

The Implications of Gender Power Relations on Small Ruminant Producer Rural Female Farmers in Nasarawa State, Nigeria

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Abstract: *The involvement of rural females in small ruminant production in Nigeria is much higher than in crop production. However, they lack the opportunities and the resources required to make profitable investment in the sector - hence, the livestock sector is generally underperforming in the region. The study investigates the involvement of male and female farmers in small ruminant production and factors affecting the involvement of female farmers. The study adopted mixed methodologies in its inquiry and the relevant gender analysis frameworks. Findings reveal differences in male and females' involvement in small ruminant production with females handling more of the roles of care. There were existing inequalities between the genders in their access and control over resources and services used for productive purposes, with significant association between females' access and control over resources and services such as land, equipment and labour, and extension services and credit. Their socio-economic characteristics such flock size, education, marital status and age had significant influence on their control over resources and services. It is concluded that the roles of "care" undertaken by females should not be undermined as it is very significant to improve farm income without which the livestock sector does not profit. Hence, the design of supporting policies could take into account these important factors, while providing specialised training in caring for livestock and the use of technical inputs in scientific feeding, and improved health care and maintenance of hygiene which can significantly increase farm output for livestock growth and development in the state.*

Key Terms: Gender | Females | Power Relations | Small Ruminants | Control | Productive Resources

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Introduction

Nigeria has a population of about 187 million people, 49% of this population are females with about 72% living in rural areas and engage in agricultural production as the main livelihood activity, producing 60-80% of the countries' food (NPC, 2016; Saka et al., 2008; Ajani, 2008 and Ogunlela and Mukhtar, 2009). Specifically, the livestock industry is known to be one of the principal components of the rural economy and is popular with rural women (NBS, 2011; CBN, 2011; Ayoade et al., 2009). When compared to crop production, Ayoade et al. (2009) acknowledge that women's participation in livestock-related activities in Nasarawa State is much higher than their male counterparts.

Although agriculture remains the major livelihood activity of rural people in Nigeria, the production of food has not increased at a rate that can match the increase in population. While food production grows at a rate of 2.5% per annum, food demand rises at more than 3.5% due to the high rate of population growth, recorded at 3.2% per annum (Elijah, 2010). This apparent disparity between the proportion of food and demand has led to food shortages in the country, resulting in increasing food importations and rising food prices (Elijah, 2010). The most apparent problem in the food sector in the country is that of low animal protein in the diets of about 70% of its population (Ojo, 2003; IFAD, 2006). For instance, Agricultural GDP in Nigeria in 2011 stood at 40.2%, and the livestock share was just 2.58% (NBS, 2011), this is grossly inadequate. To explain this inadequacy, reports by FAO (2011) and other scholars have indicated that the dominant actors in the sector; women, lack the opportunities and the resources required to make the most fruitful use of their time. For example, IFAD (2004), Peacock et al. (2005) and Adogla Bessa et al. (2005) acknowledged that women's labour and duties continue to be under-recognized and underappreciated by those who design and implement livestock policies and plans in

most developing countries. This negative impact of gender discrimination in the livestock sector is more evident in Nigeria, Ghana and Bangladesh (FAO (2011)). In Nigeria, Ajani (2008), Ogunlela and Mukhtar (2009) and Ayoade et al. (2009) acknowledged that most women are smallholders and are rudimentary in their farming methods. The situation is further exacerbated by the patriarchal political systems and social structures in the country that shape gender power relations, resulting in their reduced access to education and technology, and lack of equal access with men and control of critical farm resources and services (Quisumbing and Pandolfelli, 2009; Ogunlela and Mukhtar, 2009). Accordingly, Blackden et al. (2006) compared female and male farms in Kenya and reported the gross value of output from female farms to be 8% less than those reported from male farms, but acknowledged that if women had equal human capital and used equal quantities of factor inputs as men, the value of their output could increase by 22%. Capturing this potential productivity gain of rural women farmers in Sub-Saharan Africa could increase food production and lead to a substantial reduction in the level of poverty and food insecurity in the region.

Increasingly, research evidence has documented the importance of livestock as productive capital which grows over time when serviced by both human and other capital resources to produce meat, milk, and by-products for home consumption and income generation. Livestock keeping diversifies production and reduces the risks of economic losses resulting from crops destroyed by adverse climatic conditions or diseases (IFAD, 2004). The World Bank (2009) refers to it as a live bank, imparting social status, and providing draft, transport, and fertilizer especially for resource-poor farmers -- its integration into the household economy could allow more efficient use of family labour, provide a secure food and cash income spread over the entire year, and manure as fertilizer that improves the soil.

Just like any other agro-business venture, productive resources and services are utilised in the production of livestock; to overcome the problems of poor performance and declining productivity, rural females' access and control over productive resources and services such as land, labour, extension/training services, credit, and equipment must be enhanced. This study, therefore, investigates male and female small ruminant farmers' involvement in small ruminant production, in reproductive and other productive activities and their access and control over productive resources used in small ruminant production in Nasarawa State, employing both quantitative and qualitative methodologies (Yin (2003) and Cresswell (2003)), and an in-depth investigation into why the situation is the way it is. The findings of the study would have policy implications for reducing gender inequalities between the genders in their involvement in livestock productive activities.

Objectives of the Study

The study investigated the involvement of male and female farmers in small ruminant production and other productive and reproductive purposes, and their access and control over productive resources and services used for small ruminant production. Secondly, the research determined the main factors influencing gender power relations, hence the existing nature of gender inequalities in the sector in the study area.

Methodology (Design and Methods)

The study was conducted in Nasarawa State formed from the bulk of what was the southern part of the former Plateau State in 1996, centrally located in the middle belt region of Nigeria with its state capital in Lafia. The state consists of three senatorial districts: west, central and south, and thirteen local government areas (LGAs). The southern senatorial district includes of five LGAs; Karu, Keffi, Kokona, Nasarawa, and Toto. The central senatorial district consists of Akwanga, Nasarawa Eggon, and Wamba LGAs and the western senatorial district consists of Awe, Lafia, Keana, Doma and Obi LGAs (ibid). This state lies between latitude 7° 45' and 9° 25'N of the equator and between longitude 7° and 9° 37'E of the Greenwich Meridian. Nasarawa state has a total land area of 27,137.8 square kilometres and a population of about 1.8 million people with a density of about 67 persons per square kilometre (NPC, 2006; Marcus and Binbol, 2010). The state falls within the southern guinea savannah zone, characterized by a tropical sub-humid climate with two distinct seasons; the wet season, lasting about six months (May – October), and the dry season occurring between November and April with annual rainfall figures ranging from 1100mm to about 2000mm. Temperatures are generally high during the day, particularly between March and April with mean monthly temperatures ranging between 20°C and 34°C (Marcus and Binbol, 2010; Rahman et al., 2010), and a rich and fertile agricultural land, rivers, streams, with a large active population that can sustain a highly profitable agricultural sector. The livestock industry plays a very significant role in the physical and socio-economic wellbeing of the population. There exists a considerable number of different livestock species in the state including cattle, goats, sheep, pigs, rabbits, poultry and fish, the population and distribution of which are influenced by factors such as topography,

vegetation, and water (Ajayi and Yakubu 2007; Rahman et al., 2010). Goats and sheep are found all over the state, constituting a population of 3,300,000 and 2,008,000 respectively, and common breeds are Yankasa, Balami and Uda, and West African Goats and Sokoto Red for goats (Ajayi and Yakubu., 2007).

The study adopted the pragmatist paradigm using mixed methodologies to achieve the study objectives. From the philosophical stance of the post-positivists, the study used structured interviews including the Harvard Gender Framework (HGF/HAF); Tools I, II and III to collect quantitative data. The study was also approached from the constructivists stance to obtain qualitative data from research participants through FGDs, open ended interviews and key informant interviews (KIIs). Survey methods were used to collect quantitative data on socio-economic characteristics (SECs) of participants, and their involvement in small ruminant production including reproductive and other productive activities, as well as their access and control over productive resources and services, and factors influencing gender power relations. Focus group discussions (FGDs), one on one open-ended interviews and key informant interviews (KIIs) were instruments used to collect qualitative data used to critically explain research findings. The multistage sampling technique was adopted to sample participants; a total of 216 male and female farmers from six LGAs and 18 villages. This number was split into two equal numbers (108) of male and female participants respectively.

First, structured questionnaires consisting of closed and open-ended questions were administered to 216 selected respondents in six LGAs of Nasarawa State where quantitative and qualitative data were obtained. The survey included the HAF; (Tool I), (Tool II) and (Tool III) consisting of activity profile by gender, access, and control over productive resources, factors influencing gender power relations, SECs of participants, and their sources of credit. Questions were carefully planned and considered beforehand to achieve research objectives and were pre-tested and refined before administering. Interviews enabled the examining of the participants' depth of understanding of the subject matter, and was useful with regards to contacting large numbers quickly, and replicating interviews to produce standardized and reliable form data. However, because questions are predetermined, the depth of responses was limited to the set questions. To upset this, a guide reflecting the study objectives was used for FGDs. Participants of various FGDs conducted were recruited with the help of the desk officers of Fadama III Project and livestock assistants of the livestock units of each of the six LGAs investigated. There were at least two farmers; male and females from each of the three villages investigated in each LGA involved in the FGDs. This number was chosen deliberately to ensure representation. There were between 7-12 men and women involved in each of the FGDs conducted from each LGA, and there was a total of 12 FGDs conducted, one each of women and men's groups in each of the six LGAs investigated (six FGDs with females, and six with male groups). Through FGDs, members participated in discussions to explore activities by gender, access, and control over productive resources, and factors influencing power relations between the genders. Thirdly, KIIs were used to obtain information from carefully selected individuals who are thought to have in-depth knowledge about small ruminant production and gender power relations in the respective LGAs. These KIIs were the Fadama Desk officers, Heads of Departments of the Livestock Departments of the respective LGA's and Extension officers in livestock departments. Two KIIs were identified from each LGA who carefully responded to some predetermined questions in the topic of research.

Quantitative data was analysed using SPSS 19 to describe farmers' SECs. The HGF was used to determine the gender-based activity profile of male and female farmers, their access and control over resources, and factors influencing. Using the activity profile Tool, I, productive and reproductive tasks were identified and made visible regarding male and female's roles. Tool II identifies who has access to resources and who has control of each resource investigated. And Tool III helps to identify the factors that influence gender power relations -- these helped to chart the nature of gender power relations in the study area and reflects on the SECs of participants. In the context of this study, these are factors presenting constraints and opportunities for women which may enhance or limit their involvement in small ruminant production. The investigation also determined the level of association between female participants' SEC's such as education, marital status, flock size and age on their control over resources and services, these were assessed using Chi-Square test. Analyses of qualitative data were done using manual methods to critically explain the nature of gender power relations and factors influencing in Nasarawa State, Nigeria. Data obtained with the qualitative methods was used to substantiate, contradict, and or provide further explanation to some statistical results obtained with the quantitative methods. The research therefore used techniques, procedures and strategies based on the mixed methods paradigm, and employed empirical and analytical techniques at different social strata to achieve its objectives. To conclude, the study employed robust strategies in terms of methodology to ensure that valid and reliable results are obtained

Analysis and Discussions on the Socio-Economic Characteristics of Research Participants

Table 1. Descriptive statistics of selected SEC of farmers

Socio-economic factors	Male: N=108		Female: N: 108					
	Frequency	%	Frequency	%				
Marital status								
Single	13	12%	16	15%				
Married	95	88%	92	85%				
Education								
No education	18	17%	45	42%				
Primary education	24	22%	31	29%				
Secondary education	46	43	20	18%				
Tertiary education n	20	18%	12	11%				
Access to extension/veterinary services								
Had access	55	51%	40	37%				
Had no access	53	49%	68	63%				
Group membership								
Have no group membership	52	66.7%	72	66.7%				
Have group membership	22	33.3%	36	33.3%				
Access to credit								
Not accessed credit	52	48.1%	61	56.5%				
Formal credit	22	20.4%	10	9.3%				
Semi-formal credit	28	25.9%	21	19.4%				
Non-formal credit	6	5.6%	16	14.8%				
	Min	Max	Mean	Standard Deviation	Min	Max	Mean	Standard Deviation
Age	20	78	38	13.6	20	79	39	12
Household size	2	35	14	7	2	31	14	6
Farming experience	2	48	9	9	2	30	7	5.5
Formal education	0	17	9	5	0	16	5.3	5.3
Flock size	5	91	19	14.4	5	78	16	14.6

Descriptive statistics reveals the mean age of the sampled male and female farmers to be 38 and 39 years, with a minimum of 20years and a maximum of 78 and 79 years for male and female farmers respectively. Participants have on average 9 and 7 years of experience in small ruminant production with a minimum of 2 years and a maximum of 48 and 30 years for male and female farmers respectively, 88% and 83% of male and female participants are married. Analysis of the household sizes reveal mean household sizes of 14 and 13 for both male and female farmers, with a minimum of 2 per household, and a maximum of 35 and 31 members for male and female farmers households respectively. Both genders have household sizes in the range of 10-19 members. Many of the sampled female participants have acquired up to 5 years of formal education to a maximum of 16 years, and up to 9 years for male farmers with a maximum of 17 years. Overall, 144 of the respondents, comprising 72 each of male and female farmers have group membership with the remaining 36 each of male and female participants having none. Also, 56 men corresponding to 52% of the sample of male participants accessed credit with 20.4%, 25.9% and 5.6% accessing from the formal, semi-formal and non-formal credit institutions respectively. On the other hand, 47 females corresponding to 44% accessed credit with

9.3%, 19.4% and 14.8% accessing from the formal, semi-formal and non-formal credit institutions respectively in the production years investigated (2010 and 2011). Formal credit institutions in Nigeria consist of the country's official and commercial banks such as Nigerian Agricultural Bank (NAB), Nigerian Industrial Development Bank (NIDB), the state government-owned credit institutions and Micro Finance Institutions (MFIs), Merchant Banks, Finance Houses and so on. The semi-formal sources of credit comprise of the NGOs, Cooperative Societies and support groups, farmers' associations and the rotating savings and credit associations (ROSCAs). The third group; the non-formal credit institutions involve money lenders such as merchants, traders, loan sharks, rural shopkeepers, clubs and saving societies like "Esusu"; "Ajo", friends, relatives, spouses and so on (Asaolu, 2001; Badiru, 2010; Okojie, 2010). 51% and 37% of male and female participants have contacts with extension training and veterinary services. The distribution of respondents' small ruminants reared showed an average of 19 small ruminants for male farmers with a minimum of 5 and a maximum of 91 and an average of 16 with a minimum of 5 and a maximum of 78 for females. Findings also reveal that 31% of female farmers had flock sizes in the range of 6-10 compared to 33% of males having flock sizes in that range.

Assessment of Gender-Based Activities of Participants

Table 2. Participants' involvement in crop related activities (multiple responses)

Activities	Male participants		Female Participants	
	Frequency	%	Frequency	%
Land clearing	99	92%	38	35%
Planting	96	89%	56	52%
Weeding	94	87%	54	50%
Harvesting	96	89%	51	47%
Transporting	43	40%	91	84%
Processing	17	16%	108	100%

Analysis on crop-related activities reveal some differences in the activities in which men and women are involved, with more males involved in land clearing, planting, weeding, and harvesting, while females are more involved in the transporting of farm produce from the farm to the available storage facilities and in the processing of crops. This finding contradicts scholarly findings in some regions in Nigeria and other developing countries. For example, Ogunlela and Mukhtar (2009) acknowledge that women in the South-East and South-West of Nigeria contribute more than men in terms of labour input in farming right from land clearing, planting, weeding, harvesting and processing and are solely responsible for household management duties. Accordingly, Auta et al. (2000) acknowledge that in the North-East of Nigeria among the Jukun, Nomadic Fulfulde and Kalku, about 70-80% of the agricultural labour force is provided by women. Just as the findings in this research, Damisa and Yohanna (2007) and Rahman (2008 and 2010), found that rural women in the North-West and North-Central Nigeria take part mainly in the processing of agricultural produce and in production of small ruminants. However, there's diversity in the roles of women and men in agriculture in Nigeria determined mainly by geographic region, religion, and cultures (Ogunlela and Mukhtar, 2009 and FAO (2004).

Table 3. Participants' involvement in sheep and goat production (multiple responses)

Activity	Male participants'		Female participants'	
	Frequency	%	Frequency	%
Construction of livestock housing	103	95%	18	17%
Feeding	90	83%	98	91%
Clearing barns	66	61%	99	92%
Taking care of vulnerable livestock	75	69%	82	76%
Livestock treatment	92	85%	47	44%
Transport of farm manure	83	77%	57	53%
Selling live livestock	95	88%	50	46%

Results relating to the involvement of male and females in small ruminant related activities reveal that men are more involved in the construction of livestock housing, in treatment of farm animals, and in transportation of

farm manure and selling of live animals, while females were more involved in caring for vulnerable livestock, in feeding, and cleaning of barns. Findings from FGDs and KIIs reveal these roles undertaken by females are most often carried out within the households which is why more females are involved. Research findings by Ayoade et al. (2009) in the region confirm this, acknowledging reasons to be women's mobility constraints and reproductive roles most often dictated by gender norms and cultural practices. However, women all over the world are known to undertake the role of "care" more than men because of their natural tendencies and dispositions. These findings of a gendered conception of work and the roles of caring for livestock are in line with those of Bayola and Intong (2006), and Aqeela et al. (2008) in the Philippines and Pakistan respectively.

Table 4. Male and female farmers' involvement in other income generating activities

Activity	Male Participants		Female Participants	
	Frequency	%	Frequency	%
OIGA	103	95%	100	93%
Waged labour (civil service)	8	6%	4	4%

Findings also indicate that beside crop and small ruminant production, rural farmers generally diversify their livelihoods by getting involved in other income related activities involving 95% and 93% of male and female participants respectively.

Table 5. Involvement of men and women in reproductive activities

Activity	Male Participants		Female Participants	
	Frequency	%	Frequency	%
• Food Preparation	18	17%	108	100%
• Child care	26	24%	106	98%
• Collection of wood for fuel	45	42%	96	89%
• Collection of water	34	31%	100	93%
• Transporting children to school	86	80%	57	53%
• House cleaning	29	27%	101	94%
• House maintenance and repair	93	86%	48	44%
• Health related activities	91	84%	107	99%
• House shopping	62	57%	82	76%

Results on Table 5 reveal females were more involved in food preparation, child care, the collection of wood, water, house cleaning, and health-related activities, and males were more involved in transporting children to school, and in-house maintenance and repair. This finding is consistent with Ogunlela and Mukhtar (2009), Ajani (2008) and FGDs; confirming that women are solely responsible for management of household duties including food preparation, childcare, collection of wood for fuel and water, health related activities and shopping which are traditionally designated roles for women, performed with little or no support from male adult members of their households.

Male and Female Participants' Access and Control over Productive Resources and Services

Table 6. Access and control over productive resources by participants.

Resources	Male Participants				Female Participants			
	Access	%	Control	%	Access	%	Control	%
Land	108	100%	90	83%	90	83%	18	20%
Equipment	108	100%	104	96%	39	36%	28	72%
Labour	108	100%	108	100%	59	54%	55	95%
Credit	56	52%	52	90%	47	44%	33	70%
Extension educ./training	55	51%	55	100%	40	37%	11	28%

Results in Table 6 reveal more males than females' access and control productive resources. Specifically, all men have access and control over all the productive resources; land, labour, equipment, credit and extension services. On the other hand, women have poorer access and have far less control than men; however, having control over productive resources is far more critical in women empowerment than access (March et al., 1999; Longwe, 1995).

Cross-Tabulation

On cross-tabulating the relative effects of land control over other resources investigated, results reveal women who control land could also control equipment with an estimated $R^2 = 0.24$ at the 1% level of statistical significance. There's also a significant association between the flock sizes of women and their control over land with an estimated $R^2 = 140.307a$; which is statistically significant at the 1% level. Findings for equipment reveal 50% of women who controlled equipment also controlled land with estimated $R^2 = 0.24$ and 35% control labour with an estimated; $R^2 = 4.34$, and both are statistically significant at the 1% and 5% levels of statistical significance respectively. Flock size was also significantly associated with women's control over equipment ($R^2 = 1.444.168a$; at the 1% level of statistical significance. 35% of women who control labour also could control equipment with an estimated $R^2 = 4.34$; $Pr=0.04$ (sig. at 5%). There was also a significant association between flock size and women's control over labour with an estimated $R^2 = 145.231a$ which is statistically significant at 1% level of statistical significance

The investigation on credit reveals no significant association between the control over credit with other resources, but there was a significant association between women's education and flock sizes with their control over credit with R^2 estimates of 10.78 and 136.938a which are both statistically significant at the 1% levels of statistical significance. There is no association between women's control over extension services and other resources, but education, age and flock size significantly determined women's control over decisions to participate in extension education and training at the 10% and 5% and 1% levels of statistical significance respectively. Results showing the relationship between age and control over extension education and training shows that control in this category increases with age, however, from the age of 60years, women tend to lose control.

Table 7. Effects of accessing and controlling productive resources over other resources among female participants.

Productive resources	Accessing productive resources											
	Equipment			Labour			Credit			Extension education/training		
	Freq.	%	Chi square test	Freq.	%	Chi square test	Freq.	%	Chi square test	Freq.	%	Chi square test
Land	16	41%	$X^2 = 16.05$ $p = 0.000$	22	37%	$X^2 = 2.95$ $P=0.00$	7	15%	$X^2 = 1.53$ $P=0.21$	3	21%	$X^2 = 6.49$ $P=0.01$
Equipment				29	49%	$X^2 = 9.59$ $p = 0.00$	14	30%	$X^2 = 1.44$ $p = 0.23$	14	25%	$X^2 = 0.03$ $p = 0.85$
Labour							24	51%	$X^2 = 0.42$ $p = 0.51$	20	50%	$X^2 = 0.55$ $p = 0.46$
Credit										25	63%	$X^2 = 9.31$ $p = 0.00$
	Controlling productive resources											
	Equipment			Labour			Credit			Extension education/training		
	Freq.	%	Chi square test	Freq.	%	Chi square test	Freq.	%	Chi square test	Freq.	%	Chi square test
Land	14	50%	$X^2 = 0.24$ $p = 0.00$	11	20%	$X^2 = 0.90$ $p = 0.34$	4	12%	$X^2 = 0.71$ $p = 0.40$	2	18%	$X^2 = 0.02$ $p = 0.89$
Equipment				19	35%	$X^2 = 4.34$ $p = 0.04$	9	27%	$X^2 = 0.04$ $p = 0.83$	3	27%	$X^2 = 0.01$ $p = 0.91$
Labour							19	58%	$X^2 = 0.06$ $p = 0.80$	4	36%	$X^2 = 0.06$ $p = 0.80$
Credit										3	27%	$X^2 = 0.06$ $p = 0.80$

Table 8. Effects of SECs of women on control over productive resources

Socioeconomic characteristics	Productive resources														
	Land			Equipment			Labour			Credit			Extension education/training		
	Freq.	%	Chi square test	Freq.	%	Chi square test	Freq.	%	Chi square test	Freq.	%	Chi square test	Freq.	%	Chi square test
Marital status															
Married	16	89%		23	82%		45	82%		31	93.9%		10	91%	
Single	2	11%	X ² =; 0.23 p = 0.63	5	18%	X ² =; 0.28 p = 0.60	10	18%	X ² =; 1.01 p = 0.32	2	6.1%	X ² =; 2.89 p = 0.09	1	9%	X ² =; 0.32 p = 0.57
Education	11	61%	X ² =; 0.07 p = 0.79	17	61%	X ² =; 0.09 p = 0.77	28	51%	X ² =; 2.54 p = 0.11	27	81.8%	X ² =; 10.78 p = 0.00	9	82%	X ² = 2.78 p = 0.09
Age															
20-40	4	22%	X ² =; 4.17 p = 0.38	4	14.3%	X ² =; 6.73 p = 0.15	19	34.5%	X ² =; 3.26 p = 0.52	14	42.42%	X ² =; 3.95 p = 0.41	1	9%	X ² =; 9.44 p = 0.05
41-50	4	22%		9	32.1%		17	30.9%		10	30.30%		4	36%	
51-60	5	28%		9	32.1%		10	18.2%		7	21.21%		6	55%	
61-70	3	17%		4	14.3%		5	9.1%		1	3.03%		0	-	
>70	2	11%		2	7.2%		4	7.3%		1	3.03%		0	-	
Flock size	X ² =; 140.307 ^a p = 0.00			X ² =; 144.168 ^a p = 0.00			X ² =; 145.231 ^a p = 0.00			X ² =; 136.938 ^a p = 0.00			X ² =; 150.122 ^a p = 0.00		

Factors Influencing Gender Roles, Access and Control over Productive Resources and Services

Investigations into the factors influencing gender power relations involve only female participants and data was gathered examining their views on this issue. Factors investigated, which were thought to affect gender power relations potentially, were economic, cultural, education/training, social, political, institutional, demographic and religious factors respectively (March et al., 1999). As itemized in the HGF, these factors could present opportunities and constraints for women.

Table 9. Female participants' responses on factors which most influence gender power relations

Factors	Frequency	Percentage
Economic	88	82
Cultural	82	76
Education and Training	77	71
Social	75	69
Religious	74	69
Institutional	53	49
Political	45	42
Demographic	38	35

*Multiple responses**

All factors investigated influence gender power relations and are interlinked as they all have their effects on the nature of gender power relations. However, the findings reveal the culture, education/training, socio-economic and religious factors to be the major ones. This study focuses on the most notable elements as explained by the qualitative findings.

Economic factors rank the most influential. The implication of economic factors on the nature of gender power relations is confirmed in FGDs, where participants indicate that women who have their resources do not depend on men to fund or attend to their needs. Such women's opinions are given consideration and hardly fall victims of the domineering powers of men. These women are considered equal partners in their households and their communities and are involved in taking major decisions. This finding has been confirmed by quantitative results which reveal the significant association between women's flock sizes with control over land, labour, credit and extension education/training. Culture and religion practiced in the study area empowered men and disempowered women. While some women claim that their religion forbids women from owning farmland, others say culture and religion have placed a man above the woman and gave men more power relative to women. Some women admitted men to access more of all productive resources relative to women and take over all decisions in the family but on some occasions; women do take decisions as well depending on the level of understanding between them. They said culture and religion had placed men above women which gives men superiority over women. Others said, men are bolder and most often tolerate more hardship than women, as such, they are the superior gender, so they take the lead both in family and community matters. Others say before a man takes a wife, he is told he is responsible for looking after her, that means the man should keep her and provide for her needs. It is also a man who hands over this woman to a man for marriage and not the other way around. Others say children do not bear the name of the mother but the father; this has been from time immemorial; the children from a man and woman have their place in the kin group of the father, the father of the man, in turn, fits into the kin group of his father and so on. The sons convey the relationship in this group to their children not through the daughters or women. Therefore, men are considered superior to women. Other women said; females are created from the ribs of the men, who resulted only after a second thought and without the men; women would not have been, so have to submit to them.' Some women said, their religion made it clear that women should obey their husbands and be submissive to them, the man oversees the woman and the woman must be subjected to him.'"

From these findings, it is apparent that female participants do not see a problem with the subjugation of women because they are raised with this mindset and therefore consider it as the norm. Remaining subjugated by male authorities is a virtue which is held in high esteem in the study area. According to the participants, this is dictated by culture and religion which encourage women to remain subservient while men take decisions and exercise power. According to the female participants, this is in acquiescence of religious and cultural injunctions and accords them respect from their husbands, family and community members. According to interviews and FGDs with female

participants in all study locations, because men most often take decisions, women can only attend meetings and any training for their self-improvement with the permission from men. Usually, women miss out on training and self-improvement programs because often, extension and or development workers who deliver such programs are men. For instance, female participants in Obi, Lafia and Nasarawa Eggon are not able to engage with men outside of their families and thus cannot join with male extension workers because the men dominate this sector (Ogunlela and Mukhtar, 2009, Ajani, 2008; Yisehak, 2008; FAO, 2011; Blackden et al., 2006). Extension education in Nigeria continues to target males much more than females especially in places that are dominated by Islam, where women's movements are restricted. For instance, Yisehak (2008), FAO (2011) and Blackden et al. (2006) acknowledge that extension services are far less available to women than men in Sub-Saharan Africa and maintain that many women involved in farming have little or no access at all to the resources and services provided by extension and veterinary institutions and departments. These services often operate at places and times that are not convenient for women. This finding is confirmed quantitatively by the study, where only 37% of the female sample investigated accessed extension education/training services.

It's obvious therefore that male and female farmers have their fair share in activities investigated with more men involved in others and vice versa, and with men accessing and controlling more of the productive resources and services than women. To summarize, male farmers contribute more labour input in crop-related activities and are more involved in land clearing, planting, weeding and harvesting while females are more involved in transporting and processing farm produce. In livestock-related activities, women contribute more labour input than males in feeding farm animals, cleaning barns and taking care of vulnerable animals, while men are more involved in constructing livestock housing, treating livestock, transporting farm manure and selling live animals. Apart from small ruminant production, participants diversify their livelihoods by involving in other income related activities. In reproductive activities, female farmers are more involved in food preparation, child care, collecting wood fuel and water, house cleaning, health-related activities, and house shopping; these roles are considered the traditional roles of females. On the other hand, males are more involved in transporting children to school and in-house maintenance and repair. Findings also confirm that males accessed and controlled more of the productive resources and services than females. The significant associations between land, equipment, and labour, and extension services and credit among women implies women who accessed land are more likely to access equipment and labour, and those who accessed extension services are more likely to access credit. Also, women who have control over land are more likely to have control over labour and equipment. SECs of women such as flock sizes were found to be significantly associated with women's control over land, equipment, labour, credit and decision to access extension services/training, and their educational attainment was significantly associated with control over credit and decision to access extension services. There's also a significant association between the marital statuses of women (in that women who are married were found to have more control over credit than single women), however, their access to extension education declines with increases in age. Responses from female participants regarding their views on factors influencing gender power relations indicate significant factors to include economic elements, culture, and education/training, social and religious factors in order of importance, which confirm and explain factors that keep women in the subordinate status and position in relation to men in the study area. However, the nature of power relations between the genders is further determined by the SECs of female participants which in turn affects their involvement in productive and reproductive purposes generally, as well as in their access and control over productive resources and services used for small ruminant production. Since the study reveals lower levels of educational attainment by women, and their access and control over productive resources and services in relation to men; women are most likely to be constrained in participating to full capacity in this sector. This implies that their productive activities generally continue to be marginal, and may continue to perpetuate generally women's subordinate status and position in relation to men.

Conclusion and Recommendation

Caring for livestock is a reproductive role suitable to the nature of women which they can do really well. Although these roles are seen as soft roles, and less important, these micro elements of activities and processes involve time and are very significant to improve farm income without which the livestock sector does not profit. When included in "production", caring for livestock would be paid for in the market. But because these roles are undertaken informally and unpaid for, the labour supply is not captured in measuring gross domestic product (GDP). The contribution of women in the livestock sector, specifically, small ruminant production in the study area cannot be trivialised. Designating these roles as "not important" therefore systematically undervalues women's contribution, hence their invisibility in the sector. Hence, the time spent by women in caring for livestock could be measured by researchers to reflect in GDP. The specialized skill of caring for livestock, endowed in women and developed through experience is an epistemic advantage which could benefit from specialized training and the use of technical inputs in scientific feeding, and in improved health care and maintenance of hygiene which can significantly increase farm output for livestock growth and development in the state. Since most women cannot be reached because often extension staff are

men; encouraging group membership could enable easy access to women with information and by specialized agencies and experts serving women with specialized training packages. For instance, training on financial literacy, and information on financial products and services could improve women's access to credit facilities and services. Specialised training in boosting self-esteem and assertiveness could enhance women's bargaining skills and powers in their homes and communities to improve access and control over resources and in decision making capabilities, and abilities to access markets for inputs/outputs and services. More so, with group membership, members could derive benefits associated with pooling savings and social collateral for improved credit access.

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