GENDER DIFFERENTIALS IN RICE FARMERS' ACCESS TO SOCIAL CAPITALS IN NIGER STATE NIGERIA

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Abstract: This study examined the gender differentials in rice farmers' access to social capitals in Niger State Nigeria. Two-stage sampling procedure was used to select 215 male and 132 female rice farmers as respondents. The research approach for this study is a survey of rice farmers using interview schedule to collect primary data. Data collected were analysed using frequency, percentage and regression. Results shows that annual income, ownership of farm land and access to loan for rice production significantly differs in favour of male farmers while access to extension agents was in favour of female farmers at $p<0.05$. The top ranked social capital accessible to male farmers were community development association (2.95±0.64), extension agents (mean=2.88±0.71), and cooperative societies (2.75±0.69) while female farmers' top social networks accessible were community development association (3.19±0.39), friend relationships, kinship relationships, neighbourhood interactions (2.92±0.99) and fellow farmers (2.88±0.89). Based on these findings, the study concluded that male (extension agents and cooperative societies) and female (friends and fellow farmers) differ in the social capital accessible and factors that determined their accessibility. Thus, extension program should provide equal gender access to social capitals among rice farmers in Niger state.

Keywords: gender, rice farmers, social capitals, access

INTRODUCTION

Gender is a demographic characteristic that differentiate between men and women, which focuses on the interaction the exist among men and women such as their roles, access to resources, and control over production resources, division of labour, and a variety of other demands (Abdulrahman *et al.*, 2018; Adefalu *et al.*, 2016). The term "gender" refers to the social construction or categorization of the social relationships and differences between the sexes. Gender includes not just the interaction between men and women, which separates them from one another, but well as the way in which these relationships are organized along gender lines. Gender is concerned with how men and women live their lives, their varying chances, and how they access resources and meet their needs (Deininger, 2013).

Gender and gender related research have been about differences between men's and women's roles, rights, and responsibilities as they shown in their performance in areas such as knowledge, desires, wants, needs, talent, and experience (Abduoulaye et al., 2015). The analysis of gender as a socioeconomic variable provides in-depth knowledge on how to identify and differentiate the activities, responsibilities and position of the different genders in production and processing especially as regards to farming and agriculture (Adeyongo *et al.*, 2022). Gender examines roles and responsibilities to determine the optimum role for a man or woman. Different genders have different responsibilities in the community, women most times are calmer and more honest than men. However, emphasizing women's positive characteristics may result in a gender prejudice. Gender analysis is linked to a variety of characteristics, including culture, class, colour, age, sex, belief, geography, philosophy, and political activity (Adeyemi *et al.*, 2023). According to Okezie (2021), economically empowered women are major catalysts for development of social capitals which is considered one of the important factors to achieve economic outcomes among women as access to adequate finance remains a bottleneck among them.

Social capital plays a role in resiliency and the success of local agricultural systems (Glowacki-Dudka *et al.*, 2013). Social connectivity is the basis for economic exchange in community based food systems and it facilitates essential collaboration between food system actors (Bauermeister, 2016). Social capital is often recognized as a core driver of community social learning, which is embedded in observation and imitation of others and the co-creation of knowledge (Storr *et al.*, 2017). Social capital has been defined as "networks, norms of reciprocity and trustworthiness (Goldenberg & Meter, 2019), and is generally built upon shared beliefs and values or a collective identity (Qiao *et al.*, 2017). Previous research on social capital has identified three common structural (network) dimensions: bonding, bridging, and linking (Andriani and Christoforou, 2016), that contribute to cooperation and, more specifically, to mutually beneficial collective actions (Andriani and Christoforou, 2016). Informal networks reflect interactions between people and their interconnections, including friend relationships,

kinship relationships, and neighborhood interactions (Niles *et al.,* 2021). According to previous studies, social networks are often regarded as a positive factor in promoting rural development. In addition, it is an important link between the inside and outside of communities (Meador, 2019). A good social network is an important channel for farmers to obtain technical information in the modern agricultural production (Qiao *et al.,* 2017).

Social capital, as an intangible asset, not only encourages cooperation and innovative interaction, but also facilitates the learning process by increasing operational productivity, especially by weeding out worthless information, building efficient information distribution channels and providing an opportunity for compatibility (Kolawole *et al.,* 2022). Also, social capital is often considered as the main factor for reinforcing competitive advantage, creating innovation for new investments and establishing a new business, mainly where knowledge and human resources are available (Ganiyu and Oyeniyi, 2018). In the direction of these benefits, studies have ascertained gender difference on the effects of social capitals access and benefits among male and female (Okezie, 2021; Owen, 2022), while literature remain unclear on gender differentials in farmers' access to social capitals in Nigeria. It therefore becomes pertinent to assess the gender differentials in rice farmers' access to social capitals in Niger state in order to provide empirical data needed for extension policy process and programme that will promote equal male and female access to social capitals in Niger State and Nigeria at large. The main objective of the study is to examine gender differentials in rice farmers' access to social capitals in Niger State Nigeria. Specifically, the study

i determined gender difference in socio-economic characteristics of rice farmers,

ii ascertained gender difference in rice farmers' access to social capitals and

iii identified factors influencing rice farmers' access to social capitals according to their gender.

METHODOLOGY

This study was conducted in Niger State Nigeria. The State is located in Guinea Savannah ecological zone of Nigeria within latitude 8^0 22ˡ N and 11^0 30ˡN and longitude 3^0 30ˡ E and 7^0 20ˡE. The State experiences annual rainfall of between 1,100mm in the North and 1,600mm in the South. Its maximum temperature is usually not more than 35^0c. The main occupation of the people of the State is farming, the State is prominent for arable crops production including rice (Niger State Geographic Information Service, 2007).

The population of the study comprises of all the rice farmers in the three LGAs having the most populated members of rice association of Nigeria in Niger State. The LGAs and their population are Lavun LGA (1150), Wushishi LGA (748), Gbako LGA (451) and Paikoro (260). Thus, the total population for the study consists of 2,609 rice farmers (National Cereals Research Institute [NCRI], 2023).

Determination of sample size was done with the use of Taro Yamane Formula to arrive at 13.3%, 347 respondents. The 347 respondents were selected by two-stage sampling procedure. First stage involve a purposive selection of four prominent rice producing LGAs in Niger State namely: Lavun, Wushishi, Gbako and Paikoro. The second stage involves 13.3% random selection from population of members of rice farmers' association in each selected LGA. Sampled members consist of 153 members from Lavun LGA, 99 members from Wushishi LGA, 60 members from Gbako LGA and 35 from Paikoro LGA (Table 1).

Table 1: Summary of sampling procedure and sample size

Stage 1: Purposive selection of rice producing LGAs (NCRI, 2023)	Population of members of rice farmers association/cooperative (NCRI, 2023)	**Stage 2:** 13.3% of the Population
Lavun	1150	152.9 = 153
Wushishi	748	99.4 = 99
Gbako	451	59.9 = 60
Paikoro	260	34.6 = 35
Total	2609	**347 consisting 215 male and 132 female rice farmers**

Source: Fields analysis: 2024

The research approach for this study is a survey of rice farmers. Primary data were obtained through an interview schedule. The instrument was modified by experts in the Department of Agricultural Economics and Extension Services to ensure its validity. The co-efficient obtained by Cronbach's Alpha reliability test of the instrument was 0.96, indicating that the instrument was considered reliable.

Farmers access to social capitals (farmers' group, religious affiliation, innovation platform etc) for rice farming information was measured on 5-point Likert type scale to be measure as: high access=4, access=3,

moderate access=2, less access=1 and no access=0. Primary data to address objectives of this study were analyzed using frequency count, percentage, mean, standard deviation, t-test and chi-square test while hypothesis of the study was assessed by multiple regression. Ordinary least square regression model was adopted. The model was specified implicitly thus:

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 + \ldots + e_i$

Where;

Y= Access to social capitals

(X) = Independent variables

X_1 = Age (in years)

X_2 = Marital status (married=1, otherwise 0)

X_3 = Education (formal=1, no formal=0)

X_4 = Household size (in numbers)

X_5 = Farming experience (in years)

X_6 = Farm size (in hectares)

X_7 = Farm income per annum (in Naira)

X_8 = Access to land (yes=1, no=0)

X_9 = Access to extension services (yes=1, no=0)

e = Error term

RESULTS AND DISCUSSION

Gender difference in socio-economic characteristics of rice farmers

Table 2 presents the gender difference in socio-economic characteristics of rice farmers in the study area.

Table 2: Gender difference in socio-economic characteristics of rice farmers

Variables	Male (n=215)	Female (132)	Statistical difference
Age (years)			
≤ 25	23(10.7)	28(21.2)	
26 – 35	142(66.0)	75(56.8)	
≥ 36	50(23.3)	29(22.0)	
Mean±SD	32.77±4.68	31.19±5.46	t=3.251; p=0.001*
Marital Status			
Married	205(95.3)	98(74.2)	
Unmarried	10(4.7)	34(25.8)	$\chi 2$=29.506; p=0.000*
Total years of schooling			
No formal education (0)	104(48.4)	98(74.2)	
Primary (1 – 6 years)	15(7.0)	20(15.2)	
Secondary (7 – 12 years)	78(36.3)	14(10.6)	$\chi 2$=48.169; p=0.000*
Tertiary (above 12 years)	18(8.4)	0	
Household size (persons)			
≤ 5	102(47.4)	69(52.3)	
6 – 10	81(37.7)	43(32.6)	
≥ 11	32(14.9)	20(15.2)	
Mean±SD	7.17±5.30	7.1±5.33	t=0.411; p=0.681
Years of experience in rice farming			
≤ 10	3(1.4)	21(15.9)	
11 – 20	143(66.5)	84(63.6)	
≥ 21	69(32.1)	27(20.5)	
Mean±SD	20.13±5.06	17.36±5.81	t=5.114; p=0.002*
Rice farm size (hectares)			
≤ 1.0	65(30.2)	37(28.0)	
1.1 – 2.0	81(37.7)	51(38.6)	
2.1 – 3.0	60(27.9)	38(28.8)	
≥ 3.1	9(4.2)	6(4.5)	
Mean±SD	1.86±1.31	1.8±0.96	t= -1.285; p=0.200
Annual Income (Naira)			
≤ 500,000	98(45.6)	80(60.6)	
500,001 – 1000,000	71(33.0)	45(34.1)	
≥ 1000,001	46(21.4)	7(5.3)	
Mean±SD	696256.28± 503857.28	450621.97± 382147.04	t=5.180; p=0.000*
Ownership your farm land			
Owned	198(92.1)	20(15.2)	
Not owned	17(7.9)	113(84.9)	$\chi 2$=25.080; p=0.000*
Access to loan for rice production			

Yes	197(91.6)	132(100.0)	
No	18(8.4)	0	$\chi2$=11.656; p=0.001*
Contact with extension agent			
Yes	188(87.4)	132(100.0)	
No	27(12.6)	0	$\chi2$=17.975; p=0.000*

Note: t=independent T-test; $\chi2$= Chi-square test; SD=Standard deviation, *Significance at p<0.05 level

Findings show that the average age of male rice farmers (32.7 years) is slightly older than the female' rice farmers age (31.1 years) and showed statistical difference (t=3.25; p<0.01). On the marital status, most of the male (95.3%) and female (74.2%) farmers were married as few 4.7% males and 25.8% female were unmarried. Information on years of educational level indicated that 48.4% of the male farmers had no formal education while majority (74.2%) of the female farmers had no education, indicating that male were better educated than their female counterparts. Regarding household size of the respondents, the average household size of male rice farmers (7.1 persons) is the same as female rice farmers' household size (7.1 person) which showed no statistical difference (t=0.411; p>0.05). Results on years of experience in rice farming showed that the mean years of rice farming experience among male farmers (20.1 years) is significantly higher than the years of rice farming experience of female farmers (17.36 years) indicating (t=4.623; p=0.000). Also, the mean size of rice farm cultivated by male farmers (2.19 hectares) is slightly higher than that cultivated by female farmers (1.8 hectares) which showed significant difference (t=1.96; p<0.05). The annual income of the respondents revealed that the average yearly income from rice farming among male farmers (₦696256.28) is significantly higher than the annual income earned by female rice farmers (₦450621.97) at p<0.05 level of significance. Responses on access to land indicated that majority (91.6%) of the male farmers owned the land while majority (84.9%) of female farmers did not own land used to grow rice. Both male (91.6%) and female (100.0) rice farmers had access to loan and extension services on rice farming practices. This shows that access to loan and extension service providers were services enjoyed by male and female farmers in the study area. This findings contradict findings and general perception that women farmers in Africa are operating under great constrained in terms of less access to land, technology, credit, poor agricultural output, limited access to resources and information provided by extension practitioners (Adebayo & Worth, 2024; Moock, 2019).

Gender differences in rice farmers' access to social capitals

Results presented in Table 2 indicate the gender differences in rice farmers' access to social capitals.

Table 3: Gender differences in rice farmers' access to social capitals

Social networks	Male		Female		**T-test of difference**	
	Mean±SD	Rank	Mean±SD	Rank	t-statistic	p-value
Farmers' groups	2.44±0.94	4th	2.72±0.77	5th	2.970*	0.003
Innovation platform	1.67±0.82	10th	1.66±1.12	13th	0.220	0.826
Cooperative societies	2.75±0.69	3rd	2.51±0.89	6th	2.945*	0.003
Political party	1.27±1.32	13th	1.89±1.42	10th	3.963*	0.000
Religious group	1.50±0.76	12th	1.79±1.34	11th	2.418*	0.016
Community development association	2.95±0.64	1st	3.19±0.39	1st	3.987*	0.000
Alumni associations	0.87±1.05	14th	0.73±0.83	14th	1.538	0.125
Friend relationships, kinship relationships, and neighborhood interactions	2.40±1.10	5th	2.92±0.99	2nd	4.460*	0.000
Friends and family/kinship relationships	2.27±1.09	6th	2.26±0.77	7th	5.186*	0.000
Neighborhood and community members interactions	2.09±0.78	7th	2.20±0.61	8th	1.212	0.226
Fellow farmers (farmer-farmer)	2.00±0.84	8th	2.88±0.89	3rd	2.893*	0.004
Extension agents	2.88±0.71	2nd	2.73±0.88	4th	2.145*	0.033
Agro-input dealers	1.72±0.81	9th	2.00±0.57	9th	3.579*	0.000
Buyers/customers	1.65±0.70	11th	1.70±0.63	12th	0.551	0.582
Government officials in Ministries and parastatals related to agriculture	0.60±0.50	15th	0.64±0.58	15th	1.074	0.284

*Significance at p<0.05 level

As shown in Table 3, the mean value of each social network were generated and ranked. From the side of male farmers, the top ranked social capital accessible were community development association (2.95±0.64), extension agents (mean=2.88±0.71), and cooperative societies (2.75±0.69) while female farmers' top social networks accessible were community development association (3.19±0.39), friend relationships, kinship relationships, and neighborhood interactions (2.92±0.99) and fellow farmers (2.88±0.89). T-test of significant difference showed that there is statistical difference in male access social capitals when compared with their female counterpart. By implication, community development association for farming information is the leading social capital available for male and female farmers but accessibility differs statistically as female farmers had better access than their male counterparts. This finding support reports that earlier indicated that community development associations are prominent social capital available to both male and female farmers in the rural areas (Chen et al., 2023; Ojo, Lloyd & Baiyegunhi, 2023).

Factors influencing rice farmers' access to social capitals according to their gender

Table 4: Factors influencing rice farmers' access to social capitals according to their gender

	Male			Female		
	Coefficient (β)	**t**	**Sig.**	**Coefficient (β)**	**t**	**Sig.**
Age	-0.155	-1.287	0.200	0.106	1.073	0.285
Marital status	6.790*	3.548	0.000	-0.485	-0.447	0.656
Years of education	6.096*	3.851	0.000	2.845*	5.080	0.000
Household size	1.370*	8.174	0.000	0.488*	5.731	0.000
Years of experience	-0.381*	-2.583	0.011	0.159	1.292	0.199
Farm size in hectares	-0.355	1.252	0.212	0.028	0.247	0.806
Farm income per annum	2.733E-6	1.957	0.052	-1.099E-05*	-12.001	0.000
Access to farm land	-0.658	-0.570	0.569	0.915	1.713	0.089
Access to loan	5.075*	2.313	0.022	-0.099	-0.820	0.414
Access to extension services	4.576*	2.100	0.037	-0.243	-1.702	0.091
Constant	33.291	8.075	0.000	23.407	10.455	0.000
F-value	14.302			41.08		
R square	0.500			0.628		
Adj. R-square	0.465			0.610		
Std. Error	4.127			2.946		

Source: Data analysis, 2024; *Significance at p<0.05 level

As shown in Table 4, socioeconomic factors played significant roles in the level of farmers' access to social capital for accessing rice farming information. The regression analysis showed that certain socioeconomic factors had significant impact on the level of farmers' access to social capital for male (R square=0.500; F=14.302; p=0.00) and female (R square=0.628; F=41.08; p=0.00). By implication, socioeconomic factors predicted 50.0% male farmers' access to social capitals and 62.8% female farmers' access to social capitals. On the specific determinants, marital status (β=6.790), educational status (β=6.096), household size (β=1.370), years of experience (β= -0.381) and access to loan (β= 5.075), access to extension services (β=4.576) were the male farmers determinants of access to social capitals while female farmers' access to social capitals was influenced by years of education (β= 2.845), household size (β= 0.488) and farm income per annum (β= -1.099E-05). This implies that household size is a common factor that affects both male and female farmers in accessing social capitals. Similar studies have also indicated that years of education (Zeleke *et al.,* 2023), household size (Niles *et al.,* 2021) and farm income per annum (Ping *et al.,* 2022; Kinkingninhoun Medagbe *et al.,* 2020).

Conclusion and Recommendations

This study examined the gender differentials in rice farmers' access to social capitals in Niger State Nigeria. Based on findings, this study concludes that male (extension agents and cooperative societies) and female (friends and fellow farmers) differs in the social capital accessible and factors that determined accessibility. Based on this findings, it is therefore recommends that extension program aimed to improve equal gender access to social capitals among rice farmers in Niger state should comprehensively strengthen farmers' network ties, cooperative societies, farmer-to-farmer and extension agents to farmers' relationship.

REFERENCES

Adebayo, J. A., & Worth, S. H. (2024). Profile of women in African agriculture and access to extension services. *Social Sciences & Humanities Open*, *9*, 100790–100790. https://doi.org/10.1016/j.ssaho.2023.100790

Adefalu, A. M., Adekunle, O. A. & Komolafe, S. E. (2016). Analysis of gender participation in cassava processing enterprises in Irepodun Local Government Area of Kwara State, Nigeria. *Tropical Agriculture (Trinidad)*. 93(3); 209 – 2015

Abdulrahman, S., Mani, J. R., Oladimeji, Y. U., Abdulazeez, R. O., & Ibrahim, L. A. (2018). Analysis of entrepreneural management and food security strategies of small ruminant women farmers in Kiri-kassamma Local Government Area of Jigawa.*Journal of Animal Production Research, 29*(1):419-429

Abduoulaye, T., Abbas, A., Maziya-Dixon, B., Tarawali G., & Okechuku, R. (2015). Awareness and adoption of improved cassava varieties and processing technologies in Nigeria. *Journal of Development and Agricultural Economics*,6(2); 65-74.

Adeyemi, S. O., Sennuga, S. O., Alabuja, F. O., & Osho-Lagunju, B. (2023). Technology Usage and Awareness among Smallholder Farmers in Gwagwalada Area Council, Abuja, Nigeria. *Direct Research Journal Agriculture Food Science* 11(3); 54-59.

Adeyongo, I. L, Chibuike, F, Sennuga, S. O., & Alabuja, F. O. (2022). Adoption of Agricultural Innovations among Rice Farmers in Federal Capital Territory, Nigeria. *International Journal of Agriculture Extension and Social Development*, 5(2); 30-36.

Andriani, L., & Christoforou, A. (2016). Social capital: A roadmap of theoretical and empirical contributions and limitations. J. Econ. Issues 50, 1, 4-22.

Bauermeister, M. R. (2016). Social capital and collective identity in the local food movement. Int. J. Agric. sustain. 14 (2), 123–141. doi: 10.1080/14735903.2015.1042189

Chen, F., Yi, Y., & Zhao, Y. (2023). The Effect of Social Capital at the Community and Individual Levels on Farmers' Participation in the Rural Public Goods Provision. *Agriculture*, *13*(6), 1247. https://doi.org/10.3390/agriculture13061247

Deininger K (2013) Land polices for growth and poverty reduction, World bank policy research report. Oxford, New York: Oxford University

Ganiyu, M., & Olawuyi, S.O. (2018). Influence of social capital on the use of LMP among farmers in Oyo State, Nigeria. Int. J. Appl. Econ. Res., 16(4), 909–922

Glowacki-Dudka, M., Murray, J., & Isaacs, K. P. (2013). Examining social capital within a local food system. Community Dev. J. 48 (1), 75–88. doi: 10.1093/cdj/bss007

Goldenberg, M., & Meter, K. (2019). Building multipliers, rather than measuring them: Community-minded ways to develop economic impacts. J. Agric. Food Syst. Community Dev. 8, 153–164. doi: 10.5304/jafscd.2019.08C.010

KinkingninhounMedagbe, F. M., Komatsu, S., Mujawamariya, G., & Saito, K. (2020). Men and Women in Rice Farming in Africa: A Cross-Country Investigation of Labor and Its Determinants. *Frontiers in Sustainable Food Systems*, *4*. https://doi.org/10.3389/fsufs.2020.00117

Kolawole, R. J., Oyeniyi, A. A., & Cole, K. H. (2022). Social capital and the performance of women agripreneurs in Osun State, Nigeria. J. Agribus. Rural Dev., 3(65), 243–250. http://dx.doi.org/10.17306/J.JARD.2022.01550

Niger state Geographical Information Service (GIS),(2007). Background Information Retrieved on June 3, 2015 from www.nigergis.com/about Niger state.

Niles, M. T., Rudnick, J., Lubell, M., & Cramer, L. (2021). Household and Community Social Capital Links to Smallholder Food Security. *Frontiers in Sustainable Food Systems*, *5*. https://doi.org/10.3389/fsufs.2021.583353

Ojo, T. O., Lloyd J.S. & Baiyegunhi. (2023). Gender differentials on productivity of rice farmers in south western Nigeria: An Oaxaca-Blinder decomposition approach. *Heliyon*, *9*(12), e22724–e22724. https://doi.org/10.1016/j.heliyon.2023.e22724

Okezie, C. R. (2021). Effect of Social Capital on Women Agriprineurs'accessTo Financial Services In Abia State, Nigeria. Nigerian Agricultural Journal Vol. 52, No. 3 | pg. 98-104

Owen, M. (2022). Social Capital and Food Security amongst Women in Smallholder Farming in the Face of Climate Change in Bikita, Zimbabwe. Africa Development. 47, 3 (Dec. 2022), 253–272. DOI:https://doi.org/10.57054/ad.v47i3.2682.

Ping, L., Xiaosong, S., & Jinzhao, L. (2022). Research on farmers' households credit behavior and social capital acquisition. *Frontiers in*

Psychology, *13*. https://doi.org/10.3389/fpsyg.2022.961862

Storr, V. H., Haeffele-Balch, S., & Grube, L. E. (2017). Social capital and social learning after Hurricane Sandy. The Review of Austrian Economics, 30(4), 447–467. https://doi.org/10.1007/s11138-016-0362-z

Zeleke, B. D., Geleto, A. K., Asefa, S., & Komicha, H. H. (2023). The role of social capital in addressing seed access constraints and adoption intensity: Evidence from Arsi Highland, Oromia Region, Ethiopia. *Heliyon*, *9*(2), e13553. https://doi.org/10.1016/j.heliyon.2023.e13553