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GEO-ANALYSIS OF FEMALE AS DRIVERS OF RICE CULTIVATION IN ETSAKO, EDO STATE, NIGERIA

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ABSTRACT

This study focuses on the Geo-analysis of Females as drivers of rice cultivation in Etsako, Edo State, Nigeria. Rice being a staple food widely consumed by most Nigerians is both imported and locally produced. Semi-structured questionnaires were administered to 370 rice farmers in the region using purposive and systematic random sampling techniques while 328 (88.6%) was successfully retrieved. Descriptive statistics was employed in data analyses and presentation. It was discovered that, majority of the farmers were females, 171 (52.1%) with 157 (47.9%) men. The overall findings shows that a large proportion of about 64.6% representing 212 rice farmers were married while 18 (5.5%) and 25 (7.6%) of the study respondents were separated and widowed respectively. The study therefore recommends that, females involved in rice farming should be encouraged by the provision of incentives to serve as morale booster, rice cultivation should not be left in the hand of females alone; Concerted efforts should be made, not only to challenge men but to empower them to deploy their masculine potentials in rice farming with the view to boosting food sufficiency, the current institutional arrangements governing rural land holdings and tenure system need to be reviewed in line with the emerging realities so that females also inherit lands from their forebears and become owners of lands permanently, adequate security should be provided for the safety of the females involved in rice farming and the unmarried (younger people) should be encouraged to get involved in rice farming.

Key words: Rice, Cultivation, Females, Etsako, Unmarried, Rural Land.

Introduction

The population of Nigeria is on the increase resulting in increasing income levels and urbanization and as such an increase in the demand for food and other means of survival (Akande, 2002; Cadoni and Angelucci, 2013; Osifo, 1971). The need to meet up the increasing demand for survival has pose so much pressure on the land upon which agriculture is done arising from increasing population, migration, climatic factors (rainfall, temperature and solar radiation), edaphic factors, government policies, predominance of pest and diseases, droughts etc.(Ismaila, Gana, Tswanya and Dogara, 2010, Ekeleme *et al.*, 2008). Food production being a necessity for human survival cannot be overlooked which has led to increase in the production of rice over time (Amaechina and Eboh, 2017) since rice has been reported to be among the most consumed food in Nigeria with an estimated per capita consumption of about 24.8kg (Adeyeye, Navesero, Ariyo and Adeyeye , 2010). Rice is the fourth most important staple food crop in Nigeria

Frantic efforts have been put in place to ensure that production of rice in Nigeria where most farmers are small holders is maintained and even increased (Adeyeye *et al*, 2010). Preference of the locally produced rice is so because of its low market price relative to foreign (imported) rice despite that the foreign rice appear cleaner, tastier and homogenous (Lançon, *et al*., 2003).

Despite the impediments pose by lack of modern technology, availability of pesticides, fertilizers, hybrid seed and irrigation and of late, increasing insecurity, flood disaster, terminal drought and so on, local farmers in Nigeria are still bent on farming and making food available for the survival of its populace (Gana *et al*., 2000; Ogunwole, Bello and Owonubi, 2004). Despite efforts being made by rice farmers in Nigeria to maintain and possibly boost production, Cadoni and Angelucci (2013) reported that, Nigeria, though the largest rice producing country in West Africa, it is the second largest importer of rice in the world. This is so because, the demand for rice far outweighs the domestic production/supply ((Bamidele, Abayomi and Esther, 2010; Odomenem and Inakwu, 2011). Damola (2010), classified rice growing environment in Nigeria into five rice ecosystems thus:

- Rain-fed lowland which accounts for 47% of total rice production area,
- Rain-fed upland (30%), irrigated lowland including large-scale irrigation schemes,
- Small-scale irrigation schemes account for 16% of total rice area, deep water (5%) and
- Mangrove swamp accounting for less than 1% of total rice area.

The type of rice plants that are grown are different for each ecology. Plant bred for the irrigated land for instance cannot be grown in the uplands or flood plain and deep water environment since rice ecologies are bred for a specific zone. The Nigerian culture is described as being masculine, hierarchical, indulgent and community oriented (Bustamante and Ogunyemi, 2021). This simply explains the reason behind the erroneous perception of the Female gender as inferior. To underscore the fact that females are better than perceived, this research hopes to unravel the level of involvement of females in the cultivation of rice in Etsako, Edo State, Nigeria.

Study Area (Location and Size)

The study area is Etsako Region. It lies within longitude 006 04.00’ and 006 12.989’ of the Greenwich Meridian and latitude 07 05.881’and 07 23.022’of the Equator in Edo State (Figure 1). As seen in Figure 1, Etsako Region is strategically positioned such that it is bounded in the north by Kogi State, in the east

by Anambra State, in the south by Esan land and in the west by Owan East and Akoko Edo LGAs. The Etsako Region has a population of 439,545 (National Population Commission, 2006). They are found in the Northern part of Edo State. When the Kukuruku Division was established in 1919 as an administrative unit in the former Benin Province, the people were grouped into Etsako District as one of the three districts included within it; the other two being Akoko-Edo and Ivbiosakon(EDSMLS, 2006).

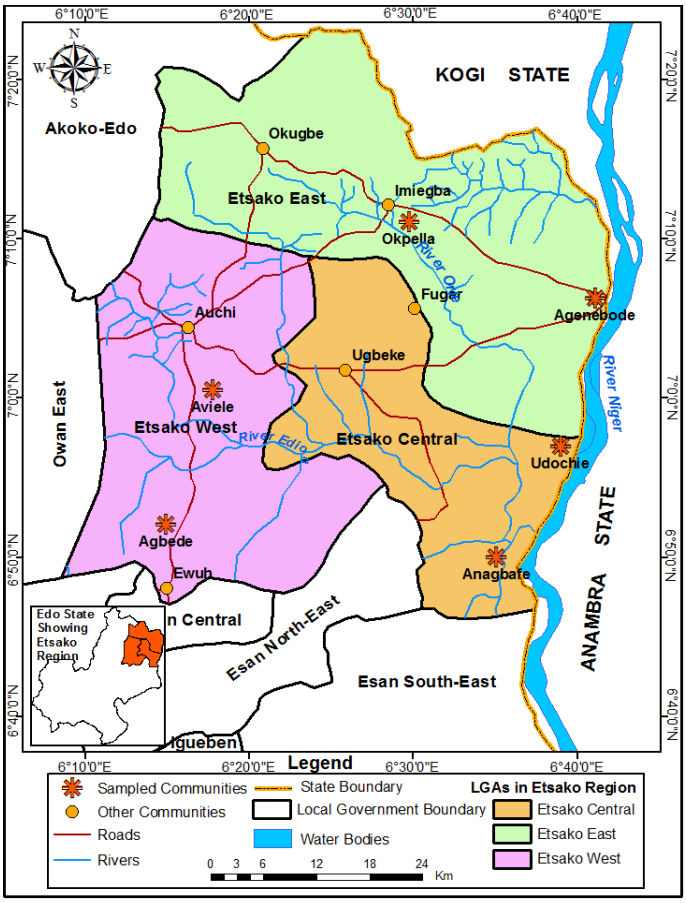

Figure 1: Etsako Region of Edo State Showing Sampled Communities and Local Government Areas

Source: Compiled from Open Street Map Database (2019).

The Etsako people are presently distributed among the three local government area namely: Etsako-East, Etsako Central and Etsako West, with Agenebode, Fugar and Auchi respectively as their administrative headquarters. Within the boundaries of Etsako-land, thirteen clans are recognized, namely, Auchi, Aviele, Awain, Avianwun, Ekperi, Jagbe, Okpella, Okpekpe, South Ibie, South Ineme, Three Ibies, Uzairue and Weppa Wanno. Each of the thirteen clans is made up of a cluster of villages, with Uzairue clan for example having twenty-one villages. The Etsako clans are strongly connected by common tradition of origin, and they speak closely related dialects while at the same time exhibiting other numerous similar cultural traits (Edo State Ministry of lands and survey, 2006).

Climate

The climatic condition of Etsako region and its environs fall within the warm- tropical climate region where the wet and dry seasons are noticed prominently in the area. The rainy season last for about seven months (May to October) and the dry season last for about five months (November to April) (Owena, 2008). Rainfall is moderate between the months of March and May and heaviest between June and September with average rainfall between 1000mm and 1500mm and temperature as high as 36.7° especially within the hottest period of February to April (Meteorological Department, FAAN, Benin City, cited in Edo State Bureau of Statistic Year Book, 2013).

Vegetation

The study area lies within the Guinea Savannah vegetation belt characterized by short trees and tall grasses. The vegetation here is prominently made up of sparsely distributed trees, herbs, shrubs, and grasses. Trees in this area are mostly concentrated along fracture zones within the plutonic bodies and on the Quartzite ridges where adequate soil cover has resulted and there is adequate groundwater retention. The Southern part near Anegbette possesses high forest and small creeks like the Alika Creek. In addition, the areas around the River Osimile (River Niger)

especially in South Ineme, Aviele and Weppa Wanno, tend to be swampy. The Northern part is mainly secondary forest around Auchi and these later breaks into the Savannah grassland in the northern parts of Avianwu and Uzairue clans (Edo State Bureau of Statistics, 2013).

Agriculture

The major occupation of the inhabitants of Etsako region is subsistence farming. The area has fertile land for the cultivation of various agricultural produce. Small scale farmers and fishermen plant various food crops such as yam, cassava, rice, pineapples, plantain, sugar cane, cashew, tomatoes, ground nut, cotton and maize etc. Most of these farming activities are carried out in the valleys which in most cases have loamy soils and also within a region that has a high water table. The process of bush burning is followed by hunting of bush animals by the indigenes. Some of the farmers produce palm oil in small quantities from the palm trees (Edo State Bureau of Statistics, 2013).

Weathering and Erosion

The study area and most part of southwestern Nigeria are currently being devastated by soil and gully erosion at alarming rates and magnitudes. Several studies have attributed the prevalence of gully erosion to anthropogenic factors. Ozor and Madukwe (2005) recognized biologic and hydro geotechnical characteristics of the gully areas as important factors in the gullying process. The high incidence of gullying and land sliding result from the susceptibility of the sandy units to erosion under the influence of meteoric and anthropogenic factors. Landslides are common along many of the Nigerian highways particularly those that traverse the sedimentary areas.

Drainage

Etsako land is dotted by a number of rivers and streams with the main ones being the Osimile, Obe, Orle, Edion, Ogio, Ezi, Odura, Oruoru and Ubo. Some of the minor streams include Ola, Okhosho Okhualehenien, Okhuakhere, Ogio, Ugholomi, etc. Lakes also exist in the area including Ise, Asounu, Olinyo and Igwe. These rivers, streams and lakes all combined to influence the people activities economically.

Economic Activities

The major industries today in Etsako land are mostly mining related. These industries have attracted mining related firms into the area. There are several quarries producing Dolomite, Granite and Granite dust used for the construction of roads, cements and glass. Other quarries in the areas are into the crushing and bagging of kaolin for livestock feed companies across Nigeria. While the most notable companies in Etsako are the Okpella Cement Factory, Setraco Construction Company and a few others. Today there are related companies spread across Etsako.

Methodology (Datasets and Sources)

The study employed both primary and secondary data. The primary data was collected through oral interview, focus group discussions with the rice farmers in the selected communities. Secondary data was sourced from already existing documents, relevant literature and research institution. Data will also, be collected from the following sources: Agricultural Development Project (ADP) head office in Edo State, Agricultural Extension officers in the local governments that make up the study area.

Population and Sample Size

The population of the study consisted of rice farmers in the selected communities from the study area. Sample size is almost invariably controlled by cost and time (Ogundele and Okoruwa, 2006). Nevertheless, Mitcheland Jolley (2007) provided a useful framework for determining an appropriate sample size.

Interestingly, the Federal Ministry of Agriculture and Rural Development (2017) reported that the total population of household engaged in rice farming in the six study communities including Agbede, Anegbette,

Agenebode, Aviele, Udochie and Uzaire is about 10,000. Thus, the Mitcheland Jolley's (2007) sampling framework was adopted to obtain the sample size from the sample population of 10,000 at 95% confidence level and 5% error margin. This also equals to 370 rice farmers which formed the sample size which was shared proportionally according to the population of rice farmers in each communities as shown in Table 1.

Table 1: Farming Cells and Sample Size
***Source: Federal Ministry of Agriculture and Rural Development Edo State (2011)**

Sampling Techniques

The study area is Etsako region. The region is made up of three local government areas which includes: Etsako East, Etsako West and Etsako Central local government areas. These local government areas are covered by rural communities/villages. Purposive sampling was used in selecting two (2) communities each from the three local government areas. A total of six (6) communities which includes: Agbede, Anegbette, Agenebode, Aviele, Udochie and Uzaire were purposively selected for this study. The purpose of using purposive sampling was based on their level of rice production in Etsako region. Systematic random sampling was adopted in picking rice farmers in the villages. The working of this method is that, in each street, lane or layout in the community, the first house was picked and thereafter every third residential houses selected. In a case where there is no rice farmer in a particular house, the next residential house was chosen to see if a rice farmer lived there.

Instrument for Data Administration

This involved the use of structured questions for the purpose of gathering information on the variables under investigation. The questionnaires were administered to rice farmers in the selected sample areas by the researcher and his research assistant. The farmers were required to give vital information on the factors militating rice cultivation as captured in the questionnaires.

Method of Data Analysis

The data that were generated from the field survey were extracted from the research instrument (questionnaires) and subsequently analyzed with the help of descriptive statistics, Likert weighted mean scores and analysis of variance and the conclusions were draw. The units of analysis are: Etsako Region, the three LGAs in the region as well as the six sampled villages.

Descriptive statistics involved the use of simple percentages, tables, frequencies and charts. Specifically, these statistical techniques facilitated the achievement of the first, third and fourth research objectives. Similarly, 5-points Likert's framework was deployed to make easy the realization of the second research objective. The Likert scale ranged from Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (D) and Strongly Agree (SD) and were weighted 5, 4, 3, 2 and 1 in that order. The analyses were performed using the International Business Machine- Statistical Packages for Social Sciences (SPSS) version 22.

Table 1: Farming Cells and Sample Size

S/N	Agricultural Blocks	Communities	No. of Rice Farmers*	Sample Size/No. of Questionnaires	No of Quest Retrieved
1	Etsako West	Agbede	1200	44	41
		Aviele	1600	59	52
2	Etsako East	Agenebode	1800	67	56
		Okpella	1500	56	49
3	Etsako Central	Udochie	1400	52	43
		Anegbate	2500	92	87
			10,000	370	328 (88.6%)

***Source:** Federal Ministry of Agriculture and Rural Development Edo State (2011) Sampling Techniques

Table 2: Frequency/Percentage of Sampled Rice Farmers in Etsako Region by Sex

LGA	Villages		Sex		Total
			Male	Female	
Etsako West	Agbede	Frequency/Percent (%)	21 (51.2)	20 (48.8)	41
	Aviele	Frequency/Percent (%)	27 (51.9)	25 (48.1)	52
Etsako East	Agenebode	Frequency/Percent (%)	45 (80.4)	11 (19.6)	56
	Okpella	Frequency/Percent (%)	26 (53.1)	23 (46.9)	49
Etsako Central	Udochie	Frequency/Percent (%)	16 (37.2)	27 (62.8)	43
	Anegbate	Frequency/Percent (%)	22 (25.3)	65 (74.7)	87
Grand Total		Frequency/Percent (%)	157 (47.9)	171 (52.1)	328

Source: Fieldwork (2023)

Table 3: Marital Statusof Rice Farmers in Etsako Region

LGA	Villages		Marital Status				Total
			Single	Married	Separated	Widowed	
Etsako West	Agbede	Frequency	11	20	5	5	41
		Percent	26.8%	48.8%	12.2%	12.2%	100.0%
	Aviele	Frequency	6	37	4	5	52
		Percent	11.5%	71.2%	7.7%	9.6%	100.0%
Etsako East	Agenebode	Frequency	11	42	1	2	56
		Percent	19.6%	75.0%	1.8%	3.6%	100.0%
	Okpella	Frequency	13	25	5	6	49
		Percent	26.5%	51.0%	10.2%	12.2%	100.0%
Etsako Central	Udochie	Frequency	8	28	2	5	43
		Percent	18.6%	65.1%	4.7%	11.6%	100.0%
	Anegbate	Frequency	24	60	1	2	87
		Percent	27.6%	69.0%	1.1%	2.3%	100.0%

Source: Fieldwork (2019)

Table 4: Other Major Crops Produced by Rice Farmers in Etsako Region

LGA	Villages	Frequency/Percent (%)					Total
		Rice	Yam	Cassava	Plantain	Maize	
Etsako West	Agbede	31 (75.6)	4 (9.8)	0 (0)	5 (12.2)	1 (2.4)	41
	Aviele	37 (71.2)	14 (26.9)	1 (1.9)	0 (0)	0 (0)	52
Etsako East	Agenebode	31 (55.4)	18 (32.1)	0 (0)	7 (12.5)	0 (0)	56
	Okpella	47 (95.9)	1 (2)	1 (2)	0 (0)	0 (0)	49
Etsako Central	Udochie	31 (72.1)	12 (27.9)	0 (0)	0 (0)	0 (0)	43
	Anegbate	84 (96.6)	1 (1.1)	0 (0)	2 (2.3)	0 (0)	87
Grand Total		261 (79.6)	50 (15.2)	2 (0.6)	14 (4.3)	1 (0.3)	328 (100)

Source: Fieldwork (2023)

Results and Discussion

Demographic and Socio-economic Characteristics of Respondents

The importance of socio-economic and demographic characteristics of respondents in a cross-sectional survey cannot be over-emphasized. Through the socio-economic and demographic characteristics, researchers have sufficient insights and general background information of individuals who participated. The general background information holds vital datasets needed to classify identical subgroups, to ascertain underlying relationships between attitudes and societal facts, and to describe disparities among scores on scales (Hoffmeyer-Zlotnik, 2008**).** This section therefore, presents findings on the socio-economic and demographic characteristics of sampled rice farmers in Etsako Region.

Gender of Sampled Rice Farmers in Etsako Region

The frequency distribution of sampled rice farmers according to gender is shown in Table 2. Taking a look at the distribution across various sampled villages in Etsako West LGA**,** it could be seen that out of the 41 respondents in Agbede village who participated in the survey, 21 (51.2%) were male while 20 (48.8%) were female. In Aviele village, male respondents were 27 (51.9%) while the remaining 25 (48.1% constituted the female respondents. Besides, in Etsako East LGA, among the 56 respondents sampled in Agenebode village, 45 (80.4%) were male and 11 (19.6%) female while in Okpella village, 26 (53.1%) and 23 (46.9%) were male and female respectively. Similarly, in Etsako Central LGA, 22 (25.3%) and 65 (74.7%) male and female in that order, were chosen from Udochie village while 22 (25.3%) as well as 65 (74.7%) male and female respectively, were sampled from Anegbate village. ascertain underlying relationships between attitudes and societal facts, and to describe disparities among scores on scales (Hoffmeyer-Zlotnik, 2008**).** This section therefore, presents findings on the socio-economic and demographic characteristics of sampled rice farmers in Etsako Region.

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However, taking a general overview at the distribution of study respondents according to gender, it could be seen that 157 (47.9%) of the rice farmers in Etsako Region were males while 171 (52.1%) comprised of female farmers. This result indicates that rice cultivation in the study area is mainly dominated by female population which corroborates with the findings of Gallina and Farnworth (2016) in Northern Vietnam.

Effiong, Ijioma and Okolo (2015) attributed the rationale for female dominance in rice cultivation to it profitability. According to Rahman, Shammi, Parvin, Akter, Khan and Haque (2016), “women spent more time in various rice production stages from land

preparation to after-harvest activities nursery, weed removal, threshing, clean-up and sorting of grain, boiling of grain, drying of straw and rice storing.

Besides, 5 (12.2%) in addition to 5 (9.6%), 2 (3.6%) in addition to 6 (12.2%) and 5 (11.6%) in addition to 2 (2.3%) sampled rice farmers in Agbede and Aviele (Etsako West LGA), Agenebode and Okpella (Etsako East LGA) as well as Udochie and Anegbate (Etsako Central LGA) were widowed. The overall findings shows that a large proportion of about 64.6% representing 212 rice farmers were married while 18 (5.5%) and 25 (7.6%) of the study respondents were separated and widowed respectively. The high number of married respondents found in this study is an indication of household and family stability which is a strong boost to increased farming and rice production. **Effiong *et al* (2015) reported that individuals who are married could demonstrate some sense of responsibilities and aptitudes in decision making.**

Some Major Crops Produced by Sampled Rice Farmers in Etsako Region

There are several arable crops grown by many farmers in Etsako Region which serve as staple sources of income to the farmers and food their households and for the populace. This study also made an effort to investigate whether sampled respondents, apart from rice cultivation produced other crops as well. Findings as presented in Table 4 indicates that apart from the 31 (75.6%) and 37 (71.2%) of the sampled respondent who concentrated mainly on rice cultivation in Agbede and Aviele villages (Etsako West LGA), 4 (9.8%) and 14 (26.9%) respectively, also planted yam in their farms. Five (12.2%) respondents in Agbede village also cultivated plantain while 1 (2.4%) farmer cultivated maize alongside with rice.

In Agenebode and Okpella villages (Etsako East LGA), 31 (55.4%) and 47 (95.9%) respondents cultivated rice as major crop while 18 (32.1%) and 1 (2%) respectively also integrated yam into their farms. In Udochie and Anegbate villages (Etsako Central LGA), 31 (72.1%) and 84 (96.6%) respondents cultivated rice as major crop while 12 (27.9%) and 1 (1.1%) respectively also integrated yam into their farms. On a general note, 261 (79.6%) cultivated only rice in their farms while 50 (15.2) and 14 (4.3%) integrated yam and plantain respectively in their farms. A minute proportion, 2 (0.6%) and 1 (0.3%) also cultivated cassava and maize alongside with rice. The practice of mixed farming as found in this study may not be far from farmers' quest to boost food production and hence increase food security. The system of agriculture also helps to reduce farmers' vulnerability to crop failure due to impacts from other biophysical variables.

Conclusion

It was found that 47.9% of the rice farmers in Etsako Region were male while 52.1% were female farmers. Also, about 64.6% of the sampled respondents were married while 5.5% and 7.6% of the study respondents were separated and widowed respectively. It can therefore be concluded that, females are the majority of rice producers in Etsako and the married (either separated or widowed) form the bulk of rice producers in Etsako.

Recommendations

The recommendations arising from the findings of this study include:

1. Females involvement in rice cultivation should be encouraged by provision of incentives to boost their involvement in rice cultivation.
2. Rice cultivation should not be left in the hand of females alone. Concerted efforts should be made, not only to challenge men but to empower them to deploy their

masculine potentials in rice farming with the view to boosting food sufficiency.

3. The current institutional arrangements governing rural land holdings and tenure system need to be reviewed in line with the emerging realities so that females

4. also inherit lands from their forebears and become owners of lands permanently.
5. Adequate security should be provided for the safety of the females involved in rice farming.
6. The unmarried (younger people) should be encouraged to get involved in rice farming.

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