

AGENCY FOR INTERNATIONAL DEVELOPMENT
 WASHINGTON, D. C. 20523
BIBLIOGRAPHIC INPUT SHEET

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Batch 37

1. SUBJECT CLASSIFICATION	A. PRIMARY Agriculture	AE70-0000-G214
	B. SECONDARY Distribution and marketing--Nigeria	

2. TITLE AND SUBTITLE
 Marketing of staple foods in eastern Nigeria

3. AUTHOR(S)
 Whitney, Anita

4. DOCUMENT DATE 1968	5. NUMBER OF PAGES 89p.	6. ARC NUMBER ARC NI658.80963.S785a
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7. REFERENCE ORGANIZATION NAME AND ADDRESS
 Stanford Res.Inst

8. SUPPLEMENTARY NOTES (*Sponsoring Organization, Publishers, Availability*)

9. ABSTRACT

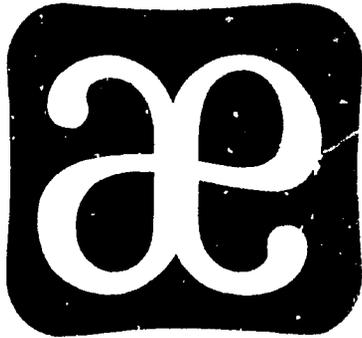
10. CONTROL NUMBER PN-AAC-277	11. PRICE OF DOCUMENT
----------------------------------	-----------------------

12. DESCRIPTORS Cassava Food crops Maize Nigeria	Rice	13. PROJECT NUMBER
	Yams	14. CONTRACT NUMBER CSD-801 Res.
		15. TYPE OF DOCUMENT

111
65-10-103
1111

csd-801 Rev.
PN-A40-277

DRAFT REPORT



Agricultural Economics Report

REPORT NO. 114 SEPTEMBER 1968

MARKETING OF STAPLE FOODS IN EASTERN NIGERIA

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Prepared for:

The United States Agency for
International Development

Department of
Agricultural Economics
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Contract No. AID/csd-801
SRI Project No. B-86984-US

PREFACE

This study was financed by the United States Agency for International Development under the terms of a contract with the Stanford Research Institute of Menlo Park, California. The Department of Agricultural Economics of Michigan State University sub-contracted with S.R.I. to conduct the study in Eastern Nigeria.

The study reported in this publication was part of a larger study of the marketing of staple food crops in Kenya, Sierra Leone, Western Nigeria and Eastern Nigeria. The basic research design was developed by the team members and staff of the Food Research Institute during a seminar held at Stanford University during January and February 1966. Valuable advice was received from the coordinating committee which visited Nigeria during the course of the study. Members of this committee were:

- A. S. Cleveland, Stanford Research Institute
- W. O. Jones, Food Research Institute, Stanford University
- H. C. Trelogan, United States Department of Agriculture
- H. S. Evans, University of West Virginia
- H. G. Halcrow, University of Illinois
- G. L. Johnson, Michigan State University

Dr. Anita Whitney of the Department of Agricultural Economics directed the field research and prepared the report. Her assistant, Miss Maria Ukattah aided in all phases of the field work.

The study was conducted during a period of tense political and military negotiations. Collection of field data became more and more difficult as the study progressed with increasing numbers of road blocks and reluctance of traders to be interviewed by interviewers whom they did not know. The study was abruptly terminated with the evacuation of the expatriate researchers from Eastern Nigeria by US AID on June 4, 1967. This report is based

on partial data collected during the study. Some of the completed interviews had been taken to Ibadan where the University of Ibadan Computing Center assisted with the analysis. These interviews were available for the report. Substantial sections including the background material and secondary source material, in addition to all price data collected, remained in Eastern Nigeria.

In Eastern Nigeria the project was sponsored by the University of Nigeria. Assistance and office space was provided by the Economic Development Institute and the Department of Agricultural Economics and Rural Sociology. The two successive directors of the EDI during the course of the study, Dr. Carl Eicher and Dr. Silvester Ugoh, and the head of the department, Dr. Warren Vincent, assisted the study director in many ways.

The collection of data for the study was largely carried out by senior students in the Department of Agricultural Economics. Typing and valuable assistance in Nigeria was performed by the author's secretary, Mr. U. Nnaji. Supporting services were provided by US AID personnel in Enugu and Lagos.

The maps on the distribution of crop production were constructed by Mr. L. Chukuemeka Uzozie for his master's thesis for the Department of Geography, Ibadan University, Ibadan, Western Nigeria. It was not possible to obtain Mr. Uzozie's consent to the publication of these maps, and the author acknowledges her indebtedness to him.

Many agencies and government departments gave their assistance in providing data. It would be impossible to reconstruct the lengthy list of individuals. Traders, consumers and farmers were always polite and helpful, and anxious to assist the author in enlarging her understanding of staple food marketing system.

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CHAPTER I

Continued economic growth of Eastern Nigeria requires the maintenance of a delicate balance between the production of subsistence crops and export crops. The growth of agricultural output in both sectors depends upon the growth of effective demand. Increasing urbanization and rising per capita incomes will require increases in staple food crop production. The marketing system will have to adapt itself to accommodate these changes. The present structure and functioning of the marketing system for the staple food crops in Eastern Nigeria needs to be described in order to examine the implications for the future.

A. OBJECTIVES

The objectives of the study are (1) to describe the organization of the present marketing system for yams, cassava, rice and maize; (2) to examine the forces affecting the operation of the system; (3) to evaluate the performance of the system in order to identify inefficiencies; and (4) to suggest alternative arrangements to improve performance at various stages in the marketing system.

B. METHODOLOGY

The scanty secondary information available on the marketing of the four selected crops is frequently found to be rather unreliable. This meant that a great deal of emphasis had to be placed on the collection of primary data. Most of the data was collected by six final year students majoring in agricultural economics. During the course of the field study they visited about 60 markets located in Onitsha, Abakaliki and Ogoja Provinces. Questionnaires were used to obtain data from producers, processors, traders and consumers.

Continuous price information was collected for one year at both the wholesale and retail level in Enugu, Onitsha, Abakaliki and Ogoja. Due to political and military events, the price data became unavailable for analysis and primary reliance had to be placed on the Ministry of Agriculture's price data.

C. SCOPE

1. Location

The major city studied is Enugu, the Regional capital of Eastern Nigeria, a city of 138 thousand people. Enugu, being the administrative center, has a larger than average middle and upper income segment of the population.

The major industry of the town is coal mining. The supply area for the markets of Enugu encompasses most of the four northern provinces. Onitsha--larger than Enugu--plays a particularly important role in food marketing because it is the major distributive site for the Region. It serves as the major wholesaling center for many food and almost all nonfood items. The market is reputed to be the largest indigenous African market.

2. Staple Foods

Root crops provide the largest percentage of calories in the diet in Eastern Nigeria. Oils and fats are the second most important category, followed by cereals. Starchy roots appear to make up about three-quarters of the total calories consumed. All of the village dietary studies conducted in the East indicated that cassava contributed a larger share of the total calories than yams.

The recent F.A.O. study reported that yams were more important than cassava in the diet. If yams and cassava are the two most important items, palm oil and maize are usually ascribed third and fourth listings in the

order of declining importance. There are areas in the four selected provinces where rice is probably a more important calorie provider than maize.

Cassava is sold in several forms: gari and fresh roots are the most important in urban areas. In rural areas, fermented cassava ("aka") is more important than gari. Cooked cassava ("abacha") is of minor significance in some areas.

Yams are almost always sold fresh. The only processed form of yam available is as yam flour which is sold in very small quantities in urban markets. Rice is sold as undermilled raw rice. Maize is sold as dry maize and fresh green maize in season. Prepared maize products, chiefly "agidi" or "akamu", a thick paste made from the ground dry grain, cooked, and wrapped in leaves, is sold in the markets. In contrast with other regions of Nigeria, the ready-to-eat forms of the staple crops were of minor significance. The major emphasis in the study is placed on fresh yam tubers, gari, milled rice and dry maize.

D. GEOGRAPHIC SETTING AND AGRICULTURE

Eastern Nigeria is an area of about 19,000,000 acres of which about 3,000,000 acres is coastal swamp. Of the remaining useable land, approximately ten percent is in farm and tree crops at any one time, about ten percent is in forest reserves, and the remainder is classified as being currently not in agricultural production plus unreserved forest areas.

The economy of Eastern Nigeria is primarily agricultural with 77 percent of the working male population of rural Eastern Nigeria in 1964 being involved in primary production. Possibly another five to ten percent are engaged in trading activities involving local produce. About 80 percent of the adult women state that they are engaging in some agricultural activities.

The climate of the east is similar to that found along the rest of the West African coast, areas of high rainfall and humidity along the coastal area and decreasing rainfall with increasing temperature variations towards the more northern areas. The period of highest rainfall and humidity is between April and October, when prevailing winds are from the southwest. During the "dry season", the harmattan winds blow dry dusty air from the north.

The mean annual rainfall in the area of study is generally between 60 and 80 inches. Parts of southern Abakaliki Province have an annual rainfall of up to 90 inches. The highest rainfall in the area of study is in southeastern Ogoja Province, where it reaches 120 inches. The dry season is much longer in the north of the area of study, with five months when the rainfall is under 2.4 inches in Ogoja Province. There are two periods of peak rainfall, typically in July and September with a slight break in August.

The temperatures in the northern Provinces peak in March when the average monthly temperature is about 87 degrees Fahrenheit in Onitsha, and 84 degrees in Enugu. During March the rains start, building to a peak in June or July, then dropping somewhat during August, "the August break." The heaviest monthly rainfall is customarily in September. By November the monthly rainfall has dropped to an average of two inches in the area of study.

Most of the land is below 400 feet in elevation with the exception of two major areas, the Nsukka Plateau and its small southern extension, the Awgu Escarpment and the Obudu Plateau. Some of the latter is above 3,600 feet in the Sankwala Mountain area. Rainfall in the latter area is around 160 inches per year, and ranching is the main agricultural activity in that area.

Almost all of Enugu and Abakaliki Provinces lie within the derived savannah zone. Years of clearing and burning have destroyed the high forest which originally covered the landscape. Patches of high trees remain around the compound lands, but much of the area is dry, sandy grassland with a few small, deciduous trees of fire-resisting types. At the northern edge the derived savannah blends into the Guinea savannah with no forest trees or oil palms and the grasses reaching a height of about ten feet. Towards the southern edge of the area of study and in riverain parts of Onitsha Province and in most of central and southern Ogoja, the derived savannah blends into high forest and oil palm bush or dry lowland rain forest.

The basic system of cropping involves the traditional slash-and-burn type of agriculture with periods of fallow to restore the fertility of the soil. In some areas with acute population pressures the fallow period has diminished to almost annual cropping. In other areas the land is only cropped every eight years. Most farmers have an area close to their compound where intense annual production of crops is carried on using household manure and any vegetable waste available to supplement the soil fertility.

The four province area studied include 4.5 million people of the 12.4 million estimated to live in Eastern Nigeria at the time of the 1963 Census of Population. The four Provinces, Onitsha, Enugu, Abakaliki and Ogoja, with their respective Divisions are illustrated in Map I-I.

The population of the east is largely concentrated in widely dispersed village units. Large towns, of approximately 50,000 population are uncommon, there were only three in the area of study. Onitsha, Enugu and Awka. Outside the three largest cities of the east, Onitsha, Port Harcourt and Enugu, there is little correlation between size and city functions, with

some of the large settlements units having few urban amenities. The six settlements having populations of over 20,000 are listed in the following Table I-I.

TABLE I-I

Towns With Populations of Over 20,000 Inhabitants in Study Area

Town	Population (000's)*
Onitsha	163
Enugu	138
Awka	49
Ugep	45
Abakaliki	31
Nsukka	26

*Source: 1963 Census of Population

Average population density is highest in Onitsha Province with 819 persons per square mile, and lowest in Ogoja Province with 95 persons. Table I-II also shows Awka to be the most densely populated division with a density of over 1,000 to the square mile. Obudu and Ikom Divisions have under 100 persons per square mile. With so dense a population in most areas, the balance between the demand for food and agricultural production is precarious. At the same time the distribution is varied, so that food surplus areas and food deficit areas sometimes lie close to each other. However, the density figures tend to be rather static since land ownership is vested in traditional village groups rather than individuals, and the sale of land is extremely difficult.

TABLE I-II

Population and Population Density of Area of Study

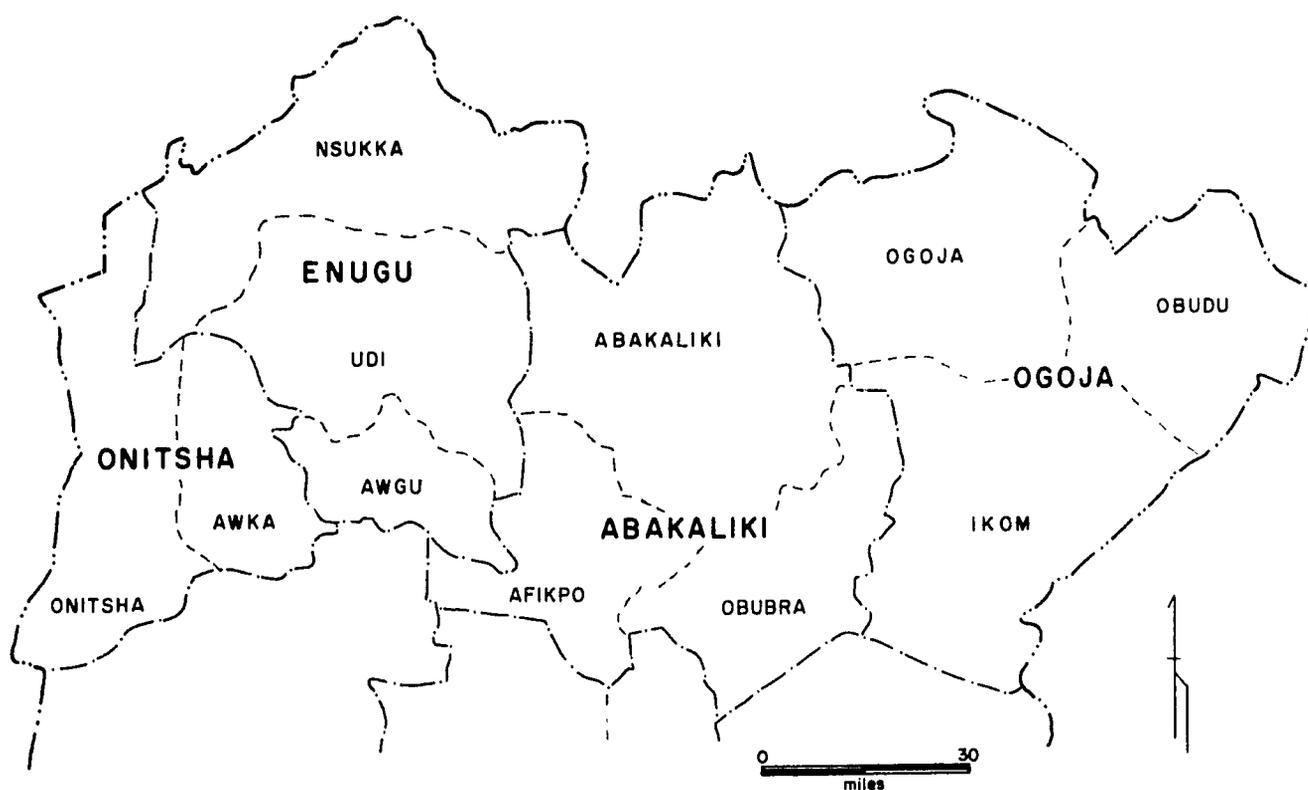
Province and Division	Population (000's)*	Area (Sq. Miles)	Density Per Square Mile
Enugu Province (totals)	1,452	3,056	475
Udi	550	1,318	417
Nsukka	689	1,314	524
Awgu	213	424	502
Abakaliki Province (totals)	1,235	3,547	348
Abakaliki	628	1,824	344
Afikpo	376	725	519
Obubra	231	998	231
Onitsha Province (totals)	1,492	1,821	819
Onitsha	797	1,150	793
Awka	694	671	1,034
Ogoja Province (totals)	367	3,867	95
Ogoja	205	1,619	127
Obudu	82	1,158	71
Ikom	80	1,090	73

*Source: 1963 Census of Population

The distribution of population with the densely populated villages of southern Onitsha are illustrated in Map I-II. The population generally decreases in density towards the north and eastern areas studied, with the exception of the Nsukka Plateau. Very few persons live in the Cross River area of Southern Ikom Division.

MAP I-I

PROVINCES AND DIVISIONS



ABAKALIKI

Abakaliki
Afikpo
Obubra

ENUGU

Awgu
Nsukka
Udi

OGOJA

Ikom
Obudu
Ogoja

ONITSHA

Awka
Onitsha

E. PATTERNS OF FOOD CONSUMPTION

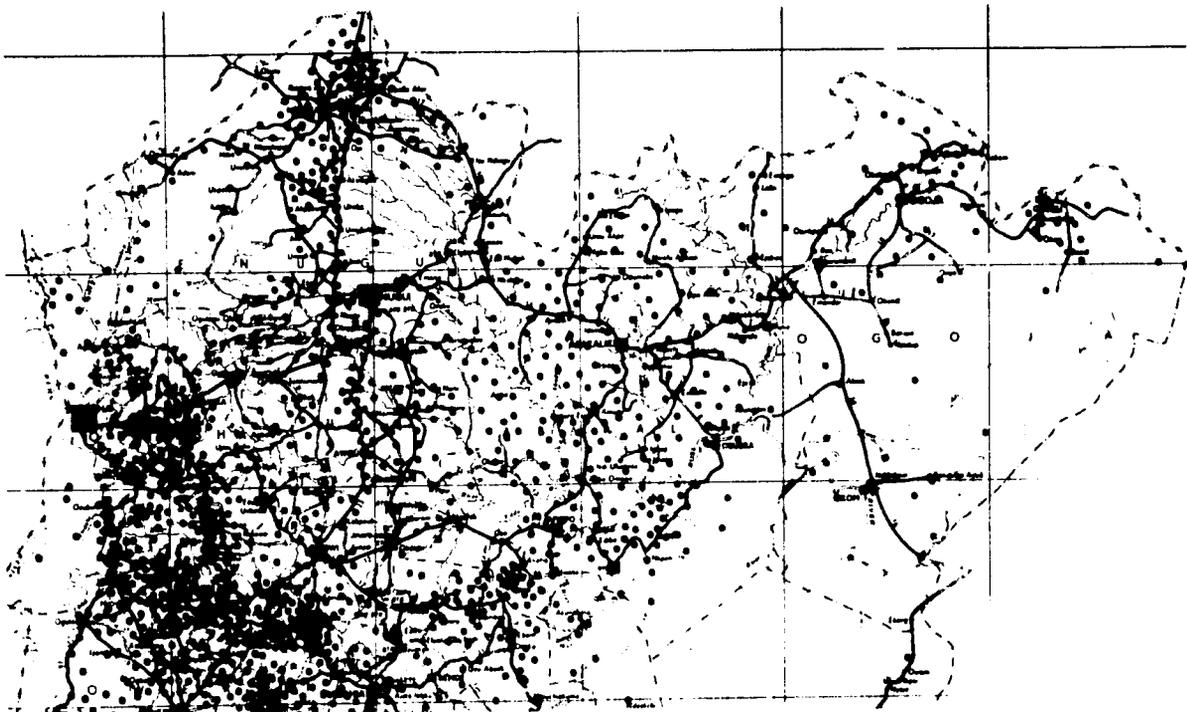
A great deal of variation exists in both the menu and timing of meals in the area under study. The concept of a typical menu in the European sense is quite meaningless. West African foods are not prepared with standardized ingredients, and though there may be general agreement on two or three principal ingredients which are expected to be present in a specific dish, after that the ingredients depend on availability, the housewife's taste, cost factors, or the local customs. There are the same variations in dietary habits among Eastern Nigerians of different educational and income groups that one finds elsewhere. Lastly, the concept of certain foods being associated with the breakfast meal, other foods with lunch, and perhaps a third set with dinner is not meaningful in Eastern Nigeria where similar foods are eaten at all three times.

In the rural areas, farmers frequently go to work in their fields at dawn, and return for breakfast around 10 to 11 a.m. Meanwhile the women and children usually eat around 7 or 8 a.m. The first meal frequently consists of food left over from the day before. In urban areas, where people have to be at work at a specific time, breakfast is taken more regularly between 6 and 7 a.m. Bread is a frequent item for breakfast in urban areas, sometimes workers will buy items such as "akar" balls on the way to their job. Gari is eaten for breakfast more frequently in urban than in rural areas.

In rural areas, farmers sometimes carry left-over cooked food to their farms. At other times, especially during planting season, they will make a fire and put the end of the yam in the ashes to roast. In those areas where farmers leave to spend several days on their farms, then they will take a pot and prepare more substantial foods. Women in rural areas sometimes prepare a soup (or stew) for lunch, but it is slightly more common to make the main dish for supper. Sometimes they prepare yams, cassava or cocoyams, but much depends

MAP I-II

DISTRIBUTION OF POPULATION



0 30 miles



One dot represents 5,000 people
Rectangles represent towns with
over 20,000 inhabitants

Source: 1963 Census of Popu

on the season and what food is available. In urban areas, work generally continues until 3 p.m. in government or quasi-government positions, and these employees often take a snack at lunch sold by small vendors or hawkers. In private concerns or for individual traders where the hours of work are longer, lunch is sometimes taken at home if it is convenient, bought from a vendor, or eaten at a native restaurant.

The evening meal in rural and urban areas is usually taken when the day's work is over, and this may be as late as 8 or 9 p.m. Often this meal consists of a soup and some starchy food, this could be fermented cassava, foo-foo or pounded yam, or some other method of preparation. In some areas of the east, the soup generally includes both meat and fish, the quantities depending on what is available. In other areas, such as Owerri, it is common to have either meat or fish in the soup, but not both.

The recent F.A.O. study¹ estimated that root crops provided the largest percentage of calories in the diet, followed by oils and fats, and then cereals. Pulses and nuts, meats, sugar, fish, vegetables, fruits and eggs and milk were all general classifications providing fewer calories and are listed in order of declining importance in the eastern diet. There is little disagreement among various studies on the order of the first three classifications, or indeed on the specific listing of yams, cassava, palm-oil and maize as being the four most important providers of calories in the Eastern Region.

The form in which the staple foods are consumed varies considerably with the area of the Region, the time of year, the income group and individual preferences of the family. Yams are eaten boiled, fried, pounded, as yam balls, made into stew, or occasionally dried as "alibo." Cassava may be

1. F.A.O., Agricultural Development in Nigeria, 1965-1980, Food and Agriculture Organization of the United Nations, Rome, 1966, p. 397.

fermented, prepared as foo-foo or gari, or made into tapioca. Maize is eaten green or fresh during the growing season, or soaked, drained and pounded and served as agidi, or ground and mixed as pap for children. Rice is usually cooked as a soup or stew, and is occasionally served boiled.

Most village dietary studies show cassava to be a more important source of calories than yams. Indeed, contrary to the F.A.O. estimates, the percentage of daily calories derived from cassava are frequently twice as much as those derived from yams. The starchy foods generally contribute from one-half to three-quarters of the total daily calories consumed depending on the location.

The F.A.O. study estimates that the root crops supply the highest percentage of protein in the diet. Cereal crops, especially maize are the second most important source. Meat and fish are in the third and fourth positions as the working sources of protein. In the northern areas of Eastern Nigeria, meat is generally more important than fish. Protein calories in several dietary studies amount to less than ten percent of the total calorie intake.

Little has been reported on seasonal variations in the dietary pattern. One study found that rural people have a net energy deficit during April and May, the period of greatest physical activity on the farms. At that time the consumption of cassava is at its peak as most of the remaining yams have been planted as seed. Yam consumption has two peaks, the first during the main crop harvest period between August and October, and the second smaller rise in January when the remaining yams are removed from the farm yam barns. Meat and fish consumption remain at generally low levels except for the period of Christmas and New Year festivities.

Observations made by medical and nutritional workers suggest that there are appreciable differences in diet between rural and urban areas. It is felt

that the per capita consumption of gari is higher in urban areas, and that of fermented cassava is higher in rural areas. Rice is also considered more of an urban food. Bread consumption is usually considered to be higher in larger villages and urban areas. The consumption of imported foods could be expected to be higher in urban areas, and that of vegetables and fruits may be lower.

Studies of income and expenditure patterns of lower and middle income households in Enugu and Onitsha found that almost half of the food budget of lower income families is spent on staple food crops. For the middle income group, 38 percent is spent for staples. Yams are the most important staple crop in both cities amongst both income groups, accounting for one-third of the expenditures spent for staples. Cassava and cassava products are second in importance, followed by rice and maize in that order. Middle income groups consumed twice as much rice as lower income groups. Maize expenditures are extremely small, only 5d. or 6d. per capita per month in both cities.

One study conducted in urban areas reports that about 90 percent of consumers in both Enugu and Onitsha say they eat gari, yams and rice at least once a week. Fermented cassava is eaten once a week by 45 percent of those interviewed in Onitsha, only 24 percent of the Enugu consumers.

Little information is available comparing rural dietary patterns in Eastern Nigeria. On the whole the production maps especially for yams and cassava give some indication of the relative importance of these two crops in the diet. Rice has historically been looked upon as purely a cash crop in its area of production. However, the practice of selling all of the rice seems to be decreasing in importance, and there have probably been substantial increases in rice consumption in the production areas in the last five years. Green maize is intercropped to some extent all over the east, and is usually consumed

locally. Most of the dry maize has been imported from the Northern Region, and data is sketchy on any differences in regional consumption.

The F.A.O. projections assuming constant prices and projecting the demand for specific foods to 1979/80, estimate that the income elasticity for total root crops is zero. This assumption probably covers an expected per capita decline in cassava consumption, and an expected rise in yam consumption.

The report assumed that the income elasticity for cereals was 0.7, this increase probably being mainly attributable to increased rice consumption and increased demand for wheat flour. Grain legumes, mainly cow-peas, had an assumed income elasticity of 0.5. Sugar, meat, fish, eggs and milk were all given income elasticities of 0.7 or over.

With a population estimate of 12.4 million Easterners in 1963/64, and projections of an estimated growth rate of 2.5% to 1968, 2.75% to 1974, and 3% to 1980, the population of the east is expected to reach 19.2 million in 1980. Given the income elasticities assumed above and this rate of population growth, there will have to be substantial improvements in cereal production, and indeed in root crops just to keep pace with the expanding population.

Data was collected in four urban areas of the east in connection with poultry consumption.² This study indicates that yam consumption could be expected to increase most with the lower income groups with rice having the second highest income elasticity. Expenditures for cassava and gari could not be expected to rise.

2. Billings, Martin. Unpublished data collected in 1967.

TABLE I-III

Movements Between Income Groupings and Overall
Change Across the Income Range

Food Item	Income Groups in Percentiles			Net Change in Percent
	£76-187	£188-439	£440-700+	
Gari	-6	+4	-22	-24
Cassava	-9	-16	-26	-51
Yam	+50	+16	-21	+45
Rice	+31	+5	-11	+26

CHAPTER II

Commodity Movements

1. Sources of Supply

The creation of surplus from any area is dependent on multiple factors: the acreage planted to the crop, the interplanting system used, population density and the ecological suitability of the specific area. The three divisions having the highest population density in the four provinces are southern Onitsha and Awka Divisions, and central Nsukka Division. The first two divisions consist of overfarmed palm bush, the latter of overfarmed escarpment slopes destroyed by erosion. All these rural areas are net importers of staple food crops.

The major sources of supply for yams, cassava and rice for Enugu and Onitsha are located in the four province area. It has been estimated that more than half the maize consumed in Eastern Nigeria is eaten as boiled or roasted ears of prematurely harvested corn. Dry maize is a more popular item for urban diets, and the Stanford Project concentrated on this form. Most of the dry maize consumed in Enugu and Onitsha probably originated in Northern Nigeria before the political crisis.

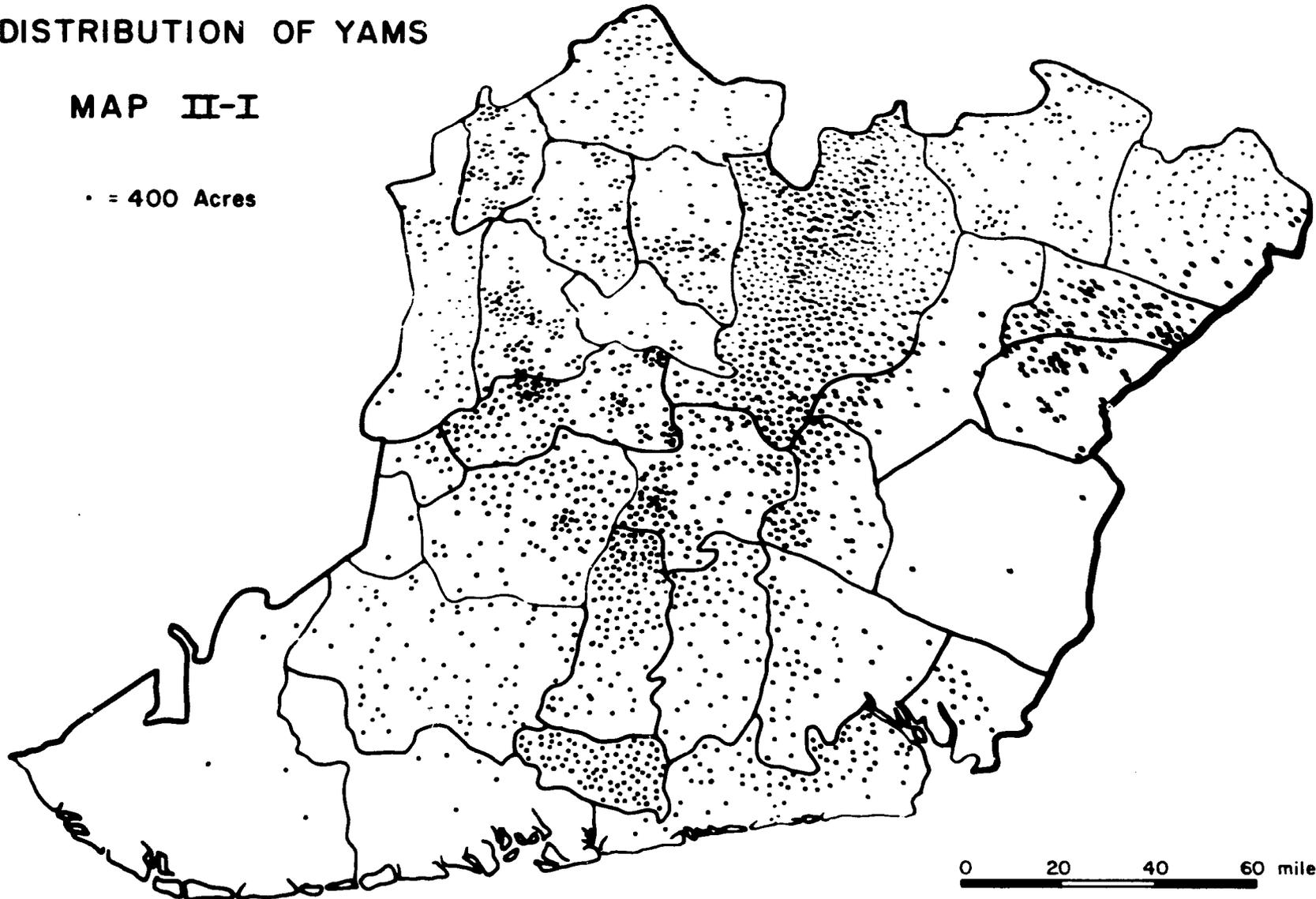
The largest surplus yam producing province is Abakaliki. Ogoja has the second largest amount of excess production followed by Onitsha, where yam production is heavily concentrated along the riverain areas. There are rather limited areas in Enugu Province where excess yams are produced as indicated on Map II-I.

Rice is produced primarily in Abakaliki Province which grows about half of the Eastern Nigerian production. Paddy is also grown in Ogoja and Obudu Divisions of Ogoja Province. Ogoja and Abakaliki production is mainly milled in Abakaliki and sent to Onitsha, with some going to Enugu. Nsukka Division grows swamp rice around Adani and has some areas where upland rice was grown. Rice growing in Onitsha Province is mainly around Achalla and Aguleri in Awka Division.

DISTRIBUTION OF YAMS

MAP II-I

• = 400 Acres



Data from Eastern Nigeria Rural and Economic Survey 1963/64

Most of the rice-growing areas have shallow saucer-shaped swamps. These are caused by poor internal drainage on the shale-derived soils. Water control measures are rarely used, but will become more necessary if the variety Mas 2401 increases in popularity. It has more critical water requirements than the BG 79 variety which is the prevalent one at the time of the study. Upland paddy is grown on the better drained, more sandy soils around Obudu and Nsukka. Some areas of inundated lowland with soils ranging from brown loams to gray clays are being used for rice with minimal bunding practices. The area north of Adani was one example.

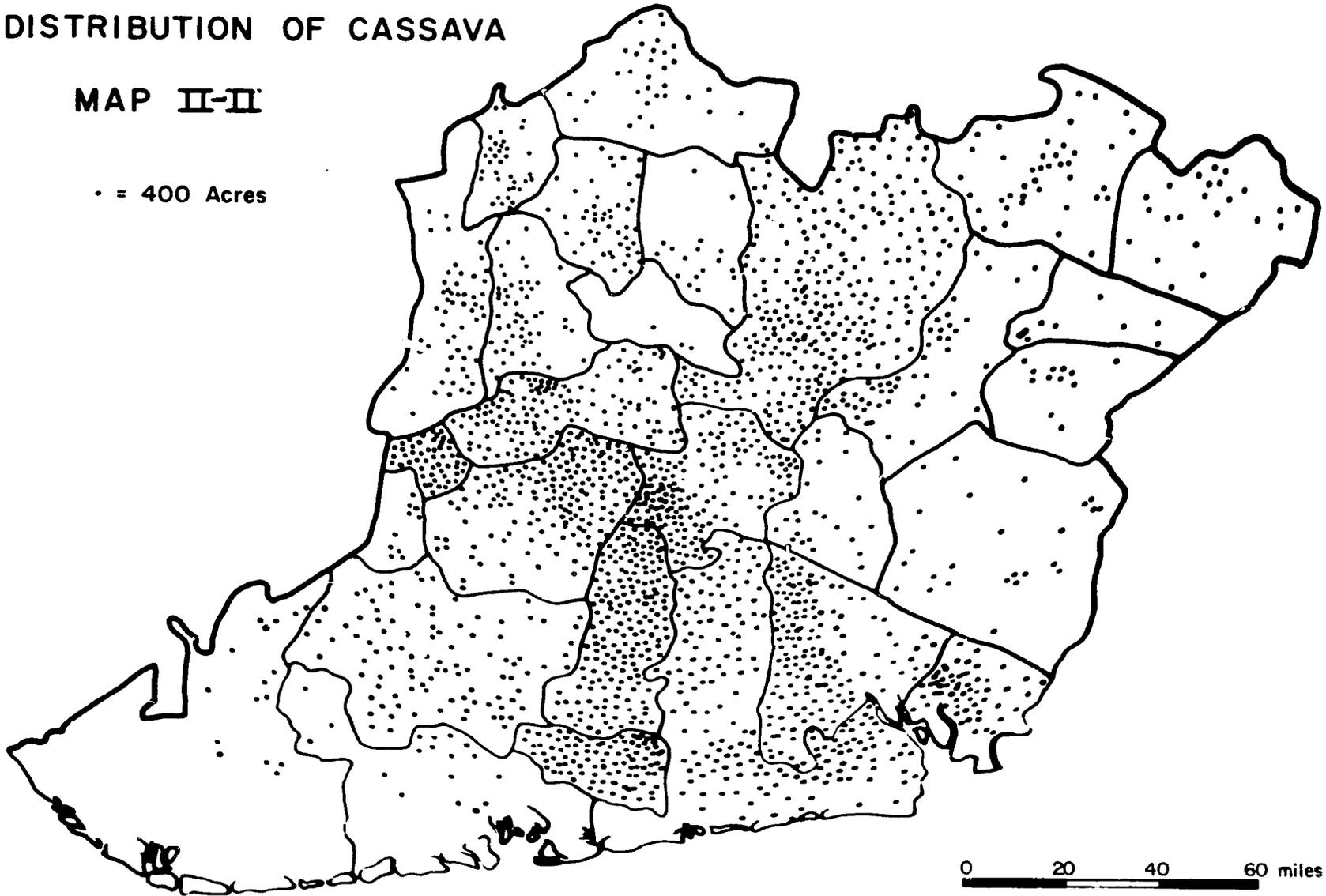
Cassava is grown in all four provinces; even though the quantity grown in Ogoja is not large, the sparse population makes the export of some possible. Abakaliki Province also has areas of surplus production as indicated by Map II-II. Cassava grown in the areas around Agbani, Nike and Oghe supplies the Enugu market. Onitsha market is supplied mainly with cassava from the MidWest; Benin and Igboakiri are the two major supply sources. Onitsha Province is so densely settled that most cassava grown is consumed in the vicinity.

Interregional trade will be discussed in its pre-crisis form. In terms of the percentage of the crop involved, the large imports of dry maize from Northern Nigeria into Eastern Nigeria made interregional trade in this crop of major significance. Most entered the East at Onitsha, and after going through the wholesale section of the market was shipped to other urban centers. Rice from Northern Nigeria entered the Onitsha market system while Middle Belt rice entered Abakaliki mills. Approximately equal quantities of rice enter and leave the East. Abakaliki area rice is shipped to the urban centers of the West. Gari from the MidWest area is of major importance in the Onitsha markets. Interregional exports of gari are made from Agbani and Enugu by rail to Northern Nigeria, and also from Onitsha to western markets. There appears to be a net export of gari from the East. Yams from the Middle Belt are imported to Eastern Nigeria during the period prior to the local yam harvesting season. Yams are also sent out of the Region to Ibadan and Lagos. Interregional exports of both yams and rice appear to balance imports.

DISTRIBUTION OF CASSAVA

MAP II-II

• = 400 Acres



Data from Eastern Nigeria Rural and Economic Survey 1963/64

2. Importance of Enugu and Onitsha

Enugu does not assume major importance as a consuming center for any of its major supply areas, if these are defined as the four Province area. It probably consumes less than 10 percent of the marketable surplus of yams, gari, rice and maize.

The four selected crops are brought into the Enugu market and sold to local consumers with two exceptions. Between October and April it serves as a bulking center for yams coming from Abakaliki and Ogoja Provinces (often in mixed lorry-loads). These yams are then sent in large lorries to Lagos and Ibadan. Enugu is also the trans-shipping center for gari from the Amuri-Agbani area. The gari is brought into the Enugu railway station by lorry and leaves by rail for the North. Small quantities of all four foodstuffs are purchased by traders from the surrounding areas and leave by mammy-wagon (small lorry carrying mainly passengers) or as a mixed lorry load for local villages, primarily Agbani, Oghe, Nsukka and Udi.

Enugu serves as a redistributing market for foodstuffs purchased in Onitsha. Dry maize, primarily from Igala Province, is bought from wholesalers in the Onitsha Main Market during most of the year as illustrated in Map II-III. The riverain yams from north of Onitsha supply most of the eastern cities during the July, August and September period. Gari from the MidWest goes to the Onitsha markets particularly during the rainy period. During these months Enugu wholesalers sometimes purchase gari at Onitsha.

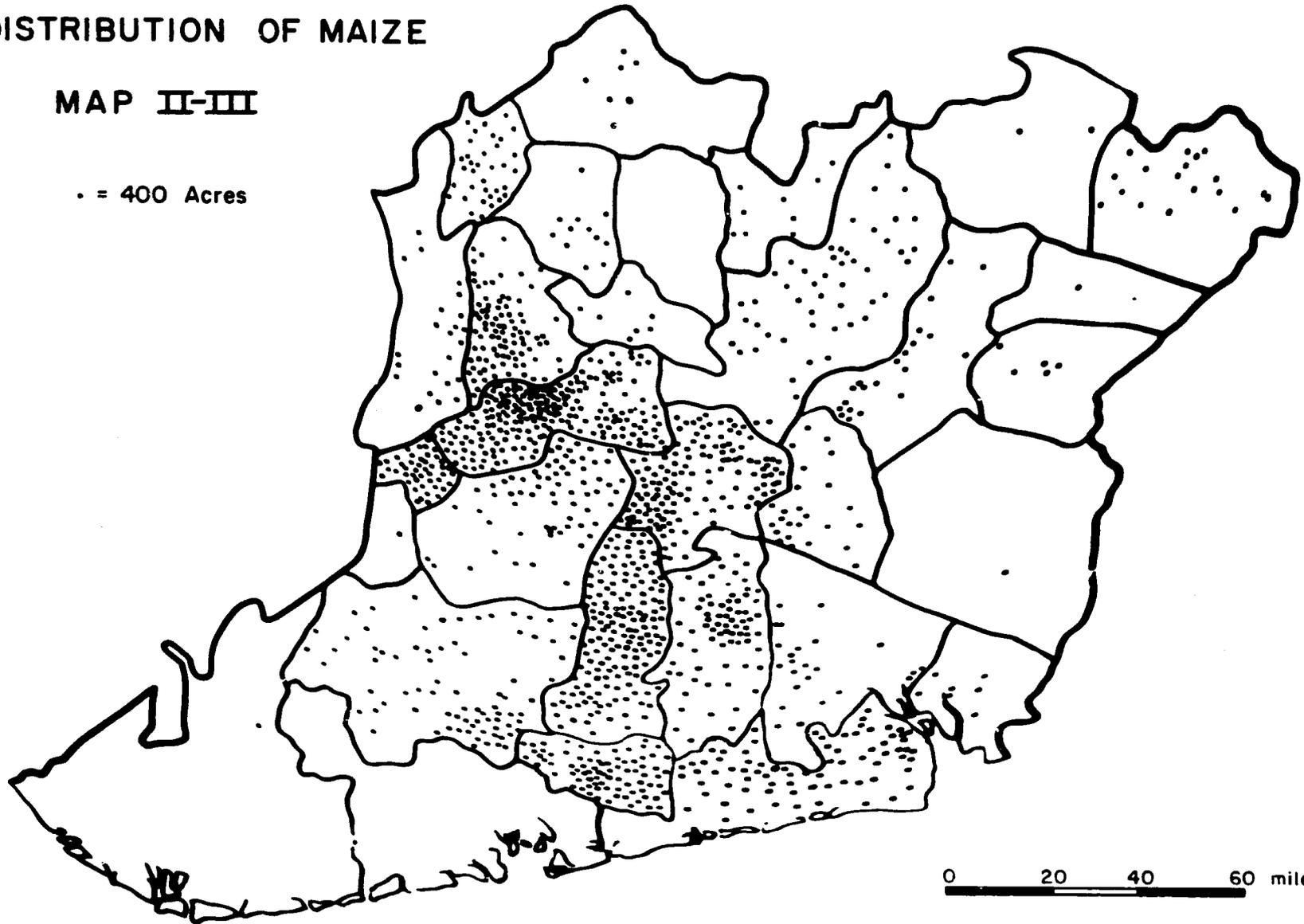
Onitsha is considerably more important than Enugu with respect to its role in the food marketing system. As a consuming center, foodstuffs come from all four Provinces as well as the north and MidWest. Government officials estimated that the population of the town in 1966 may have reached 200,000. If Enugu consumes less than 10 percent of the marketable surplus of the selected crops, Onitsha probably consumes between 10 and 20 percent.

In contrast to Enugu, Onitsha serves as an important redistributing market for foodstuffs. Not only does Onitsha serve as the wholesaling center for the

DISTRIBUTION OF MAIZE

MAP II-III

• = 400 Acres



Data from Eastern Nigeria Rural and Economic Survey 1963/64

Eastern Region, but for some foods originating outside the Region and being sent to other cities. Yams, rice and maize come from Northern Nigeria; most of these supplies are consumed in Eastern Nigeria but some are sent by lorry to Western Nigeria. At other times of the year, the selected staples originate in the east and are purchased by wholesalers from villages in the food-deficit areas of the palm belt. Some foodstuffs, such as rice and occasionally yams, bypass the Onitsha markets, and are taken by lorry from Abakaliki across the Niger Bridge to Lagos and Ibadan.

3. Levels of Flow-Intermediaries

Three major categories of intermediaries--assemblers, wholesalers and retailers--are important in the staple food trade. These categories should not be thought of as mutually exclusive because many traders combine the functions performed by these intermediaries. First, assemblers are usually resident in supply areas where they purchase from farmers and small-scale traders. They sell to urban market wholesalers either at the more important village markets or at the mills (in the case of rice). Second, many wholesalers are present in both the village and urban markets and they sell in bulk to other traders. Third, retailers are located in village and urban markets and sell in small units to consumers. Commission agents or brokers are unimportant in Eastern Nigeria. Before the political crisis there were a few in the Onitsha market in the trades dominated by northern supplies such as beans, cereal grains and dry maize.

The difficulty of making meaningful distinctions between these categories can be illustrated with a couple of examples. Traders who deal exclusively at either the wholesale or retail level are hard to locate. In June, 1966, a complete enumeration of the yam sellers in the Enugu market disclosed only 3

percent who were selling at the wholesale level exclusively. Forty-four percent were selling both in bulk and in small quantities. Of that forty-four percent, 10 percent sold most of their yams in bulk consignments. Traders selling at the retail level only amounted to 54 percent of the total number of yam sellers.

Secondly, it is difficult to distinguish assemblers and wholesalers in some producing areas. An example is the area around Agbani which produces much of the gari sold in the Enugu markets. In the small village markets around Agbani there are farmers' wives both retailing and assembling gari. Some assemblers who travel to Enugu and send bags of gari by rail to wholesalers in the north. And there are wholesalers and retailers from Enugu who travel to Agbani to purchase supplies from both farmers or assemblers. It becomes difficult to ascertain who trades with whom, and the exact function performed by each trader.

In general, the average number of transactions which occur as the staple foodstuff passes from the producer to consumer is not high. With the possible exception of maize, it is usually highest for rice, which averages 5 transactions. Producers sell to local bulkers who retain title through the milling process. It is then purchased by large urban wholesalers, who frequently sell to smaller wholesalers. They in turn sell it to retailers and from there it goes to the final consumer.

Yams average about 4 transactions and usually only passed through the hands of a single wholesaler. Gari passes through an average of about 3 transactions after it has been processed enroute to the final consumer.

Fermented cassava has an even lower average, since it is mainly found in the rural markets and is processed locally. It was not possible to ascertain the average number of transactions for dry maize. Onitsha wholesalers were

purchasing their supplies from northern wholesalers. Other eastern markets generally obtained their supplies from Onitsha, so it appears likely that the average number of transactions would exceed that for rice.

It is obvious that the greater the distance the product had to travel, the greater the number of intermediaries involved. It is interesting that the processing necessary for rice did not appear to add an additional level, since bulkers assume that function. Processing for gari, however, frequently does add an additional step. Women often purchase supplies of raw cassava roots from local farmers.

It is unusual to find trading between the same types of intermediaries. Where it does occur, it is frequently due to specialization in the transportation function, large urban wholesalers arranging for long-distance transport, and smaller wholesalers taking the product to another urban market or rural market. Each product has a range of the numbers of transactions, and in many cases the services may be provided by fewer intermediaries. Thus, in many rural markets women retail head-pans of gari or fermented cassava which they have prepared at home from their own farm's production, and carried to the market on their heads.

4. Levels of Flow--Exchange Points

The physical points at which titles to staple food crops change hands assume differential importance for each crop. Striking differences in manner and location of foodstuff sales also occur between areas and even between individuals in the same locale.

The importance of various types of exchange points at different levels of the marketing system are examined in Table II-I. It represents an estimation of the percentage of the marketable surplus moving through each level within

TABLE II-I

Relative Importance of Exchange Points at Different Levels in the Marketing Systems for Marketable Surpluses

Location of Exchange Point	Processor Process	Producer Sell	Assembler		Wholesaler		Retailer		Consumer Buy
			Buy	Sell	Buy	Sell	Buy	Sell	
YAM									
Farm	-	B	B	E	C	E	C	E	E
Roadside	-	D	D	D	D	D	D	E	D
Rural Market	-	B	B	B	B	B	B	A	A
Enugu	-	D	E	D	C	D	C	C	B
Onitsha	-	C	E	D	C	B	C	B	A
RICE									
Farm	D	A	A	E	E	E	E	E	E
Mill	D	C	D	A	A	E	B	E	D
Rural Market	E	C	C	C	C	C	B	B	B
Enugu	E	E	E	E	E	C	C	B	C
Onitsha	E	E	C	C	C	A	A	A	B
GARI									
Farm	C	C	C	E	E	E	D	E	E
House in village	C	C	C	E	E	E	D	E	E
Rural Market	C	A	A	A	A	D	B	B	B
Enugu	E	E	E	D	D	B	D	B	C
Onitsha	E	E	E	D	D	B	D	A	B
MAIZE									
Farm	D	D	C	E	C	E	D	E	D
Roadside	E	D	D	E	E	E	E	D	D
House in village (mill)	D	D	E	E	E	E	E	D	D
Rural Market	E	B	C	B	C	C	B	B	A
Enugu	E	E	E	C	D	C	C	C	C
Onitsha	E	E	E	C	A	B	B	C	C

Note: A - predominant
 B - co-dominant
 C - secondary
 D - minor
 E - none

Source: Stanford Marketing Study,
 E. Nigeria

the four province area. This table indicates the great importance of the rural markets, most of which meet every four days in the area surveyed.

Producer sales generally occur at the farm, either at the farmer's home or barn (in the case of yams). Paddy rice sales are most likely to occur on the farm. Village markets are the second most frequent location cited and rice mills, the third. Yam sales by farmers are rather evenly distributed between farm sales and rural market locations. Many farmers report using more than one physical location for yam sales. Sales by farmers in Onitsha to bulkers and wholesalers frequently occur at the Waterside market. Producer sales of raw cassava generally take place at the farm, but if the wife makes gari from her own cassava, the sale usually occurs at the village market. Dry maize sales of eastern origin are infrequent, most maize is sold green close to the area where it is produced. Occasionally locally dried maize is taken to small mobile grinding mills located in rural villages for processing.

Processing points assume importance for title transfers only for rice. It appears that most rice is sold after milling by bulkers to large scale wholesalers, the transaction occurring at the mill. Forestalling, or the practice of selling enroute to the market, is of minimal importance in Eastern Nigeria. There are occasionally special road junctions which are significant points of title transfer for a specific crop. For example, Nine-Mile Corner at the junction of the Enugu to Onitsha road with the main route to the north is a major wholesaling depot for yams. It is not a regular market site for other transactions.

Rural markets are of major significance for all crops and types of intermediaries. The periodicity of the markets studied varied tremendously. In general, Onitsha and Enugu Province rural markets are four-day markets, and Abakaliki and Ogoja province markets are held every five days. However, some

markets in Abakaliki are four-day markets, Akaeze is an eight-day market, and Uburu is a special case operating on a 24-day system with more frequent specialized markets. Markets in Ikom Division appear to be usually on a 7-day system, though there are some 5-day markets. The periodicity of markets in the area of study is illustrated in Map II-IV.

As a rural market becomes more important, due to either expanding populations or its position on a major transport route, four-day markets frequently become two-day markets. This had taken place within the past 5 years in Nsukka as a result of the growth of the University community. Awka and Nnewi on very heavily traveled roads are both two-day markets. Afikpo, which has been an Eke market, appears to be moving towards a two-day market with a minor market day now occurring in Afo.

Daily markets are held in Enugu, Onitsha and Abakaliki, the large urban centers. These tend to have both a central market and also minor markets located in residential areas.

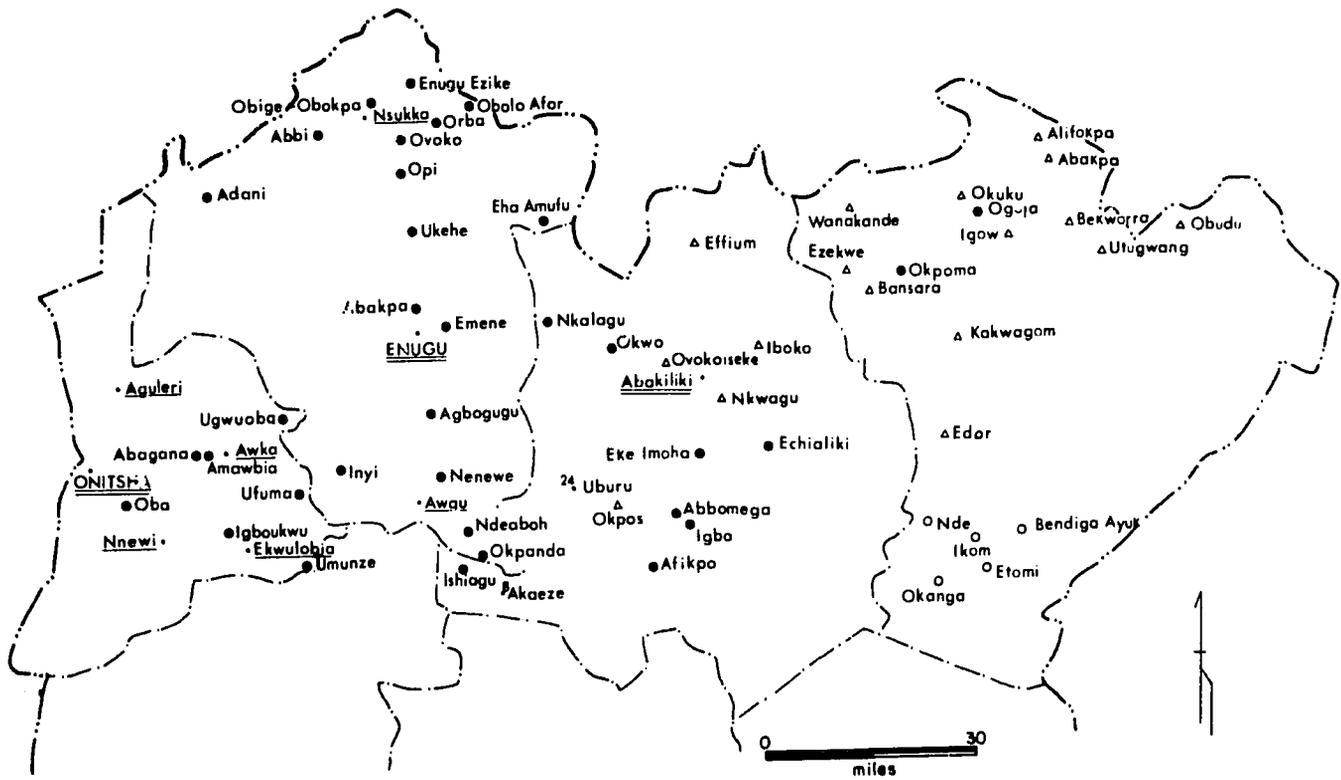
In Enugu, the major market is called Ogbete. It serves as both the wholesaling and retailing center for staple food crops. Minor markets are located in Chinatown, Ogui Urban and Kenyatta areas and they serve the daily food needs of the inhabitants.

Onitsha has the enormous Main Market which covers about 15 acres. Covered sheds contain stalls selling cloth, clothes and many imported items. The western part, near the Niger River, contains the food sections. The Main Market is especially important for the wholesaling and retailing of dry maize and rice.

Ose-Okwodu market is on the original Onitsha market site and is important for the yam and cassava trades both at wholesale and retail. Ochanga market, located near the motor-station, carries on an active trade in all staple food crops, especially at the retail level.

MAP II-IV

PERIODICITY OF MARKETS SURVEYED



- | | | | |
|---|--------------------|---|--------------------------|
| • | - Daily markets | ○ | - Seven day markets |
| • | - Two day markets | ⊙ | - Eight day market |
| • | - Four day markets | ⊙ | - Twenty four day market |
| △ | - Five day markets | | |

The main market in Abakaliki is called Abakpa. It is a major yam market at the retail and wholesale level. Kpirikpiri, a five-day market close to town, serves as a minor sales point for the town.

Shops are of little significance in the marketing of staple food crops. The large supermarkets in Enugu and Onitsha whose clientele consists of expatriates and upper-income Nigerians sell imported packaged rice and "Niger" brand rice produced by the Iron Bridge company in Abakaliki. In some of the residential areas along the roadsides, women sell small quantities of food from a table. However, both of these retail outlets must account for less than 2 percent of the total volume of foodstuffs sold.

In Enugu, Ogbete market serves as the main wholesaling site for all four foodstuffs. Retailers from the minor residential markets generally purchase their supplies from it. There are a few combined traders dealing in yams and gari at the Chinatown market. At the three small residential markets there are usually between 10 and 20 retailers for each of the selected crops. The volume handled by all the residential markets probably does not exceed one-quarter of the total volume sold in Enugu for any of the four crops.

Onitsha's Main Market serves as the wholesaling center for rice and dry maize. About 80 percent of the rice and 95 percent of the dry maize sold in Onitsha goes through that outlet. With yams, the situation varies according to the time of year. During the rainy season the Otu Okwodu Waterside market is the wholesaling center because most of the yams are unloaded from canoes. As the Abakaliki area yams start arriving by lorry, the wholesaling trade moves away from the waterfront towards the Relief and Ochanga markets. The Otu Okwodu Relief Market is the main wholesaling market for gari but some wholesaling activity takes place at the Ochanga market. The Main Market has retail gari

sellers exclusively. Lack of space for expansion at the Main Market has prevented it from serving as a wholesaling center for the bulky food crops. The other markets are closer to the lorry parks, and the Waterside market can be reached by canoe.

5. Timing of Flows

Producers in Eastern Nigeria sell most of their surplus foodstuffs soon after the harvest. Some is retained for sale later in the crop year, partly to spread the monetary income over a longer period, but also to ascertain whether the harvest from all food crops will be sufficient to maintain the family until the following crop season.

The yam harvest starts in July and ends in January, spreading the season over seven months. The three-month rice harvest has the shortest season. It begins in October, reaching its peak in November and is concluded in December.

Cassava can be dug all year round, though gari consumption reaches its peak in March, April and May when other foodstuffs are in shortest supply.

Green maize is harvested in July and August with a second crop in some areas in December. Little is dried for later consumption. Instead, most of the dry maize is imported from Northern Nigeria as required.

Speculative storage by traders to take advantage of seasonal price fluctuations seems to be unusual. Holdings of more than one or two week's supply of yams are rarely reported by city yam wholesalers. It is possible that there was under-reporting of stocks held. Yam farmers in many areas hold barns for traders on the basis of a partial payment. The balance is paid on removal of the yams.

A somewhat larger stock is held by the Enugu and Onitsha rice wholesalers. Four weeks' supply is not unusual. Seasonal arbitrage seems to be carried on

by farmers, bulkers and wholesalers in the rice-growing areas. Stocks of dry maize are usually not held for long periods by Onitsha wholesalers who formerly obtained supplies regularly from Northern Nigeria.

Gari is held for the shortest period of time by wholesale traders because of the perishable nature of the product.

Long-term storage of both yams and rice is mainly carried on close to the production areas. Village houses or farmers' sheds are used for storing paddy rice. Yam barns are located on farms or close to the houses to protect from loss by theft. A few traders in rice and yam growing areas were reported to be holding large stocks, over 1,000 bags of paddy rice, or several barns of yams.

Seasonal patterns of consumption correspond with the harvesting cycle. The Christmas season is the peak period for rice consumption, while most yams are consumed between August and January. Gari is consumed in largest quantities between February and June when other foodstuffs are scarce.

6. Terms of Sale

Almost all retail sales are for cash, although in the towns of Enugu and Onitsha more than half of the retailers respond that on occasion they extend credit to friends or steady customers. When shoppers were interviewed in the Enugu market, under 5 percent had made any food purchases on credit. Retailers are the most flexible in the time period for which they will extend credit. Time allowed ranges from a few days to the end of the month.

Wholesalers frequently extend credit to their retail customers. This custom is practiced by three of four urban wholesalers, but less frequently at the village level. About a quarter of the urban staple food sales to retailers appear to be financed by wholesale credit. This practice, employed most frequently in the rice trade, is closely followed by maize. It is less important

for yams and gari. The larger the wholesaler, the more sales made for credit. Wholesalers usually say that they are willing to extend credit to other traders or their steady customers in the urban areas. In village markets, wholesalers said they would extend credit to friends, placing more emphasis on the personal relationship involved in trading. The time period for which service is offered depends on how long it requires the retailer to sell the goods, usually for one or two weeks. Retailers operating from the same market as the wholesaler appear to obtain credit more easily than village traders. This was especially true of village traders who come to Onitsha or Enugu to obtain supplies.

In most cases traders say that they make no additional charge if credit is extended. Retail credit charges to customers are reported only from Enugu, where a few yam sellers charge from 3d. to 6d. a yam extra for those bought on credit for periods up to one month. A few wholesale traders, under 5 percent of those in the yam, gari and rice trades, report additional charges for credit. These charges range from 2/- to 4/- per bag for rice and gari for loans of from 2 to 4 weeks. Yams appear to carry additional credit charges of about 5/- per 100 for a week or two.

It is possible that the volume of credit extended by wholesalers to retailers is understated, and that more wholesalers add an additional charge to goods purchased on credit than they admitted during interviews. Many retailers, when reviewing their history in trading, state they purchased goods on credit until they had saved a sufficient stake to pay cash, suggesting that it was advantageous to pay cash.

In some of the major gari producing areas, assemblers have women who are regular processors for them and from whom they purchase a basin or two. It is not uncommon for these assemblers to defer payment until after they have sold several bags at an urban market.

Producer sales are generally for cash, however, possibly 5 percent of the sales are for credit. Exceptions occur with specific crops in some locations: paddy rice is sometimes sold on credit in the Adani area; Anam area farmers sell early yams on credit to Onitsha wholesalers who are known to them, some cassava producers will advance baskets of raw cassava to women making gari of fermented cassava, and wait for payment until the processed product is sold.

7. Transportation

Most of the staple food crop movement takes place by road. Lorry traffic is especially important in Enugu where almost 100 percent of the total volume of staple crops arrive by lorry. Truck traffic is slightly less important in Onitsha because, depending on crop and season, some goods may be moved on the river. It is estimated that lorries carry about 90 percent of the rice and dry maize arriving in Onitsha, 60 percent of the gari and 70 percent of the total volume of yams traded.

There are almost 3,000 miles of Class A and B roads in Eastern Nigeria, and about half is bituminous. The four province areas studied account for slightly less than half of the light trucks, lorries and buses registered in the East. Two out of every three lorries are of the 5-ton variety. Lighter lorries and kai-kai buses are found on less heavily traveled routes, and are of major importance in transporting foodstuffs from small village markets to larger village or urban markets. The main traffic flows in the area of study are illustrated in Map II-V.

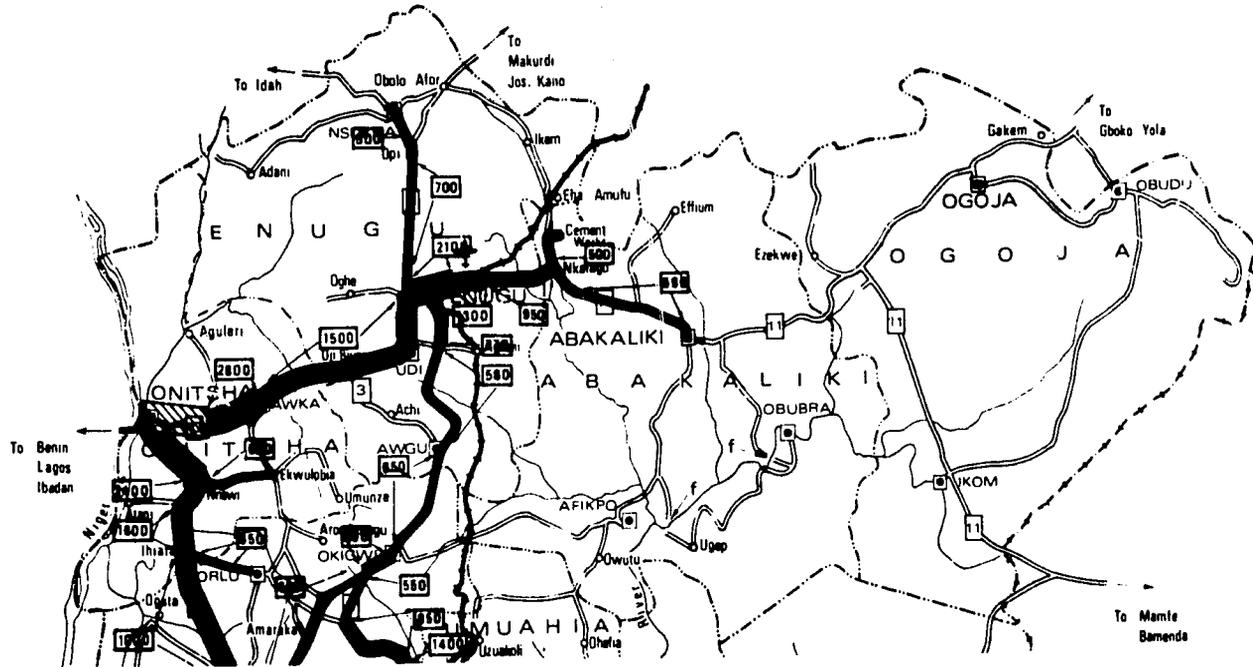
The cost of transport is low on the major inter-urban heavily traveled roads. During July and August of 1966, the average charge for carrying a bag of rice from Abakaliki to Onitsha was 4/-, or 4d. per ton-mile. The Economist Transportation Study estimates the ton-mile costs of operating a 5-ton lorry on a bituminous surface as being 3d.¹ Charges are lower on the longer runs such as

¹Scott and Wilson, Kirkpatrick and Partners, The Economist Intelligence Unit. Eastern Nigeria Road Development Study. Vol. 1. p. 272.

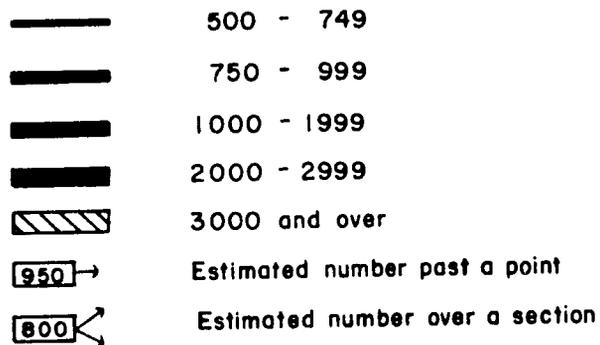
MAP II-V

MAIN TRAFFIC FLOWS

(VEHICLES A DAY)



0 ————— 30 miles



Source: Eastern Nigeria Road Development Study

from Abakaliki to Jos in Northern Nigeria. Charges between 1d. and 2d. per ton-mile were reported during the study for rice and yams on this route. The highest costs were reported from Ogoja Province where shortage of both roads and transport makes movement of staple crops difficult.

Canoe traffic is important on the Niger River where yams and paddy rice travel south to Onitsha. The largest volume of these crops come from Aguleri and Nzam areas. Canoe traffic from Northern Nigeria has been declining in volume. Small canoes carry yams and gari across the River Niger between Onitsha and Asaba (in the MidWest).

Some foodstuffs, especially yams travel by canoe on the Cross River, though much of this trade is local in origin between small village markets not linked by roads. Costs per ton-mile are lower for movement of some foodstuffs by canoe rather than by road. For transporting yams from Aguleri to Onitsha, a distance of 35 miles by road or 10 miles by canoe, canoes are less expensive.

Rail transport is only important for the movement of gari. It is moved to Northern Nigeria from Enugu and Agbani. Approximately 5,000 tons were moved in the year prior to the political crisis. Low rates for foodstuffs enabled gari to be shipped from Enugu to Kano for under 2d. per ton-mile. Operating costs for the Nigerian Railway Corporation were estimated at 3.3d. per ton-mile at that time.¹ Small quantities of rice--about 240 tons--were shipped south from Enugu to Aba during 1965.

Evacuation of foodstuffs from some remote rural areas presents problems. Interviews with farmers disclosed that a third move their produce to market by head-loading, a third by bicycle and the remainder by lorry. Farm-to-market roads are scarce in areas of Ogoja Province and more plentiful in Onitsha Province.

¹Brian Shields, Road and Rail Transport in Nigeria, Mimeographed Report. Enugu, E. Nigeria. 1966.

8. Form of Commodity

Producers usually sell staple food crops in their fresh form. Yams are sold fresh, rice is sold as paddy, and maize is generally sold fresh on the cob. The only exception is cassava. It is sometimes sold as the fresh root, but is more frequently processed by women in the household into fermented cassava or gari. A third of the women interviewed who were making fermented cassava had purchased fresh roots within the previous two weeks.

Processors do not generally take title to staple food crops in Eastern Nigeria. Paddy rice is owned by bulkers or farmers who generally pay a fee of 30/- per ton for milling. A similar situation exists with cassava grinding. Small portable diesel engines of 3 to 5 h.p. are found in many villages. Owners of these machines grind cassava for a charge of about 6d. for a 60-pound basket of roots. In some areas the same machines also grind both maize and beans at 2d. per mudu. Rice, cassava and the small quantities of maize are processed close to their areas of production. Most hulled rice is purchased at mills immediately after processing by urban or large village wholesalers. Some gari leaves for larger markets, while most of the dry ground maize is for immediate local consumption and only travels to the home of the owner.

Almost all of the yams consumed in Eastern Nigeria are sold fresh. Very small quantities of yam flour and dried yam slices were observed in the Onitsha markets. Cassava is generally sold as fermented cassava (also called foofoo) in the villages. In rural areas and small villages, cassava processing is estimated at 80 percent for fermented cassava and 20 percent into gari. In large villages or urban centers, such as Enugu and Onitsha, the proportions would be reversed. Very small quantities of cassava flour were observed in the Onitsha market. Most of the locally grown maize is sold fresh as green maize in season. Small quantities are locally dried, but most of the dry maize originates in

Northern Nigeria. All of the rice sold in the major markets is of the hulled, lightly milled variety.

Ready-to-eat food sellers are of minor importance. They generally purchase from local retailers (sometimes on credit). They probably utilize less than 5 percent of the volume of any food crop moving through the Enugu or Onitsha markets.

CHAPTER III

Intermediaries

1. Business Structure

Almost all traders operating in the staple food crop business are involved as sole proprietors. Traders were asked whether they were running their business as individual or family concerns. About a quarter replied that they are family concerns. The arrangements vary from using unpaid family labor to active family participation in the capitalization and decision-making of trading, and clear distinctions between individual and family business arrangements are not possible.

Partnerships are only found among urban wholesalers in the gari, maize and rice trades. They never exceeded 5 percent of the wholesalers interviewed in Onitsha or Enugu. A few corporate entities were involved in rice marketing. One company mills and sells white rice primarily to expatriate-owned stores, though some is sold through the traditional market system. Another company mills rice and is engaged in interregional trading, selling its rice through traditional channels only in Lagos and Ibadan. Imported rice is handled by companies and trading units outside the traditional marketing system. Few cooperatives are actively engaged in marketing, but there are one or two in the rice milling industry.

2. Personnel

Women are generally most important in the gari trade of the four staple food crops studied. Between half and three-quarters of the retailers are women. In the villages they are of considerable importance in the bulking of gari. Onitsha has quite a few women who are involved in both wholesaling and retailing.

In the Enugu yam trade there are a few women in the retail side of the trade. They are of major importance in Onitsha, where three-quarters of the retail and combined traders specializing in the retail side are women. Female yam wholesalers are unusual, but a few were interviewed in the Onitsha markets. They are of minor importance in the retail yam trade in villages.

Both rice and maize trades are usually in the hands of men. There are a few women retailing in the towns and considerably more in the villages where they carry on about a third of the maize trade and a fifth of the rice trade. Men control the bulking and wholesaling of the majority of staple crops. The exception is gari. Women are important in both Onitsha and rural markets. (See Table III-I).

During the survey period four markets were visited in both Enugu and Onitsha, there were probably a total of about 3,000 sellers in the Enugu markets and double that number in the Onitsha markets. Twenty percent of these traders were dealing in staple foodstuffs.

Sixty-seven rural markets were visited in the four Province area. All the Enugu Province rural markets had under 1,000 sellers. In both Onitsha Province and in Abakaliki Province there were six rural markets with an estimated 1,000 sellers or more. Ogoja, though it has the sparsest population, tends to have large markets. Nine markets were visited, each with more than 1,000 sellers. Staple food crop merchants form a somewhat larger proportion of the total number of sellers in the village markets. They probably amount to a third of all merchants in the markets visited.

A total of 14,400 staple food sellers were enumerated in the 67 rural markets visited. The following Table III-II gives the average number of sellers at various levels in the village markets. Many non-bulking markets do not have

TABLE III-I
 Percentage of Women Interviewed at Various Levels
 in Four Staple Food Crop Trades

Location	Type of Trade	Maize	Rice	Yams	Gari
<u>Enugu</u>					
	Retailer	0	6	4	37
	Retailer/wholesaler	0	0	7	0
	Wholesaler/retailer	0	0	0	0
	Wholesaler	0	0	0	0
<u>Onitsha</u>					
	Retailer	6	11	73	60
	Retailer/wholesaler	0	0	73	0
	Wholesaler/retailer	10	0	23	44
	Wholesaler	0	0	4	5
<u>Villages</u>					
	Retailer	33	20	15	66
	Retailer/wholesaler	17	0	15	20
	Wholesaler/retailer	0	0	8	40
	Wholesaler	0	4	2	40

combined traders or wholesalers. Therefore the averages are calculated on the basis of only those markets where the appropriate type of trader was present. Yam, gari and rice retailers are found in almost all markets. Dry maize sellers are in three out of every four markets. Wholesalers are usually only found in areas of surplus production. If there are any wholesalers, they are present in quite large numbers, and specialize in the bulking side of the trade.

TABLE III-II

Average Numbers of Sellers of Four Staple Food Crops
in Village Markets (N=67 Mkts)*

Crop	Type of Trader		
	Retailer	Retailer/Wholesaler	Wholesaler
Yams	85 (n=65)	30 (n=33)	34 (n=14)
Gari	39 (n=64)	43 (n=23)	46 (n=10)
Rice	26 (n=61)	30 (n=17)	36 (n= 9)
Maize	23 (n=41)	10 (n= 8)	12 (n= 6)

*note: Figures in brackets denote number of markets in which each type of seller was observed.

At least half of the traders only commence trading after serving on apprenticeship. Apprenticeships are most commonly served by individuals in the whole-sale trades. Some traders, especially those involved in gari and yams, go into the retail trades without serving an apprenticeship. Interviews were conducted with about 60 individuals who were currently employing apprentices. There is little difference between the practices when compared on a product basis.

Large urban wholesalers are able, however, to be more generous than village traders in the gifts of cash given at the termination of the apprenticeship period.

Most apprenticeships last for three years, though traders reported keeping them for from one to seven years. Most of the apprentices were between 16 and 18 years old. The youngest was 11 and the oldest 30. Extremely few traders paid their apprentices during their training and an equally small number reported that their apprentices paid them for receiving training.

Apprentices generally were fed by their master, though some received an allowance for food. Almost without exception they slept on the premises of their master. Most received clothing allowances of from £1 to £3 per annum and if there were taxes to be paid (usually £1 per annum) the master paid them. At the end of the apprenticeship period most apprentices receive a gift of money of between £10 and £30. Large scale wholesalers in Onitsha pay up to £120 when their apprentices leave.

These senior apprentices are often "journeymen apprentices" who may operate a second stall almost independently of their master except for money or goods advanced by their master. Occasionally an apprentice is sent to a supply area and acts as a buying agent for his master. For example, an Onitsha rice wholesaler who sells about 40 bags a week, keeps an apprentice in Donga, Northern Nigeria. The young man buys paddy rice and arranges for processing before sending it to Onitsha.

Half the apprentices are relatives of their masters. Half of these young men are blood relatives and the remainder "village brothers or sisters." The other half were not related in any way to their masters. Most traders just have one apprentice at a time, but if the master is a large urban wholesaler, he may have as many as three at once.

It is somewhat difficult to distinguish between helpers and apprentices. Over a thousand traders were asked if they had any helpers, how many helpers they had, whether these helpers were relatives, and if they were paid, what their wages were? It is probable that most of the helpers were apprentices, but not all. About 5 percent of the reported helpers are paid a regular monthly salary. Most of the paid helpers are located in the villages. There, yam and gari traders are the most apt to have paid helpers. The typical wage appeared to be 15s per month with food provided, or £2 per month as a straight wage. One-quarter of the traders who were interviewed about apprenticeship practices claimed that their apprentices are not blood relatives, whereas in the more comprehensive questionnaire conducted with a larger number of traders only about 15 percent of the helpers are reported as being relatives.

The average number of helpers employed by Onitsha traders is generally higher than the number employed by village traders. Enugu traders employ the fewest helpers. Traders dealing with rice have the highest average number of helpers, the next high average is traders in maize, then gari. Yam traders employ the fewest helpers.

In terms of the levels of trade, wholesalers have the fewest. Retailers in all crops, except rice retailers in Onitsha, average less than one helper per trader. Combined traders in rice and maize located in Onitsha or villages have an average of one helper. Wholesale level traders in gari and maize in Enugu usually employ a single helper. This was true of all wholesalers in the four crops in both Onitsha and village locations. Onitsha maize wholesalers were the only group who averaged two helpers per trader.

Traders usually start business in their twenties, often after an apprenticeship conducted in their late teens. Gari retailers sometimes start trading before they are twenty. In general, retailers are in their twenties while

combined traders and wholesalers are in their thirties. Enugu traders are younger than village traders at a comparable level of trading. Onitsha traders tend to be the oldest group. It is quite unusual to find a trader over fifty, though a few were interviewed in the rice trade. (Table III-III)

TABLE III-III
Modal Age Groups of Traders by Type of Trade,
Commodity and Location

Type of Traders	Rice	Maize	Yams	Gari
Enugu				
Retailers	20's	20's	20's	20's
R/w	20's	20's	30's	20's
Wholesalers	30's	30's	40's	30's
Onitsha				
Retailers	20's	30's	30's	30's
R/w	40's	40's	30's	40's
Wholesalers	40's	20's	30's	30's
Villages				
Retailers	20's	30's	30's	20's
R/w	30's	30's	30's	30's
Wholesalers	30's	20's	30's	30's

There is a high degree of relationship between the modal age groups and the average length of time for which traders had been in the particular food-crop trade. Enugu traders have been in business for the shortest time and Onitsha traders for the longest time. Wholesalers in the rice and maize trades have been in business longest, retailers, in gari for the shortest. (Table III-IV)

When traders start their business in the staple food crop trade, money borrowed from relatives is the most frequent source of capital. This money is usually lent interest-free, to be paid back at the traders' convenience.

TABLE III-IV

Average Length of Time in Business by Types of Traders
of Various Commodities and by Location

Type of Traders	Average Time in Years			
	Rice	Maize	Yams	Gari
Enugu				
Retailers	5	2	3	3
R/w	5	7	9	5
Wholesalers	10	10	-	7
Onitsha				
Retailers	7	7	4	5
R/w	10	7	7	7
Wholesalers	9	8	8	7
Villages				
Retailers	5	5	6	3
R/w	7	6	6	5
Wholesalers	7	5	8	5

Occasionally there is little expectation that it will be returned. This is especially true of women who start to trade with money given to them by their husbands. The second most important source of funds is money given at the end of an apprenticeship. Savings from former occupations is the next most important source of funds. Money obtained from Esusu or village associations was also mentioned by some traders. A single trader mentioned a bank loan as being the source of his original capital.

Traders usually remember the exact sum with which they started trading. Statements such as "I started 12 years ago with £1/15 which was sufficient to buy two bags of gari," were not uncommon. It is apparent that traders in urban locations start with a higher average capital sum than ones in the villages. The gari trade is the least expensive trade in which to start, there is rather little difference in the average starting capital in the other three crops, it

mainly depends on the location of the trader. (Table III-V)

TABLE III-V

Average Starting Capital by Types of Traders,
by Commodities and Locations

Type of Traders	Average Amount in Pounds			
	Rice	Maize	Yams	Gari
Enugu				
Retailers	15	20	20	5
Wholesalers	30	25	--	30
Onitsha				
Retailers	20	20	16	15
Wholesalers	45	35	48	30
Villages				
Retailers	12	6	8	5
Wholesalers	15	12	22	10

Surprisingly few traders seem to work their way up in the scale of trading. They tend to start at a certain level and stay there. For the few traders who are upwardly mobile, there appear to be almost as many who have moved down the scale. Occasionally as traders accumulate or lose capital they switch crops, but this, too, was reported by under 5 percent of the traders interviewed.

Most traders commence trading at a certain market and stay there for the rest of their career. Occasionally an Onitsha trader has a seasonal movement between the town markets, particularly in the wholesale yam trade. Urban traders usually are at their stalls from 8 a.m. to 5 p.m. every day. When traders go on a buying trip or take care of other business, they sometimes leave a family member or an apprentice in charge of their stalls.

Many wholesalers and some other traders speak English, and in the urban areas many of the male traders can write sufficiently well to keep necessary records. Literate traders interviewed in urban areas were recording some or

all of the following items of information: (a) Commodities purchased and their prices, usually including the transport and travel costs as part of the purchase price, (b) Commodities sold and the sale price, and if the sale was for credit, additional information on the purchaser and date, (c) Money lent or sums borrowed and (d) Miscellaneous items such as stall rental fees, feeding expenses for apprentices, etc.

3. Size

Most staple food traders conduct rather small volume businesses. There are a few large wholesalers in urban markets, and still fewer large bulkers in the rural areas. Retailers in the same market tend to show less variability in the size of their trade, and less variation in size between the urban and rural retailers. For example, the largest rice retailer interviewed in each of the three locations only sold 6 bags a week.

In terms of the average volume handled by retailers there is some tendency for Onitsha retailers to be somewhat larger than their counterparts in Enugu or in village markets. Onitsha's position as the wholesaling center of the staple food trade is reflected clearly in the average volume done by the combined traders and wholesalers for each of the four food crops. In Onitsha there are a few very large wholesalers doing over 100 bags a week business in the rice, maize or gari business, or selling over 2,000 yams a week. However, the Onitsha markets are so large that these few traders did not seem to exert undue control over prices or handle a significant proportion of the total wholesale trade in the produce. (Table III-VI)

There is a tendency for the large wholesalers in the rice, gari and maize trades to travel to purchase their supplies, especially among those in the Enugu and Onitsha markets. Rice is usually purchased at Abakaliki, gari locally (or

in the Midwest by Onitsha traders) and maize is usually purchased in the North. Bulk purchasing and perhaps the hiring of a lorry by one or several traders results in some economies of scale.

TABLE III-VI

Average Volume of Sales Handled Per Trader
by Commodity, Location and Type of Traders

Type of Traders	Rice	Maize	Yams	Gari
	Bags per Week	Bags per Week	Number	Bags per Week
Enugu				
Retailers	1	1	90	2
R/w	1	3	250	4
Wholesalers	5	8	-	8
Onitsha				
Retailers	3	4	180	3
R/w	20	20	500	20
Wholesalers	32	30	1,000	37
Villages				
Retailers	1	2	50	2
R/w	4	6	200	4
Wholesalers	7	8	600	5

Retailers, especially those in the urban areas, usually purchase their supplies from local wholesalers. They are unable to effect significant savings by traveling since they have to make purchases frequently and in relatively small quantities. Few have sufficient capital to tie up a portion of it in inventories. If the trade becomes unprofitable they either drop out of the market for a while, or if they are carrying multiple items, trade in other food-stuffs. Shifting from one staple food crop to another is, however, unusual.

The average number of transactions per day is small at all levels of trade. Gari retailers in Onitsha appeared to have the highest average number. Most

retailers only sell to between five and ten customers all day, so their daily cash income is generally only a few shillings. For wholesalers selling by the bag and averaging under 10 bags a week, a sale or two per day is the most that can be expected. Some days a trader will go to the market in vain. Onitsha wholesalers average a somewhat higher number of transactions, and two or three customers buying a couple of bags each are quite common.

4. Costs and Returns

Profits from trading in staple food commodities are low for both retailers and wholesalers in all four staple food crop trades. Returns to retailers are generally under £1 per week, and two shillings (\$0.28) per day appeared to be an average net return to the trader's labor, management and capital. At the wholesale level, average daily net returns are between seven (\$0.98) and twelve shillings (\$1.68) per day for gari, maize and rice, and eighteen shillings (\$2.52) for yams. Yam wholesalers tend to receive more because most of those interviewed were bulkers in areas of surplus production who were involved in large volume enterprises. Retailers tend to be paid less than alternative non-skilled jobs, for example, agricultural laborers in rural areas are paid two shillings per day plus food. However, especially for women, opportunities for other employment are scarce. Wholesalers generally were better off than workers in alternative non-skilled occupations.

Representative costs and returns for traders are summarized in Table III-VII. Comparisons are possible by type of trading market, type of crop and location or market. Also, some comparison by level of weekly sales may be made.

Consider first the same level of trade among products for the same location. At the retail level, the average net returns per unit of sale are quite similar. The retail trade is easy to enter or leave and returns tend to be

TABLE III-VII

Representative Costs, Returns and Profits by Location of
Retail and Wholesale Traders for March 1967

Location	Type of Trader	Cost Price	Selling Price	Transportation	Profit	Average	
						Weekly Sales	Weekly Income
Rice (1 John Holt bag)							
Enugu	R	£ 9/ 0/-	£ 9/ 7/-	2/-	5/-	1	5/-
	W	9/ 0/-	9/ 7/-	2/-	5/-	5	£ 1/ 5/-
Onitsha	R	£ 8/10/-	£ 8/15/-	-	5/-	3	15/-
	W	8/ 3/-	8/10/-	3/-	4/-	32	£ 6/ 8/-
Villages	R	£ 7/ 0/-	£ 7/14/-	2/	12/-	1	12/-
	W	6/12/-	7/10/-	3/-	15/-	7	£ 5/ 5/-
Gari (1 John Holt bag)							
Enugu	R	£ 4/ 3/-	£ 4/10/-	1/-	5/-	2	10/-
	W	3/18/-	4/ 4/-	1/-	4/-	8	£ 1/12/-
Onitsha	R	£ 4/ 6/-	£ 4/10/-	3d	3/-	3	9/-
	W	3/12/-	4/ 6/-	8/-	5/-	37	£ 9/ 5/-
Villages	R	£ 3/12/-	£ 4/ 0/-	-	8/-	2	16/-
	W	3/11/-	4/ 0/-	1/-	8/-	5	£ 2/ 0/-
Maize (1 John Holt bag)							
Enugu	R	£ 4/12/-	£ 5/ 0/-	1/-	5/-	1	5/-
	W	3/10/-	4/ 0/-	2/6	5/-	8	£ 2/ 0/-
Onitsha	R	£ 4/ 0/-	£ 4/ 6/-	1/-	3/-	4	12/-
	W	3/10/-	4/ 0/-	5/-	3/-	30	£ 4/10/-
Villages	R	£ 3/ 5/-	£ 3/18/-	3/-	10/-	2	£ 1/ 0/-
	W	3/ 0/-	3/ 9/-	3/-	6/-	8	2/ 8/-
Yams (100 medium-sized)							
Enugu	R	£14/ 0/-	£16/ 0/-	15/-	£ 1/ 0/-	90	19/-
	W	-	-	-	-	-	-
Onitsha	R	£15/ 9/-	£15/10/-	2/-	5/-	180	9/-
	W	14/15/-	15/ 5/-	2/-	5/-	1,000	£ 2/10/-
Villages	R	£12/10	£15/ 0/-	-	£ 2/10/-	50	£ 1/ 5/-
	W	10/ 0/-	11/ 6/-	-	1/13/-	600	9/18/-

equalized at a given location for all staple food crops. On the other hand, wholesaling requires more knowledge and capital than retailing. The difficulty of entry into wholesaling may explain some of the wider variation in wholesale net returns per unit of sale between products and the apparent greater difference in profitability for individual trades than was the case with retail trading.

The difference between net returns per unit of sale for different levels of trade for the same crop at a given location are small. They are probably somewhat equalized by the role of the combined trader (omitted from this table) who would be apt to concentrate on the wholesaling or retailing alternative which seemed more profitable.

In most cases, transportation is the largest cost item (after purchasing the commodity). This can range from almost 10 percent of the selling price in the case of Onitsha wholesale gari traders purchasing in the Midwest, to free transportation of yams from wholesalers' stalls to retailers' selling points in village markets. Rents for stalls in urban markets are usually the second most important item, especially in Onitsha where wholesalers in the maize and rice trades may pay as much as £3/10/- per month for a stall. However, since their average volume in these commodities is 30 bags, the percentage of the gross margin allocated to rent remains small. Wages and other costs, such as dues paid to Marketing associations, were insignificant items.

5. Capital

The private sector of the economy finances the staple food marketing system with relatives and friends being by far the most important sources of borrowed funds. Half the retailers and half the wholesalers were using some borrowed capital at the time they were interviewed.

Yam traders are most apt to be using some borrowed funds, and gari traders are the least. There is little difference in the proportion of money coming from friends and relatives between levels of trade. In the villages, relatives are more important sources of capital than friends, and in Enugu and Onitsha friends assist more frequently. Spouses are important sources in the women's trades such as the retail trade in yams at Onitsha or the retail trade in gari in the villages. Esusu societies appear to be the third most important source of funds.

Money borrowed from friends and relatives is generally lent for an indefinite period without interest. The trader may be expected to pay it back at some time. Or, he may be expected, in return, to help relatives or village brothers when they require funds. If he has a profitable period of trading, he may have to share his gains, but much depends on the individual relationships between the lender and the trader. Borrowed money is estimated at less than half the total capital of traders.

Very few of the loans stipulate any interest. A few gari traders say they pay interest, and about 5 percent of the village yam traders pay interest. Esusu societies are the most common source of money lent, interest charges made by them range from 25 percent per annum down. Money-lenders are considerably more expensive at 10 percent per month. A few relatives and friends charge 5 or 6 percent, and the Church Women's Association only charges 3 percent.

The other source of capital which applies particularly to retailers, is the advancing of goods on credit. The money is repaid after the sale of the goods. In April 1967, an estimated quarter of the retailers in the Enugu market received some goods on credit. It is not usual to make an extra charge for this type of service. Wholesalers are willing to follow this practice on some proportion of their sales; it insured their having retailers who became regular

customers. This practice is not nearly as common between bulkers and wholesalers, though it does occasionally occur. Some farmers sell yam barns to traders who only paid for some portion of the crop. The remainder is paid when the crops are removed, but this would amount to only a minor portion of the capital in yam trading.

6. Trade Associations

Trade associations are particularly important in the major urban markets where almost all of the traders belong to one formed around the specific type of commodity in which they trade. In the Enugu Ogbete market and the Onitsha Main Market the Grain Sellers associations incorporate most traders in rice, maize, beans, millets and groundnuts. Gari Sellers associations exist in the Ogbete and Otu Okwodu Relief markets. There are three yam sellers associations in Onitsha, two in the Ochanga market and another in the Otu Okwodu Relief market, Enugu's major market also has a yam sellers association.

In rural markets there are occasionally trade associations. These usually involve the sellers of one or more specific food crops. There are yam associations in Amawbia, Awka, Abakaliki and Aguleri; a fermented cassava association in Igbo Ukwu; a grain seller's association in Enugu Ezike; rice and gari associations in Kakwagom and Utugwang; and finally a rice association in Abba Omega.

The objectives and functions of the trade associations vary according to their location and the level of trade of the majority of the members. Associations with mainly retailers tend to have two major functions, social and ethical. The social functions consist mainly of attending the burial ceremony of a deceased member and occasionally some other traditional occasion. The ethical practices usually involve negative sanctions on members who are caught cheating by using

"magic" or false bottomed cups, or any other disapproved practice. Sometimes fines are levied. For example, a Gari Sellers association fines the members caught enticing away a usual customer of the neighboring stall owner 10/6. Wholesalers' associations are usually more concerned with economic objectives. Most of the yam sellers associations pay nightwatchmen to guard piles of yams. Controlling the inflow and buying prices of staple crops were mentioned as objectives by some associations.

The urban associations usually negotiate with the City Council on any regulations which affect their members. Rural associations may deal with the market authority on such matters as the building of stalls or storage sheds. Both urban and rural trade associations are concerned with fostering a spirit of unity among the members. Most associations will aid in the settling of disputes among members, some will pay legal fees for litigation involving the association. Occasionally, both urban and rural associations will lend money to members.

Trade associations are usually more successful in attaining their non-economic objectives. In some cases where economic objectives have been paramount, rival associations for members trading in the same crop in the same market have been formed. In other cases, when prices are out of line, business has been drawn away to neighboring markets. Political use of trade associations is not usual in Eastern Nigeria as contrasted to Western Nigeria.

CHAPTER IV

Behavior and Performance of the Marketing System

1. Price Response

The role of price in its function of regulating or coordinating economic activity is a remarkably efficient one in Eastern Nigeria. That is to say, within the sphere of trading activity, prices are adjusted rapidly to supply and demand conditions. Farmers and consumers, as in more developed economies, have to take a passive position and exercise a negative vote in refusing to sell or buy if prices are not satisfactory. Traders, who have more market information available, use their judgement in offering prices to farmers and setting consumers' prices. Traders' judgements as to what consumers will pay for the quantities offered to them play a crucial role in price formation.

The perfectly competitive marketing structure model comes closer to reality in Eastern Nigeria than in most places. The markets are characterized by large numbers of buyers and sellers at each level of activity. Occasionally there is evidence of market power being exercised by groups of traders. Usually it occurs at the bulking level, but sometimes it occurs at the wholesale level with a specific crop at a specific market. However, these departures tend to be less significant because of the multiplicity of nearby markets which offer a choice to the prospective customer. Departures from the perfectly competitive situation are more likely to arise from lack of sufficient market information, both in the type of information and the quantity available.

Rapid responses to changes in the price spreads by traders are possible for several reasons. Capital requirements are low, entry into the market is free, (except in some urban markets where stall space is a scarce facility) quality

differences in the staple food crops are comparatively minor, and consumers are actively seeking the lowest prices available.

Bulkers in supply areas are usually aware of the wholesale prices in nearby urban areas. If the price differential looks attractive, they tend to purchase in larger quantities. If the increase in the supply is greater than the demand from urban wholesalers, the price margin will tend to decrease. There are some rigidities in the system, wholesalers tend to view themselves as resident sellers in a given market, and also to think of their supply area as the one in which they are accustomed to dealing. These rigidities tend to cause inequalities in both the space and time dimensions. In the long run, there are sufficient traders who are willing to move their locations to smooth out unjustifiable price differentials.

Large urban wholesalers are the most important group in the pricemaking system. Trade associations attempt to exercise some control over pricemaking for one or two crops in one or two urban markets; they do not appear to be particularly effective. The second most important group are the large rural bulkers located in the major supply areas. Yam traders at the Iyala market at Okuku, the Abakpa market in Abakaliki, or the Otu Ocha market in Aguleri; rice traders buying at the Abakaliki and Afikpo area mills; gari traders in Aobani, Amuri and the Midwestern supply areas and finally maize traders from Northern Nigeria are all in a position to influence the pricemaking process. The northern and Midwestern supply areas also serve markets in their local areas and urban centers in the west, and so exert less influence than local eastern supply hinterlands.

Retailers in both urban and rural markets generally buy in small quantities from local wholesalers or farmers close to the market. They pass on any changes

in their purchase price rather quickly to the consumer. The market price tends to be uniform and retailers compete on the basis of quality and a reputation for being generous with their "dash," or the extra heaped in the measure after the sale has been completed. Competition for customers is keen and there are very few markets where retail sellers can agree on a price for a particular commodity and make the agreed price hold for longer than the opening hours of the market.

There is almost no government intervention in the operation of the staple food crop marketing system. Import duties on rice and maize are sufficient to keep the quantities entering the country at low levels. During the final phase of the study in May 1967, the borders of Eastern Nigeria were closed to the movement of foodstuffs due to the political crisis. The immediate effect was to restrict, but not stop, the movement of foodstuffs, particularly maize, into the Region.

2. Seasonal Price Fluctuations

All four crops are characterized by strong seasonal price patterns of a regular nature, with the peak being reached prior to harvest in one of the local supply areas for the product.

The early yam harvest from the Anam area starts in July, with these yams being taken quickly to Nsukka and Onitsha. Enugu prices do not usually start dropping until August when the first local yams from Nike arrive in the market. Abakaliki and Ogoja prices also commence to drop in August. Lowest yam prices occur in November in Enugu and Abakaliki Provinces, the start of the main yam harvesting season. The low point occurs in October in Onitsha where harvests are earlier in local areas.

Cassava planting and harvesting go on all year round, though more planting is done in April and May and then again in September and October. It can be

harvested from 9 to 16 months later. Small quantities of roots are dug immediately prior to processing into cari or fermented cassava. Prices for cari reach their peak during the "hungry" season just prior to the harvesting of the other staple crops, especially the new maize. Peak cari prices are in May in Onitsha and Inugu; June in Nsukka and Abakaliki, where harvests are later; and July in Ogoja, the latest area for harvests. Lowest cari prices are in December when all foods are abundant, and demand for the more prestigious foods, such as yams and rice, for the holiday season is at its height.

The pattern of seasonal maize prices is more difficult to explain. The highest price month ranges from April in Ogoja to June in Onitsha. The early green maize harvest starts in June in the more southern areas, while further north the first green corn is harvested in late July. The lowest price months range from August to December. Much of the dry maize is imported into the Region from the north, where September and October are usually the period of lowest maize prices in Oturkpo, one of the major supply areas for dry maize.

The rice harvest takes place in October and November. November is usually the month of peak milling in Abakaliki. Lowest prices are found in November at Ogoja and December in Abakaliki. Ample demand for rice in the urban areas delays the period of lowest rice prices until January in Onitsha and Enugu. Prices then rise until August or September, though they peak in June in Abakaliki perhaps because of the additional demand for rice to use as seed.

The extent of the seasonal price rise is influenced largely by the perishability of the products studied. Yams are the most perishable of the crops studied, with a loss in weight of 20 percent after 5 months storage was reported¹ in Abakaliki. With additional losses due to microbiological, insect and

1

Coursey, D.G. "Yam Storage-I: A Review of Yam Storage Practices and of Information on Storage Losses." *J. Stored Prod. Res.*, 2.1967, pp. 229-244.

nematode attacks, the average price rise of 8.5 per month does not seem unreasonable for a fresh product. The seasonal price rise for gari must be attributed to other causes than the perishable nature of the product, since cassava can be left in the ground and processed as required. Gari does not keep well, especially during the wet season when a week or two causes deterioration. The period of highest prices coincides with a period in the farming calendar calling for heavy activity by both men and women, and this may cause the price to increase until women find gari-making an attractive alternative. Demand is high during the "hungry season" when other foods are expensive. Dry maize is extremely difficult to store in the Eastern Region during the rainy season. Only small quantities of dry ear corn are stored over the kitchen fires for planting purposes. Most of the dry maize in the urban and large village markets originates in Northern Nigeria and is stored in the north, traders bringing supplies into the Region as required. Rice is easy to store, the loss from deterioration is comparatively low, and the average return to traders and farmers undertaking the storage function is probably higher than for the other two crops produced in the east.

TABLE IV-I

Seasonality of Prices for Four Staple Crops in Enugu

Commodity	Number of Months Between Seasonal High and Low Prices	Average Monthly Percentage Price Rise
Yams	7	8.5
Gari	4	8.2
Maize	5	5.1
Rice	6	3.9

Average seasonal changes for the four crops are not too large, and they bear a reasonable approximation to storage costs, but for particular years they

may have very wide seasonal differences. The uncertainty regarding seasonal prices makes farmers reluctant to concentrate on cash crop production in case they have to buy back their subsistence foods from the market at high prices.

3. Cyclical Price Fluctuations

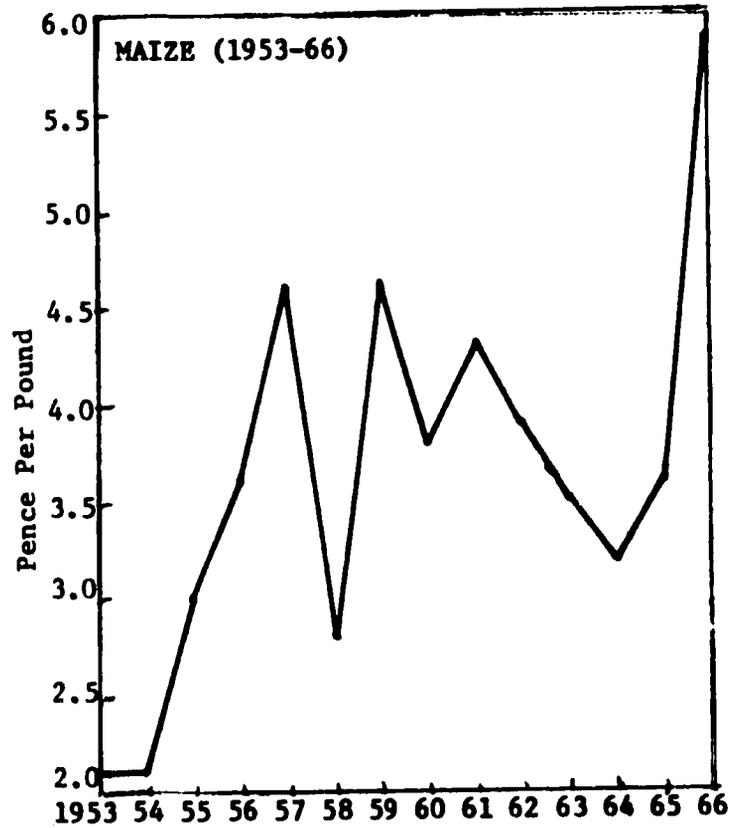
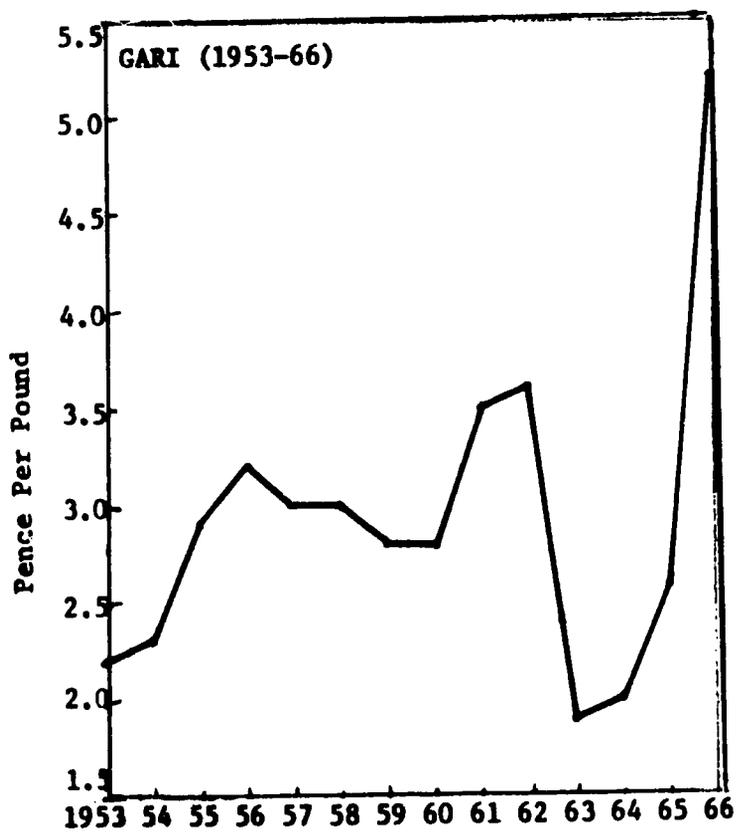
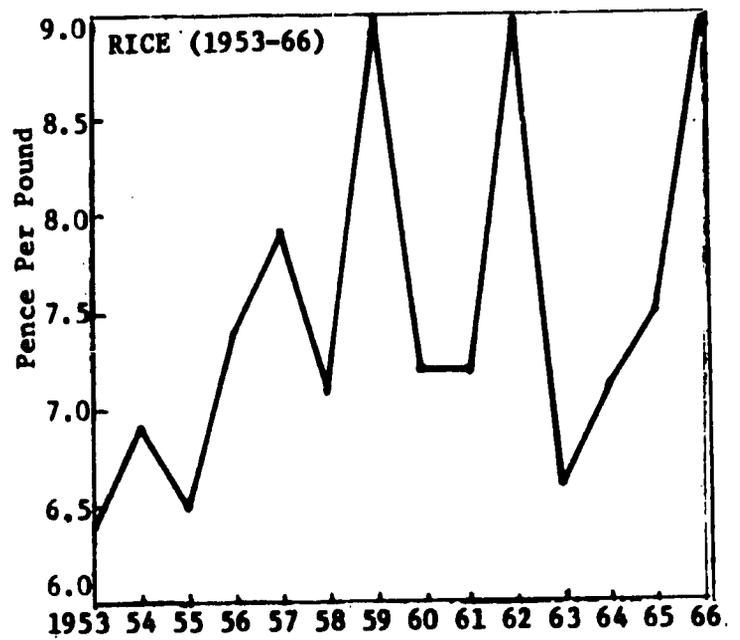
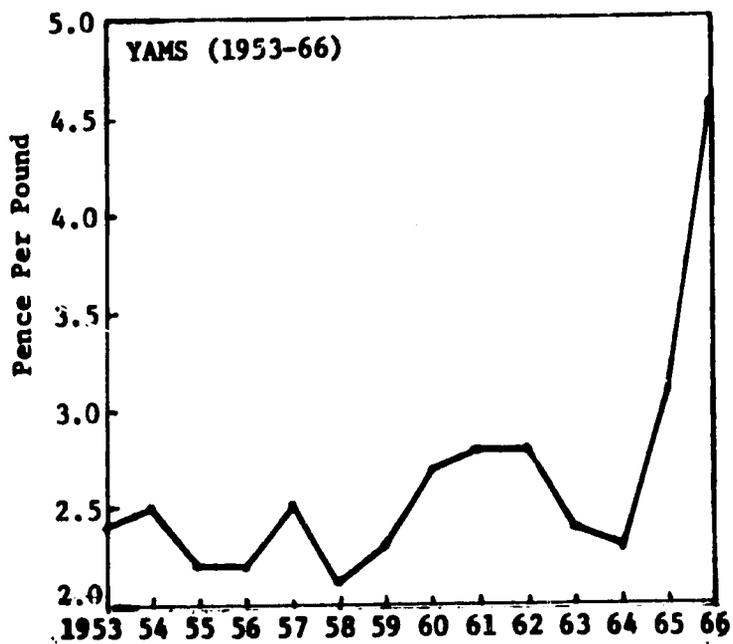
Cyclic movements in the price of staple crops tend to fluctuate erratically with little pattern. The recent periods of high prices coincide with periods of political crises. In 1957, elections were held in the Eastern Region with some tension between the Action Group and its supporters in the minority tribal areas and the NCNC led by Azikiwe. Then again in 1966 the political crisis commenced with the first coup early in the year, followed by the killing of Ibos resident in Northern Nigeria. The reaction of farmers in the latter event was to withhold part of their crops until the situation was such that they felt they could foresee whether additional food supplies for their families would be required. These periods of high prices are illustrated in Figure IV-I.

Farmers interviewed during the period of high prices in 1966 and 1967 were asked whether they sold more of their crops than usual to take advantage of the high profit margin. The usual response was that they did not sell more because they would simply have to buy more of the other staple food crops from the market, and the prices for these too had increased. Consumers interviewed during this period in the urban areas stated that their relatives in the rural villages were sending in more staple food crops to help the family make ends meet since prices were so high.

Other major influences on the cyclic movements are those of weather and of crop diseases or pests. Since most farmers grow several staple crops and plant sufficient amounts to take care of the family during a period of poor weather conditions, many farmers have sizeable marketable surpluses if the

Figure IV-1

ENUGU: ANNUAL AVERAGE PRICES FOR FOUR STAPLE CROPS



weather is favorable. Then these periods of low prices tend to apply to all subsistence crops.

These factors tend to decrease the price elasticity of supply for the staple food crops. There are some other factors, currently of a minor nature operating in the opposite direction. Of the four crops studied, rice is produced primarily as a commercial crop. Rice farmers interviewed during the study sold 80 to 90 percent of their production. As a cash crop, the price to farmers during the past five years had been sufficiently high to encourage increased production. Fortunately, increased demand had kept pace with the increases in supply, and rice prices had been quite stable in terms of the percentage rise or fall from the previous year's average price.

Improvements in the transportation system are also helping to increase the price elasticity of supply. The weather conditions are rarely equally favorable all over the northern portion of Eastern Nigeria. Improvements in the flow of subsistence foodstuffs from areas of surplus production to deficit areas helps to even the cyclic price fluctuations.

In Eastern Nigeria in the area of study there is little competition between subsistence foodcrops and export crops. The major areas for palm kernel production lie further south, and there was little direct competition for land or labor from other crops in the four northernmost Provinces.

4. Spatial Price Behavior

The degree to which prices in different urban areas can be explained by transportation costs is illustrated in Table IV-II. The correlation coefficients are computed using average annual prices for each commodity from 1957 to 1966.

In general, spatial relationships are weak with prices tending to differ by considerably more than the cost of transportation between two locations

TABLE IV-II

Average Price Per Pound and Correlation Coefficients
of Retail Price Series for Selected Crops by Location*

Commodity and Location	Enugu	Onitsha	Abakaliki	Ogoja	Nsukka
Yam					
Onitsha	.66	1.00	-	-	-
Abakaliki	.49	.54	1.00	-	-
Ogoja	.68	.75	.47	1.00	-
Nsukka	.71	.56	.57	.66	1.00
Ave. Price/pound	2.80	2.50	2.20	2.10	2.10
Gari					
Onitsha	.76	1.00	-	-	-
Abakaliki	.81	.82	1.00	-	-
Ogoja	.58	.73	.72	1.00	-
Nsukka	.83	.85	.81	.75	1.00
Ave. Price/pound	3.00	2.20	2.50	2.70	2.60
Rice					
Onitsha	.53	1.00	-	-	-
Abakaliki	.68	.35	1.00	-	-
Ogoja	.38	.38	.51	1.00	-
Nsukka	.69	.43	.64	.27	1.00
Ave. Price/pound	7.80	7.40	6.90	7.30	7.40
Maize					
Onitsha	.62	1.00	-	-	-
Abakaliki	.48	.62	1.00	-	-
Ogoja	.01	.20	.24	1.00	-
Nsukka	.23	.28	.30	.47	1.00
Ave. Price/pound	4.00	2.20	3.60	2.60	2.00

*Bivariate Correlation Coefficients of Synchronous Retail Price Series
for 1957-1966.

The best integrated system of the four crops is that of gari, with a single coefficient below 70. Gari travels relatively easily, and market information can be conveyed for a relatively standardized product. The supply area for the product is quite diffuse, with areas of surplus production located close to most of the five markets listed. The factors may all act in favor of a higher degree of spatial arbitrage.

The yam markets show only a moderate degree of association, the coefficients varying between .75 and .49. During the main yam harvest, surplus yams may move comparatively easily, but during the early harvest season it seems unusual to find traders engaging in spatial arbitrage. Thus early yams from Anam move quickly and easily to Onitsha, but few traders take them to Enugu or Cgoja where the few remaining old yams are bringing premium prices. The price statistics themselves tend to be of poorer quality for yams. Quality differences are difficult to describe and differences of a pound in the weight of a yam may make little difference in its price to the consumer, but introduce large variations in the calculated price per pound.

The low degree of association indicated in the rice price coefficients is the most difficult to explain. Most of the rice sold in the area originates in the East, so that prices are apt to be collected for this type. Price differences of 2d to 3d a pound are quite common between grades and types of rice. Middle belt and northern short-grained rice is in general preferred to the local rice. Onitsha traders travel regularly to Abakaliki mills to purchase rice, yet the correlation coefficient is only .35. They purchase substantial quantities of rice from the north and it appears that the Onitsha price is more strongly linked to northern prices than to eastern prices.

Maize prices show rather low degrees of association between towns, though Onitsha, Enugu and Abakaliki are moderately associated. Maize prices could be

expected to be linked from Onitsha to Northern Nigerian grain producing areas, yet the highest correlation coefficient was only .46 between Onitsha and Jos.

The two major factors accounting for the low degree of association are the small percentage of traders willing to engage in spatial arbitrage and the lack of information. Very few wholesalers traveled regularly to more than one market, and when interviewed their knowledge of prices in other markets was generally inadequate and inaccurate. They tend to view their purchasing market and their selling market as being fixed. Occasionally differences in the harvesting period in supply areas cause them to purchase at different markets, but even this is not frequently reported. The impression was that traders built up expertise in the means of transport, cost, and some trust in the bulkers or farmers in the supply areas, and that without this kind of knowledge they were reluctant to venture into new or different supply area markets.

The second most significant factor is lack of knowledge. Traders not only do not know prices, but are frequently unaware of build-ups of supplies in other areas. Nor do they know transport charges between markets where they did not normally trade. Eastern wholesalers are shrewd businessmen, and in general operate to maximize profits within their area of trade. The most important carriers of information on wholesale prices are other traders, and if they operate between markets having a higher than average profit margin, they may be reluctant to share this information with other traders.

The importance of Onitsha as an entrepôt is seen in the average prices over a ten-year period (1957-1966) for the five centers. Prices for the four crops were always lower than those in Enugu. This may also reflect the higher average incomes in Enugu, so retailers can command higher prices. Yam prices were usually lowest in Ogoja and Nsukka. During the course of the Stanford study, Ogoja prices were usually the lower of these two locations. Ogoja exported yams westwards,

with areas of surplus production also in Abakaliki Province, so the price progression was logical enough. Enugu prices were higher than the cost of transport of yams from Abakaliki to Enugu could justify.

Gari prices were highest in Enugu, demand in Enugu is also high, gari being a food item quickly and easily prepared by urban dwellers, many of whom do not have families to cook for them. Prices were lowest for gari in Onitsha which receives supplies from local areas and the MidWest.

Rice prices were lowest in Abakaliki, the center of the milling industry. Again the high prices in Enugu have to be explained by strong demand rather than the cost of transport. This is also the case for maize, a minor item in the diet. Ogoja produces some surplus dry maize, so the low prices prevailing there are to be expected.

5. Commodity Price Relationships

An index of relative prices was constructed for the four commodities using an annual average retail price for Enugu for the years 1960 through 1966. The cost per 1,000 calories of yam tubers for each year was taken as 100, and the cost of 1,000 calories for the other three crops was expressed as a percentage of this figure. As Table IV-III shows, gari was the cheapest source of calories with a price range between 20 and 40 percent that of the annual average price of yam. Maize was a slightly more expensive source than gari, while rice was the most expensive of the three - although still, except for a single year, it cost less than yams for the equivalent number of calories.

6. Marketing Margins

Marketing margins in Eastern Nigeria are rarely excessive. Generally the gross margin is under 10 percent of the selling price received by any urban

TABLE IV-III

Index of Relative Prices in Enugu by Commodity+
1960-66

Commodity	Conversion Factor*		Index of Relative Prices+ (Yam Tubers = 100)						
	Calories/lb. of Edible Portion	Moisture Content (percent)	1960	1961	1962	1963	1964	1965	1966
Yam	471.7	73	100	100	100	100	100	100	100
Gari	1,551.3	12	32	38	39	24	27	26	34
Maize	1,646.6	12	40	44	40	42	40	34	37
Rice	1,605.7	12	79	75	101	81	91	72	57
Price of yam tubers	(d/1,000 calories)		5.66	5.98	5.91	5.09	4.83	6.51	9.84

* After B. S. Platt, op. cit. Note: The calories per lb. of edible portion are based on the percent moisture contents as shown.

+ Index of relative prices: Average d/1,000 calories as a percent of the value for yam tubers.

Note: Based on annual retail price data supplied by Federal Office of Statistics.

trader, whether wholesale or retail. The major cost item of the gross margin is that of transportation. Data on prices paid to farmers is difficult to collect, but in general farmers appeared to be receiving about 60 percent of the retail price for yams and rice. Little dry maize is sold by local farmers, but the limited information collected indicated that it too returned about 60 percent of the retail price to farmers.

Cassava is often sold in baskets as freshly dug roots to women who then process them into either fermented cassava balls or gari. Women usually specialized in the production of one or the other of the foodstuffs. Females in the supply area for urban centers tended to make gari, while village women frequently made the fermented cassava balls for local consumption. Since the retail price of gari per pound is higher than that of fermented cassava, while the price of roots remained the same, the farmers' share varies between 50 to 60 percent for fermented cassava to 30 to 40 for gari.

The major crops requiring processing are cassava and rice, but some dry maize is ground at small village mills into maize meal or a wet maize product. Cassava for gari is generally hand-grated. The frying requires fuel, palm oil and a heavy pan, all items of additional cost. So, the processing costs make up about 10 to 15 percent of margin. Women who were buying fresh roots, making gari and selling it at retail in December, 1966 in the Enugu market, paid about 40 percent of the retail selling price for out-of-pocket marketing costs (transport and stall rental). This left a net margin of about 40 percent for both processing and marketing. Women who make fermented cassava balls had lower processing costs, only about 5 percent of the retail price.

The second major crop requiring processing is rice, which is generally hulled close to the producing area. Processing charges for both parboiling and milling

in December 1966, resulted in a gross margin to processors of approximately 10 percent of the retail price of £90/ton. At that time, if farmers provided their own wood, parboiling charges were averaging 30/- per ton of paddy, and milling charges were a like amount.

Machine grinding of cassava is possible in some villages. Charges are usually about 9d to 1/- for 100 pounds of roots. Maize is also ground occasionally on the same machines at a charge of 2d per mudu. Often the dry maize has already been purchased by the ultimate consumer who has it ground and then takes it home for immediate consumption.

CHAPTER V

Evaluation of the Marketing System and Suggested Improvements

Most economists will agree on the importance of examining the marketing system and its role if meaningful policy changes are to be made in a developing economy. However, in most African countries, including Nigeria, most of the research has focused on the marketing systems for export crops. Yet with changes in the total economic system, which range from increasing urban employment to improvements in rural consumers' knowledge of adequate diets, it is obvious that the distributive mechanism for the staple food crops cannot remain static.

Histories of Nigeria reflect fascinating glimpses of the changes in the market system. The early barter system for the exchange of subsistence goods, include the growth of money-like articles such as cowrie shells and brass rods, which could be used with limited liquidity in the market system and more recently the complete monetization of the economy. It is obvious that the staple food marketing system has changed in the past and will have to change in the future. Indeed, during the course of this project, political events caused major disturbances in the system which reacted dramatically and swiftly to cause minimum disruption in the flow of foodstuffs from producers to consumer.

The marketing system for food crops destined for consumption in Nigeria was a remarkably well-articulated self-adjusting mechanism, which certainly had the capacity to react to changes in the external economy. In many ways the lack of government intervention in the system has probably helped, not hindered, the ability of the system to make rapid changes. The Stanford study appears to suggest that the major adjustments to future changes in the economy will be made by the system without outside interference. However, this should not suggest that there are no areas in which modifications to the marketing system will not bring about

substantial improvements in its ability to adjust to needed changes.

The evaluation of the system will be based on the manner in which it functioned prior to the political crisis. Suggested changes should be applicable to a regrowth of the marketing system to handle staple food crops in the future.

1. Structural Modifications

Producer Level --

There is a wide variation in the degree to which farmers have access to a modern marketing system. There are areas where farmers are functioning as a part of the subsistence sector and most of the production is for domestic consumption. There are other areas where farmers have access to markets dealing with more commercialized agricultural production, and in addition, to products of the commercial and industrial sector of the economy. In areas where much of the agriculture deals with subsistence production, only chance (such as fortuitous weather) produces surpluses which are above the farmers' planned consumption levels. The existence of such areas accentuates the erratic fluctuations in annual prices for staple crops. As the markets became more developed, the emphasis becomes more on the exchange of specialized products of another man's labor. This may be the product of an agricultural factor market such as the hoe made by the village blacksmith, or a more sophisticated product of the commercial agricultural sector such as an insecticide. Either of these exchanges reflects a specialized division of labor which has to develop from a cultural willingness to adopt differentiated social roles, some of which may be radically different from traditional village society.

As markets develop, the vital ingredients are transportation and communication. These are the two major factors inhibiting growth in the sophistication

of peasant marketing in some areas of Eastern Nigeria. Inaccessibility of areas by modern means of transportation has several effects. Farmers in these areas have little idea of staple food prices in nearby urban areas. They are often visited by few traders, since it is time-consuming and expensive to reach these villages. It is easy for traders in these areas to reach agreement on the prices which will be paid to farmers, the farmers with inadequate knowledge of the market are in no position to exercise any bargaining power. While it was not possible to measure the economic effects during the period of the study it was obvious that the expansion of road services to some new areas caused extremely rapid changes in market development.

Farmers who were interviewed during the course of the study reflected many of the desires for improvements in transportation. These ranged from better dirt paths to local markets suitable for bicycles instead of head-loading to more lorries required on the existing road system, particularly in some areas of Ogoja Division. The expansion of farmers' desires itself reflected the transportation system extent in that area. Farmers whose wives were currently head-loading crops to market expressed the need for a bicycle path. Farmers who were hiring lorries to move crops to large markets asked about government credit to help them purchase their own transport. This illustrates another function of improved transportation in a peasant economy, the increase in knowledge of diversification of possible roles. Farmers in subsistence area villages had very few wants and desires, this limited their desires to produce surplus foodstuffs to exchange for consumer goods, and their view of farming itself was very limited. Farmers in areas with well-developed roads and markets could think in terms of not only hiring a lorry, but of actually owning one. Their knowledge and desires for consumer goods were much more developed. Markets in remote areas where it was necessary to walk from the nearest cycle path carried mainly food

items, cloth, kerosene and matches. Developed markets carried a vast range of consumer goods.

Half the farmers interviewed said that they didn't know whether or not they wanted any information about food prices. One type of response was of complete acceptance of the price offered by local traders as being the best price available. This was the usual response in remote areas with inadequate transport. Other farmers said that they wished that they knew prices in major urban areas, named the markets where surplus production from their area was usually sold, and suggested that the Ministry of Agriculture could supply these prices.

Changes in the infrastructure particularly affecting transportation, information and credit will probably bring about the desired improvements in marketing for farmers producing staple food crops. In the area of study there appeared to be ample trader competition in areas having adequate transportation.

One development which can be tied in with improvements in marketing is the rapidly expanding number of farmer cooperatives. These are mainly concerned with increasing staple food production and were particularly encouraged by the government during the political crisis. Some are also concerned with improving the supply of production factors such as fertilizer. However, to the same degree that they are successful in increasing production, they will have to be concerned with marketing problems. While cooperatives could be very useful in raising the bargaining power of farmers, they are in control of farmers most of whom do not have the necessary training or sophistication to handle the many marketing problems which accompany large scale food production. The element of mutual trust which is necessary for the delegation of authority to individual members is lacking in most of these cooperatives. The Ministry of Agriculture is becoming

increasingly concerned with aiding local cooperatives and in assisting to train local leadership hopefully to decrease some of these problems.

Wholesaler Level --

The large urban markets are characterized by numerous wholesalers in the staple food trades. Most handle a comparatively small volume of business, and this results in keen competition and low margins. Their income may compare reasonably well with alternative business opportunities, but it is certainly inadequate to encourage rapid capital accumulation. It appears that the larger traders who had a sufficient volume of business are generally innovating in the area of marketing management, and these are the traders who will do most to encourage the internal growth of the economy. For example, it used to be necessary for traders to accompany their goods during transit and to personally arrange for purchase. Large wholesalers in Onitsha have partnership agreements with purchasers in supply areas, arrange for shipments by mail or even telephone, and their goods travel either unaccompanied or with an apprentice.

If fewer urban wholesalers, each handling a larger volume, is desirable, then these are several possible methods of attaining this goal. Methods include improving urban market facilities, restricting the number of wholesale stalls, increasing their space, and making sizeable increases in rental rates. Market places had grown with little or no planning, with the result that the wholesale areas are not located conveniently with respect to either the retailing or transportation facilities. Increases in size of the stalls could be planned to incorporate storage space, with adjacent large-scale storage available on payment of an additional fee.

Another problem in both the large village markets and urban markets is the small number of traders who are flexible enough and willing to engage in spatial arbitrage. Several reasons for the existence of this problem are apparent

from interviews with traders. Lack of adequate systems of transportation and communication are probably the two major factors. Another difficulty which is considerably more difficult to overcome is the necessity for mutual trust and confidence between buyer and seller, and the importance of personal relationships in present trading practices. A gradual transition from traditional market practices to more modern entrepreneurial practices can be expected with the growth of a class of trader able to engage in inter-market transactions.

In some village markets, particularly in the Ogoja supply areas, bulkers do not engage in active competition. Some markets have a few bulkers purchasing small amounts from very large numbers of farmers. Poor communications and little possibility of farmers finding transport available make it very understandable that collusive practices are found. Improvements in the infrastructure would appear to minimize the possibilities of this type of behavior.

Retailer Level --

Retail trade in both urban and rural areas is characterized by large numbers of retailers each selling a small volume of product. The competition is keen as the traders sell from adjacent stalls and there is little to differentiate one seller's product from the next. With low margins the average weekly wage is small. However, since alternative employment opportunities are very limited, particularly for women, there is little expectation that there will be much change in this situation. Probably the major change will be the decrease in the number of traders engaged in both wholesale and retail trade at once, the combined traders. If wholesalers become larger and more flexible entrepreneurs, it is likely that they will engage in spatial arbitrage and be able to trade at lower unit margins than the combined traders, thus putting this group out of business.

Since there are numerous retailers in most of the staple crops in almost all markets there is little evidence of imperfect competition. Occasionally market women meet and establish a daily price, but this rarely holds for a complete day's trading though it may serve to open the market.

Retail prices are responsive to changes in the wholesale level with a comparatively short time lag since most retailers only have a few days' supply of product on hand. Retail prices differ in various areas for the same product due to a wide variety of factors from local supply and demand conditions, lack of transport, to inadequate information on prices, supplies and stocks. Most of these factors will assume less significance with improvements in the infrastructure.

Some malpractices are found at the retail level, such as the practice of selling in false bottomed cups or the mixing of spoiled gari with fresh. Most of these practices are discouraged or subject to fines from the Market Women's associations. Also, consumers are specialists at detecting these practices, and cases of successful manipulation of the product are probably rare.

Retailers were interviewed to determine their complaints on the functioning of the market. There were few complaints regarding the quality of the products. Most difficulty seemed to be experienced with yams that were shipped some distance and were broken and bruised. The majority of retailers interviewed complained about the variety available in their specific crop. Yam traders like to carry yams from more than one area, since specific types of yams have different cooking characteristics. Rice traders preferred to have short and medium-grained stock on hand, but the political crisis caused a shortage of the short-grained variety from the north and middle belt areas. Five percent of the rice retailers complained about the lack of first quality rice. Gari traders dis-

liked the mixing of different degrees of oiling in one bag, they would prefer to buy very white gari, lightly oiled, and the deeper yellow or heavily oiled gari in separate lots. Maize traders had difficulty purchasing yellow Igala maize due to the disruption of trade. Most of these problems could be minimized by more attention to the introduction of grades and standards.

Especially in the Enugu market there appear to be frequent cases of tied sales, where retailers purchase on credit from wholesalers and remit the cash after the stock has been sold. The highest percentage of tied sales are in the gari trade, the lowest in the rice trade. No extra charge is made for this credit, and retailers often seem to have relationships with more than one wholesaler. This suggests that with the large number of wholesalers, the ability to extend credit is part of the competition. It is interesting to note that retailers prefer to purchase for cash if they are able. This hints that prices for goods purchased on credit were somewhat higher, though the idea of an additional charge for credit was strongly denied by wholesalers interviewed during the study.

Consumer Level --

Consumers spend considerable time periods, usually two hours or more shopping. It is evident that it is possible to shop in a much shorter time period if the consumer is willing to settle for a somewhat lower quality or higher price than that available from the 'best' seller in the market. Many of these shoppers are housewives who regarded this time period as leisure, or who feel that the saving of a penny or two is worth considerable time. Shopping in the markets is similar to shopping in a large supermarket with a wide range of goods and qualities available. It is difficult to think of conventional shops as being a marked improvement.

Most of the improvements which would make shopping pleasanter for consumers lie in the area of improved market facilities. Improved processing methods for yams, gari and maize with suitable packaging for new products would offer consumers a choice of more convenient and possibly more nutritious foodstuffs. Improved packaging for gari utilizing plastic bags is considered feasible by the Stored Products Research Institute, and would increase the storage life of the product.

2. Changes in Infrastructure

Market Facilities --

In towns the major markets are located in the central service areas with minor subsidiary markets in the residential or fringe areas. Village markets are generally located within the central business area. In both urban and rural areas, markets are convenient for consumers.

Urban markets are generally daily markets which are open during daylight hours, plus some residential area markets, which are open in the evening hours. Rural markets are generally four or five day markets; most of the larger ones are open for at least 10 hours. There appear to be sufficient markets in most areas to offer consumers a choice of places to shop within reasonable walking distance.

The major urban markets also serve as the wholesaling and distributive centers for the staple food crops and their convenience, with respect to transportation facilities is of major concern. Both Enugu and Onitsha markets have difficulty with motor park location and layout with respect to the wholesaling areas of the markets. The parks are not designed in an orderly manner. There are no unloading facilities or dock space, and they are some distance from the wholesale stalls. Lorry transport to Onitsha markets has the additional expense

and hazard of about an hour's drive inside town in dense, slowly-moving traffic. Improvements in urban traffic flow are also required.

Market places in urban areas have grown without adequate planning. Attempts are made to keep sellers of the same staple food crop together and to separate retail and wholesale traders. The location of storage sheds obviously plays a role in the placement of the wholesale areas for grain sellers particularly. It is obvious that as the need for market space increases, the expansion takes place with no master plan. On the other hand, in Onitsha a new market was to be constructed near the Niger River bridge, and it was receiving considerable planning effort.

Just as the areas in which the traders of specific food crops have been allocated without proper planning, the stalls often are poorly constructed and laid out. In the urban areas, the market administration is under the jurisdiction of the City Council. The Council hires a market superintendent who is responsible for overall supervision of the market place. Permanent stalls have been built over a period of many years and are of varying degrees of suitability. Rents vary with the stall size, quality and location. The most expensive is ₦6 per quarter for a wholesale grain dealer's stall in the sheds of the Main Market in Onitsha. In general, the urban markets require more permanent stalls and there are many unsatisfied demands for space. In 1967 at Enugu there were thousands of applications for 43 vacant stalls. The scarcity of stalls has led to undesirable practices, such as the splitting of stalls among several traders and subleasing of stalls at much higher rates than those charged by the Council. Also undesirable is the growth of power and influence by traders who manage to rent several stalls (though this practice was usually prohibited) and then sublet them to other traders.

The construction of improved facilities, with wholesale stalls complete with storage areas, well-planned with respect to transport, and to both the wholesale and retail trades would solve many problems. Increased numbers of stalls would not seem to be indicated, but improved quality at much higher rental rates, either set by urban councils or available on a competitive bidding basis could encourage fewer but larger traders.

Market storage areas, other than stalls, are seldom found. Some sheds are found in rural markets located in principal areas of production. These are available to all traders on payment of a set fee, sometimes based on the length of storage, occasionally on the number of items that enter or leave the shed. Increased storage facilities in market places are desirable in some areas.

The major urban markets usually have a supply of electricity, a telephone, a water supply, some permanent pavement, and reasonable provisions for refuse disposal and some latrines. These facilities are sadly lacking in rural markets where unloading facilities are simply a space where lorries can pull off the road. The water supply is a central handpump and other amenities are generally non-existent.

Transportation --

Most staple food crops are transported by lorry. Rail and canoe traffic play minor roles in the transportation of produce. The road system between the major towns in the area of study is reasonably satisfactory, though the surfaces are usually rough and the shoulders wash away during the wet season. Most of the bituminous surfaced roads are single lane, about 12 feet wide, so that lorries pass or overtake with two wheels on the shoulder. The average speed of a heavy vehicle between towns is about 30 m.p.h.

Rural areas are usually served by earth or gravel roads, often corrugated during the dry season and impassable during the wet season. Bridges are frequently washed out. Commercial operating costs for the usual 5-ton lorry are high under these conditions. They are estimated at 7 pence per ton-mile when the average speed is 15 m.p.h. The cost is about half this amount on the average bituminous surfaced roads. As long as these conditions of very poor farm to market or even small village market to larger village market roads exist, it is difficult to condemn the high charges. This is especially true in Ogoja Division where charges of between 15 and 25 pence per ton-mile are not uncommon.

Long distance lorry transport is usually conducted at reasonable rates. Transport to cities in the north, where it is not difficult to obtain a load in both directions, is frequently only a penny or two per ton-mile. Costs of local inter-urban transport are similarly low, especially if it is possible to hire a lorry to carry a full load. Yams can be moved from Abakaliki to Onitsha in a 7-ton Mercedes-Benz truck for slightly over one penny per ton-mile.

Some of the areas supplying staple food crops to the Enugu market appear to suffer from extremely inadequate road systems. The road south from Enugu to Agbani and Amauri, which is the main gari supply area for the town, is very poor indeed, sometimes impassable during the rainy season with high transport charges. The road north from Enugu to Ibagwa Nike and Uguogo Nike is also in very poor condition and farmers complain about their inability to export yams. The road west was satisfactory as far as the E.N.D.C. Cashew plantation at Akama Oghe, but then it deteriorates. There appears to be increasing quantities of yams and seed yams grown as far west and south of this area as the Afo and Owa villages.

Abakaliki Division has only two major bituminous surfaced roads, one east-west and one north-south. Some areas suffer from lack of all-weather roads.

It is difficult to reach Iziogo and Nwofe markets in the north of the Division on the road through Iboko. There were many rice producing areas to the east and west of the road going south to Afikpo where evacuation of paddy rice from farms is extremely difficult. It has to be head-loaded for a number of miles to reach even a dirt track.

Population in Ogoja Division is very sparse and it is difficult to justify major investments in improved roads. There are areas where there appears to be a lack of vehicles, though access roads were satisfactory. In contrast to Ogoja Division, Onitsha Division has an extremely dense population in many areas, and the densest network of dirt roads to the small villages. In these areas, export of surplus food crops does not exist. The two areas of difficult and expensive transport are in yam producing riverain areas along the Niger River both north and south of Onitsha. Road transport improvements are not necessarily appropriate in these locations, but improvements in canoe transport probably are more plausible. Small outboard engines are quite satisfactory to move stocks downstream from the Anam area. However, moving yams upstream from Atani is more difficult, and encouragement of local manufacturers of small launches with in-board engines might be appropriate.

Rail transport is used for moving gari from Enugu to Northern Nigeria. Rates are low, and expansion of services to other areas does not seem to be feasible in the near future. Evacuation of gari directly from Adani rather than from Enugu could be facilitated by a more rational allocation of wagons on a basis of availability and timeliness.

Storage --

Average seasonal price increases per month over the last ten-year period are not exorbitant. The highest increase is a 9 percent per month increase for

yams. This corresponds closely to the average weight loss from barn storage of yams plus a reasonable allowance for storage costs. Under existing conditions of barn storage, a loss of one-twentieth of the crop stored or 100,000 tons per annum can be expected. This is assuming that of a 2 million ton yam harvest in Eastern Nigeria, one-quarter of the crop is stored for 3 months, and that a weight loss of 20 percent occurs during this period. Minor improvements in barn storage could be effected by increased extension effort to encourage adequate shading, careful dusting with Aldrin and frequent inspection by farmers to remove damaged yams. Other alternatives involve increased processing of yams into yam flour or dried slices, and this would involve extensive commercial feasibility studies.

Gari price rises per month averaged 8 percent, but since this crop is not easily stored for over one month, this reflects other factors rather than storage costs. Demand for gari is highest when other foods are scarce, particularly during May and June. At that time, many women are engaged in active farm employment during the planting season.

Cassava roots are stored in the ground, and the crop must be processed to be stored. Gari can be kept for a considerably longer period than fermented cassava. Alternative products such as cassava flour and tapioca are possible to produce, but are more suitable for commercial processing and packaging under the humid conditions of Eastern Nigeria. Improvements in gari storage could be effected if the gari was sealed in plastic bags. Studies would have to be conducted to learn the necessity for prior reduction in microbiological activity and the feasibility of low cost machinery for bagging and sealing.

Most of the maize produced in Eastern Nigeria is consumed as green maize. Dry maize is imported from Northern Nigeria and is a minor item in the diet with

urban consumption being much greater than rural consumption on a per capita basis. Prior to the 1966 crop harvest, storage units which would hold a total of 750 tons of maize had been constructed by the Ministry of Agriculture in Abakaliki and Ogoja Divisions. These units contain drying and storage bins, since the maize is harvested during the wet season with about 30 percent moisture content.

Production and storage of N.S. 1 yellow maize is being encouraged for feed production. About 6,000 tons of poultry feed were produced in 1966 in mills located at Aba, Enugu and Abakaliki. Under 10 percent of the maize required for this feed originated in the Eastern Region. N.S. 1 yellow maize is not accepted for human consumption, and the Ministry of Agriculture is just starting to encourage the production of EAFRO 231, a white dent maize variety for human consumption.

Increased storage for yellow maize (for feeds) could easily incorporate facilities for drying and storage of maize for human feeding. Large scale or commercial production would not be possible without this storage. Losses of dry maize due to weevils and spoilage under present conditions are estimated to be one-third of the amount stored. Even the viability of the seed maize is frequently damaged by the traditional village method of storing the ears above the cooking fire.

Rice storage is mainly carried on at farms, and in bulkers' houses close to milling areas. Some is stored in the mill buildings. Large urban rice wholesalers sometimes hold supplies for a month or two in their stalls. Paddy rice can be held for considerable periods of time with very little damage, even though conditions are less than ideal. Improved storage sheds for rice are desirable and probably can be utilized effectively in the major milling centers,

especially Abakaliki. Traders in Abakaliki appear to be willing and able to pay for storage under sanitary and secure conditions. Government construction of a large storage shed with good loading and unloading facilities appears to be feasible. Space could be rented to traders at a rate sufficiently high to amortize the building costs over a reasonable time period. Improved stall construction in urban areas with additional market storage space would also aid in rice storage problems.

There is no doubt that storage losses can be reduced in Eastern Nigeria, however, there is little demonstration that substantial savings will result from changes in storage habits. Currently, traditional methods of yam storage appear to be the best available. Reduction of losses from yam and cassava spoilage are probably dependent on the introduction of new and improved food-stuffs processed from these two crops. Rice spoilage rates are low. Returns to storage, at the moment, probably only cover fixed and variable costs plus a small margin of profit. Maize storage will not become a problem until increased production of a variety satisfactory for human consumption takes place under conditions of commercial production. When this occurs, drying and storage units will be necessary. This equipment would not be suitable for present small scale scattered production acreages.

The wide swings in price of the staple food crops within individual years seem to be due to imperfect knowledge rather than storage problems. In order to improve knowledge of supplies and crop prospects better systems of information must be developed. Traders are rarely aware of prices, crops in stock in areas other than where they purchased supplies or the location where they sell.

Improvements in communication would facilitate spatial arbitrage. It would also smooth fluctuation in price over a period of time by arming the individuals

concerned with knowledge of factors related to storage, existing crop situations, prospects for the harvest, areas of above and below average crop storage, etc. Regardless, government involvement in storage stocks or price stabilization programs do not appear to be justified under present conditions.

Processing --

Rice mills are scattered throughout the paddy producing areas with Abakaliki being the center of the milling industry. Charges for milling are quite reasonable, though kept at a somewhat higher level than necessary in Abakaliki by agreements among the mill proprietors. Many of the mills are using outdated British machinery for milling, some of the new small Japanese milling machines would probably offer more uniform milling at lower costs. One business has a large capacity modern mill capable of separating both broken from whole grains and bran from chaff. Almost all of the bran is being wasted under existing milling conditions.

Rice parboiling is carried on using traditional methods. These are low cost, but leave much to be desired in producing a uniform product. Occasionally conditions are sufficiently unsanitary to cause bacterial growth and make the paddy smell mouldy. If the production of rice is concentrated on one or two varieties, then an optimum timing schedule exists for the parboiling operations which minimizes the percentage of broken grains for each variety. Some extension effort in the distribution of information on improved, but inexpensive, equipment for parboiling (such as concrete drying floors) and on its desired temperature and timing would improve the quality of the product considerably.

Cassava grinding machines are increasing rapidly in number throughout the area of study. Costs are low and considerable hand labor is eliminated.

Consumers complain that gari produced by machine grinding methods is of lower quality, but there seems to be little doubt that considerable expansion of machine grinding will occur in the future. The same machines are sometimes used for maize grinding for local consumption. Until the production of dry maize destined for human consumption is increased, there will be little demand for small gristing mills.

A pilot plant constructed to investigate the feasibility of machine production of gari has not been successful in competing with the low cost hand methods. Further improvements in technology are required before machine production of gari can be considered.

Urban demands are for a low cost easy way to prepare a food product which suits consumer preferences. Rice is the most popular dietary item, but is regarded as being too expensive. Gari is regarded as the most generally acceptable product. New processed foods produced from cassava, yams and maize appear to have considerable potential if costs can be kept low and packages can be developed which incorporate satisfactory keeping quality.

Packaging --

Present methods of packaging commercial quantities of rice, gari and maize are in jute bags. These are largely imported, but increasing quantities are being produced in Nigeria. Most bags used for these crops are used and sold at about 3/- each. Wholesale sack traders are located in Onitsha and Enugu and food crop traders purchase supplies from them in lots of one dozen bags. The most common size was the 224 pound sack, sometimes locally called the "John Holt bag." Smaller sacks originally used for sugar and salt are also utilized, particularly for fermented cassava.

Retail sales of all crops are generally made into containers supplied by the customer. If customers do not have suitable containers, very small

quantities are sometimes packaged in a twist of newspaper supplied free. More often it's put in a paper bag and an additional penny is charged.

Packaging by weight in paper bags or clear plastic bags does not seem feasible until a more standardized product can be produced. Consumers judge quality of staple crops by feel and smell, and would show considerable reluctance to purchase a product which they could not examine closely.

Grades and Standards --

None of the crops studied are currently sold either by grade or by any unit of weight. At the wholesale level, the introduction of sales by weight for all crops would be a major improvement in the marketing system as traders exhibit a great deal of anxiety over whether a bag is full or not. Even with yams--now sold in ungraded lots of 100 or 50 at the wholesale level--a weight measure would not be impossible to obtain. Introduction of weight measures would require large scale importation of scales, or else government encouragement of a factory to manufacture them locally.

Under present conditions, farmers receive no encouragement for quality production. This appears to be a serious problem with rice. Mixing of varieties, qualities, and the utilization of winnowings for seed are all practices which would be discouraged by payment by grade. The introduction of grades at the wholesale level would not be too difficult. Almost all rice passes through a limited number of mills. Premiums for quality could probably be passed on to producers since bulkers would find that it was necessary if they wished to purchase higher quality paddy rice. Initially high premiums should be paid for good quality, in order to encourage rapid improvement in production and processing practices. Consumers were paying different prices for varying qualities

of rice at the time of the study, and traders refer to rice as being Grade I or Grade II, but no standards exist for such grading. Passing the additional costs of premium rice on to the consumer should not be too difficult either.

Information --

Under the present system, market efficiency can probably be more improved by government participation in issuing information than by its participation in any other phase. At the time of the study, prices of staple crops were being collected in a few locations. These efforts, however, received low priorities. They were not conducted in a systematic fashion and were not published in any media or format where they could be utilized by traders for decision-making.

The relevance of marketing information to agricultural policy decision-making is often overlooked, partly because of the poor statistics available. Satisfactory guidance of staple food crops to the ultimate consumer in the place, form and of the time desired is difficult if not impossible without sufficient accurate and timely information.

Information is primarily required by three groups in the marketing system: farmers, bulkers and wholesalers. Retailers and consumers are primarily price takers and normally have many alternative sources of supply. Farmers, especially in areas of scarce transportation, may have few bulkers who stand ready to purchase from them, and may be forced to take whatever price the bulker offers. Farmers and traders require different types of information and different channels.

Farmers are generally illiterate and information on farm or wholesale prices would have to be disseminated by radio. Since farm prices are difficult to collect over the scattered supply areas for the crops, even wholesale prices in the larger local markets would serve as a sufficient guide to prevent gross

underpayment of farmers. Farmers in Eastern Nigeria are accustomed to receiving general agricultural extension information over the radio.

Traders in all locations know little about crops, stocks and prices in areas besides the locations in which they trade. Their major sources of information are other traders and friends, neither of which are overly reliable. Lack of information causes erratic price fluctuations between locations as well as in individual places over a period of time. Rapid increases and decreases in stocks in limited areas are not uncommon. The small number of traders engaging in spatial arbitrage at the time of the study may be partly due to this same lack of information. Traders simply do not know of the existence of potential trading profits. Ibo traders can not be accused of lack of business acumen, and transportation is generally available for anyone willing to hire a lorry.

Provision of adequate price data in an area where grades and standards are almost non-existent is not easy and improvements in the later area would certainly improve the quality of any price data. However, the lack of a standardized product should not be allowed to stop the development of a useable system. It is possible to describe the food crops in terms of the frequently available sizes and qualities in such a manner that the information is useful to traders and producers. Collection of price data in the major towns would be sufficient to equalize many of the present misallocations of supply. Wholesale price data would be especially useful to bulkers and wholesalers.

Market information about crop forecasts, actual supply and stocks in storage is even more difficult to collect, but it would also be a major contribution to the efficiency of the system. Collection of this information would have to be carried on by well informed, trained personnel and dissemination could be less frequent intervals than price information.

Radio and newspapers could be used to distribute information to traders. There should be little difficulty in persuading the privately owned newspapers to print timely price and supply information. Since the radio is government controlled, this problem would not rise, and many traders requested weekly or bi-weekly price information over the radio.

Credit --

Most traders borrow their capital from families or friends. Some, after serving their apprenticeships, obtain capital from their masters. Funds from these sources are usually either a gift or an interest-free loan. These sums can be looked upon as a way of spreading risks within the family units. There seems to be little need for immediate intervention in the present system of obtaining funds for trading. Extremely few traders borrowed money at exorbitant interest rates from money lenders. If urban wholesalers are encouraged to expand their scale of business, it might be possible to encourage bank financing, though this has not been available in the past.

Intermediate credit for the purchase of milling or grinding machines, and for the purchase of transport lorries is often difficult to obtain. The non-institutional sources used by traders can rarely provide sufficient funds, and institutional sources such as the government and cooperatives are not always willing or able to lend funds when the need exists. In Eastern Nigeria, the Cooperative Bank is unable to give leadership and financing to agricultural cooperatives. Extremely few cooperatives are concerned with marketing with the single exception of one large rice mill. There seems to be little prospect for the development of cooperatives concerned with marketing or in marketing credit in the near future.

Government agencies are showing increasing interest in the financing of rice mills. There are a few geographic areas where milling facilities are scarce, while surplus facilities exist in the Abakaliki area. Considerable discretion would have to be exercised in the granting of credit for new mills.

At the time of the study there appeared to be no agencies involved in the extension of short term production credit to farmers. Farmers have little recourse other than the traditional money lender who might charge 100 percent interest. Farmers are therefore forced to sell their crops when they need money, frequently immediately after the harvest. This accentuates the swings in seasonal price fluctuations. As agriculture becomes more modernized and farmers begin to specialize more in the production of specific crops, short-term credit institutions may become more necessary.