FACTORS AFFECTING GENDER CONTRIBUTIONS TO FARM AND NON-FARM LABOUR IN THE SOUTHERN PART OF KADUNA STATE , NIGERIA

By

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A Dissertation Submitted to the Post-Graduate School, Ahmadu Bello University in partial fulfillment of the requirements for the Degree of Doctor of Philosophy (Agricultural Extension and Rural Sociology).

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DECLARATION

I hereby declare that this thesis submitted for the Doctor of Philosophy Degree (Agricultural Extension and Rural Sociology) of Ahmadu Bello University is the record of my own research work, except where reference is made to published literature and which are duly acknowledged. It has not been presented before in whole or in part for any other qualification.

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CERTIFICATION

This thesis entitled *"Factors Affecting Gender Contributions to Farm and Non-Farm Labour in the Southern Part of Kaduna State, Nigeria"*, by Lenti Sidikatu Ajayi, meets the regulations governing the award of the degree of *Doctor of Philosophy* of the Ahmadu Bello University, Zaria and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

This work is specially dedicated to the Almighty God and the following people:

- My father and mother, Alhaji and Hajia Ibrahim, who gave all their female children education despite opposition from friends.
- My darling husband, Professor C.O. Ajayi, for his prayers, support and love.
- My children: Mobolaji, Olatunde, Tinuke and Adebayo.
- My other children: Iyabo Yusuf, Deborah Ayewah, Jume Ahmadu and Chike Uguru.
- My father's friends: Dr. (Alhaji) Yahaya Hamza and Justice Bashiru Sambo.
- My children's Nanny for more than 14 years, Aishatu from Gwarzo.
- All my sisters, my only brother, in-laws, our friends and the Girl-Child in Nigeria.

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ABSTRACT

This study was primarily carried out to identify, compare and measure contributions of each gender to farm and non-farm labour in six Local Government Areas in the Southern part of Kaduna State. The study also identified the factors responsible for the time each gender in the area contributes (devotes) to performing these tasks. Three hundred (300) male and female farmers were sampled in the study using structured interview and observation. One hundred and sixty nine (169) of the respondents were male while the remaining one hundred and thirty-one (131) respondents were female. The data collected were coded and analyzed using the computer to determine percentage correlation coefficients, t-test values and to carry out step-wise multiple regression.

Results of the study show that, in the study area, both the male and female genders actively participate in farm and non-farm labour and that both genders do actually perform al crop production operations. The time utilized daily and weekly in performing crop production labour vary from 3 - 7 hours (daily) and 10 - 37 hours (weekly).. Results concerning livestock keeping show that 31 - 45 percent of both genders perform this activity in the project areas. The farmers, on the average, spend 3 to 5 hours daily and 10 to 18 hours weekly to do these activities. Also, non-farm activities are performed by 39 to 59 percent of the women and they spend between 3 to 4 hours performing these activities. On the other hand 20 to 49 percent of their male counteipart spend about 3 to 5 hours doing the same jobs (processing of food crops< transportation and marketing of farm produce). The results aiso show that 8 to 37 percent of the women farmers sampled also perform household labour. They spend 2 to 3 hours daily and 9 to 22 hours on household chores (labour) weekly while only 5 to 30 percent of the men perform these activities. They only spend 3 to 4 hours daily and 9 - 2 2 hours weekly performing or doing such jobs. The results also show that the male and female respondents virtually plant the same types of crops but the men grow more maize than the women. Furthermore, the

results suggest that a positive correlation individually exists between the time contribution of each gender studied to farm and non-farm labour and the following factors: age, farm size, number of wives, number of male dependants and income.

The t-test analysis carried out suggests that the male respondents perform and spend more time on crop production labour while the female farmer spends more time on fruit tree planting, collecting firewood, threshing harvested farm produce, fetching water, looking after children, producing home made goods, trading, cooking, laundry and transporting self and goods to and from the farm to their homes. The study also used the stepwise multiple regression analysis to have significant contribution level of the production of both genders' income. For example, it was found that out of the twenty-nine (29) variables used in the study, thirteen (13) variables were found to fairly predict farm and non-farm income. These variables are threshing, number of available male dependants, collecting firewood daily, bush burning, maize planting, rearing of small and large animals and labour associated with milking of cows.

Finally, the study revealed that both genders in the study area are still contributing to farm and non-farm labour at very low level. This might be due to the non-availabi[l]ity of extension contact, lack of credit facilities and lack of impact of government programmes as at the time of this study. Also, those variables that predict farm and non-farm labour are few. Hence, effort should be made to revitalize the activities of the agricultural extension services. Also, the government and non-governmental credit facilities should be made available to both genders for farm and non-farm activities in the area. Also, the formulation of programmes and policies that will improve agricultural production should be established by the local, state and federal government sand foreign aid donor agencies to guarantee household and national food security in the study area, in particular, and in Nigeria, at large.

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CHAPTER ONE

INTRODUCTION

In many rural areas of the world, men, women and children are known to play different roles in on-farm and non-farm activities. Some studies carried out in different parts of the world ascribed certain activities to men while others have been ascribed to women. For example, according to Loza (1988), men traditionally are responsible for the welfare of their families as well as protecting them from external danger. On the other hand, through their roles as wives and mothers, women have concentrated on the internal well-being (physical, social and emotional) of their families at the home level. Also, Boserup (1970) stated that, in pre-colonial Africa, man's role in extensive hoe agriculture was commonly limited to the heavy land clearing phase. Men also played a military role in defending and acquiring land - a relatively frequent requirement with shifting agriculture. Furthermore, her work also showed that African women were in charge of nearly all the routine works related to food production. She found this situation to be true only in some countries such as Senegal, Dahomey, Congo, Gambia, Cameroon, Uganda and Nigeria. According to this work, men fell trees in some countries in Africa while women removed bushes on farmlands being prepared for sowing, sowed seeds, harvested, transported and stored crops for consumption and for sale. Boserup (1970) reported that Africa was represented a region of female per excellence; with women accounting for between 70 - 80 percent of the total agricultural workforce. Also, the African Farmer (1992) reported that women constitute 50 percent of all workers in Ghana and that 80 percent of the women in Ghana live in rural areas where they provide 75 percent of their labour for food production.

In Nigeria, studies have shown that women spend 10 – 16 hours daily engaging in productive and reproductive activities. For example, among the Yorubas in the cocoa belt of south western Nigeria, women participate in planting, harvesting and spraying cocoa in addition to processing food crops. Also, the Ibo women, living in the forest zone of south eastern Nigeria, participate in farming more than their Yoruba counterpart (Aina, 1992). In the northern states, studies of the rural Moslem and pagan Hausa women found the contribution of women in agriculture to be mainly in the areas of planting, weeding, hoeing, harvesting, processing and livestock rearing both as family labour and as farmers on their own farms (FAO, 1996; Hill, 1972). Furthermore, studies of the non-Hausa groups in the north by Bohannan (1968), Ngur (1985) and Aina (1992) revealed the active participation of the Tiv, Gwari, Kilba women and women of the pastoral Fulani in agricultural operations on their own farms.

However, women's activities are seldom counted as work because it has failed to contribute directly to national production (Anker, 1980; Fong, 1980b; FAO, 1981, 1990; Kaul *et al*., 1991 and Bungwom, 1998). Studies on rural women in Nigeria have also concluded that two-fifths of women sub-Sahara Africa participate actively in agriculture. However, available statistics have not shown women as equal to men in the agricultural domain production (Saflios, 1980). For instance, ILO (1988) estimated the world percentage of male working hours on crop production and household food production to be 44, all counted in official statistics. The balance of 56 percent most likely represent the working hours of women. However, only 32 percent were counted in official statistics for them while the remaining 24 percent were unaccounted for.

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According to Decree (1982), in Peru, agricultural activities are meant for men while women are classified as their helpers, irrespective of the relative amount of time that each sex spends in agricultural activities. Furthermore, despite the substantial role of women in food and agricultural production, the rural women are not granted adequate access to land and productivity – raising services; such as credit facilities, formation of co-operatives, agricultural inputs, training and extension visits and access to appropriate technology (Olayiwole, 1984; Omotayo, 1996). Such is the plight of the rural women in the developing world in particular which has led authors like Amali (1989) to variously describe the women as the "invisible workforce" because most of their work is generally classified as "family labour" and, as such, unpaid for.

The above plight of the women apart, the activities performed by both sexes are known to have contrasting characteristics. For example, Steidl (1975) described some activities or tasks as "physically demanding" while others are "mentally demanding". Some activities require continuity of action while some are complicated. Also, some activities are liked by men and women while others are disliked by both men and women. Furthermore, some activities are liked by women or men alone while others, by implication, are disliked by men or women alone.

However, within the last few years, government of many nations have designed some programmes and projects to enhance and uplift the lives of the rural dwellers across the world, especially the farmers and the peasants. These programmes or projects are considered necessary and governments have now recognized that the rural families (men and women) need to be supported if the devastating "food crisis" and grinding poverty that echo everywhere, especially in the Third World countries, are to be minimized within a reasonable time limit. Thus,

in West Africa, rural women have received attention from international organizations, such as the USAID, UNICEF, WHO and FAO for quite some time now. These organizations recognize women as farmers, wives, housekeepers, traders and entrepreneurs in their own right, like the men (Boulding *et al.*, 1976).

1.1 Statement of the Problem

Since the mid-1920s, much attention has been given to the contributions of both men and women in the economic and social changes experienced in developed countries (UN, 1986). Furthermore, in the 1970s, Nigeria had many programmes, one after the other, to boost her agricultural production. Such programmes included the National Accelerated Food Production Project (NAFPP) established in 1972 to enhance the rate of technology transfer with respect to specific crops, such as cocoa, groundnut, cotton and other crops. In 1975, the World Bank and the Federal Government of Nigeria established the Agricultural Development Project (ADP). This was followed in 1976 by the Operation Feed the Nation (OFN) which used students in solving the national food crisis. Between 1980 and 1995, programmes like the Green Revolution, the Directorate of Food, Roads and Rural Infrastructure (DFRRI), the Better Life Programme for Rural Women and the Family Support Programme were established. The most mentioned programmes were established by the Federal Government in recognition of the need to economically empower the men, women and children of Nigeria on agricultural production and business enterprises. Some of these programmes were in compliance with the worldwide recognition given to women by the United Nations and other international organizations while others were meant to solve economic, social and political problems of the rural populace. All these programmes were

supported with heavy finances from the Federal Government and various foreign donor agencies.

Despite the above, the factors affecting gender contributions to farm and non-farm labour have not been deliberately studied or discussed in available literature. Hence, the questions addressed in this study are:

1. What are contributions of each gender to farm and non-farm labour in the southern part of Kaduna State?
2. What types of crops do farmers of each gender plant?
3. What are the factors responsible for the contributions of each gender to farm and non-farm labour?
4. What are the extension implications of the findings of this work with respect to questions one to three above?

1.2 Objective of the Study

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Based on the questions posed above, the general objective of the study is to qualitatively and quantitatively identify, compare and measure the contributions of each gender to farm and non-farm labour in the southern part of Kaduna State.

The specific objectives of the work are to:

1. identify, compare and measure gender contributions to farm and non-farm labour in the southern part of Kaduna State;
2. identify the types of crops grown in the study area by farmers of each gender in the study area with the aim of seeing its effect on the agricultural production and return to labour;
3. determine the personal characteristics, institutional and environmental factors, decision-making and attitudinal factors that determine the

contributions of the respondents of each sex to farm and non-farm labour in the study area;

4. examine the extension implications of the findings from objectives 1 – 3 above;

5. make recommendations, based on results of this work, to government to evolve policies that will enhance sustainable agriculture in the nation, which will in turn guarantee high agricultural production in the nation and improve the socio-economic condition of the rural farmers.

1.3 Justification for the Study

The literature reviewed in this work concerning gender roles in the developing countries showed that only a few studies have been done on gender roles related to farm and non-farm labour. One of such studies, carried out by Murdock (1967) documented such activities in 185 divergent societies in the world drawn from the "Ethnographic Atlas." The work included codes for five tasks in cultivation and three in animal husbandry among 50 coded subsistence activities using standard cross-cultural samples (SCCS). Other studies included those of Boserup (1970) and the United Nations (1975). These studies examined the division of agricultural labour in Africa. The result of these studies showed that each gender has its own ascribed farm related activities. The studies also showed that growing some particular crops is associated with each sex.

Ovenholt *et al.* (1985) used few interrelated components of "Gender Analysis Framework" (namely; activities profile, access and control profile, analysis of factors influencing activities, access and control and finally, project cycle analysis) to measure the role of Kumarian men and women. In Nigeria, little has

been done regarding measurement of gender contributions to farm and non-farm labour. Hence, in embarking on this work, the author thought it worthwhile to carry out the study in Kaduna State as the existing literature seem to suggest that very little of this type of work has been done in Nigeria. Hence, the study is expected to generate new information on gender contributions to farm and non-farm labour which could be used to provide a frame of reference for planning agricultural development programme and policies which will be gender sensitive. Such policies and programmes can ensure sustainable agriculture and food security in the country at large. In addition, such policies and programmes will ensure better socio-economic status of the rural farmers who form the backbone of Nigerian agriculture.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature relevant to gender contributions to farm and non-farm labour to gain insight into what the study involves, to getting a thorough understanding of the word "gender" and to find out what other similar works in other parts of the world have discovered in those parts of the world concerning the contribution of each gender to farm and non-farm labour. "Gender", according to the issue of "gender" significantly came into focus worldwide. "Gender", according to Pegg and Judith (1992), is a social construct which assigns certain attribute and behaviours to males and females. Also, FAO (1996) said that "gender" does not refer to women or men per se, but to the relationship between them, both perceptual and material. Furthermore, gender is not determined biologically, as a of sexual characteristics of either women or men, but it is constructed socially as a central organizing principle of societies meant to govern the processes of production and reproduction, consumption and distribution (FAO, 1996).

Some authors in the 1970's and 1980's provided three explanations to the issue of gender differences as being due to genetic factors, hormonal factors and brain laterization (Gray, 1991; Broverman *et al.*, 1970). Balogun (1995) also explained gender differences in performance in science as being caused by biological and cultural factors.

Male and female issues have been discussed by some present and past authors in terms of inequality in the division of labour (Ityavyar, 1998). This author

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traced this issue of gender inequality to the work of Marx and Engles and later to that of Lenin (1972). The work of Lenin (1972) brought out the origin of gender inequality in his book on the family, private property and the state in which he also referred to the work of Engels (1942). Ityavyar (1998) also summarized the work of Engles concerning division of labour between man and woman that brought about children propagation. Furthermore, it was said to have brought the oppression experienced by women. Also, Marx and Engels noted that it led to:

(i) the establishment of monogamous marriage in society.

(ii) formation of channels through which men secure position of supremacy in the family and society (Patriarchy).

(iii) enslavement and social oppression of the female sex in various forms came for example, unequal division of labour.

(iv) the consolidation of the state to protect the system of private property and ensure its continuity and the continuity of gender dissemination and women oppression.

In a nutshell, the issue of monogamous marriage according to (Ityavyar, 1992) was said to have brought about the domination of men over women on economy, political and employment issues. Other factors like culture and tradition established under patriarchy created supremacy of men over women. Also, traditions and customs have established and consolidated gender inequalities in the various societies.

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2.2 The Division of Labour and Time Budgets

Division of labour is seen in all societies. Some studies from countries in Africa, India, Asia and Latin America have confirmed that both rural men and

women contribute to farm and non-farm labour (Boserup, 1970; Agarwal, 1979 and FAO, 1990 and 1997).

Paris (1985) reported the results of her study concerning the activities of Pangasinan farmers with or without land for crop production. Her findings showed that men were heavily involved in the following activities: land preparation process for crop production, transportation and threshing while pulling of seedlings was performed by women. On the other hands, activities like harvesting, buying of agricultural inputs, conveying of "palay" to the mill and marketing of farm produce were jointly performed by the two sexes.

The above research shows that continuous rice growing, cooking and marketing of farm produce are largely performed by the women while it also showed that hand pounding of grains was done mainly by men. Furthermore, the findings of the work, on growing mung-beans, shows that women, are more involved in mung-beans broadcasting, harvesting, threshing, marketing and buying of agricultural inputs. The same project reveals that the growing of vegetables is mainly handled by the men while marketing of the vegetables was mainly the responsibility of the women.

Gupta *et al.* (1987) gave the profiles of a village in the Maharashtia State in Western India concerning contributions to rice production. The profiles show that families within this village share agricultural work. For example, the study revealed that the men did most of the land preparation, ploughing and other heavy work while the women were largely responsible for weeding, harvesting and winnowing of the crops.

The ILO (1988) studied the division of work among household members in the rice producing communities of Aslong region of the Philippines. The study revealed that women participated in the raising of a few swines, doing kitchen gardening,

transplanting for planting seeds/seedling, weeding and harvesting of the crops and threshing the harvested produce. The same research showed women were responsible for food preparation, marketing of farm inputs, childcare, care of sick household members and doing household laundry. In the same study, the men were found to perform the following activities: land preparation, spraying chemicals/fertilizers, seedbed preparation and mechanized farming.

The same research work discussed the contribution of female children in these rice-farming communities to the farm agricultural production. Results of the work show that while the female children helped in the feeding of animals, keeping kitchen gardens, washing dishes, cleaning the house, helping siblings, the male children helped in bringing animals to pasture, gathering firewood and fetching water.

The ILO (1988) research also examined the time budget of the farmers with respect to rice farming in the cropping year 1985 – 86 in Philippine. The findings showed that the hired men in the families were responsible for land preparation during both wet and dry season. They performed these tasks by spending a total of 35.5 hours during the dry season. The females hired and those females in the family contributed to planting, harvesting and threshing by spending a total of 21 hours to 31 hours during the wet and dry season. Furthermore, the females and the males in the rice farm performed weeding on almost equal basis 14 hours to 17 hours.

2.3 Researches Conducted in Nigeria

The available information gathered concerning the contributions of rural men and women in Nigeria in agricultural production, rural development and food

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security are reviewed in this section. The work of Beny (1976) show that some women contributed fully to work on family farms which are either for growing food crops or for growing cash crops. The main responsibilities of the women on these farms included planting, weeding, harvesting, processing of harvested crops, and the breaking of cocoa or processing cassava into gari in western part of Nigeria. Spiro (1977) also studied the role of Yoruba women in farming and trading with particular interest in the patterns of their farming and trading operations. The preliminary survey work revealed that between 20 - 36 percent of adult women were either part-time or full-time farmers. However, an analysis of their time budgets on the cocoa farm showed that all women in the village, regardless of age or occupation, spent 25 percent of their time on farming either on their own or on their husband's farm whenever they were occupied else where.

In a study of the share of labour among the Tiv people, in Nigeria, Bohannan (1968) observed that weeding, food processing and storage were almost the exclusive activities for women and also, the greater amount of work in planting and harvesting were also carried out by women. It was only in land preparation that men performed more.

The work of Adeyokunnu (1981) concerning Ibo women and agriculture indicates that they contributed greatly to farming than their male counterparts. He noticed that unlike other areas in Nigeria, Ibo women were specially given lands by their husbands for total control and management for agricultural purposes. On these farmlands, they grow variety of crops including cassava, coco-yam, maize, beans, pepper, and pumpkins mainly for the household consumption. Their surpluses are always being sold by the women as they are under their control. The money finally realized are turned in for the family upkeep while their male

counterparts in most cases contribute to land preparation, ridging, staking yams and cutting of palm nuts.

In recent time, the survey of women groups in Kaduna State was conducted by Kaul and others (1991). This work covered 13 Local Government Areas of Kaduna State. The work was on the identification of these women, technological, organizational and socio-economic problems and needs which they experience in performing these activities. Their work revealed that the majority of the women groups engaged in crop and livestock farming involving major crops, vegetables, rabbitry, piggery, poultry and bee-keeping; food processing and marketing of maize, sorghum, cowpea, *acca* (known also as *digitaria exilis*, *ferio* or hungry rice), ginger, *dawadawa* and other activities. Also the work of Bungwon (1998) on the socio-economic characteristics of ginger farmers and their roles in ginger production in Jaba Local Government Area of Kaduna State, which falls within the present study area was also reviewed for the present work. The results of her work show that women participated extensively in almost all the ginger production activities while their male counterparts did not perform much. The work also gave the amount of time spent on ginger production operations by the women studied. The findings of the work show that women spend up to 240 hours while the male counterpart spends only 102 hours during the entire farming season performing these activities.

2.4 Problems Faced by Rural Farmers in Farm and Non-Farm Labour

Despite the immense contributions of women to agricultural production, socio-economic situations and food security as highlighted in this section, most women and some men have had to work under different conditions, such as lack of

credit facilities, no land ownership, no tractors and other implements (Akor, 1991; Ngur, 1987; Olayiwole, 1984; Raza and Famoriyo, 1980; FAO, 1972; Boserup, 1970).

Rural women's contributions to the economy is grossly underestimated as they are not included in the official statistics that measure economic (Gross National Product – GNP) and agricultural output (Akor, 1991; ADC, 1975).

Rural men and women were later given recognition in Nigeria like their counterpart in other countries and that led to the establishment of programmes and projects such as Women in Agriculture for women, Operation Feed the Nation, Agricultural Development Project (ADP), Better Life Programme, Family Support Programme, and others. The results of some of these established programmes were not positively perceived because of gender inequality in the economic, social and political structure in Nigeria and some countries as documented by Firestone, 1970; Chafe, 1977; Weirzo, 1977; Chodorow, 1978; and Blumberg, 1988. For example, in Nigeria, the establishment of Kano River Irrigation Project was also shown not to have any effect on the socio-economic status of women in the project area (Ajala, 1988).

The reports of Ngur, 1987; Ladipo, 1981; Ega, 1980) also mentioned the following problems as stood against positive impacts of programmes such as poor infrastructure, lack of appropriate technology, few available manpower, credit facilities and instability and low funding of these established projects and other factors.

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CHAPTER THREE

THEORETICAL FRAMEWORK

3.1 Introduction

In order to understand the assessment of gender contributions to farm and non-farm labour, the theory of social change and development was used as the framework for this work.

Social change has been explained by many authors to mean change in social structure and relationships. For example, Rogers (1969) defined social change as the process by which alteration occurs in structure and function of social systems. Furthermore, Etzioni and Etzioni (1976) explained social change in relation to the mode of production in a social system as factors that could determine the trend of change and development in a society. The authors backed up their argument with four processes that could bring changes in the entire societies. These processes are discovery, innovation, invention and diffusion. Also, Rogers (1969) reduced these processes to three, thus: creation of new ideas and practices (invention); communication of these new ideas (diffusion); and change seen or observed within the system as a result of the acceptance or non-acceptance of the new ideas or practices or knowledge (consequences or impact).

Development has been defined as a change which has a continuous direction and which. culminates in a phase that is qualitatively new. Man has always been depicted as central in the development process. Usually, social change results *in* development.

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The lesson of history reviewed is that women's roles have not changed with time, and neither did men's roles. Women and men have been performing just about the same functions within the family as they have performed for long. It has been shown that exceptions can be seen where some technological innovations have been introduced. For example, Lippincott (1939). Myrdal (1944) and Hacker (1951) provide theoretical parameters of a stratification of the society as a "class one" (i.e. based on class, where members are recruited (unconsciously) through birth and the system *is* highly institutionalized through customs, ideology. values and sanctions; both formal and informal.

Social stratification on sex line is a recent phenomenon. In the 1970's sex as a basis for social stratification was not considered seriously by writers in the field (Firestone, 1970). Acker (1973) observed that sex had rarely been analysed as a factor that could cause stratification and differentiation of the society. Also, it has not been seen as a parameter that could affect economic, political and social inequalities in the society.

Cognitive development theory claims that sex differences are adjudged to come about as a natural corollary to cognitive development; that is, intellectual development. The child makes cognitive judgement early in life that he or she is a girl or a boy, and then actually selects those activities and values that conform to these preferences. Kohlberg (1948), stated that because gender is the only form of categorization in which the child could see itself and others it forms an important factor in organising the child's social perceptions and actions. For example, a boy or a girl would especially learn activities, opinions and emotions as the society considers masculine or feminine. They learn that dominance and aggression are male characteristics while nurturance is a female trait. According to Freud (1949), differences in sex/gender are due to anatomical differences which are an upshot of the Oedipus complex.

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In order to explain the roles of gender in any social activity, it is necessary to have a framework on which the study will be based, to work with. Also, the issue of gender crosses many disciplines and certain models from biology, psychology, anthropology and history must be used in formulating the theoretical framework. The framework on which the present study is based is derived from the three major theoretical perspectives of social change.

3.2 Perspectives for Assessment of Gender Contributions to Farm and Non-Farm Labour

Perspectives in assessing gender roles in the society are very few but Macionis (1989) used the following three perspectives to explain these roles. They are:

(i) The functionalist perspective

(ii) The conflict perspective

(iii) The symbolic interactionist (social psychological) perspective.

The structural functionalist perspective that originated from the work of Durkiem (1893) sees the society as being made up of interdependent parts, each of which contributes to the functioning of the whole. The functionalist seeks to identify tne basic elements or parts of the society, determines the functions these parts play and considers how the entire society operates or functions. Danrendorf (195 Smelser (1981), gave the summaries of the main assumptions of modem func1 fo11ows:

(i) A society is a system of integrated parts.

(ii) Social systems tend to be stable because they have built-in mechanisms of controls

(iii) Dysfunctions do exist, but they tend to resolve themselves and become institutionalised in the long run.

(iv) Change is usually gradual.

Social integration is produced by the agreement of most members of society on a certain set of values. The values are the most stable element of the social system.

The functionalist perspective simply assumes that the system is always working towards equilibrium, though problems and conflicts may arise, but they are temporary in nature as they will not impair any social system.

The functionalist starts from the fact that some differences in the roles of men and women appear to have existed throughout history. For examine, in the pre-industrial time societies, men and women that depended on hunting and gathering crops, fruits were shown to fulfill roles and tasks. Hunting and gathering of food were associated with men during the period so as to bring food or meat home to their families. For example, pregnancy and childbirth kept the women, especially nursing mothers, at home to take care of their households and children rearing activities or chores. Even though women might also have been involved in agricultural production or were even food gathers in their own rights, they were still meant to depend on men for food and protection. The above roles have put men above the women over the years. Thus, the pattern has become institutionalized and difficult to change up till today.

The principles of functionalism have been applied to the study of gender roles in the modern family. Parson and Bales (1955) reported husband - father roles as providing food and shelter for and linking the family to the world outside the home. These roles were referred to as instrumental while the wife/mother takes on the expressive role (i.e. providing the emotional support and nurturing qualities), which sustain the family unit and smoothen the running of the house or home. In case when deviations from these roles occur, a temporary state of

disequilibrium may occur. The functionalist framework provides useful explanation for the origin of gender role differentiation and demonstrates the functional utility of assigning tasks on the basis of gender in the society as necessary to maintain economic integrity of the family unit. The analysis of the factors affecting gender contribution to farm and non-farm labour is also justified by this frame.

Conflict perspective views the society as a systematic, evolving system of groups competing or struggling for resources for resources. The groups that exhibit these traits most are the social class, sex and economic ownership groups.

This perspective provides the leads in explaining the possible inequalities with regard to labour, time, available farm and non-farm implements, land, credit facilities, education and training as the people contribute to the process of development. According to Marx (1849, 1864, 1867, 1895), conflict theory is based on the assumption that the society is a state where struggles for power and dominance are acted out. Furthermore, Smelser (1981) states that modern conflict theory makes the following assumptions:

1. The main features of society are change, conflict and force.
2. Social structure is based on the dominance of some groups by others.
3. Each group in society has a set of common interests, whether its members are aware of them or not.
4. When people become aware of their common interests, they may become a social class.
5. The intensity of class conflict depends on the presence of certain political and social conditions (e.g. freedom to form coalitions), on the distribution of authority and rewards and on the openness of the class system.

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The conflict perspective, put into contemporary conflict framework to gender stratification shows that class can be redesigned as groups who have access to and differential control over scarce resources such as authority, political power and economic power. Reviewed history has shown that men have economic advantage over women, and this has brought the basis for gender inequality in the analysis of factors affecting gender contributions to farm and non-farm labour carried out in this work. This perspective provides the leads in explaining the possible competing and conflicting interests of household members with regard to division of labour in farm and non-farm activities.

The symbolic interactionist perspective emphasizes that society is created and maintained through the interaction of its members and how its members define reality. This process of negotiation is expressed in Thomas (1931; 1966). A situation defined as "real" is real in its consequences. Also, Mead (1934) gave his own meaning of "interactionist" as interest people attach to their own behaviours and the behaviours of others. Furthermore, Goffman (1959; 1963; 1971) gave the symbolic dramaturgical interaction theory known as dramaturgical perspective. This perspective maintains that when people attempt to create a certain impression, they back it up with actions that other people can assess or evaluate. Deaux and Mayor (1987) gave their symbolic interaction perspective as actions that could be influenced by expectations of perceivers, self-systems of the target and situational cues. This interaction based approach allows for the predictions of both stable and variable sex differences in behaviours and emphasizes what symbolic interactionist considers crucial in the explanation, the setting in which the behaviour occurs.

In the analysis of factors affecting gender contributions to farm and non-farm labour, the symbolic interactionist framework is useful for analyzing data from a variety

of situations. For example, it serves as a guide for understanding the differentials in the individual and group choice and decision with regards to farm and non-farm chores. It also serves as a guide in explaining cropping pattern by gender and labour allocation or division of labour by gender. The framework is also useful in analyzing decision and attitude by gender regarding time contributions to farm and non-farm labour.

The above perspectives of social change and rural development have considered feminist theories in the 1970s under four classifications given by Jaggar (1977) and Jaggar and Rothenberg (1984), as follows:

(i) Liberal feminism (also called "women's rights" feminism). This is the most moderate brand of feminist theories. It is based on the fact that people are created equal and so they should not be denied of their equality. This concept was used in the social contact theories of the 16th and 17th centuries as a theory for equity, equal opportunity and equal rights for both male and female according to Mill and Taylor (1851). Liberal feminism was used as the point of discussion at the United Nations Conference on Women in Nairobi in 1985. This conference called for the provision of employment opportunities, equity programmes and equal access to all jobs and training for women. The conference also called for the sharing of responsibilities for child and domestic care between women and men (O'Niel, 1986).

(ii) Radical Feminism: This theory was borrowed in the 1960s as a reaction against the sexism of the radical movements. Notably, radical feminism uses Marxist language, applied analogically to women's oppression (Frestone, 1970). This theory was conceptualized under political issues by which gender relations could become a legitimate subject of analysis.

This legitimization of sexuality as an issue has led to several important cross-cultural studies by (Ortner and Whitehead, 1981; Caplan, 1987).

(iii) Traditional Marxism: This theory has its root in Engels' (1984) important treatise on the family, private property and the state. He rejected the idea of a biological basis to gender differences. According to him, the structures of oppression at family, state and class levels are used for the understanding of gender relations.

(iv) The Socialist Feminism Theory: This theory has been proven to be the most useful theoretical feminist framework to analyze the problems of gender (Jaggar, 1977). Socialist feminism combines the vigorous, historical, materialist methods of Marx and Engels with the radical insights that "the personal is political" and that gender oppression cuts across class lines. It further explains that politics cannot be separated from economics.

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While these three perspectives are expected to provide guidance in the study of factors affecting gender contributions to farm and non-farm activities, the main analytical focus will be integrating women into development project according to Overholt *et al.* (1985). As suggested by these authors, integration can also be applied in other spheres of life to bring about change. For all these to happen, adequate database that considers what each gender does and why they are required. It must also be assessed along with factors influencing their contributions to agricultural and household production.

Hence, a theoretical perspective that focuses on agricultural productivity becomes so important to analyze the factors affecting gender contributions to farm and

non-farm activities as used under the "gender framework" for project defined by Overholt *et al.* (1985) was adopted to conceptualize the framework in this study.

3.3 Gender Analysis Framework

The gender analysis framework for project is the theoretical framework chosen for this study. This is a new concept that Overholt *et al.* (1985) use under four interrelated components: activity, profile, access and control profile: analysis of factors influencing activities, access and project cycle analysis.

The first component, the activity profile, is based on the concept of a gender-based division of labour and the amount of time spent by individuals to accomplish these activities. The second component, the access and control profile, identified what resources individuals can command to carry out their activities and the benefits they derive from them.

The final component of the analytic framework and project cycle analysis as used by Overholt *et al.* (1985), involves examining a project in the light of the foregoing basic data. The process was meant to point areas of a project that have to be adjusted in order to achieve the desired outcome.

Historically, the available document on the contribution of women and men were reviewed from literature. For example, the work of Ngur, 1987; Raza and Famoriyo, 1980. Also, an attempt were made to integrate the three theories used, such as functionalist, conflict and symbotic interactionist perspectives were used so as to collect, interpret and evaluate data concerning gender contributions to farm and non-farm activities in the study area and their ultimate effects (consequences) on the productivity and return to labour.

Figure 1 shows the model adopted in this work for studying the factors influencing gender contributions to farm and non-farm labour starts with (1) personal characteristics, (2) institutional factors, (3) environmental factors, (4) decision making and (5) attitudinal affective factor. The gender personal characteristics of interest in this work include age, education household size, number of wives, number of male and female children, farm size, farm labour, land tenure and farm income. Institutional factors include extension contact, credit facilities while environmental factors include culture, government programmes and policies, decision-making and finally, the attitude (affective factor). The above factors which are to be examined in the model are considered to affect gender time contribution to farm and non-farm activities and this in turn determines the ultimate outcome or consequences of the factors on agricultural productivity and return to labour (crop increase, income and employment) for the farmers concerned.

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3.4 Discussion of the Variables and their Measurements

The variables considered important in this study are the ones briefly discussed below as "independent variables" and "dependent variable."

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3.4.1 The independent variables

Independent variables are variables that are capable of effecting change in the other variables. In this study, they include the following:

Age: This can be defined as the length of time a person has lived or a thing has existed. In this work, age was considered an important parameter as it has an important role to play in status and role (Parson, 1961). Also, age has been found to be associated with a variety of multiple responsibilities and degree of sense of responsibility. Also, age

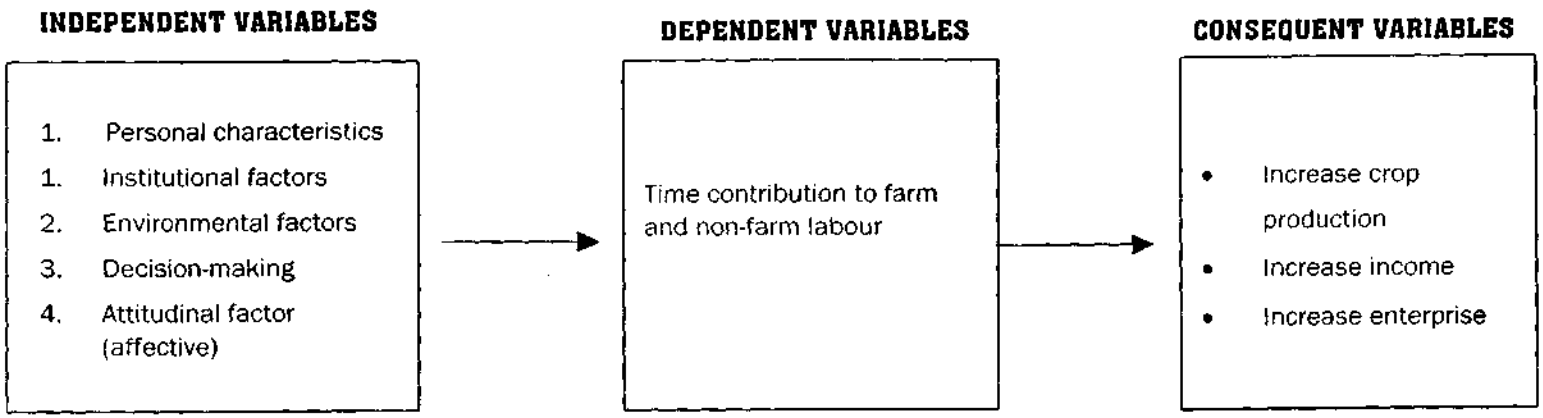


Figure 1. A model of factors influencing gender contributions to farm and non-farm labour.

has been found to affect an individual's interest in adoption of innovations introduced by government and non-government programmes and policies. For example, Zaria (1984); Atala (1980) and Voh (1979) have reported, in their various studies the effect of age on attitudes of farmers to innovations. In this work, age was measured by the number of years from birth of the farmer concerned to the time of the field survey for the work. Correlation was then used to determine the exact relationship existing between time contributions to farm and non-farm labour and age. This was done to determine whether age has any effect, positive or negative, to time contributions to farm and non-farm agricultural labour.

Education

Several studies like those of Lionberger (1960) used the "level of education" of a respondent as a measure of his status. "Education" refers to systematic acquisition of knowledge, abilities and instructions through training in school or at home. Also, it refers to the number of years the respondent concerned has spent in formal (Western) and "informal education". It is generally assumed that one's level of education enhances his rate of learning and his rate of acceptability of innovation. Hence, those farmers who have attended school may have more or greater knowledge about agricultural production, types of crops to be planted and they will have right attitudes toward adapting innovations. It is therefore expected that formal education would be positively related to gender contributions to farm and non-farm labour in the study, hence, it is considered an important variable in the work.

The educational attainment of respondent, in this work was measured on a five-level scale listed in the questionnaire used which is shown in Appendix 1. The scale used is as follows:

1. No formal education;
2. Quoranic education;
3. Primary;
4. Secondary/equivalent; and
5. Above secondary education.

The respondents were asked which of these levels of education they had at the time of the field work.

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Household size

This is defined as the total number of people living in a given household. These people include the household head, his wife/wives, his male and female children and the dependants living with him or her. Household size was measured by asking for the total number of people in the respondent's household. This total number constitutes the respondent's score. Household size was expected to be positively related to gender contributions to farm and non-farm labour. Hence, it was also considered an important parameter in this study.

Number of wives

This is defined as the total number of wives a male respondent. The number of wives was asked as question 13 of the questionnaire. The number of wives reported by a respondent constitutes his score. Families in which there are many

wives are expected to have many hands to work on their farms, thereby reducing the need to hire labourers. Hence, it was considered an important parameter to study in this work.

Number of children

This is defined as the number of children that are biologically related to the respondent farmer concerned. It was measured by the total number children reported by a respondent. Again, these children (male or female) may be available to help their families in carrying out farm and non-farm agricultural activities. Hence, the parameter is considered in this work to be important. This variable was measured by asking each respondent to state the number of their own male and female children and their ages.

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Number of (female and male) relatives and dependants

This number includes the dependants of the respondent farmer's family that may also be available to assist the farmer in executing farm and non-farm labour. It is hypothesized in this study that the number of male and female relatives and dependants available to the farmer would be positively related to gender contribution to farm and non-farm agricultural activities. This variable was "measured" by asking each respondents the number of dependants living with them. This number constituted the respondent's score on the variable.

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Farm size in 1997 and 1998

This is defined as the size of the total farmland (in hectares) available to the respondent farmer for cultivation in each of these two years. According to

Lionberger (1960), the size of the farm essentially determines the scale of operation of the farmer and, hence, his/her status. Onazi (1978) reported that the average size of farmland in Nigeria is about two hectares (2.0 ha) in practice but he discovered that most farmers hardly take the physical measurement of their farms.

This variable was "measured" by asking each respondent to list out the total number of farmland he/she operates during 1997/1998 cropping seasons. He/she was asked to estimate the size of each farm in acres as that is the unit which virtually all rural farmers are more familiar with size entries in acres were then converted to hectares by the recorders by multiplying the acre value by the factor 2.5 (as 1 ha equal 2.5 acres). Farm size is expected to be positively related to time contributions of gender to farm and non-farm labour.

Farm and non-farm labour

These refer to any work or service performed by the farmer concerned either on or off the farm. These was farm and non-farm related activities consisted of 35 farm and non-farm activities listed in the questionnaire under farm and non-farm labour. Land tenure was measured by assigning numbers to methods of land acquisition. The variable was scored as follows: 1 for inheritance; 2 for purchase; 3 for rents; 4 for community land and 5 for any other means.

Land tenure

This refers to the land ownership status of the farmer. It is also the relationship existing between the respondent and the land on which he/she farms, with regards to ownership rights. The work of Abalu and Yayock (1980), concerning land tenure and procurement for their farming practices as inheritance, gift,

purchase, pledge and loan. Of these, Mortimore and Wilson (1965) reported, in their study of settlement pattern in Kano that about 75 percent of land in Kano is acquired by "inheritance". During the field survey, this variable was measured by asking the respondent how the land on which he farms was acquired. It was expected that there would be a positive relationship between land tenure status and the gender contributions to farm and non-farm labour. Hence, it was considered a very important parameter (variable) in the work.

Extension contact

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Since most of the rural farmers are illiterate, the importance of extension contact as an agent of change cannot be over emphasized. Extension creates awareness, demonstrates the benefits of innovation and enlighten the farmers on sources of input and enables the sustained use of the technology. Studies in different parts of Nigeria (Atala, 1984; Monu et *al.*, 1983 and Voh, 1978) confirm the importance of extension contact in the diffusion of innovations. Hence, the need to consider it in the present work.

The variable was measured in this work by the total number of times a farmer was visited by an extension worker in connection with time contribution to farm and non-farm labour in 1997 and as the time of data collection in 1998. This information was obtained through question 38 of the questionnaire. For the reason stated above, it was expected that there would be a positive relationship between extension contact and farm and non-farm labour.

Farm income

This represents the accruable proceeds from all the farm crop production labour undertaken by the respondents during each year of the study.

The variable was measured in this work by asking the respondent to indicate the estimated amount of money (in Naira) he/she realized from all farm enterprises during the 1997 and 1998 cropping season. This variable is expected to be positively related to farm and non-farm labour.

Non-farm income

This is the income obtained by a respondent from other sources outside the farm sources include gifts, trading payment of non-farm labour, etc. This variable was considered important to the present study because this type of income can be invested by the respondent into his/her farming business.

During the field survey this variable was measured by asking the respondent to state the estimated amount of money he/she derived from non-farm enterprises during 1997 and 1998. This variable is expected to be positively related to gender contribution to farm and non-farm labour for enhancement of food production.

Credit facilities

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This is defined as the institutional and non-institutional credit obtained by the respondent as cash loan for farm and non-farm enterprise.

This variable was measured by asking the respondent to indicate amount of institutional and non-institutional credit facilities obtained in cash (Naira) on farm and non-farm activities during the year of study. This variable was expected to be positively related to gender time contributions to farm and non-farm labour. It was considered

important because it would enhance the size of farmland bought or hired for farming. It would, also, affect the planting and the other implements used to aid production of agricultural produce in the area.

Government programme

This is any progrmme established by the government (local, state and federation) to enhance the productivity and returns to labour. In Nigeria, some programmes such as the World Bank sponsored Agricultural Development Project (ADP), Operation Feed the Nation, Green Revolution, Better Life Programme, Family Support Programme. Both female and male respondents were asked to mention those programmes that they had gained from concerning their farm and non-farm activities. This variable was expected to be positively related to gender contributions to farm and non-farm labour. This information concerning this parameter was obtained through asking the respondents to list the available government programmes that have helped them the previous years on farm and non-farm labour.

Decision-making

This parameter concerns the degree of involvement of the respondent in functional decision making related to farm and non-farm labour.

In this work, this variable was measured by using the cross-cultural samples technique (SCCS) involving a five-level qualitative categories of decision making with respect to activities to be performed and those not to be performed (Murdock and Provost, 1973).

For this variable, the respondents were categorized into six; namely: (1) female child, (2) household head; (3) wife, (4) male child, (5) hired male adult, and (6) hired female adult. Also, for the purpose of this work, the factors influencing gender contributions to farm and non-farm labour were classified into the following five groups: (1)

no responsibility, (2) some responsibilities, (3) equally shared responsibility, (4) mainly responsible and (5) entirely responsibility.

This variable was measured by assigning 1 to no responsibility; 2 to some responsibilities; 3 to equally shared responsibility; 4 to mainly responsible and 5 to entirely responsible.

Attitude

This is defined as the respondent's feelings concerning the contributions of each gender to farm and non-farm labour. This variables was classified into five following the classification of Steidl (1975). The five categories are as follows:

1. Very much liked
2. Liked
3. Neither liked nor disliked
4. Disliked, and
5. disliked very much.

The higher the degree at which the respondent likes whatever he/she is doing, the attitude is to the work he/she is doing consequently to his/her respondents' contributions to farm and non-farm labour. This variable was measured in this work by assigning 1 to very much liked; 2 to liked; 3 to neither liked nor disliked; 4 to disliked and 5 to disliked very much.

3.4.2 Dependent variables

Time contributions to farm and non-farm activities by male and female farmers as used by Szalai (1972), and Ningi-Klevana (1980) include the time spent on crop production, livestock production and home gardening while the time spent on non-farm labour includes the time spent on crop processing, transportation, marketing of crops for generating money and time spent doing household activities.

CHAPTER FOUR

METHODOLOGY

4.1 The Study Area

This study was conducted in six Local Government Areas (LGAs) out of the twenty-three LGAs in Kaduna State. As can be seen in Fig. 1, Kaduna State lies between longitudes 7° 5' to 7° 9' and latitudes 10° 9' to 10° 15' of the Greenwich Meridian. The state has a projected population of 3,415,434 (three million, four hundred and fifteen thousand, four hundred and thirty four) inhabitants in a land area of 45,567 square kilometers (KASUPDA, 1999).

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The six Local Government Areas chosen for the study were selected from the southern part of Kaduna State; namely: Chikun, Jaba, Jama'a, Kachia, Kaura and Kauru. The distribution of the sampled population by local government area and villages concerned is presented in Table 4.1. The major occupation of the people in these six LGAs is farming. The annual rainfall of the study area is between 100 - 150 centimeters. The mean annual temperature varies between 27°C and 30°C, with the highest temperature recorded in June (Aku, 1991). The main crops grown in the area include sorghum (guinea corn), maize, millet, cotton, acha (fonio), cowpeas, cassava, groundnut, hot pepper, soyabean, cocoyam and yam.

The area is also popular for rearing sheep, goats, donkeys, rabbits and poultry (Aku, 1981). The ethnic groups that occupy the area principally include the Kagoro, Moros, Manchok, Nimzam, Kataf, Kaje, Gwari, Hausa, Fulani and others. Agriculture offers employment to the great majority of the population and it is carried out using the traditional way. About 80 to 90 percent of the area's agricultural low income group (Aku,

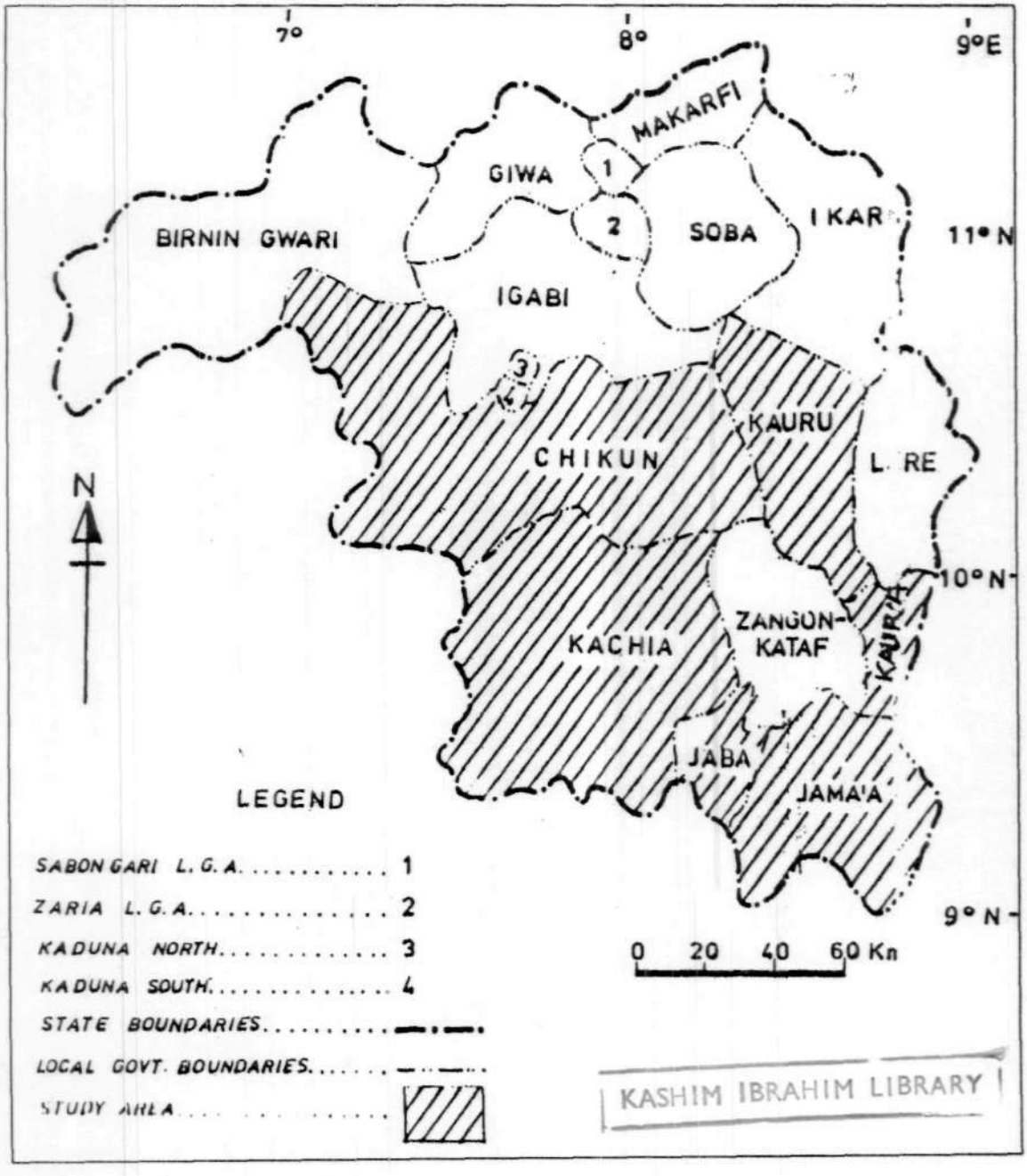


Fig. 2: The study area in Kaduna State.

Table 4.1: Distribution of sample by LGA and villages in Southern Kaduna.

L.G.A.	Villages	Number of samples		Total number and percentages of female and male farmers			
		No. of female farmers	No. of male farmers	Female		Male	
				No.	%	No.	%
Chikun	M/rido,	8	11				
	Kiyama	7	9				
	Chikun	8	10	23	7.6	30	10.0
Jaba	Kwoi	8	8				
	Nok	7	9				
	Chori	7	9	22	7.6	26	8.6
Jema'a	Garaje	8	10				
	Zonkwa	7	9				
	Zuppak	8	8	23	7.6	27	9.0
Kachia	Gumel	9	10				
	U/Ate	7	10				
	Kachia	7	10	23	7.6	30	10.2
Kaura	Agban	7	9				
	Kaura	6	10				
	Malajin	7	9	20	6.7	28	9.3
Kaura	Kauru	7	10				
	U/Ganye	6	9				
	Kahuta	7	9	20	6.7	28	9.3
Total		131	169	131	43.8	169	56.2

1981). These LGAs were used for this study because available literature showed some level of women participation in agriculture along with men in the area (Zaria, 1984; Adeyokunnu, 1981 and Simmons, 1976). Furthermore, the author also knew that the study area had been exposed to some government programmes such as Operation Feed the Nation (OFN), the Green Revolution, Agricultural Development Programme (ADP), Family Support Programme and Family Economic Advancement Programme (FEAP) and extension service programme. It was assumed that farmers in the study area benefited from some of these programmes, which were defunct. Essentially, the respondents have experienced some exposure to agricultural innovation and technology directly or indirectly.

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4.2 Sampling Procedure

The sample size for this study consisted of a total of three hundred (300) female and farmers through a combination of purposive and systematic random sampling techniques. The purposive random procedure was undertaken to include female and male farmers compiled from the amended 1991 village listing survey report of the state (KADP, 1991).

The systematic random sampling techniques was used to select three hundred respondents interviewed for the study. One hundred and thirty-one (131) [43.7 percent] were females while the remaining 169 (56.3 percent) were males. The sampled respondents were selected from 18 villages in the six Local Government Areas concerned. Three villages per LGA were selected through simple random sampling procedure. The breakdown of the sampled respondents of both sexes and the village from where they were selected are tabulated in Table 4.1.

4.3 Data Collection

The relevant data were collected from primary and secondary sources before embarking on the fieldwork, review of existing literature available in different libraries in this university was done while the primary data were gathered through the use of a structured questionnaire administered through interviewing the respondents. The questionnaire was constructed in such a manner that allows for the collection of relevant information during the interview. A sample of the questionnaires is shown in Appendix 1. The questionnaire was first pre-tested in 1997 in Ikara Local Government Area of Kaduna state before it was administered in 1998 to both male and female farmers in the study area by a team of trained extensionists and the researcher. The team was made up of both sexes and it validated the responses of the respondents on site. The data collected included the personal characteristics of the farmers in addition to the various forms of farm and non-farm agricultural tasks they normally performed each activities. The method of "recall and record" was used to obtain the relevant data. Other data collected were types of crops planted in the farming (raining) seasons of 1997 and 1998 and the yields obtained, the respondents' decision making process and their attitudes to the agricultural chores which they normally perform.

4.4 Statement of Hypothesis

On the basis of discussions and the literature reviewed on each of the variables, it was hypothesized that there is no relationship between male and female respondents' personal characteristics, institutional factors, environmental factors, decision making and attitudinal (affective) factor and gender contributions to farm and non-farm labour in the study area. The following sub-hypotheses were derived and tested under the five major ones:

Hypothesis 1: Personal characteristics (age, education, family size, number of wives, number of male and female children, dependants, farm size, farm labour, land tenure, and farm income) have no relationship on time contributions to farm and non-farm labour.

Hypothesis 2: Institutional factors (extension contact, credit facilities) have no relationship on time contributions to farm and non-farm labour.

Hypothesis 3: Environmental factors (cultural factors, government programmes and policies) have no relationship on gender time contributions to farm and non-farm labour.

Hypothesis 4: Decision-making has no relationship on time contributions to farm and non-farm labour by each gender.

Hypothesis 5: Affective (attitudinal) factor has no relationship on time contributions to farm and non-farm by each gender

4.5 Data Processing and Analysis

The data collected were organized into sections according to the objectives of the study. Each section was then coded and analyzed using the Statistical Package for the Social Science (SPSS) programme.

In achieving objectives 1, 2 and 3 of this study, descriptive statistics were used. For objectives 4, correlation was used to determine the degree of relationship between the independent variables as discussed in chapter three and gender time contributions to farm and non-farm labour. Also, the t-test statistic was used to compare male and female time contributions to farm and non-farm labour and finally, the stepwise multiple regression analysis was used to determine factors contributing to farm and non-farm income.

1. Pearson correlation analysis of the relationship between independent variables and gender time contributions to farm and non-farm labour used X_1 – X_{20} symbols to represent the independent variables in the data analyses as follows:

X_1 = Age

X_2 = Education

X_3 = Family size

X_4 = Number of wives

X_5 = Number of female children in the household

X_6 = Number of male children in the household

X_7 = Number of male dependants in the household

X_8 = Number of female dependants in the household

X_9 = Farm size in 1997

X_{10} = Farm size in 1998

X_{11} = Farm labour

X_{12} = Non-farm labour

X_{13} = Land tenure

X_{14} = Extension contact

X_{15} = Income

X_{16} = Family income

X_{17} = Credit facilities

X_{18} = Government programme

X_{19} = Decision making

X_{20} = Affective (attitudinal factor).

2. The t-test statistics was used to compare male and female time contributions to farm and non-farm labour.

3. The stepwise multiple regression was used to determine factors contributing to farm and non-farm income. The regression equation obtained is of this form:

$$Y = a + d_1X_1 + X_1 + d_2X_2 + d_3 + X_3 + d_4X_4 + e$$

Where,

Ya = gross farm income (₦ .....)

a_1 = mean size of farm under cultivation

$d_1 - d_4$ = regression co-efficient

e = error term

CHAPTER FIVE

RESULTS AND DISCUSSION

This chapter discusses the results obtained from the data collected, coded and analysed for the study. The results of this study are presented below under five sections. The first section discusses the background information of gender time contributions to farm and non-farm labour in the study area. The second section discusses the first objective of the study, which is identifying and comparing time contributions to farm and non-farm labour. Section three discusses the types of crops planted by the respondents and sections four and five compare the time contributions by the farmers of the two sexes to farm and non-farm labour. Furthermore, these sections consider the factors that predict gender farm income by each sex.

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5.1 Background Information of Respondents

This section considers the general characteristics of the 300 farmers interviewed. Age was considered an important variable in this study and the analysed data shows that the mean age of the female respondents, who represented 43.7 percent of the total respondents for this work, is 38 years. On the other hand that for the males, who represented 56% of the respondents, is 40 years. Thus, the average male farmer interviewed in this work is about 2 years older than his female counterpart. This work also considered the religion of the respondents and 89.3 percent of the respondents are Christians. This confirms the fact that the study area is essentially a Christian area (portion of the state. Farmers in such areas are reported by Ngur (1985) and Aina (1992) to have participated

actively in agricultural data concerning level of education because authors like Monu (1980) have shown that there was a positive relationship between the level of education of a farmer and — rate of adoption of innovative farm practice.

Table 5.1: Distribution of respondents by gender according to level of education.

Level of education	Female		Male	
	Frequency	Percent	Frequency	Percent
No formal education	33	25.2	26	16.6
Quoranic education	2	1.5	-	0
Primary education	67	51.2	106	62.7
Secondary education	19	14.5	25	14.8
Above secondary school	10	7.6	10	5.9
Total	131	100.0	169	100.0

Table 5.1 above suggests that most of the respondents from the two genders had primary education. While 68 percent of the male respondents have primary school level edition, 51 percent of the female farmers interviewed had that level of education. Thus, on the average, 57 percent of the respondents had primary level education. As for secondary level of education, while 14.8 percent of the male respondents had this level of education, 14.5 percent of the female respondents had it. Thus on the average, 14.7 percent of the total respondents had secondary level of education and this percentage is virtually the same for each gender. Only 8 percent of each gender had above secondary or some sort of tertiary level of education. This number represents 6.7 percent of the total number of respondents. The implication of the above analysis is, on the whole, 88 percent of

the total respondents in this study have, at least, primary level of education and therefore, should be able to read and write.

Table 5.2: Distribution of respondents according to marital status.

Marital status	Frequency	Percentage
Single	10	3.3
Married	246	82.0
Divorced	16	5.3
Widow	24	8.0
Widower	1	0.3
Separated	3	1.0
Total	300	100.0

Table 5.2 shows 82 percent of the respondents are married and are living with their family members. The table also reveals that 8 percent of the respondents are widows while only 0.3 percent of the respondents is a widower. Also, 16(5.3 percent) of them are divorced, 3.3 percent are single and only 1 percent of them are separated.

The marital status of the respondents could determine the type of activities that each category of respondents might be able to perform. It may also affect his/her decision-making patterns regarding farm and non-farm activities. It is also believed that the marital status of the respondents, one way or the other, influences their attitudes towards performing these activities. For example, based on the questions asked during the fieldwork for this study, it was found that the married women normally plant maize for family consumption while the men mostly

plant maize as a cash crop; that is, for sale to earn sufficient money to meet their needs and the family.

5.2 Occupation

The occupations of the respondents were also considered in this work to find out its effect on gender time contribution to farm and non-farm labour.

Table 5.3: Distribution of respondents according to occupations.

Primary education	Frequency	Percentage
Civil servant	54	18.0
Trader	4	1.3
Full time	11	3.7
Farming	228	76.0
Students	3	1.0
Total	300	100.0

Table 5.3 above shows the distribution of the primary occupations of the respondents used in this study. The table shows that 76 percent of the 300 respondents sampled, are full-time farmers. This implies that 24 percent of the respondents are part-time farmers. Of the 72 part-time farmers, 54 (18%) of the total respondents or 75 percent of them are part-time farmers) are civil servants. The next largest group of part-time farmers is the full-time housewives. Respondents in the last categories are 11 in number, which represents 3.7 percent of the total respondents or about 17 percent of the part-time farmers.

5.3 Farm Characteristics

Some authors such as Roger (1983), Monu (1980) and Arokoyo (1981) have found out that farm characteristics are essential variables in determining the contributions of respondents (farmers) to farm labour and adoption of innovations. These authors all considered farm characteristics in their studies on innovation, adoption and diffusion of new knowledge or information on agricultural production in Nigeria. The present study also considers land ownership, land size, farming experience and types of crops grown in the study area. The results obtained in this work, with respect to these factors, are discussed below.

5.3.1 Land ownership

Land ownership was investigated in this work to find out if the respondents actually have ownership of the land which they farm and if they do, to find out how they acquired them.

Table 5.4 shows, by gender, the distribution of the means through which the respondents acquired their farm land.

Table 5.4: Distribution of respondents by gender according to sources of land ownership.

Source of land ownership	Female		Male	
	Frequency	Percent	Frequency	Percent
Inheritance	96	73.3	149	88.2
Purchase	10	7.6	17	10.0
Rent	24	18.3	3	1.8
Others	1	0.8	-	-
Total	131	100.0	169	100.0

The Table shows that about three quarters (73 percent) of the female farmers in the study area inherited their farmlands whereas 88 percent of the male farmers in the area occupied their farmlands on inheritance basis. About 8 percent of the females and 10 percent of the male respondents actually purchased lands for farming. Finally, a female respondent indicated owning land for farming without disclosing her source of acquisition. Furthermore, while 18 percent of the females rented their farmlands only about 2 percent of the male respondents rented theirs. It can be deduced from Table 5.4 that a higher percentage of men (88 percent) had access to land for farming than women (73 percent). This is in line with the findings of many researchers in the 1970s, 1980s and early 1990s. For example, Abalu and Yayock (1980) found that Northern men still have more privilege to inherit land than their female counterparts and also have more money to purchase land for farming than their female counterparts.

5.3.2 Farm size

The respondents were asked to indicate the sizes of their farmlands for the 1997 and 1998 cropping seasons. Table 5.5 below summarizes the distribution of the responses for each gender. It is interesting to note that the respondents indicated using the same land in the 1997 and 1998 farming seasons.

Table 5.5: Distribution of farmers according to the farm size owned by them.

Gender	Frequency	Percentage	Farm size (ha)
Female	131	43.7	1.0
Male	169	56.3	1.1
Total	300	100.0	

Table 5.5 shows the land size used for farming by the respondents in the 1997-farming season. The average land size used by each gender is about the same (about 1 ha). This shows that the average male farmer farms only 1.1 ha per year while his female counterpart farms 1.0 ha, or 10 percent less, per year.

5.3.3 Farming experience

Table 5.6 summarizes the farming experience of the respondents in the study area; i.e. how long they have been farming. The mean farming experience for the women is 13 years while that for the men is 21 years. This suggests that the experience of the average male farmer, in term of years of farming, is about 62 percent higher than that of the average female farmer. That is, the average male farmer in the study area has been in the farming business for a much longer time, 62 percent (9 years) longer than his female counterpart.

Table 5.6: Distribution of respondents by gender according to years of farming experience

Gender	Frequency	Percentage	Mean experience (years)
Female	131	43.7	13
Male	169	56.3	21

5.3.4 Number of months put into farming in the years 1997 and 1998

The respondents were asked to indicate the number of months they put into farm labour in each of the 1997 and 1998 cropping seasons. The mean number of months for the female farmers was found to be 6 months while that for male farmers was 7 months as shown in Table 5.6. This finding suggests that the average male farmer spent more time in farming in each of these years than their average female counterpart.

5.3.5 The contributions to farm and non-farm labour

The first objective of this study is to identify, compare and measure gender contributions to farm and non-farm labour. This section considers the contributions of both male and female respondents in the study area to farm and non-farm labour. It was anticipated that the time inputs and the types of farm and non-farm works done by the respondents may reflect cultural patterns as arranged in Table 5.7:

1. Crop production
2. Livestock production
3. Home gardening
4. Non-farm labour and fund generating activities
5. Household labour.

These five groups of activities have been further sub-divided into other activities for easy identification. The results obtained are shown in Table 5.7. Under crop production labour, we have land cleaning, bush burning, land preparation/ridging, planting, fertilization application, weeding, spraying insecticide, harvesting and threshing. These activities are performed by almost 49 - 98 percent of both classes of respondents (i.e. male and female). Furthermore, activities under livestock production, poultry small and large animal rearing are performed by 30 - 45 percent of both genders. The results obtained under home gardening (growing vegetables and fruit trees) show that about 43 - 49 percent of the respondents perform these activities while for non-farm and income generating activities, activities like processing of food, transportation, marketing, crafts, home industries or home made goods, petty trading and fishing business are performed by 20 - 60 percent of the male and female respondents studied. Furthermore, activities under household labour are performed by only 8 – 37 percent of both genders in the area of study. The table also gives the times devoted to perform the various activities by each gender.

Table 5.7: The mean daily and weekly time contributions by farmers of each gender to farm and non-farm labour in the southern part of Kaduna State.

Labour type/activities	Time allocated (hrs)							
	Female				Male			
	No.	%	Daily F	Weekly F	No.	%	Daily F	Weekly F
A. Crop Production Labour								
Land clearing	129	98	4.0	17.1	166	98	5.0	22.4
Bush burning	125	95	2.9	10.3	166	98	3.1	9.6
Land preparation. Hoeing, ridging	112	83	5.2	25.3	161	95	6.6	37.2
Planting	125	95	3.4	13.8	153	90	3.9	16.4
Fertilization application	113	86	3.8	16.3	164	97	4.7	21.9
Spraying insecticide	99	75	4.3	20.7	147	87	5.0	23.5
Harvesting	103	79	4.0	16.5	137	81	4.5	16.2
Threshing	64	49	3.4	15.7	83	49	3.3	16.63
B. Livestock Production								
Poultry	51	39	3.1	13.6	67	39	3.0	14.3
Small animals: goats, rabbit, etc.	45	34	5.3	13.7	54	31	3.5	15.4
Large animals	51	39	5.0	11.5	58	34	3.7	10.4
C. Home Gardening								
Vegetables	56	43	3.1	11.3	78	46	46	10.5
Fruit trees	64	49	4.2	12.5	78	46	4.2	10.4
D. Income Generation (non-farm labour)								
Processing of food crops, bagging, etc.	77	59	3.3	13.09	81	48	4.4	12.1
Transportation	73	56	3.9	12.36	72	43	4.7	11.5
Marketing	51	39	4.0	11.6	44	26	4.5	12.5
Crafts	51	39	3.6	16.7	36	21	4.6	15.7
Home industries or home made goods	47	36	3.0	13.4	35	20	3.0	10.6
Petty trading of goods	56	43	5.0	15.1	46	27	3.9	10.2
Fishing business	78	60	3.7	15.4	84	50	3.96	13.7
E. Household Labour								
Food preparation, cooking and cleaning	49	37	2.4	10.9	51	30	2.6	10.0
Clothing laundry	44	34	2.3	9.4	29	17	2.6	8.6
Collecting firewood	39	30	3.0	13.1	26	15	3.0	12.6
Fetching water	31	24	2.1	11.5	24	14	2.95	17.3
Rearing of and caring of children	25	19	2.7	12.3	17	10	2.8	12.9
Recreational activities	18	14	3.5	21.8	17	10	2.6	22.0
Resting	10	8	2.8	13.2	9	5	3.7	20.4

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5.3.6 Crop production labour

Table 5.7 shows that farmers of both sexes in the study area participate in crop production activities like land clearing, bush burning, land ridging, planting, fertilizer applications, weeding, spraying insecticides, and harvesting as very many of the respondents actually carry out these activities. Between 70 - 98 percent, for example, perform these chores. In performing these chores, the men spend 3.1 - 6.0 hours daily and 9 - 23 hours weekly while the female counter spend 2.9 - 5.0 hours daily and 10 - 26.3 hours weekly to perform these chores. However, both genders seem not to participate much in threshing of harvested farm produce as only 49 percent of respondents of both sexes perform this activity. The men spend 3.3 hours daily and 16.63 hours weekly on threshing while their women counterpart spend 3.4 hours and 15.7 hours weekly performing the same activity. This may be due to the fact that the respondents studied have male and female children as well as male and female dependants staying with them who mostly perform this activity for them.

The results in Table 4.7 also show that the female farmers in the study area have almost shifted to performing crop production activities usually associated with men. Such activities include bush burning, land preparation (ridging), weeding and spraying insecticides. This finding is similar to what has been documented by the UN (1975) concerning the division of labour.

5.3.7 Livestock Production

Table 4.7 further shows that women in the study area spend more time in keeping poultry and small animals than their men counterparts. For example, even though the percentage of respondents that keep livestock was about the (39

percent) for each gender, the average time spent per day in poultry keeping is 3.0 hours for men and 3.1 hours for women. This suggests that the male and female respondents who keep poultry and other small animals spend about the same time on caring for the animals.

5.3.8 Home gardening

Table 5.7 shows that women spend 3.1 hours daily and 11.3 weekly on growing vegetables while their men spend 4.4 daily and 10.5 weekly on doing vegetable garden. As for doing fruit tree gardening, the table shows that about 46 percent of the men and 49 percent of the women engage in this activity. They both spend 4.2 hours daily and 10.4 - 12.5 hours weekly doing this activity.

5.3.9 Non-farm labour and activities for income generation

Table 5.7 shows that about 50 percent of the respondents participate in non-farm activities for income generation. These activities include processing of food, transporting farm produce from the farm to their houses, marketing or sale of farm produce, crafts, home industries, petty trading and fishing. The mean daily and weekly time contributions of the respondents to non-farm activities such as food processing and packaging are 4.4 hours for men and 3.3 hours for the women per day. On weekly basis, the women spend 13.09 hours while the men spend 12.1 hrs. Transporting farm produce, marketing farm and non-farm produce, crafts making, making home-made goods, carrying out petty trading and fishing or fish business are activities that are more carried out by women than men. The average women respondent spends 3 – 5 hours on daily basis on these activities while the average men spend 3 – 4 hours. On weekly basis, the average female respondent spends 11 – 16

hours on the activities while average male respondents spend 10 - 15 hours on carrying out these activities. It is also important to note that men and women studied in this work performed some fund raising activities, such as making crafts, home made goods, petty trading and fish business so as to generate funds for farm and non-farm labour and also for their family use.

5.3.10 Household labour

Household labour has generally been ascribed to women in many countries, Nigeria inclusive (Boserup, 1980 and Loza, 1988). As shown in Table 5.7, 5 - 37 percent of the men and women in the study area participate in all activities related to household labour. For example, in food preparation and cooking, 30 percent of the men spend 2.6 hours daily while 37 percent of the women spend 2.4 hours to perform this activity. On weekly basis, the same number of men and women spend 10.9 hours and 10.0 hours respectively cooking. Also, 34 percent of the women and 17 percent of the men perform laundry, while the men spend 2.6 hours daily on this job, the women spend 8.6 hours weekly to perform this task. On the other hand, their female counterpart spend 2.3 hours daily and 9.4 hours weekly on the same activity. Table 5.7 shows that 30 percent of the women and 15 of the men collect firewood. The time spent daily is 3.0 hours for each of the sexes on a daily basis, while, on the weekly basis, the men spend 12.6 hours while the women spend 13.1 hours on the same activity. Furthermore, Table 5.7 shows that on the chore of fetching water for domestic use, 24 percent of the women and 14 percent of the men perform this task. The women spend 2.1 hours daily while the men spend 3.0 hours daily on the same task. On weekly basis, the men spend 17.3 hours while their female counterpart spend 11.5 hours. Table 5.7 also shows that

19 percent of the women sampled perform the role of looking after children at home while on 10 percent of their male counterpart perform this task that is primarily meant for women. The men averagely spend 2.8 hours daily and 12.9 hours weekly to perform this task while their female counterparts spend 2.7 hours daily and 12.3 hours weekly.

This study shows that only a small proportion of each of the two genders participate in the task of child caring. For example, while only 19 percent of the women participate in the task, only 10 percent of the men do the task. It can also be seen from the table that the women who do this task spend, on the average, 2.7 hours daily and 12.9 hours weekly doing it while the men who perform the task spend, on the average, 2.8 hours daily and 12.9 hrs weekly doing the same task. Thus, apart from the fact that the percentages of both genders taking part in child care is about the same, it is also interesting to note that members of each gender who participate in this activity spend about the same time both daily and weekly doing this job.

Table 5.7 also shows that only 14 percent of the women and 10 percent of the men in the study area participate in recreational activities. From the table, it can be seen that the women spend 3.5 hours exercising themselves on daily basis while the men spend 2.6 hours daily exercising themselves too. On weekly basis, the women spend 21.8 hours while the men spend 22.0 hours for this task. Table 5.7 further shows that 8 percent of the women and 5 percent of the men respondents participate in resting. These low percentages suggest that only a small proportion of each of the respondents of each gender participates in recreation. The above findings show that the ascribed roles of women are still being largely performed y the women in the study area despite their also participating, in recent

time, in some chores primarily meant for men. This may be due to the poor economic situation that the country is presently experiencing. Also, the participation of women in farm labour may be due to the fact that men can no longer single-handedly look after their families due to inflation and the "lean time" going on in the country which has partly led to the breakdown of the extended family system.

5.4 Main Crops Planted in 1997/1998

The second objective of this study is to identify the types of crops planted by both male and female farmers in the study area. Table 5.8 summarizes the types of crops planted in 1997 and 1998 cropping years. The table shows that 13 major crops were mainly planted in 1997. These include maize, guinea corn, cassava, cowpea, ginger and rice in that order are the most planted crops by the male farmers in the study area. The details of the crops commonly planted in the study area, especially by the respondents, and their average yields per hectare obtained are all discussed below.

The mean annual yield of maize was 2050 kg (100 kg/2.5 tonnes) per hectare for the male respondents and 1250 kg per hectare for the women respondents. The total production of maize by the respondents was still very low. This may be due to the small land size used available to farmers of both genders in the project area. Fertilizers and appropriate farm implements were not available to the farmers. As such, they were not largely used, if at all used, during the farming season.

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Table 5.8: Distribution of respondents by gender according to the types of crops planted and their mean yields for the 1997 cropping season.

Crops	Female yield (n = 131)			Male yield (n = 169)		
	No.	%	Mean (kg)	No.	%	Mean (kg)
Maize	97	74	1250	153	90	2050
Guinea corn (sorghum)	59	45	900	126	75	700
Millet	27	20	110	64	38	726
Cassava	48	36	750	78	46	1089
Rice	54	41	7040	67	40	530
Acha (Fonio)	26	20	720	50	30	840
Cocoyam	23	17	594	45	27	351
Cowpea	32	24	630	70	41	630
Large local beans	7	5	657	17	10	216
Soya beans	14	10	520	28	17	455
Yams	23	17	110	41	24	2018
Ginger	54	41	170	70	41	1968
Hot pepper	4	3	36.8	16	9	7424

sorghum (Guinea corn)

Table 5.8 shows that 75 percent of the men and 45 percent of the women respondents planted guinea corn (sorghum). The mean yield per hectare obtained by the male respondents was 700 kg (i.e. 0.7 tonnes per ha) and 900 kg (i.e. 0.9 tonnes per ha) by the female respondents. This implies that, on the average the female farmers produced more guinea corn per hectare than the male farmer. This situation must be due to the fact that guinea corn is what is normally used for making "*kunu*" drinks for sale and also for making "*tuwo*" for consumption by members of the female farmers.

Millet

Table 5.8 shows that millet was planted by 38 percent of the men and they harvested about 726 kg per hectare (0.7 tonnes/per ha) while 20 percent of the women planted this crop and reaped only 110 kg per hectare.

Rice

Table 5.8 also shows that 41 percent of farmers of each gender planted rice. The average production recorded by the female farmers was 7040 kg (or 7.04 tonnes) per hectare while the men recorded an average yield of 5300 kg (or 5.03) tones per hectare. The relatively large production of the crop by each sex is most likely due to the high rainfall experienced during the 1997 farming season in the study area.

Acha (Fonio)

Table 5.8 also shows that acha (fonio) was planted by 20 percent of the women farmers in the study area harvested about 720 kg per hectare (0.7 tonnes/per ha). On the other hand, 30 percent of the male farmers planted this crop and harvested 840 kg (0.84 tonnes) per hectare. This crop seems to be popular for food consumption in the study area even though only a small percentage of farmers there plant it.

Cassava, cocoyam and other crops

Furthermore, Table 5.8 shows that cassava was planted by 36 percent of the women farmers in the study area and they harvested 750 (0.75 tonnes) per hectare. For the men, 46 percent of them planted the crop and harvested 1089 kg (1,09 tonnes). The respondents also planted cocoyams as shown by the table.

Table 5.8 further shows that 17 percent of the women harvested 594 kg while 27 percent of the men harvested 351 kg.

The above findings show that more male farmers planted and produced more cassava and yams per hectare than their female counterpart. These disparities in the number of farmers that planted cassava and yams might be due to the fact that the male farmers planted cassava for commercial purposes while the female ones planted yams for domestic use.

Other crops like large beans, cowpeas and soyabeans which belong to the protein class of foods were also planted by 6 – 17 percent of the male and female respondents in the study area. However, the yields of their farms were found to be low. The reason for this situation may be due to the fact that the planting of legumes (beans and peas) are generally capital intensive as spraying of insecticide is normally required. Hence, farmers in the study area did not plant much of them. For example, beans was planted by 24 percent of the women and they harvested 657 kg per hectare. On the other hand, 41 percent of the men planted beans and they harvested 630 kg per hectare. Also, 10 percent of the women and 17 percent of the men planted soyabeans. They harvested 520 kg per hectare and 452 kg per hectare respectively.

5.5 Extension Contact and Government Programmes

In the past, extension services in Nigeria used to be strong and had passed agricultural information and technological information to farmers nationwide. Also, government at various times, had tried to introduce economic programmes either through direct investment through creation of enabling economic environments to help farmers produce more crops through improved methods. However, during the

period of data collection for this work, it was found that physical structures for extension sources were available but the services of extension workers were no longer available. The study shows that only 29 percent of the respondents enjoyed extension contact in the past. The results further show that in the past, both men and women in the study area had equal extension contact about 41 percent through the agricultural and home economics extension agents.

5.6 Benefits from Government Development Programmes

Concerning the impact of Government Agricultural Programmes established since the 1970s, the respondents indicated that they had contact with only the Agricultural Development Programme (ADP). Of the 300 respondents sampled, 45 percent of them claimed to have benefited from the services of the ADP. The other major extension programme the respondents had contact with, before and during this study, was the radio programme "Noma Yanke Talauchi" of the Federal Radio Corporation of Nigeria (FRCN) Kaduna. This programme teaches farmers new innovations in all areas of farming, including: processing, marketing and utilization of some crops. Sixty seven percent of the male respondents and 31 percent of the women respondents indicated that they benefited immensely from this radio programme.

5.7 Benefits derived from the 1997 Farm Labour and Non-Farm Enterprise

Table 5.9 shows the benefits the respondents derived from farm and non-farm labour in the year 1997. The results show that the mean amount of money generated by 97 percent of the male farmers (respondents) from farm produce was ₦10,237.00 while 85 percent of the women respondents earned ₦10,497.00. These monies constituted family income for each category (gender) of farmers.

Table 5.9: Benefits derived from farm and non-farm enterprises in Naira in 1997.

Benefits from labour	Female			Male		
	No. of respondents	%	Average amount earned (₦)	No. of respondents	%	Average amount earned (₦)
Income for family	111	85	10,497.00	164	97	10,487.00
Cash crops	111	85	22,641.14	157	92	74,267.4
Income from non-farm sources	26	15	20,001.25	3	18	29,500.0

Also, the average money realized from the sale of cash crops was ₦74,267.40 for men and ₦22,641.14 for the women. The reason for this great disparity between the earnings of the women and men from farm and non-farm activities may be due to the fact that men concentrated on cash crops while women concentrated on the production of crops for family consumption.

Incomes earned by the farmers in the study area came from such non-farm activities like petty trading, gifts, other jobs, etc. These incomes averaged ₦29,500.00 for the men and ₦20,001.25 for the women.

5.8 Factors Affecting Gender Contributions to Farm and Non-Farm Labour

In this work, it was hypothesized that personal characteristics, institutional factors, environmental factors, decision making and attitudinal factors are related to gender time contributions to farm and non-farm labour. The hypotheses stated under methodology were tested in this work using correlation. An Alpha level of 0.05 was established to determine the significance of the correlation. The pooled correlation matrix of negative and positive association are presented in Table 5.10a-b. Table 5.10a summarizes results for daily activities while Table 5.10b does the same thing for the weekly activities.

The various factors thought to influence gender contribution to farm and non-farm labour are discussed below.

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Table 5.10a: Correlation coefficient factors of some important activities carried out daily (n = 300).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Family size	0.126	0.165	0.219	0.152	0.234	0.180							0.135					
Education														-0.123				
Number of wives			0.270			0.161		0.130										
Male children					0.139							0.140		0.123				
Female children				0.136	0.149	0.150												
Male dependants						0.138			0.173	0.148	0.156	-0.110			-0.128			
Income	0.306	0.280	0.213	0.280	0.159	0.029												
Farm size (1997)		0.146	0.142	0.199	0.178	0.128												
Farm size (1998)	0.146	0.142	0.199	1.178	0.138										0.142			
Family income	0.667	0.230	0.141	0.200			0.140											
Cash crop	0.131	0.246	0.220	0.282		0.244	0.120											-0.156
Long years experience	-0.172				0.150	0.170									-0.140			

Legend

Blanks = No correlation

1	=	Land clearing	7	=	Spraying	13	=	Making home made goods
2	=	Bush burning	8	=	Harvesting	14	=	Cooking
3	=	Land preparation	9	=	Small animals	15	=	Caring for children
4	=	Planting	10	=	Large animals	16	=	Collecting firewood
5	=	Weeding	11	=	Poultry keeping	17	=	Fetching water
6	=	Fertilizer application	12	=	Petty trading	18	=	Transportation

Table 5.10b: Correlation coefficient factors of some important activities carried out weekly (n = 300).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Family size	0.175	0.225	0.219	0.212	0.195	0.152	0.117				0.128							
Education			0305		0.157	0.120				-1.129	-0.126							
Number of wives					0.130					0.127								
Male children				0.117	0.166	0.120												
Female children		0.122						-0.124	0.149	-0.125		-0.125						
Male dependants	0.303		0.216	0.292	0.163	0.164	0.128											
Income	0.160	0.237	0.245	0.260	0.170	0.168		0.132										
Farm size (1997)	0.160	0.237	0.245	0.260	0.170	0.168		0.132										
Farm size (1998)	0.232	0.235	0.202	0.236			0.142											
Family income	0.285	0.219	0.215	0.292	0.205	0.198												
Cash crop	-0.121	-0.161			0.120							-0.152	-0.142	-0.130				
Long years experience																		

Legend

Blanks = No correlation

1 = Land clearing
2 = Bush burning
3 = Land preparation
4 = Planting
5 = Weeding
6 = Fertilizer application
7 = Spraying
8 = Harvesting
9 = Small animals
10 = Large animals
11 = Poultry keeping
12 = Petty trading
13 = Making home made goods
14 = Cooking
15 = Caring for children
16 = Collecting firewood
17 = Fetching water
18 = Transportation

5.8.1 Education

It was hypothesized that education is negatively correlated with gender contribution to farm and non-farm labour. This has been confirmed by Table 5.10a which shows that education is indeed negatively correlated with gender contributions to cooking with a correlation coefficient r = -0.123. The above finding suggests the more educated the respondent is, the less he/she participates in cooking.

5.8.2 Family size

It can be seen from Tables 5.10a and 5.10b that in the study area, family size was positively correlates with land clearing with a correlation coefficient of 0.126. The correlation coefficients obtained between family size and other activities of interest carried first daily in this study as follows, bush burning, 0.165; land preparation and ridging, 0.219; planting, 0.152; fertilizer application, 0.180; weeding, 0.152; and making home made goods for sale, 0.135. The positive correlations implies the more (large) the family size, the more of these activities are or were done. On performed activities on weekly basis show positive correlation coefficients with land clearing (r = 0.175), bushing burning (r = 0.225), land preparation/ridging (r = 0.219), planting (r = 0.212), weeding (r = 0.195), fertilizer application (r = 0.152), spraying insecticide (r = 0.117) and production of home made goods for sale (r = 0.128).

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5.8.3 Number of wives

Tables 5.10a and 5.10b suggest that the number wives the respondents in the studied area is positively correlated with the following farm and non-farm activities performed on daily basis with land preparation (r = 0.270), fertilizer

application (r = 0.161), harvesting (r = 0.129), petty trading (r = 0.135). For activities performed on weekly, the results show that the number of wives of the male respondents is positively correlated with land preparation (r=0.305), weed (r = 0.157), fertilizer application (r = 0.12), petty trading (r = 0.127) and production of home-made goods for sale (r = 0.126). The obtained correlations are expected to be so because with more hands to perform activities like weeding, land preparation and other farm and non-farm chores, more of the specified chores will be performed and at a faster rate, all things being equal.

5.8.4 Number of children owned

From the results tabulated in Table 5.10a and 5.10b it can be seen that the number of respondents with male children in the family positively correlates with farm and non-farm activities carried out on daily and weekly basis such as weeding and petty trading. The correlation coefficients of male children owned and these activities performed on daily basis are 0.130 and 0.137 respectively. On weekly basis, they re 0.130 and 0.127 respectively. The respondent's female children in the family positively correlates with farm and non-farm activities carried out on daily and weekly basis such as planting, weeding and fertilizer application. The correlation coefficients between the number of own female children and these activities performed on daily basis are 0.136, 0.149 and 0.150 respectively. On weekly basis, they are 0.117, 0.166 and 0.120 respectively. This suggest that children are meant to help their parents in performing these activities. Also, for survival, the male and the female children have to perform the above mentioned activities in recent times.

5.8.5 Male dependants

Tables 5.10a and 5.10b further show that the number of male relatives or dependants staying with the families studied in this work correlate weakly with the following farm and non-farm tasks: fertilizer application (r = 0.138), keeping small animals (r = 0.173), keeping large animals (r = 0.148), poultry keeping (r = 0.156), petty trading (r = -0.119) and taking care of child activities (r = -0.128). All of these figure values were obtained for carrying out these farm and non-farm labour. On weekly basis activities like bush burning and keeping of large animals had positive correlations with the coefficients of correlation being 0.122 and 149 respectively while activities like harvesting, rearing large animals and petty trading are weakly correlated with the number of male dependants available to each family head. The correlation coefficients for these activities averages -0.125.

5.8.6 Income contributions of respondents to farm and non-farm labour

Tables 5.10a and 5.10b show that income earned by each gender positively correlates with some activities. The correlation coefficients for activities are: land clearing (r = 0.306); bush burning (r = 0.280; land preparation or ridging (0.213); planting (0.159) and fertilizer application (0.029) when considered on daily basis. On weekly basis, the following activities are found to be positively correlated with income. These activities and their correlation coefficients are as follows: land clearing (0.303); land preparation (0.216); planting (0.292); weeding (0.163); fertilizer application (0.164 and spraying of insecticides (0.128).

5.8.7 Effects of income from sale of farm produce and cash crops on respondents' contributions to farm and non-farm labour

Tables 5.10a and 5.10b show that the sale of farm produce and cash crops positively correlate with all farm production operation (land clearing, hoeing, planting, fertilizer application, weeding, spraying insecticide, harvesting and threshing). The correlation coefficients for these relations are very low and vary from 0.11 to 0.29. The positive correlations above are expected as money realized from the sale of farm produce are most probably ploughed back by male and female respondents to boost their agricultural production in the next farming season.

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5.8.8 Effects of farming experience on respondents contributions to farm and non farm labour

Tables 5.10a and 5.10b show that the farming experience of the farmers interviewed in the study area has a positive correlation with the time they spend in fertilizer applications to crops as well as on weeding and herding of animals. The correlation coefficients for the relationship obtained vary from 0.11 to 0.17. The low values of the correlations show that the variables are weakly correlated. On the one hand, there is a negative correlation between length of years of farming experience and activities like land clearing and bushing burning with correlation coefficients of -0.12 and -0.17 respectively.

The positive correlation that exists betweer years of farming experience and fertilizer application, weeding and herding of animals are expected because the skill(s) required for performing these works need to be developed over a long period of time. Hence, the more experienced a farmer, the less the time he is expected to use doing the above activities. Also, the more

experienced a farmer is, the more likely it is that he is old enough to have his own children and other children who are his dependants. Thus, the more he has more hands to work on the farm and therefore, the more likely that his farm works would be completed in a shorter time.

Through the correlation coefficients for these relationships are very weak, they show that money or income from sale of crop production activities will be enhanced by availability of other forms of income, for example, saving made over the years. Thus, the hypothesis that states that income of both gender is positively correlated with gender time contributions to farm and non-farm labour is hereby confirmed to be true.

5.8.9 Farm size and contributions of respondents to farm labour in 1997 and 1998 cropping seasons

Tables 5.10a and 5.10b also show that farm size in 1997 and 1998 has a weak correlation coefficients with the contributions of the respondents to farm and non-farm labour. The other activities that show some correlation with farm size and their coefficients of correlations are as follows: bush burning, (0.227); land preparation (0.245); planting (0.260); weeding (0.170); fertilization application (0.168). These values are for when the associated activities are performed on daily basis for activities performed on weekly basis, the correlation coefficients for the various activities that correlate with farm size are as follows: bushing burning (0.146); land preparation (0.142); planting (0.199); weeding (0.178) and fertilization application (0.138).

5.9 The T-Test for Comparing Gender Time Contributions to Farm and Non-Farm Labour

The t-test was used to test the significance of the differences between the means of the various parameters studied for the male and female genders. The results of these comparisons are presented in Table 5.11. The Table shows the differences between the means obtained for time contributions to farm and non-farm labour that are significant at probability greater than 0.05 (i.e. P>0.05).

The table shows that activities such as fishing, keeping of fruits trees, looking after or caring for children, making home-made goods for sale, performing petty trading and meal preparation had t-values varying from 2.0 to 3.0. On the other hand, some activities like meal preparation, washing and ironing (laundry work), collecting firewood, transporting self and goods to and from home to farm or market, marketing of crops and home made goods, petty trading, care of children, fetching water and recreational activities are weekly records of activities (t-value vary from 2.1 to 8.20).

Furthermore, other variables such as attitude to cooking, laundry, washing and ironing clothes, marketing, threshing and making home-made goods have t-values varying from 2.6 to 3.1 when these activities are considered on weekly basis.

Table 5.11 also shows that some activities performed on daily and weakly bases by the respondents of either gender have negative t-values. Negative-t-values were obtained for the following activities carried out daily: fertilizer application, farm clearing, land preparation, spraying of crops with insecticides and weeding with t-values ranging from -2.1 to -6.4. The weekly activities with negative t-values which vary from -2.1 to -7.6 are land preparation into ridges, weeding and laundry. Also

Table 5.11: Comparison of daily activities of respondents by gender.

	Daily activities	Gender	No. of Resp.	Means	SD	t-value	Df	P. Remark
1.	Fertilizer application	Female	131	3.25	2.08	-2.143	298	P<0.033
		Male	169	4.57	6.79			
2.	Farm clearing	Female	131	4.00	1.80	-3.436	298	P<0.001
		Male	169	4.93	2.66			
3.	Hoeing and land preparation	Female	131	4.46	2.48	-6.442	298	P<0.0001
		Male	169	6.31	2.47			
4.	Spraying of insecticide	Female	131	3.27	2.35	-3.625	298	P<0.0001
		Male	169	4.34	2.66			
5.	Weeding	Female	131	4.38	2.28	-4.050	298	P<0.0001
		Male	169	5.57	2.71			
6.	Keeping fruit trees	Female	89	1.03	1.29	3.025	236	P<0.003
		Male	140	.54	1.18			
7.	Fishing activities	Female	84	1.25	1.69	2.660	197	P<0.008
		Male	75	.67	1.39			
8.	Looking after children	Female	103	.89	1.42	2.253	176	P<0.025
		Male	169	.47	1.11			
9.	Producing home made goods	Female	116	1.20	1.84	2.711	280	P<0.007
		Male	166	.65	1.54			
10	Petty trading	Female	114	2.39	10.18	2.033	275	P<0.04
		Male	163	1.05	6.65			
	Weekly activities							
11.	Hoeing and land preparation	Female	131	21.67	14.58	-7.560	298	P<0.0001
		Male	169	35.45	16.44			
12.	Spraying of insecticide	Female	131	15.67	13.26	-2.767	298	P<0.006
		Male	169	20.47	16.07			
13.	Weeding	Female	131	23.30	14.04	-3.660	298	P<0.0001
		Male	169	30.36	18.28			
14.	Cooking	Female	98	5.44	8.36	2.188	236	P<0.00
		Male	140	3.20	7.33			
15.	Laundry work	Female	98	4.20		3.569	236	P<0.0001
		Male	140	1.78				
16.	Collecting fire wood	Female	84	4.20		2.637	197	P<0.009
		Male	115					
17.	Transportation of self and goods	Female	126	7.26	9.99	2.157	292	P<0.03
		Male	168	4.85	9.09			
18.	Making home made crafts	Female	117	7.31	12.52	2.951	281	P<0.003
		Male	166	3.42	9.62			
19.	Home food production	Female	117	5.42	10.18	8.205	280	P<0.002
		Male	166	2.23	6.65			
20.	Petty trading	Female	102	7.84	12.15	3.633	242	P<0.001
		Male	142	3.25	7.45			

Table 5.11 shows that negative t-values occur for chores such as planting of maize, planting of cash crops, decision making concerning food preparation, attitude concerning land preparation, fertilization application and weeding. The above findings suggest that respondents of the male gender in the study area spend more time performing these activities than their female counterpart.

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5.10 Multiple Regression Analysis

Tables 5.12a, 5.12b and 5.12c present the results of the multiple regression analysis for farm and non-farm income. The tables show that variables included in the regression model for male, explained about .999 (R^2 = 0.999) coefficient of determination to have been found to have significant contributions towards the prediction of male and female respondents and finally, both gender.

Table 5.12a shows the multiple regression between some selected variables on time contributions to farm and non-farm labour for farm and non-farm income for the male respondents. Table 5.12b shows the multiple regression between some selected variables on time contributions to farm and non-farm activities and farm and non-farm income for the female respondents. While Table 5.12c shows the multiple regression between the selected variables on time contributions to farm and non-farm activities and farm and non-farm income for all respondents (i.e. the two genders).

5.11 Multiple Regression between Time Contributions to Farm and Non-Farm and some Selected Variables for the Male Respondents

Table 5.12a presents the results of the regression analysis used to evaluate the variables that contribute significantly towards the prediction of

Table 5.12a: Multiple regression between time contribution to farm and non-farm labour and some selected variables for the male respondents for the year 1997 (n = 169).

Model (7)	Unstandardized coefficient		Standardized Coefficient	t	Remark Significance
	B	Std. Error	Beta		
Constant	50622.409	2.171		23322.915	.00 P≤ =0.001
Attitude on spraying	5889.4512	.228	.466	25818.252	.00 P≤ =0.001
Cocoyam labour	200.485	.018	.261	11012.800	.00 ≤ =0.001
Attitude to planting daily	-8030.039	.379	-.339	-21195.6	.00 ≤ = 0.001
Decision making on planting	2047.482	.160	.162	12822.125	.00 ≤ = 0.001
Farm work on bush burning daily	2664.882	.485	.151	5500.066	.00 ≤ = 0.001
Farm work on planting	-475.624	.198	-.045	-2407.323	.00 ≤ = 0.001
Decision making as regard poultry keeping	-145.252	.259	-.099	-560.353	.00 ≤ = 0.001

R^2 = .999

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Table 5.12b: Multiple regression between time contribution to farm and non-farm labour and some selected variables for the female respondents for the year 1997 (n = 131).

Model (11)	Unstandardized coefficient		Standardized Coefficient	t	Remark
	B	Std. Error	Beta		Significance
Constant	86786.448	3.112		27887.719	.00 P≤ 0.001
Farm production (threshing daily)	9622.612	.201	.648	47886.682	.00 P≤ 0.001
Decision on land clearing	4270.525	.145	.318	29411.067	.00 ≤ 0.001
Attitude on land allocation for crops	-6155.848	.702	-.202	-8772.137	.00 ≤ 0.001
Male children	-651.709	.041	-.206	-15980.6	.00 ≤ 0.001
Resting	-2999.118	.288	-.906	-10429.0	.00 ≤ 0.001
Attitude on bush burning	-8616.877	1.161	-.124	-74214.412	.00 ≤ 0.001
Decision making on bush burning	-577.531	.180	-.031	-3214.286	.00 ≤ 0.001
Recreation weekly	-51.275	.021	-.021	-2439.075	.00 ≤ 0.001
Harvesting weekly	27.861	.026	.009	1075.175	.00 ≤ 0.001
Attitude as regard caring for children	176.971	.319	.008	555.137	.00 ≤ 0.001
Family size	-3.803	.099	-.001	-38.250	.02 ≤ 0.002

R^2 = .999

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Table 5.12c: Multiple regression between time contribution to farm and non-farm labour and some selected variables for both male and respondents for the year 1997 (n = 300).

Model (13)	Unstandardized coefficient		Standardized Coefficient	t	Remark
	B	Std. Error	Beta		Significance
Constant	31612.672	1739.715		18.171	.00 P≤ =0.001
Threshing daily	5770.331	287.615	.384	20.063	.00 P≤ =0.001
Male dependent labour	29828.275	848.161	.540	35.168	.00 ≤ =0.001
Collecting firewood daily	4153.024	277.564	.265	14.962	.00 ≤ = 0.001
Decision making on children care					
Attitude on hiring labour	13101.935	596.865	.612	21.951	.00 ≤ = 0.001
Milking daily	-8678.132	328.015	-.381	-26.456	.00 ≤ = 0.001
Attitude to smaller animals	3246.340	387.175	.188	8.385	.00 ≤ = 0.001
Attitude to larger animals	-2002.884	165.413	-.192	-12.108	.00 ≤ = 0.001
Decision making concerning family size	2244.960	291.214	.128	7.709	.00 ≤ = 0.001
Period of education					
Level of education	-4359.759	462.234	-.205	-9.432	.00 ≤ = 0.001
Bushing burning ready for farming	758.061	91.730	.156	8.264	.00 ≤ = 0.001
Maize planting	-1402.797	279.198	-127	-5.024	.00 ≤ = 0.001
	-2077.613	534.019	-.091	-3.891	.01 ≤ = 0.01
	-186.640	75.437	-.054	-2.474	.04 ≤ = 0.05

R^2 = .999 Coefficient of determination.

farm and non-farm income for the male respondents in the study areas. The data show that the variables that adequately predict farm and non-farm income in the study area are the following: attitude to spraying of insecticides to farm plants, planting cocoyam, attitude to planting, decision making on planting, bush burning and decision making regarding the poultry keeping. The correlation coefficient of the relationships between income from farm and non-farm activities for each of these activities is 0.999. These seven, out of the twenty nine variables used in this study predict farm and non-farm income for the male respondents. Hence, the knowledge of this fact can be used to plan programmes and policies for the farmers in the study area, if not for the entire Kaduna State and even for Nigeria as a whole.

5.12 Multiple Regression between Time Contributions to Farm and Non-Farm Labour and some Selected Variables for the Female

Table 5.12b presents the result of the regression analysis used to evaluate the activities that contribute significantly towards the prediction of farm and non-farm income for the female respondents in the study area. Eleven (11) parameters, out of the twenty-nine used in this study have been found to have significant contributions towards the prediction of female income. These are threshing, decision making on land clearing, attitude towards land allocation for crop farming, number of male children within the family, resting, attitude towards bush burning, decision making on bush burning, recreational activities on weekly basis, harvesting made by female on weekly basis, attitude regarding caring for children and family size.

The above finding shows that the above activities could be used to adequately predict the farm and non-farm income of the women studied. Therefore, this information can be used by the Federal, State and Local Governments to form suitable and appropriate programmes and policies for women farmers in the study area or Kaduna State or even in the entire country to boost household and farm production.

5.13 Multiple Regression Between Time Contributions to Farm and Non-Farm Labour and some Selected Variables for Male and Female

Table 5.12c shows that 13 variables out of the 29 used in this study, predict the farm and non-farm income for both genders in the study area. These variables are as follows: threshing, presence of male dependants in the family, collecting firewood daily, decision making on care of children, attitude to hiring labour, milking cows daily, attitude to small and large animals rearing, decision making concerning family size, level of education, bush burning and maize planting. This information can be used by the appropriate government authorities to plan programmes or project suitable for both male and female farmers in the study area.

CHAPTER SIX

SUMMARY, RECOMMENDATIONS AND CONCLUSIONS

6.1 Summary

This study was designed to get information concerning the contributions of male and female farmers to farm and non-farm labour in the southern part of Kaduna State. This is because they have either, directly or indirectly, enjoyed in the past the benefits of some government programmes and policies established to boost agricultural production and socio-economic condition of the people. However, little or no measurement of their contributions, to farm and non-farm labour as to absolute commitments, were measured statistically. Hence, this study was undertaken to identify, compare and measure the time contributions of male and female farmers to farm and non-farm labour.

The study used the theoretical model of functional analysis of social change to achieve this aim. It identified the factors responsible for the average farmer of each gender in the study area to make his/her contributions to farm and non-farm labour.

The data for this study were collected through the use of questionnaires, structured interview and observations. Twenty independent and one dependent variables, that were further sub-divided into 29 activities on time contributions to farm and non-farm labour by gender, were used. The study also used descriptive statistics to provide information about the distribution (frequency) or population with respect characteristics (objectives 1, 2, 3 and 4) of the respondents. Furthermore, correlation coefficients were computed to

determine how some of the variables correlated with one another. Also, t-tests were used to compare the contributions of farmers of each gender to farm and non-farm activities with respect to all parameters studied. Finally, the stepwise multiple regression was used to determine the variables that contribute significantly towards the production of farm and non-farm income of families and each farmer in the study area.

6.2 Discussion of Results

The results obtained from this work are categorized into five sections as follows:

(a) Personal characteristics:

The main findings of this study under personal characteristics are summarized below:

(i) the mean age of the respondents were 38 years for the female respondents and 40 years for the male respondents. This implies that the respondents were at the same age.

(ii) the study shows that, out of the 300 respondents used for the study, about 51 percent of the female respondents and about 62 percent of the male respondents had primary education. This suggests that both respondents are exposed to formal education.

(iii) also, 82 percent of the female and male respondents are married.

(iv) the average number of dependants in the households of the respondents are 6 or 7 for both genders. This implies that they will be able to help in carrying out some farm and non-farm chores.

(v) the male respondents had one to two wives.

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(vi) the number of female children in each family are 3 while the number of male children in each family varied from 2 to 3. Thus number of male dependants in each family varied from 2 to 3. This implies that their services can be used to contribute to farm and non-farm labour.

(vii) the study shows that the primary occupation of 76 percent of respondents is farming while 8 percent are civil servants.

These suggest that 76 percent of the respondents are full-time farmers while 18 percent of them are part-time farmers.

(b) Farm characteristics

Findings made in this study with respect to farm characteristics are as briefly summarized bellows.

(i) About 73 percent of the women and 88.2 percent of the men respondents in the study area have access to land for farming. This implies that more men have access to land than women in the study area.

(ii) Farm size owned by each farmer is Independent of sex in that both the male and female farmers studied occupied a land of about 1.0 hectare size each while the male, on the average, occupied 1.1 ha while his female counterpart occupied 1.0 ha.

(iii) Farming experience the average male farmers in the study area has more farming experience than the average female farmer. While the average female farmer in the study had been in farming business for 13 years, her male counterpart had been in the business for 21 years, which is 62 percent longer than that of the female farmers.

Regarding the number of months put into farming per year, the average female farmers put in 6 months while the male farmers put in 7 months, which is about 16 percent longer than the time put in by the female farmer. The extra one month put in by the male farmer is most likely the time spent at the onset of the farming season, to prepare the land (bush clearing, ploughing and ridging).

6.2.1 Time contributions to farm and non-farm labour

The study identified time contributions of male and female respondents to farm and non-farm labour in the study areas (in line with objective 1, 2). The results are discussed as follows:

(a) **Crop production**: The results show that both sexes or genders in the study area perform all farm production operations (that is from land clearing to threshing of harvested products). For example, about 73 percent of both male and female respondents spent 4 hours daily and 10 hours weekly to perform activities like land clearing, ridge making, planting, weeding, fertilizer application, spraying insecticides, harvesting and threshing. These results are in contrast with the findings of the United Nations (1975) on division of rural labour by task and sex in Africa.

(b) **Livestock keeping**: Findings from this work show that 24 percent of both male and female respondents in the study area perform all the activities listed under livestock keeping in the questionnaire (Appendix 1). They also spend, on the average 4 hours daily and 14 hours weekly on livestock keeping.

(c) **Home gardening**: The result of this work shows that about 51 percent of the female farmers studied spend about 3 – 4 hours daily and 11 to 15

hours weekly on vegetable production and raising of fruit trees while 48 percent of the male respondents spends about 4 hours and 11 hours daily and weekly respectively, on the same task.

(d) **Non-farm activities**: About 49 percent of the female respondents in the study area perform all activities listed under non-farm labour. The male and female respondents, on the average, spend 4 hours daily and 14 hours weekly on such activities. On the other hand, about 45 percent of the men spend 4 hours daily and 13 hours weekly processing, transporting and marketing harvested crops. Production of crafts, home-made goods and petty trading are also performed by 46 percent of the women respondents on the average, they spend 9 hours daily and 13 hours weekly performing these non-farm activities.

(e) **Household labour**: A range of 23 percent of the female respondents in the study area spend 4 hours daily and 15 hours weekly in performing household activities while 16 percent of their male counterparts spend 4 hours daily and 16 hours weekly performing household activities. This study reveals that both genders in the study area perform household activities. However, for one reason or the other, the women perform these chores more than the men. Investigations during the fieldwork show that men perform these chores because they have no choice as they have no dependant relatives living with them. Furthermore, the results of this study also show that some men in the study area do stay at home to perform household activities while their women are on the farm performing farm production tasks.

6.2.2 Cropping pattern

A range of 40 to 90 percent of the female respondents participate in planting maize, guinea corn, cassava, ginger and rice. On the other hand, 90 percent of the men and 74 percent of the women planted maize during the 1998 cropping season. This implies that more men in the study area plant maize than the women. This might be probably due to the fact that the male farmers in the study area consider maize as a cash crop and, therefore, primarily plant it for cash. On the other hand, the women most likely planted maize primarily for home consumption in the study area.

6.2.3 Extension services and programmes

The extension services under government programmes, such as the Agricultural Development Programmes (ADPs) previously existing in the study area had one form of impact or the other on the farmers sampled in this study. This fact was gathered during the fieldwork. The results show that 14.3 percent of the respondents of the two genders had some form of (even if occasional) contact with the services offered by Agricultural and Home Economics Extension Workers in the past. On the other hand, it is worthy of note that the majority (75 percent) of the respondents only listened to the radio programme "Noma Yanke Talauchi" of the Federal Radio Corporation of Nigeria (FRCN), Kaduna. According to these farmers, the information learnt from the radio programme has made them and other farmers in the study area aware of innovations, use of high yield seeds (e.g. maize, rice, sorghum and other crops). As at the time of data collection, the respondents have stopped enjoyed the services of the extensionists because of the poor economy of the country then.

6.2.4 Benefits derived from farm and non-farm enterprises by the respondents

The financial benefits derived from farm and non-farm labour by the respondents in 1997 and 1998 are almost independent of gender. For instance, while the average family income or earnings for 97 percent of the women studied was ₦10,497.00, that for 85 percent of the men studied was ₦10,487.00. As for income from the sale of cash crops, 92 percent of the men earned, on the average, ₦74,267.40 while 85 percent of the women earned, on the average, ₦22,644.00 Furthermore, 18 percent of the men earned on the average, ₦25,500.00 from non-farm activities (e.g. petty trading, making home-made goods for sale) while the earnings of the women who carried out these activities averaged ₦20,001.25.

The above findings suggest that men, on the average, generate about 3.5 times more money that the average female farmer. As earlier mentioned, this is largely due to the fact that the average male farmer there farms mainly cash crops while the average female farmer primarily farms for home consumption.

6.2.5 Factors affecting the level of time contributions to farm and non-farm labour

The correlation coefficient analysis shows that the time contributions to farm and non-farm activities by both genders was highly influenced by personal characteristics of the respondents, institutional factors, environmental factors and other parameters. The findings show that out of the 29 independent variables used in the study, only six were statistically related to time contributions to farm and non-farm labour for both genders at a 0.05 level of significance.

These variables are farm size, number of wives, number of male and female children in the family, number of male dependent relatives and income available. Other variables like credit facilities, extension contact, age, impact of government programmes, tenural system, education and others were not significantly correlated with gender contributions to farm and non-farm labour. It is clear from these findings that male and female farmers in the study area still farm at peasantry level. It was found at the data collecting stage that they do not use any modern implements like tractors to plough the farm. Also, they do not enjoy any form of extension of extension service any longer. Rather, it was the impact of former government sponsored programmes like the ADP that were observed during this time. Consequently, the non-use of tractors and improved farm inputs was a result of this fact. They have, therefore, as alternative than to resort to small-scale farming which has led, in turn, to farming primarily for home consumption rather than for cash or income generation. As long as this condition prevails, agricultural productivity at rural level, at which at least 70 percent Nigerian farmers operate, will be in danger. This does not portend well for the socio-economic future of this country.

The t-test that compared the contributions of each gender to farm and non-farm labour shows that the male farmers perform and spend more time doing the following activities, on daily and weekly basis, than their women: land clearing, ploughing, ridging, fertilizer application, weeding, spraying insecticides and planting of maize and other cash crops. The t-test values are also significant for variables like decision making regarding food preparation and cooking. Furthermore, the t-test values suggest that the women perform and spend more time on these activities than the men. For example, they spend

more time than men doing the following activities: planting of fruit frees, fishing, looking after and caring for children, petty trading, producing home made goods, laundry work, collecting firewood, marketing, craft making, attitude concerning threshing, fetching water, collecting firewood, and processing of farm produce on daily and weekly basis. This observation suggests that the women in the study area still perform their known roles ascribed by the society (Loza, 1988).

The study also used the stepwise multiple regression to determine or predict farm and non-farm income for the male and female respondents in the study considering each gender as well as the two genders together. The results of the regression analysis show that out of the 29 parameters or activities considered in the study, only seven activities predict the farm and non-farm activities for the men. These severe activities are attitude to spraying insecticides, planting cocoyam, attitude to planting of crops, decision making on planting, daily bush burning and decision making regarding poultry keeping. All of these can be seen in Table 5.12a.

Also, Table 5.12b shows the eleven (11) parameters, out of 29 parameters used in the study which predicted farm and non-farm income for the female respondents. The parameters concerned are: threshing, decision on land clearing, attitude to land allocation for crops, number of male dependents available in the family, resting, attitude to bush burning, weekly recreational activity, harvesting crops weekly, attitude to caring for children and size of the family.

Furthermore, the multiple regression that predicted farm income and non-farm income for both genders combined can be seen in Table 5.12c. These

are 13 parameters out of 29. They are threshing daily, contribution of male dependants to farm and non-farm labour, collecting firewood daily, decision making on the care of children, attitude to hiring labour, milking labour, attitude toward small and large animals keeping, decision making concerning family size, level of education, bush burning and maize planting.

6.3 Recommendations

Based on the findings of this study, the following recommendations are made. These should be considered by the local, state, federal government and foreign agencies in the study area in particular and Nigeria in general.

1. As long as the male and female farmers studied in this work have only small hectares of land to farm, without some basic implements to help them perform farm and non-farm labour and thereby still farming at present level, agricultural production and household production in the area will continue to be very low. It is, therefore, suggested that land be allocated to these farmers free of charge to farmers of either sex in the study area. This will cause an increase in crop production.
2. Labour saving implements should be made available to both male and female farmers in the area, instead of their depending, and therefore using children and male dependants for farm work.
3. Extension service should be revitalized in the area of study to enable them utilize modern and up-to-date appropriate innovations and technologies to increase their productivity and income earnings.
4. All the factors that support farm and non-farm time contributions by male and female farmers in the area which were identified in this work

should be encouraged by the governments (state and local government), available male and female children to help in the family, available male dependant relatives, available income, farm size and level of education of the respondents should be encouraged.

5. The fact that both male and female respondents participate in farm and non-farming activities suggest that both male and female in the study area participate in these activities. Hence, the government should bear this in mind when making policies and plans for agricultural production in the rural areas of the state on the entire country.

6. The types of crops planted by both the male and female farmers in the study area are the same, for example, they both planted mainly maize, millet, sorghum, rice, yams, cocoyams, cassava, acca (fonio), soyabeans and pepper for both home consumption and for sale in 1998. It is therefore, recommended that the local, state and federal governments should provide the lead in encouraging their farmers to grow this range of food crops in abundance in order to increase the nutritional level of people in the study area and beyond.

7. The female farmers in the study area should be encouraged to embark on planting crops that will fetch them money too like their male counterparts in addition to also farming for family consumption. Doing so will increase their socio-economic conditions too.

8. Some parameters predicted farm and non-farm income for the two genders combined such parameters include bush burning, planting cocoyams, threshing, maize planting, decision on land clearing and others should be enhanced by the state and local government so that all

farmers in the area, irrespective of gender, can be better served with appropriate programmes and policies.

9. The t-test measurement used brought out the activities preferred or normally done by each gender and how much time each gender spends on each of these activities. Hence, these activities should be supported with suitable programmes to meet the interests of each gender.

6.4 Conclusion

This study has largely shown that the roles ascribed to each gender, as received from literature, have not changed completely in the study area. It has been found that the female farmer now combines some of the male gender roles with theirs. For example, women in the study area now participate in land preparation labour such as land clearing, bush burning and making ridges. They also now participate in some crop production activities such as spraying insecticides and other chores that were formally totally ascribed to men in the past.

The study also shows that the male and the female farmers in the study area still are planting similar crops such as maize planting, sorghum, millet, acca and cocoyams. These activities contributed to predicting the farm and non-farm income according to Tables 5.12a, 5.12b and 5.12c. The parameters that predicted income of farm and non-farm activities in the study are as follows: level of education, bush burning, planting of maize, threshing, availability of male dependant labour, decision making as to family size.

The study further shows that the male and female farmers in the project area did not enjoy extension services and neither did they enjoy any

technological input given by ministry of agriculture at local and state levels during the fieldwork of this study. Also, they did not experience any impact of government sponsored agricultural programmes on credit facilities. Hence, efforts should be made by the local, state and federal governments as well as the foreign donors to evolve and implement strategies that will improve agricultural production to guarantee household and national food security.

6.5 Suggestions for Further Research

To the author's best knowledge, this is the first study of the factors affecting male and female respondents' contributions to farm and non-farm labour in the study area. As such, there must still be some gaps in the study. Hence, a follow-up study is highly recommended. The scope of the recommended study should be widen than that for the present study. Also, such a study should be carried out in different rural areas of Nigeria to enable good quality data which can be used to evolve good policies, programmes and plans for sustainable agriculture in Nigeria shown.

Furthermore, the theoretical model of functional analysis as has been used in this study should be used to study other areas of our economic, social and political spheres that tend to address the issues of gender inequality in Nigeria. Also, the statistical measurement used in this study, should be followed-up in studies that are similar concerning male and female respondents. All these could be done if only money can be pumped into such research by local, state and federal government.

REFERENCES

Abalu, G.O.I. and Yayock, J.Y. (1980). "Adoption of improved farm technique in Northern Nigeria." Quarterly Journal of International Agriculture, 19(3): 249 July-September.

Acher, J.C. (1973). "Women and social stratification: A case study of intellectual sexism." American Journal of Sociology, 78: 4 Page 936.

Adeyokunnu, T.O. (1981). Women and agriculture in Nigeria. ST/ECA/ATRCW/81/11, Addis Ababa, Ethiopia: Economics Commission for Africa.

Agarwal, Bina (1979). Work participation of women in rural India: Some data and conceptual issues. Unpublished Paper, University of Sussex, Institute of Development Studies.

Agricultural Development Incorporation ADC (1975). "The Role of Rural Women in Development". Research and Training Network Seminar Report.

Aina, T.A. (1992). The challenge of sustainable development in Nigeria: An NGO Report prepared for the UN Conference on Environment and Development, Rio de Janeiro, Brazil, June 1 – 12, Nigeria Environmental Study Action Team (NESAT).

Ajala, N.K. (1988). "The impact of Kano river irrigation project on the socio-economic role of women." M.Sc. Thesis, Ahmadu Bello University, Zaria.

Ajayi, O. (1989). Education Today. Dec. p. 4-17.

Akor, R. (1991). "The Role of Women in Agriculture and Constraints to their Effective Participation in Agricultural Development." Paper presented at the UNDP/ILO/DFRRI. Training Workshop on Monitory and Evaluation of Rural Women in Production Skills Project.

Aku, P.S. (1981). "Problems in the implementation of the agricultural credit guarantee scheme fund. A case study of selected credit institutions in Kaduna State of Nigeria." Unpublished M.Sc. Thesis, Department of Agricultural Economics and Rural Sociology, I.A.R., A.B.U., Zaria.

Amali, E. (1989). "The role of women in agricultural development process." Development Studies Review. Centre for Development Studies Publication, University of Jos, pg. 52-60.

Anazonwu-Bello, J. (1997). Report of the National Home Economic Workshop on "Trends and Changes in Nigeria and their Implications for Home Economic Education". Federal Government Press, p. 66-70.

Anker, R. (1980). Research on women's roles and demographic changes; survey questionnaires for households, women, men and communities with background explanations, ILO, Geneva.

Arokoyo, O.J. (1981). The diffusion and adoption of recommended agricultural practices among farmers in the Northern state of Nigeria. Unpublished Ph.D Thesis at the University of Wisconsin, Madison, U.S.A.

Atala, T.K. (1981). Factors affecting adoption of agricultural innovations, usage of sources of information and level of living in two Nigerian villages. Unpublished Thesis, Iowa State University, Ames, Iowa, U.S.A.

Atala, T.K. (1988). Agricultural extension in Nigeria: Problems and prospects. A paper presented at a seminar organized by the Faculty of Agriculture for student from U.S.A., July 21-22.

Ayogu, E. (1990). Newswatch Publication of Nigeria. December 10, 1990, p. 36.

Balogun, T.A. (1975). "Sex, achievement and selection of science subjects and careers among some Nigerian Youths". Careers Vol. 5, Nos. 1 and 2, p. 25-40.

Barkow, J.H. (1972). Hausa Women in Islam. A paper presented at the annual meeting of Canadian Sociology Association, Montreal, Canada.

Beiry, S (1975). Cocoa, custom and socio-economic characteristics of ginger farmers and role performance of women in Ginger production. M.Sc. Thesis in Ahmadu Bello University, Zaria.

Blumberg, R.L. (1988). "Making the case for the gender variable; women and their wealth and well-being of Nation." Gender Technical Paper No. 2, page 88. December Report prepared for USAID.

Bohannan, H.B. (1968). "The division of work according to sex in African hoe culture." In Africa, Vol. 1.

Boserup, E.C. (1970). Women's role in economic development, New York, St. Martin's Pres.

Boulding, E.; Shirley, A. Nuss; Dorothy, L.C.; Michael, A.G. (1976). Handbook of international data on women. New York, Holsted.

Broverman, A.; Broverman, O.M.; Clarkson, F.E.; Rosenkrantz, P.S. and Vogel, S.R. (1970). Sex – role stereotypes and clinical judgements of mental health. Journal of Consulting and Clinical Psychology 34: 1-7.

Bungwon, H.A. (1998). Socio-economic characteristics of Ginger farmers and role performance of women in ginger production. M.Sc. Thesis in Ahmadu Bello University, Zaria.

Caplan, P. (1981). Development policies in Tanzanian – some implications for women in Nelson, N. ed. African Women in the Development Process. Frank Cass Co. Ltd. London, U.K.

Chafe, M. (1977). Women and equality. Changing pattern in American culture, New York, Oxford University Press, p. 4.

Chodorow, N. (1978). The reproduction of mothering psychoanalysis of the sociology of gender, Berkelery, California University of California Press.

Dahrendorf, R. (1959). Class and class conflict in industrial society. Stanford, CA: Stanford University Press.

Deaux, K. and Brenda, M. (1987). Putting gender unto context: An interactive model of gender related behaviour. Psychological Review 94(3): 369-89.

Deere, C.D. (1982). "The division of labour by sex in agriculture: A Peruvian case study", in *Economic Development and Cultural Change* (Chicago, University of Chicago Press), Vol. 30, No. 4, pp. 795-811.

Di Domenico, C.N. and Mojuetan, L.L. (1976). Occupational status of women in Nigeria: A comparison of two urban centres. Paper presented to the National Conference on Nigerian Women and Development in Relation to Changing Family Structure, Conference Centre, University of Ibadan.

Engels, F. (1942). (Original 1884). The origin of the family, private property and the state. New York, International.

Etzioni, A. and Etzioni, E. eds. (1964). *Social Change*: New York: Basic Books.

FAO (1972). "The Economic Role of Women with Special Emphasis in the Implementation of Rural Development Schemes in Africa", FAO/ECA. Rome, Italy.

_____(1977). *Report on the 1970 World Census in Agriculture*. FAO Statistics Series No. 10, Rome.

_____(1984). Women and Agriculture. Women in Agricultural Production. Rome, p. 6.

_____ (1986). Department of International Economics and Social Affairs World Survey in the Roll of Women in Development (A/Conf. 11614 rev. 1st/ESA/180). New York.

_____ (1991). Time spent in work by gender in rural in Cote d'Ivoire (hours per week). Statistical Office of the United Nations Secretariat, The World's Women, 1970-1990. New York.

Food and Agricultural Organisation (1966). A socio-economic survey of peasant agriculture in Northern Nigeria.

Firestone, S. (1970). The dialectic of sex. The case for feminist revolution. William Morrow & Cop. Inc. New York, U.S.A.

Fong, M. (1980b). *Statistics on Women's Participation in Agricultural Production*. Rome, FAO.

Gathee, J.W. (1980). Role of Agriculture Research in assisting women small farmers in Kenya. Food Foundation Seminar on Women in Agricultural Production in Eastern and Southern Africa, Nairobi.

Goffman, E. (1959). The presentation of self in Everyday Life. Garden City, NY.

Gray, J.A. (1981). "A Biological Basic for the Sex Differences in Achievement in Science". In Kelly A. (ed.). The missing half. Manchester: Manchester University Press.

Hacker, H. (1951). "Glabbermouths and Clams, Sex differences in self disclosure in same, sex cross friendship Dyads". Psychology of Women Quarterly 5, p. 385-401.

Hill, P. (1972). Rural Hausa: A village and a setting. Cambridge University Press, U.K.

Holmboe, O.G., Mascarenhas, O., Wandel, M. (1986). Women's food chain activities and implications for nutrition: Problems and policy issues. Paper prepared for the UN Administrative Committee on Coordination/Sub-Committee on Nutrition (Geneva: ACC/SCN).

ILO (1988). Division of work among household members in Asiong Project.

ILO (1988). Year Book of Labour Statistics.

Ityavyar, D.A. (1992). The changing socio-economic role of Tiv Women, Jos University Press.

Ityavyar, D.A. (1997). PRA Report on Benue State Sponsored by Benue Health Fund and DFID.

Jaggar, A. (1977). Political philosophies of women's liberation, in Vettaling-Bragin, M.Ed. Feminist and Philosophy, Hittlefied, Adams and Co. Tofawa, NJ, USA.

Jaggar, A., Rothernberg, P. (1984). Feminist frameworks: Alternative theoretical accounts of the relations between women and men (2 ed.) McGraw Hill Co., New York, U.S.A.

Kaul, R.N., Atala, T.K. and Tarfa S.B. (1991). A survey of women groups in Kaduna state. Technology for women (I.A.R.-Ford Foundation Project).

Kolberg, L. (1948). "A Cognitive Development Analysis of Children's Sex Role Concepts and Attitudes" in Development of Sex Differences, Stanford University Press, pp. 76-79.

Ladipo, P. (1981). Developing women's cooperatives on experiment in rural Nigeria. In: Nelson, N. (ed.). African Women in the Development Process. Frank Cass & Co. Ltd. London, UK, pp. 123-136.

Lionberger, H.F. (1960). The adoption of new ideas and practices. Ames: The Iowa State University Press.

Lippincott, J. (1939). Predicting success or failure in marriage. Englewood Cliffs, N.J. Prentice Hall, p. 363.

Loza, S. (1988). "Work and family in Egypt". Unpublished Paper, Cairo.

Macionis, John (1989). Sociology. Englewood Cliffs, Prentice Hall.

Marx Karl (1954). A critique of political economy. Moscow: Foreign Language Publishing House, 1954.

Marx Karl (1964) (Original 1848). T.B. Bottomore and Laxilien Rubel (eds). Selected writing in sociology and social philosophy, Baltimore, M.D.; Penguine, 1967 (Original), 1967-95. Das Capital, New York International.

Mill, J.S. and Taylor, H. (1851). The subjection of women, Virago Press Ltd., London, U.K. (1983 edition).

Monsted, M. (1977). The changing division of labour within rural families in Kenya, Copenhagen, Centre for Developmental Research.

Monu, E.D. (1980). "An appraisal of the contribution of rural sociology and agricultural extension research to the transfer of technology to small scale farmers in Nigeria." A paper prepared for the 1980 Rural Sociological Society Meetings, Cornell University, Ithaca, U.S.

Mortimore, M.J. and Wilson, J. (1965). Land and people in the Kano close settled zone. A survey of some aspects of rural economy in the Ungogo Districts of Kano Province. Occasional Paper No. 1: 10-24. Department of Geography, A.B.U., Zaria.

Murdock, G.P. (1967). *Ethnographic Atlas*. Pittsburgh, University of Pittsburgh Press.

Murdock, Provost, Caterina. "Factors in the division of labour by sex: A cross-cultural analysis". In: *Ethnology* (Pittsburgh, Penn., University of Pittsburgh Press), Vol. 12, pp. 203-225.

Myrdial, G. (1994). "Appendix S.A. Parallel to the Negro Problem" in an American Dilemma, New York, Harpen, p. 1073-1078).

Ngur, N. (1985). Notion of work and independent income among rural women in Northern Nigeria. A World Study.

Ngur, N. (1987). "Women and Development in Crop/Livestock Production in Northern Nigeria: What Changes?" Paper on Women Studies. Institute for African Studies, University of Ibadan, Nigeria.

Nic, N.H., C.H. Jenkins, J.G. Steinbrenner, K. and Bent, D.N. (1975). Statistical Package for the Social Science (2nd ed.), New York: McGraw Hill.

O'Niel, M. (1986). Forward-looking strategies: The UN World Conference on Women. Canadian Women Studies/les Gashiers de la femane, 7 (1/2), 19-21.

Okonjo, K. (1983). Sex roles in Nigerian politics in female and male in West Africa edited by Christine Oppong Long, Genge Allen and Unwin.

Olayiwole, C.B. (1984). "Rural Women's Participation in Agricultural Implications for training Extension Home Economics: Ph.D. Thesis, Kansas State University, U.S.A.

Olayiwole, C.B. (1984). Women's role in agric. And economic development in Africa: A case study of Nigeria presented at Annual Seminar on Political Change and Development in Agric. Southern University, Lousana, Page 1- 2 & 9-11 & 23.

Olayiwole, C.B. (1987). "The contributions of Women to Rural Development in Nigeria". Paper presented at the 4th National Conference of the Nigeria Rural Sociological Association, Zaria, Nigeria.

Olukosi, J.O. (1986). Income generation and distribution: A case study of Putu and Odo-Ore villages in Omu-Aran Area of Kwara State. Samaru Miscel. Paper 112, IAR, ABU.

Olukosi, J.O. (1986). Solving food crisis in Nigeria: The farming systems research/extension and adoption. Paper prepared for the International Conference of Agric. Economics, August 26 – September (1978), Malaya, Spain.

Omotayo, A.M. (1996). "Analysis of the utilization and impact of animal traction in Katsina State, Nigeria." Ph.D Thesis, A.B.U., Zaria.

Onazi, C.O. (1978). "The Role of Agricultural Education in National Development." Ahmadu Bello University Lecture Series, A.B.U., Zaria, Nigeria (Mimeo).

Ortner, S. Whitehead, N. ed.(1981). Sexual meanings, the cultural construction of gender and sexuality. Cambridge University Press, Cambridge, U.K.

Overholt *et al.* (1985). Gender roles in development projects: Cases for planners (Kumanan Press, West Hartford, CT, USA.

Papanek, M. (1970). Family status production, the work and non-work of women signs. Journal for Women in Culture and Society (4), p. 775.

Paris, T.R. (1985). "Women in rice farming systems". A preliminary report of an action research program in St. Barbeud, Pangasinan, IRRI, Los Banos, Laguna, Philippines, 1985, pg. 57-81.

Parson, T. (1951). The Social System. New York. The Free Press.

Parsons, T. (1970). Social structure and personality. New York, Free Press, pg. 306-314.

Pegg, A. Judith, B. (1992). Women's perspective towards an ethnical equitable just and sustainable livelihood in the 2s1t century, ISIS International Women in Action 4/92 & 1193, p. 28-35.

Raza, M.R. and Famoriyo, S. (1980). Integrated Rural Development as a framework for women's participation in Development". Paper presented at Conference on Integrated Rural Development and Women in Development. Benin, Nigeria.

Remy, D. (1975). Under development and the experience of women in Nigeria. London, Rex, Collins, p. 39.

Rogers, E.M. (1964, 1965, 1966, 1967, 1968). Bibliography on the diffusion of innovations. East Lansing, Michigan. Department of Communications, Michigan State University.

Rogers, E.N. (1983). Diffusion of innovations. 3rd ed. New York: The Free Press.

Safilios, R.C. (1980). The role of the family. A neglected aspect of poverty. In: Knight, P.T. (ed.). Implementing Programmes of Human Developments, Washington, D.C.: The World Bank, p. 311-372.

Simmons, E.B. (1976). *Economic Research on Women in Rural Development in Northern Nigerian*. O.L.C. Paper No. 12, Washington D.C.: Overseas Liaison Committee, American Council on Education.

Simmons, E.B. (1976). Economic research on women in rural development in northern Nigeria. OLC Paper No. 10, American Council on Education, Washington D.C.

Spiro, H.M. (1977). *The role of women farming in Oyo State, Nigeria: A case study in Two Rural Communities*. Discussion on Paper No. 7/80. Ibadan, Algebroa, Agricultural Economics International Institute for Tropical Agriculture.

Spiro, H.M. (1980). *The domestic economy and rural time budget*. Discussion Paper No. 6/80. International Institute of Tropical Agriculture, Ibadan.

Steidl, R.E. (1975). "Complexity of home making tasks". *Home Economics Research Journal*, Vol. 3, pp. 223-240.

Szalai, S. (ed.) (1972). The use of time daily activities of urban and sub-urban populations in twelve countries. The Hague: Mouton, 1972.

The African Farmer, p. 17-18 Number 7, September 1992. Published by Hunger Projects.

United Nations (1975). Women of Africa. Today and Tomorrow, ECA Addis Ababa, p. 16.

Vermeer, D. (1964). *Agricultural and dietary practices among the TIV, Ibo and Birom Tribes*, Nigeria. Unpublished Ph.D. Dissertation, University of California, Berkeley.

Voh, J.P. (1979). *An exploratory study of factors associated with adoption of recommended farms practices among Giwa farmers*. Samaru Miscellaneous Paper 73, Published by Institute of Agricultural Research, A.B.U., Zaria, Nigeria.

Weitz, S. (1977). Sex roles biological, psychological and social foundations, New York, Oxford University, Press.

Zaria, M.B. (1984). An evaluation of the NAFPP strategy for increased sorghum production in Zaria L.GA. Kaduna State. Unpublished M.Sc. Thesis, Department of Agric. Economics and Rural Sociology, A.B.U., Zaria.

APPENIX I

QUESTIONNAIRE INTERVIEW FOR ALL RESPONDENTS ON GENDER CONTRIBUTIONS AND TIME BUDGETS ON FARM AND NON-FARM LABOUR IN KADUNA STATE

SECTION A

GENERAL CHARACTERISTICS

1. Name (optional): _____
2. Questionnaire Number: _____
3. Sex: _____ 4. Interviewer: _____
5. Age: _____
6. Date of Interview: _____ 7. Number of village: _____
8. L.G.A. _____
9. Tribe of farmer: _____
10. Religion: _____
11. Level of education and number of years put into the education:

		Level	Year
(a)	No formal education		
(b)	Quoranic education		
(c)	Primary		
(d)	Secondary/equivalent		
(e)	Above secondary education		

12. Marital status

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(a)	Single	☐
(b)	Married (with husband)	☐
(c)	Divorcee	☐
(d)	Widow/widower	☐
(e)	Separated	☐

13. What is the total number of people in your household? _____
14. How many wives? _____

15. How many male children and their ages?_____

16. How many female children and their ages:_____

_____

_____

17. Do you have other relatives or dependants apart from your family members?_____

18. If Yes

(a) How many males and what are their ages?

_____

_____

(b) How many females and their ages ?

_____

_____

19. Do you have a personal house or rented?

_____

20. What is your main occupation?

_____

21. If your occupation is farming, how did you acquire your land?

(1) Inheritance ☐
(2) Purchase ☐
(3) Rent ☐
(4) Community land ☐
(5) Any other ☐

22. What is the total size of your farm land last year?

_____(hectares)

23. What is the total size of your farmland this year?

_____(hectares)

24. (a) For how long have you been participating in farming?

_____

(b) For how many months did you perform farm activities last year?

_____

SECTION B

25. (a) What are the possible farm-labour and non-farm labour that you engage in and time allocated to these activities this year? Tick your activities and those of your children.

	Self		Children		This year				This year			
					Time recorded				Time recorded by children			
					Daily		Weekly		Daily		Weekly	
	M	F	M	F	M	F	M	F	MC	FC	MC	FC
Farm Production												
(a) Land clearing												
(b) Bush burning												
(c) Hoeing, ridging and land preparation												
(d) Planting												
(e) Applying fertilizer												
(f) Weeding												
(g) Spraying pesticides, etc.												
(h) Harvesting												
(i) Threshing												
Livestock												
(a) Poultry keeping												
(b) Small animal keeping												
(c) Herding												
(d) Large animals keeping												
(e) Fodder/feeding												
(f) Milking												
Home Garden												
(a) Vegetable												
(b) Fruit trees												
(c) Fish pond												
Non-farm Labour												
(a) Processing of feed crops												
(b) Transportation												
(c) Marketing												
(d) Crafts												
(e) Home industry (home made goods)												
(f) Petty trading												
Household Activities												
(a) Cooking and cleaning												
(b) Clothing, laundry (washing cloths)												
(c) Collecting fire wood												
(d) Fetching water												
(e) Rearing and care of children												
(f) Recreation												
(g) Resting												
(h) Others												

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(b) What are the possible farm-labour and non-farm labour that you engage in and time allocated to these activities last year? Tick your activities and those of your children.

	Self		Children		Last year Time recorded Daily		Last year Time recorded Weekly		Last year Time recorded by children Daily		Last year Time recorded by children Weekly	
	M	F	M	F	M	F	M	F	MC	FC	MC	FC
Farm Production												
(a) Land clearing												
(b) Bush burning												
(c) Hoeing, ridging and land preparation												
(d) Planting												
(e) Applying fertilizer												
(f) Weeding												
(g) Spraying pesticides, etc.												
(h) Harvesting												
(i) Threshing												
Livestock												
(a) Poultry keeping												
(b) Small animal keeping												
(c) Herding												
(d) Large animals keeping												
(e) Fodder/feeding												
(f) Milking												
Home Garden												
(a) Vegetable												
(b) Fruit trees												
(c) Fish pond												
Non-farm Labour												
(a) Processing of feed crops												
(b) Transportation												
(c) Marketing												
(d) Crafts												
(e) Home industry (home made goods)												
(f) Petty trading												
Household Activities												
(a) Cooking and cleaning												
(b) Clothing, laundry (washing cloths)												
(c) Collecting fire wood												
(d) Fetching water												
(e) Rearing and care of children												
(f) Recreation												
(g) Resting												
(h) Others												

26. Do you use hired labour for your farm and non-farm activities

27. If yes, list the activities, the time, the cost and the sexes of labourers used

(a) Activities

M	F										
		M	F	M	F	M	F	M	F	M	F

(b) For how long do you hire labour in a year for farm work?

_____

28. Do you use hired tractor to plough and harrow your farm land?_____

29. If yes, for how long and what are their charges for one hour?_____

30. (a) Please tick the crops planted this year and quantities/records of crops planted.

Crops	This year quantities per hectare 20 tiya/50 kg bag	By Gender 40 tiya/100 kg bag
(a) Maize		
(b) Guinea corn		
(c) Millet		
(d) Cassava		
(e) Rice		
(f) Acha		
(g) Cocoyam		
(h) Sweet potatoes		
(i) Cowpeas		
(j) Large beans		
(k) Soya beans		
(l) Yams		
(m) Ginger		
(n) Hot pepper		
(o) Zobo (Rosella)		
(p) Vegetables		
(q) Other (specify)		

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(b) Please tick the crops planted this year and quantities/records of crops planted.

Crops	This year quantities per hectare 20 tiya/50 kg bag	By Gender 40 tiya/100 kg bag
(a) Maize		
(b) Guinea corn		
(c) Millet		
(d) Cassava		
(e) Rice		
(f) Acha		
(g) Cocoyam		
(h) Sweet potatoes		
(i) Cowpeas		
(j) Large beans		
(k) Soya beans		
(l) Yams		
(m) Ginger		
(n) Hot pepper		
(o) Zobo (Rosella)		
(p) Vegetables		
(q) Other (specify)		

31. List the crops you intend to plant this year and give your reasons for these crops.

_____

_____

_____

_____

SECTION C

32. What are the available tools for performing farm and non-farm activities?

	How obtained	Quantity	Piece per piece, etc.
Farm Operation			
(a) Hoe			
(b) Garma			
(c) Sungumi			
(d) Sickle			
(e) Ox-drawn plough			
(f) Tractor			
Harvesting Technology			
(a) Maize shellers			
(b) Cassava grater			
(c)			
(d)			
Processing Technology			
(a) Machine			
(b) Manual			

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33. Do you get and use fertilizer?_____ If yes, what type and their sources and prices?

34. Do you spray your crops with insecticides and pesticides?_____

    If yes, what type and at what price?_____

    _____

35. How do you transport your farm crops from you farm to your house or market?

36. Did you borrow money last year for farming?_____
    If yes, where and what was the amount?

37. What are the other sources of capital you had for farming last year?

    _____

38. Do you have contact with extension workers? _____

    If yes, how did they help you last year?_____

39. Which government programme has helped you most to concentrate on farm and non-farm activities in your areas last year?_____

    _____

40. List all the benefits derived from your farm and non-farm activities last year

(a) Fed the members of the family well Amount_____

(b) Income for the family expenditure Amount_____

(c) Cash crops _____

(d) Others (specify) _____

SECTION D

41. Fill in the alphabet that is most suitable on decision-making on farm and non-farm labour from the codes provided.

I = E = Entirely responsible, M[2] = Mainly responsible, ES[3] = Equally shared, S = Some responsibility, N = No responsibility.

	House-hold head	Wife	Male Child	Female child	Hired male adult	Hired female adult
Farm production						
(a) Land allocation to food crops and cash crops						
(b) Purchase of inputs						
(c) Hired labour and equipment						
(d) Participate in cooperative or credit programme						
(e) Livestock work						
(f) Poultry						
(g) Milking of livestock						
(h) Sale of products from farm						
Non-farm production						
(a) Allocation of activities						
(b) Decision to work						
(c) Control of earnings						
Household activities						
(a) Allocation of tasks						
(b) Division of food among members						
(c) Guidance of young children						
(d) Family size						

42. Please go through the activities listed below and rank each one according to your degree of likeness, by checking under the appropriate column. The ranking is such that 5 represents very much liked while 1 represents disliked very much.

	Very much liked	Liked	Neither Liked nor Dislike	Disliked	Disliked Very much
Farm Production					
(a) Land clearing					
(b) Bush burning					
(c) Hoeing, ridging and land preparation					
(d) Planning					
(e) Applying fertilizer					
(f) Weeding					
(g) Spraying pesticides, etc.					
(h) Harvesting					
(i) Threshing					
Livestock					
(a) Poultry keeping					
(b) Small animal keeping					
(c) Herding					
(d) Large animals keeping					
(e) Fodder/feeding					
(f) Milking					
Home Garden					
(a) Vegetable					
(b) Fruit trees					
(c) Fish pond					
(d) Small livestock					
Non-farm production					
(a) Processing					
(b) Transportation					
(c) Marketing					
(d) Crafts					
(e) Home industry					
(f) Trade/commerce					
(g) Services					
Household Activities					
(a) Cooking and cleaning					
(b) Laundry, work/washing clothings					
(c) Collecting fire wood					
(d) Fetching water					
(e) Rearing and care of children					
(f) Recreation					
(g) Resting					
(h) Others					

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43. Please give three reasons each for linking those activities indicated liked:

(1) _____

(2) _____

(3) _____

44. Please give three reasons each for disliking those activities indicated disliked.

(1) _____

(2) _____

(3) _____

45. As a farmer, will you like to continue to be a farmer?

If yes why? _____

If no why _____

(a) Yes

_____

_____

(b) No

_____

_____

46. List the crops you will like to grow or plant if you have enough money this year and why?

(a) _____

(b) _____

(c) _____

(d) _____