

RELATIVE PARTICIPATION OF NIGERIAN ADULT FEMALES IN DRUDGERY-PRONE FARM ACTIVITIES: IMPLICATIONS ON NATIONAL FOOD SECURITY

¹MATON, S. M., ¹DAYIL, C. D., ¹AUDU, J., ¹BOT, E. T., ¹IBIMODE, A. A. & ¹BAKLIT, G.

Abstract

Nigerian adult females are instrumental to agricultural production which is central to the achievement of self-sufficiency in food to fight hunger. Despite this, women's relative farm sizes under cultivation, and their actual involvement in drudgery-prone farm activities are not well known to policy-makers for interventions. This study has therefore examined the relative contribution of Nigerian adult females in drudgery-prone farm activities and the implications on national food security. The specific objectives were to determine: the age-gender distribution of national population; the relative farm sizes being owned in some selected States by gender; and the proportion of adult females involved in drudgery-prone farm activities. The study adopted a historical research design approach. Data were gathered from reputable secondary sources. The data were transformed to percentages, means and inferential statistics and presented in tables. The result revealed that Nigerian females within the age groups 20-29 and 30-39 years old accounted for 8.4% and 6.7%, respectively; while their male counterparts of the same age groups constituted 6.6% and 5.5% respectively. Females owned and controlled

about 26% of the farmlands against the 74% being owned and controlled by their male counterparts in the surveyed States of the country. Females alone participated in 13 out of the 17 identified drudgery-prone farm activities, which range from land preparations to marketing of farm produce. The ANOVA test result indicated that the P-value is below the predetermined level of 0.05, we can conclude that there is a significant difference in participation in farm drudgeries among Nigerian women, men and children. High participation in farm drudgeries portends serious threat to national food security, as evident by the shortfall in staple food items and the skyrocketing prices in recent times. Sequel to this, the paper recommends the need for Nigerian female gender to form a formidable farming groups at all levels to attract Government's support in the area of mechanized inputs and machinery at subsidized rates, among others.

Key Words: Female, male, children, drudgery-prone activities, food security,

Introduction

One of the most crucial issues of every country of the world today is how to provide sufficient food to its teeming population to fight hunger and food-deficiency diseases, such as malnutrition and kwashiorkor marasmus. Agriculture is one of the main driving forces of the economy of many countries of the world, playing an imperative role in attaining food security, self-sufficiency in agricultural production, development of rural economy and sustainable socio-economic development (Onuwa 1; Akor 6). Agricultural sector has been contributing to the supply of food, raw materials for industry, labour force to non-agricultural sector, capital funds through taxes and savings, exports to other countries to earn foreign exchange, as well as acting as market for non-agricultural products, and provides income for rural dwellers (Amalia 54-55).

Nigeria is among the most richly endowed countries of the world in terms of human and natural resource

endowments (HANRE). It has a population of over 206 million people, with female constituting 49.95% and male 50.05%; and its total surface area is 92,377,000 hectares, of which 70.8 million hectares are arable with 34 million hectares being under cultivation (Nigeria Country Food and Agriculture Delivery Compact 2). Fortunately, an estimated 84 million hectares are considered arable and adjudged to be of medium- high fertility, and 40% of the arable land has been brought under cultivation, while less than 10% has been effectively utilized for production of food crops (Akor 12-13). This means that Nigeria has great agricultural resources such as land, good soil, vegetation and abundant labour, among other favourable ecological and human assets, which nearly all tropical crops can be grown.

Most of Nigeria's rural population of 97,264,440 that constitute 48.6% of the national population are small-holder peasant farmers, cultivating less than 2 hectares of land (Nigeria Country Food and Agriculture Delivery Compact 1; Akor 15). This peasant population is said to produce about 90% of the national agricultural output. In 2021, the agricultural sector generated 24.0% of Nigeria's gross domestic product (GDP), which has indeed, proved that agriculture remains the foundation of Nigeria's

Department of Geography and Planning, University of Jos, Nigeria. matonsamuel99@gmail.com

Corresponding Author

MATON, S. M

E-mail: matonsamuel99@gmail.com

economy. Agriculture offered employment to 40 million Nigerians in 1950, 54 million in 1951, 55 million in 1953, 68 million in 1954, 43 million in 1957 and in 1959 and 1960 the numbers were 46 million and 42 million respectively (Akor 23). However, there is a significant difference in terms of women's participation in agricultural production across the world and within countries.

Women farmers constitute more than one-quarters of the world's population and on average, 43% of the workforce in developing countries are women, but ranges from 20% in Latin America, to 50% in Asia and Sub-Saharan countries (Patil and Babus 111). About labour force participation, the International Labour Organization (ILO) reported that 48.8% of Nigerian female gender is active participants, but revealed their higher representation in precarious, informal and less remunerated employment, with 60%-80% dominance in agricultural processing, legumes, vegetables, raising poultry and ruminants (Islamic Development Bank Report 5; Aneke and Ohio 30). They are found working all year round, producing crops, from the stage of bush clearing to harvest and marketing of the produce. This, in essence, means that women's contribution to meeting nutritional needs is highly acknowledged, as they actively participate in crop production, food processing, marketing, aqua-culture, livestock rearing, fishery and forestry. Despite their active involvement in agricultural activities, women's progressive efforts are hampered by gender-biased inheritances of owing less than 10% of the land, lack of sufficient capital, use of crude implements, religious, customary and traditional constraints. This explains in part why in 2019, about 690 million people world-wide were experiencing hunger, while 135 million in 55 countries were suffering from severe food shortage, with Africa accounting for 73 million or 54% (Ayinde et al. 814).

The phrase, "farm drudgeries" as used in this paper, refers to laborious time-consuming farm operations done manually without the help of modern tools and equipment. The term "food security" on the other hand, is regarded as not only access to, and availability of food, but also resource distribution to produce food and purchasing power to buy food where it is not produced. One of the major impediments to recognizing females' actual roles and responsibilities in agriculture is the unavailability of gender desegregated information that could be used by technicians, planners and policy-makers. The first step towards empowerment of women and full participation in national development and food security strategies is to understand the role difference in food production processes. The extant gap in knowledge

about adult females' involvement in drudgery-prone farm activities in Nigeria prompted this study. It is hoped that the findings will be useful to policy-making bodies to initiate programmes and projects relevant to women in order to reduce the economic gap existing between Nigerian adult males and females.

Aim and Objectives

This study aimed at examining the relative contribution of Nigerian adult females in drudgery-prone farm activities and the implications on national food security. The specific objectives were to:

1. determine the age-gender distribution of national population.
2. assess the relative farm sizes being owned and controlled in some selected States by gender.
3. compute the proportion of adult females' involvement in drudgery-prone farm activities.

Hypothesis

H0: There is no significant difference in farm drudgeries between Nigerian women, men and children.

Methodology

Study Area: Nigeria

Nigeria, also known as the Federal Republic of Nigeria (FRN), with geographic coordinates between Latitudes 3°15'00" to 13°30'00" N, and Longitudes 2°59'00" to 15°00'00" E, has a total area of 923,768 km², in which land comprises 910,768 km² and water, 13,000 km² (Nigeria Handbook 13).



Fig. 1: Location, Position and Size of Nigeria

Figure1 shows the location, position and land area of Nigeria.

Nigeria is located in the tropical region, with dry and wet seasons, determined by the contrasting, fluctuating boundary zone between dry continental air from Saharan desert and humid maritime from Atlantic ocean, called inter-tropical discontinuity (Floyd and Ekpoh 15-17). Climatic elements such as temperature, humidity, wind system and rainfall conditions are dependent on the sequence of the seasons throughout the country. Temperature is less significant than rainfall and humidity; where the mean temperatures are largely a function of altitude, being generally 27°C at sea level and, 22.2°C at Jos on 1289 metres (Morgan 13). the regional variation in mean annual and its seasonal intensity is very great, from the Niger Delta with over 3,000 mm and a few days without rain to the shores of Lake Chad, with less than 300 mm, mostly received within two or three months (Morgan 17).

Differences in amount of average annual precipitation largely account for division of the country into three broad crop combination regions namely: the perennial tree and root crop zone in wetter South; the mixed root crop and grain zone in the Middle part; and the seasonal grain and pulse crop zone in the drier North (Floyd and Ekpoh 13-14). This means therefore that Nigeria has a great wealth of agricultural resources, such as: arable land, medium-high fertile soil and humid climatic conditions, on which almost all tropical crops could be grown (Akor 12). Despite this, Nigerian farmers' efforts are been marred by disproportionate gender participation, with the adult females doing the precarious, informal and less remunerated aspects of agricultural productivity (Islamic Development Bank Report 5).

Materials and Methods

The study adopted a historical research design approach. The data needs include: national population by age and gender; relative farm sizes being owned and controlled by gender in some selected States; and proportion of children and adult males and females involved in drudgery-prone farm activities. Data were obtained from secondary sources, carefully culled from National Bureau for Statistics (NBS), Nigeria Handbook, United Nations Annual Reports, Statistical Report on Women and Men in Nigeria, Food and Agriculture Organization of the United Nations, Economic Community of West African States Commission, among others.

Useful information were also derived from works of scholars who carried out studies in gender-biased involvement in economic activities, including such primary activities like crop farming, crop processing, marketing, aqua-culture, fishery, poultry and forestry. The selection of these pieces of information from the literature was largely Nigeria-biased. Descriptive statistics such as percentages, and means were used, while Analysis of Variance (ANOVA) was used to determine if there are significant differences among children, men and women participants in drudgery-prone farm activities in Nigeria (at 5% level of significance).

Results

In this section, data acquired were summarized, transformed to percentages and means. The results are presented in tables with highlights of what each table depicts.

Land ownership between male and female gender is not equally shared in Nigeria.

Table 1: Distribution of Nigerians by Age and Gender

Gender	Age	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+	Total
Male		15.5	12.0	6.6	5.5	4.9	3.4	2.2	1.6	51.7
Female		13.9	9.5	8.4	6.7	4.4	2.6	1.8	1.0	48.3
National		29.4	21.5	15.0	12.2	9.3	6.0	4.0	2.6	100

Source: National Bureau for Statistics (NBS), (254).

The age and gender distribution of Nigerians is presented in Table 1. Analysis has shown that females in aged 20-29 years and 30-39 years old account for 8.4% and 6.7% respectively, while males of the same age groups constitutes 6.6% and 5.5% respectively. Aside, there are preponderance of males in all the other age groups.

Table 2: Relative Farm Sizes being Owned and Controlled in Selected States by Gender

State	Plot (ha)	%	Male plot (ha)	%	Female plot (ha)	%
Benue	7.0	14.8	5.0	71.4	2.0	28.6
Gombe	7.5	15.9	5.0	66.7	2.5	33.3
Imo	3.0	6.4	1.5	50.0	1.5	50.0
Kaduna	6.8	14.4	5.0	73.5	1.8	26.5
Kano	3.8	8.1	3.2	84.2	0.6	15.8
Katsina	1.2	2.5	0.6	50.0	0.6	50.0
Niger	4.0	8.5	3.0	75.0	1.0	25.0
Ogun	2.8	5.9	2.0	71.4	0.8	28.6
Oyo	2.8	5.9	2.0	71.4	0.8	28.6
Taraba	8.3	17.6	7.5	90.4	0.8	9.6
Total	47.2	100	34.8	73.7	12.4	26.3
Mean	4.7	10	3.5	7.4	1.2	2.6

Source: Computed from FAO & ECOWAS Commission/CGA (35)

Table 3: National Distribution of Farm Drudgeries by Age and Gender

Drudgery-prone activity	Adult female above 15yrs	Adult male above 15yrs	Children below 15yrs	Total (%)
Clearing farm	37.5	36.3	26.2	100
Slash/burning	43.4	22.0	34.6	100
Burning residues	42.0	23.6	34.4	100
Ploughing	37.1	28.8	34.1	100
Seeding/transplanting	40.0	33.3	26.7	100
Seeding/ guarding	39.6	28.1	32.3	100
1st weeding	39.2	35.5	25.3	100
2nd weeding	40.0	34.9	25.1	100
3rd weeding	42.2	30.9	26.7	100
Fertilizer application	43.9	27.9	28.2	100
Herbicide application	32.5	35.6	31.9	100
Bird scaring	38.2	25.9	35.9	100
Harvest	35.3	37.8	26.9	100
Threshing	39.9	32.5	27.5	100
Drying	41.1	29.2	29.7	100
Transport	37.1	32.5	30.5	100
Others-marketing	33.7	33.6	32.7	100
Mean	38.8	31.5	29.7	100

Sources: NBS; as quoted in Francis & Yusuf (156)

Table 2 shows that, of the 10 States surveyed, there are remarkable differences in plot sizes among States and between the male and female gender. Katsina State has the smallest farm plot of 1.2 hectares per peasant farmer, as against Taraba State where a peasant farmer owned up to 8.3 hectares. Furthermore, while females in Imo and Katsina States have equal size of land with their male

counterparts, females in Taraba State have about 10% of the plot size being owned by their male counterparts. The overall mean plot size being owned by the selected male and female gender in the 10 selected States were 4.7 hectares and 1.2 hectares respectively. This means males owned and controlled more farmlands than their female counterparts.

Table 3 depicts the relative distribution of female, male and children (FMC) participants in drudgery-prone farm activities. These farm drudgeries involve the application of muscular power, using outmoded implements such as hoes, cutlasses, machetes, sickles, sticks, knives, calabashes and baskets to prepare farms, plough, sow seeds, transplant, weed, harvest, thresh and transport farm produce from fields to homes. Age and gender analysis revealed that Nigerian adult females took lead in: land clearing, slash and burn, burning residues, ploughing, seeding and transplanting, seeding guarding, weeding, fertilizer application, bird scaring, threshing,

drying of farm produce, conveying from field to farmsteads as well as others like packaging, storage and marketing. However, in all the farm drudgeries, the male counterpart took lead only in herbicide application and harvest of farm produce, accounting for 35.6% and 37.8% respectively, against the 32.5% and 35.3%; 31.9% and 26.9%, for the females and children under 15 years respectively. The overall mean involvement of female, male and children in farm drudgeries were 38.3%, 31.5% and 29.7%; implying that Nigerian adult females contribute more than the male and children under 15 years in farm drudgeries.

Table 4: Summary of Computed ANOVA Test

Groups	Count	Sum	Average	Variance
Column 1	16	629	39.3125	8.981167
Column 2	16	494.8	30.925	21.902
Column 3	16	476	29.75	13.45333

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	870.2517	2	435.1258	29.4425	6.68101E-09	3.204317
Within Groups	665.0475	45	14.77883			
Total	1535.299	47				

H0: There is no significant difference in farm drudgeries between Nigerian women, men and children.

Table 4 shows the results of ANOVA test. Since the P-value is below the predetermined level of 0.05, we can conclude that there is a significant difference in participation in farm drudgeries among Nigerian women, men and children.

Discussion

Females are at the center of economic production, constituting nearly half of agricultural labour force. Results of the national age-gender distribution analyzed has shown that there are more male dominance in all the age categories, except those ranging from 20-39 age brackets, which are being led by the female gender (see Table 1). There is preponderance of economically active manpower, being 68.0%, compared to the young population under 10 years and those aged above 69 years, which accounted for 29.4% and 2.6% respectively.

The plot size analysis as presented in Table 2 has revealed that Nigerian males have bigger plot sizes than their female counterpart in about 80% of the 10 studied States of Nigeria (see Table 2). The study found that, while the male gender owned and controlled 74% of the

farmlands, their female counterparts owned just 26% (see Table 2). This means there is a wide disparity between male and female gender in terms of land ownership and control in favour of the males. The reasons for this great disparity is not unconnected with the patrilineal laws and cultural norms of Nigerian society that have limited women's access to profitable assets in agricultural sector and hinders their inheritance of farm properties (Bello et al. 3). The limited access of females to agricultural productive resources does not only diminish their efficiency and decrease their commitment to agriculture sector, but also imposes a heavy burden on the national economy.

The study has also revealed that female, male and children (FMC) actively participate in various agricultural activities. They engaged in time-consuming hard work, using traditional tools, with inappropriate working posture in the field, otherwise known as drudgeries (see Table 3). A female's involvement in farm drudgeries is complex and covers domestic chores, as aptly described by UNECA/FAO that:

"...She rises before dawn, walks 2 hours or more to fetch water, spends some 10 hours in the fields during peak season, her husband may spend 4 hours, she carries food and wood home, grinds and pounds the grains, cooks while nursing the baby, minds the children, cares for the men, the elders, and markets the excess produce; she works this way till she dies..." (Amalia 55).

Farm drudgeries start with the selection of plot in forest or open tree savannah woodland for clearing, prior to the onset of rains, using muscular power aided by machetes and cutlasses to cut down trees and shrubs from selected site (Taiwo 12-13). The leaves and branches of the felled trees and shrubs are dried and burnt a few weeks later while some of them are cut to required sizes and taken home to meet domestic energy needs.

The preliminary cultivation involves the throwing up of mounds in forest areas and ridging in savannah areas using traditional hoes. Planting is timed so as to effectively optimize the rains and bring the harvest to the beginning of the dry season. During the period of crop growth on a fertilized soil, efforts are made by farmers to keep their farms free of weeds by applying herbicides and sporadic hoeing. In all these farm drudgeries, Nigerian females are more involved than the males and children under 15 years (see Table 3). The result of this study has revealed that, 15 out of 17 hectic farm operations are led by the female gender. This result is higher than the reported 4 out of 7 farm drudgeries led by women in India [16]. The low participation in farm drudgeries by the male gender and children, compared to adult female gender could be due to the development of non-agricultural sector which spurred the schooled male gender to leave the bulk of farming activities to women in search of supposed lucrative jobs in the cities (Aneke and Alio 30). This is evident by the fact that there were 1,413 males as against 122 females in executive, managerial, clerical and operative non-agricultural jobs in 2009 (Nigeria Country Food Delivery Compact 3). However, farm drudgeries are mostly undertaken by the unschooled rural females, which are characterized by difficult posture in bending for long hours, discomfort moving to and fro in the field, and extreme expenditure of muscular power while using blunt hoes, machetes, knives and sickles during farm operations. This explains in part why between 1960 and 1999, agricultural production has been growing at an annual rate of 1.7% against the required annual population growth rate of 2.8%, thus indicating impending food insecurity.

Implications of Farm Drudgeries on National Food Security

Nigeria is a country endowed with diverse agricultural resources, unfortunately, with its massive arable land of over 70.8 million hectares of arable land, it cannot guarantee food sufficiency to its teeming population of over 206 million. This problem is not unconnected with the low participation of adult male gender in farm drudgeries and the high multidimensional poverty, which out of over 206 million population size, 77.2 million (38.6%) face food insecurity, while 57.4 million (28.7%) face nutritional insecurity (Nigeria Country Food and Agriculture 1-2). The population growth of the country is rising at higher rates than the growth in food production, thereby confirming the views held by Reverend Thomas Malthus of the 18th Century, whose fear was that food was growing at an arithmetic progression while human population at geometrical progression.

Food insecurity is a phenomenal event in Nigeria where in 2020, about 6.5% of children under five years were said to be underweight, accompanied by food-deficiency diseases that precipitate stunted growth in infants and children. This explains in part why domestic food crop production has not been keeping pace with population growth, resulting in rising food imports which are growing at unsustainable rate of 11% per annum, as well as obvious decline in national food self-sufficiency (Nigeria Country Food and Agriculture Delivery Compact 2-3).

The gross domestic product (GDP) in 2005, 2006, 2007, 2008 and 2009 were 7.1%, 7.4%, 7.2%, 6.3% and 5.9% respectively; these indicate overall decline in food production, with serious threats to national food security (Nigeria Country Food and Agriculture Delivery Compact 2-3). Worst still, Food and Agriculture Organization (FAO) laments that Nigeria's rice production which though, rose from 3.7 million metric tons (MMT) in 2017 to 4.0 MMT in 2018, was far below its 7.0 MMT yearly demand. Thereafter, the country's yearly rise in the quantity of rice consumption in 2018, 2019, 2020, 2021 and 2022 were 6.75 MMT, 6.80 MMT, 6.85 MMT, 6.90 MMT and 6.95 MMT (Ibirogbu 1). This under-production and supply of food are clearly being witnessed as inflation has already plunged over 7% Nigerians into avoidable poverty; with most households spending 56.0% of their hard-earned incomes on food, above the 6.4%, 8.2%, 9.1% and 9.8% being spent by the USA, UK, Canada and Australia respectively (Allegheny 1). This phenomenon explains in part why on average, 21.4% of Nigerians experienced hunger between 2018 and 2020, with about 25 million currently suffering from hunger, thereby making the country to rank first in Africa

and second in the world's global chart of malnourished children Allegheny 1; Anigo 1; Maton et al. 227-228). This issue needs to be addressed in order to achieve the Sustainable Development Goal-2, which is to: "end hunger, achieve food security and improved nutrition and promote sustainable agriculture" by the year 2030.

Conclusion and Recommendations

The study focused on bringing out the level of involvement of Nigerian adult female gender in hard farm operations. It was argued in the paper that Nigerian adult females are being segregated in terms of ownership and control of land and use of technologies in farm operations. Conversely, the study has found preponderance of females in nearly all the farm drudgeries when compared to their adult male counterparts and children under 15 years, which if no urgent action is taken, sustainable food supply cannot be guaranteed. Sequel to this, the paper has recommended the need for:

- i. Introduction of farm drudgery- reduction devices such as modern farm machinery to be distributed to farmers at subsidized rates.
- ii. Female farmers to form cooperative group at all levels in order to access inputs, services and assets from relevant authorities to boost crop production to forestall food insecurity.
- iii. Closing the extant gap in accessing land, financial services and agricultural technologies, because if given the opportunity, females can be as efficient as their male counterpart.

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