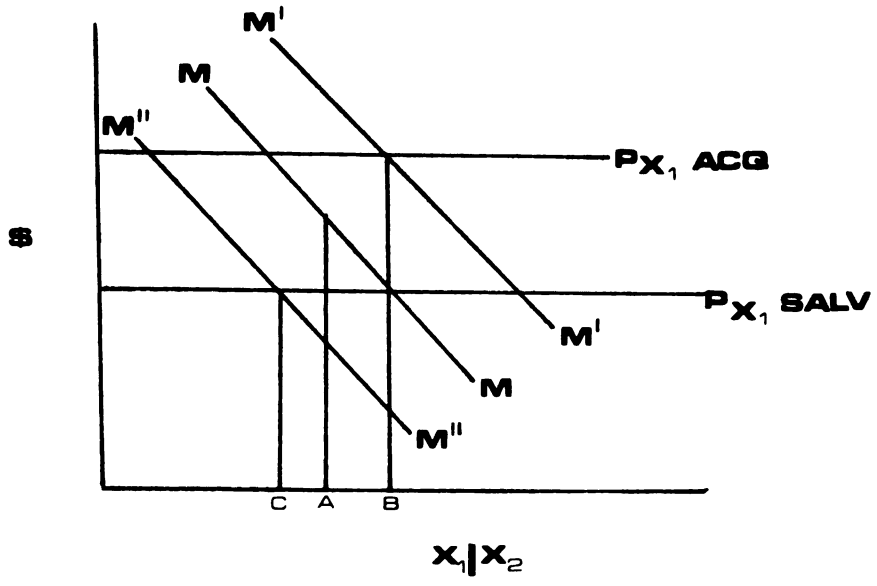

Figure 3.3. Fixity of a factor in production.

Let X_1 be a one-use input and hence a flow or service. Let X_2 represent the services of a durable input. Assume a one-to-one relationship between the flow or service and stock of X_2. Also, assume that

$$P_{X_2} \text{ acquisition} > MVP_{X_2} \text{ in use} > P_{X_2} \text{ salvage}$$

for all quantities of X_1 and X_2 on hand as well as for any price of Y to be considered and any amount of X_1 it may prove possible to use with X_2. Under these stringent conditions, X_2 is fixed for the entire range of possibilities to be considered. The fixity of X_2 justifies the assumption that $Y = f(X_1|X_2 = a)$ conforms to the law of diminishing returns. As P_{X_1} acq. > P_{X_1} salv. because net acquisition

costs at the farm for factors exceeds off-farm salvage values, an amount of X_1 on hand such as "a" in Figure 3.3 is fixed under some conditions and variable under others.

If "a" amount of X_1 is on hand and the $MVP_{X_{1y}}$ = MM, then it does not pay to acquire more of X_1 or to sell any of the X_1 on hand. Therefore, X_1 is economically fixed at "a". If Py were to increase so that the $MVP_{X_{1y}}$ = M"M", the MVP_{X_1} salvage value, and it would pay to sell X_1 until point "c" is reached.

The point of the above discussion is to emphasize that small price changes for products may have little effect upon output, as the small price changes may not substantially alter the amount of inputs that a farmer uses. The amount of X_1 demanded in Figure 3.3 would remain at quantity "a" until

(1) either the marginal physical product (MPP) or the price of product (Py) increases sufficiently so that the marginal value product (MVP) of X_1 in use exceeds the acquisition price of X_1, in which case more X_1 will be purchased and used, or

(2) the MVP of X_1 in use falls below the salvage price of X_1 so that X_1 will be sold at the salvage price.

Any smaller price movement (that merely moves the MVP_{X_1} between lines M'M' and M"M") would have no effect upon the use of X_1. This conclusion has many implications

for Nigerian policy formulation. First, and as already pointed out, small price movements, either up or down, can be expected to have little effect upon production of many of Nigeria's crops--especially tree crops which involve high initial investments, long gestation periods, and long productive lives. Price increases (or decreases) may have to be substantial to move the MVPs of many of the inputs out of the range of being fixed as shown in Figure 3.3. Secondly, this finding gives insight into the reason why farmers may readily accept one recommendation or innovational practice and reject another despite the efforts of governmental planners and extension workers to get both adopted. The MVPs of the new inputs in use under the prevailing product price may never exceed their acquisition costs and thus they will never be adopted.

Another complicating factor for projecting tree crop response in Nigeria is the problem of the transition from natural generation of oil palm and rubber where acquisition costs are near zero and salvage values are negative to the new improved varieties where man has a major hand in the rehabilitation effort but also expends high acquisition outlays. With the present type of cropping arrangement, i.e. with much of the rubber and palm oil coming from wild groves, little reduction in output can be expected with modest price declines. Likewise, little new investment will be forthcoming with small price increases although

large price increases will make the MVPs greater than the costs of acquiring new production inputs such as improved planting material. Thus, under these conditions, new production units would be added.

Supply Responses From Annual Crops

In contrast to tree crops, likely responses to price can be calculated for most Nigerian annual crops, which are not dependent on heavy investments in durable equipment or facilities and for which simple, well-known technologies are available. Response to price for these crops may be rather symetrical for both price increases and price decreases as suggested in elementary economics textbooks. There is, however, always the problem of human labor, which is in fact more durable than the tree crops, becoming fixed in the production of annual crops as it can be in the production of perennials. Cotton and groundnuts are examples of annual crops grown in Nigeria with hand tools and simple technology and which could be expected to have something like reversible supply responses for both upward and downward price movements.

The problem arises in Nigeria, and elsewhere in agriculture, of men erroneously committing their life's labor to agriculture and then continually expanding production through the acquisition of more capital and more land in an effort to minimize losses to the over-committed labor. The results of this loss-minimization effort is to lower product

price relative to costs and to lower returns at the margin for capital, land, and labor, to levels such as are typical in Nigeria today.

CSNRD Approach--Non-Computer Simulation

In view of the fore-going analysis pointing up the problems connected with the simple elasticity models, which specify the same supply elasticities for both large and small changes in price and for both upward and downward price movements, CSNRD sought to avoid some of the pitfalls inherent in relying solely upon the conventional, mathematical models by supplementing the supply elasticity estimates with a non-computer simulation technique to gain additional information and estimates on the Nigerian agricultural economy. CSNRD chose non-computer simulation for a number of reasons which all hinge on the ability of the model of analysis to help solve the problems at hand. The principal reasons for the type of analysis chosen are:

(1) Workability--The non-computer simulation allowed the CSNRD researchers to project the consequences of specific policy strategies (including both production campaigns and price changes) through time to arrive at estimates of aggregate output, income to farmers, government revenues, and foreign exchange. Specifically, it predicts the consequences of following each of the three

strategy alternatives outlined in Chapter I at three points in time--1970, 1975 and 1985.

(2) Problem definition and solution--Researchers working on practical problems such as a strategy for rural development or the export development in Nigeria have long since discovered that such practical problems are not only interdisciplinary in nature but must involve both the normative and the non-normative aspects of the problem as well. Quantitative non-normative data are required to describe the nature of the agricultural sector and its interrelationship to the other parts of the economy. Normative concepts are required as criteria for evaluating programs so that right actions or goals may be chosen. Researchers must often respond to both normative and non-normative questions from decision-makers who are interested in the good or bad consequences of formulating and implementing a particular agricultural policy.

Simulation offers the kind of a flexible tool needed to include both normative and non-normative criteria, to avoid the pitfalls of a purely maximizing model because of the problem of choosing a common denominator to maximize and the related lack of interpersonlly valid utility measures, as well as the difficulty of obtaining concensus

on the proper "basis for choice" for defining what is the right action or goal.

Brinkman summed up the case for using the simulation approach in Nigeria.[6]

> Simulation is useful because it provides a speedy method of examining many alternative policies and their consequences through time so that decision-makers may interact with researchers in choosing policies they feel will lead to right actions and goals in view of both the important normative and non-normative considerations. Furthermore, by simulating alternative policies through time, researchers and decision-makers are not forced to make choices involving a single, unrealistic common denominator necessary to maximize a single function. Simulation also can be used when the mathematical second order conditions for maximization are absent and when alternative decision-making rules exist, although simulation may be considered as non-maximizing because it does not specifically attempt to determine a single maximizing solution, it still may be used to develop and examine the consequences of alternatives that are much better than others. In doing so, simulation may allow decision-makers to choose rationally what they feel is a maximum.

Granted that non-computer simulation is the method chosen for making the CSNRD overall and export projections, let us see on what basis the projections are actually made. The CSNRD strategies paper lists the background information used as a basis to make the Nigerian projections.

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[6]George L. Brinkman, "Reconciling Proposed Public Investments in Agricultural Education, Infrastructure and Production in Nigeria, 1969/1985," Ph.D. dissertation, Michigan State University, 1969.

(1) available data on the present Nigerian agricultural economy,

(2) information on the performance of other agricultural economies,

(3) information on and an evaluation of the contributions of research, plant and animal breeding over the next several years and the performance of agricultural education systems, credit organizations and resettlement schemes within the Nigerian economy,

(4) the informed judgements of economists and agriculturalists--both Nigerian and expatriate.

CSNRD stresses that because of the poor quality of agricultural data available the projections made in the CSNRD study are not highly objective statistical forecasts to which probability of different sized errors can be attached.[7] More important perhaps is the fact that historical data on the performance of traditional agriculture are not very relevant for projecting how the economy might operate if modernized. Johnson compares the use of historical data on the traditional agricultural economy to predict how the economy might perform if modernized to that of an architect's use of information on the known strength and performance of traditional building materials for the designing of a large and modern building made of glass and

[7]Glenn L. Johnson, et al., op. cit., p. 64.

steel. The old rules and coefficients no longer apply. A call is made for creativity and originality in envisioning designs for the future. Therefore, the experiences of other developing countries such as Mexico, Pakistan, and the Philippines--which have shown both originality and creativity in designing and developing their agricultural sectors--have been examined to find insights for the Nigerian economy.

CHAPTER IV

AGRICULTURAL EXPORT POLICY: PAST, PRESENT AND FUTURE

The major emphasis of this dissertation is on agricultural export policies and the effects of those policies on overall economic growth in Nigeria. Export policies are important for a number of reasons. First, agricultural exports have long been the backbone of economic growth in Nigeria. Even since the discovery and production of petroleum, they have continued to provide more than 50 percent of all foreign exchange earnings (see Table A.1). Agricultural exports also provided approximately £15.4 million, or 10 percent of all governmental revenues, during 1965-66. In addition to the taxes, approximately £160 million in income have been transferred out of the agricultural export sector since 1947 mainly to other sectors of the economy through the marketing board operations.

Equally, if not more important, than the quantifiable foreign exchange earnings, tax revenues, and marketing board surpluses invested outside of agriculture is the effect that export agriculture has had on income distribution in Nigeria. North refers to the "character of the

export commodity" in influencing economic growth.[1] He specified one type of production system as the plantation system which provides opportunities for significant returns to scale. This type of production system, according to North, will have very different effects upon development from the second type system in which the export commodity is produced most efficiently on family-sized farms.[2]

Nigeria's 2-3 million export-oriented farmers typify the second type system--one in which the agricultural economy is based upon family-sized, labor intensive units. This type of farm organization has generally shown to be the most profitable in Nigeria. A review of studies of smallholder returns from three crops in 1968[3] indicated that smallholder investments in tree crops gave satisfactory private returns under the existing price and tax structure while a comparable report in the same year[4] showed

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[1]Douglass C. North, "Agriculture in Regional Economic Growth," Journal of Farm Economics, Vol. 51, (December, 1959) pp. 943-951.

[2]There seem to be no known important economies of scale connected at least with the production of the traditional tree crop exports in Nigeria--cocoa, rubber, and oil palm--as the principal tasks of land clearing, planting, weeding, and harvesting must all be performed by hand. On the contrary, there is increasing evidence that small farmers can produce these crops on a competitive basis with plantations as long as the small farmers have access to new technology, credit, extension, and infrastructural services such as transport and marketing facilities.

[3]C. K. Laurent, Investment in Nigerian Tree Crops: Smallholder Production, CSNRD 18 (East Lansing: October, 1968).

[4]R. G. Saylor, A Study of Investment in Oil Palm and Rubber Plantations, CSNRD 15 (East Lansing: August, 1968).

that most plantations of the same crops in Nigeria gave only marginal private returns. This indicates that the private returns to labor were generally not high enough to justify plantation production. A significant aspect of the returns to smallholders is their low investment in social overhead in contrast to the sizable investments required of plantation owners. Capital investments in housing, hospitals, schools, and recreational facilities all add to the cost of operating plantations. Also, smallholders, who employ mainly family labor, have considerably more flexibility in the use and payment of labor than do the plantations.

It is the contention of this writer that domestic economic growth in Nigeria is largely dependent upon export growth and that this relationship will continue for some years to come. This relationship will continue if exports themselves continue to serve as the "prime mover" of the economy. The relationships between export and domestic growth are pointed out in Chapter I where the major influences of the prime mover on the rest of the economy were specified. These influences include serving both as a market for and as a supplier to industries producing other goods and services, and as an expanded market for their own produce and for other domestic food.

Considering (1) the importance of exports to the economy, (2) the small farmer make-up of the export sector

with the resultant wide distribution of export income, and (3) the profit maximizing behavior that small Nigerian farmers have demonstrated in the past, it is only fitting that major attention should be given to the policy measures which affect the motivations and actions of the export group. This means attention to export policy itself--to that aggregation of rules, guidelines, taxing structures, pricing policies, and assistance programs which working together help make exports what they are.

A starting place for evaluating past export policies and for devising new patterns of action for the future is to ascertain what export policies have been in the past and what they are presently. Helleiner using Government of Nigeria statistics since 1900 traced the customs duties collected both as import duties and export duties over the period 1900-1963.[5] Table 4.1 shows important dates and amounts of taxes collected.

It is noted from Table 4.1 that import duties have been in effect continuously since 1900. Export duties, on the other hand, were not begun until 1916 when they earned the very modest amount of £58,000. They, likewise, have continued in effect every year since their beginning. Export duties, however, remained a relatively unimportant source of government revenue--earning less than £1 million

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[5]Helleiner, op. cit., p. 559, Table V-E-4.

Table 4.1. Customs Duties Collected, Nigeria, 1900-1963

Year	Import Duties	Export Duties	Total Customs Duties
	----------Thousand £----------		
1900	517	---	517
1908	1,183	---	1,183
1916	1,087	58	1,144
1924	2,038	679	2,717
1932	1,809	501	2,310
1940	2,105	434	2,540
1948	8,241	1,944	10,185
1951	14,697	10,820	25,517
1954	22,164	21,293	43,439
1956	33,611	13,475	46,486
1960	50,696	15,490	66,186
1963	61,130	13,543	75,273

Source: G. K. Helleiner, Peasant Agriculture, Government and Economic Growth in Nigeria (Homewood: Richard D. Irwin, Inc., 1966) p. 559, Table V-E-4.

annually until after World War II. Their importance increased drammatically between 1947 and 1954 when their share of total customs duties collected went from 9.2 percent to 49.0 percent. In 1954, £21,293,000 were collected from export taxes in Nigeria.[6] The volume of export taxes has actually declined since its 1954 high and totalled £13.5 million in 1963.

It is the contention of this writer that there has been no one unified, concerted export policy in Nigeria

[6]Helleiner, ibid., p. 560.

designed to maximize foreign exchange earnings, maximize farmers' incomes from exports, or to maximize government revenues from the export sector, or for any one single purpose. It is his contention that Nigeria's export policy has been a policy of happenstance based upon reactions to events and not one aimed at attaining a specific goal. Nigeria's export policy has been an ambiguous one designed at one and the same time to heavily tax some export crops which seem to have great comparative advantages in the world market, such as palm products or cocoa, and encourage other exports such as rubber, which have demonstrated less comparative advantage in production.

But the fact remains that Nigeria does have a definite agricultural export policy. It is a de facto policy based on marketing board monopsony buying power, export taxes, and producer taxes all designed to tax export agriculture as a means of financing other activities. It is the contention of this writer that agricultural policies designed to turn the terms of trade from agriculture have kept agricultural growth and purchasing power throughout the economy lower than it would have been under a more favorable pricing policy.

Methodology for Studying the Effects of Export Policy Changes

The conclusions of comprehensive research and appraisal by the Consortium for the Study of Nigerian Rural Development

(CSNRD), of which this research is a part, point to major changes in several areas of Nigerian policies which must be made if economic growth is to be effectively increased. The development strategy suggested by CSNRD rests largely upon improved export policies although it contains other policy recommendations as well. CSNRD chose a system of non-computer simulation and projection to predict and present the consequences of following the three strategy alternatives which Nigeria considers in developing her agriculture. The three broad strategies considered by CSNRD for Nigerian agriculture are as follows:[7]

Strategy I. Continue present strategy for export agriculture while allowing food production and marketing to be guided by the market mechanism.

Strategy II. Moving from the present strategy to (a) higher producer prices and improved producer incentives and services for the production of export and selected import substitution crops, and (b) vigorous research to find new technologies for the high cost staple foods.

Strategy III. A harsher strategy than at present for private producers of export crops with a relatively large public agricultural sector involving the possible imposition of price ceilings, resource allocation controls, and food rationing with

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[7]Glenn L. Johnson, et al., op. cit., p. 59.

the objectives of producing cheap foods for city dwellers and obtaining heavy extraction of government revenues from agriculture.

Estimates and projections of the consequences on exports of following each of the three strategies spelled out above will be presented in Chapters X and XI for the years 1970, 1975 and 1985. The yields and production estimates on export crops presented in Chapters X and XI are the result of research and discussions among CSNRD researchers and Nigerian and non-Nigerian policy and decision makers.

This study will strive to answer some of the fundamental questions that agricultural planners are asking:

(1) Can, or should, export agriculture continue as the prime mover of the economy?

(2) Where should emphasis on agriculture be placed in order to maximize social and private returns?

(3) Do the present agricultural exports still offer the most profitable opportunities for agricultural investment?

(4) What is the potential role of new exports, such as livestock or rice, superior food crops, or import substitutes and how can these potentials be developed?

Present Export Policies

Any discussion of export policies in Nigeria centers around two items--marketing board operations and export taxes. Each will be discussed in detail. Since the outbreak of World War II in September, 1939, the marketing boards or their predecessors have controlled the domestic purchase and sale of Nigeria's major agricultural exports with the exception of rubber.[8] These boards are statutory monopsonies which establish the prices to be paid to domestic producers, or middlemen, largely on the basis of nonmarket criteria. The marketing boards are important in Nigeria and accounted for 63 percent of the value of total exports as late as 1963.

Eicher summarized the justification of the introduction of marketing boards in the 1939-1940 period as follows: (1) inflationary pressures generated by the shortage of consumer goods during and immediately following World War II had to be controlled, (2) import and export trade were controlled by a few large foreign firms which could easily exert monopolistic and political influences on Nigerian society, (3) the "Native Lands Acquisition" enactment of 1910-1914 precluded the establishment of "easy to tax" foreign owned plantations, (4) shortage of administrative skills, records, and collection techniques necessary to

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[8]Helleiner, op. cit., Chapter 6.

establish some alternative systems of taxation such as land or income taxes, and (5) there was no known adequate alternative source of governmental revenues such as minerals or petroleum deposits.[9]

Nigeria's marketing boards, it should be remembered, had their origins in war-time arrangements "for the orderly marketing of West African produce and the protection of the United Kingdom supplies of raw materials." After the war the boards assumed the responsibility for producer price stabilization and for the further development of the producing industries. The stabilization objective of the marketing boards has been carefully analyzed by members of the economics profession.[10] Helleiner maintains that stabilization, of whatever sort, was never the sole responsibility of the marketing boards.[11] The marketing boards from their very conception held considerable powers to accumulate and expend funds derived from their trading operations, but, according to Helleiner, they have long since exceeded the limits originally set for them as revenue

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[9]Carl K. Eicher, "Reflections on West Africa's Rural Development Problems of the 1970s" presented at the Adlai Stevenson Institute of International Affairs in a Symposium: Africa in the 1980s, Chicago, April 14-18, 1969.

[10]P. T. Bauer's West African Trade, (Cambridge University Press, 1954), is the classic work on the marketing boards. Bauer analyses the marketing boards' operations and severely criticizes the boards for not fulfilling what he considers to be their first and only major responsibility--that of producer price stabilization.

[11]G. K. Helleiner, "The Fiscal Role of the Marketing Boards in Nigerian Economic Development, 1947-61," Economic Journal, Vol. LXXIV, No. 295, (September 1964) pp. 582-610.

collection agencies.[12] The evolution of the revenue generating goal of the marketing boards reached the overt public policy stage in the early 1960s when Regional Governments in the Federation explicitly stated that the marketing board operations were and would continue to be important sources of revenues for their development budgets.

The evolution of the marketing boards' function from mainly stabilization agencies to taxing agencies is well documented by Helleiner.[13] When considering economic growth, it seems reasonable to follow the lead of CSNRD and to evaluate the performance of what the marketing boards have done, not on their ability to extract funds from the agricultural sector, but on the effects of the export taxation on rates of growth in the export sector as well as the effectiveness of use of the marketing board surpluses themselves once they have been extracted.[14]

In reply to the first question, the volume of Nigeria's agricultural exports with the exception of palm oil has grown at an annual compound rate of 4-6 percent during the past 10-15 years despite the high marketing board and export

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[12]Helleiner, ibid., p. 583.

[13]Helleiner, Peasant Agriculture, Government and Economic Growth in Nigeria, op. cit., and The Fiscal Role of the Marketing Boards in Nigerian Economic Development, 1947-61, op. cit.

[14]Eicher, Symposium on Africa in the 1980s, op. cit.

taxes. Specifically, cotton production grew at an annual compound rate of 9.5 percent per year between 1949-50 and 1964-65.[15] Groundnut exports (including groundnut oil) grew at a 5.2 percent compound rate between 1956-58 and 1964-66.[16] The volume of cocoa exports increased at a compound annual rate of approximately 7.0 percent over the ten year period between 1956-58 and 1965-67. Rubber, the one major export crop not under marketing board control and which has not been taxed at all in recent years due to its low price, produced exports which grew at a compound annual rate of 6.25 percent over the 1956-58 to 1964-66 period.

The impressive growth rates of cotton, groundnut exports, rubber and cocoa despite the marketing board taxes were no doubt what led Helleiner to make the optimistic, though somewhat questionable, statement in 1964 that "it can therefore unambigously be stated (emphasis added) that Nigerian development has been aided through the device of channeling a portion of its export earnings via the marketing boards away from the producer to other (governmental) decision-makers."[17] The bases for Helleiner's evaluation

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[15] FAO, op. cit., p. 505.

[16] Glenn L. Johnson, et al., op. cit., p. 88.

[17] Helleiner, "The Fiscal Role. . .," op. cit., p. 603.

are not known. Some of the exports which enjoy great comparative advantage, such as cotton (mainly for domestic markets) and cocoa, grew despite the tax disincentives and achieved a little faster rate of growth than did rubber which benefitted from the policies and which thus far has not demonstrated comparative advantage in Nigeria. Implicitly, Helleiner asserts that the benefits from the taxing policies were either (1) Pareto-better adjustments through which all concerned parties benefitted, or (2) non-Pareto better adjustments in which at least one group or interest benefitted and at least one suffered--with the benefits being greater than the losses thereby making the conflict resolvable. Rubber benefitted because of the producer pricing and taxing policies, for example, while palm oil and palm producers suffered. These benefits and losses must be recognized and weighed before a blanket evaluative statement can be made.

The record of the uses of marketing board surpluses has also been investigated and well documented. It is not the purpose of this paper to evaluate the achievements of the uses of those funds. The Coker Commission on the Management of Western Nigeria's Marketing Board surpluses from cocoa is often cited as evidence that at least one marketing board acted unwisely in dispensing its funds.[18]

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[18]Federal Ministry of Information, "Report of the Coker Commission of Inquiry into the Affairs of Certain Statutory Board Corporations in Western Nigeria,1962." (Lagos, 1963).

Less well known than the Coker Commission Report are the 1967 White Papers on Northern Nigeria's Development Corporation[19] and in the Northern Nigeria Marketing Board.[20] These papers vividly point out the shortcomings of some schemes financed with marketing board derived funds.

Despite the many failures and shortcomings of marketing board financed projects, the concomittant disincentive effects that the heavy taxation had on rural to urban migration, and the fact that Nigerian export production has been held far below its optimum social level, most economists agree that no other satisfactory taxing alternative was available until the tremendous increase in petroleum exports in 1965.

Export and Producer Taxes

In light of the diminishing relative importance of the marketing board revenues in recent years, it is the contention of this writer that much of the recent attention placed on marketing board operations has been misdirected. Export taxes have been far more important in the repressive

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[19] Government of Northern Nigeria, A White Paper on the Military Governments Policy for the Reorganization of the Northern Nigeria Development Corporation (Kaduna: Government Printer, 1967).

[20] Government of Northern Nigeria, A White Paper on the Northern Nigeria Military Government's Policy for the Comprehensive Review of Past Operations of the Northern Nigeria Marketing Board (Kaduna: Government Printer, 1967).

tax structure for agriculture in recent years than have been the marketing board charges. Table 4.2 shows the government revenues raised by marketing board surpluses, producer purchase taxes, and export taxes over the period 1949-1966. Due to problems of separating calendar years from crop years the revenues are only estimates; but the magnitudes and the trends are evident.

Several factors of note come out of Table 4.2. First is the fact that export taxes surpassed marketing board surpluses as an earner of government revenues in 1952 and have continued to earn more than marketing board surpluses every year since that time. The second item of interest is the sudden, practically overnight increases in export tax earnings over the first few years after the end of World War II. Although started in 1916, export taxes en toto earned less than £1 million per year until 1948 when the amount first climbed over the £1 million mark.[21] Thus, it becomes clear that the marketing boards are playing a declining role in the provision of government revenues while export taxes have become more important.

The declining marketing board surpluses may need some clarification, however. Just as the name implies, any board's "surplus" is the difference between the total income of the board and its total expenses. The higher

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[21]Helleiner, op. cit., Statistical Appendix, Table V-E-4.

Table 4.2. Estimates of Marketing Board Surpluses, Producer Purchase Taxes, and Export Taxes on Agricultural Goods, Nigeria, 1949-1966

Year	Estimated Total Marketing Board Surpluses*	Producer Purchase Tax**	Export Taxes from Total Agriculture
	----------Ł Million/N----------		
1949	17,150.9		3,884***
1950	20,180.5		4,224***
1951	14,438.0		10,820***
1952	11,585.9		14,559***
1953	8,336.5	705.1	12,779***
1954	5,917.9	700.7	21,293***
1955	2,447.4	2,511.0	13,916***
1956	3,970.1	2,444.0	13,262.7
1957	1,362.0	2,031.1	13,215.1
1958	5,775.6	2,669.8	12,749.2
1959	7,570.0	2,519.0	12,477.2
1960	-1,431.6	2,152.6	16,677.9
1961	1,061.6	3,173.3	14,599.2
1962	3,357.2	2,928.4	13,113.7
1963	7,515.2	2,311.3**	11,842.0
1964	3,582.1	2,375.2**	14,203.9
1965	4,813.5	2,576.5**	14,432.7
1966		2,538.8**	15,851.1

*Some problems may arise from totaling as part of the data is for crop year (e.g., 1957-58) and other from calendar years. The purpose is to show the trend, however.

**Does not include marketing board surpluses or producer taxes on oil palm from Eastern Region after 1962.

***All export duties collected; i.e. export taxes derived from nonagricultural exports are not subtracted out.

Source: Helleiner, G. K., Peasant Agriculture, Government and Economic Growth in Nigeria.
Kriesel, H. C., "Working Papers on Statutory Marketing in Nigeria," University of Ibadan, August, 1968.

the cost of operation, the lower the profits (or surpluses), ceteris paribus. Thus, declining profit rates might possibly reflect declining export prices or an escalation of costs of operation. Several things which might inflate costs come quickly to mind--the subsidizing of unprofitable operations, the protected marketing charges, and inefficiencies of the licensed buying system, a general weakening of effort and enterprise, or corruption and cover-up within the boards themselves.

The tax make-up on agricultural exports is spelled out in detail below in Table 4.3, where 1961-65 export tax, marketing board surpluses and producer purchase tax averages per ton of produce are given for the major export crops.

Table 4.3. Tax Make-up for Major Export Commodities, Nigeria, 1961-65 Averages

Commodity	Export Duty	Producer Tax	Surplus	Total Tax
	----------£ per ton----------			
Cocoa	20.5	4.0	6.0	30.5
Groundnuts	6.0	1.4	0.6	8.0
Cotton	2.5	0.1	--	2.6
Palm Kernels	5.3	1.5	3.2	10.0
Palm Oil	8.7	3.8	4.7	17.2
Rubber	19.6[1]	---	---	19.6

Source: Estimated from CSNRD, unpublished working papers.
[1]There is no export duty on rubber when price is below 18d per pound.

In conclusion on the marketing boards, one might say that the marketing board taxing policy was an effective tool to obtain governmental revenues in Nigeria and for preventing unfavorable and unnecessary economic movements during periods of very high producer prices and/or shortages of goods. This simple taxing mechanism was employed when no simple, alternative taxing system was known. Despite the beneficial effects of the use of the revenues generated by the export tax structure, the tax policies have had their effect on the negative side as well, as spelled out by Eicher.[22] Eicher states that the negative export crop tax policies have (a) aided in stimulating the rural to urban migration which was added to the ranks of the urban unemployed, (b) held down rural land values by taxing away the rent, (c) diverted potential foreign investors to agricultural production in other African countries, (d) discouraged the use of new agricultural technology through low producer prices, and (e) perhaps most importantly, held down the expansion of the effective demand of rural people--who comprise 75 percent of Nigeria's population.

Even Helleiner, one of the strongest advocates of the marketing boards' negative pricing policies, wrote in 1964,[23]

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[22]Eicher, Symposium on Africa in the 1980s, op. cit., p. 28.

[23]Helleiner, "The Fiscal Role. . .," op. cit., p. 605.

> . . .as opportunities for direct taxation of other sources of other income appear, one would hope for a gradual shift to a more equitable (and less distorting) tax structure. This may, unfortunately, be a long time coming.

Fortunately, the opportunities to substitute other forms of governmental taxation have come much sooner than Helleiner had expected.

Summary

Considering (1) the importance of agricultural exports to the Nigerian economy, (2) the small farmer make-up of the export sector with resultant widespread distribution of income and employment, and (3) the profit maximizing behavior of small Nigerian export-oriented farmers, the author concentrates in this chapter on the policy measures which affect the motivations and actions of the agricultural export producing group.

A starting place for evaluating past export policies and for devising new patterns of action is to ascertain what export policy has been in the past and what it is at present. After reviewing the development of export policies in the past, the author contends that there has been no one, unified export policy in Nigeria with one specific goal in mind. Nigerian policy toward exports has often been an ambigious one designed at one and the same time to heavily tax some export commodities which seem to have great comparative advantages in the world market and

encourage production of other exports which have demonstrated less comparative advantage in production.

But the fact remains that Nigeria does have a definite agricultural export policy. It is a de facto policy based on marketing board monopsony buying power, export taxes, and producer taxes all designed to tax agriculture primarily as a means of financing other activities.

Any discussion of present export policy in Nigeria centers around two items--marketing board operations and export taxes. The marketing boards have controlled the domestic purchase and sale of Nigeria's major export crops, with the exception of rubber, since the outbreak of World War II. They are statutory monopsonies which establish the prices to be paid to domestic producers, or middlemen, largely on the basis of nonmarket criteria. The marketing boards are important in Nigeria not only because of the huge amounts of revenues collected and transferred out of agriculture through the marketing board "surpluses" but also for the fact that they controlled 63 percent of the value of Nigeria's total agricultural exports as late as 1963. Export taxes have surpassed marketing board surpluses as means of earning government revenue, however, and it is evident that the marketing boards are playing a smaller role in the provision of government revenues.

PART II

WORLD DEMAND FOR NIGERIA'S PRESENT AND POTENTIAL AGRICULTURAL EXPORT PRODUCTS, 1970 TO 1985

CHAPTER V

COCOA

Introduction

This section (Chapters V through IX) assess the export demand over the next decade and a half for Nigeria's present and known potential export crops. The demand and price projections developed are generally divided into two distinct time periods: (1) 1970 to 1975, and (2) 1975 to 1985. Data for the demand projections are primarily drawn from publications and projections available from five sources: (1) FAO publications, (2) IBRD information (both published and unpublished), (3) USDA material, (4) special reports and studies pertaining to both world markets for agricultural commodities and markets within regional economic areas, such as the EEC, and (5) trade publications.

A summary of the demand projections for Nigeria's major export crops is included in Chapter IX.

The demand and price projections from this section are combined with the expected supply responses from Nigerian export agriculture in order to calculate export earnings, payments to farmers from export crops, balance of payments, and degrees of specialization that may occur

within the Nigerian agricultural economy under each of the three alternative rural development strategies. This fitting of Nigeria into the world demand--supply framework is done in Chapter X.

Nigeria is the world's second largest cocoa exporter--annually furnishing about 20 percent of the world's cocoa production of 1.2-1.3 million tons.[1] Cocoa ranks either first or second as a foreign exchange earner among Nigeria's agricultural exports--alternating for the number one position with groundnuts and groundnut products. The value of cocoa exports was £51.7 million in 1968, or 24.5 percent of all foreign exchange earned by Nigeria in that year. The foreign exchange earnings, important as they are to Nigeria's growth and development, may in fact be less important, however, than the farmer's income, employment, and distribution of income generated by cocoa. A total of 350,000 small farmers, mostly in the Western State of Nigeria, produce the 225-250 thousand tons of cocoa that goes annually into the world market. The economic welfare of this group and the determination of whether they and their families will be effective purchasers in other markets in Nigeria depends largely upon (1) their production of cocoa and (2) the price that they receive for their produce.

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[1]FAO, Cocoa Statistics, (July, 1969) p. 7.

Production and consumption of cocoa have nearly doubled since the early post-war years. Figure 5.1 shows availability of cocoa, grindings, and cocoa prices since 1947.[2] The crucial role of "availability" as combining both stocks and production quickly comes to the fore from Figure 5.1 as a prime determinant in establishing price. Prices begin to fall as the gap between availability and consumption begins to widen and vice versa. Time series analysis has shown that the development of world market prices from say, month to month, is systematically related to the most recently published crop forecasts for the coming season, the expected level of grindings, and the volume of stocks in consuming countries--the size of the crop forecast being the most important determinant.[3] This relationship, which reflects short-term expectations about quantities rather than the actual quantities themselves may provide some explanation for the wide fluctuations in price which cocoa experiences.

Figure 5.2 shows production and grindings of cocoa over the 1930-1968 period. Mid-1965 initiated the longest and most dramatic period in the 38 year horizon when grindings have exceeded production. This period also marks the

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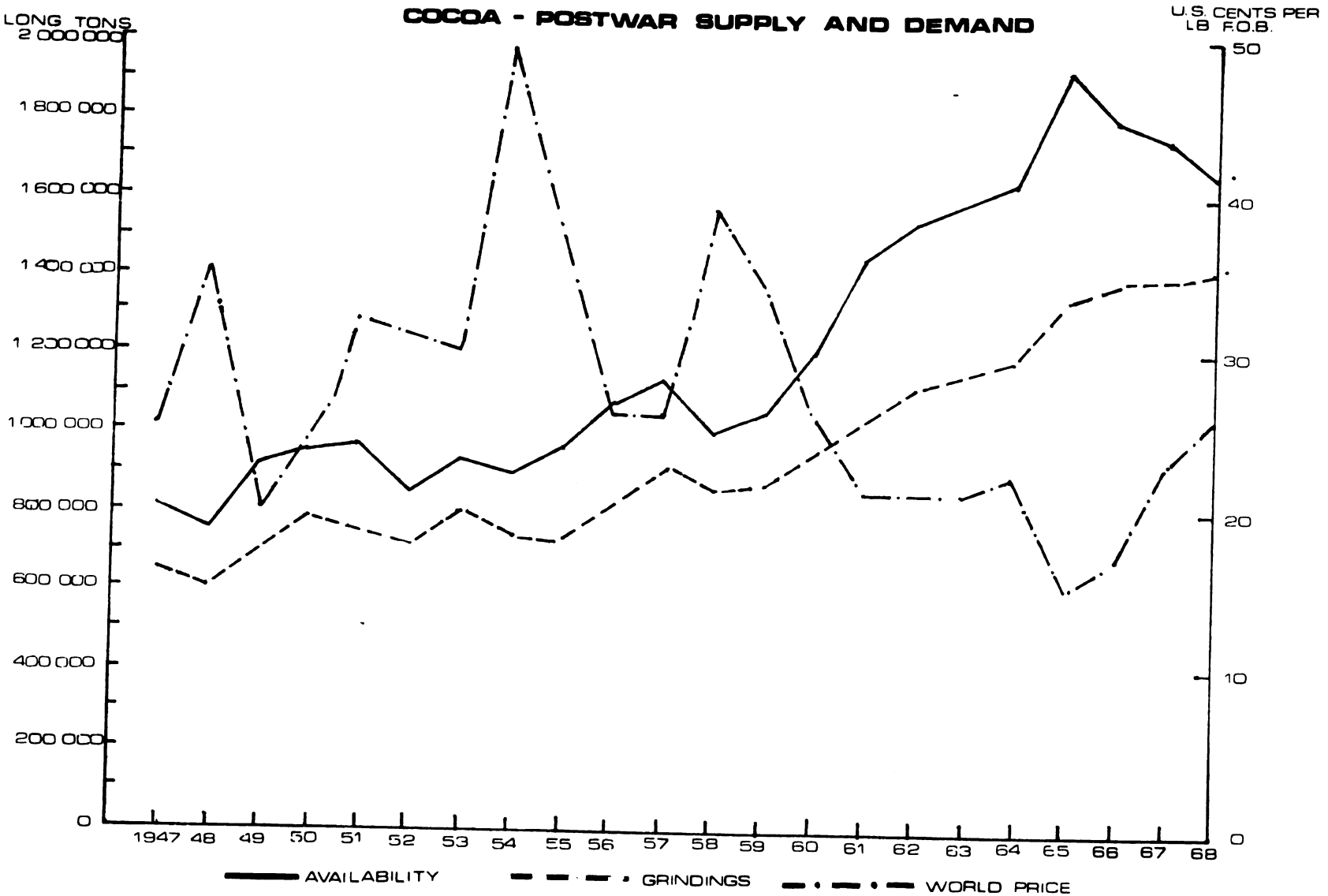
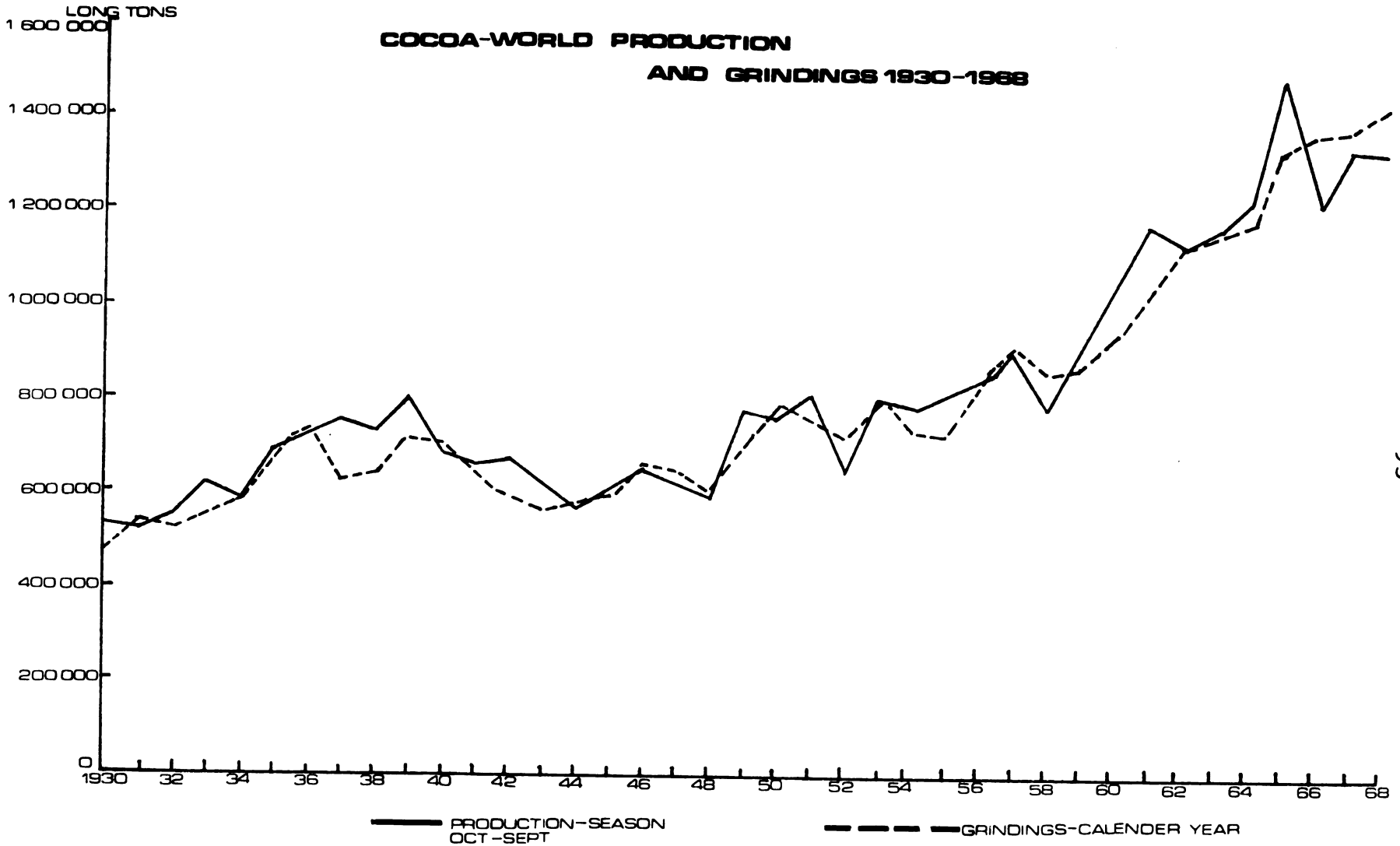
[2]The term "availability" refers to estimated stocks on hand at the beginning of the season plus new production for that year. "Grindings" may be equated with consumption.

[3]FAO, Agricultural Development in Nigeria. (Rome: United Nations, 1966) p. 46.



Source: "Cocoa Statistics," Gill and Duffus, Limited: London; October, 1968.

Figure 5.1.



Source: "Cocoa Statistics," Gill and Duffus, Limited; London: October 1968.

Figure 5.2.

beginning of a significant up-turn in cocoa prices (see Figure 5.1).

Growth of the World Cocoa Market

It is evident from Figure 5.2 that world cocoa production increased slowly and erratically throughout the decade of the 1950s moving from 733,000 tons per annum in 1949/50-1951/52, scarcely more than for the immediate pre-war years, to 800,000 tons in 1956/57-1958/59 for a compound annual increase in production of 2.3 percent. World market prices averaged U.S. 37 cents per pound over the 1950-59 period and were in general much higher than pre-war prices and extremely high during years of poor crops.

However, beginning with the 1959/60 crop year, production in West Africa, which during the 1950s had provided about 70 percent of the world's cocoa, began a marked expansion and soon provided close to 80 percent of world cocoa supplies. The vast West African expansion was due to two major developments.[4] One was the large-scale spray programs mounted against diseases and pests, particularly capsids. The second factor was the coming into bearing of new plantings made during the previous 5-12 years because of the generally high cocoa prices in the immediate post-war period. Cocoa production in Nigeria can be looked at generally at two levels--the first being the 106-107 thousand ton level

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[4]FAO, Agricultural Commodities--Projections for 1975 and 1985. (Rome: United Nations, 1967) p. 232.

prior to 1959 and the 190-195 thousand ton level after 1960.[5] Table 5.1 shows cocoa exports from major exporting countries over the 1947-51 to 1968 period.

World cocoa production increased, largely as the result of capsid control in West Africa and later from young trees coming into production, by an average of 7.8 percent per annum between the 1956/57-1958/59 and 1960/61-1962/63, rising to an average of 1,164,000 tons in the latter three seasons.[6] The dramatic increase in production beginning in 1959 had its effects upon prices and upon cocoa consumption as well (see Figure 5.1). World cocoa prices fell from the average U.S. 37 cents per pound over the 1950-59 period to U.S. 23 cents per pound average in 1961-63. The price decline stimulated greatly increased cocoa consumption and forced an increase in world grindings from an average of 860,000 tons in 1956/57-1958/59 to 1,099,000 tons in 1961-63--this increase being equivalent to 6.1 percent annually since 1957-59.[7] Stocks of cocoa beans (which are held almost entirely by consuming countries) varied from year to year but built up over the 1957-59

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[5]Cocoa production in Ghana (as well as other West African countries) underwent the same magnitude of expansion as did Nigerian production. Ghana production averaged approximately 230,000 tons prior to 1959 and 400,000 tons after 1960. Latin American and other cocoa producing areas did not experience this dramatic increase in production.

[6]FAO, Agricultural Commodities--Projections . . ., op. cit., p. 232.

[7]Ibid., p. 232.

Table 5.1. Major World Cocoa Exporters, 1947-51 to 1968

Country	1947-51	1952-56	1961	1963	1965	1967	1968 Provisional
	1,000 Long Tons						
Ghana	234.7	224.1	411.8	411.0	501.9	334.9	335
Nigeria	107.1	106.3	186.8	177.4	305.5	248.2	209
Brazil	106.2	107.1	104.1	68.7	92.0	114.3	76
Ivory Coast	48.5	65.1	88.4	99.7	126.4	105.1	n.a.
Cameroons	44.4	52.6	65.6	79.6	77.8	74.1	n.a.
Total World Exports	662.8	698.9	1,010.9	1,040.0	1,299.1	1,089.0	1,049

Sources: FAO, Cocoa Statistics, Vol. 12, July 1969.
FAO Ceres, Vol. 2, No. 5, September-October, 1969 for 1968 estimates.

to 1961-63 period as production was increasing faster than consumption. This stock build up helped to repress prices (Figure 5.1). Grindings began to exceed current production in 1965.

There has been a further expansion of the world cocoa economy since 1961-63. Cocoa production rose to an average of 1,343,000 tons over the seasons 1964/65-1966/67 with grindings rising even more rapidly to 1,362,000 tons in 1965-67. The period 1961-63 to 1965-67 was marked by great price instability as shown in Figure 5.1. First, the largest West African crop of 1964-65--the increase largely due to favorable weather--raised world output to 1,485,000 tons--approximately 22 percent more than the previous year's production and 25 percent above the 1964 grindings.[8] The large volume of cocoa, together with a delay and other unusual features in getting the cocoa marketed, resulted in a drastic decline in world market price to an average of only 12 cents per pound in July 1965. The average world price in 1965 was only 17 cents per pound, and the 1964 level of 21 cents was not regained until early in 1966 after much of the 1965/66 crop had been sold.

The low prices at which large quantities of the 1964/65 and 1965/66 cocoa crop were purchased had a further

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[8] Cocoa Statistics. (London: Gill and Duffus Limited, 1968).

marked and profound impact on world grindings.[9] These low prices stimulated greater use of cocoa and cocoa products in the manufacture of confectionery items and also led to reduced retail prices in the principal manufacturing countries. It is also likely that the lower prices helped bring about more liberal import policies on the part of the centrally planned countries (CPC) whose imports rose very sharply beginning with 1965. World grindings increased by 13 percent in 1965 alone and increased to 1,380,000 tons in 1966 and a bit more in 1967, both clearly above current production levels. As mentioned earlier, the pattern of consumption exceeding production began in 1965 and has continued ever since. The 1969/70 crop forecast at 1,376,000 metric tons, is expected to be the second largest on record (second only to the bumper 1964 crop) and is expected to exceed consumption requirements in 1970 after 4 years of consecutive deficit production.[10] Cocoa bean prices have continued their downward trend during the first two months of 1970 after peaking in November of last year, when New York spot Accra prices reached 50 cents per pound. New York spot Accra prices had fallen to U.S. 33 cents per pound at the end of February, well below the 1969 annual average of 45.7 cents.

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[9] FAO, op. cit., p. 236.

[10] USDA, "World Cocoa Bean Crop Second Largest of Record," Foreign Agriculture Circular, (March 1970).

The drastic decline in prices in 1964-66 which had a strong positive effect on increasing world cocoa consumption had at least a negative psychological effect on cocoa suppliers. The profound effects of the 1964-65 crisis when world cocoa prices dropped to as low as U.S. 10-12 cents per pound are not soon to be forgotten, say FAO commodity specialists who view the world cocoa outlook with optimism.[11] Ghana, for instance, is just recovering from the results of the cocoa crisis which saw the discontinuance of cocoa research and seed selection within the country, the lowering of producers' prices paid for cocoa, and the general loss of interest in cocoa on the part of both farmers and governmental officials. However, higher export prices have revived interest in cocoa in the past 2-3 years.[12]

The importance of the developed world in cocoa consumption quickly comes to the fore from Table 5.2. The developed regions of the world (Western Europe, Eastern Europe, the United States and Canada, and Oceania) in aggregate accounted for more than 92 percent of world cocoa consumption in 1968. The potential role of Asia, Africa, and Latin America as cocoa buyers of the future may be great. But for the present, and for the foreseeable

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[11] FAO, "Cocoa: A Commodity on the Rise," Ceres, Vol. 2, No. 5, (September-October, 1969) pp. 18-19.

[12] Ibid., p. 18.

future, Nigeria and other cocoa exporting countries must look to the now developed countries as their principal markets. As far as growth rates of the market are concerned, however, South America, Asia, and Africa all experienced considerably higher growth rates of cocoa consumption than did either Western Europe or the U.S. and Canada. Only Eastern Europe (whose cocoa consumption increased by 40 percent over the period 1963-68) had consumption growth rates greater than African and South America.

Table 5.2 shows the growth of the cocoa export market during the period 1963-68 and per capita cocoa consumption for inhabitants of major regions of the world.

An inter-country comparison of per capita cocoa consumption rates, as shown in Table 5.3, indicates higher consumption levels for the more developed countries of North America and Western Europe and the lower per capita consumption rates for the Mediterranean countries, Finland, Ireland, and Japan. There are only slight evident relationships between per capita incomes and per capita cocoa consumption in the high consumption countries as consumption is measured as net imports of cocoa beans and cocoa products in terms of beans. Consumption measured in this manner is high in countries traditionally exporting cocoa powder and/or chocolate. Thus, several countries including

Table 5.2. World Consumption of Cocoa Beans and Cocoa Products in Terms of Beans, by Geographical Area, Annually, 1963-68

Importing Area	1963	1965	1967	1968	Absolute Increase In Imports 1963-68	Per Capita Consumption			
						1963	1965	1967	1968
	--------1,000 metric tons-------					------lbs. per capita----			
West. Europe	496.8	570.2	565.5	572.0	75.2	3.26	3.67	3.59	3.59
East. Europe	110.7	147.9	134.3	155.1	44.4	.75	.99	.88	1.01
US & Canada	362.0	392.3	419.0	430.7	68.7	3.76[1]	3.98[1]	4.16[1]	4.20[1]
S. America	8.8	13.6	12.8	14.0	5.2	.59	.88	.79	.86
Asia	55.3	52.5	67.2	65.0	9.7	.09	.09	.09	.09
Africa	8.9	10.9	11.5	12.0	3.1	.18	.20	.20	.20
Oceania	22.3	24.3	27.2	27.5	5.2	3.65	3.83	4.11	4.09
Total World Imports	1,065.7	1,212.9	1,295.5	1,280.0					

[1]U.S. Consumption rates.

Source: FAO, Cocoa Statistics, Vol. 12 (July, 1969).

Table 5.3. Per Capita Cocoa Consumption in Developed Countries, Pre-War Averages to 1967

Country	Pre-War	1950-52	1956-58	1960	1963	1965	1967
	Kilograms Per Capita						
United States	1.88	1.82	1.60	1.59	1.73	1.82	1.90
Canada	1.22	1.53	1.58	1.57	1.83	1.92	2.01
Belgium-Lux.	1.71	1.65	1.84	2.25	2.16	2.49	2.60
France	1.04	1.14	1.20	1.16	1.39	1.34	1.40
Germany	1.18	1.38	1.93	2.02	2.37	2.76	2.82
Italy	0.21	0.28	0.36	0.42	0.47	0.50	0.59
Netherlands	3.53	2.37	2.22	1.97	2.70	2.58	1.92
United Kingdom	1.72	2.14	1.90	1.81	2.04	2.45	2.22
Austraia	0.96	0.82	1.43	1.73	1.98	2.36	1.98
Denmark	1.40	1.24	1.20	1.46	1.64	1.90	1.80
Finland	0.08	0.39	0.38	0.47	0.63	0.90	0.92
Ireland	0.79	0.95	0.58	0.83	1.32	1.39	0.91
Norway	1.17	1.38	1.11	1.30	1.65	1.78	2.07
Sweden	1.07	1.14	1.37	1.40	1.55	1.77	1.75
Switzerland	2.17	2.61	2.93	3.04	3.53	3.20	3.05
Greece	0.22	0.14	0.26	0.37	0.44	0.53	0.62
Portugal	0.07	0.08	0.09	0.13	0.18	0.26	0.24
Spain	0.44	0.31	0.62	0.69	0.87	0.90	1.00
Turkey	0.01	0.03	0.01	0.04	0.04	0.04	0.04
Yugoslavia	0.10	0.10	0.12	0.19	0.37	0.53	0.61
Japan	0.05	0.02	0.08	0.14	0.47	0.40	0.52
Australia	1.12	1.57	1.17	1.40	1.64	1.68	1.83
New Zealand	1.93	1.64	1.36	1.77	1.73	1.95	2.04
South Africa	0.25	0.24	0.30	0.27	0.27	0.28	0.37

Sources: Bela Belassa, Trade Prospects for Developing Countries (Homewood, Ill., Richard D. Irwin, Inc., 1964).
FAO, Cocoa Statistics, Vol. 12 (July 1969).

Switzerland, the Netherlands, Belgium, and Germany all have consumption levels higher than those of the U.S. The most impressive item to come of Table 5.3 is possibly the fact that while cocoa consumption varies from more than 3 kilograms among the higher income countries of the world to less than half a kilogram all of the countries listed, except the Netherlands, showed greater cocoa consumption levels in 1967 than in pre-war years--the increase in consumption reaching several hundred percent in some cases such as Germany, Italy, Austria, Portugal, Spain, or Japan.

It is interesting from a Nigerian point of view to know exactly what have been the major points of growth in the dynamic increase in cocoa consumption over the past 20 years. The most rapid growth of cocoa grindings has occurred in the centrally planned countries, largely as the result of their more liberal import policies with respect to tropical products. The COCs overall share of the world cocoa market increased from a mere 2 percent in1950-52 to 9 percent in 1961-63 and to 12 percent in 1966.[13] The share of world grindings in the "other developed countries of the world," (i.e. in Western Europe, North America, Oceania, and Japan) as a whole declined from 85 percent in 1950-52 to 75 percent in 1961-63 and to 70 percent in 1966. Among the developed countries, however, there has been a rapid expansion in cocoa grindings within the EEC and in South

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[13]FAO, op. cit., p. 232.

Europe and Japan, although the latter two areas still account for a small share of world grindings. Cocoa grindings in North America and in Western Europe, excluding the EEC and Southern Europe, declined during the 1950s and only regained their 1950-52 levels since the 1961-63 period.

Table 5.4 shows the changing makeup of Nigeria's cocoa buyers with more and larger Nigerian sales going to the centrally planned countries, Japan, and the EEC members in the later years. The United Kingdom took 29.2 percent of Nigeria's cocoa exports in 1959-60 but only 16.4 percent in 1967-68. U.S. purchases which averaged 30,000 tons in 1959-60 averaged 36,000 tons in 1967-68. Nine buyers purchased 1,000 tons or more from Nigeria in 1959. Sixteen purchasers took 1,000 or more tons of Nigerian cocoa in 1968.

The production and consumption of cocoa have nearly doubled since the early post-war years. Production increased from a yearly average of 707,000 tons over the 1947-49 period to an average of 1,307,000 tons in 1966-68--although the rate of growth has been far from regular. FAO projects world demand to grow to 1.8 million tons in 1975 at the price of U.S. 25 cents per pound[14] and to 2.2-2.4 million tons in 1985 at an average price of around U.S. 23 cents per pound.[15]

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[14]FAO, Ceres, op. cit.

[15]FAO, Agricultural Commodities--Projections. . ., op. cit., p. 242.

Table 5.4. Purchases of Raw Cocoa from Nigeria, by Country, 1959-1968

Country	1959	1960	1962	1964	1967	1968
	1,000 Long Tons					
United Kingdom	46	41	47	46	41	34
Australia	---	---	---	2	1	---
Canada	1	5	6	9	10	6
Ireland	---	---	1	6	2	4
United States	25	34	62	28	43	30
West Germany	17	16	20	34	35	36
Netherlands	44	31	39	47	57	45
Italy	6	10	10	6	18	8
France	1	1	4	3	2	---
Norway	---	2	---	---	---	---
Sweden	---	3	---	---	1	1
Denmark	---	---	---	1	2	1
USSR	---	9	---	8	16	18
Poland	---	---	---	---	---	3
Hungary	---	---	---	---	---	4
Yugoslavia	---	---	1	2	7	11
Japan	1	2	3	5	11	3
China	---	---	---	---	2	1
Others	1	---	---	---	1	3
Total	143	154	195	197	248	209*

*Does not total because of rounding.

Sources: GATT, The First Six-Year Plan of Nigeria, General Agreement on Tariffs and Trade, (Geneva, 1966) p. 128
FAO, Cocoa Statistics (July 1969) p. 35.

Looking specifically at the FAO demand projections and presuming that they are the best demand projections available for cocoa, we will try to determine three things:

1. Where and how rapidly does FAO predict consumption rise?
2. What would (or could) the projected consumption increases mean for Nigeria?
3. What are Nigeria's possibilities for maintaining or expanding, her share of the world cocoa market?

The FAO in projecting world cocoa demand for 1975 made the following assumptions:[16]

1. For the world as a whole, demand at 1961-63 prices (approximately U.S. 23 cents per pound) is projected to grow at a rate of 3.7 to 3.9 percent per year up to 1975. The developed countries would continue to provide the main markets for cocoa beans and cocoa products although their rate of growth of cocoa grindings is projected at 1.7-1.9 percent a year, as compared to 2.3 percent during 1950-52 to 1961-63.

2. Demand in the CPCs is expected to increase at about 10 percent annually as compared to 15 percent per year between 1957-59 and 1964-66. This rate of growth would raise per capita availabilities from 300 grams in 1965 to 770 grams in 1975 for the USSR and from 680 to 1,000 grams

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[16]FAO, ibid., p. 24.

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in Eastern Europe as compared to current U.S. and Western Europe averages of about 1,800 grams. The projected growth rates would be relatively higher for the developing countries; however, total grindings for domestic consumption would remain small.

3. On the production side, world production is expected to grow at an average rate of 3.2 percent per year up to 1975. The FAO projections thus include a reasonably close balance between production and consumption at 1961-63 prices.

As stated above, FAO projects yearly world cocoa consumption to total 2.2-2.4 million tons by 1985 as compared to the approximately 1.3-1.4 million tons consumed annually between 1966 and 1968. As FAO is quick to point out, this consumption rate assumes that the cocoa demand within the centrally planned countries (CPCs) begins to show a more direct and systematic relationship between the underlying growth factors of population and income and less dependence on purely administrative and policy decisions than has been seen in the past.

World Cocoa Production

Assuming that world cocoa consumption does total from 2.2-2.4 million tons in 1985 and that Africa continues to produce approximately 73 percent of the world's cocoa as it did during the 1960s, the production provided by African countries in 1985 would total approximately 1.6

million tons (using the 2.2 million ton world production figure) as compared with 972,000 tons produced on the African continent in 1968.

Table 5.5 shows the world cocoa production shares of the four major African cocoa producers over the 1965-67 period and what their contributions to world cocoa production might be in 1985 assuming overall production of 2.2 million tons in that year and constant shares of production.[17]

Table 5.5. West African Shares of World Cocoa Production, 1963-68, and Production Projected to 1985

Country	Share of World Production 1963-68	Estimated production by country in 1985 with 2.2 million tons of cocoa produced and no change in production shares
	---Percent----	-------1,000 Long Tons---------
Ghana	35.4	778.8
Nigeria	21.7	477.4
Ivory Coast	10.5	231.0
Cameroons	6.3	138.6
Total	73.9	1,625.8

Source: FAO, Ceres, "Cocoa: A Commodity on the Rise," Vol. 2, No. 5, (September-October, 1969) for percentages of world production.

[17]The distinction between production and exports should be made. African countries exported an average of 93.4 percent of their cocoa production in 1963-65. Latin American countries on the other hand exported 61.4 percent of their production. Latin American production increased by a yearly average of 59,000 tons between 1963-65 and 1967-68; however, exports increased by a yearly average of 31,000 tons over the same period.

Table 5.6 shows the production growth rates realized by the major cocoa producing countries between 1950-52 and 1964-66 as well as the growth rates projected by FAO up through 1975.

Nigerian cocoa production grew at a 6 percent annual compound rate during 1950-52 and 1964-66 (see Table 5.6). Only one other country, Ivory Coast, experienced a higher growth rate--that of 6.2 percent compounded annually. Nigerian production is projected by FAO to average a 4 percent growth rate over the entire period, 1961-63 to 1975 while the Ivory Coast production growth is expected to further increase to 6.8 percent compounded annually. Ghana is expected to drop back to a growth rate which will only make the 1961-63 to 1975 growth rate average 1.9 percent per year. The question is: On what basis did FAO expect the growth rate to increase for Ivory Coast, decrease for Nigeria, and fall off drastically for Ghana?

Although there are many other economic, social, and political factors which may influence the growth of cocoa production, the numbers, age make-up, and yields of cocoa trees are possibly the most essential factors. Cocoa is a tree crop with a very specific yield pattern--cocoa plants, after a 3-7 year period of immaturity--depending on variety, gradually increase productive capacity for a number of years until full production is reached.[18] On unprotected farms

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[18]FAO, Agricultural Development in Nigeria, op. cit., pp. 53-54.

Table 5.6. Cocoa Production Growth Rates, by Country, 1950-52 to 1966 and Projected Growth Rates to 1975

Country	Production Growth Rates				Projected Growth Rates
	1950-52 to 1957-59	1957-59 to 1961-63	1961-63 to 1964-66	1950-52 to 1964-66	1961-63 to 1974
	Percent Per Annum Compound				
Africa	1.3	12.5	5.2	5.2	3.4
Ghana	0.1	14.9	3.5	4.8	1.9
Nigeria	1.4	12.8	7.9	6.0	4.0
Ivory Coast	1.6	12.5	9.2	6.2	6.8
Others	3.7	5.4	3.6	5.0	3.6
Latin America	3.3	-1.7	1.2	1.4	2.2
Far East	6.0	3.9	4.5		2.8
Oceania	15.0	17.0	15.3		10.8
World Total	2.1	7.8	4.3	4.2	3.2

Source: FAO, Agricultural Commodities--Projections for 1975 and 1985 (Rome: United Nations, 1967) p. 233.

planted very densely, the decline in output commences between the 17th and 22nd year after planting. The downturn in production on farms where capsids are controlled comes at least 5 years later or between the 22nd and 27th years. The period of declining yields may last from 10-15 years, that is, until the 32nd year for unprotected and the 37th year for protected trees. Another 5 years and production is usually so low as to not merit harvest. The production pattern may be summarized as follows:

Stage of Production	Approximate Age at End of Stage (Yrs.)	
	Sprayed*	Unsprayed*
Immaturity	3-4 yrs for Amazon to 7 yrs for Amelonado	
Increasing yields	22 - 27	17 - 22
Declining yields	37	32
Low but still profitable yields	42	37

*for capsid control

As might already have been suspected, the development of improved cultural practices, fertilization, and introduction of blackpod and capsid control during the second half of the 1950s substantially changed the simple correlation between age and yield that existed prior to that time.[19] The case could be made that increased productivity of cocoa already planted is more important for increasing

[19]FAO, ibid., p. 53.

output, at least in the short-run, than is the expansion of acreage planted to cocoa. The age of trees may still provide an ever present constraint even under the "productivity" assumption.

The proportion of old trees is greater in Ghana than in Nigeria as new plantings in Ghana have declined since the beginning of the 1960s. Much of Ghana's post-war growth of production was due to improvements in pest and disease control which was seriously neglected during the mid-1960s with low world prices and fear of overproduction of cocoa.

In most other West African countries the areas under pre-war planted cocoa are proportionately much smaller than in Ghana and Nigeria.[20] The post-war expansion in new plantings started later than in Ghana and continued during the 1960s. Prospects for increased production are particularly favorable in the Ivory Coast where production is expected to rise over the next few years through reduction of disease and insect losses.[21] After 1973 the contributions from new plantings may rise substantially. Thus, the FAO projected Ivory Coast cocoa production to increase by 6.8 percent per year from 1961-63 to 1975 and to possibly reach 300,000 tons by 1980-83. The Ivory Coast at that

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[20]FAO, Agricultural Commodities--Projections. . ., op. cit., p. 239.

[21]FAO, Ceres, "Cocoa: A Commodity on the Rise," op. cit., p. 19.

point would be expected to have gained a larger share of the world market. The question is: Whose share would decline?

International Cocoa Agreement

For the past several years and particularly since the convening of UNCTAD I in 1964, the world's major cocoa producers and buyers have been meeting periodically for discussions and negotiations attempting to develop an international cocoa agreement. The cocoa producing countries are concerned with preventing severe price changes and fluctuations in foreign exchange earnings over time as they see such foreign exchange fluctuations as detrimental to their overall economic development. Specifically, the revised draft of the proposed cocoa agreement lists five major objectives:

1. To alleviate serious economic difficulties which would persist if adjustment between the production and consumption of cocoa cannot be effected by normal market forces alone as rapidly as circumstances require.
2. To prevent excessive fluctuations in the price of cocoa which affect adversely the long-term interests of both producers and consumers.
3. To make arrangements which will help maintain and increase the export earnings from cocoa to producing countries thereby helping to provide

such countries with resources for accelerated economic growth and social development while at the same time taking into account the interests of consumers in importing countries.

4. To assure adequate supplies and reasonable prices, equitable to producers and consumers.
5. To facilitate expansion of consumption and, if necessary, and in so far as possible, an adjustment of production, so as to secure an equilibrium in the long term between supply and demand.[22]

Despite the series of meetings and draft proposals, the 14 producing and consuming countries involved have not been able to reach an agreement thus far. FAO attributes the lack of conclusiveness of the meetings to the fact that although there is general agreement that prices and export earnings from cocoa should be more stable, there are wide differences on specifically how the program should be effected and what it should cover.[23]

Dell, on the other hand, states that an understanding had already been reached as to the appropriate price range for the agreement, the application of export quotas where required, the establishment and financing of a buffer stock, the disposal of surplus and on all the other basic features

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[22]UNCTAD, "Draft International Cocoa Agreement," TD/Cocoa. 1/2, 15 Nov. 1967.

[23]FAO, Ceres, "Cocoa: A Commodity on the Rise," op. cit.

of the agreement before the negotiations were broken off. He attributes the fact that no agreement has been signed to the strong opposition to the agreement from cocoa traders who reject the idea of stabilization per se as prejudicial to their interest.[24]

It is ironical, according to Dell, that many months were spent in the last round of cocoa negotiations in agreeing on a minimum price of 20 cents per pound, while little or no attention was paid to the ceiling price of 29 cents per pound.[25] This was because of the view generally taken at that time by the consuming countries that cocoa prices would never again reach 29 cents per pound. In fact, cocoa prices have lately reached and exceeded U.S. 50 cents a pound for certain grades and in March, 1970 were at U.S. 33 cents a pound.

Dell sees the pending cocoa agreement as a test case for future international marketing agreements for all commodities.[26] Cocoa has all of the technical preconditions for agreement--a commodity which is produced and exported by a limited number of developing countries, one which has no competing producers in the developed countries,

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[24]Sidney Dell, "African Trade and Aid in the 1980s," a paper presented at the Adlai Stevenson Institute of International Affairs in a Symposium: Africa in the 1980s, Chicago, Illinois, April 14-18, 1969.

[25]Dell, ibid., p. 27.

[26]Ibid., p. 27.

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and the program would clearly be in the interests of millions of people in both consuming and producing countries. Dell goes on to assert that what ultimately made it possible for the International Coffee Agreement to emerge was that the industrialized countries became convinced that this was a matter of high political importance for a large number of countries. He implies that unless a similar kind of conclusion is reached for cocoa that the agreement may never become a reality.

Cocoa Substitutes

Cocoa, unlike other primary exports such as palm oil, cotton, or livestock, does not face competition from close-substitute farm products originating in the industrialized world. Neither has it been confronted with strong competition from synthetic manufactures such as rubber or cotton. Some observers believe that recent very high cocoa prices do, however, constitute a real danger to the cocoa industry in the long run as they serve to discourage cocoa consumption[27] and encourage substitution as well. The normal substitution of milk products, nuts, and other extenders may be expected when cocoa import prices reach very high levels in the manufacturing countries. This substitution may partially explain why U.S. cocoa imports

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[27]FAO, Ceres, "Cocoa: A Commodity on the Rise," op. cit.

were down 26,000 tons for the first 10 months of 1969 as compared to the similar 10 month period of 1968.[28]

Another type of substitution seems to be worrying the cocoa producing countries more than the changes in proportions of the traditional inputs into cocoa confectionary products. The possibility exists that some consuming countries are using, or considering the use of, less expensive edible fats as a natural substitute for cocoa butter in the manufacture of chocolate and other cocoa products.[29] The delegates of the cocoa commodity agreements hope to persuade developed countries to pass legislation, based on the American patter, to prohibit the use of cocoa substitutes in confectionary manufacture.[30]

Very little can be said with precision or certainty about the long-term implications of substitutes for cocoa. Cocoa prices were moderate to low from 1960-66 and there was little incentive to develop and use substitutes. However, recently high cocoa prices (averaging 45.7 cents per pound in 1969 for New York spot Accra cocoa beans[31]) may possibly lead to increased interest to substitutes among chocolate manufacturers. Exporting countries will undoubtedly insist on including some type of legislated ban on cocoa substitutes in any cocoa agreement that might be developed.

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[28]USDA, World Agricultural Production and Trade, FAS, USDA, (December, 1969).

[29]Lagos, Daily Times (April 29, 1968).

[30]Ibid.

[31]USDA, World Agricultural. . ., op. cit.

CHAPTER VI

FATS AND OILS

The Fats and Oils Market

Oilseeds, oils, and fats account for a major segment of world trade in agricultural commodities and are of particular interest to Nigeria. The total world value of these products traded in 1967 (including oilcakes)[1] was estimated at nearly $4 billion as compared with approximately $3.5 billion for wheat, $2 billion for coffee, and $0.5 billion for cocoa.[2] The value of oilseeds and oilseed products traded in that year was exceeded only by the value of meat as far as agricultural products were concerned.

The fats and oils market, with 14 major fats and oils being traded, is a large and complicated market. There are varying degrees of substitutability, or potential substitutability, among the oils. It is a market where products from the developed and from the developing countries compete side by side for a share of world trade. It is also a market where institutional and political factors

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[1] FAO, Ceres, March-April 1968, pp. 9-10

[2] World export earnings from cocoa beans and products totaled about U.S. $760 million in 1968--an increase of $94 million over 1967. (FAO, Ceres, September-October, 1969).

often exert over-riding pressures for solutions of problems which would otherwise be determined by market forces.

The 14 major oils and fats that are important in world production may be classified under a variety of nomeclatures.[3] For our purposes, they are classified as: (1) animal fats (including butter, lard, and tallow), (2) marine oils (fish and whale oils), and (3) vegetable oils. Vegetable oils may be further subdivided into a number of categories:

a. edible oils (including groundnut, soybean, cottonseed, rapeseed, sunflower, olive, and other minor oils used mainly for food);

b. edible-industrial oils (including palm, palm kernel and coconut oil) which are used both for food and industrial uses such as the manufacturing of soap, detergents, and chemicals; and

c. industrial oils (including tung, linseed, and castor) which are used exclusively for industrial purposes such as drying agents, lubricants, and in the manufacture of nylon.

Nigeria's principal interest lies with the vegetable oils as all of its oil exports fall within that category. But Nigeria is interested in other categories as well because of the substitutability--real and potential--among the various oils and among the classes.

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[3]FAO classifies the groups into "Soft Oils" including the general vegetable oils: "Lauric Acid Oils" made up of palm kernel oil and coconut oil; "Hard Oils" composed of

The fats and oils market, although basically considered as one market, has some product differentiation within it. Each oil has some special characteristics. None is equally well suited for all purposes although improved processing methods in recent years have made the different oils increasingly interchangeable. The possibility of substituting one oil for another is somewhat limited in the short-run, however, as evidenced by occasional price movements of some oils in a direction contrary to the general price trend as has happened for coconut and cottonseed oils in recent years. These movements are the result of short supplies of the commodities which are apparently replaceable, at least in the short-run, only on a very limited basis. Over the long-run, the potentials for substitution are great with the cheaper oils tending to set the price level. The potential for substitution of synthetic edible fats for natural fats and oils is also great over the long-run although the synthesis process has not yet overcome the many technical and economic problems which still impede commercialization.[4] The possibility of

marine oils, palm oil and tallow; "Industrial Oils" including linseed, castor and tung; and "Other Oils," which are not included in any of the already listed categories.

[4]Inedible tallow and the lauric acid oils (coconut and palm kernel oils--the principal fats and oils used in soap making) have already felt the impact of displacement caused by introduction and use of synthetic detergents. The volume of saponifiable materials used in soap making in the U.S. declined by 28 percent between 1955 and 1962. The United Kingdom and French reductions were 5 and 28 percent, respectively, over the same period. (FAO, Synthetics and Their Effects on Agricultural Trade (Rome: United Nations, 1964), pp. 45-50.

substitution and the continuous progress in altering tastes, color, and storing qualities offer great opportunities for expansion of the share of the world market for any oil which can achieve a marked price advantage over others in the international market. More will be included on this in the discussion of palm oils.

More than 30 million tons of the world's production of fats and oils (or three-fourths of the total) is used for food. Industrial uses account for the remaining one-fourth. The rate of increase in production over the 1950-1967 period has exceeded the rate of increase in world population so that per capita supplies of fats and oils for all purposes increased from approximately 9 kilograms in 1950 to 10.5 kilograms in 1965.[5] These figures mask the great differences in per capita consumption from region to region and from country to country. The country by country differences are exemplified by the fact that 17.7 kilograms was the per capita average consumption in the developed countries during the 1961-63 period, followed by 6.0 kilos in the centrally planned economies, and 4.7 kilos in the developing countries of the world. West African per capita consumption in general was around the 4.7 kilo level of the average of the less developed countries of the world. East Africa, with 1.6 kilos annual consumption, had the lowest

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[5]FAO, Agricultural Commodities--Projections for 1975 and 1985, (Rome: United Nations, 1967), p. 161.

level for any region listed by FAO in the 1967 document.[6] U.S. and European Common Market countries each registered annual per capita food consumption of more than 20 kilograms of fats and oils per person.

Countered against the estimated actual per capita consumption of fats and oils is what nutritionists consider to be the minimum requirements for fat and oil intake. Minimum total visible and nonvisible fat requirements for temperate and northern zones of the world are calculated at about 17 kilograms per person per year[7] and these levels are generally met. In the tropical and subtropical "low calorie" zones of the world, an estimated 14 kilograms per person are needed.[8] The deficit between "what is needed" and what is consumed would amount to roughly 3 million tons per year in 1970 as compared to average total world trade of 10 million tons per year over the 1965-67 period. The U.S. through its P.L. 480 program is about the only country with a major effort to help close the fats and oils needs gap. More will be said about this later in the chapter.

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[6]FAO, ibid., p. 163.

[7]Visible fats and oils are those consumed directly such as butter, margarine, table oils, etc. Invisible fats and oils are those contained in foods.

[8]FAO, World Food Survey (Rome: United Nations, 1963) Study No. 11.

More than 50 percent of the world's supply of fats and oils (including butter) is made up of by-products. Butter, lard, and tallow--for example--are all by-products of the meat and/or milk industries and are not produced for their values alone. Fish oil is a by-product of the fishmeal industry as is soybean oil a by-product of the production of soybean meal, or cake, which is of greater value than the oil produced along with it. While meal and oil are joint products, the demand for each is governed by distinct and separate factors. The demand for high protein meal, which is used primarily for animal feed, has been growing in recent years much more rapidly than the demand for oil, which is used mainly for human food. The fats and oils produced as by-products--with the exception of fish oil--are produced mainly within the developed countries while they compete with fats and oils from the developing countries.

Recent Trends

World production of fats and oils has increased at an estimated rate of about one million tons per year, or by 3.2 percent compounded annually from 1954-56 to 1965-67 and reached 38.9 million tons in 1967.[9] Consumption has

[9]Production is forecast to reach 43 million short tons in 1970, reaching a record high for 12 consecutive years. (USDA, World Agricultural Production and Trade FAS, USDA (January, 1970)).

increased similarly and there have been no significant stock accumulations except in 1962-63 and 1967.

Table 6.1 gives a detailed account of this change in output of individual fats and oils from the mid-1950s through 1965-67. In absolute terms, the greatest increases in production were from soybeans, sunflower, butter, and tallow. Generally, these fats and oils are primarily produced in the developed and centrally planned economies. Although the quantities of oils produced by the developing countries increased over the same period, the increases in absolute amounts were small compared to the increases from the developed countries. Only the expansion of groundnut oil, which is mainly a product of the developing countries, with a yearly growth of 3.5 percent over the 1954-56 to 1965-67 period and an absolute increase in output of almost one million tons, approached the scale of growth of soybeans, sunflower, butter, and tallow. The developed countries over the 1954-56 to 1965-67 period increased their share of world fat and oil production from 65 percent to 70 percent with the developing countries' share declining correspondingly.

World exports of fats and oils, which have been expanding even more rapidly than production, increased at an annual rate of 3.6 percent, or by approximately 300,000 tons per year, over the same period reaching approximately 10.5 million tons in 1967. Detailed data on the export expansion by economic region are given in Table 6.2. The

Table 6.1. World Production of Fats and Oils, or Oil Equivalent, by Type, Average 1954-56 to 1965-67

Type of Oil	Average 1954-56		Average 1965-67		Change per Annum in Output, 1954-56 to 1965-67 (Percent)
	Output (1,000 Tons)	Output as Percent of Total Output (Percent)	Output (1,000 Tons)	Output as Percent of Total Output (Percent)	
Edible Soft Oils	10,889	40.3	17,421	45.8	4.4
Cottonseed	1,906	7.1	2,507	6.6	2.5
Groundnut	2,084	7.7	3,037	8.0	3.5
Soybean	2,451	9.1	5,200	13.7	7.1
Sunflower	1,118	4.1	2,860	7.5	8.9
Olive	1,044	3.9	1,238	3.3	1.5
Sesame	541	2.0	582	1.5	0.7
Rapeseed	1,601	5.9	1,562	4.1	-0.2
Others[1]	144	0.5	435	1.1	10.6
Industrial Soft Oils	1,521	5.6	1,868	4.9	1.9
Linseed	955	3.5	1,042	2.7	0.8
Castor bean	213	0.8	307	0.8	3.4
Tung	103	0.4	112	0.3	0.8
Others	250	0.9	407	1.1	4.5
Hard Oils	3,479	12.9	3,922	10.3	1.1
Coconut	2,014	7.4	2,252	5.9	1.0
Palm Kernel	422	1.6	455	1.2	0.7
Palm Oil	1,001	3.7	1,157	3.0	1.3
Babassu	42	0.2	58	0.2	3.0
Animal Fats	10,298	38.0	13,638	35.8	2.6
Butter	3,893	14.4	5,063	13.3	2.4
Lard	3,549	13.1	4,163	10.9	1.5
Tallow	2,856	10.5	4,412	11.6	4.0
Marine Oils	857	3.2	1,186	3.2	3.0
Whale	484	1.8	288	0.8	-4.6
Fish	373	1.4	898	2.4	8.3
World Total	27,044	100.0	38,035	100.0	3.2

[1]Mainly safflower and maize oils.

Sources: Unpublished IBRD Statistics

Table 6.2. Exports and Imports of Fats and Oils or Oil Equivalent, by Region and Country, Average 1954-56 and 1965-67

Region or Country	Average 1954-56		Average 1965-67	
	Export	Import	Export	Import
	----------1,000 Metric Tons----------			
Developing Countries	2,739	5,153	4,864	7,452
North America	2,011	599	3,530	759
United States	1,882	448	3,184	549
Western Europe	413	4,133	879	5,523
European Economic Community	122	2,208	223	3,038
United Kingdom	---	1,270	---	1,552
Others	315	421	455	1,170
Japan	7	338	---	1,028
Centrally Planned Economies	400	411	878	573
Developing Countries	3,259	1,079	4,147	2,061
Africa	1,465	239	1,639	464
Latin America	321	446	828	617
Asia	1,473	394	1,680	980
Antarctic	484	---	288	---
World Total	6,882	6,643	10,177	10,086

Developed Countries: United States, Canada, Western Europe, Australia, New Zealand, Japan, South Africa.

Centrally Planned Countries: USSR, Eastern Europe, Mainland China.

Developing Countries: All other countries.

Source: Unpublished IBRD Statistics.

developed countries increased their share of world exports from 400 percent in 1954-56 to 48 percent in 1965-67. The share of the developing countries in world trade declined from 47 percent to 41 percent over the same period. Only part of the decline in the less developed countries' (LDCs) share of the world market can be blamed on their lower production growth rates. Another factor that reduced export availabilities from the LDCs was the growing domestic demand for fats and oils within the less developed countries themselves.

United States soybean exports contributed greatly to the rising importance of the developed countries as exporters (see Table 6.3). In fact, increased soybean exports accounted for about 40 percent of the 3.3 million ton increase in exports over the 11 year period. On the other hand, most fat and oil exports from the developing countries (i.e. coconut, palm oil, and palm kernel oil) showed little or no growth.

Aside from technological advances and reduction in production costs, the development of soybean exports characterizes one of the major influences at work in the fats and oils market during the past decade. The problem is that soybean oil and soybean meal--the joint product of the soybean crushing process--do not enjoy similar strengths of demand. The demand for meal has been rising rapidly in recent years along with expanding production of livestock and poultry which has shown a high correlation with rising

Table 6.3. World Exports of Fats and Oils, or Oil Equivalent, by Groups and Type of Oil Average 1954-56 and 1965-67

Groups and Types of Oil	Average 1954-56		Average 1965-67		Change per Annum in Exports 1954-56 to 1965-67 (Percent)
	Exports (1,000 Metric Tons)	Export as Percent of Total Exports	Exports (1,000 Metric Tons)	Exports as Percent of Total Exports	
Soft Oils	2,570	37.4	5,081	50.0	6.4
Edible	1,841	26.9	4,219	41.5	7.9
Cottonseed	367[1]	5.3	263[1]	2.6	-3.0
Groundnut	754	11.0	1,029	10.1	2.9
Soybeans	506[1]	7.4	1,845[1]	18.1	12.5
Sunflower	26	0.4	509	5.0	31.0
Olive	101	1.5	158	1.6	4.2
Sesame	40	0.6	74	0.7	5.8
Rapeseed	47	0.7	341	3.4	19.7
Industrial	623	9.0	674	6.6	0.7
Linseed	470	6.8	446	4.4	-0.5
Castor bean	108	1.6	183	1.8	4.9
Tung	45	0.6	45	0.4	---
Others, n.e.s.	106	1.5	188[2]	1.9	3.5
Hard Oils	2,164	31.4	2,183	21.4	0.1
Coconut	1,209	17.6	1,281	12.5	0.5
Palm Kernel	394	5.7	345	3.4	-1.2
Palm Oil	558	8.1	550	5.4	-0.1
Babassu	3	---	7	0.1	8.0
Total Vegetable	4,734	68.8	7,264	71.4	4.0
Animal Fats	1,473	21.4	2,093	20.6	3.3
Butter	430	6.2	529[1]	5.2	1.9
Lard	320	4.7	288	2.8	-1.0
Tallow	723	10.5	1,276	12.6	5.3
Marine Oils	674	9.8	821	8.0	1.8
Whale	484	7.0	288	2.8	-4.7
Fish	190	2.8	533	5.2	9.8
Total Animal	2,147	31.2	2,914	28.6	2.8
World Total	6,881	100.0	10,178	100.0	3.6

[1]Includes U.S. donations.

[2]Of which 63,000 tons safflower oil.

Source: IBRD Unpublished Statistics.

incomes and with expansion of the mixed feed industry in the developed countries.[10] Since 1955, the uptrend in world exports of the major cakes and meals has averaged 1.15 million tons annually, or 8.4 percent. Of the total annual average increase, U.S. exports, primarily soybean cake and meal, accounted for the major share, expanding by about 670,000 tons annually, or by 13.2 percent.

Prices for the major meals used in livestock feeding have tended upward over the past decade.[11] The price increases ranged from 5.0 percent per year for fish meal to .7 percent annually for sunflower meal.

Soybean meal prices rose by 2.7 percent annually between 1960 and 1969. Soybeans have been one of the most favored oilseeds in the foreign meal and cake markets because of their high protein content, low oil-to-meal ratio and desirable amino acid balance.[12]

The increasing amounts of vegetable oil obtained as a by-product of producing greater quantities of meal, on the other hand, have experienced no rapidly expanding use. Aggregate oil supplies have tended to grow faster than effective demand thus generally lowering prices.

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[10] USDA, Foreign Agriculture, "The Story of the 1960s: U.S. Meal and Oil in World Trade," Vol. VIII, No. 7, (February 16, 1970).

[11] USDA, ibid., p. 6.

[12] The cake yield for soybeans is between 82 and 85 percent, compared to 44-46 percent for groundnuts. (GATT, op. cit., p. 78).

Western Europe is by far the largest world fats and oils import market, (see Table 6.2) although its share decreased from 60 percent in 1954-56 to 50 percent in 1965-67, reflecting both a slowdown in the rate of per capita consumption and a drive toward increased self-sufficiency. Japan has a rapidly growing import market, and this market is expected to continue strong in the future. The developing countries are increasingly relying on fats and oils imports as their populations and per capita incomes increase. Their share of world imports increased from 16 to 21 percent over the 1954-56 to 1965-67 period and would increase much more if a sustained drive were mounted to close the gap between actual consumption of fats and oils and nutritional minimum requirements.

Fats and oils prices have declined moderately over the past 15 years. Palm oil, soybean oil, coconut oil, soybean meal and palm kernel prices for 1954 to 1969 are given in Table 6.4. The FAO index of edible and soap oils and fats is also given in Table 6.4, as well. The table reflects major movements in the price index in 1962, when there were large stock accumulations, and again in 1967 when a series of factors caused prices of several oils to fall to low levels. Table 6.5 gives the prices of several vegetable oils and fish oil in 1967, 1968 and 1969 and the lowest prices during the 1958-66 period. Particularly noticeable in Table 6.5 are the low prices of sunflower oil, soybean

Table 6.4. Trends in World Prices of Selected Fats, Oils and Soybean Meal, 1954-1969.

Year	FAO Index[1] (1952-54=100)	Palm Oil[2]	Soybean Oil[3]	Coconut Oil[4]	Soybean Meal[5]	Palm Kernels[6]
		----------£ Per Long Ton----------				
1954	103	81.5	122.6	122.5	n.a.	58.3
1955	93	87.2	108.6	103.6	37.1	57.3
1956	103	85.8	124.7	105.7	35.7	57.6
1957	101	94.0	114.9	108.5	32.6	56.3
1958	96	84.2	94.5	126.5	34.0	61.1
1959	101	90.0	84.2	151.3	34.3	76.0
1960	93	82.8	81.1	126.7	32.9	78.4
1961	90	84.2	104.2	101.4	36.2	54.3
1962	81	78.5	82.6	100.6	38.4	54.5
1963	89	89.7	80.9	113.2	40.9	61.0
1964	95	86.9	83.4	118.4	40.7	60.4
1965	108	98.9	101.5	144.0	42.0	71.9
1966	99	85.5	94.8	124.4	44.9	62.4
1967	91[7]	82.1	78.4	132.7[8]	43.2	65.6
1968	94[7]	61.6	64.8	146.1[8]	43.6	55.3
1969	n.a.	64.7	72.0	n.a.	42.1	n.a.

[1]FAO Index of edible and soap oils and fats.

[2]Malayan, c.i.f., U.K.

[3]c.i.f. Europe

[4]White Ceylon, 1 percent bulk, c.i.f. Europe

[5]45 percent Canadian, c.i.f. Europe

[6]Nigerian, c.i.f. Europe

[7]January-June, preliminary

[8]January-October, preliminary

Sources: IBRD unpublished statistics.
USDA, "The Story of the 1960s: U.S. Meal and Oil in World Trade," Foreign Agriculture, Vol. VII, No. 7, (February 16, 1970).

Table 6.5. Prices of Selected Vegetable Oils and Fish Oil, 1967, 1968, 1969 and Lowest Price During 1958-66

Type of Oil	Lowest Price 1958-66[1]	1967	1968	1969
	----------£ Per Long Ton----------			
Groundnut	96.1 ('63)	102.5	96.7	120.0
Cottonseed	83.9 ('60)	99.3	103.9	86.3
Soybean	76.8 ('63)	77.1	64.8	72.0
Sunflowerseed	84.3 ('63)	75.7	61.6	76.8
Rapeseed	76.8 ('63)	73.6	94.1	67.1
Coconut	90.0 ('62)	118.6	143.9[2]	n.a.
Palm Oil	75.0 ('62)	80.7	61.6	64.8
Fish Oil	35.3 ('62)	45.3	36.0	54.3

[1]Figures in parentheses indicate year in which prices were low.

[2]January-October

Groundnut Oil: Nigerian 3-5% bulk c.i.f. Europe
Cottonseed Oil: U.S. crude, tank cars, f.o.b. southwestern mills
Soybean Oil: Any origin, crude, ex-tank Rotterdam
Sunflowerseed Oil: Any origin, crude, ex-tank Rotterdam
Rapeseed Oil: Any origin, crude, ex-tank Rotterdam
Coconut Oil: White Ceylon, 1% bulk, c.i.f. Europe
Palm Oil: Nigerian, 5% c.i.f. Europe. 1968: 5% Malayan
Fish Oil: Peruvian, semi-refined c.i.f. Europe

Sources: Unpublished IBRD data
USDA, "The Story of the 1960s: U.S. Meal and Oil in World Trade," Foreign Agriculture, Vol. VII, No. 7, (February 16, 1970).

oil, rapeseed oil and palm oil in 1967 and 1968. Fish oil prices were also low in 1968, being only slightly above the 1962 low. On the other hand, coconut prices in 1968 were higher than they had been at any time during the previous decade. This can be explained by a shortage of supply and a relatively inelastic demand for coconut oil compared with other oils. A number of reasons are generally given for the low price level of fats and oils in 1967-68. These reasons are as follows:

1. Greatly increased sunflower oil production and exports from the USSR and Eastern Europe. Sunflower exports moved from approximately 200,000 tons in 1965 to 400,000 tons in 1967 while the annual increase in total exports of all fats and oils averaged only 300,000 tons during the 1950s and early 1960s.

2. Large increases in rapeseed production in the EEC where rapeseed prices are supported at approximately twice the present world market price.

3. Expansion of output and exports of fish oil. Both Norwegian and Peruvian production increased by approximately 100,000 tons in 1967.

4. Continued expansion of U.S. soybean production at a rate well above the rate of increase in world fat and oil production.

This upsurge in production and exports, with the exception of U.S. soybeans, has begun to subside, however.

The decline is reflected in world fishmeal exports which in calendar year 1969 were estimated to be down by 16 percent, or 692,000 short tons, from their 1968 level, primarily due to reduced Peruvian catches in late 1969.[13] Soviet sunflower exports are also reduced due principally to greater protein use in the Soviet Union itself as it tries to expand poultry and livestock production but also due in part to a somewhat smaller sunflower crop.[14] Most fats and oils prices began to recover in late 1968 and are presently above the levels of that year.

The demand for the different kinds of fats and oils is determined by availabilities, taste and preferences, and relative prices and incomes.[15] Up until 1956, an increase in income in the EEC, for example, was positively correlated with an increase in consumption. Since 1956, however, the income elasticity of demand for per capita consumption of all fats and oils has lessened or has even become negative in some countries.

The lack of a strong income demand elasticity for the

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[13]USDA, FEO Fishmeal Outturn and Exports, "Peru's Output, Export of Fishmeal,"Foreign Agriculture, (March 30, 1970).

[14]USDA, "Soybean Exports Are Again Setting New Records," Foreign Agriculture, Vol. VIII, No. 11, (March 16, 1970).

[15]Dieter Elz, Oilseed Product Needs of the European Economic Community, USDA, Economic Research Service, (May 1967), p. 94.

purchase of fats and oils has important implications for Nigeria as the U.K. and the EEC have historically purchased between 75 and 85 percent of Nigerian fats and oils exports.[16] The demand in other Western European countries is important to the world market as well since that region has in the past purchased more than half of the fats and oils offered for sale on the world market. (See Table 6.2 for shares of the world import market.)

Table 6.6 using mainly FAO data summarizes projected fats and oils production and consumption estimates for 1975.[17] the production estimate of 47.7 million metric tons is a compromise between (1) the high FAO estimate for 1975 based on a 3.1 percent annual increase in production over the 1961-63 and 1975 period and (2) a low FAO estimate based on a yearly increase in production of 2.5 percent. World production rose by 3.4 percent compounded annually over the 1950 to 1961-63 period.

World consumption in 1975 on the other hand, is projected by FAO to total between 45.7 million metric tons (low estimate) and 48.8 million tons based on a higher rate of growth of GNP. The average of the two consumption limits is

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[16] International Bank for Reconstruction and Development, International Development Association, Economic Growth of Nigeria, Problems and Prospects, Vol. II (November, 1965).

[17] Primarily based on FAO, Agricultural Commodities--Projections for 1975 and 1985, op. cit., pp. 164-173.

Table 6.6. World Production and Consumption of Fats and Oils, or Oil Equivalent, by Region, 1965-67 and Projections to 1975

Region	Production		Consumption					
	1965-67	Projection 1975	1965-67[1]		Projection 1975			
			Per Capita Demand for Food	Total Consumption	Total Consumption		Per Capita Demand for Food	
					Low	High	Low	High
	(1,000 Metric Tons)		(Kilograms)	------(1,000 Metric Tons)------			(Kilograms)	
Developed Regions	15,633	19,100	19.4	18,221	20,565	20,842	18.9	19.3
North America	9,279	11,900	19.5	6,508	7,879	7,858[2]	20.1	20.1
Western Europe	4,910	6,000	22.3	9,554	10,508	10,753	20.8	21.2
Other Countries	1,444	1,200	11.9	2,159	2,178	2,231	12.0	13.0
Developing Regions	12,283	16,040	5.3	10,197	12,233	13,710	5.3	6.0
Central and South America	3,438	3,830	8.3[3]	3,227	3,435	3,673	8.9	9.5
Africa	3,073	3,900	4.5[3]	1,898	1,566	1,777	4.5	5.1
Asia	5,772	8,310	4.0	5,072	7,232	8,260	4.6	5.3
Antarctic	288	60	---	---	---	---	---	---
Centrally Planned Countries	9,831	12,500	7.0[4]	9,526	12,945	14,299	7.4[4]	8.2[4]
Total	38,035	47,700	8.8	37,944	45,743	48,851	8.7	9.4
					47,297			

[1]Calculated assuming no change in stocks and proportion of food and nonfood consumption unchanged from 1961-63.

[2]Based on declining income elasticity of demand.

[3]Based on 1961-63 statistics.

[4]Per capita consumption excluding China (Mainland) 1965-67: 15.2 kg.; 1975: 16.3 kg. (low) and 17.2 (high).

Sources: FAO, Agricultural Commodities--Projections for 1975 and 1985. (Rome: United Nations, 1967)
Unpublished IBRD estimates.

47.3 million and is included in Table 6.6. The 47.3 million metric ton consumption projected for 1975 would be equivalent to a 2.6 percent consumption growth rate over the 1965-67 to 1975 period as compared to a growth rate of 3.0 to 3.5 percent during the 1950s.

The production and consumption figures in Table 6.6 indicate a likely balance in the fats and oils market in 1975 at around 47.7 million tons. The possibility always remains, however, that production of fats and oils could reach as high as 48.8 million tons per year in the mid-1970s if past production trends continue and if national supply expansion programs, especially in developing nations, are fulfilled. It is difficult to define exactly how near the expansion plans will come to their goals. But with a potential world fats and oil surplus of some 1.5 million tons or 10 percent of the 1975 projected export market, it seems reasonable to assume that prices will have a role to play in the world fats and oils market in the mid-1970s. Many observers believe that the overall price level of fats and oils will tend downward between 1967 and the mid-1970s to a lower price level than that reached in 1962, mainly because of the extremely low levels that some oils will reach in their struggle to increase their world market share.

The FAO projections imply a big increase in world trade, despite the slow rate of growth of Western European

imports, both as the result of increased domestic production and demand trends. It assumes that (1) Japan, (2) the developing importing nations, and (3) the centrally planned economies must absorb most of the large projected increase in output supplies from North America and the developing exporting countries. The future of greatly increased imports into both the less developed countries and the centrally planned economies are uncertain--because of the scarcity of foreign exchange in the former and the danger of basing projections on past trends in the latter.

World demand for fats and oils is projected by FAO to continue to grow at a 204 percent compound growth rate between 1975 and 1985. It would then lie between 57.2 million tons and 68.5 tons, or approximately double the 32.8 million tons consumed on the average between 1961 and 1963.[18]

To sum up the market outlook, a few points seem fairly clear. One is that there will quite likely be downward price pressures between 1965-67 and 1975. Some oils, such as groundnut oil, cottonseed oil, and sunflower oil--which are more valuable from a processor's point of view, may not move below their price levels of the early 1960s. Prices of some other oils, particularly soybean and palm oil, may decline more drastically. This is

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[18]FAO, ibid.

particularly true for palm oil if it is to gain a greater share in food uses.

Palm Oil

One of the most interesting struggles for a larger share of the world export oil market is now underway with palm oil. World palm production, following several years of slight fluctuations, is now expanding rapidly. World export availabilities of this commodity are expected to almost triple over the years 1968 to 1975,[19] as the percentage of palm oil in total trade moves up from 5.4 percent to 8.5 percent.

The reason for the great upsurge and renewal of interest in palm oil is the great strides that have been made in improving productivity of oil palm. The oil palm cultivated in plantations yields more edible vegetable oil per acre--from 0.5 to 2.0 tons or more--than any other oil bearing plant.[20] U.S. soybeans yield about 300 pounds of oil per acre. In addition to the much greater productivity of new palm oil hybrids now being cultivated and a substantially shorter gestation period than the old varieties (reduced from 10 to 4 years), improved and timely processing provides high quality oil whose principal use is now food production while previously it sold primarily for industrial purposes.

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[19]USDA, Fats and Oils Situation (Economic Research Service, June 1969).

[20]Ibid.

Nigeria, although still the world's largest palm oil producer, has experienced great difficulty in converting her semi-wild palm groves to the new high producing hybrids. Internal production has been discouraged by low producer prices. The Civil War slashed output in the main palm producing areas. Table 6.7 gives the world production, imports, and exports of palm oil over the 1955-59 to 1968 period.

Malaysia moved into the position of the world's leading palm oil exporter in 1966 and exported 39 percent of the 1.5 billion pounds exported in 1968.[21] Malaysia plans to up her palm oil exports to 800,000 to 1,000,000 tons by 1980.

Mainly because of the problems and costs of substituting, any oil must sell at substantially lower prices than its competition if it is to entice manufacturers to switch over to it from other ingredients for which this manufacturing process is already set up. Palm oil because of the great improvements in productivity is now able to sell at prices low enough to encourage the change-over, as evidenced by the rapidly increasing palm oil imports into the United States where it is selling at prices well below prices of domestically produced fats and oils.[22] The low

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[21] Ibid.

[22] USDA, ibid. The Bureau of the Census reports that 1968 palm oil imports were valued at U.S. 7.2 cents per pound, or £58 per long ton.

Table 6.7. World Production, Exports and Imports of Palm Oil by Major Exporting and Importing Countries, Average 1955-59, Annually 1963-67

Countries	Average 1955-59	1963	1964	1965	1966	1967[1]
	----------1,000 Metric Tons---------					
Production						
Nigeria	200	151	150	167	132	33[2]
Congo, Dem. Rep.	224	224	209	162	168[2]	200[2]
Indonesia	155	148	160	163	185[2]	163[2]
Malaysia	64	130	128	155	194	231
Others[2]	49	54	61	62	57	57
World Total	692	707	708	709	736	684
Exports						
Nigeria	180	128	136	152	146	17
Congo, Dem. Rep.	160	143	124	79	85	116
Indonesia	121[3]	110	133	126	153	125
Malaysia	62[3]	115	125	143	184	188
Others	33	48	48	48	38	38
World Total	556	544	566	548	606	484
Retained Imports						
EEC	226	247	279	249	267	252
United Kingdom	198	114	116	117	150	98
United States	13	11	3	3	34	29
Japan	20	17	18	16	20	22
Iraq	4	28	29	50	36	47
Others	92	118	107	76	91	72
World Total	553	535	552	511	598	520

[1]Preliminary

[2]Unofficial estimates based on import returns.

[3]Excluding trade with Singapore.

Sources: IBRD unpublished data
USDA, Fats and Oils Situation (Economic Research Service, June 1969).

palm oil prices, both present and expected, lose much of their negative aspect when they are considered along with greatly improved productivity which allows a greater MVP per palm unit than was the case with the unimproved palm groves. This is an example of the fallacy of the generalization that high prices are always good and that low prices are always bad. It is also an example that thoroughly nullify's Prebisch's simple adverse terms of trade argument as applied to the developing countries.

EEC Fats and Oils Policy

Western Europe is by far the world's largest fats and oils import market taking 50 percent of the world's exports in 1965-67. The EEC, which is only able to meet approximately one-third of its fats and oils consumption requirements from domestic sources, took 30 percent of the world's exports in 1965-67. The policies it adopts on (1) fats and oils imports, (2) the handling of its present 400,000 ton butter surplus, and (3) oil and oilcake imports may have important consequences for world trades in fats and oils.

The controversey surrounding agricultural policy in the EEC was heightened about a year ago with the introduction of the so-called Mansholt Plan.[23] The vigorous, long-

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[23]USDA, "The Common Market: A Review and a Look at the Problems Ahead," Foreign Agriculture, Vol. VIII, No. 2, (January 12, 1970).

range Mansholt Plan contains recommendations aimed at restoring balance in the various commodity markets. It recommends a 30 percent reduction in the support price for butter and establishment of a "slaughter premium" for dairy cows, "fattening premiums" to encourage beef production, and a tax on vegetable oils, oilcakes, and other competing fats and oils products, presumably to increase demand for butter relative to margarine and for grains relative to oilcake.

As a result of the failure to reach agreement on the Mansholt Plan and the steadily worsening surplus situation in some commodities, a modified less ambitious version of the Mansholt Plan was submitted to the EEC Council of Ministers on November 24-25, 1969.[24] The proposed reduction of the butter support price is about half that included in the original proposal. The tax on oilseeds has been dropped at least for the time being due to strong U.S. opposition.

U.S. Soybean Policy

The dominant U.S. position in world fats and oils trade is evidenced by the fact that U.S. edible oil exports (mainly soybeans) made up 41.8 percent of the world edible oil trade over the years 1965-69.[25] U.S. soybean meal

[24] Ibid.

[25] USDA, "The Story of the 1960s:. . ., op. cit.

exports were equivalent to 53 percent of all meal exports, and exports of soybeans and soybean products are expected to bring in a total of $1.25 billion in foreign exchange this fiscal year.[26] Soybeans and soybean products compete strongly in value with the leading export products of U.S. industry. It is of little wonder that domestic policy concerning the soybean industry of the U.S. could have repercussions around the world.

A perennial problem of oilseed crushers during this past several years is that meals are in greater demand than oils. As the soybean meal has been the much more valuable product than the 10.5 pounds of oil produced along with it from each bushel of soybeans, the U.S. has sought some method for orderly disposal of the oil surplus to its needs. About 85 percent of U.S. soybean oil exports have been made on concessional terms under P.L. 480 during the past 2-3 years. The percentage sold under P.L. 480 terms varies, however, with commerical demand, and the need for food sales on concessional terms seems to rise when commercial sales are low.

In general, the effect of the P.L. 480 program has been considered to have had a positive and stabilizing effect on the world fats and oils market. A recent

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[26]USDA, "Soybeans Are Again Setting New Records," op. cit.

University of Minnesota study on this subject showed that concessional export sales of soybean oil under P.L. 480 have done much since the mid-1950s to sustain prices and incomes of soybean growers and that abandonment of these shipments in 1965 would have depressed oil prices by an estimated 2-3 cents per pound and bean prices by as much as 28 cents per bushel.[27] In other words, P.L. 480 shipments of soybean oil amounting to approximately 350,000 tons in 1965 raised the price of soybean oil on the commercial market by about 20 percent above what it would have been had these noncommercial outlet channels not been available. The study does not estimate the effects upon market prices of other oils. The effect must be substantial, however, as soybeans and soybean oil are so large a share of the world market and also because of the interchangeability factor--especially for those oils most similar to soybean oil.

U.S. soybean policy, like EEC agricultural policy, cannot be projected with a great deal of certainty. Concessional soybean exports are expected to decline at least in 1970 despite a predicted record U.S. crush of soybeans. U.S. domestic demand for soybean oil is growing and soybean oil exports are finding an unusually strong market in

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[27]J. P. Houck and J. S. Mann, "Domestic and Foreign Demand for U.S. Soybeans and Soybean Products," Agricultural Experiment Station, University of Minnesota.

Europe because of reduced oil supplies from other sources for reasons already given. Over the longer term, however, it appears as if the U.S. will have to expand its concessional shipments of soybean oil if it does not wish to unduly depress the world soybean price. This is assuming that world protein demand continues to grow more rapidly than the demand for soybean oil and that the U.S. further expands soybean production to help meet that demand.

CHAPTER VII

RUBBER

Production of Natural Rubber

Natural rubber, with an annual export value averaging nearly U.S. $1 billion during the years 1955-67, ranks between fourth and sixth as the most important agricultural export of the developing countries. It is a long gestation crop which requires a substantial planning horizon as it does not reach full production for at least a decade after planting. As is well known, it also experiences close competition from synthetic products.

Concentration of natural rubber production is high. Four countries in Southeast Asia (Malaysia, Indonesia, Thailand, and Ceylon) accounted for 90 percent of total exports in 1967.[1] The remainder of the world export market is made up of the produce of 15 relatively minor exporting countries of which Viet Nam and Nigeria are the most important. Nigeria is Africa's largest rubber producer and annually accounts for about three percent of the world natural rubber supply. The most striking change in world

[1] International Rubber Studies Group, Rubber Statistical Bulletin

market share of rubber production in recent years has been that of Malaysia which doubled her rubber exports over the 1964-1968 period and increased her world market share by ten percent (from 38.6 percent to 48.4 percent) between 1958 and 1967. The market shares of both Thailand and Ceylon remained relatively constant with Indonesia losing market share to Malaysia.

World consumption of all elastomers (both natural and synthetic) has grown at a six percent compound rate since the immediate post-war period (1950-52) to the present--increasing from 2,120 thousand tons in 1950-52 to 5,162 thousand tons in 1967--an increase of 243 percent. Table 7.1 gives world rubber consumption by important consuming countries and areas as well as percent growth of the market. Rubber consumption growth rates have been high since 195-52, averaging above or near eight percent per year for the EEC, the rest of Western Europe except the U.K., Japan, and "the rest of the world." (Consumption figures for the centrally planned countries are not given in Table 7.1.) Only the U.S. and the U.K. (of the major consuming countries) experienced consumption growth rates of four percent or less. The period 1950-52 to 1967 thus saw shifts in world share of consumption away from the U.S. and U.K. toward the rest of the world. Japan's growth in share of the world rubber market was most spectacular--increasing from 2.9 percent in 1950-52 to 9.8 percent in 1967.

Table 7.1. World Rubber Consumption, 1950/52-1967[1]

Year	USA	EEC	UK	Other Western Europe	Japan	Rest of World	World
	Actual Consumption						
	1,000 Long Tons						
1950-52	1,244	302	220	66	63	245	2,120
1959-61	1,570	635	282	151	226	489	3,355
1962	1,719	722	297	192	294	572	3,796
1963	1,764	790	312	212	318	629	4,025
1964	1,933	846	347	237	362	740	4,465
1965	2,055	903	364	268	371	770	4,731
1966	2,212	965	371	294	431	830	5,103
1967	2,117	970	372	299	508	896	5,162
	Rate of Growth of Consumption						
	1,000 Long Tons						
1950/52-1966	4.0	7.9	3.3	10.5	13.7	8.5	6.0
1959/61-1966	7.1	7.7	5.7	14.3	13.8	11.3	8.8
1950/52-1962	3.3	9.1	3.1	11.2	16.7	9.3	5.4
	Share in World Total						
	Percent						
1950-52	58.1	14.1	10.3	3.1	2.9	11.5	100.0
1959-61	46.8	18.9	8.4	4.5	6.8	14.6	100.0
1962	45.3	19.0	7.8	5.1	7.7	15.1	100.0
1963	43.8	19.6	7.8	5.3	7.9	15.6	100.0
1964	43.3	10.0	7.8	5.3	8.1	16.6	100.0
1965	43.4	19.1	7.7	5.7	7.8	16.3	100.0
1966	43.4	18.9	7.3	5.7	8.4	16.3	100.0
1967	41.0	18.8	7.2	5.8	9.8	17.4	100.0

[1]Excluding centrally planned countries.

Source: International Rubber Studies Group, Rubber Statistical Bulletin, Various Issues.

Natural rubber production has grown much more slowly than world consumption of elastomers--natural rubber thereby losing substantial share of the world market to synthetics. Table 7.2 gives net exports of natural rubber over the 1950-52 to 1967 period. Natural rubber production grew at a compound rate of only 2.3 percent over the period while world consumption increased at 6 percent compounded per annum.

Nigerian rubber exports grew at a faster rate than world natural rubber exports averaging a 6.25 percent compound growth rate over the period 1956-58 to 1964-66. Nigerian rubber exports increased from approximately 21,000 tons in 1954 to a high of 70,000 tons in 1966. Exports fell to 47,878 tons in 1967 and 51,973 in 1968.

Synthetic Rubber

The most important occurrence in the world rubber market during the past three decades has been the increasing production and consumption of synthetic rubber. Natural rubber was virtually a unique material in 1939 but by 1945 synthetic rubber was produced in large quantities.[2] As shown in Table 7.3 synthetic rubber production increased by more than 3.5 times over the 12 year period from 1955-57 to 1968 for an annual growth rate of 10.6 percent.

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[2]Kurt R. Anschel, "Economic Aspects of Peasant Rubber Production in Midwestern Nigeria." Ph.D. dissertation, Michigan State University, 1965.

Table 7.2. Net Exports of Natural Rubber From Major Rubber Producing Countries, 1950-52 to 1967

Year	World[1]	Malaysia	Indonesia	Thailand	Ceylon	Others
	1,000 Long Tons					
1950-52	1,808	656	745	106	103	197
1955-57	1,822	690	686	132	93	221
1960-62	1,956	772	631	180	98	275
1962-64	2,067	884	606	196	103	278
1965	2,270	983	684	213	122	274
1966	2,340	1,065	680	199	123	274
1967	2,558	1,237	726	206	134	255
	Percentage Share					
1950-52	100.0	36.3	41.2	5.9	5.7	10.9
1955-57	100.0	37.9	37.6	7.2	5.2	12.1
1960-62	100.0	39.5	32.3	9.2	5.0	14.1
1962-64	100.0	42.8	29.3	9.5	5.0	13.5
1965	100.0	43.3	30.0	9.4	5.4	12.1
1966	100.0	45.5	29.1	8.5	5.3	11.7
1967	100.0	48.4	28.4	8.1	5.2	10.0

[1]Totals may not add due to rounding.

Source: International Rubber Studies Group, Statistical Bulletin.

Table 7.3. World Production of Synthetic And Natural Rubber 1955-57 to 1966, 1968

Year	Natural	Synthetic (USA)	Synthetic (Other OECD)	All Synthetic
	1,000 Long Tons			
1955-57	1,936	1,073	132	1,455
1966	2,436	2,001	1,212	4,172
1968	2,622	2,165	1,656	4,882

Source: FAO, Commodity Review and Outlook (Rome: United Nations, 1969).

Natural rubber production grew at a 2.5 percent compound rate over the same period.

Synthetic rubber use increased from 38 percent of the market in 1952 to 63 percent in 1967. There are indications that the percentage of synthetic in total rubber consumptions has increased ever since 1967.[3]

The growth of synthetic rubber production can be separated both by time and by technical innovation. Two definite rounds of expansion of synthetic rubber can be distinguished--the first in the U.S. during the 1950s and the second largely in Western Europe during the early 1960s. Table 7.3 indicates these growth periods. The 1960s also saw the development of two new synthetics--polybutadiene (PB) and polyisoprene (PI)--both with improved technical qualities allowing for greater substitutability for natural rubber. Polyisoprene synthetic rubber now duplicates the qualities of natural rubber. The new polybutadiene is said to exceed natural rubber in the key characteristic of abrasive resistance--so highly desired by the tire industry.

In order to understand the recent development in the rubber trade and to gain an insight into the future possibilities for natural rubber, the question must be asked and understood as to why the share of natural rubber

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[3] Rubber Age, (September 1969) p. 40.

declined in the face of rapidly expanding world demand for elastomers while natural rubber technology was available which would have made the natural product fully competitive both price-wise and technologically with synthetic rubber. The answer, pure and simple, is that natural rubber production failed to expand as rapidly as world demand and that synthetic rubber production was undertaken, at least in the beginning, to fill the gap left by a shortage of supply of the natural product.

The failure of natural supply to expand as rapidly as the market in the postwar period can undoubtedly be reflected in the fact that rubber is a long gestation tree crop whose supply response to anticipated changes in the rate of growth of demand faces a considerable lag for agronomic reasons. In addition, apparent technical (and probably financial) limitations on planting and replanting in the postwar period, especially for smallholder schemes, and political instability in Southeast Asia were probably partly responsible for the slow, and in any case small, response of natural rubber to market opportunities as they opened up.

It is the writer's hypothesis that other reasons can also be specified for the lack of supply response to the increasing market demand. Certainly one of the most important is the lack of confidence in the utilization of primary exports in general as a reliable and efficient

route to economic growth. The development and utilization of primary exports as an engine of growth has long been clouded by pessimism and doubt as best expressed by the Prebisch thesis of deteriorating terms of trade for primary products. The lack of response to the growing elastomer market may be analogous to the conclusion reached by Braun and Jay as to one of the principal reasons for lack of development of Argentine agriculture. "It seems that the Prebisch thesis of pessimism about the long term prospects for agriculture has encouraged its continuing neglect in Argentina."[4]

The second reason for failure to respond to expanding demand may be the over-dependence on price as the principal or only variable upon which production plans are made. Table 7.4 illustrates that growth of foreign exchange earnings from rubber exports lagged far behind the growth in export quantities. Even disregarding 1950-52 and 1967 as exceptional years (because of the Korean War in 1951 and the industrial recession in 1967), total export earnings fell by 7 percent during the postwar period while export volume grew by 25 percent.

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[4]O. Braun and L. Jay, "A Model of Economic Stagation: A Case Study of the Argentine Economy," Economic Journal, Vol. LXXVIII (December 1968).

Table 7.4. World Rubber Exports--Value, Volume and Unit Values, 1950-67

Year	Value	Volume	Total Value	Unit Value
	--1962-64 = 100--		Million $ US	$/Tons
1950-52	143.7	87.5	1,583	892.8
1955-57	107.8	88.2	1,153	633.5
1960-62	114.5	94.7	1,226	627.2
1965	104.3	110.0	1,116	491.6
1966	100.4	113.3	1,074	459.6
1967	87.6	123.8	923	408.7

Source: IBRD unpublished statistics.

A review of the past 50 years (Table 7.5) shows that rubber prices in real terms reached a high point in 1950-51 and have trended downward since that time--reaching a low of U.S. 19.8 cents per pound average for 1967. The real rubber prices during the late 1940s, the 1950s and the early 1960s were all greater than they had been during the 1930s when the International Rubber Regulation Agreement (IRRA) was in effect and African Nations, none of which were signatores to the agreement, increased their rubber exports by more than 300 percent.[5] World rubber exports rose by 66 percent during the 1930s despite low prices[6] but by only 8 percent between 1950-52 and 1960-62 despite the higher export prices. (See Table 7.2.)

[5]K. E. Knorr, World Rubber and Its Regulation (Stanford University Press, Food Research Institute, 1945) Appendix Table 1.

[6]Ibid.

Table 7.5. Real[1] Price of Natural Rubber, RSS 1, New York 1920-1967

Year	US Cents Per Lb.	Year	US Cents Per Lb.	Year	US Cents Per Lb.
1920-29	61.8	1950	50.5	1959	38.5
1930-38	28.1	1951	66.4	1960	40.0
1948-54	37.7	1952	43.7	1961	31.1
1948-67	33.6	1953	27.6	1962	30.1
1955-59	28.7	1954	26.9	1963	27.6
1960-64	31.1	1955	44.5	1964	26.6
1965-67	23.2	1956	37.6	1965	26.5
		1957	33.3	1966	23.6
		1958	29.6	1967	19.8

[1]Delfator: U.S. Wholesale Price Index 1966 = 100.

Source: IBRD Unpublished statistics.

The author maintains that there is a strong psychological factor which works against accepting, or responding to, a declining price, even if the offered price is well above some long-term average price. He also argues that over-dependence has been placed on export price as the principal, or only, variable responsible for supply responses. The lowering of costs of production, in order to become more price-competitive with synthetic rubber, has received far too little attention.[8]

The slow growth in natural rubber supplies during the 1950s and the inelastic nature of production with respect

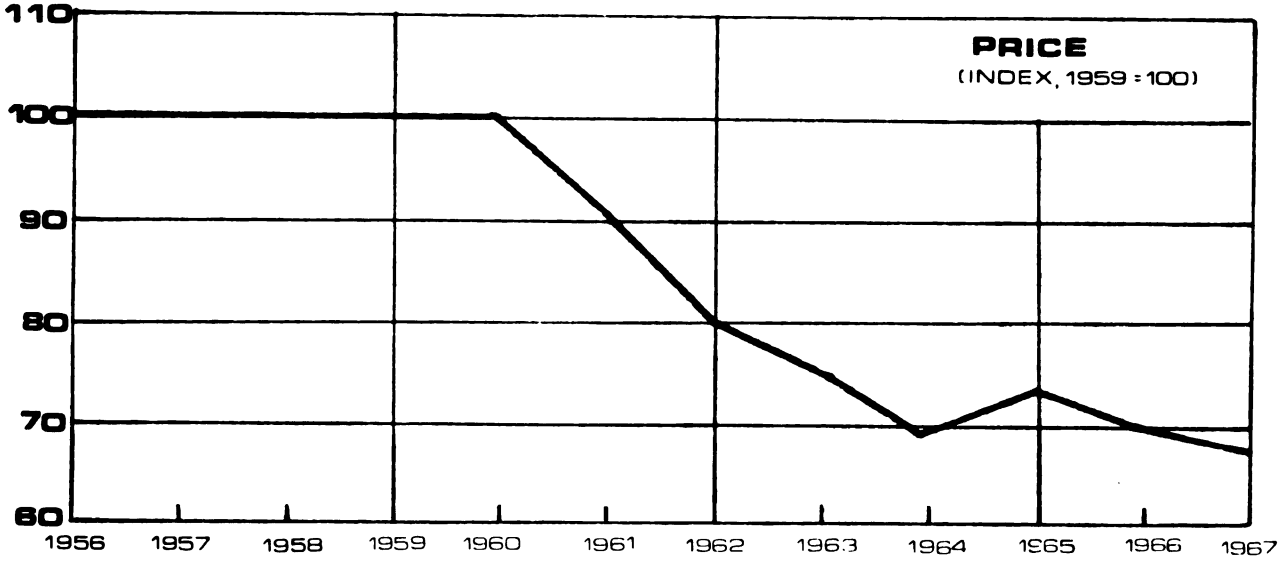
[8]Malaysian officials estimate the rubber estates can market natural rubber with costs as low as U.S. 9.7 cents per pound when obtaining yields of 1,100 pounds of dry rubber per acre. ("Natural Rubber: The Malaysian Commitment," Rubber World, Vol. 161, No. 2, (November, 1969).

to prices has caused natural rubber prices to remain consistently above the price for synthetic rubber. The relatively high natural rubber prices instead of accelerating natural rubber production only served as a stimulus for rubber manufacturers to substitute greater quantities of synthetic rubber for natural.

Synthetic rubber has not only achieved great progress toward the development of closer substitutes for natural rubber, but has made progress in reducing processing costs as well. Figure 7.1 shows the downward trend in synthetic rubber prices after a constant price for some years. The steady price decline may be attributed largely to (1) declining prices of raw materials used in the synthetic rubber industry and (2) greater competition among synthetic producers. An important factor which may largely determine natural rubber's ability to hold at least one-third of the world market is the ability of the synthetic rubber industry to further lower prices of inputs. More will be said on this later in the chapter.

The natural rubber industry in facing the challenge of synthetics has adopted two basic policies. One is cost reduction through the replanting of high yielding clones in an effort to become more price competitive. The International Rubber Study Group (IRSG) at various international conferences has estimated that Southeast Asian rubber producers on replanted high yielding acreage should be

able to produce rubber profitably at prices as low as U.S. 12 cents per pound c.i.f. consuming countries. Whether Nigeria can do this or not is another question. It assumes yields of 1,000 pounds or more and generally plantation conditions.



Source: IBRD unpublished data.

Figure 7.1. Index Prices for Synthetic Rubber, 1956-1967.

The second prong of attack of natural rubber is quality improvement and standardization of product. The experimental use in Malaysia of polyethylene bags for collection of latex so that labor can be reduced as the bags need not be emptied more than every 14 days or so may result in later widespread adoption which may lower

production costs by 2 to 5 cents per pound.[9] The further development of block rubber processing, by using the Heveacrumb process, offers further opportunity to reduce processing costs as well as improve uniformity of the natural product.

Prospects for Natural Rubber

As the outlook for natural rubber is so intertwined with production and substitutability of synthetic rubber, prospects at least in the medium run must be analyzed in terms of

1. the growth in demand for all new elastomers,
2. potential production of both natural rubber and synthetic rubber,
3. the degree of substitutability between the two,
4. costs of production.

The projection of the demand for rubber can be done in at least two alternative ways.[10] One method is to relate rubber consumption to some aggregate economic variable such as GNP or industrial production; the second is to forecast activity levels in the rubber-using industries. The former method has been used in this study.

Demand projections are based on an assessment of medium-term developments for industrial output in the

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[9]Rubber World, op. cit.

[10]Bela Balassa, Trade Prospects for Developing Countries (Homewood, Ill., Richard D. Irwin, Inc., 1964).

developed world (OECD) following the method used by the World Bank. A comparison of world manufacturing output and world rubber consumption over the 1951-67 period yields an income elasticity of demand coefficient of 1.1 The elasticity coefficient of 1.1 held remarkably strong over the period from 1951 to 1967 and gave an R value of 0.988.[11]

Following this method of analysis and projection (i.e. relating projected industrial output to rubber consumption). Table 7.6 gives projected consumption of new rubber over the period 1968 to 1975. Rubber consumption for the rest of the world outside of the centrally planned countries is expected to grow at a 5.5 percent per annum rate and reach 8.4 million tons by 1975. The centrally planned countries projected net import of 700,000 tons of natural rubber plus an additional 40,000 tons of synthetic rubber produced and used within the CPCs themselves should leave total world consumption of new rubber at around 9.14 million tons by 1975. The IRSG study projects that natural rubber will maintain approximately one-third of that market.

Potential natural rubber production is expected to increase to 3.5 million long tons by 1975 (as contrasted to net exports of 2.67 million tons in 1968). This would

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[11]From IBRD Unpublished data.

Table 7.6. Projected Consumption of New Rubber by Type, 1968-1975

Year	Free World Total[1]	Free World Natural[2]	Centrally Planned Countries Natural[3]	Free World Synthetic[4]	Centrally Planned Countries Synthetic[3]	World Total	Percentage of Free World Natural in Free World Total
	1,000 Long Tons						
1968	5,740	2,030	640	3,710	20	6,400	35.4
1969	6,020	2,220	650	3,800	20	6,690	36.8
1970	6,360	2,340	650	4,020	30	7,040	36.8
1971	6,700	2,470	660	4,230	30	7,390	36.9
1972	7,150	2,590	660	4,560	40	7,850	36.2
1973	7,500	2,640	670	4,860	40	8,210	35.2
1974	7,900	2,700	700	5,200	40	8,640	34.2
1975	8,400	2,800	700	5,600	40	9,140	33.3
Growth Rate	5.6	4.7	3.8	6.1	---	---	---

[1]Elasticity of demand 1.1

[2]NR consumption equals production of NR according to IRSG plus 70,000 long tons per annum from U.S. surplus disposal.

[3]IRSG estimates of net imports.

[4]SR consumption equals Free World Total minus Free World NR consumption.

Source: International Rubber Study Group, Provisional Minutes of 82nd Meeting of IRSG.

mean that the proportion of natural rubber to total rubber consumption would stabilize at about 33 percent. The rapid rate of substitution between the two, which saw natural rubber decline from 56.2 percent of the market in 1955 to 36.6 percent in 1967 would have to be checked if natural rubber is to maintain its traditional share. This would most likely happen only if natural rubber became more price competitive with synthetic rubber.

Many experts see the possibility of natural rubber prices falling to about U.S. 16 cents per pound by the mid-1970s if natural rubber is to maintain its present share of the world market. This forecast is based on an assessment of possible costs in synthetic rubber manufacture, which are expected to decline over the period with a lowering of cost of inputs, particularly those used in the production of polyiosoprene whose price is expected to serve as the ceiling for natural rubber prices.

Beyond 1975 the projections, of course, become much more uncertain. Rubber trees that will be producing in 1975 at least are already in the ground. The greatest uncertainties relative to them are their numbers, their ages, and the yields they will attain by 1975. Much of the production in 1985, however, may come from trees that have not yet been planted.

The potential for substitution of more synthetic for natural rubber will be greater over the 1975-85 period

with the possibility of a major technical breakthrough in the production of inputs of polyisoprene becoming much more likely. A major technical breakthrough in the cost of producing polyisoprene could lower polyisoprene prices to as low as U.S. 12 cents per pound by 1985.

CHAPTER VIII

IMPORT SUBSTITUTE CROPS AND MINOR EXPORTS

Cotton

Rapidly Growing Domestic Demand

Several of the most important import substitute crops and minor export crops offer vast possibilities for expansion, cotton, hard fibers, rice, feed grains and beef are among the most important of these crops at present, and are discussed below.

The primary role of cotton production in Nigeria during, at least, the next decade and a half will be that of meeting the rapidly growing domestic demand for cotton textiles where per capita consumption is expected to increase by perhaps 60 percent.[1] Such a rapid increase in per capita domestic cotton consumption (based partly on a projected doubling of export earnings from agriculture and a wide distribution of these earnings to the masses who produce the export crops) would bring Nigerian consumption up to about 3.6 pounds of lint cotton per person in 1985. This would still be less than 50 percent of the world average per capita cotton consumption in 1966.[2]

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[1]Glenn L. Johnson, et al., "Strategies and Recommendations,. . .," op. cit., p. 95.

[2]From FAO estimates as reproduced in International

Although Nigeria annually exports cotton valued at £5-6 million (see Table A.1), she is far from being a major exporter on the world market. With world exports averaging approximately 17 million bales (or 478 pounds each) over the period 1963/64-1967/68, Nigeria's approximately 100,000 bales exported is roughly .5 percent of the world export market. Nor have cotton exports been a major contributor of foreign exchange earnings to the country as they accounted for only 1.7 percent of the total export earnings over the period 1964-1966.[3]

Import Substitution Possibilities

It is not the purpose of these comments to underplay the excellent import substitution possibilities that cotton offers to the Nigerian economy nor the role of cotton as a major source of income, employment, and overall economic growth--especially in the cotton producing and textile manufacturing areas. These comments are made to emphasize that cotton's major contribution to economic growth will be primarily on the domestic production front and that Nigeria need not overly concern herself with mild fluctuations in world cotton prices and production until the domestic demand is met.

Cotton Advisory Committee (ICAC) World Cotton Statistics, various issues, and FAO, Monthly Bulletin of Agricultural Economics and Statistics, (February, 1967).

[3]Computed from FAO, Trade Yearbook, 1967 and United Nations, Monthly Bulletin of Statistics (January, 1969).

Rice

The World Rice Market

The decade of the 1960s was a period of change in almost all aspects of the world rice situation.[4] It saw changes in yields, production, prices, consumption, exports and imports. Perhaps the most striking change, was the 30 percent increase in rice production which moved rice production from 150 million metric tons of paddy[5] for the crop year beginning July 1, 1960 (excluding production for China, North Korea, and North Vietnam) to an estimated 195 million tons for 1969-70. The increase in production can generally be attributed to use of improved high yielding varieties and the increased use of fertilizers, insecticides, pesticides and irrigation--rather than to increased acreage under rice cultivation. The major breakthrough in rice production came with the widespread adoption in the late 1960s of the "miracle rice"--IR-8-- developed by the International Rice Research Institute in the Philippines.

World trade accounts for only about 4 percent of world rice production (see Table 8.1). Total world imports in 1965 were slightly over 7.5 million tons, well above the average 6.4 million tons for 1959-63. There has been a steady decline, however, since 1965 with total estimated

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[4]USDA, "Story of the 1960s: US Rice in World Trade," Foreign Agriculture, Vol. VIII, No. 10, (March 9, 1970).

[5]Paddy, or rough rice, refers to rice in the husk after threshing.

Table 8.1. World Rice Imports and Exports, 1959/63-1969

	1959-63	1965	1966	1967	1968	1969
	----------1,000 Metric Tons (Milled)--------					
Imports						
World Total	6,149	7,627	7,192	6,808	6,388	6,300*
Developed Countries	1,418	2,151	2,161	1,780	1,552	1,300*
Japan	196	940	794	489	264	35*
USSR & Eastern Europe	605	502	586	645	511	500*
EEC	278	260	362	259	323	280*
Developing Countries	4,731	5,476	5,031	5,028	4,836	5,000*
Far East	3,504	3,821	3,430	3,651	3,439	3,550*
India	451	783	787	453	446	400*
Pakistan	257	60	139	149	35	100*
Ceylon	477	642	488	376	338	300*
Indonesia	1,006	193	306	347	625	650*
Philippines	90	569	105	182	---	---
Korea, Rep. of	24	---	31	118	216	700*
VietNam, Rep. of	12	216	475	749	650	500*
China (Mainland)	32	112	74	77	80	80*
Near East	342	388	354	367	361	420*
Latin America	338	496	462	358	365	400*
Africa	502	710	705	591	606	580*
Exports						
World Total	6,364	7,562	7,114	6,933	6,467	6,300*
Developed Countries	1,250	1,819	1,611	2,247	2,363	---
United States	957	1,549	1,352	1,838	1,898	1,900*
Japan	---	---	---	---	---	400*
Developing Countries	5,114	5,743	5,503	4,686	4,104	---
Far East	4,634	4,934	4,528	3,877	2,986	---
Burma	1,685	1,348	1,128	540	335	600*
Thailand	1,309	1,851	1,510	1,480	1,022	1,000*
China (Mainland)	872	740*	1,202*	1,192*	1,025*	---
Near East	222	341	348	439	574	---
U.A.R.	220	330	347	435	570	600*
Latin America	214	449	595	315	460	---
Africa	44	19	32	55	84	---

*Indicates a very rough estimate.

Source: E. M. Ojala, "Increasing Agricultural Export Markets," op. cit. p. 20.

imports totaling 6.3 million tons in 1969. There are two reasons for this decline in rice imports,[6] one reflects the declining shipments into previously high import developing countries, primarily Ceylon, India and the Philippines, with the increased domestic production that has taken place in those areas. The second lies with the developed countries whose imports have been reduced by almost one-half since 1965. The principal figure in the decline of imports into the developed countries was Japan, whose imports declined from almost one million tons in 1965 to a net exporter in 1969. The EEC countries are buying less, also, as Italian rice acreages have been increased and yields improved.[7]

The production boom of the 1960s did not enlarge the total amount of rice trade, but it did change the pattern of trade. The U.S., outranked in rice exports by Burma, China, and Thailand (in that order) in 1960 had by 1967 become the world's largest rice exporter. Cash sales of U.S. rice increased by almost four fold between 1960-61 and 1967-68.

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[6]E. M. Ojala, "Increasing Agricultural Export Markets," A paper presented at the Cornell Workshop on Some Emerging Issues Accompanying Recent Breakthroughs in Food Production. Ithaca, New York, March 30-April 3, 1970.

[7]USDA, "World Rice Crop Forecast 5 Percent Above Last Year," FAS, Foreign Agriculture, Circular, (January 1970).

African rice imports have likewise declined since their maximum of 710 thousand tons in 1965 (see Table 8.1) but are still expected to total 580 thousand tons in 1969. African rice exports, on the other hand, totaled only 84 thousand metric tons in 1968--thus equalling not more than 15 percent of Africa's rice import needs. Income elasticity of demand for rice in West Africa is calculated by FAO to be above 1.0 as there is a shift from starch roots (cassava, etc.) to cereals, and particularly rice, as incomes rise and urban population grows.[8] The income elasticity in other parts of Africa was calculated in 1963 to lie between zero and -0.1.[9]

FAO projections to 1975 made in 1967-68 point to a close balance between world production and demand for rice on the basis of the pessimistic assumption for economic growth.[10] They concluded that a state of significant rice surplus could develop, however, based on a higher assumption due to a faster rate of production than of demand in the developing countries, particularly in the Far east. This latter possibility is given support by the events of the past decade which saw world rice production increased by about 45 million tons and import requirements declining in a number of countries. Several of the countries which are

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[8]FAO, The World Rice Economy, Vol. II: Trends and Forces, (Rome: United Nations, 1963).

[9]FAO, ibid., p. 53.

[10]Ojala, op. cit., p. 6.

importers at the beginning of the 1960s now find themselves with small exportable surpluses--mostly produced at high costs and necessitating subsidies for export.

The extremely difficult task of predicting with any certainty what direction world rice trade will take during the next decade is pointed up by USDA.

> If production increases continue and more countries become self-sufficient in rice, it is not likely that there will be an increase in the amount of rice entering world trade. There will undoubtedly be further breakthroughs in rice variety production, and the IRRI types will be supplemented by varieties more acceptable to consumers.
>
> Many countries, however, are working not only toward self-sufficiency but toward entering export markets. The question is, who will be the importer? If production does increase, prices in the next decade should not only stabilize but be reduced somewhat.[11]

The FAO World Indicative Plan concludes that developing countries as a whole have an export potential which could reach 13 million tons of exportable surplus rice by 1985, most of which would come from the Far East. The high income countries as a whole are already net exporters, with falling imports and rising exports aided by subsidies. The adjustments necessary to bring a long-run world balance in rice

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[11]USDA, "Story of the 1960s: U.S. Rice in World Trade," op. cit., p. 6.

trade will take place within the developing countries themselves in the absence of drastic changes in the world rice economy. If world prices, which are still relatively high, fall sufficiently under the pressure of abundant supplies, it is possible that the trend to self-sufficiency and/or an export balance might be restrained.[12]

Export Markets for Nigerian Rice

The greatest export possibility for Nigerian rice lies with her West African neighbors who in 1967[13] imported 332 thousand tons of rice valued at US $46.6 million and whose demand for rice was outstripped supply under existing production and marketing conditions.[14] Table 8.2 gives milled rice imports for the 11 West African countries over the years 1962 to 1967.

Senegal, where rice consumption has risen faster than in any other West African Country, accounts for from 40 to 60 percent of West African rice imports. Four other countries--Ghana, Liberia, Sierra Leone, and Ivory Coast--account for most of the remaining imports.

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[12] Ojala, op. cit., p. 7.

[13] 1967 imports were down 15 percent from those of 1966 because of favorable weather during the growing season.

[14] James Reese, et al., Rice in West Africa, U.S. Department of Agriculture and U.S. Agency for International Development, (December, 1968).

Table 8.2. Milled Rice Imports in West Africa by Volume and Value, 1952-67

Country	Volume						Value					
	1962	1963	1964	1965	1966	1967	1962	1963	1964	1965	1966	1967[1]
	----------1,000 Metric Tons----------						----------Million Dollars----------					
Senegal	118.1	110.5	184.5	179.2	159.3	189.0	12.0	11.1	19.9	18.1	17.5	22.7
Ghana	71.8	26.8	38.9	30.1	43.0	36.0	10.5	4.2	5.3	5.1	9.0	5.3
Liberia	27.6	35.9	35.2	22.3	46.3	33.2	3.9	6.0	5.6	3.5	7.5	6.3
Ivory Coast	43.2	25.6	58.1	77.9	83.2	28.7	5.7	3.2	7.9	9.0	12.6	4.8
Sierra Leone	27.3	21.2	0.6	18.9	38.0	22.0	3.8	2.6	0.1	2.6	4.8	3.6
The Gambia	10.6	8.2	9.0	6.8	8.6	9.0	1.3	1.0	1.1	1.0	0.8	1.3
Dahomey	4.8	4.3	5.3	7.0	6.0	7.0	0.8	0.6	0.8	1.0	0.9	1.1
Upper Volta	2.5	3.1	3.5	3.3	4.1	3.9	0.4	0.4	0.4	0.5	0.6	0.7
Togo	3.1	3.0	3.1	2.4	3.7	2.7	0.5	0.3	0.4	0.4	0.6	0.4
Nigeria	1.6	1.3	1.0	1.4	1.3	1.5	0.4	0.3	0.3	0.3	0.3	0.4
Niger	1.3	2.1	0.9	2.3	1.2	1.3	0.2	0.2	0.1	0.3	0.2	0.2
Totals	311.9	232.0	340.1	351.6	394.7	334.3	39.5	29.9	41.9	41.8	54.8	46.8

[1]Preliminary estimates.

Source: Reese, et al., Rice in West Africa, op. cit., p. 18.

Rice consumption varies widely in West Africa. It ranges from 120-155 kilograms per person in Liberia to 2.3 to 3.2 kilograms per capita in Nigeria.[15] Rice consumption in West Africa can generally be divided into two categories:

1. Rural consumption in the heavy rainfall areas where rice has long been a staple food (i.e., Liberia, Sierra Leone, The Gambia, Senegal, and Ivory Coast).
2. Consumption by middle and upper income groups in urban centers.

Average yearly rice consumption is over 100 kilograms per person in the traditional, high rainfall, rice zone. There is little current potential for increases in consumption per capita and consumption grows at about the same rate as population (2.6-3 percent per year).[16] Total rice consumption has grown at 10 percent per year in the Ivory Coast over the past two decades, however.

West African cities are the source of much of the increase in consumption. Rice is considered by many to be a high prestige food and with the rapid growth of urban centers, rice consumption has grown rapidly. Growth of the new rice market has been closely related to the growth of urbanization and demand is highly income elastic. Not

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[15] Reese, et al., ibid., p. 15.

[16] Ibid.

all of the increase in consumption is found in the traditional zone or in towns and cities, however. New consumption habits are filtering down to the people in the countryside in many areas and the future demand for rice in West Africa, as incomes and populations increase, appears to be bright.

Rice Production in West Africa

As stated, local rice production has not been able to keep up with the new demand for rice although it has been able to meet much of that demand. Table 8.3 shows paddy rice production in West Africa over the 1962/63-1967/68 period. The overall rate of growth of West African paddy production was a little less than 4 percent compounded annually over that period.

Most of the expansion that has taken place in rice production in West Africa has been obtained by expanding acreages using traditional techniques.[17] For example, the expansion of Ivory Coast production, which averaged 7.5 percent annually for 15 years, was achieved in this way.[18]

Other more or less traditional cultures responded relatively satisfactorily to meet the increasing demands

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[17] Reese, ibid., p. 5.

[18] Ivorian rice consumption has been increasing at about 10 percent peryear since 1948.

Table 8.3. Paddy Rice Production in West Africa, 1962/63-1967/68

Country	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68
	1,000 Metric Tons					
Sierra Leone	330	330	310	400	390	400
Nigeria	330	400	350	350	400	385
Ivory Coast	219	250	250	250	274	300
Liberia	180	180	184	180	150	152
Senegal	106	110	110	122	110	137
Ghana	33	43	41	29	42.5	43
The Gambia	31	37	37	35	33	36
Upper Volta	25	34	36	34	35	35
Togo	23	28	17	20	23	25
Niger	10	12	12	12	19	27
Dahomey	1	1	1	1.5	1.5	1.5
Total	1,288	1,425	1,348	1,434	1,481	1,542

Source: Reese, et al., Rice in West Africa, op. cit., p. 6.

for rice. Nigeria and Sierra Leone have been able to meet increasing rice demands via this method. Senegal, Ghana, and Liberia (who together imported an average of more than 245 thousand tons of rice annually during the years 1965-67) have met most of their increasing demands via imports.

Costs of Production and Rice Prices in West Africa

The study by Reese, et al. furnished the most complete survey of rice consumption and production possibilities in West Africa.[19] According to that work, quoted official

[19] Reese, et al., op. cit.

producer prices for paddy are quite uniform in West Africa, ranging from US 6.6 cents per kilo in The Gambia to US 8.8 cents per kilo in Senegal. However, actual prices received by farmers was another matter, ranging from US 4 cents per kilo in Senegal right after harvest to US 14 cents in certain instances in Upper Volta. Much of the difference comes from the way in which transportation changes are handled. Of the many government rice support programs in West Africa, the most effective government price program seemed to be that of the Ivory Coast where the government buying price was generally below the free-market price but assurances that farmers could actually sell at the official price spurred production.

Producer prices in West Africa were found by Reese, et al. to be comparable to those in countries which sell rice without subsidies on the world market--higher than Burma but lower than the U.S. or Italy.[20] The present state of milling and high transport costs in West Africa were found to inflate domestic rice prices above imported rice prices in West African cities. The retail price for the most common type of domestic rice in cities ranged from U.S. $180-250 per ton including subsidies at the time of the Reese study in 1968. The imported grade most commonly sold (25 percent broken) was priced, c.i.f. West African ports, at about US $165 per metric ton at the same time.

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[20]Reese, et al., ibid., p. 10.

Hard Fibers

Nigeria has historically been an importer of hard fibers (primarily jute bags) to be used chiefly for the storing and transporting of agricultural products. Forty million bags were imported for these purposes in 1966 at a foreign exchange cost of approximately £6.5 million.

At least three basic reasons can be identified for developing a bast fiber industry within Nigeria.[21] They are as follows: (1) the diversification of agriculture that would result from the addition of a crop for which a ready market is already available, (2) the creation, or expansion, of a labor intensive manufacturing industry, and (3) the reduction of imports thereby saving Nigeria a substantial amount of foreign exchange.

The readily available domestic market for bast fiber products and the sizable foreign exchange costs of importing bags have led Nigeria to undertake a variety of experimental and pilot programs designed to increase local fiber production. Two major sack mills, with a combined capacity equal to one-half of Nigeria's requirements for bags, have been established through this effort. Local production problems connected with varieties to produce, fertilization,

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[21]For more details on the fiber industry in Nigeria, see the section on Kenaf, written by Dr. Anita Whitney, in the CSNRD Strategies and Recommendations report, Glenn L. Johnson, et al., op. cit., pp. 96-99 and P. Tomy-Martin, Prospects for Jute, Kenaf and Allied Fibers in African Countries, (Rome: FAO, August 1, 1968).

retting and washing technique, plot size, and the structure best suited to Nigerian conditions as well as other problems have arisen to hamper development of this import substitution industry. Probably the most basic problem or obstacle to increasing production has been the lack of economic studies of the real costs and returns to Nigerian farmers from this line of production. The domestic market for Nigerian produced bags is available. The problem which must now be resolved is whether Nigerian production can be organized to economically meet that demand. The world-wide movement toward bulk handling of many agricultural commodities and inputs, the depressed world hard fiber prices and the export controls that have been imposed to try to bolster world prices, and Nigeria's comparative advantage in bast fiber production should all be considered before the country makes a concerted effort to increase production, even on an import substitution basis.

Feed Grains (Corn and Grain Sorghums)

The coarse grains, which include corn and grain sorghums and which are traded internationally primarily for livestock feeds, are regarded by FAO commodity experts "as one of the few commodity groups for which the developing exporting countries might find themselves faced with reasonably good market prospects in 1975. . ."[22] This

[22]Ojala, op. cit., p. 8.

assumes that the developing countries can produce export qualities at competitive prices in the world market and is based upon a projected world trade of 55 million tons of coarse grain in 1975, as compared to 40 million tons in 1968-69.

World imports of feed grains, 90 percent of which are made by developed countries to support their livestock industries, rose steadily over the 1960s, reaching a peak of 42.7 million tons in 1966-67 and then tapering off. The main reasons for the decline since 1966-67 are: (1) the good harvests in Western Europe, (2) the increased feeding of domestic and imported wheat, and (3) the increased use of nongrain feedstuffs.[23] Table 8.4 gives world imports and exports of coarse grains during the 1960s.

Although the developed countries still dominate the feed grains export market, the developing countries have increased their share of world exports from about 21 percent in 1959/60-1963/64 to approximately 27 percent in 1968-69 (see Table 8.4). This has been largely due to the development of grain exports from Argentina, Mexico, and Thailand, whose combined exports moved from 5.7 million tons yearly average over the years 1959/60-1963/64 to 10.6 million tons in 1968-69. This represents an 86 percent export increase over the years shown for the less developed countries while the developed countries increased

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[23] Ibid., p. 7.

Table 8.4. World Coarse Grains Imports and Exports, 1959/63-1969

Country	1959/60 1963/64 Average	1965/66	1966/67	1967/68	1968/69
	Million Tons				
Imports					
World Total	27.2	41.2	42.7	41.2	39.0
Developed Countries	24.4	37.7	37.6	36.6	36.0
United Kingdom	4.6	4.3	4.1	4.1	4.1
EEC	11.4	17.9	16.9	16.8	15.3
Other Western Europe	3.8	6.9	6.7	5.8	5.1
USSR and Eastern Europe	0.6	1.8	1.2	0.9	1.6
Japan	2.6	5.2	7.8	8.0	8.3
Developing Countries	2.8	3.5	5.1	4.6	3.0
Exports					
World Total	27.4	42.2	42.6	41.3	39.1
Developed Countries	21.7	35.4	31.9	32.4	28.5
EEC	2.3	4.3	4.7	4.8	7.0
USSR and Eastern Europe	1.4	0.7	0.8	0.8	0.5
Canada	1.1	1.2	1.3	1.2	0.6
United States	13.6	25.5	21.0	19.7	16.0
Developing Countries	5.7	6.8	10.7	8.9	10.6
Argentina	3.5	3.8	6.5	4.3	5.8
Thailand	0.6	1.2	1.3	1.3	1.3
Mexico	---	1.3	1.1	0.9	1.0

Source: E. M. Ojala, "Increasing Agricultural Export Markets," op. cit., p. 21.

their coarse grain exports by 50 percent over the same period.

The evolution and trade off between U.S. and EEC grain exports is interesting (see Table 8.4). The EEC, spurred by the Common Agricultural Policy and good weather increased exports three fold over the period shown in

Table 8.4. U.S. exports climbed from a yearly average of 13.6 million metric tons over the period 1959/60-1963/64 to almost double that (25.5 million tons) in 1965-66 and then declined to 16.0 million tons in 1968/69.

Despite the generally optimistic outlook for competitively priced feed grains, at least for the mid-1970s because of the increasing demand for meat linked with rising incomes and population, the growing agricultural surpluses in some food grains in developed countries may cause more of these to be used for livestock feed. Some examples of this are already evident: the increased feeding of wheat in Western Europe, the proposal for subsidized feeding of rice in Japan, and the denaturing of sugar and milk powder for feed in the EEC.[24]

Beef

See summary statement on beef production and export potentials (Chapter IX).

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[24]Ojala, ibid., p. 9.

CHAPTER IX

SUMMARY OF THE WORLD DEMAND FOR NIGERIA'S PRESENT AND KNOWN POTENTIAL AGRICULTURAL EXPORT PRODUCTS, 1970 TO 1985

Chapter IX summarizes Part II (Chapters V-VIII) and includes the most salient points of the world demand situation facing Nigeria for her agricultural exports over the period 1970 to 1985.

The outline followed in Chapter IX is

Cocoa Summary

Fats and Oils Summary

Rubber Summary

Summaries of Import Substitute and Minor Export Crops

- Cotton
- Rice
- Hard Fibers
- Feed Grains
- Beef

The world demand for many of the import substitute and minor export crops listed above has not been covered in great detail simply because the world market situation for these particular crops is not extremely important to Nigeria at this time. This is the case for the two important import substitute crops, cotton and hard fibers, both of which

have a large domestic market but are not expected to compete on a large scale in the world market for many years. The second set of commodities for which the world market is not extremely important to Nigeria thus far is composed of beef and feed grains which have been produced neither in sufficient quality nor quantity to compete actively on the world market.

Cocoa Summary

Cocoa is almost unique among the major agricultural products traded on the world market in that substantially all of it is produced in the less developed countries of the world and a correspondingly high percentage is consumed in the developed parts of the world. Other agricultural commodities have this characteristic but probably not to the extent of cocoa. In order to analyze the supply and demand forces that determine world price and volume of trade, it is thus necessary to look at both the consuming and the producing countries.

The growth of the cocoa market over the past 20 years, which has seen cocoa production and consumption almost double since the early post-World War II period, has been a complicated and erratic process. World production increased slowly though unevenly throughout the decade of the 1950s, achieving an annual growth rate of only 2.3 percent. World production spurted during the late 1950s and early 1960s, largely as the result of disease control in West Africa and

later from young trees coming into production, and reached a compound growth rate of 7.8 percent per year over the late 1950s and early 1960s in West Africa. The world cocoa economy continued its expansion even after 1961-63 with the 1964-65 West African crop which, primarily due to favorable weather, exceeded all previous cocoa records and boosted world production by 22 percent over the previous year's crop and by 25 percent over the 1964 grindings. World cocoa prices fell to a low of U.S. 10-12 cents per pound in July 1965 due to this large, sudden increase in production.

The low prices at which most of the 1964-65 and 1965-66 crop were sold had two definite effects on the world cocoa market. One was the marked and profound increase in world cocoa grindings partly as the result of the rapid growth of cocoa consumption in the centrally planned countries that came with the lower price. The second was the strong negative effect on cocoa suppliers, particularly Ghana--which began a path of cocoa de-emphasis based on the low world cocoa prices which prevailed at that time. The two opposite effects--the greatly increased consumption with the low prices and the lessened interest in production--resulted in cocoa consumption exceeding production every year since 1965. This has meant that the world's cocoa reserves were drastically lowered and prices have been high.

Nigerian cocoa production has faired rather well through this turbulent period. Her share of the world market increased from 15.5 percent during 1948-52 to 21.7 percent over the period 1963-68. Her production increased at 6.0 percent per annum over the period 1950/52-1964/66.

Despite a predicted slowdown in the growth of cocoa consumption in both the developed and the centrally planned countries, FAO predicts that cocoa consumption will increase from its present 1.3-1.4 million tons annually to 1.8 million tons in 1975 at the price of U.S. 25 cents per pound and to 2.2-2.4 million tons by 1985 at the price of US 23 cents per pound. IBRD is basing its present cocoa project calculations on a price of US 27 cents per pound spot New York for Accra cocoa. The price used by IBRD is slightly below mid-point of the lower half of the range US 25-35 per pound which the Bank is forecasting as a long-term equilibrium level to which cocoa prices would trend by the mid-1970s.

Fats and Oils Summary

The world fats and oils market, with some 14 major fats having varying degrees of substitutability and potential substitutability one for another and all competing for market share, is a large and complicated market exceeded only by meat exports in world value of trade. It is a market where exports from the developed and the developing countries compete side-by-side for a share of the world trade.

It is also a market where institutional and political factors often exert over-riding pressures for solutions to problems which would otherwise be determined by market forces. Nigeria's interest in this market hardly need be pointed up as the family of vegetable oil exports (groundnut products, palm products, and cottonseed oil and meal) contribute approximately 30 percent of Nigeria's foreign exchange earnings.

A major complicating factor in the operation of the world fats and oils market is the fact that more than 50 percent of the world's fats and oils supply (including butter) is made up of by-products. Butter and tallow, which along with soybeans and sunflower seed exhibited the largest increases in production of any of the oils between the mid-1950s and 1966-67, are by-products of the meat and/or milk industries and are not produced for their values alone. Soybean oil is a by-product of soybean meal, or cake, which is of greater value than the oil produced along with it. The demand for high protein meal, which is used primarily for animal feed, has been growing much more rapidly than the demand for oil, which is used mainly for human food. Prices for the major meals used in livestock feedings have tended upward over the past decade while prices for oils have declined modestly over the past 15 years.

The fats and oils market, although basically considered as one market, has some product differentiation within it. Each fat and oils product has some special

characteristics, and none is equally well suited for all purposes although improved processing methods in recent years has made the different oils increasingly interchangeable. The possibility of substituting one oil for another is somewhat limited in the short-run, however, as evidenced by the price movements of some oils in a direction contrary to the general price trend as has happened for coconut and cottonseed oils in recent years. These movements are the result of short supplies of the commodities which are apparently replaceable, at least in the short-run, only on a limited basis. Over the longer-run, however, the potentials for substitution are great with the cheaper oils tending to set the price levels. The possibility of substitution and the continuous progress in altering tastes, color, and storing qualities offers great opportunities for expansion of share of the world market for any oil which can achieve a marked price advantage over others in the international market.

Summing up the market outlook, several points seem clear. One is that there will likely be downward price pressures between 1965-67 and 1975. Some oils, such as groundnut oil, cottonseed oil, and sunflower oil, which are more valuable from a processor's point of view, may not move below their price levels of the early 1960s. Prices of some other oils, particularly soybean and palm oil, may decline drastically. This is particularly true if palm oil is to gain a greater share in food uses.

One of the most interesting struggles for a larger share of the world export oil market is now underway with palm oil. World palm production, following several years of slight fluctuations, is now expanding rapidly. World export availabilities are expected to almost triple between 1968 and 1975. The reason for the great upsurge and renewal of interest in palm oil is the great strides that have been made in improving productivity. The oil palm cultivated with modern varieties and techniques yields more edible vegetable oil per acre than any other oil bearing plant. In addition to the much greater productivity and shorter gestation period brought with the new palm hybrids being cultivated, improved and timely processing provides high quality oil whose principal use is in food production whereas previously it was sold primarily for industrial purposes.

Malaysia has taken the lead in the production of palm oil and has moved into the role formerly held by Nigeria as the world's number one palm oil exporter. Nigeria has experienced great difficulty in converting her semi-wild palm groves over to the high yielding hybrids. Internal production has also been discouraged by low producer prices.

Palm oil because of its great increases in productivity is now able to sell at prices low enough to encourage the change-over to this type of oil. This is now being

evidenced in the United States where it is selling at prices well below those of domestically produced oils.

Rubber Summary

The market for elastomeres has been a rapidly expanding market and is expected to continue as such, at least over the next decade. There is some evidence that efficient rubber producers achieving 1,000 pound yields per acre or more will be able to compete fully in price with synthetic rubber over the next several years. Some countries have moved ahead and showed confidence and committment to natural rubber production, realizing that production costs must be kept low if the product is to compete with the price of synthetic rubber. One such country is Malaysia where 68 percent of Malaysia's 4.3 million acres of rubber is now planted to high yielding clones; 34 percent of the new plantings are still immature. Less is known about rubber yields and production costs in West Africa as it is not so important in the world market. It is reported, however, the Firestone Rubber Company is achieving an average yield of 1,300 pounds of dry rubber per acre from its plantations in Liberia. This is a long way from the present 300-400 pounds of dry rubber per acre harvested on the average in Nigeria. Only well planned and well directed research and pilot operations can determine how much of the Far Eastern rubber production and processing technology can be economically adopted and employed under Nigerian smallholder conditions.

Summaries of World Demands for Import Substitute and Minor Export Crops

Cotton

The primary role of cotton production in Nigeria over the next decade and a half will be that of meeting the rapidly growing domestic demand for cotton textiles, which is expected to increase by 60 percent. Although Nigeria annually exports cotton valued at ₤5-6 million, the country plays a very minor role in the world cotton markets--accounting for approximately .5 percent of world cotton exports. Thus, it appears evident that Nigeria will react as a "price taker" for her cotton that is not demanded for domestic uses and that she can readily sell that surplus at the prevailing world price.

Rice

The decade of the 1960s was a period of change in almost all aspects of the world rice situation. It saw changes in yields, production, prices consumption, exports, and imports. Perhaps the most striking change was the 30 percent increase in production over the 10 year period. The major breakthrough in rice production came with the widespread adoption in the late 1960s of the "miracle rice", IR-8, developed by the International Rice Research Institute in the Philippines.

Nigeria has been successful in meeting the increasing demand for rice by employing the more or less traditional

forms of rice culture. Recent studies have shown that producer prices for rice in West Africa are generally comparable to those in countries which sell rice without subsidies on the world market. The present state of milling and high costs of transportation tend to inflate African export rice prices above the import costs of rice produced outside of the area, however.

The greatest export possibility for Nigerian rice seems to lie with her West African neighbors--Senegal, Ghana, Liberia, Sierra Leone, and the Ivory Coast. These five countries in 1967 imported 309 thousand tons of rice valued at U.S. $42.7 million. Income elasticity of demand for rice in West Africa is calcultaed by FAO to be above 1.0 as there is a shift from the starchy root crops as the staple food to cereals, and particularly rice, as incomes rise and the urban population grows.

Nigeria seems to have an excellent opportunity to increase rice exports to her rice importing neighbors. To do so would require concerted efforts to control costs of production and the costs of processing and transportation so that Nigerian rice can compete price-wise with rice imports from other parts of the world.

Hard Fibers

Nigeria has historically been an importer of hard fibers (primarily jute bags) to be used chiefly for the storing and transporting of agricultural products. Forty

million bags were imported for these purposes in 1966 at a foreign exchange cost of approximately £6.5 million.

The readily available domestic market for bast fiber products and the sizable foreign exchange costs of importing bags have led Nigeria to undertake import substitution programs based on local fiber production. The problem which must now be resolved is whether Nigerian production can be organized to economically supply this ready-made market. The world-wide movement toward bulk handling of both agricultural commodities and inputs, the depressed world hard fiber market and the export controls that have been imposed to try to bolster world market prices, and Nigeria's comparative advantage in bast fiber production should all be considered before the country makes a concerted effort to increase production--even on an import substitution basis.

Feed Grains (Corn and Grain Sorghum)

The coarse grains, which include corn and grain sorghums, are regarded by FAO as one of the few commodity groups for which the developing exporting countries might find themselves faced with reasonably good market prospects during the mid-1970s. This is assuming that the developing countries can produce export quantities and qualities at competitive prices and is based upon a projected world trade of 55 million tons of coarse grain in 1975, as compared to 40 million tons in 1968-69.

Nigeria has not yet proven that she can compete in the international coarse grain market.

Beef

World trade in beef almost doubled during the 1960s and ended calendar year 1969 with a record level of 6 billion pounds. Demand for beef has continued to climb throughout the decade, resulting in tight supplies and a general price increase in most of the world's major commerical markets.

The world beef market is not of particular interest to Nigeria at this time. Nigeria's beef problems lie in production, marketing, quality improvement, and sanitation and disease control rather than in searching for a world market. Considering that the EEC's beef imports expected to double over the next decade, consumer demand for beef rising rapidly in Japan as in other parts of the developed and developing world, and U.S. production barely keeping pace with population growth, there seems to be little problem of world demand over the next 15-20 years for beef that meets certain minimum requirements for export quality.

PART III

NIGERIA'S RESPONSE TO WORLD MARKET DEMANDS

CHAPTER X

SUPPLY CONDITIONS WITHIN NIGERIA

The recent record of performance of both the export sector and the interrelated domestic food production sector of Nigeria's agriculture is presented in Appendix A. The process by which the volume of agricultural exports grew at a compound annual rate of 4.5-5.0 percent over the past 15 years is covered in some detail as well as some of the factors which may have contributed to the differential rates of growth of the export commodities. The statement is also made that it appears that domestic food prices have risen rather steadily over a similar period of time in all areas of Nigeria for which data are available. The reasons for the rather steady price rise of domestic food (if this is the case) are not known.

Production Characterized by Low Yields

Available data show that, almost without exception, yields of Nigeria's export crops are low relative to (1) yields in major competing countries, and (2) to those which should be produced in Nigeria to maximize social returns to the country. Evidence generally shows that the increases in production of export crops that have occurred over the past 2-3 decades may be almost entirely attributed to

increases in acreages of crops grown and not to increased output per unit of land under cultivation. Kriesel found this to be the case with groundnuts where "the yields per acre probably changed little in several decades."[1] The FAO stated that while cotton production in Nigeria quadrupled over the 15 year period from 1950-1965 the "increase in production is believed to be caused almost entirely through expansion of the acreage planted with cotton rather than through improvements in cotton culture. Perhaps 10 percent of the increase in production may be attributed to the use of improved varieties of seed."[2] The utilization of wild palm trees and inferior rubber planting material and poor standards of tapping add further evidence that yields are inherently low and that dramatic production increases will require much replanting with improved planting material.

Only cocoa of the six principal agricultural exports (cocoa, cotton, groundnuts, palm oil, palm kernels, and rubber) may claim substantial yield increases over the past 10-15 year period. Much of the yield increase in cocoa was due to more extensive capsid and blackpod control beginning in the late 1950s.

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[1]H. C. Kriesel, "Marketing of Groundnuts in Nigeria," CSNRD publication No. 19 (East Lansing: CSNRD, July 1968) p. 6.

[2]FAO, Agricultural Development in Nigeria, op. cit., p. 167.

Present Low Level of Usage of Modern Inputs

The theoretical reasoning and empirical evidence given in Chapter III relative to the acquisition and disposal of factors of production give insights into why farmers have chosen to bring more land into production as the principal means of expanding output rather than to invest in improved varieties, to increase usage of fertilizers and insecticides, and to use improved cultural practices developed, or adapted, to Nigerian conditions by the agricultural research system. Some critics blame the discouragingly slow rate of adoption of the highly improved varieties of oil palm, cocoa, and rubber, or expanded disease control and fertilization, on the extension service which, according to this theory, has been inadequate to the task of making new information known to farmers and in convincing them that the new techniques are profitable.[3]

On the other hand, additional land for crop expansion has been relatively easy to acquire in Nigeria. There is generally little population pressure on the land except in some areas of the former Eastern Region and in high population density pockets in the North. Also, the export taxing structure, whereas the Government extracts most of the economic rent from land, reduces the effective price of

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[3]Glenn L. Johnson, "Factor Markets and Economic Development," Chapter 6 in Economic Development in Tropical Agriculture, edited by W. W. McPherson, (Gainesville: University of Florida Press, 1968).

land to the point where in many sections land can almost be had for the asking.[4]

The modern factors of production (i.e. improved varieties, fertilizers, pesticides, etc.) all have acquisition costs which are substantially higher than the MVPs they might be expected to earn in production, given the present export taxing structure. The modernization process of Nigerian agriculture has thus proven difficult to implement and expand as the decision making process lies with the individual farmers while the bulk of the economic rent from the employment of the modern factors of production goes to the government. A change in the taxing structure, which will allow the small farmer to realize a higher rate of return from investments that he makes in modern factors of production, will be necessary before the modern factors will be adopted on a wide scale.

The historical performance of the traditional agricultural sector, interesting as it might be, offers little guidance as to how the economy might perform if modernized. The problems inherent in assuming the simple fully reversible supply curve for Nigerian agricultural products and the same subproduction functions for both large and small, upward and downward price changes were pointed up in Chapter III. An alternative procedure to depending on the past

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[4]Godwin Okurume, "The Food Crop Economy in Nigerian Agricultural Policy," CSNRD Publication No. 31 (East Lansing: CSNRD, February, 1969).

to predict the future must be devised for predicting the supply responses that might be expected with

(1) a change in policies so as to provide agricultural producers with favorable price relationships and incentives to expand production to socially desirable levels, and

(2) the accompnaying infrastructural support (including research, extension, and resident instruction) to insure that both the short and long-run strategies can be carried out.

The sytem of analysis chosen for predicting the likely supply responses under the conditions stated above was the non-computer simulation technique as described in Chapter III. The expected supply responses are estimated for the major export crops for three points in time, 1970, 1975 and 1985, for the three development strategies. Supply projections for the individual crops are included later in this chapter.

The three broad strategies considered by CSNRD for Nigerian agriculture are as follows:[5]

Strategy I. Continue present strategy for export agriculture while allowing food production and marketing to be guided by the market mechanism.

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[5]Glenn L. Johnson, et al., op. cit., p. 59.

Strategy II. Moving from the present strategy to (a) higher producer prices and improved producer incentives and services for the production of export and selected import substitution crops and (b) vigorous research to find new technologies for the high cost staple foods.

Strategy III. A harsher strategy than at present for private producers of export crops with a relatively large public agricultural sector involving the possible imposition of price ceilings, resource allocation controls and food rationing with the objectives of producing cheap foods for city dwellers and obtaining heavy extraction of government revenues from agriculture.

The projection estimates themselves are based on (1) available data on the present Nigerian agricultural economy, (2) information on the performance of other agricultural economies, (3) information on and an evaluation of the likely consequences of research, plant and animal breeding over the next several years, and the performance of agricultural education systems, credit organizations, and resettlement schemes within the Nigerian economy, and (4) the informed judgements of economists and agriculturalists both Nigerian and expatriate.

The Supply Projections Under Three Sets of Alternative Policy Strategies

This section presents the export projections by crop for the major Nigerian export crops over the period 1970, 1975 and 1985. Projected world commodity prices and demand are drawn from Part II of this paper (World Demand for Nigeria's Present and Potential Agricultural Export Products).

The projections are presented for each of the alternative development strategies I, II, and III described above. The export projections under Alternative Strategy II reflect the two general CSNRD strategies for fostering Nigerian rural development over the 1970-1985 period.[6] The first strategy concentrates on short-term opportunities not previously exploited to increase agricultural production and foreign exchange earnings by more fully meeting international demands for Nigerian export commodities and by distributing the increase in income to a large number of rural people. The second long-term CSNRD strategy concentrates upon expanded research, to be followed by production campaigns for food crops with the goal of increasing food crop yields and reducing per unit costs of staple foods and feed for livestock starting 5-10 years in the future. The supply projections for Nigeria's present major agricultural exports are presented below.

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[6]For a more detailed analysis of the CSNRD strategies see Glenn L. Johnson, et al., op. cit.

Expected 1970 world prices for Nigeria's principal agricultural exports are substantially higher in this dissertation than those projected by CSNRD in 1969. The generally improved prices may be attributed to a variety of causes, ranging from the growing industrial demand for rubber, for example, and the hitherto inability of synthetic rubber producers to lower costs of production to the continuing phenomenon of world cocoa consumption exceeding world production. Some of the elements which contribute to the relatively high world fats and oils prices are the reduced fish catches for the world fish oil market, the slowdown of fats and oils exports from the U.S.S.R., and the disruption of the Nigerian palm oil industry brought about by the war. These and other world demand factors which make present export prices relatively high are discussed in Part II (Chapters V-IX). The present high export prices are generally seen as temporary, however, as they are expected to decline, reaching substantially lower levels by 1975.

The high 1970 export prices are expected to lead to potential marketing board surpluses far in excess of those in recent years. The actual marketing board profits realized will depend upon the efficiency of operation of the boards and the method by which the profits are calculated.

As 1970 is expected to be a "better than average" export year for both prices and export earnings, the prices

and values of exports obtained in 1970 may not serve as "normal" or reliable benchmarks against which to measure future export growth. This should be kept in mind when considering the prices and export earnings projected for 1975 and 1985.

Cocoa

Cocoa production in Nigeria is concentrated primarily in the Western State where it involves approximately 300,000 small farmers and an estimated 1,200,000 acres.[7] The average cocoa holding is about 3.5 acres although the vast majority of farmers till much smaller plots. Yields vary greatly ranging from 100 lbs. per acre to 1,000 lbs. per acre. The average potential yield of mature Amelonado cocoa is considered to be 800 lbs. per acre while managed Amazon cocoa farms have potential yields of around 1,200 lb. of dry beans per acre.[8] Smallholder yields are much lower than the average potentials cited, however, and are calculated in this study to average 427 lbs. per acre. This is based on estimates over the 1963-67 period.

Table 10.1 illustrates the multiple impact on acreages of cocoa planted, yields, and cocoa production of carrying out the cocoa production campaign as recommended

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[7]H. C. Kriesel, "Cocoa Marketing in Nigeria," CSNRD Publication No. 21 (East Lansing: CSNRD, January 1969).

[8]FAO, Agricultural Development in Nigeria, op. cit., p. 43.

Table 10.1 Selected Aspects of Cocoa Production Under Three Alternative Strategies, Nigeria, 1963, 1967, 1970, 1975, and 1985[1]

Year and Alternative Strategy	Acres	Yield Per Acre	Total Production	Price to Farmers[2]	World Prices (f.o.b. Nigeria)
	'000	Pounds	Long Tons	£/Tons	£/Tons
1963-67 average	1,200	427	229	50-116	150-220
1970					
Strategy I[3]	1,200	427	229	150	220
1975					
Strategy I	1,200	467	251	115	180
Strategy II	1,275	513	292	158.4	180
Strategy III	1,200	386	207	112.0	180
1985					
Strategy I	1,200	450	242	105	160
Strategy II	1,515	643	435	138.4	160
Strategy III	1,250	364	187	102.0	160

[1]A similar table appears in Table 8.1 in Glenn L. Johnson, et al., op. cit. Projected world cocoa prices are higher in this table, however, than those projected in the CSNRD document.

[2]Tax levels per ton of cocoa under the three alternative strategies are given in Table 10.2.

[3]Only one strategy alternative is considered for 1970.

by CSNRD.[9] The cocoa production campaigns are built on smallholder cocoa expansion utilizing three techniques to increase cocoa production: (1) increased application of pesticides and fertilizers on present cocoa acreage; (2) planting new cocoa acreage with the assistance of increased producer prices, input subsidies (pesticides and fertilizers), and loans to smallholders; (3) and the replanting of old and diseased trees with new varieties with the assistance of input subsidies and loans to smallholders and the incentive of increased producer price. CSNRD recommends under Strategy II that yearly plantings of improved cocoa be made in the Western, Mid-Western, and South-Eastern States to total 204,000 acres of subsidized, new plantings between 1970 and 1975.[10]

Per acre average yields would be expected to increase under the CSNRD recommended policies from the 427 lbs. achieved over the 1963-67 period to 513 lbs. per acre in 1975 and to 643 lbs. per acre in 1985. The increases in per acre yields for Strategy I would be much less--reflecting only an expected 27 lbs. per acre increase over the 15 year period. Average per acre yields might even be expected to fall with the harsher taxing policies and

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[9]For a detailed analysis of the CSNRD recommended production campaigns for the major export crops, see Strategies and Recommendations for Nigerian Rural Development, op. cit., particularly Chapter VII, "Recommended Production Campaigns."

[10]Glenn L. Johnson, et al., ibid., p. 76.

reduced emphasis on research and extension under Strategy Alternative III.

The 216 lbs. per acre yield increase that might be expected under the more favorable Strategy II reflects the result of marginal value products (MVPs) of some of the modern inputs (improved varieties, pesticides, and fertilizers) exceeding their acquisition costs and more of the modern factors being used.

The projected cocoa prices for the three periods reflect the analysis done in Chapter V on export demand and supply. The expected prices are coupled with the projected Nigerian export quantities in Table 10.2 to give expected export earnings in each of the three periods under the three alternative development strategies. Income to farmers and projected government revenues are also calculated.

Groundnuts

The same procedure as shown for cocoa was used to estimate the expected results of employing the three alternative development strategies to groundnut production. A production campaign for groundnuts, reflected under Strategy II, is based on over-coming the three present major constraints to increasing groundnut production (i.e. (1) problems of input supply, particularly fertilizer, (2) low producer price incentives, and (3) slow and costly

Table 10.2. Cocoa Projections Under Three Alternative Strategies: Payments to Farmers from Exports, Government Revenues and Exchange Earnings, Nigeria, 1970, 1975, and 1985[1]

	1970	1975			1985		
	Strategy	Strategy			Strategy		
	I[4]	I	II	III	I	II	III
	₤ '000						
Nongovernment revenues generated							
Payments to farmers	34,350	28,865	46,253	23,184	25,410	60,204	19,074
Transportation and marketing[2]	4,946	5,422	6,307	4,471	5,227	9,396	4,039
Government revenue[3]							
Producer purchase tax	916	1,004	---	911	968	---	823
Export duties	4,695	5,145	---	4,957	4,961	---	4,207
Marketing board surplus	5,473	4,744	---	4,037	2,154	---	1,777
Total government revenues	11,084	10,293	---	9,605	8,083	---	6,807
Exchange earnings	50,380	45,180	52,560	37,260	38.720	69,600	29,920

[1]A similar table appears as Table VII.2 in Glenn L. Johnson, et al., Strategies and Recommendations for Nigerian Rural Development, 1969-1985. Projected world cocoa prices and producer prices are higher in these calculations, however, than those projected in the CSNRD document.

[2]This item may include monopolistic income as well as the costs of producing marketing and transportation services.

[3]Tax take per ton of produce (including marketing board trading profits) under Strategy I is calculated at the 1961-65 rate for all projections. Taxes under Strategy II are one-half the 1961-65 rate for 1970 and eliminated by 1975. Tax take per ton of produce under Strategy III is increased by 10 percent over the 1961-65 average for all projections.

[4]Only one strategy alternative is considered for 1970.

evacuation of the produce).[11] Groundnut production would be expected to expand from approximately 1 million tons to 3 million tons between 1970 and 1985 under Strategy II. This is an annual compound growth rate of 6.3 percent over the entire period. Groundnut exports grew at a compound rate of 5.2 percent between 1956-58 and 1964-66.

Table 10.3 illustrates that groundnut production may increase from 1.2 million tons in 1970 to 1.6 million tons in 1975 and to 3.2 million tons in 1985 under the CSNRD recommendations. The world price of groundnuts (f.o.b. Nigeria) is assumed to be £70 per ton in 1970 and £53 per ton for the 1975-1985 period. As Nigerian groundnut oil is only a small part of the world fats and oils market, Nigeria is assumed to be a "price taker" as it is thought that the Nigerian expansion of output would have little effect on world fats and oils prices.

Table 10.3 also summarizes producer price policies for 1970-1985. Producer prices would be maintained at £37 per ton for Strategy II as the world price is expected to decline from the present £70 per ton f.o.b. to £53 by 1975. The price for Strategy II would be maintained by eliminating the average £8 per ton tax that has been collected over the 1961-65 period (see Table 4.3) as well

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[11] See Glenn L. Johnson, et al., Strategies and Recommendations, Chapter VII, "Recommended Production Campaigns," op. cit.

Table 10.3. Selected Aspects of Groundnut Production Under Three Alternative Strategies, Nigeria, 1963, 1966, 1967, 1970, 1975 and 1985

Year and Alternative Strategy	Acres	Yield Per Acre	Total Production	Price to Farmers[1]	World Price (f.o.b. Nigeria)
	1,000	Pounds	Long Tons	£/Tons	£/tons
1963-64	3,000	705	991	30.0	59.3[3]
1966-67	3,700	777	1,291[2]	32.0	
1967-68	n.a.	n.a.	620	29 Grade I 27 Grade II	
1970					
Strategy I[4]	3,330	740	1,100	30	70
1975					
Strategy I	3,500	800	1,250	27.0	53
Strategy II	4,080	880	1,600	37.0	53
Strategy III	3,400	720	1,090	26.2	53
1985					
Strategy I	4,125	900	1,600	27.0	53
Strategy II	5,830	1,330	3,200	37.0	53
Strategy III	3,650	760	1,240	26.2	53

[1]Tax levels per ton of groundnut products under the three alternative strategies are given in Table 10.4.

[2]The average yield in 1966-67 was substantially above normal because of exceptionally favorable weather. A yield of around 700 pounds and production of about 1,000,000 tons are considered more realistic averages for the late 1960s.

[3]1961-65 average price calculated from NPMC and marketing board data.

[4]Only one strategy alternative is considered for 1970.

Source: A similar table appears as Table VII.8 in Glenn L. Johnson, et al., op. cit. Projected world groundnut prices and producer prices for 1970 are higher than these projected in the CSNRD document.

as the "above normal" marketing board surpluses expected to be earned in 1970. Improvements in marketing efficiency are expected to add an additional £2 per ton to the producer price.

Table 10.4 summarizes payments to farmers, government revenues, and foreign exchange earnings resulting from Strategies I, II, and III. Payments to farmers from groundnut sales are expected to increase by approximately 50 percent between 1970 and 1975 and to approximately triple between 1970 and 1985 under Strategy II. Foreign exchange earnings are expected to also increase from around £65 million in 1970 to £69 million in 1975 and to £148 million in 1985.

Oil Palm Products

About 90 percent of present Nigerian palm oil produce is harvested from semi-wild trees which produce about one ton of bunches per acre per year.[12] Fortunately, Nigeria has improved palm varieties (the tenera hybrid palms) which are adapted for Nigerian growing conditions and produce at least six tons of palm bunches under experimental conditions and three tons per acre by small farmers. According to Johnson, the problem of getting mass farmer adoption of the new hybrid palms is the transition from the present unplanned ecological process of palm regeneration in which man participates but does not consciously manage to a planned, directed system where man is the manager.[13]

[13] Ibid., p. 83.

Table 10.4. Groundnut Products Projections Under Three Alternative Strategies: Payments to Farmers from Exports, Government Revenues and Exchange Earnings, Nigeria, 1970, 1975 and 1985[1]

Item	1970	1975			1985		
	Strategy	Strategy			Strategy		
	I[3]	I	II	III	I	II	III
Nongovernment revenues generated							
Payments to farmers from groundnuts and groundnut products exported	25,320	25,758	48,285	20,698	30,564	103,674	20,200
From domestically consumed groundnuts and groundnut products	6,060	6,345	8,547	6,288	8,505	11,470	8,384
Total payments to farmers from groundnuts and groundnut products	31,380	32,103	56,832	26,986	39,690	115,144	28,584
Transportation and marketing	15,867	17,263	20,880	14,225	20,377	44,832	13,880
Government revenues[2]							
Producer Tax	1,181	1,335	---	1,212	1,584	---	1,186
Export duties	5,064	5,724	---	5,214	6,792	---	5,088
Marketing board surplus	11,478	572	---	512	679	---	509
Total government revenues	17,723	6,631	---	6,947	9,055	---	6,783
Exchange earnings	59,080	50,502	69,165	41,870	59,996	148,506	40,863

[1]A similar table appears as Table VII.9 in Glenn L. Johnson, et al., op. cit. Projected world groundnut prices and producer prices for 1970 are higher than those projected in the CSNRD document.

[2]Tax take per ton of product under Strategy I is calculated at the 1961-65 average rate for all projections. Taxes, including marketing board levies, are calculated for Strategy II at the 1961-65 average for 1970 but eliminated by 1975. The average 1961-65 rates are increased by 10 percent under the Strategy III projections.

[3]Only one strategy alternative is considered for 1970.

The CSNRD recommended oil palm production campaign is built around three points. First is the utilization of the smallholder type of farm organization as the chief mechanism to expand oil palm production in areas where oil palm has a comparative advantage over alternative crops. Research on the economies of alternative forms of farm production strongly supports the smallholder form of farm organization linked with an input subsidy program as the central mechanism for the wide scale planting of hybrid palms over the 1970-1975 period. The second point of strategy is based on both loan and subsidy components to small farmers to help increase plantings of the new varieties. The third point is a continuing loan program to small holders after 1975, when all marketing board and export taxes have been eliminated.

Following the pattern of the oil palm rehabilitation scheme in the former Eastern Region, CSNRD recommends that palm campaigns be inaugurated in the three Eastern States, Mid-West, Kwara, Lagos, and the Western State. Table 10.5 gives recommended acreages of new plantings to hybrid oil palm to be supported through the oil palm campaign over the 1970-1975 period.

Table 10.6 spells out the expected results of the three alternative strategies and associated policies and programs. Without the production campaigns and incentive programs designed to increase output, production of both

Table 10.5. Strategy II: Suggested Oil Palm Campaign Acreage, Nigeria, 1970-1975

Year	Eastern States	Mid-Western State	Kwara, Lagos and Western States	Total
	----------Acres----------			
1970	10,000	500	500	11,000
1971	20,000	1,000	1,000	22,000
1972	30,000	5,000	5,000	40,000
1973	40,000	10,000	10,000	60,000
1974	40,000	15,000	15,000	70,000
1975	40,000	20,000	20,000	80,000

Source: Glenn L. Johnson, et al., Strategies and Recommendations for Nigerian Rural Development, 1969-1985, Table VII.5.

oil and kernels would be expected to remain more or less stagnant as it has been since 1954. Consumption of palm oil is expected to increase in any case with growing population, and Nigeria could well become a palm oil importer within 15 to 18 years if steps are not made to increase production.

Table 10.6 illustrates that the major expansion of output (from 560,000 to 800,000 tons of palm oil) can be accomplished under Strategy II mainly through replanting wild palm with hybrid varieties and through improved processing. The total acreage would increase only slightly. It is expected that prices to farmers could be maintained at £40 per ton despite the 25 percent fall in the world palm oil price that occurred between 1967 and 1968.

Table 10.6. Selected Aspects of Oil Palm Produce Production Under Three Alternative Strategies, Nigeria, 1963, 1967, 1970, 1975 and 1985

Yield and Alternative Strategy	Acres	Yield Per Acre		Production		Domestic Consumption Oil	Price to Farmers		World Price (f.o.b. Nigeria)	
		Oil	Kernel	Oil	Kernel		Oil[1]	Kernel[1]	Oil	Kernel
	1,000	---Pounds---		------1,000 Long Tons-----			----------£/Ton----------			
1963	5,600	206	160	495	400	350	42.0[1]	27.0	81.5[1]	51.7
1967	5,600	208	160	520	400	376	41.0	27.0	n.a.	n.a.
1970										
Strategy I	5,600	196	160	490	400	420	42.0	30.0	90	60
1975										
Strategy I	5,600	200	152	500	385	480	31.5	26.0	52	43
Strategy II	5,740	236	160	605	410	477	40.0	36.0	52	43
Strategy III	5,600	192	148	480	370	480	30.5	25.0	52	43
1985										
Strategy I	5,600	210	144	525	360	600	31.5	26.0	52	43
Strategy II	5,800	310	180	800	465	626	40.0	36.0	52	43
Strategy III	5,600	204	136	510	340	600	30.5	25.0	52	45

[1]Tax levels per ton of oil palm products are given in Table 10.7.

[2]1961-65 average, CSNRD computation from FAO figures.

[3]Only one strategy alternative is considered for 1970.

Source: A similar table appears as Table VII.6 in Glenn L. Johnson, et al., op. cit. Projected world palm oil and palm kernel prices for 1970 as well as palm oil and palm kernel producer prices are higher in this table than those projected by CSNRD.

Table 10.7 illustrates that total farmers' earnings from palm production (for both export and domestic consumption) may reach Ł49 million by 1985. This is approximately Ł20 million greater than could be expected as farmers earnings for either Strategy I or Strategy II. Annual foreign exchange earnings by that time would be expected to be approximately Ł14 million higher for Strategy II than for either of the alternatives.

Rubber

The long-run potential for Nigerian produced rubber to compete pricewise and qualitywise on the world elastomer market is a virtual unknown for Nigerian planners. There are on the one hand, estimates on the world market outlook for rubber as pointed up in Chapter VII--rates at which the world market is expected to grow, costs of production under the improved natural rubber technology of the Far East, natural rubber yields and potential yields in important rubber producing countries, and the long-run price expectations for both natural rubber and synthetics. These data are of limited use to Nigeria, however, as Nigeria has little agronomic or economic evidence as to how much of the Far Eastern rubber technology can be adapted to local conditions. And Nigeria has little rubber technology of her own waiting to be put into use.

Despite the low level of technology in producing tapping, and processing, Nigeria's natural rubber, exports

Table 10.7. Palm Products Projections Under Three Alternative Strategies: Payments to Farmers from Exports and Domestic Consumption, Government Revenues and Exchange Earnings, Nigeria, 1970, 1975 and 1985

Item	1970			1975			1985		
	Strategy			Strategy			Strategy		
	I[5]	II	III	I	II	III	I	II	III
Nongovernment revenues generated[1]									
Payments to farmers from palm products exported	14,940	21,300	14,940	10,640	19,880	9,250	9,360	23,700	8,500
From domestically consumed palm products	17,640	20,160	17,640	15,120	19,080	14,640	18,900	25,040	18,300
Total payments to farmers from palm products	32,580	41,460	32,580	25,760	38,960	23,890	28,260	48,740	26,800
Government revenues									
Producer taxes[2]	2,462	2,735	2,708	2,477	---	2,608	2,535	---	2,686
Export duties[3]	2,729	3,364	3,002	2,040	---	2,146	1,908	---	1,972
Marketing board surplus[4]	8,125	6,581	7,765	1,326	---	1,295	1,152	---	1,190
Total government revenues	13,316	12,680	13,475	5,843	---	6,049			
Exchange earnings	30,300	36,900	30,300	17,595	24,286	15,910	15,480	29,043	14,620

[1]Transportation and marketing costs within Nigeria of exported palm produce are calculated at £12 per ton for palm oil and £7 per ton for palm kernels.

[2]Producer purchase taxes for both oil and kernels are calculated at the 1961-65 average for all projections for Strategy I. They are also calculated at the 1961-65 average for 1970 for Strategy II but eliminated under Strategy II by 1975. Producer taxes for both palm oil and kernels under Strategy III are increased by 10 percent over the 1961-65 average for all projections.

[3]Export duties are calculated for palm oil at the 1961-65 average rate for Strategies I for 1970. They are eliminated for all three Strategies for palm oil by 1975. Export duties for palm kernels under Strategy I are calculated at the 1961-65 average for all projections; at the 1961-65 average level for Strategy II in 1970 and then eliminated by 1975; and at 110 percent of the 1961-65 average rate for Strategy III for all projections.

[4]Marketing board surpluses are expected to be substantial for 1970. They are calculated as the difference between the world price received for the products and transportation and marketing costs, taxes, and payments to farmers. They will be eliminated by 1975 for Strategy II as the world palm prices are expected to decline. Marketing board surpluses are expected to continue for Strategy I for 1975 and 1985 at rates comparable to the 1961-65 average and at 110 percent of that rate for Strategy III for both 1975 and 1985.

[5]Only one strategy alternative is considered for 1970.

Source: A similar table appears as Table VII.7 in Glenn L. Johnson, et al., op. cit. Projected world palm prices and producer prices in 1970 are higher in these calculations than in the CSNRD document.

have continued to grow.[14] Exports achieved an annual compound growth rate of 6.25 percent between 1956-58 and 1964-66 as total rubber exports increased from 20,900 tons in 1954 to 72,100 tons in 1964. Nigeria is Africa's leading producer of rubber--furnishing approximately 3 percent of the world natural rubber supply.

Despite Nigeria's small share of the world rubber market, rubber production is important in Nigeria. It annually contributes more than £10 million in foreign exchange (except during the war years) and is an important source of income and rural employment, especially in the Midwest State where most of the rubber is produced.

As rubber and palm oil are competing crops (at least potentially) in large sections of South Central Nigeria, there are two major questions the planner must answer to have a basis for choice between the two:

(1) What can be done economically to increase yields, quality of product, farmers' incomes, and foreign exchange earnings from the existing 460,000 acres of wild rubber?

(2) What is the relative profitability of producing hybrid palm oil as compared with rubber under improved rubber technology, improved tapping techniques, high-yielding clones, and improved processing?

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[14]See Figure A.1 in the Appendix.

This researcher maintains that at least the second question depends very heavily on "how much of the Far Eastern rubber technology can be adapted to Nigerian conditions." Nigerian researchers and planners have much greater information on the production and economic potentials of palm as the bulk of the agronomic research on hybrid palm was done in Nigeria.

Faced with the above problems and a basic lack of information on the potentials of improved rubber within the country, CSNRD chose a three-pronged production-research program as its recommended approach to rubber production in Nigeria.[15] The CSNRD recommended program is as follows:

(1) to introduce the new crumb-processing technology to improve the quality of wild rubber and thereby increase producer incomes and foreign exchange earnings from wild rubber;

(2) to launch a pilot rubber production-research campaign which utilizes improved (a) clones, (b) tapping techniques, and (c) processing technology, and

(3) to strengthen rubber research at the Rubber Research Station at Iyanomo, Mid-West State.

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[15]Glenn L. Johnson, et al., op. cit.

As the crumb rubber processing in Malaysia is still in the development stage, it could only be presently used in Nigeria in a pilot, experiemntal effort. Thus, the entire CSNRD program could be summarized with the phrase "additional research to determine the economic potentials for rubber in Nigeria."

Table 10.8 illustrates that rubber acreages and total rubber production are likely to decline under all three policy alternatives. The 55,000 ton figure as given under Strategy II for 1985 may be substantially surpassed if Nigeria demonstrates an ability to adopt the new Far Eastern rubber technology.

Correspondingly, with projected declines in world natural rubber prices over the 1970-1985 period along with expected reduced Nigerian rubber acreages, farmers' income from rubber is expected to fall, as are foreign exchange earnings from rubber exports. There are presently no government revenues from rubber exports--nor are there expected to be over the 1970-1985 period. The above figures are shown in Table 10.9.

Cotton

Cotton is one of Nigeria's most promising import-substitute crops. The domestic consumption of cotton lint is expanding rapidly and is expected to continue expansion for years to come. Although there are ample opportunities to increase cotton acreage, particularly

Table 10.8. Selected Aspects of Rubber Production Under Three Alternative Strategies, Nigeria, 1963, 1966, 1970, 1975 and 1985

Year and Alternative Strategy	Acres	Yield Per Acre	Total Production	Price to Farmers	World Price (f.o.b. Nigeria)
	1,000	Pounds	Long Tons	£/Tons	£/Tons
1963	480	317	68,000	165	196[1]
1966	480	328	70,270	130	160
1970					
Strategy I[2]	485	320	70,000	130	160
1975					
Strategy I	414	325	60,000	93	120
Strategy II	414	330	61,000	93	120
Strategy III	400	320	57,000	93	120
1985					
Strategy I	355	315	50,000	93	120
Strategy II	355	345	55,000[3]	93	120
Strategy III	320	300	43,000	93	120

[1]1961-65 average CSNRD calculations from FAO data.

[2]Only one strategy alternative is considered for 1970.

[3]The 55,000-ton production output in 1985 is not a projection. It is a conservative estimate which may be substantially increased if Nigeria demonstrates an ability to adopt new rubber technology.

Source: A similar table appears as Table VII.3 in Glenn L. Johnson, et al., op. cit. Projected world rubber prices and producer prices for 1970 are higher in this table than those projected by CSNRD.

Table 10.9. Rubber Projections Under Three Alternative Strategies: Payments to Farmers from Exports and Domestic Consumption, Government Revenues and Exchange Earnings, Nigeria, 1970, 1975 and 1985

	1970	1975			1985		
	Strategy	Strategy			Strategy		
	I[2]	I	II	III	I	II	III
	----------£ '000----------						
Nongovernment revenues generated							
Payments to farmers	9,100	5,580	5,673	5,301	4,650	5,115	3,999
Transportation and marketing	1,890	1,620	1,647	1,539	1,350	1,485	1,161
Government revenues							
Export duties[1]	---	---	---	---	---	---	---
Exchange earnings	11,200	7,200	7,320	6,840	6,000	6,600	5,160

[1]There is no export duty when the price is less than 18d per pound.

[2]Only one strategy alternative is considered for 1970.

Source: A similar table appears as Table VII.4 in Glenn L. Johnson, et al., op. cit. Projected world rubber prices and producer prices for 1970 are higher in these calculations than in the CSNRD document.

in the Northeast State where soils are well suited to cotton production and competition from groundnuts is less than in some other parts of the northern cotton growing areas, there can also be substantial increases in yield per acre through utilization of existing knowledge. CSNRD points up the research done at the Institute of Agricultural Research, Samaru, which shows that per acre yields can be increased up to four-fold with proper timing of planting, plant spacing, weeding, fertilization, and insect and disease control.[16]

The main thrust of the CSNRD recommended production campaign is based on extension demonstration plot programs including improved practices and varieties for both cotton and for the food grains as the two crops compete for land and particularly for labor at the crucial planting time.

Table 10.10 and 10.11 give the expected consequences of following each of the alternative development strategies through the next 15 year period. Foreign exchange earnings from cotton in 1985 would be maintained at about the 1967 levels under Strategy II, whereas they would almost disappear under either a continuation of the present policies or a shift to a harsher strategy and programs. Payments to the 250,000 cotton farmers under Strategy II would be almost double the £16-£17 million paid under the other two strategies in 1985.

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[16]Glenn L. Johnson, et al., op. cit., p. 96.

Table 10.10. Selected Aspects of Cotton Production Under Three Alternative Strategies, Nigeria, 1963, 1967, 1970, 1975 and 1985

Year and Alternative Strategy	Acres	Yield Per Acre in Seed Cotton	Production Seed Cotton	Imports of Cloth (in Lint Equivalent)	Lint		Price to Farmers Seed Cotton[1]
					Export	Domestic	
	1,000	Pounds	----------1,000 Long Tons----------				Pence/Lbs.
1963	1,112	260	129	43	---	---	4.7
1967	1,284	260	149	23	19	32	4.6
1970							
Strategy I[2]	1,200	260	139	21	6	40	4.9
1975							
Strategy I	1,325	280	165	20	---	55	6.9
Strategy II	1,600	400	285	10	14	81	6.2
Strategy III	1,150	270	139	23	-4	50	7.2
1985							
Strategy I	1,700	350	265	31	---	88	6.5
Strategy II	2,300	500	513	10	21	150	6.2
Strategy III	1,800	325	260	34	---	87	7.2

[1]Tax levels on cotton products under the three strategies are given in Table 10.11.

[2]Only one strategy alternative is considered for 1970.

Source: See Table 10.11. This table also appears as Table VII.11 in Glenn L. Johnson, et al., op. cit.

Table 10.11. Cotton and Cotton Products Projections Under Three Alternative Strategies:[1] Payments to Farmers from Exports and Domestic Consumption, Government Revenues and Exchange Earnings, Nigeria, 1970, 1975 and 1985

Item	1970	1975			1985		
	Strategy	Strategy			Strategy		
	I[2]	I	II	III	I	II	III
	----------L'000----------						
Nongovernment revenue generated							
Payments to farmers from cotton exported	811	---	2,385	---	---	3,578	---
From domestically consumed cotton	5,430	10,428	13,082	8,976	15,735	25,560	16,765
Transportation & marketing[3]							
Government revenues							
Producer tax[3]	14	16	---	15	27	---	28
Export duties	19	---	---	---	---	---	---
Exchange earnings	2,914	908	6,700	1,109	3,042	12,366	2,774

[1]No allowance has been made for a possible program to substitute domestic production for gray cloth imports.

[2]Only one policy alternative is considered for 1970.

[3]Taxes, including marketing board trading profits under Strategy II are eliminated by 1975. Tax take per ton of produce under Strategy I is calculated at the 1961-65 average rate for all projections. The average 1961-65 rates are increased by 10 percent under the Strategy III projections.

Source: Glenn L. Johnson, et al., op. cit., Table VII.12.

Rice

The possibility for exporting Nigerian rice to other West African countries was covered in some detail in Chapter VIII. Reese[17] and Welsch[18] both found that rice producer prices in Nigeria were comparable to those in countries which sell rice on the world market without subsidies. If Nigerian c.i.f. prices to West African ports is greater than import rice prices from competing countries (the U.S., Burma, or Italy), the reason must lie with the buying, transport, marketing, and processing costs of getting the Nigerian rice to the ports of entry. Rice research should be geared not only to lowering costs of production but to marketing, transport and processing costs as well.

Feed Grains

Research on maize and grain sorghums, now well underway in Nigeria, offers hope of substantially improving feed grain yields and lowering costs of production over the next several years. The maize improvement program in Nigeria is conducted at (1) Ahmadu-Bello University, Institute for Agricultural Research, Zaria, (2) Mokwa, also in the north, and (3) the Federal and Western State Agricultural Research stations near Ibadan.[19] Average maize yields at

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[17] Reese, et al., op. cit.

[18] Welsch, op. cit.

[19] U.S. Department of Agriculture, Sixth Annual Report of the AID-ARS Project, Major Cereals in Africa, 1969.

the Samaru Station near Zaria have exceeded 4,000 pounds per acre each year since the maize improvement program was started in that location in 1964. Maximum yields have exceeded 7.000 pounds per acre. O. J. Webster, Geneticist and Coordinator of the U.S. sponsored Major Cereals Project in Africa, maintains that farmers in the Zaria area should be able to duplicate these yields by planting seed of the improved varieties developed at Samaru and by following recommended practices of good husbandry.[20] Seed and fertilizer are being distributed to a small group of selected farmers this year as a part of the extension services education program.

The research work on maize production done at Samaru is particularly important as the station is representative of an ecological zone that extends across Nigeria and West Africa. This area could become a major maize producing area as adapted varieties are developed and management problems resolved.

Tests on local sorghums and sorghum breeding work has also progressed in the north. Plot yields of over 3,000 pounds per acre, nearly four times the production of the local check variety, have been achieved at Kano.[21]

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[20] Ibid., p. 27.

[21] Ibid., p. 57.

The possibility for Nigeria to export feed grains lies far in the future. It must first lower costs of production and improve uniformity and quality levels if it wishes to compete in the world feed grain market. The research for increasing yields and lowering costs of production is well underway.

CHAPTER XI

CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the conclusions and recommendations from the study of the export potentials for selected Nigerian agricultural exports over the 1970-1985 period. Estimates of the export potentials are based on the expected world demand for Nigeria's agricultural exports (as discussed in Chapters V - IX, Part II) and Nigeria's likely responses to world demand conditions under three alternative sets of agricultural policy assumptions, (as presented in Chapter X).

A Favorable Outlook for Nigerian Exports

The most fundamental conclusion from the study is that the overall outlook for Nigeria's present and known potential export crops over the next 15 years is generally favorable and that agricultural export production should be increased. Chapters II and III provide theoretical insights into how export production can be increased to socially desired levels as well as an explanation of why it may not be at socially desired levels at present.

The diversified make-up of Nigeria's agricultural exports, where no one agricultural export provides more than 25 percent of foreign exchange earnings from agriculture

and where 10-12 agricultural exports normally earn more than £2 million annually in foreign exchange, is pointed up in Appendix A. This diversification serves as protection to Nigeria from severe world price fluctuations in one or two commodities which might cause great variability in foreign exchange earnings and farmers' incomes from export crops in a less diversified economy. This statement is made although of Nigeria's present major agricultural exports--with the possible exception of rubber--appear to be facing serious overproduction problems and drastically reduced prices over the projected period. Palm oil prices are expected to decline as they bid for greater usage in food products (see Chapter VI).

The outlook for Nigeria's major import substitute and some minor export crops is especially optimistic. Cotton and the hard fibers have a readily available domestic market which can absorb the major part of production for at least the next 15 years. Beef and feedgrains face similarly favorable demand conditions, both within Nigeria as well as on the world market. The potentials for these are discussed in a later section in this chapter.

The conclusions that the outlook for Nigerian agricultural export production is favorable and that export production should be increased is based upon the structure of the Nigerian agricultural export production sector as well as upon the world market outlook for the export

products over the next 15 years. Nigerian agricultural export production is largely provided by smallholder, price-responsive producers who have proven that they can economically compete in the world markets with their major export products. Increased income and employment from expanded export production under the present export production system could be widely distributed over the present 2-3 million export-oriented farmers and among others who might enter that sector because of the increased earning possibility. The subject of employment is further discussed below.

Projections of Farmers' Incomes From Export Crops, Government Revenue From Export Agriculture, and Foreign Exchange Earnings, 1970-1985

Table 11.1 illustrates the magnitudes of changes in farmers' incomes from export crops, government revenues from export agriculture, and foreign exchange earnings which might be expected over the 1970-1985 period under each of the three alternative strategies considered throughout this dissertation. The projections for 1970 serve as a benchmark against which the performances of the succeeding years can be measured and compared. The more favorable policies of Strategy II and the harsher policies of Strategy III would be expected to be implemented in 1971 although they would not be reflected in Table 11.1 until 1975.

Table 11.1. Projected Export Earnings, Farmers Incomes, Government Revenues, and Government Expenditure from Export Crops, Under Three Alternative Strategies, Nigeria, 1970-1985

	1970	1975			1985		
	Strategy	Strategy			Strategy		
	I	I	II	III	I	II	III
	₦ Millions						
Export earnings from agriculture	154	128	169	109	130	282	99
Projected government revenues from marketing board surpluses, producer purchase tax and export duties from export crops[1]	42	24	---	23	23	---	19
Projected government expenditures for agriculture	27	33	25	32	42	27	40
Excess of expenditures over revenues listed in second entry above	-15	9	25	9	19	27	21
Farmers' income from exports	84	71	123	58	70	196	52
Farmers' income from domestic use of export crops[2]	29	32	41	30	43	62	43
Farmers' total income from export crops	113	103	164	88	113	258	95
Projected export earnings from petroleum[3]	275	--------500--------			--------550--------		
Projected revenue from petroleum[3]	100	--------220--------			--------240--------		

[1]Government revenues are calculated for cocoa, groundnut products, palm products and cotton.

[2]Included here to show the effects of marketing board policies on the amounts of "export" crops marketed domestically. This includes palm oil, cotton and groundnuts only.

[3]Scott R. Pearson, "Working Paper on the Historical and Possible Future Economic Impact of the Petroleum Industry on the Nigerian Economy," AID Economic consultant, March, 1968 (Mimeo).

Source: Compiled from Tables X.1 through X.11. A similar table appears as Table V.2 in Glenn L. Johnson, et al., op. cit.

Export Earnings

Agricultural export earnings (drawn from Table 11.1) could be expected to increase from the projected Ł154 million in 1970 to Ł169 million in 1975 under the favorable Strategy II policies (which generally reflect increased producer prices and greater emphasis on accompanying infrastructural support for export agriculture). They would be expected to decline to Ł128 million by 1975 under Strategy I policies, largely as the result of falling export prices and would be only partially offset by production increases. Export earnings under the harsher Strategy III policies would be expected to decline by 1975 to Ł109 million, or to approximately two-thirds of the amount of foreign exchange generated in 1975 under the more favorable Strategy II.

The long-term investments in agriculture under Strategy II would be expected to show dramatic results by 1985, with export earnings reaching Ł282 million even with the rather low projected long-run world prices. A continuation of present policy (Strategy I) would see agricultural export earnings leveling off at around Ł130 million per year by 1975 (after the projected high of Ł154 million in 1970) and the maintaining of the lower level through 1985. Agricultural export earnings could actually decline under the harsher policies of Strategy III and move to less than Ł100 million by 1985.

Expected Government Revenues

Government revenues from export agriculture may be expected to vary between £40-£45 million in 1970. This amount of government revenues expected in 1970 (which are calculated in this thesis to go principally to the marketing boards) may be expected to develop despite the fact that many producer prices for export products have been raised by the marketing boards in the past 6-8 months, partially as a means of discouraging out-of-country smuggling. The relatively high world prices should provide substantial windfall gains to the Federal Government and to the marketing boards during the present year.

Government revenues from export agriculture would be expected to return to more normal levels by 1975 at around £24 to £23 million for Strategies I and III, respectively. All taxes (including producer purchase taxes, export duties, and marketing board assessments) would be eliminated for Strategy II by 1975 as a means of maintaining producer prices at or above their 1970 levels and thus encouraging greater output.

Farmers' Income from Exports

This category portrays the results of the CSNRD recommended policy (Strategy II) of (1) expanding export production to more fully meet world demand for Nigerian products and (2) giving a wide distribution to the income derived from exports. Because of the higher producer

prices projected under Strategy II and the greater amounts of exports forthcoming under the producer incentives and improved infrastructure, farmers' income from exports under Strategy II by 1975 would be expected to exceed the income generated by exports under Strategy I by Ł52 million and by Ł65 million as compared to Strategy III. The Ł52 and Ł65 million gains in farmers' incomes from exports under Strategy II would be partially off-set by the Ł23-Ł24 million "cost" in government revenue foregone under Strategy II in order to pay the higher producer prices and get the higher export production.

Farmers' income from exports would be expected to rise over the 1970-1985 period under Strategy II moving from Ł84 million in 1970 (in a time of relatively high export prices) to Ł123 million in 1975 (with lower real prices) and Ł196 million in 1985 (again with lower prices). Farmers' income from exports might actually decline over the 1970-1985 period under both Strategies I or III as shown in Table 11.1.

Farmer's Total Income from Export Crops

Table 11.1 shows that farmers' total income from those crops which are both exported and consumed domestically can more than double under the favorable policies of Strategy II between 1970 and 1985. Strategy I, reflecting a continuation of present taxing and price policies, would be expected to produce farmers' income from export crops in 1985 only equal to what these incomes had been in 1970 in

a favorable year. Total farmers' income from export crops under the harsher Strategy III would be expected to decline by 1985 relative to its 1970 level.

Employment Considerations

Although the effects of expanded export production on employment are not specified in Table 11.1, the interrelationships between employment opportunities and a vigorous, growing agricultural sector must be considered. Providing employment for Nigeria's rapidly increasing labor force is one of the most difficult tasks facing the country over the next several decades. It is estimated that while Nigeria's population is growing by about 1.5 million per year, fewer than 20,000 additional industrial jobs can be expected per year over the next 12 years.[1] Most economists now agree that agriculture is the sector with major employment growth potential.[2] Fortunately, Nigerian policy makers are recognizing the importance of employment creation within agriculture. The Nigerian agricultural export sector can provide large numbers of jobs as export production is moved to socially desired levels. This will require implementation of improved economic, agricultural and social policies. Such policies include those designed to promote

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[1] West Africa, No. 2752, (March 1970).

[2] See Carl Eicher, et al., "Employment Generation in African Agriculture," Institute for International Agriculture (East Lansing, Michigan: Michigan State University` July, 1970).

export growth (which can be based on producer price incentives and infrastructural support as outlined throughout this dissertation) and suppression of policies which inhibit employment generation in agriculture such as (1) premature tractor mechanization, (2) anti-export agricultural policies, (3) food policies which raise consumer prices and induce higher minimum statutory wage rates, and (4) heavy emphasis upon government operated or supported direct production schemes, such as irrigation schemes, state farms, and land settlement programs, all of which are capital intensive.[3]

Expected Petroleum Revenues

Fortunately, the discovery and rapid exploitation of petroleum offers Nigeria large amounts of tax revenue and foreign exchange as shown in Table 11.1. The implications of the petroleum boom are of major significance for agricultural policy.

Specific Recommendations on Export Crops

Cocoa

The general conclusion from the analysis of the cocoa market is that the long-run outlook for cocoa over the 1970-1985 period is good and that Nigerian cocoa production should be expanded. World cocoa consumption is expected to almost double over the next 15 years, moving from the present 1.3

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[3] Ibid., p. 56.

to 1.4 million tons to 2.2-2.4 million tons in 1985 at f.o.b. prices greater than US 20 cents per pound (in 1970 $) even during the later part of the projection period when prices are expected to decline. Assuming that Nigeria maintains the 21-22 percent of world cocoa production that she held on the average between 1963 and 1968, she could expect a minimum export outlet under these conditions for approximately 480 thousand tons of cocoa by 1985. This is more than double present Nigerian cocoa exports and represents a 4.5 percent compound growth rate of exports over the 15 year projection period. It is the opinion of this writer that because of insect and disease problems and the fact that a high percentage of Nigeria's cocoa trees have reached the unproductive stage of their life cycle, this production goal of 480 thousand tons of exports by 1985 will not be achieved unless vigorous, well-planned cocoa production campaigns are implemented along with increased producer prices.

A review of Table 5.6 on cocoa production trends shows that Nigerian cocoa production grew at a 6.0 percent annual compound rate between 1950-52 and 1964-66. The 1950/52-1964/66 growth rate was boosted by the 1957/59-1961/63 increases when production grew at an unprecedented annual compound rate of 12.8 percent largely as the result of increased insect and disease control and the coming into production of new plantings which had been made in prior

years due to high cocoa prices. The 1950/52-1957/59 period had seen Nigerian cocoa production grow at only 1.4 percent annual compound rate.

CSNRD researchers have shown that there are no known crops which are as profitable to farmers in the cocoa belt as cocoa even if world prices were to decline moderately during the 1970s. Cocoa production, employing 350,000 small farmers at present, offers employment opportunities during the 1970s and 1980s for additional workers as acreages of cocoa and cocoa yields per acre are increased. Thus far, there are no known important economies of scale for cocoa production which would tend to lower the labor input per unit of cocoa produced.

Groundnuts and Groundnut Oil

Groundnuts and groundnut products are expected to remain the most profitable export crop for the Northern areas of the country to which they are best suited. Groundnut oil, as a premium quality product in the world market, faces a favorable export demand outlook over the 1970-1985 period although some decline in price from the present relatively high levels is foreseen. Projected prices are not expected to move below their lowest levels of the early 1960s, however. The future demand for groundnut mean, both within Nigeria and abroad, also appears to be favorable as more high protein animal feeds are demanded as incomes and the demand for fattened livestock expand within the next few years.

There is still a great potential for expansion of groundnut production in the Northern States where production has increased in the past despite generally low producer prices. This potential should be further developed. Table 10.3 illustrates that groundnut production may increase from 1.2 million tons in 1970 to 1.6 million tons in 1975 and to 3.2 million tons in 1985 under favorable conditions. The expanded groundnut production, as expanded cocoa production, would be expected to provide additional employment opportunities.

Palm Oil

Palm oil offers opportunities for Nigeria to increase her farmers' incomes and export earnings through increased exports. Through improved technology and new processing techniques, palm oil is rapidly gaining entry and acceptance into many food-use markets in developed countries where palm oil was once sold only for industrial uses. This acceptance has been brought about by improvements in quality control, taste and color which occur with improved and timely processing. The expansion of this market is occurring because palm oil, as the highest known vegetable oil producer per acre, is underselling the more traditional edible oils used in the food industry, such as cottonseed, coconut, and soybean oils.

Palm oil prices are expected to move to much lower levels in the world market as this struggle for a larger

share of the world market intensifies. This lowering of price is necessary to induce food manufacturers to overcome the problems and costs of substituting palm oil for the presently used oils.

Nigeria, still the world's largest palm oil producer, has experienced great difficulty in converting her semi-wild palm groves over to the new high producing hybrids which will be necessary to compete effectively in the future palm oil world market. The transformation process to the new hybrids should be encouraged through production campaigns and pricing policies directed at increasing production and exports. Here, as in the production of the other major export crops, expansion of production is expected to increase employment opportunities in agriculture, something that will be needed throughout the 1970s and 1980s.

Rubber

Although there are estimates on the world elastomer market over the next 15 years (such as projected prices, rates of growth of the market, and the expected competitive positions of natural and synthetic rubbers), Nigeria has little agronomic or economic research on rubber upon which to project her competitive position during that period. The long-run potential for Nigerian produced rubber to compete price-wise and quality-wise in the world elastomer market is a virtual unknown for Nigerian planners.

Her competitive position will depend largely upon how much and how rapidly Nigeria can assimilate the known Far Eastern rubber technology into the production process. The relative profitability of rubber production as compared to palm oil (as the two are generally competitive for land and labor, especially in the Mid-West State) will also help determine the amounts of resources that should be directed into Nigerian rubber production.

The author fully concurs with the production/research program for natural rubber that was proposed by CSNRD researchers (see Chapter X) although he is less optimistic on the future of natural rubber production in Nigeria. The author believes, for example, that the crumb rubber processing technique is still very much in the development stage in Malaysia itself and that it holds little immediate hope of improving the quality of Nigerian produced rubber. The crumb rubber processing should be tried in Nigeria on a limited and experimental basis, however.

Further research on adaptability of the Far Eastern rubber technology to Nigerian conditions, firm estimates of expected yields per acre, costs of production, and the comparative profitability between palm oil and rubber must all be determined before Nigeria undertakes any major problems to increase rubber production.

Import Substitute and Minor Export Crops

Cotton

Cotton is one of Nigeria's most promising import-substitute crops and should be encouraged over the next 15 year period. Table 10.11 shows that payments to farmers can be increased by approximately ₦10 million annually by 1985 through a vigorous cotton production campaign coupled with improved producer prices compared to the farmers' income that could be expected in 1985 from a continuation of present policies. The calculations in Tables 10.10 and 10.11 also indicate that Nigeria, with favorable infra-structural and pricing policies, can continue its present approximate level of cotton exports as well as supply the vast bulk of the rapidly rising domestic consumption. Cotton acreages under the favorable Strategy II would almost double their 1967 level by 1985. The expanded acreages, increased yields per acre, and the increased handling, harvesting, and processing of the expanded cotton production should add employment opportunities in the Northern cotton producing states.

Rice

The economic possibilities for Nigeria to export rice to her West African neighbors should be investigated. Research has shown that Nigerian producer rice prices are comparable to prices received by producers in countries which sell rice on the world market without subsidies.

However, it appears that high buying, marketing, and transport costs for Nigerian rice prevent it from competing price-wise at the West African importing countries' ports of entry. Rice research in Nigeria should be geared not only to lowering costs of production but also to research on marketing, buying, and transport costs so that Nigeria might supply at least part of the present Ł16-Ł17 million rice import market that exists in West Africa.

Hard Fibers

Nigeria has yet to prove that she can economically supply her own hard fiber needs, even on an import substitute basis. Agronomic and economic studies should be consolidated to provide a basis for estimating the real social and private costs and returns from producing hard fibers to fill local demand.

Corn and Grain Sorghums

FAO commodity experts consider the coarse grains market as one of "reasonably good prospects" for the less developed countries for the first half of this decade. Research on maize and grain sorghums is well underway in Nigeria and offers hope of substantially improving feed grain yields and lowering costs of production over the next several years. This research should be continued. Meanwhile, Nigeria seems to have little opportunity to export feed grains until such time as the results of research are implemented to bring about improved yields and lowered costs of production.

Beef

The world beef market, although bright in outlook, is not of particular concern to Nigeria at this time. First, Nigeria must concentrate upon solving beef production, marketing, quality improvement, disease and sanitation control problems before there will be major opportunities to sell beef on the world market.

Policy Recommendations and Implications

As previously stated, this is a policy paper based upon historical findings and projections of the Nigerian economy through time for three alternative sets of developmental strategies. It offers recommended policy changes such as the major one already mentioned, that is, to turn the resource allocation and pricing determinations of the agricultural export sector back to the market mechanism. This will bring about a more socially desirable allocation of resources within the economy as each resource will theoretically move to the employment where its Marginal Value Product (MVP) is the greatest.

Resource Employment in Export Agriculture

The owners of resources already in export agriculture or readily transferrable to export agriculture would benefit economically relative to the remainder of the population with such a change in policy. This would mean direct increases in farm income for the present 2.8-3.0 million small Nigerian farmers who now produce some crops

for export. The increased farm income of the export-oriented population would generate greater demands for foodstuffs on the part of the producers themselves. An indirect effect of the extra income would be to increase the demand by smallholder producers for the simple products of Nigeria's growing indigenous industry.

Changes in resource allocation with changes in the profitability of certain crops may cause greater geographical specialization in export crops and resultant shifts in geographical location of food crop production. However, there is little reason to believe that domestic food production cannot continue to expand more or less parallel to export production as it has done in the past.

Timing and Availability of Inputs

The provision and timing of availability of production inputs becomes more important as greater emphasis and a planned effort is made to promote and encourage the smallholder, export-oriented sector as a prime mover of the economy. Modern agricultural production requires research and dissemination of new crop varieties, technical guidance for the farmer, and arrangements whereby the farmer can obtain the purchased inputs he needs at the time he needs them.

A series of production campaigns are proposed as the method of making the various inputs available at the farm level. The campaigns would be developed on a commodity-

by-commodity basis according to the profitability of producing selected crops within specific geographical areas of the country. The production campaigns will be supported by the favorable agricultural policies proposed under Strategy II. The lowering or elimination of taxing on export agriculture will help to ensure that producer prices remain at an attractive level.

Marketing Facilities and Marketing Policies

The facilities for assembling, transporting, processing, storing, and selling Nigeria's agricultural exports are presently strained to the limits. These facilities will have to be greatly expanded if export production were dramatically increased. The system would have to be altered in many ways to allow for (a) greater volumes to be handled, (b) improved quality control, and (c) proper and timely transport and storage to prevent excessive deterioration of produce.

Taxing Policies

Returning the pricing function and allocation of resources in export agriculture to the market mechanism as is proposed in these conclusions requires a rethinking and a restructuring of present Nigerian tax policies. Present policies of export agriculture taxation will have to be changed if greatly expanded export production is to be achieved.

Agriculture has been an important contributor to public revenues through export duties and producer taxes. Approximately 10 percent of all Federal revenues, or £15.4 million, came from agriculture in 1965-66. Total taxes paid on agricultural products amounted to about 3 percent of Gross Domestic Product (GDP) from agriculture, or 15 percent of the value of agricultural exports from which they were largely derived.

Fortunately, the dramatic rise in petroleum exports from 1963-66 and the projected further increase in petroleum exports during the early 1970s provides policy makers with an alternative source of governmental revenues which may allow a re-examination of the heavy tax burden now placed on export agriculture.

Nigeria now has the opportunity not often afforded a country to make major structural and institutional changes. Nigeria is in a period of acute and large-scale institutional, social, and economic change. In addition to the costly Civil War just concluded, the division into states, and the reconstruction-reintegration efforts that will be demanded, Nigeria appears to be on the brink of becoming one of the world's leading petroleum exporters. Petroleum exports increased from £4.4 million in 1960 to £92 million in 1966. In 1966, petroleum exports amounted to 32.4 percent of all Nigerian exports. The projected rapid increase in petroleum exports in the future will

enable planners to shift a part of the tax burden now imposed upon agriculture over to the expanding petroleum industry.

Additional Research Needs

There are many areas of the Nigerian agricultural economy for which adequate data do not exist to allow for effective policy decision making. Some of these, which relate specifically to export agriculture, are listed below as areas in which additional research should be done.

Research on Costs of Production and on Diversification of Export Crops

Research in this area could be endless with innumerable sets of calculations for innumerable changes in the variables concerned. What is called for is research based on likely values of parameters so that Nigerian agricultural and industrial representatives would be able to estimate for example, as Malaysian officials have done that "Malaysian officials estimate that rubber estates can market natural rubber with costs as low as US 9.7 cents per pound when obtaining yields of 1,100 pounds of dry rubber per acre."[4] Such calculations, if they are possible and practical, would put the planning process on a much firmer, more confident basis. The

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[4] Rubber World, Vol. 161, op. cit.

problem of costs of production being dependent upon the values assigned to land complicates this type of analysis. The already low land values in Nigeria would leave little opportunity to lower costs of production by lowering the returns paid to land.

The world demand section of this dissertation generally points to declining real prices for Nigeria's major agricultural exports over the next 5-15 years. Nigerian farmers must find ways to lower costs of production if present crops are to be profitable at the expected lower prices. The utilization of known technology in some crops, such as palm oil, may lead to lower costs per unit of output. For other crops this is less certain. Little information is available on the costs of rubber production, for example, nor for the economic potential for putting Nigerian rubber on the world market at prices of 12-16 cents per pound (U.S. 1970 prices).

The calculations made in this study have also pointed up the excessively high marketing and transport costs for many of Nigeria's agricultural export crops. These excessively high costs already prevent some crops, such as rice, from being exported to neighboring markets. The high costs will become relatively more important in future years as world export prices are expected to decline. Marketing costs will need to be reduced to offer price incentives to producers. Recent research by Stanford Research Institute

(SRI) on food marketing in Nigeria has shown that most of the inefficiencies of the Nigerian marketing system lie within the government agencies involved and not with the competitive market operations. The government control agencies should be investigated and inefficiences of operation removed wherever possible.

The Domestic Food Production Sector

CSNRD has recommended that long-term food production research be undertaken in Nigeria with the expressed purposes of lowering costs of starch production to world market levels and of increasing the availability of high quality foods, especially proteins, for human consumption.

The lack of effective demand has been identified within Nigeria as well as within other developing and developed countries as a major constraint to expanded food marketing. It is recommended that research be undertaken to more rigorously define what is meant by effective demand as well as the role it can be expected to play in future Nigerian economic development.

The importance of the agricultural export sector to overall economic development in Nigeria has been evident throughout this thesis. The employment and income distribution effects of a smallholder, export-oriented

agricultural sector have been pointed up as well as farmers' earnings from export agriculture, foreign exchange earnings, and government revenues from exports which might be expected under alternative development policies.

The need for a long-term view of the export development and of export trade has also been substantiated. The connection between long-term export policy and the 35-40 year productive life of some tree crops has been made. The failure to take a long-term view (and to be overly impressed by the events of the moment) may lead to unwise policy decisions. For example, when the world price of cocoa fell during the mid-1960s, the Ghana government halted cocoa research and selection programs and little new planting was done. Now, however, improved world cocoa prices have again revived Ghana interest in cocoa. Improved market analysis on the part of Nigeria coupled with the cost of production studies called for above would enable Nigeria to more adequately evaluate her expected competitive export position and to plan accordingly.

Nigeria's relative export position is continually changing relative to the positions of competitors, domestic production alternatives, price relationships, and production inputs. Any export analysis to be of major policy importance will have to be under constant review and up-dated as new information and new price relationships become

evident if Nigeria seeks to maximize her social returns from the export sector. Production of certain annual export crops, for example, might be substantially increased in a relatively short period based on a favorable export market in the short-run, if the outlook information were available.

In order to provide the effective continual analysis of the world markets for Nigerian agricultural exports and to provide the information for effective policy decisions that Nigeria must have to maximize her social returns from exports, it is suggested that a Market Intelligence Unit be established within the Federal Ministry of Agriculture to (1) provide the continual analysis listed above, (2) search for new uses and new outlets for Nigerian agricultural export products, and (3) undertake research necessary to lower costs of marketing, processing, and transport which affect exports.

APPENDIX

APPENDIX

HISTORICAL PERFORMANCE OF AGRICULTURE

As previously stated, the principal impetus for Nigerian economic growth has been smallholder agricultural production for export. Despite the low level of technology and the small scale of operation, the Nigerian export-oriented farmer has repeatedly shown his receptivity to economic incentives. In response to the economic incentives offered, he has increased exports dramatically since 1900--and especially rapidly since World War I.

Nigerian agricultural producers have generally proven themselves to be astute businessmen and surprisingly adept at finding and responding to economic incentives. This business astuteness and profit maximizing behavior dates back several centuries to the time when cloth woven in Kano was sold throughout North and West Africa as the finest that could be obtained. The profit maximizing behavior can be shown again in the North with the expansion of the groundnut industry where it was groundnuts for Hamburg and not cotton for the Leicester mills as intended by the British government that emerged as the

most profitable crop and thus developed into the major export of the area.[1]

Cocoa farmers in Southern Nigeria, as in Ghana, are commonly cited as examples of price responsive peasants.[2] Galletti, Baldwin and Dina showed that cocoa plantings from the mid-1920s to the end of the 1930s were positively correlated with the import purchasing power of a given weight of cocoa beans.[3] The vast increases in cocoa production in the late 1950s and early 1960s, however, are attributed principally to more effective cocoa disease control rather than to a lagged response to extremely high cocoa prices in the early 1950s.

Another type of response to price incentives is that of adjustment in the quality of produce marketed in response to the introduction of price differentials between the various grades. Bauer and Yamey found from analyzing marketing board statistics in Nigeria that the proportion of the highest quality palm oil and cocoa rose dramatically within a few years after price differentials were employed and that the lower grades soon completely disappeared from the market.[4]

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[1]Jan Stafford Hoggendorn,"The Origin of the Groundnut Trade in Northern Nigeria,"Ph.D. dissertation, University of London, 1966.

[2]Helleiner, op. cit., pp. 59-60.

[3]Galletti, Baldwin, and Dina, Nigerian Cocoa Farmers. (London: Oxford University Press, 1956).

[4]P. T. Bauer and B. S. Yamey, "A Case Study of Response to Price in an Underdeveloped Country," Economic

Unfortunately, the Nigerian export producer, economically motivated as he may be, is not always able to see and respond to the world prices for his products. He only sees and responds to marketing board prices, which are often not more than one-half to two-thirds of the world price. The difference which may occur between what the products bring on the world market and what the farmer receives for them is taken by government via export and producer taxes as well as marketing board profits. Estimated withdrawals through taxes and marketing board surpluses amounted to the following proportions of potential producer income between the years 1947 and 1962: cocoa 31.9 percent; groundnuts 24.9 percent; palm kernels 29.1 percent, palm oil 21.0 percent, and cotton 22.1 percent.[5]

Domestic Agricultural Growth

It is believed that the output of agricultural products for domestic use has increased more or less in line with the rate of growth of population which is now estimated to be growing at 2.4 percent per annum.[6] It is difficult to obtain a more accurate estimate of the present food production growth rate in Nigeria. As the last agricultural

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Journal, Vol. LXIX, No. 276,(December 1959) pp. 800-805.

[5]Helleiner, op. cit., Appendix Tables V-F.1 through V-F.5.

[6]Glenn L. Johnson, et al., op. cit., p. 24.

census was conducted in 1950, the lack of basic data makes it difficult to identify meaningful benchmarks against which to compare any annually collected data.

One way to estimate whether internal food production is satisfying the effective demand at current prices is to look at domestic food price trends over a period of years. This is done by analyzing the movements of consumer price indices for food as well as for other consumption items over a period of time for the major consumption centers for which data are available.[7] Food index prices for Lagos rose a total of 16 percent from the 1960 base to 1967 for a compound price increase of 2.2 percent per year. Ibadan had a total increase in the food price index of 45.5 percent over a 14 year period (considering the 1953 base and the average of the 1967 quarters) for a compound price increase of 2.7 percent per year. Kaduna's food and drink indices increased a total of 24 percent over a 10 year period for a 2.2 percent compound rate of increase. Benin had an increase of 39 percent over the same 10 year period for a yearly compound increase of 3.4 percent. Food price changes in Enugu have not been calculated because of a lack of data and the war conditions that existed in the former Eastern Region from 1967 until recently. It is interesting to note that food prices seemed to "peak" in 1966 in all

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[7]The price indices included are drawn from Nigerian Trade Journal, (April-June, 1969).

parts of Nigeria for which there are data and have generally moved downward since that time.[8] It is noteworthy that the quarterly averages for 1968 that are available are generally lower than the quarterly averages for 1967.

A factor that would tend to corroborate the hypothesis that food production is growing more or less parallel to the population growth rate is the fact that food imports have remained remarkably stable at around 10 percent of the total value of all imports since 1954.[9] Three-fourths of the food imports in the 1966-68 period were for what might be called nutritionally "superior" foods--fish, wheat, milk, and cream, and sugar.[10]

Overall, the evidence indicates that domestic food prices have risen rather steadily over the past several

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[8]Consumer Price Indices for food and "all items" for Lagos, Ibadan, Enugu and Kaduna covering the period 1961-67 are as follows: (Lower Income Group - 1960 = 100).

Period	Lagos		Ibadan		Enugu		Kaduna	
	Food	All Items	Food	All Items	Food	All Items	Food	All Items
1961	109	106	111	109	107	102	110	106
1962	116	110	121	117	136	125	118	113
1963	109	110	106	109	117	120	110	110
1964	110	112	104	108	121	123	107	109
1965	114	117	111	112	123	124	114	113
1966	131	127	133	125	153	139	130	122
1967	119	122	123	120	---	---	121	118

Source: Economic Indicators.

[9]Glenn L. Johnson, et al., op. cit., Table II.2, p. 23.

[10]Ibid., Table II.1, p. 23.

years in all areas of Nigeria for which data are available. Reasons for this (if it is the case) are not clear. Acceptance of the occurrence of moderate but steady price increases might imply that domestic food production has not kept pace with the demand for it. As the methods by which the data on food costs are gathered and interpreted can themselves cause distortions of the trends, a more thorough look at the domestic food prices and their trends might be in order.

Export Growth

Despite the disincentive marketing board and export taxing policies, agricultural exports have also grown, expanding at a compound growth rate of 4.5 percent since 1950.[11] Figure A.1 traces out the growth of agricultural exports over the 1953-1968 period. Groundnuts, groundnut oil, cocoa, and rubber have shown the greatest export increases over the 16 year period. Domestic palm oil consumption has increased although exports have fallen. Both palm oil and palm kernels began their downward export trends even before the outbreak of the Civil War, after having reached their maximums in 1954 with 464,000 tons of oil and 208,000 tons of kernels. Both fell markedly with the outbreak of hostilities.

Cotton production in Nigeria has also grown rapidly

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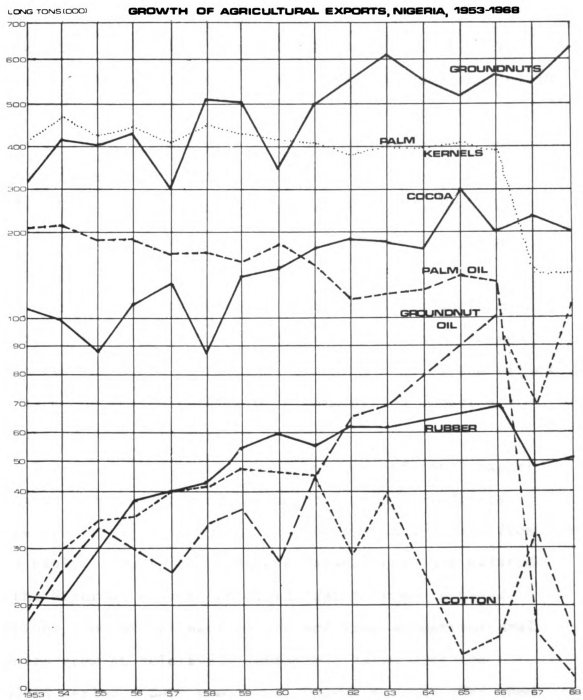
[11]Glenn L. Johnson, et al., op. cit., p. 5.



Source: Helleiner, Peasant Agriculture, Government and Economic Growth, Table IV-A8 FOS Economic Indicators, May 1968. Kreisel, CSNRD unpublished data. Nigerian Trade Journal, April/June 1969.

Figure A.1.

during the past twenty years, although this is not reflected in the export figures as an increasing amount of it is being manufactured into cloth and consumed locally. It grew at an annual compound rate of 9.5 percent from 1949-50 to 1964-65, the source of this growth being almost entirely an increase in acreage planted. Cotton production, which depends on natural rainfall in the North, fluctuates annually according to weather conditions. Thus, cotton exports also vary according to growing conditions in a given year.

Nigeria has long competed successfully in world markets for palm oil, cocoa, and groundnuts despite export taxes and marketing board operations. Table A.1 gives the values of the major agricultural export commodities covering the period from 1950 through 1968.

Table A.1 also shows the percentages of total export earnings accounted for by the major export commodities. There are several noteworthy conclusions to be drawn from this table. One is the apparent balance that has existed in the Nigerian export sector in that foreign exchange earnings from export agriculture and from nonagricultural exports grew at relatively comparable rates over the 1950-64 period. Both continued to grow through 1966 when the civil crisis interrupted the export picture. Specifically, one sees the steadily declining role that palm products play in Nigerian exports and the growing importance

Table A.1. Value of Nigerian Exports of Principal Agricultural Products, 1950-1968

Item	1950		1960		1964		1966		1967		1968	
	Mil. £	Percent	Mil. £	Percent	Mil. £	Percent	Mil. £	Percent	Mil. £	Percent	Mil. £	Percent
Cocoa	19.0	21.0	36.8	21.7	40.1	18.7	28.3	9.9	54.7	22.6	51.7	24.5
Oil Palm Products	28.8	31.9	40.0	23.6	31.7	14.8	37.8	13.3	9.6	3.7	10.3	4.9
Groundnut Products	15.5	17.2	28.9	17.5	47.0	21.9	55.5	19.5	46.9	19.4	52.3	24.8
Rubber	2.8	3.1	14.2	8.3	11.0	5.1	11.5	4.1	6.3	2.6	6.3	3.0
Cotton	3.0	3.2	6.2	3.6	6.1	2.8	5.2	1.8	8.3	3.5	4.1	1.9
Other Agricultural Exports	8.8	9.8	10.2	6.0	6.4	3.0	9.7	3.4	n.a.	n.a.	n.a.	n.a.
Subtotal Agriculture	77.9	86.3	136.3	80.3	142.3	66.4	148.0	5.21	128.2	53.1	n.a.	n.a.
Petroleum	---	---	4.4	2.6	32.1	14.9	92.0	32.4	72.1	29.8	37.0	17.9
Other Non-Agricultural Exports	12.3	13.7	29.0	17.1	40.0	18.6	44.1	15.5	41.4	17.1	n.a.	n.a.
Total Exports	90.2	100.0	169.7	100.0	214.4	100.0	284.1	100.0	238.1	100.0	206.5	100.0

Source: Helleiner, Gerald, op. cit.; Federal Office of Statistics, Digest of Statistics and Economic Indicators; Nigerian Trade Journal, (April-June, 1969).

of both groundnuts and cocoa as foreign exchange earners. Another major conclusion is the decreasing relative importance of all agricultural exports in the total export figure and the growing importance of petroleum as the major source of foreign exchange revenues up until the disruptions of oil exports in 1966-67.

Nigeria's Share of World Trade in Major Crops

Nigeria has several advantages in agricultural exports over most other developing countries. First, Nigeria has the advantage of a diversified export base, with 12 or more commodities annually earning more than £2 million each in the export market. This diversification has been reduced since the outbreak of the Civil War as palm oil exports have fallen below the £2 million export level.[12] Nigeria is not dependent upon any one agricultural export for a majority of her foreign exchange. The largest single family of exports (groundnuts, groundnut oil, and cake) accounted for 24.8 percent of total exports earnings in 1968. The three largest export groups (cocoa, groundnut products, and palm products) accounted for 59.2 percent of total exports in 1968.

Also, Nigeria is not the most important or even a major supplier to the markets of many of the products she exports. Table A.2 shows Nigeria's share in world trade

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[12] Nigerian Trade Journal, (April-June, 1969) p. 85.

Table A.2. Nigeria's Share of World Trade in Major Crops, 1948-52 to 1968 (in Percentages)

Item	1948-52	1960	1965	1966	1967	1968
Cocoa	15.5	20.1	23.2	17.2	22.7	20.2
Groundnuts	34.7	26.6	37.4	35.7	32.3	36.4
Palm Produce						
Palm Oil	34.1	31.2	27.6	21.1	3.0	n.a.
Palm Kernels	48.8	57.5	64.9	64.0	46.7	n.a.
Cotton	.5	.7	.4	.4		
Rubber	.6	2.4	2.7	2.9		

Sources: Trade Yearbook (Rome: FAO, United Nations).
FAO, Commodity Review, 1967 (Rome: FAO, United Nations).
P.N.C. Obigbo, Africa and the Common Market. (London: Longmans, Green and Co., Ltd., 1967).
Cocoa Statistics, (Rome: FAO, United Nations, Vol. 12, July, 1969).
Monthly Bulletin of Agricultural Economics and Statistics, (Rome: FAO, United Nations, Vol. 10, October, 1969).

of her major exports. Table A.2 also shows some of the trends in Nigeria's agricultural exports that have developed over the past twenty years. Nigeria has increased her share of the world cocoa market from an average of 15.5 percent over the 1948-52 period to an average of 20.0 percent for the years 1966-68. Ghana's share of world cocoa exports remained relatively stable over that period up until 1964 at approximately double the Nigerian share. Ghana's share has been less than double Nigeria's share

since 1964.[13] Despite the tremendous growth of groundnut and groundnut oil exports, as shown in Table A.1 and Figure A.1, Nigeria's share of the world groundnut market has remained surprisingly constant at around 34-36 percent since 1948-52. The Nigerian world palm oil export share declined steadily over the 1948-52 to 1966 period although the country continued to furnish more than half of the palm kernels sold on the world market until the outbreak of the Civil War. She still furnished 46.7 percent of the world palm kernel trade in 1967.

Despite Nigeria's sizable world share of some of the export markets (cocoa 20 percent; groundnut products 34-36 percent; and palm kernels 50 percent or more), it should be kept in mind that export price elasticity of demand for a country's product is inversely related to that country's share of the world market. Even if the overall demand for a certain product is inelastic, this does not mean that the world demand for every single country's share is inelastic. Demand for groundnut oil, which constitutes, say 20 percent

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[13] FAO, Cocoa Statistics, (July, 1969) p. 7. Comparative shares for Ghana and Nigeria since 1947-1951 are as follows:

	Percentage of World Cocoa Exports						
	1947-51	1952-56	1961	1964	1966	1967	1968
Nigeria	16.1	15.2	18.4	19.3	17.3	22.7	20.2
Ghana	35.4	32.0	40.7	37.4	35.6	30.7	32.3

of total world oil exports, may be quite elastic due to the many substitutes and potential substitutes in the market even though the demand for edible oil in general is inelastic. Demand for Nigerian groundnut oil will be more elastic still when considered as one-third of the world's groundnut and groundnut oil supply. All Nigerian fats and oil as a group constituted approximately 11 percent of the world fats and oils exports over the 1961-63 period.[14] North America provided 34.7 percent of the net exports.

Realizing that the world market for primary products is growing less rapidly than incomes in the developed countries, there is some general disenchantment or even skepticism about the possibility of primary agricultural exports serving as an important means of development in Nigeria or in other less developed countries. A case can easily be made for moving away from dependence on one or two crops as the source of 60-80-90 percent of the foreign exchange. Nigeria, as has been noted, is not in that mono-culture class. The current discussion in Nigeria often follows the pattern set by the Western Regional Government which has vigorously sought to diversify its economy through a variety of agricultural production projects including investments in such varied enterprises

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[14]FAO, Agricultural Commodities--Projections for 1975 and 1985. (Rome: United Nations, 1966) p. 175.

as avocados, geese, ducks, milk goats, and gardens. Each of these may be limited worthwhile projects in their own rights, but the low level of incomes with the (now) Western State, and within all of Nigeria, can be expected to restrict expansion of these minor agricultural crops and prevent them from appreciably contributing to the incomes of farmers within the Western State.

Some authorities on the Nigerian economy put little credence in the FAO demand elasticity type studies as a major or important device by which to make investment decisions in Nigeria. The CSNRD report makes the case for vigorous expansion of exports on comparative advantage grounds stating that the effective demand for agricultural exports is growing faster than internal domestic demand within Nigeria and that the rate of growth in domestic demand depends directly upon the generation of income by smallholder export crop producers.[15] Nigeria has a strong, not fully exploited comparative advantage in producing export crops, great diversity in export crop production and major fixed natural resources and an expanding rural labor force which can gain substantially higher returns from export employment than from any other alternative employment open to them.

W. Arthur Lewis in his writing, "Reflections on

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[15]Glenn L. Johnson, et al., op. cit., p. 69.

Nigeria's Economic Growth," states that Nigeria can expand exports very substantially with no adverse effects on her earnings.[16] Based on what he describes as a well balanced agricultural export base and the fact that each export is only a small part of the world market (including all vegetable oils in a single market), Lewis maintains that "The numerous prognostications that the world demand for agricultural commodities will increase by only 3 to 4 percent a year has no significance for Nigerian policy."[17]

Direction of Trade

The direction and distribution of Nigeria's export trade have changed dramatically over the past 15 years. These changes may be generally described in two ways. First are the relative changes in percentages of exports going to the United Kingdom and to the European Economic Community (EEC). The United Kingdom took 72 percent of all Nigerian exports in 1954 but only 38 percent in 1964.[18] The EEC's share of Nigerian exports rose from 14 percent to 36 percent over the same 10 year period. The second major change is the broadening distribution pattern of Nigerian exports.

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[16] Lewis, op. cit., p. 18.

[17] Ibid., p. 18.

[18] P.N.C. Okigbo, Africa and the Common Market. (London: Longmans, Green and Co., Ltd., 1967).

The present EEC countries and the United Kingdom together took 87 percent of all Nigerian exports in 1954 but only 61.3 percent in 1968.[19] Exports to countries "other than EEC or UK" totalled 13.9 percent of all exports in 1958 but 38.7 percent in 1968. Table A.3 shows the changes in the destination of Nigerian exports that has taken place since 1958.

One can see that Nigeria exports to three principal markets, the United Kingdom, which takes approximately one-third of Nigeria's exports, the EEC which takes one-third, and "other countries" which take one-third.

Table A.3. Destination of Nigeria's Exports by Percentages, 1958-1968

Purchaser	1958	1960	1962	1964	1967	1968
United Kingdom	56.3	48.1	43.0	38.4	29.5	29.9
EEC	30.8	31.0	34.5	36.4	30.6	31.4
Other Countries	13.9	20.9	22.5	25.2	39.9	38.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

Sources: P.N.C. Okigbo, Africa and the Common Market, op. cit., p. 96.
Data taken from Nigerian Trade Summary, Nigerian Trade Journal, (April-June, 1969) p. 83.

[19] Nigerian Trade Journal (April-June, 1969) p. 83.

The U.K. and EEC component of Nigerian exports is well-defined and self-explanatory. But it is interesting to note which countries buy the one-third of exports purchased by countries other than the United Kingdom of the EEC. Other Sterling Area countries including Ghana, Hong Kong, Ireland, and India annually purchase approximately 2 percent of Nigeria's exports. Canada normally purchases 2-3 percent, Japan 1.5-2.5 percent and the U.S. approximately 8 percent on an annual basis since 1966. This leaves approximately 20 percent of Nigerian exports to be purchased by Czechoslavakia, Denmark, East Germany, Norway, and other lesser purchasers.

Of the lesser trading partners, trade between Nigeria and the Soviet Union has grown rapidly over the past few years.[20] Beginning with insignificant exports of £325 in 1963, exports to the Soviety Union mainly cocoa, totalled £4.0 million in 1967.

The fact remains that the Western European market is still the largest purchaser of Nigerian exports although the purchase of her exports is not as concentrated as it was 10 or 15 years ago. Nigeria must keep three markets in mind for the sale of her products--the EEC, the United Kingdom, and the rest of the world. The present lack of importance of other less developed countries' purchases of Nigerian products is pointed up by the trade statistics.

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[20] Nigerian Trade Journal, (January-March, 1969) p. 19.

Ghana, the largest purchaser of Nigerian products among the current less developed countries, purchased an average of .2 to .3 percent of all Nigerian exports over the 1966-68 period.[21] The less developed countries may provide a growing and important market for Nigeria over the next 15 year period but that market is not evident as yet.

An even more interesting analysis than to merely look at the destination and distribution of all Nigerian trade is to look at it on a commodity-by-commodity basis. Table A.4 does that.

The absolute quantities of products purchased by the United Kingdom declined over the 1958-67 period in all categories listed in Table A.4 except groundnut oil purchases. The percentage of cocoa sales going to the United Kingdom fell from 52 percent in 1958 to 16 percent in 1967. The percentage of United Kingdom groundnut purchases fell from 36 percent in 1958 to 9.6 percent in 1967. Part of the market share given up by the U.K. went to the EEC bloc and a part to third countries. Okigbo calls attention to the fact that although the United Kingdom's absolute purchases and relative share of Nigerian exports is declining, the United Kingdom is still the largest single market for Nigerian exports.[22] Consequently, any accommodation that Nigeria might seek in the EEC should take that factor into account.

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[21] Nigerian Trade Journal, (April-June, 1969) p. 83.

[22] P.N.C. Okigbo, op. cit., p. 97.

Table A.4. Nigerian Exports and Destinations of Selected Commodities, 1958-1968

Export Commodity	1958			1962			1964			1966			1967			1968		
	UK	EEC	World	UK	EEC	World	UK	EEC	World	UK	EEC	World	UK	EEC	World	UK	EEC	World
	Thousands Long Tons																	
Cocoa	46	11	87	47	59	195	46	78	197	55	57	190	40	108	244	34	90	209
Palm Kernels	226	159	441	179	173	367	162	203	400	164	196	394	80	68	162	n.a.	n.a.	n.a.
Palm Oil	147	15	171	77	22	118	64	36	136	85	34	143	6	3	16	n.a.	n.a.	n.a.
Groundnuts	184	304	513	152	294	530	107	214	553	47	390	573	52	249	540	n.a.	n.a.	n.a.
Groundnut Oil	27	11	40	38	6	63	36	8	81	85	6	103	62	1	72	n.a.	n.a.	n.a.

Sources: P.N.C. Okigbo, Africa and the Common Market, (London: Longmans, Green and Co., Ltd., 1967) taken from Nigerian Trade Summary and FAO: Monthly Bulletin of Agricultural Economics and Statistics; Nigerian Trade Summary, (December, 1966 and December, 1967); Nigerian Trade Journal (April-June, 1969).

Trade Relations

African countries enjoy two kinds of special trade relations with major trading partners in Western Europe. First is the long standing Imperial Preference arrangement which traces its origin back to its imposition by Britain in 1915.[23] The second is the Associative Arrangement of 19 African nations with the EEC.

Imperial Preference

Britain, a traditional advocate of free trade in the nineteenth century turned protectionist just prior to World War I and posted import duties of 33 1/3 percent ad valorem of all imports. As the British Empire considered itself as one economic unit at the time, it would have been inconsistent with the concept of unity to impose the application of these duties to all products regardless of origin. Thus, the first preferences to imports from the Commonwealth was granted in 1919 with a margin varying from between 30 and 40 percent and applicable on all goods grown, produced or manufactured any place within the Empire. Generally, the less developed African Commonwealth countries--Ghana, Nigeria, Kenya, Tanganyika, and Uganda, did not offer reciprocity for the preferences they obtained in the British market or in other Commonwealth markets.

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[23]Clive M. Schmitthof, The Commonwealth System of Preferences. (British Institute of International and Comparative Law, No. 7, 1965) as quoted in Okigbo, op. cit.

The Commonwealth preferences have continued since that time. The value of the preferences has been generally eroded, however, with the general tendency among the major trading and industrialized nations to reduce the level of duties on raw materials. The developing countries on the other hand, are transforming more and more of their raw materials into semi-processed form prior to export, thus making the preferences more valuable. The increased processing shifts the exports from hitherto low to relatively higher value exports, thus increasing the value of trade preferences. Table A.5 gives the magnitudes of the preferences as they stood in 1965 as well as EEC preferences for the Associate African states.

Associations with the European Economic Community

When the Treaty of Rome was being negotiated in 1957, four of the future members of the European Economic Community (EEC)--France, Belgium, the Netherlands and Italy--still had responsibility for dependent territories. At the same time, France was still giving preferential treatment to imports from a number of her former colonies, as was Italy giving preferences to imports from Libya. France made it clear in the negotiations for the Community as a whole. The other five countries agreed reluctantly.[24]

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[24]Owen Jefferson, "The Terms of Association Between Countries at Different Stages of Development as Reflected in Some Recent Trade Agreements" in West Indies--Canada Economic Relations, Institute of Social and Economic Research (Jamaica: University of West Indies, 1967).

Part IV of the Treaty of Rome provides for the association with the Community of non-European countries and territories which have special relations with Belgium, France, Italy and the Netherlands. The objective of this association was to "promote the economic and social development of the countries and territories and to establish close economic relations between them and the Community as a whole."[25] In 1957 as all of the 19 eligible territories were still administered by the European metropolitan powers, their association with the proposed Community was not open to choice. The decisions on the proposed association were made as the result of unilateral action taken by the six member states of the Community and not as the result of negotiations among the Six and the associated countries.

By 1962, when the first treaty of association had expired, all of the associated territories in Africa with the exception of French Somaliland had become independent. Thus, the second treaty of association reflected in the Yaounde Convention, which became effective in 1964, was negotiated between the Community and the associated states themselves.[26] The African countries generally accepted the

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[25] Treaty of Rome, Part IV, Article 131.

[26] Burundi, Cameroons, Central African Republic, Chad, Congo (Brazzaville) Congolese Republic (Leopoldville), Dahomey, Gabon, Ivory Coast, Madagascar, Mali, Mauritania, Niger, Revandi, Senegal, Somalia, Togo and Upper Volta; Guinea alone repudicated association.

Table A.5. Preferences in the United Kingdom and EEC for Selected Tropical Products, 1965

Commodity	United Kingdom			European Economic Community National Tariffs							
				Germany		Benelux		France		Italy	
	MFN	Pref	CET	MFN	Pref	MFN	Pref	MFN	Pref	MFN	Pref
	Percent										
Groundnuts	10	0	0	0	0	0	0	0	0	0	0
Groundnut Oil	15	0	--	--	--	--	--	--	--	--	--
Crude	--	--	10	6.5	2.5	6.5	2.5	15.6	8.1	14.0	9
Other	--	--	15	11.5	4.5	11.5	5	16.2	8.1	15.3	9
Palm Produce											
Oil, crude	10	0	9	6.2	2.5	2.7	0	9	0	2.7	0
Oil, other	--	--	14	11.2	4.5	11.2	5	14	0	14	6
Kernel Oil	10	0	15	0	0	--	--	--	--	--	--
Kernels	10	0	0	0	0	0	0	0	0	0	0
Cocoa											
Beans	1.5	0	5.4	5.4		5.4		5.4		5.4	
Butter	0.5	0	20.0	21.5	10.5	13.0	1.8	13.0	7.5	20.5	7.5
Paste	1.0	0	25.0	25.0	10.5	16.0	3.0	25.0	7.5	22.2	6.3
Powder	2.0	0	27.0	27.0	9.5	17.0	3.0	27.0	7.5	23.5	6.6
Hardwood											
Logs and Sawn	--	--	--	--	--	--	--	--	--	--	--
Veneer	10.0	0	8.0	8.0		8.0		8.0		8.0	
Plywood	10.0	0	15.0	15.0		15.0		15.0		15.0	
Reconstituted	10.0	0	13.0	13.0		13.0		13.0		13.0	

Source: EEC, Tariff position on the principal exports of the EAMA, 1732/VI/65 - f. GATT, Commercial Policy Measures, COM. TD/G/W/8, December, 1965. Taken from P.N.C. Okigbo op. cit., p. 94.

same rights and responsibilities as did full members of the Community in setting up the second treaty of association. For example, tariffs and quotas between the six and the associated countries were supposed to be abolished in the same manner as among the six themselves. Ultimately, at the end of the 12 year transitional period, the associated countries would have full access to the whole of the EEC market instead of only to their former metropolitan countries while third countries would face a common external tariff. The associated states, following the same rights and obligations as the six full-member countries, were also required to reduce the duties they charged on imports from the metropolitan member states. There would thereby be relatively free movement of goods and services among the Community members and the associate states. "The division of labor would thus be pushed further; associated states would specialize in the production of those agricultural commodities for which they had special advantages (by reason of climate and geography) while the member states specialized in industrial goods and those agricultural commodities for which they had particular advantages."[27]

The associated states claimed two advantages in tying themselves to the EEC market. First, their exports could enter the markets of the Six at preferential tariff rates.

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[27]Okigbo, op. cit., p. 27.

Secondly, they became eligible for assistance from the EEC Development Fund which funded at equivalent to $581.2 million.

The available data suggest that the treaty of association did not have a very great effect on Community imports from the associated states over the first 5 year period.[28] The tariff concessions granted to the associated states would have been very significant if the markets of the Six were incapable of absorbing the output of the commodities traditionally traded by African countries.[29] In virtually every case, however, the Community had to supplement its supplies by imports from third countries. The value of the imports from the Associated States rose by 23 percent during the first 5 year period while Community imports from all developing countries rose by 29 percent and from all non-member countries by 53 percent. The growth of processing industries did offer greater advantages over third countries, however. Semi-finished agricultural products and semi-manufactures would find a sheltered market in Europe without facing competition from third countries with similar products and manufactures.

Nigeria's Bid for Association

At the signing of the Yaounde Convention, the Council of Ministers issued a statement that the Community would

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[28]Jefferson, op. cit., pp. 125-126.

[29]Okigbo, op. cit., p. 29.

be willing to negotiate "in a sympathetic spirit with any non-member who so requested and whose economic structure and production was comparable to those of the Associated States.[30] In July 1963 rapidly following the Declaration of Intent of the Ministers of the Six, Nigeria applied for exploratory talks which might lead to association. These talks took place between 21 and 28 November 1963. After a long delay due to the crisis in the Community during 1964-65, the agreement was signed in July 1966 to run through 1969. The agreement was never implemented because of the Nigerian Civil War, however, and was finally negated by the Nigerian Parliament in 1969.

The Development of Two Trading Blocs

The Association of African countries and dependencies with the European Economic Community created two distinct trading blocs within Africa.[31] One group, mainly francophone states, had special relations with the Community. The other group enjoyed special privileges as members of the British Commonwealth. The first serious bid to link the two groups stemmed from Britain's application to join the Community in 1962. Despite the fact that the British negotiations collapsed in January 1963, Nigeria continued

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[30]EEC, Seventh General Report, 1963-64, pp. 225-226 as quoted in Okigbo, op. cit., p. 116.

[31]Okigbo, op. cit., p. 70.

in her quest to restore her competitive position vis-a-vis the associated states in the markets of Europe.

Nigeria spelled out her intentions to the EEC that she was not interested in the development aid fund of the Community but only in the trade provisions as given to the other associated states. Under the terms of the trade provisions of the agreement all Nigerian exports of all products, except cocoa beans, groundnut oil, palm oil and plywood were to benefit from reductions of duties and elimination of quotas by member countries.[32] For the four products mentioned above, all of which compete with production from the associate states, there were to be duty-free quotas. The 1966 quotas were set at 6 percent more than the average of Nigerian exports to the Community for the years 1962-64; quotas thereafter were to be increased 3 percent per year.[33]

Although it was never implemented, the Nigerian-EEC agreement is still important for several reasons. First, it serves as a pattern to other African countries who might negotiate with the EEC. Its terms allowed Nigeria to assume the special trade relationship with the EEC without endangering her trade with the rest of the world. Secondly, the pattern of the agreement was a comprehensive one covering all Nigerian exports and not simply a certain

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[32]Jefferson, op. cit., pp. 131-132.

[33]Ibid., p. 132.

list of products. Such an agreement could be especially beneficial to a developing country as it expands its processing and manufacutring capacity. Third, the agreement did not include Nigeria's right to share in the Development Fund aid which many countries have considered as a tool of political manipulation by the European powers. It showed the rest of Africa that an association agreement could cover the trade needs of a developing country without tying that country to multilateral aid, and thus multilateral pressures. She could still accept bilateral aid from the Euroepan powers, however. Lastly, and maybe most importantly, the agreement might serve to bridge the gap between the two polarized trading groups that have developed, one representing Britain and the Commonwealth countries and the other representing the Common Market countries and the French-speaking African countries. It could also serve as a basis for expanding internal trade between the members of the sub-regional groupings in Africa.[34]

Summary

Despite the disincentive marketing board and taxing policies of the Colonial and Nigerian governments, Nigerian agriculture has continued to grow and compares favorably

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[34]Okigbo, op. cit., p. 132.

in its growth to most other developing countries. Agricultural exports expanded at a 4-5 percent compound rate over the period 1950-68 with all major export commodities with the exception of palm oil showing substantial gains in export values. Less is known about the production of domestic food crops although there are indications that domestic food prices have drifted upward during the past 10-15 years.

The composition and relative importance of Nigeria's trading partners has changed dramatically over the past 15 years with a declining share of trade being done with the United Kingdom and an increasing share with the European Economic Community (EEC) countries and with countries other than either the United Kingdom or the EEC.

Nigeria enjoys special trade relations with the United Kingdom through the Commonwealth Preference arrangement, and the United Kingdom is still Nigeria's largest single purchaser. A special "Associative Arrangement" between Nigeria and the EEC, which would have served to bridge the gap between the two distinct trading blocks in Africa, the Commonwealth Countries and the Associative Members of the EEC, was negotiated but never put into effect.

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