EMPIRICAL EVIDENCE ON FACTORS AFFECTING FEMALE AND HOUSEHOLD LABOR ALLOCATION IN RURAL SIERRA LEONE

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TABLE OF CONTENTS

CHAPTER I

INTRODUCTION

Problem Definition and Justification for Looking at Sexual Differences in Labor Allocation

Africa must increase its domestic food production in order to feed its growing population. The importance of increasing food production in the context of national development programs has been widely recognized by both African policy makers and aid donors. Aside from land, labor is the major factor of farm production in most African countries, therefore, the efficient allocation and utilization of household labor is a key consideration in programs attempting to increase farm output.

It was estimated by the Economic Commission for Africa that women do between 60 and 80 percent of work in agriculture across Africa (Rogers, 1978). Women are thought to be of central importance in the production and marketing of food crops. In contrast, men are believed to concentrate on cash crop production. Recent studies have shown that African women contribute the majority of labor involved in food production in many African countries (Boserup, 1976; Pala, 1975; Rogers, 1978; Haswell, 1953, in Cleave). An exception to this pattern can be found in Muslim areas, where women put in minimum efforts during the year except during the peak months when they help the men with the weeding (Norman, 1969; Luning, 1963, in Cleave). Men on the other hand work mostly in cash crop production and in new food crops that have recently been introduced. (Haswell, 1953, Cleave). Studies have also shown that males and females put in roughly similar amounts of labor into agricul-

ture, although there is a definite division of labor on basis of crops and type of work (Spencer, 1976; Elliott, 1970 in Cleave). In Genieri, Gambia, Haswell (1953) found that women work longer hours per day than men. Male farmers worked about 600 hours a year on crops and females about 1,110 hours. There was a clearly reflected division of labor between the sexes in the labor use pattern in this area. Women worked basically on rice, which was the major food crop, while men worked on other cereals and groundnuts. A similar pattern was found by Elliott (1970). He showed that farmers and their wives in Mumwa, Zambia spent an average of 841 hours and 935 hours respectively on farm work while those in Katete spent 1,101 and their wives 1,118 hours. In a predominantly Muslim area in northern Nigeria Norman (1969) found that male farmers spent 609 hours a year working on the family farms. Females contributed little labor although, children from 7 to 14 contributed 9% of the farm work. Cleave (1974) notes that in virtually all studies he looked at, a traditional division of labor in agriculture was observed. Heavier tasks, and work on livestock and on cash crops were performed primarily by males while women had responsibility for food crops and processing.

Heyer (1966, in Cleave), found that in Kenya the traditional division of labor would prove flexible when the need arose. She found that there were no major sexual constraints in any agricultural operations although there were sexual emphasis on different tasks with men working harder at plowing and women more fully occupied in the weeding season.

From a brief review of the above surveys conducted in various African countries it is clear that it is hard to generalize about a continent as large as Africa. Rather than making generalizations across countries, micro level analysis examining labor allocation by country and if possible by region should

be done. This analysis would be an improved base that policy makers and aid donors could use in order to make decisions affecting farm employment for the particular area and its people.

African women have always made important contributions to all facets of the rural economy but attempts to include them in rural development programs have remained minimal or non existent. There has been a move on part of the United States Agency for International Development to give particular attention to those programs, projects, and activities which tend to integrate women further into the national economies of foreign countries, thus improving their status and assisting the total development effort according to the Percy Amendment of the Foreign Assistance Act. (United States Agency for International Development.)

This paper has approached the topic of the role of women in rural development not simply because they are women but because there may be a serious loss of resources and potential due to neglecting women in African agricultural development. In order to better utilize this valuable resource, research must be undertaken to understand the social and economic position of women and men in a particular area and to see how the household functions as an economic unit. After these relationships are clearly understood, policy makers and aid donors can make improved decisions to promote economic development.

The purpose of this paper is to formulate a descriptive micro level analysis of rural household labor allocation by sex, age, region, and income groups in Sierra Leone. The specific objectives of this study are as follows:

(1) To describe the present system of rural household labor alloca-

tion in Sierra Leone by sex and age through graphic and tabular analysis.

(2) To examine the effect of region, household size and composition, and income on sex roles and on the levels and timing of labor for sex and age classes.

The hypothesis which will be looked at are:

Under Objective One:

Hypothesis 1. That women do provide a substantial portion of household labor in production of both food and cash crops as seen in other African countries. (Boserup, 1976; Pala, 1975; Rogers, 1978; Haswell, 1953)

Hypothesis 2. That there are sex roles prevalent in division of labor in agriculture on basis of type of work undertaken. (Cleave, 1974; Spencer, 1976; Elliott, 1970).

Hypothesis 3. That men provide majority of the production hours in cash crops as seen in other African Countries. (Cleave, 1974; Boserup, 1976; Haswell, 1953).

Hypothesis 4. That traditional division of labor will become flexible where change has taken place. (Heyer, 1966)

Under Objective Two:

Hypothesis 1. Traditional division of labor will become more flexible during times of need (peak labor seasons) such as during planting, weeding, harvesting. (Heyer, 1966; Norman, 1969; Luning, 1963).

Hypothesis 2. That hours of work are negatively correlated to income among both sexes. (Luning, 1963)

Hypothesis 3. Hours of agricultural labor are importantly affected by the size and composition of the household. In particular:

a. As the number of wives increase the hours contributed by the household head decreases (Boserup, 1970).

b. As the number of children under five increases hours of agricultural input by the mother decreases (Quizon).

CHAPTER II

OVERVIEW OF SIERRA LEONE AND DATA COLLECTION

A. 1. Overview of Sierra Leone

Sierra Leone is a small coastal west African country with a population estimated at about three million people. About 75% of the 1.05 million work force are employed in agriculture, forestry, hunting, and fishing. The majority of the rural sector is involved in subsistence agriculture with major crops of rice, cassava, groundnuts and fundi. There is also an active cash crop sector engaged in producing oil palm products, cocoa, coffee as well as rice.

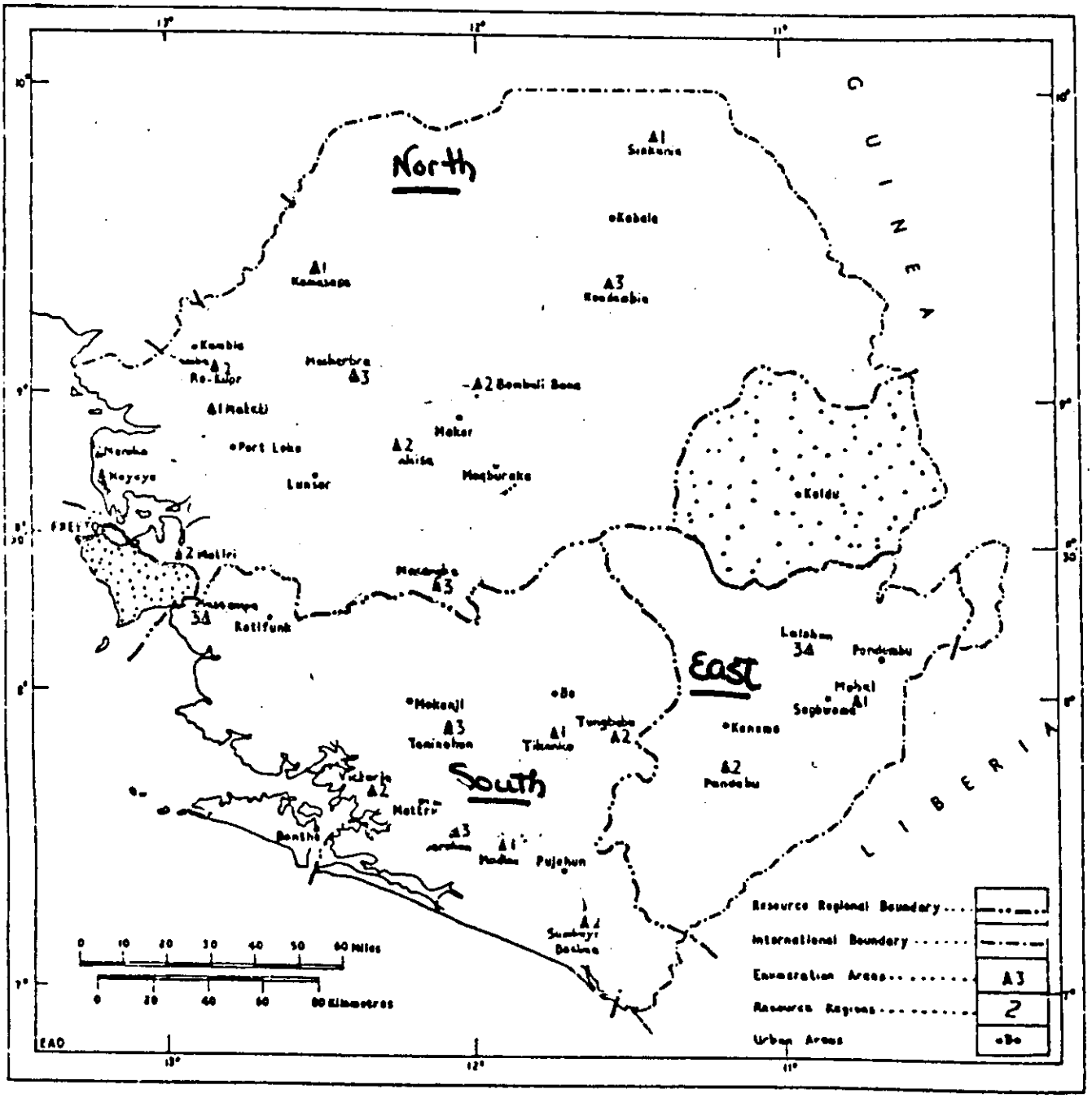
The geographic terrain of Sierra Leone ranges from secondary forest in the south and west to savannah grassland in the north. Average annual rainfall ranges from 70" - 160" per year and occurs during a single wet season. The country is land surplus with approximately 77 people per square mile. The average per capita income is about 125 U.S. nationwide and 88 U.S. in rural areas. Average farm size is about 3 hectares or 6.6 acres with short handled hoes, machete knives, and sticks used. Use of modern inputs are limited to very small areas.

For the purposes of this study Sierra Leone has been divided into three resource regions, North, South, and East (see map I). The North, with average annual rainfall of 95" - 130" is arid and with savannah grasslands being the primary vegetation. The population is predominately Temne and Limba with some representation of other minor ethnic groups. Although there is a large Muslim population in the North purdah (female seclusion) is not widely practised. The major crops are upland rice, swamp rice, groundnuts, and fundi.

In the South, there is more rainfall (110" - 160") with secondary

SIERRA LEONE RURAL RESOURCE REGIONS AND SELECTED ENUMERATION AREAS

Map 1



urban or mining areas

forests and bush being the dominant vegetation. The largest ethnic group is the Mende. The southern population is better served by education and other social services. The major crops are upland and swamp rice, vegetables and oil palm.

The East is characterized by high bush and secondary forests. Its steadier rainfall (100" - 110") make this region suitable for treecrops such as cocoa and coffee. The major ethnic group in the East is the Mende.

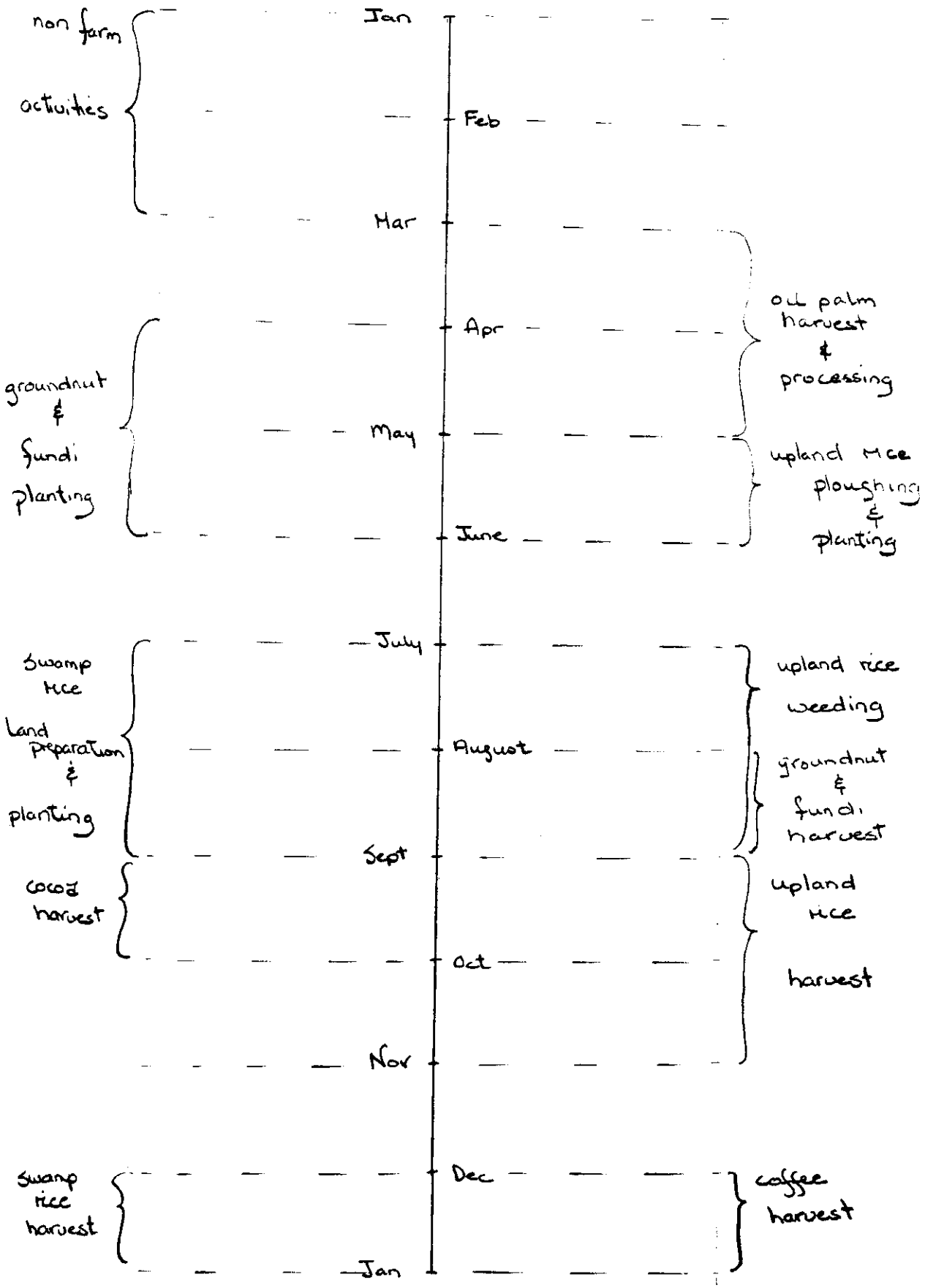
In most regions upland rice, often planted in mixtures with other annual crops such as maize, millet, cassava, and sorgum, is the main crop. Upland rice is produced under a bush-fallow system where bush is cleared to plant the upland rice. After one to three productions, the land is left fallow for 5-15 years before being used again for upland rice. Groundnuts are often cultivated on these plots without brushing being necessary. Swamp rice is usually produced in an area where natural flooding occurs. This crop requires considerably more labor for land preparation and transplanting than does the upland rice.

2. Seasonal Profile

Upland rice is planted in May and June, then comes the planting of the swamp rice in July which continues til September. The groundnuts and fundi are also cultivated, they will be harvested in August thru September. When September arrives it is time to harvest the upland rice and cocoa which takes one thru November. Coffee is harvested in December and January when the swamp rice is also harvested. The dry season has now arrived. This is the time to do the activities that were neglected the rest of the year such as household construction, basket and mat weaving, trading and spinning. Where March arrives its time to harvest the oil palms. For April the groundnuts

TABLE 2.1

SEASONAL PROFILE



and fundi are planted which once again take us into the upland rice planting season in May. (Figure 2.1)

B. 1. Data Collection Methoda Used in Sierra Leone

The data used in this paper was collected as part of a farm survey conducted during 1974-75 (Spencer and Byerlee, 1977). Information was collected from rural households using a multiple visit technique to select participating households. The country was divided into eight resource regions with three census enumeration areas (EA) randomly chosen in each region. (Map 1). A listing was made of all households in each EA with twenty farms and four non-farm (households whose primary occupation was not farming) households randomly selected from each EA, results in a total sample size of 500+ households.

Each household was visited twice weekly from May 1974 to May 1975 to obtain detailed information on each member's daily activities. Since the farms were visited every three days, there was a 3-day recall that had to be used. Daily data was collected on hours allocated to each enterprise and task by each person in the household. The hours collection used the Muslim prayer times as guide lines to estimate the hours allocated. The flow data such as name, age, and sex of each household member were recorded as were data on types of crop grown, income, area, yields, and the non-farm occupations practiced. In addition to these flow data, stock data describing the demographic characteristics as well as the assets of each household were obtained. Eight types of questionnaires were used in all (Table 2.1).

2. Selection of the Sample Population for Addressing the Problem of Sexual Differences in Household Labor Allocation.

A file was created for each member in the household listing his or her age, sex, occupations, education, hours of work into each rural enterprise,

Table 2.1

QUESTIONNAIRES USED IN THE SURVEY OF SMALL FARMS IN SIERRA LEONE, 1974/1975

Questionnaire Number	Name of Questionnaire	Sampling Procedure	Total Sample Size	Frequency of Interview	Contents of Questionnaire	Major Variables Derived from Questionnaire
F-1	Household listing questionnaire	1. Country divided into 8 resource regions 2. Three census enumeration areas chosen randomly from each region 3. All households in each enumeration area listed	23 enumeration areas (about 3,000 households)	Once only	Name of household head Major crops and nonfarm enterprises	Sampling frame for F-2, F-3, etc.
F-2	Household stock questionnaire	20 farm and 4 nonfarm households in each enumeration area chosen randomly	500 households	Once only	Number and characteristics of household members Stocks of: equipment, farm produce, livestock and tree crops	Value of farm and nonfarm capital and labor stocks
F-3	Input-output questionnaire	20 farm and 4 nonfarm households in each enumeration area chosen randomly	500 households	Twice weekly for one year	Daily records of: Hours worked per member per enterprise per day Inputs purchased Hired labor and labor sold out Farm and nonfarm output Farm and nonfarm sales Loans given and received Gifts given and received	Household income and its distribution Labor utilization and returns to labor Seasonal labor profiles of farm and nonfarm enterprises
F-4	Field questionnaire	All fields of households selected for F-3	About 1,500 fields	Once only	Field measurements Land tenure Land improvements Cultivation practices	Areas of field, tenancy status and cost of land improvement
F-5	Yield plot questionnaire	1-4 plots per field depending on crop--plots randomly laid	About 1,000	Twice: harvest time and threshing time	Seed rates Variety Weight of crop in plot	Crop yields
F-6	Supplementary output questionnaire	All selected households	500 households	Once after harvest	Output of all crops Size and weight of local units of measure	Crop yields--alternative measure
F-7	Distance questionnaire	All fields of selected households	About 1,000	Enumerator observation	Distance and time to walk to field	Distances of fields by crop
F-8	Changes, information and constraints	All selected households	500 households	Once only	Investments past cropping season, history of changes in farming system, perceived constraints	Changes over time, farmers perception

agricultural task, and crop, number of children, and realtionship to household head. From this file of 3775 members, 2029 active family members were selected by eliminating persons who had not worked during the year, and those who were considered servants (Table 2.2). In analysis involving income group stratification, only persons from those households for which income data was complete were selected. These numbered 1356 people.

3. Limitations of the Data File

Several problems of the data file should be mentioned. First, it was not always possible to distinguish the non-working members of the household from enumerator errors, people who migrated etc. The procedure used was to include only those who were present in both of two separate interviews. The first interview was carried out at the beginning of data collection to determine household characteristics. The second interview was carried out some 6 months later to determine whether family members had migrated and to get demographic data. If the people were present for both these interviews it was assumed that they were present most of the year.

Another limitation of the data source is the lack of information on the amount of time spent by females on domestic activities such as child care, cooking for the family, and water carrying. In many African countries these activities could easily account for a third to a half of a female's total time allocated to work. These are year around activities which have to be carried out every day. Because of this the total number of working hours for women are undoubtedly underestimated.

It was estimated by Quizon (1977) that the average mother allocates 7 1/2 hours a day for domestic activities which includes child care, food preparation, fetching and chopping of wood, fetching water and cleaning house.

Oluwasanmi (1966 in Cleave) estimated domestic work by females as 2.33 hours per day in Uboma, Nigeria. He doesn't define what is included in domestic work so it is hard to compare the two figures. In a personal conversation with Achola Pala in 1978 she felt the Quizon figure fairly accurate for the East African case, although a little lower at 5 hours per day among the Kenyan farm families.

TABLE 2.2

POPULATION PROFILE: NUMBER OF PEOPLE BY REGION, SEX, AND AGE

		National	North	South	East
Males	Age				
	0-5	28	11	15	2
	5-15	219	129	65	25
	16-24	142	82	46	14
	25-64	505	243	202	60
	65-100	109	40	55	14
	Male Total	1003	505	383	115
Females	0-5	29	14	11	10
	5-15	155	75	61	19
	16-24	183	74	87	22
	25-64	617	300	252	65
	65-100	42	22	17	3
	Female Total	1026	485	428	113

CHAPTER III

GENERAL VIEW OF HOUSEHOLD LABOR ALLOCATION IN RURAL SIERRA LEONE BY SEX AND AGE

In this chapter the annual labor profile of rural households is described. The hypothesis that women do provide a substantial portion of rural household labor into production of food and cash crops is examined. The labor profile into agricultural tasks is also examined to see if sexual division of labor is directly related to physical characteristics of the tasks. An analysis of employment in a range of farm and non-farm enterprises is also conducted to determine the extent of sexual division of labor among enterprises.

A. Household Profile

Average rural household in Sierra Leone consists of 8.6 people. This varies from 9.3 in the North, 8.2 in the South and 7.0 people in the East. The largest household size in the North may be due to the stronger Muslim influence in that area. The average number of wives per married man is 1.6. Once again the most number of wives were recorded in the North with 1.8 wives per married man. In both the South and the East the average number of wives was 1.5. (Table 3.1)

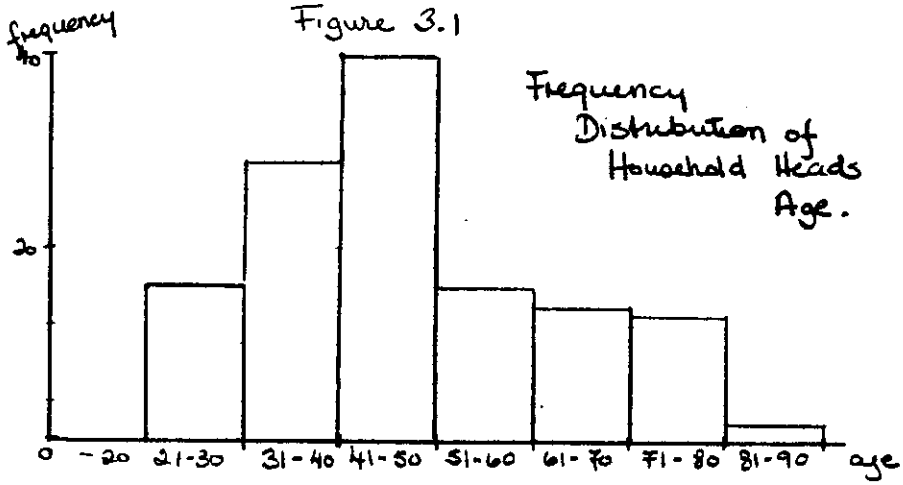
TABLE 3.1

SIZE OF HOUSEHOLDS AND NUMBER OF WIVES BY REGION

	National	North	South	East
Average number of people in household	8.6	9.3	8.2	7.0
Average number of wives in household	1.6	1.8	1.5	1.5

The average age of rural household heads is 45 years old. When looking at the frequency distribution in Figure 3.1, one can see that 30% of the household head were in the 41-50 age bracket with the next highest frequency in the 31-40 bracket.

Figure 3.1



The majority of the males considered their occupation to be farmers in all three regions with 80% in farming. Craftsmen of cloth, metal and wood, and students were also frequently mentioned as primary occupations with 6% nationally. The majority of the females considered themselves farmers or housewives with 49% and 47% respectively. These percentages were fairly similar within all regions except that the North and the East had more housewives while the South had more farmers. (Table 3.2)

The majority of the males considered their primary occupation to be farmer in all three regions with 80% in farming. Craftsmen of cloth, metal and wood, and students were less frequently mentioned as primary occupations. The majority of the females considered themselves either as farmers or housewives, with 49% and 47% respectively. These percentages were fairly similar within all regions. (Table 3.2)

TABLE 3.2

IDENTIFICATION OF PRIMARY OCCUPATION BY REGION AND SEX
IN PERCENTAGES

(Regions)	National		North		South		East	
PRIMARY OCCUPATION	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
1. Farmers	80	49	79	45	83	56	78	38
2. Food Processors	0	—	—	0	0	—	—	—
3. Fishermen and Cattlemen	1	0	2	0	0	—	—	—
4. Craftomen (cloth, wood, metal)	6	1	4	0	8	1	10	2
5. Craftomen (vehicle, artists, govn't)	2	1	2	2	2	—	—	1
6. Housewife	0	47	0	51	—	42	1	51
7. Scholar	6	2	6	1	6	2	10	7
8. Not Employed	4	0	7	0	1	0	2	0

B. Labor Inputs

Adult males supplied the most hours, with 1484 hours per year, while adult females contributed 944 hours. The North had the highest male and female labor inputs with 1593 and 976 hours, respectively, while the East had the lowest labor inputs with 1112 and 846 hours, respectively. The reason for the low average input in the East could be due to the relatively low labor requirements for tree crops which are grown in that region. (Jarrett,

1978)

The average number of days worked by adult male Sierra Leoneans were 210 days with the Northern males working the most days, 218, and Eastern males putting in the least, 194. Nationally adult females worked 187 days out of the year, with Southern females active the most days, 199, and Eastern females the least with only 148 active days. (Tables 3.3 and 3.4)

TABLE 3.3

TOTAL HOURS WORKED IN YEAR BY SEX AND REGION (ADULTS ONLY)

	National	North	South	East
Males	1484	1593	1496	1112
Females	944	976	939	846

TABLE 3.4

DAYS WORKED IN YEAR BY SEX AND REGION (ADULTS ONLY)

	National	North	South	East
Males	210	218	218	164
Females	187	187	199	148

It can be noted that the work levels for males in Sierra Leone are somewhat higher than those in Northern Nigeria, Gambia or Ghana, although females had similar or less hours. (Table 3.5)

TABLE 3.5

TOTAL HOURS AND DAYS WORKED BY MALES AND FEMALES IN AFRICA

	Total Hours		Days	
Area	Male	Female	Male	Female
Zaria, Nigeria	994		226	
Nupe, Nigeria	1327	997	158	141
Genieri, Gambia	589	1081	103	159
Mumbia, Zambia	841	935	NA	NA
Katete, Zambia	1101	1118	NA	NA

Although the number of days worked by the females are quite similar to the days worked by the males, the hours contributed by females are much lower than those of the male. On average, females worked 5 hours per day compared to 7 hours per day for males. it should be remembered that females spend 2-4 hours a day on other activities (such as child care and water carrying activities) which were not recorded in this survey. Therefore, although females work as many days as males, their recorded hours of work are somewhat underestimated. (Table 3.6)

TABLE 3. 6

HOURS WORKED PER DAY IN YEAR BY SEX AND REGION
ADULTS > 15

	National	North	South	East
Males	7	7	7	7
Females	5	5	5	6

When age groups were examined it was found that the 25-64 group worked hardest within both sexes with 1571 and 1015 hours respectively among males and females. (Figures 3.2 and 3.3) The lowest contributors in all regions were persons from the (65-100) age group for both sexes except in the East where the older males worked the hardest, perhaps due to the relative lack of need for physical strenuous tasks such as land brushing and clearing in this region. It was also found that although the oldest females worked as many hours as the young people of (5-15) groups, their number of active days was much lower, showing that they only worked during certain times of the year while not working at all in others. This could be due to the seasonality of Sierra Leonean agriculture and the need for everyone to work during peak periods.

C. Rural Enterprises and Crops

When examining the percent of time allocated by individuals to rural enterprises in Sierra Leone, one finds that among both male and female of all ages, the highest percentage of labor is allocated to agricultural activities. Males spent 79% of their time in agriculture while females contributed 76.5%. High female participation in processing is clear with them supplying 14.6% of their time into this activity while males only supplied 3.3%. In contract labor sold out was clearly a male dominated activity with 9.6% of their time contributed compared with only 3.6% for females. When looking at the age difference, one finds that the young males, (10-34) are heavily involved in labor sold out work with 10.2%, 14.1%, 11.6% of their working time, respectively. (Table 3.7)

Figure 3.2 Total Hours worked in Year by sex, age and region

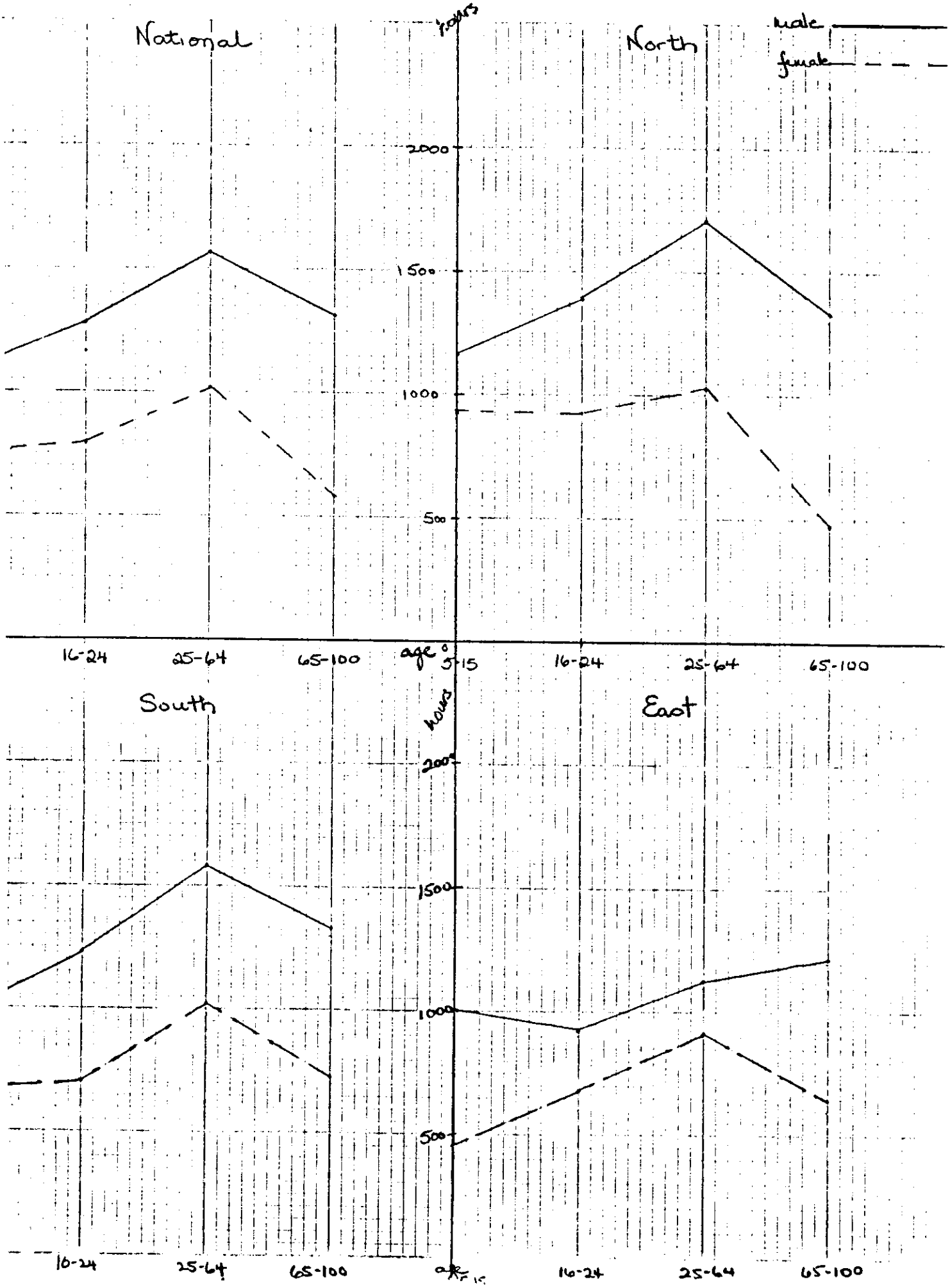


Figure 3.3 Days worked in Year by sex, age, and region

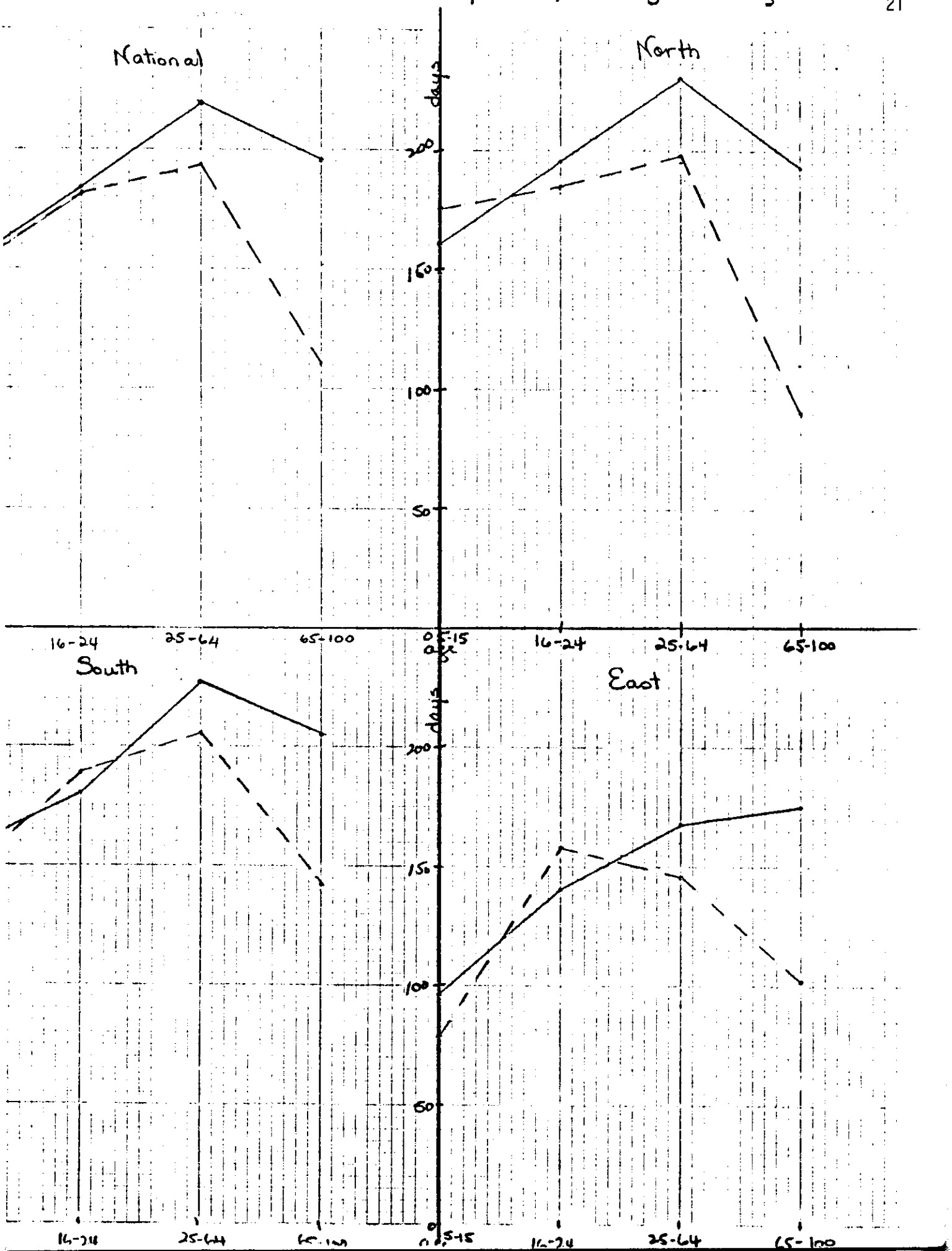


TABLE 3.7

PERCENTAGE OF TIME ALLOCATED BY INDIVIDUALS TO ENTERPRISES BY AGE AND SEX

	Age	10-14	15-24	25-34	35-44	45-54	55-64	65-74	75-100
ENTERPRISE	MEAN	PERCENTAGE TIME ALLOCATED							
Agriculture (and Crops) Male	79.0	79.9	76.3	76.6	74.8	78.7	81.0	78.3	86.1
Agriculture (and Crops) Female	76.5	79.2	76.4	75.7	75.6	78.6	77.0	72.9	82.3
Hunting & Fishing Male	1.1	1.6	2.4	.8	3.0	2.5	1.7	1.3	1.3
Hunting & Fishing Female	2.5	1.6	2.9	2.2	2.1	2.1	1.7	1.7	1.1
Processing Male	3.3	3.9	2.2	2.6	3.4	4.5	3.9	4.8	2.6
Processing Female	14.6	13.0	15.1	15.1	15.5	13.1	13.4	14.4	14.2
Small Scale Industry Male	4.6	3.1	3.4	5.2	7.4	4.0	4.5	4.3	5.2
Small Scale Industry Female	1.9	.6	.5	1.1	2.6	.8	2.6	2.1	.9
Non Farm Other Male	2.4	1.3	1.6	3.2	3.4	3.1	1.5	4.5	1.3
Non Farm Other Female	1.9	2.1	2.2	2.3	1.2	1.2	.7	4.6	.9
Labor Sold Out Male	9.6	10.2	14.1	11.6	8.0	7.2	7.4	6.8	3.5
Labor Sold Out Female	3.6	3.5	2.9	3.6	4.0	4.2	4.6	4.3	.6
TOTAL Male		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
TOTAL Female		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

When looking at the percentage of time contributed by each sex within each enterprise, one finds that males contribute 60% and females 40% of labor in farm activities. (Table 3.8) There is very little regional variation in this sexual division of farm labor. In the North the percentage contributed by males is slightly higher at 61%, while in the South and East it is slightly lower with males contributing 58%. The higher percentage by the Northern males may be due to the Islamic influence prevalent in the area although purdah is not widely practiced. The Mendes who are the major tribal group in the South and the East are known for the influence of women in their society which could account for the more equal distribution of labor into agriculture (Little, 1967).

1. Crops

Rice, which is the predominant food and cash crop in Sierra Leone, is cultivated by both sex groups, although, males contribute a higher percentage of labor into this crop with 61% while females contribute 39%.

The classification, fundi and cassava, can be regarded as fundi in the North and cassava in the South since these crops are largely region specific (Little, 1967) (Finnegan, 1965). Fundi is basically a male crop with 66% of labor contributed by males. Cassava cultivation in the South is dominated by the females who provide 62% of all labor.

It is important to note that groundnuts which is considered a male dominated crop in Senegal and Gambia (Haswell, 1953, in Cleave), is a female crop in Sierra Leone (Little, 1967, and Finnegan, 1965). This is supported by the data on labor inputs since females contribute 63% in groundnut cultivation while males only put in 37% nationally. Moreover female domination is most pronounced in the North. Groundnuts are cultivated on former upland

TABLE 3.8

PERCENTAGE OF TIME INTO RURAL ENTERPRISES AND CROPS
BY SEX AND REGION

	National		North		South		East	
	Male	Female	Male	Female	Male	Female	Male	Female
Farm Activities (Agriculture):	60	40	61	39	58	42	58	42
CROPS:								
Rice	61	39	63	37	60	40	53	47
Fundi and Cassava	58	42	66	33	38	62	55	45
Groundnuts	37	63	31	69	42	58	47	53
Vegetables	54	46	55	45	29	71	34	66
Tree Crops	80	20	85	15	71	29	84	16
Non Farm Activities:								
Hunting, Fishing and Gathering	57	43	76	24	63	37	17	83
Processing	26	74	18	82	30	70	39	61
Small Scale Industry	86	14	88	12	83	17	84	16
Other Non Farm Activities	65	35	52	48	78	22	49	51
Labor Sold Out	80	20	89	11	70	30	59	41

rice plots which means that there are very little of the traditionally male dominated tasks of brushing and heavy clearing to be done, therefore it's easier for females to produce these crops.

Vegetables are traditionally considered female crops with cultivation occuring on small garden plots close to the family compound. (Little, 1967; Cleave, 1974). In recent times with increasing demand in urban areas for vegetables men have begun cultivating vegetables on a commercial scale near urban areas. This phenomenon is most apparent in the North, where commercial onions, pepper and tomatoes are produced in areas close to Freetown. Males in that region provide 55% of the labor in vegetable production. In the South and the East which is largely subsistence vegetable production, the more traditional sexual division occurs with females providing 71% and 61% of labor respectively. This pattern can be seen as a change in traditional labor allocation due to commercialization of what was formerly a traditional food crop. A similar shift in the sexual labor division has been seen in other parts of Africa. Males participate on a greater scale in crops which become more highly commercialized due to changing market conditions. (Boserup, 1976; and Pala, 1972; Heyer, 1966 in Cleave)

Treecrop cultivation has always been considered a male activity (Little, 1967; and Finnegan, 1965) and this is clearly established in Table 3.8. Males contributed 80% of labor in treecrops nationally and females only 20%.

2. Other Rural Enterprises

While there is some hunting in Sierra Leone, fishing is the most important enterprise in the hunting and fishing category due to its coastal setting and the abundance of rivers in the country. Traditionally, most fishing was located in the inland regions in rivers and conducted by females

(Little, 1967; Finnegan, 1965). However, more recently with the introduction of commercial fishing off the coast of Sierra Leone in the Atlantic Ocean, males have taken over the fishing sector. This can be seen in the regional sexual division of labor in this enterprise. In the North and the South where there are coastal exposures, the males contribute 76% and 63% of labor respectively. In the East where there are no coastal waters and where all the fishing done are in inland rivers, females dominate this sector with 83% of the labor input.

Processing, primarily of rice and oil palm, is basically a female dominated enterprise throughout Sierra Leone. (Little, 1976; Finnegan, 1965; Lewis, 1954, in Cleave). This is confirmed by Table 3.7 where it can be seen that females supply 74% of all labor into processing.

Small scale industry, which includes blacksmithing, carpentry, and cloth work etc., is traditionally dominated by males who provide 86% of all labor. There is an exception in the South and the East where there is still a good deal of cotton spinning which explains the 16% of labor provided by females in this sector. Other non-farm activities such as construction, brick making, mat weaving, basketry, etc., are also male dominated with 65% by the males and 35% by the females. Those national figures correspond fairly well with the regional figures except in the East where males provide 49% and females 51% of labor into non-farm activities.

Labor is sold out by everyone including children. Much of the labor sold out is done by work gangs of young men or women, who rent themselves out by the day or by piece work, payment is largely in kind. Males contribute 80% of the labor sold out, and as was seen earlier, young males are particularly active in this sector.

D. Agricultural Tasks

Seven major farm tasks have been identified. These include:

(1) Land brushing, which is the cutting down of trees and derooting big stumps in order to clear the virgin bush to make it utilizable for agriculture;

(2) Land clearing, which is the clearing of the land of branches, rocks and other hinderances;

(3) Land preparation which includes such practices as harrowing, tilling etc.;

(4) Weeding;

(5) Pest control, which is the scaring of birds and monkeys with sticks and noise;

(6) Harvesting, which includes cutting down and gathering in of food materials;

(7) Other activities, including threshing, winnowing, cooking for hired labor, watering, budding, milking, etc.

One major hypothesis of this study was that sex roles in specific tasks were strongly related to the physical characteristics of the task and that women have a capacity for continuous monotonous work that men do not have, while men have a capacity for the mobilize sudden spurts of energy.

Land brushing is a physically demanding task, and as hypothesized males provide 90% of the time allocated to this task. They also provide the majority of time in two other heavy tasks, land clearing and preparation, with 74% and 65%, respectively, at the national level. Percentages of time into land clearing are a little more male dominated than in land preparation which is a physically lighter task than clearing. (Table 3.9)

TABLE 3.9

PERCENTAGE OF TIME INTO AGRICULTURAL TASKS
BY SEX AND REGION

Tasks	Sex	National		North		South		East	
		Male	Female	Male	Female	Male	Female	Male	Female
Land Brushing		90	10	85	15	95	05	96	04
Land Clearing		74	26	69	31	78	22	76	24
Land Preparation		65	35	70	30	62	38	57	43
Weeding		39	61	43	57	31	69	41	59
Pest Control		71	29	71	29	79	21	65	35
Harvesting		52	48	59	41	45	55	50	50
Other Activities		44	56	34	66	51	49	72	28

Weeding in Sierra Leone is a monotonous though not strenuous task that has to be done continuously throughout the growing season. This task is considered female work throughout Sierra Leone (Little, 1967; Lewis, 1954; Finnegan, 1965; Spencer, 1976). In fact, females contributed 61% of the labor to this task nationally, although in the South the percentage increased to 69%. In the North male children (5-14) are likely to help their mothers in this task more than in other areas, (8% of labor in North vs 4% in the South). This could be due to less formal school attendance by the Northern male children than in the South and the East (Spencer and Byerlee, 1977), and due to the traditional tendency of children of both sexes to help their mothers.

Pest control is traditionally a children's task since it involves the person running, screaming, and tossing sticks and stones to chase monkeys

and birds away. With the introduction of formal education and the need of children to go to school during the day, it can be expected that this task will be taken on by the young adult males, although male children still contribute 17% of the labor to this task. This is in comparison to 54% by adult males, 22% by adult females and 7% by female children.

Harvesting is the one task where both sexes participate fairly equally. Males contributed 52% to females 48%. (Table 3.9)

E. Summary

It was found that there were regional differences in the average size of households and number of wives had by men. The region with the largest households and the most wives was in the North. These two factors are probably related as well as the Islamic influence prevalent in this area.

The majority of the males and the females considered their primary ocupation to be farming.

The average yearly hour input by the males numbered 1485 hours while females only contributed 944 hours. Males put in 7 hours per day to females 5 hours per day therefore the difference in hourly input could be due to domestic activities that females engage in, which were not recorded in this data such as child care and water carrying activities.

When considering regional differences, the Eastern Region has a more equitable labor allocation between the sexes. They have the lowest actual hours of work than in any other region. This could be due to the type of crops dominant in this area and the relative less strenuous tasks of working on these crops. It was found that women do provide a substantial portion of time into on farm activities in both food and cash crop production. A higher percentage of time into fundi and treecrops was contributed by males

while females provided more time into cassava and groundnut production, showing that there are sexual roles attached to certain crops in Sierra Leone. Rice, which is the major food and cash crop is cultivated more by the males than by females, contrary to the commonly slated belief that females are the major food producers in most of Subsaharan Africa (Boserup, 1976).

It was also found (in the cases of vegetable and fishing productions) that commercialization has changed traditional sex roles. Females were traditionally most active in vegetable production and fishing, but due to growth of urban areas and commercialized fishing and vegetable cropping, in some areas, both of these activities have become male dominated in coastal areas and areas close to urban centers.

Sex roles are also apparent in the division of labor related to agricultural tasks. The labor porfile of agricultural tasks showed that the allocation of labor by sex was directly related to the physical characteristics of the tasks. Thus land brushing was generally done by males while weeding was more often performed by females. It was also noticed that there was only limited participation by female children in many agricultural tasks which could be due to the high percentage of time they participate in domestic tasks such as caring for their sisters and brothers, carrying water and wood, helping to wash clothes and dishes, and other activities which were not recorded in this survey.

Rural non-farm enterprises also were found to reflect specific sex roles. Processing has been traditionally and still is a female enterprise. On the other hand males are most active in small scale industry and labor sold out.

CHAPTER IV

EFFECTS OF SEASONAL AGRICULTURAL PATTERNS, INCOME AND HOUSEHOLD COMPOSITION ON RURAL HOUSHEOLD LABOR ALLOCATION

A. Seasonal Household Labor Allocation

Nationally the peak months for farm activities were July for both males and females (Table 4.1). It showed the most hours worked by the males in July with 184 hours vs females 107 hours. When looking at the seasonal profile in Chapter II, Figure 2, one will see that July-August is the period of swamp rice land preparation and planting, upland rice weeding, groundnut and fundi harvesting. Males and females worked the most days in July with 19.3 and 18.2 days respectively (Table 4.3). Males worked 6.3 hours per day in July to females 5.2 hours a day, which is the most hours worked per day in any month (Table 4.2).

There were important regional differences as to when the peak labor season occurred. The Northern males worked the most days in July with 21.2 days, but worked the most hours per day in September and October with 6.7 hours. The Northern females contributed the most days in July also, but they spent most hours per day in August with 5.6 hours (Tables 4.2 and 4.3). This shows that males worked the most days during swamp rice planting but worked most hours during the harvesting period for groundnuts, fundi and upland rice. Females also contributed the most days during swamp rice planting but spent the most hours per day during groundnuts and fundi harvesting. Since we have established that fundi is a male

dominated crop while groundnuts are a female dominated, one can assume the two sexes are working on their respective crops. When percentage of time contributed by both sexes were considered in Figure 4.1, it showed that the percentage of all hours worked per month were closest in August with males contributing 57% to females 43% showing that everyone was working without one sex groups dominanting the labor input. (Table 4.4)

The Southern males and females worked the most hours in a day in May, which is the time for ploughing and planting of upland rice. (Table 4.2) But the actual days worked per month were highest in July by both sexes with 18.1 and 18.6 respectively. Percentage of work contributed by each sex in a month were closest in July, August, October and November with 55% and 45% by males and females, (Table 4.4) which is the period of swamp rice planting and the harvesting of groundnuts, fundi, upland rice and cocoa.

In the East, July was the peak month for the males and August for the females. The most hours worked per active day was in July for both sexes with 6.2 hours for the male and 5.6 hours for the females. Days worked per month was the highest in August with 15.0 days for the males and 15.4 days for the females. The most equal percentage of time contribution was in July and August with 51% and 49% respectively by the males and 49% and 51% by the females.

The slack period was identified as January thru March in all regions and by both sexes. The least hours were worked by males in January and by females in March nationally. The least days were worked in February for both males and females with 11.7 and 10.5 days, and the largest percentage difference in work contributions came in March with males contributing 71% and females 29%. Regional averages are very similar to the national trend.

Fig 4.1 % of total hours contributed by males and females

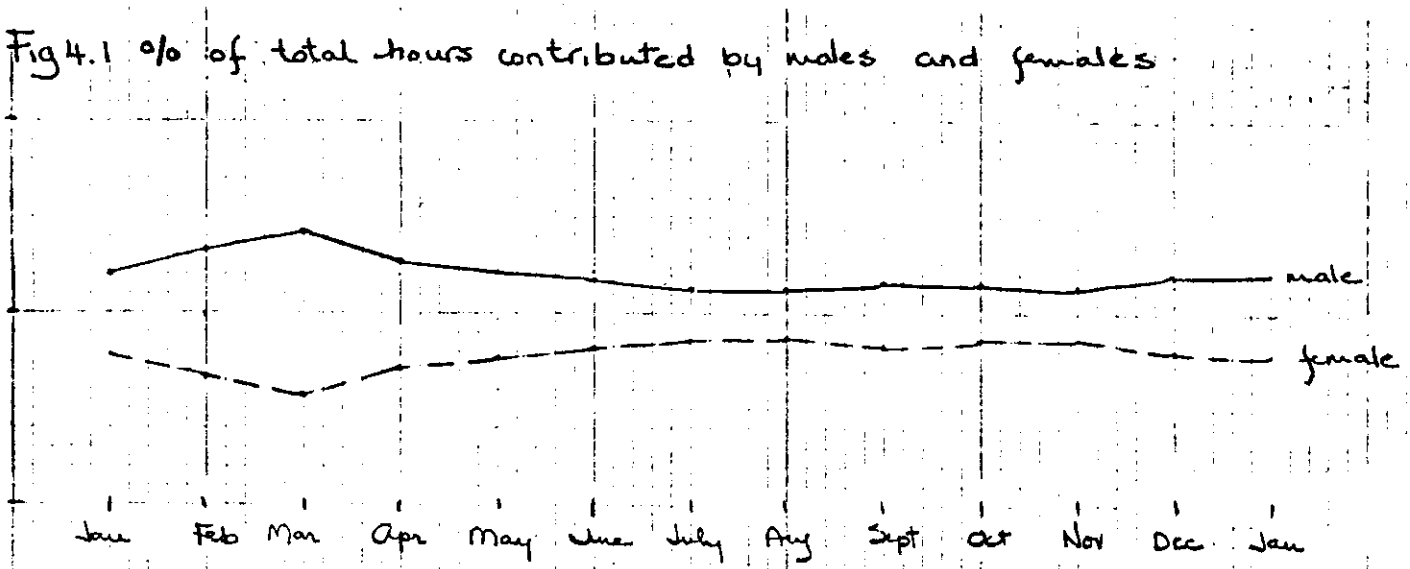


Fig 4.2 Hours worked per day by month and sex

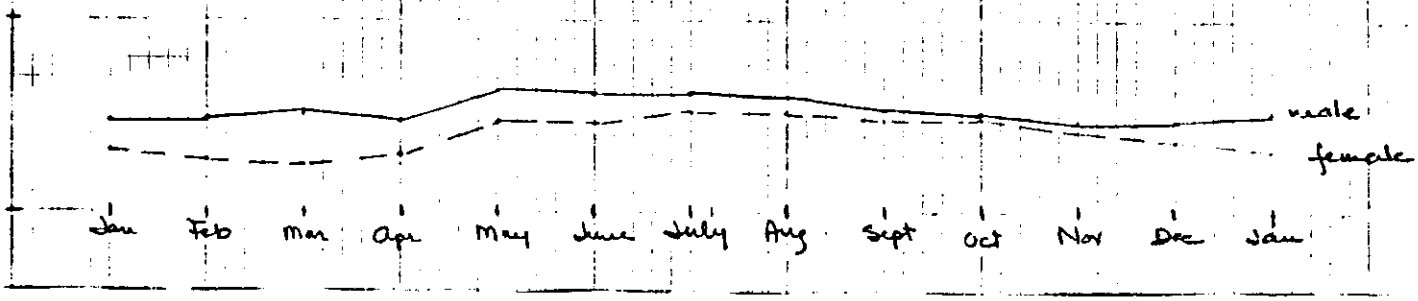
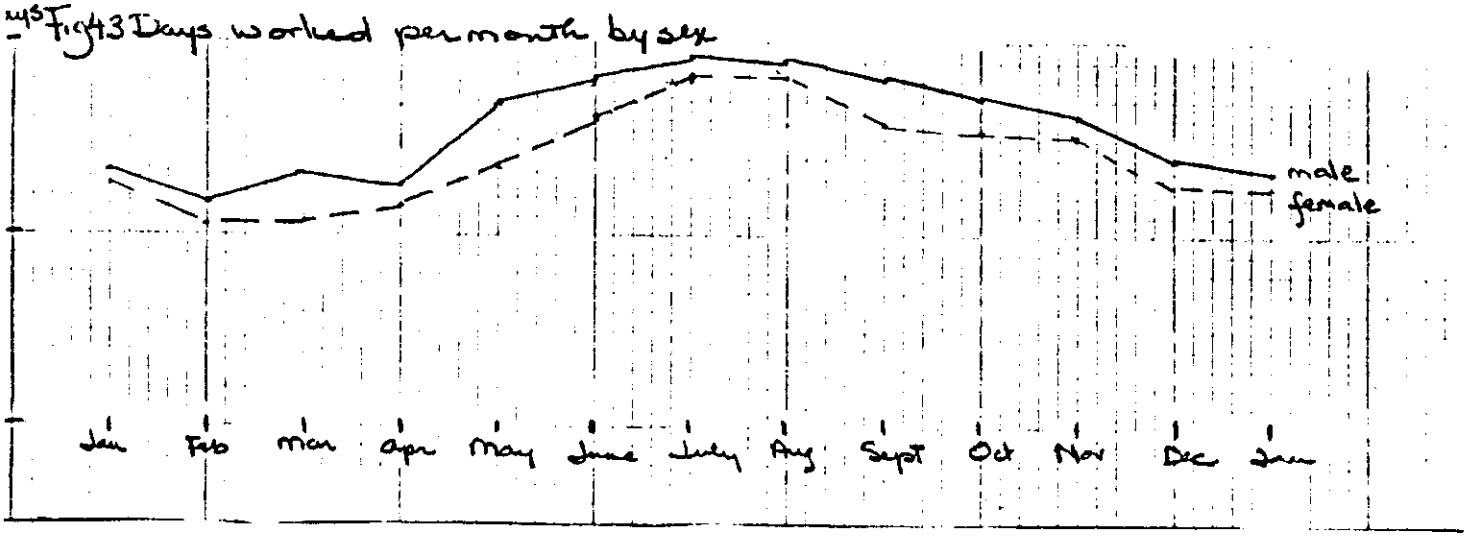


Fig 4.3 Days worked per month by sex



This is the dry season where non-farm activities, oil palm harvesting and processing are undertaken. This observation was seen by Norman (1969) in Northern Nigeria which showed an inverse relationship between farm labor inputs and off farm labor inputs suggesting the low opportunity cost of labor involved in slack season activities which occurs in the dry season.

It was shown that females increased their hours of input during the peak months of July and August when the weeding of upland rice, groundnut harvest, and swamp rice planting was undertaken. Males also increased their hours of input, but not as much as the females. There was a 55% increase in hourly input by females with an increase of 76 hours from slack to peak season, while males only increase their hourly input by 27% with an increase of 103 hours (Table 4.1).

B. Income and Its Relationship to Household Labor Allocation

An analysis of the relationship between income and time allocation was done by disaggregating households into three equal income strata on the basis of income per consumer man equivalent (net income/# of people in household). It was hypothesized that hours of work were negatively correlated to income among both males and females since, one might presume that as people became richer that they would be willing to work less.

However it is clear in Table 4.5, that as income rose, the hours of work also increased among both sex groups. The lowest income males contributed 1288 hours and lowest income females supplied 808 hours. The highest income group supplied 1564 and 1014 hours respectively among males and females. This is a margin of approximately 20% among the males and 25% among the females between extreme income strata.

The number of days worked in a year was also positively related to

TABLE 4.1

HOURS WORKED PER MONTH BY SEX

MONTH	MALE	FEMALE
January	103	62
February	81	42
March	110	43
April	98	42
May	173	72
June	138	90
July	184	107
August	156	92
September	148	100
October	140	98
November	122	100
December	112	79

TABLE 4.2

HOURS WORKED PER DAY IN MONTH BY SEX AND REGION

		National	North	South	East
May	Males	6.3	6.0	7.0	5.2
	Females	4.7	5.0	4.9	3.4
June	Males	6.1	6.1	6.1	6.1
	Females	4.7	5.1	4.1	5.2
July	Males	6.3	6.6	5.8	6.2
	Females	5.2	5.5	4.6	5.6
August	Males	6.1	6.6	5.5	5.6
	Females	5.1	5.6	4.3	5.5
September	Males	6.1	6.7	5.6	5.4
	Females	4.9	5.2	4.6	4.9
October	Males	6.0	6.7	5.6	4.4
	Females	4.9	5.2	4.7	3.9
November	Males	5.4	5.8	5.3	4.1
	Females	4.2	4.3	4.3	3.7
December	Males	5.1	5.5	5.0	4.2
	Females	3.7	3.9	3.5	3.5
January	Males	4.7	4.6	4.9	4.9
	Females	3.2	3.1	3.0	4.1
February	Males	4.8	4.7	5.0	4.5
	Females	2.7	2.9	2.4	3.3
March	Males	5.1	5.1	5.1	4.8
	Females	2.6	2.7	2.5	2.6
April	Males	4.8	4.7	5.0	4.1
	Females	3.0	2.9	3.2	2.8
ALL YEAR					

TABLE 4.3

DAYS WORKED PER MONTH BY SEX AND REGION

		National	North	South	East
May	Males	16.8	16.6	18.0	13.6
	Females	13.6	13.1	15.6	8.0
June	Males	18.1	19.3	18.4	12.2
	Females	16.2	16.7	17.0	11.3
July *	Males	19.3	21.2	18.1	15.0
*	Females	18.2	18.5	18.6	15.4
August	Males	19.2	21.0	17.9	15.1
	Females	18.1	18.4	18.4	15.5
September	Males	18.1	19.3	17.1	15.2
	Females	15.9	16.0	16.2	14.3
October	Males	17.1	18.6	16.5	12.8
	Females	15.6	15.9	16.0	13.1
November	Males	16.1	17.2	16.1	11.5
	Females	15.1	15.7	15.6	10.2
December	Males	14.0	14.7	13.9	11.4
	Females	12.8	13.5	13.2	8.6
January	Males	13.3	12.8	14.0	12.9
	Females	12.7	12.6	13.3	10.8
February *	Males	11.7	11.5	12.7	9.0
*	Females	10.5	10.7	11.0	7.6
March	Males	13.2	12.9	14.6	10.0
	Females	10.7	10.3	12.3	7.5
April	Males	12.8	12.2	14.4	10.0
	Females	11.5	10.9	12.8	9.0

TABLE 4.4

% WORKED BY MALE AND FEMALES PER MONTH BY REGION

		National	North	South	East
May	Males	62	61	63	69
	Females	38	39	37	31
June	Males	59	59	61	56
	Females	41	41	39	44
July	Males	57	58	55	51
	Females	43	42	45	49
August	Males	56	57	55	49
	Females	44	43	45	51
September	Males	58	60	57	53
	Females	42	40	43	47
October	Males	57	59	55	52
	Females	43	41	45	48
November	Males	57	58	55	54
	Females	43	42	45	46
December	Males	60	60	59	58
	Females	40	40	41	42
January	Males	61	60	61	59
	Females	39	40	39	41
February	Males	67	65	70	64
	Females	33	35	30	36
March	Males	71	71	70	71
	Females	29	29	30	29
April	Males	64	65	63	80
	Females	36	35	37	20

income with the lowest income groups contributing about 30 days less than supplied by higher income groups among both sexes.

TABLE 4.5

NUMBER OF HOURS WORKED AND DAYS WORKED IN YEAR BY INCOME AND SEX FOR ADULTS > 15

	Tercile 1	Tercile 2	Tercile 3	% of difference between Tercile 1 and 3
Hours worked in year				
Males	1288	1573	1564	+20%
Females	808	995	1014	+25%
Days worked in year				
Males	187	221	218	+17%
Females	161	191	198	+23%

We could conclude that hours of work may be an important determinant of income rather than income determining how hard one works. This could be closely related to the land surplus situation of Sierra Leone and the easy mobility among income classes within generations.

When comparing the contributions of various income groups it can be seen that although there are higher inputs by higher income people during the February (slack) and July (peak) periods, the percentage of hours increased is 36% higher for the higher income males vs lower income males and 31% higher for the higher income females during the slack season compared to an increase of only 10% and 17% during the peak season by the higher income group. (Table 4.6) That is, the increase in income is positively related to hours of work particularly in the slack period. Since the

activities practiced in the slack period primarily involve non-agricultural enterprises such as small scale industry, processing, hunting and fishing, domestic construction and crafts, it is likely that higher income people gain part of their additional income through greater levels of non-farm employment during the dry season as well as being farmers in the rest of the year (Franzel, 1978).

TABLE 4.6

NUMBER OF HOURS WORKED IN SLACK AND PEAK MONTHS BY SEX AND INCOME GROUPS FOR ADULTS > 15

MONTHS		Ter 1	Ter 2	Ter 3	% difference between Ter 1 and 3
February (slack)					
	Males	77	96	105	+36%
	Females	32	44	52	+31%
July (Peak)					
	Males	138	164	152	+10%
	Females	108	125	126	+17%

When looking at peak and slack periods and how this affects the percentage of time into various rural enterprises, one finds that both males and females spent 68 to 95 percent of time in agriculture during the peak season across all regions and income groups. Females seem to put in a slightly higher percentage of time into agriculture than the males but there were no noticable income differences. The next most time consuming enterprise for females was processing with them spending about 5% of their time. The southern females put in the most time in processing

with 8-11% during this time and so did the southern males with 1-9%. The males also spent a fair amount of time in small scale industry, especially among the southern males. This particular activity seemed positively related to income during this peak period. The males also sold out a fair amount of time among all income groups and regions during this period. The Southern females seem to sell out the most labor across all income groups although they sold more in August than in July.

Much less time was spent in Agriculture during the slack period by both sexes and all income groups and region with 52-86% of time by the males and 7-90% by the females. It seemed that females spent a higher percentage of time in agriculture during the peak period but dropped off very sharply during the slack period, while males remained much more stable. Percentage of time into agriculture seemed positively correlated to income in the East during this season. There was also a large percentage of time provided by Southern and Eastern females into hunting and fishing. These are the regions where traditional fishing patterns still hold true. The richest Northern males put in the highest percentage of time into this enterprise with 10%. This shows a strong correlation among commercialized fishing and income. Females also contributed heavily into Processing during this slack period. Percentage of time processing by the females were negatively correlated to income across all regions. Males contributed much time into Small Scale Industry, which were positively correlated to income among the Southern and Eastern males but negatively correlated among the Northern males. There was also much selling of labor during this period by the males in all region and income groups.

It was found that during the peak season everyone spent a large part of their time in agriculture. But during the slack period both sexes

TABLE 4.7

PERCENTAGE OF TIME WORKED ON RURAL ENTERPRISES IN JULY (PEAK) BY INCOME GROUPS, SEX AND REGION. ADULTS > 15

				ter 1	ter 2	ter 3
Agriculture						
	males	region	North	87	82	76
			South	81	75	76
			East	86	86	95
	females	region	North	92	93	89
			South	86	86	88
			East	92	92	90
Hunting & Fishing						
	males	region	North	0	02	03
			South	01	03	04
			East	01	01	0
	females	region	North	0	01	0
			South	0	0	01
			East	0	0	0
Processing						
	males	region	North	01	0	01
			South	05	04	05
			East	0	0	0
	females	region	North	06	06	09
			South	11	10	08
			East	04	03	05
Small Scale Industry						
	males	region	North	0	04	05
			South	04	04	05
			East	03	04	01
	females	region	North	0	0	0
			South	0	02	01
			East	0	0	0
Other Non Farm Activities						
	males	region	North	0	02	02
			South	0	03	01
			East	03	04	02

TABLE 4.7 (Continued)

				ter 1	ter 2	ter 3
	females	region	North	0	0	0
			South	0	0	0
			East	04	04	03
Labor Sold Out						
	males	region	North	12	10	12
			South	09	12	14
			East	05	05	02
	females	region	North	01	01	01
			South	02	02	02
			East	0	01	0

TABLE 4.8

PERCENTAGE OF TIME WORKED ON RURAL ENTERPRISES IN AUGUST (PEAK) BY INCOME GROUPS, SEX AND REGION. ADULTS > 15

				ter 1	ter 2	ter 3
Agriculture						
	males	region	North	92	88	82
			South	75	68	76
			East	81	80	95
	females	region	North	95	93	92
			South	79	85	85
			East	94	91	98
Hunting & Fishing						
	males	region	North	0	02	03
			South	04	04	05
			East	01	0	0
	females	region	North	0	0	0
			South	0	0	0
			East	0	0	0
Processing						
	males	region	North	0	0	01
			South	01	09	07
			East	0	02	02

TABLE 4.8 (Continued)

				ter 1	ter 2	ter 3
	females	region	North	04	03	06
			South	10	08	08
			East	02	03	06
Small Scale Industry						
	males	region	North	0	01	04
			South	06	06	07
			East	03	05	01
	females	region	North	0	0	0
			South	01	02	01
			East	0	0	0
Other Non Farm Activities						
	males	region	North	0	01	03
			South	02	05	01
			East	02	07	01
	females	region	North	0	01	02
			South	03	01	01
			East	04	02	01
Labor Sold Out						
	males	region	North	07	07	07
			South	06	07	07
			East	13	07	01
	females	region	North	01	03	0
			South	08	04	05
			East	0	05	0

TABLE 4.9

PERCENTAGE OF TIME WORKED ON RURAL ENTERPRISES IN JANUARY (SLACK) BY INCOME GROUPS, SEX AND REGION. ADULT > 15

				ter 1	ter 2	ter 3
Agriculture						
	males	region	North	60	59	60
			South	65	58	63
			East	74	64	86

TABLE 4.9 (Continued)

				ter 1	ter 2	ter 3
	females	region	North	56	66	62
			South	44	45	59
			East	69	72	90
Hunting and Fishing						
	males	region	North	01	01	10
			South	02	02	04
			East	01	0	0
	females	region	North	02	02	01
			South	07	06	10
			East	01	01	0
Processing						
	males	region	North	08	06	02
			South	14	12	11
			East	02	14	08
	females	region	North	34	24	20
			South	37	32	19
			East	12	08	06
Small Scale Industry						
	males	region	North	18	19	09
			South	06	04	07
			East	05	04	04
	females	region	North	04	03	01
			South	03	02	06
			East	0	0	0
Other Non Farm Activities						
	males	region	North	02	03	04
			South	04	06	02
			East	02	04	0
	females	region	North	01	01	03
			South	03	03	04
			East	02	03	0
Labor Sold Out						
	males	region	North	11	14	16
			South	10	18	14
			East	16	14	02
	females	region	North	04	05	12
			South	06	12	01
			East	16	15	03

Table 4.10

PERCENTAGE OF TIME WORKED ON RURAL ENTERPRISES IN FEBRUARY (SLACK) BY INCOME GROUPS, SEX AND REGION. ADULTS > 15

				ter 1	ter 2	ter 3
Agriculture						
	males	region	North	57	57	52
			South	71	68	68
			East	65	70	60
	females	region	North	40	57	54
			South	32	28	35
			East	38	51	58
Hunting and Fishing						
	males	region	North	01	02	10
			South	06	01	02
			East	19	0	0
	females	region	North	02	02	03
			South	12	17	22
			East	07	23	14
Processing						
	males	region	North	03	03	03
			South	06	04	06
			East	03	08	13
	females	region	North	43	27	27
			South	41	40	32
			East	50	19	22
Small Scale Industry						
	males	region	North	24	18	15
			South	04	01	09
			East	08	07	23
	females	region	North	10	07	04
			South	04	03	06
			East	03	0	01
Other Non Farm Activities						
	males	region	North	02	03	02
			South	02	03	01
			East	03	06	0
	females	region	North	04	03	05
			South	09	06	04
			East	02	03	0

TABLE 4.10 (Continued)

				ter 1	ter 2	ter 3
Labor Sold Out						
	males	region	North	12	17	18
			South	16	23	14
			East	19	07	03
	females	region	North	0	03	06
			South	02	07	01
			East	0	03	04

TABLE 4.11

PERCENTAGE OF TIME WORKED ON RURAL ENTERPRISES IN MARCH (SLACK) BY INCOME GROUPS, SEX AND REGION. ADULTS > 15

				ter 1	ter 2	ter 3
Agriculture						
	males	region	North	68	65	62
			South	74	67	71
			East	64	79	70
	females	region	North	34	64	48
			South	32	34	37
			East	07	07	16
Hunting and Fishing						
	males	region	North	02	01	10
			South	01	01	03
			East	02	0	0
	females	region	North	09	02	05
			South	18	18	15
			East	41	45	35
Processing						
	males	region	North	01	01	03
			South	03	03	01
			East	01	02	04
	females	region	North	45	26	06
			South	38	35	38
			East	32	21	33

TABLE 4.11 (Continued)

				ter 1	ter 2	ter 3
Small Scale Industry						
	males	region	North	08	08	10
			South	05	02	07
			East	13	06	22
	females	region	North	02	02	03
			South	04	05	04
			East	11	08	16
Other Non Farm Activities						
	males	region	North	0	0	02
			South	01	04	02
			East	04	10	0
	females	region	North	08	04	07
			South	06	08	05
			East	06	16	0
Labor Sold Out						
	males	region	North	20	25	14
			South	49	22	14
			East	15	03	03
	females	region	North	02	01	01
			South	02	01	0
			East	01	02	0

dropped their contribution into agriculture and spent more time on other rural activities. This was especially noted among the females who began spending more time in processing and fishing after drastically reducing their time input into agriculture. Males on the other hand spent a fair percentage in agriculture still but also increased their time input into small scale industry and labor sold out. Not much fishing and hunting were done by the males except among the highest income Northern males in commercialized fishing which shows a strong correlation of commercial fishing to higher income.

C. Effect of Household Composition on Labor Allocation

It was hypothesized that the hours of work would decrease for all members of the household as household size increased. It was thought that there would be a decrease in the household MVP as the number of people in the household increased, all other factors of production being fixed.

In Figure 4.6 it can be seen that consistent with the hypothesis, hours of work decreased substantially for both sexes as the size of household increased. The number of wives per male also affected the labor inputs by household members of both sexes. (Tables 4.12 and 4.13 and Figures 4.5 and 4.6)

Hours of input by both males and females decreased as the number of wives increased. This was also observed by Boserup (1976) in many parts of Africa where polygamy was practiced.

When number of children less than 5 years of age and children alive per female were looked at and their affect on the adult females, one saw an increase in the female's hours of work until the number of less than 5 children and children alive numbered six. Then the number of female

TABLE 4.12

HOURS WORKED BY # OF WIVES IN HOUSEHOLD BY SEX AND REGION
ADULTS > 15

		National	North	South	East
	# of wives				
Males	0	1491	1778	1414	1027
	1-3	1362	1446	1346	1035
	4-7	1125	1191	1145	730
Females	0	949	1176	885	521
	1-3	927	968	921	780
	4-7	780	772	807	721

TABLE 4.13

HOURS WORKED BY # OF PEOPLE IN THE HOUSEHOLD BY SEX AND REGION
ADULTS > 15

		National	North	South	East
# of People in Household					
Males	1-5	1547	1753	1539	1138
	6-10	1288	1416	1194	932
	11-15	1218	1292	1187	855
	16-20	1274	1379	1078	NA
	20+	913	924	901	NA
Females	1-5	1012	1122	1005	776
	6-10	917	967	859	842
	11-15	785	855	746	625
	16-20	819	771	892	NA
	20+	602	465	704	NA

Figure 4.4 Population Profile: Number of people by age group and sex

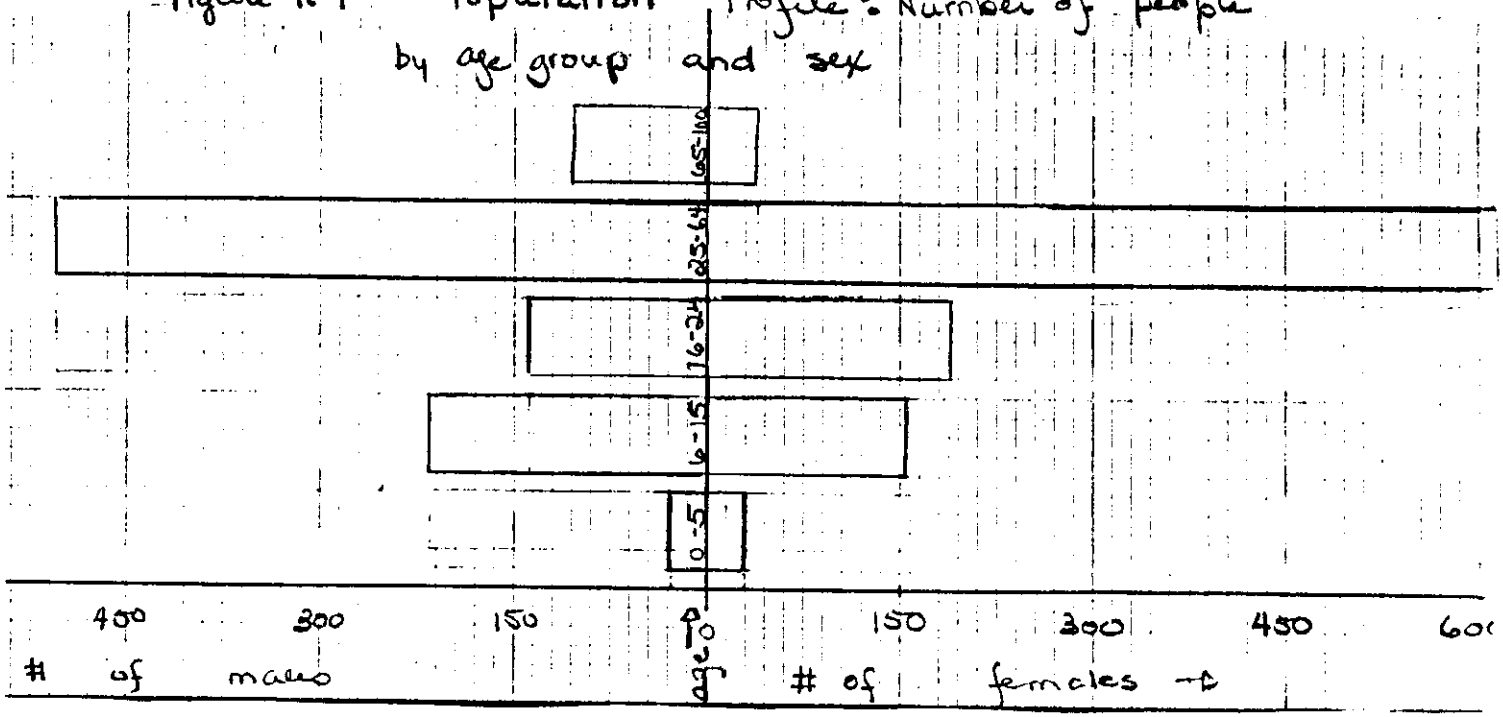


Figure 4.5

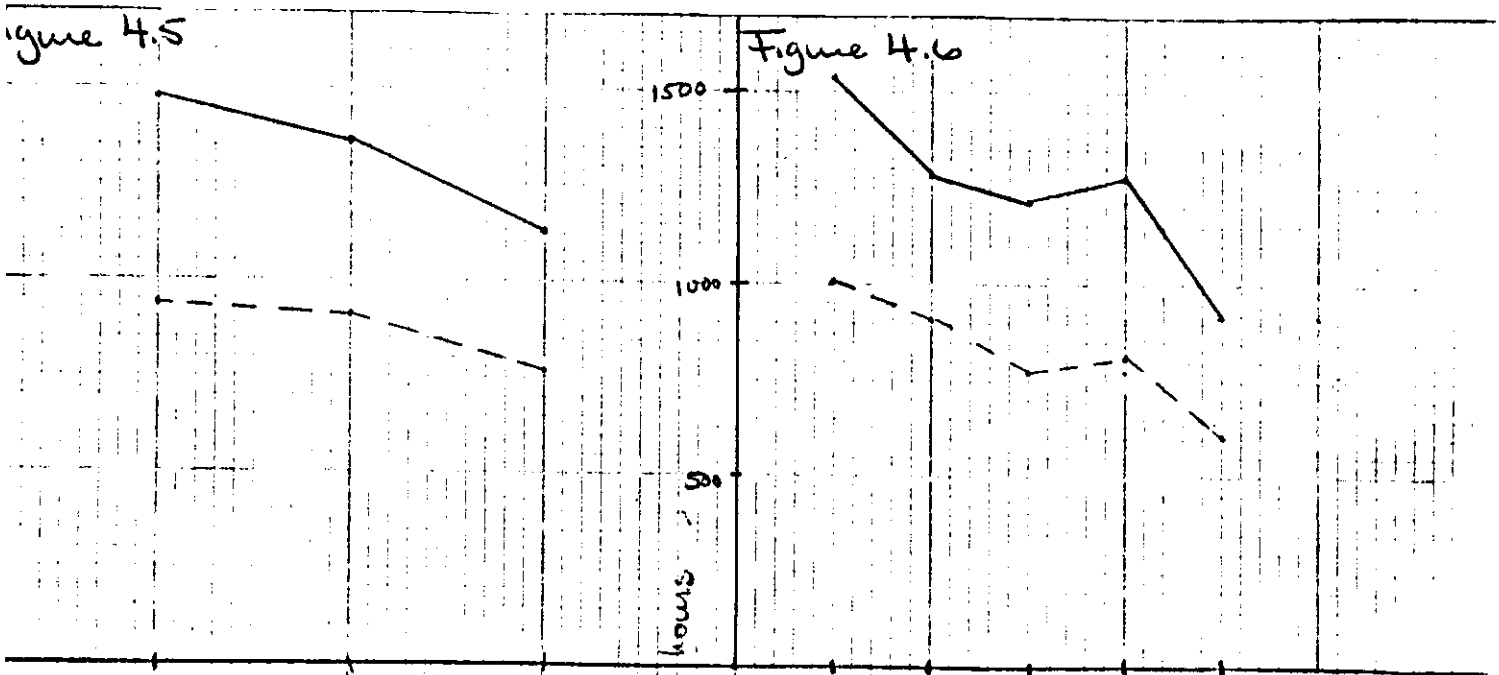


Figure 4.6

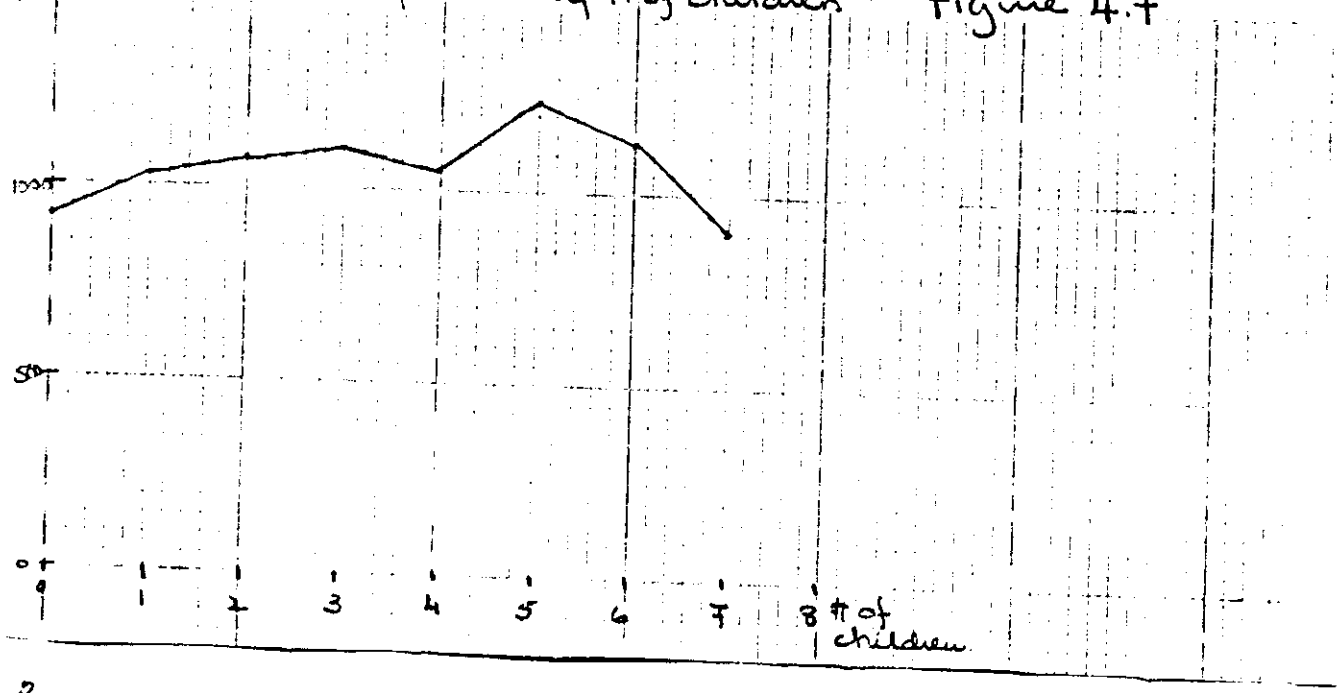
Hours worked by sex and # of wives in the Household and # of people in the Household

hourly input decreased. (Figures 4.7 and 4.8) One would assume that higher the number of children less than 5 and alive, lower would be the mother's work input therefore it seems this observation is rather unusual.

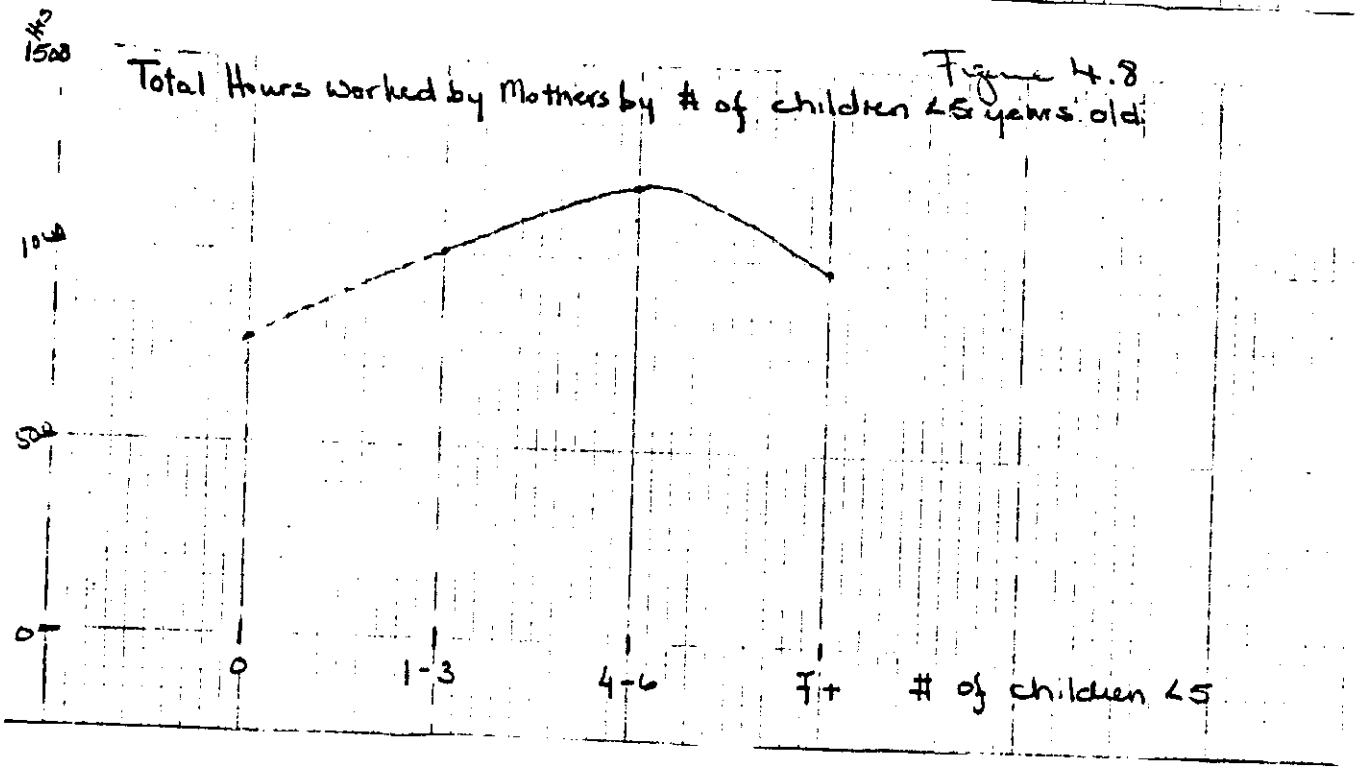
D. Summary

Labor for both males and females follow distinct seasonal patterns. Examining seasonal labor profiles stratified by income, it was found that higher income people worked greater hours during both the peak and slack seasons than the lower income household members, with the greatest difference evident during the slack season.

Hours worked by mothers by # of children Figure 4.7



Total Hours worked by Mothers by # of children <5 years old Figure 4.8



CHAPTER V

CONCLUSION: FINDINGS FROM THE ANALYSIS ON FEMALE AND HOUSEHOLD LABOR ALLOCATION IN SIERRA LEONE

A. Purpose and Hypothesis

The purpose of this paper was to describe the allocation of rural household labor by sex, age, region and income groups in Sierra Leone. This paper has given special consideration to female participation in rural Sierra Leone, not simply because they are women, but because there has been a serious loss of resources and potential due to neglecting the role of women in African rural development. There has also been a lack of understanding on the social and economic position of women and men in rural areas. Therefore this paper wants to emphasize the importance of the household as an economic unit.

The major hypotheses that were tested in this paper were:

(1) That women do provide a substantial portion of household labor in production of food and cash crops as seen in other African countries.

(2) That sex roles define the participation of males and females in crops and agricultural tasks.

(3) That men provide the majority of production hours into cash crops.

(4) That the traditional division of labor will break down where change has taken place.

(5) That the traditional division of labor will break down during peak labor seasons.

(6) That hours of work are negatively correlated to income among both sexes.

(7) That hours of agricultural work decreases as household size increases.

B. Household Labor Allocation

It was found that on average adult males supplied the most hours of work per year with 1484 hours in 210 days, while adult females contributed 944 hours in 187 days. Contributing to the low hours of input by the females could be estimated 2-4 hours a day that females are believed to contribute to other activities, such as child care and water carrying which were not recorded in this survey.

Males spent 79% of their time into agriculture and females contributed 76.5% of their time, but the percentage contributed in that enterprise by the sexes was 60% by males and 40% by femalse. Rice, the predominant food and cash crop, is cultuvated by both sex groups, although males contribute somewhat greater proportion of total rice labor, 61 percent. Groundnut, which is cash crop, is basically cultivated by females with them contributing 63%. This is contrary to what is found in other parts of Africa where males are predominant groundnut cultivators. Treecrops, also cash crops, are mainly cultivated by males. This confirms the hypothesis that females do provide a substantial portion of labor into production of food and cash crops. The hypothesis that men provide a majority of labor into cash crops is partially correct in that they do provide most of the labor for treecrops but not for groundnuts. Other rural enterprises

also showed sex roles with females doing most of the processing while small scale industry and labor sold out were practiced mostly by the males.

Vegetable production and fishing has traditionally been a female dominated enterprise in subsistence economy of rural Sierra Leone. With the increase in urbanization and comercialization in areas close to the urban centers and the coast, these enterprises have become male dominated activities. In the East where subsistence fishing and vegetable production are still practiced, these enterprises are still fenale dominated. These patterns are in accord to the hypothesis that traditional division of labor is flexible and subject to change where production or market opportunities change.

The hypothesis that traditionally accepted sex roles define the participation of females by agricultural tasks was found to be generally true. Landbushing and clearning were clearly male dominated while weeding was female dominated.

When seasonality was taken into consideration it was found that this peak varied by region but generally occurred in July-August during the planting of the swamp rice, harvesting of groundnuts and fundi and the weeding of upland rice. The percentage contribution by males and females were the closest in July with both the sexes working fairly equal hours showing that everyone was putting in more hours and that traditional division of labor were not as stringent.

Total employment levels were positively related to income showing that hours of work increased with income. This could be due to the land surplus nature of Sierra Leone and that one is in the income class not only because one is born into it but also due to how hard one works.

As household size increased, the hours of work per housheold member

decreased. Also as the number of wives per man increased, the hours of work input by other wives and by males decreased. The number of children alive and less than 5 had no recognizable effect on hours of input by mothers. This could be due to the age, income and other effects that one could not really sort out by breakdown analysis.

One found that higher income people worked longer hours than lower income people. This could be due to the land surplus nature of Sierra Leone and that one gets to the higher income by working longer hours rather than being born into a higher income family.

Family size also seems to have an effect on labor input. It was seen that hours of work for both males and females decreased as family size increased, and when number of wives per man increased. When the effect of the number of children alive was examined, it was unexpectedly found that the mother's hours of work in non-household activities increased until the number of children reached five. This is in contradiction to the hypothesis that hours of work outside of the household would decrease for the female as there are more children. This could also be due to the fact that there are many other effects such as age, income level, and social preference which could not be taken into account.

Policy makers must be extremely careful when making decisions to increase rural welfare by introducing commercialization. It was found that as urbanization and commercialization occurred, former female occupations became male dominant (i.e., fishing and vegetable production) therefore making the females worse off. Also where policy makers introduce mechanization to increase agricultural production they must be extremely careful to look at all causes and effects. When tractorization is introduced this would decrease the land brushing done by men and increase the acerage

cultivated. But it would also increase the hours of weeding done by females in the peak periods, therefore some labor saving device for weeding should also be introduced simultaneously. Policy makers must remember to look at the household as an economic unit since it is found that everyone makes a significant contribution whether they be very young, very old, male or female. Hopefully this and other micro level studies will give policy makers and aid donors an improved base on which to make their decisions.

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