Research Journal of Agricultural Economics and Development
ISSN: 2997-5980
Volume 4, Issue 1, 2025 (pp. 43-51)
www.abjournals.org

SMALL RUMINANT ANIMAL REARING AS A STRATEGY FOR ALLEVIATING RURAL POVERTY AMONG WOMEN IN TAKAKUME AND FALALIA VILLAGES, GORONYO LOCAL GOVERNMENT AREA SOKOTO STATE

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Cite this article:

Ibrahim Kasim (2025), Small Ruminant Animal Rearing as a Strategy for Alleviating Rural Poverty Among Women in Takakume and Falalia Villages, Goronyo Local Government Area Sokoto State. Research Journal of Agricultural Economics and Development 4(1), 43-51. DOI: 10.52589/RJAED-SKT5EV9V

Manuscript History

Received: 12 Oct 2024

Accepted: 2 Dec 2024

Published: 25 Mar 2025

ABSTRACT: *The study was conducted to examine the effect of small ruminant animal production in alleviating rural poverty among women in Takakume and Falalia villages of Goronyo Local Government Area, Sokoto State, Nigeria. In order to achieve the objective of the study, which is to assess the effect of small ruminant animals kept by women in alleviating poverty in the study area, structured questionnaires were administered to 100 respondents. Multi-stage sampling technique was used in the study involving 20 households, 10 from each village. Five (5) respondents were selected from each household. Socio economic data of livestock keepers was mainly used. Descriptive and inferential statistics were used to analyze the data. The results showed that age, and family size had a negative and insignificant effect on the flock size, while education and income had a positive and significant effect on flock size. The study based on its findings concluded that size of the flock kept translates to more income and therefore a large number of animal holdings, which is a proxy for poverty alleviation.*

KEYWORDS: Small ruminant; Rearing; Women; Livestock income; Poverty alleviation.

Article DOI: 10.52589/RJAED-SKT5EV9V
DOI URL: https://doi.org/10.52589/RJAED-SKT5EV9V

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INTRODUCTION

There is no doubt that Nigeria is largely an agrarian nation with more than 70% of its 149 million population engaged in agriculture which is supported by diverse human and material resources (Umar et al., 2009). In spite of a dwindling share of agriculture in the GDP and total exports, it employs the bulk of Nigeria's labour force. Increased agricultural output is required for the reduction of hunger and poverty (Okirusanya, 2009). Although a typical African woman is probably considered as the most underprivileged and illiterate with limited access to resources, Most women in Africa faces discrimination and segregation in the organized labor market and are not equally treated with men when it comes to right to land acquisition and inheritance as well as access to credit.

(Adepoju 1994). In Nigeria, millions of women work as farmers, farm workers and natural resource managers.Generally, rural women are majorly involved in agricultural activities such as planting, weeding, harvesting, processing and marketing. They also keep some domestic animals and birds. Empowering rural women will go a long way to improve the economic life of the women and also the well-being of individuals, families and the rural communities(Fabiyi & Akande, 2015). In doing so, their role is important in contributing to national agricultural output, family income, maintenance of the environment and family nutritional needs and food security(Usman et al., 2022; Ademiliyi et al., 2009).

It is generally acknowledged that women participate actively in the management of rural economy because of their multiple social and economic roles in the rural society (Abdullahi, 2009). It is well documented that women dominate the rural economy in Nigeria through their activities, particularly in agricultural production, animal husbandry, food processing, and marketing of agricultural products, by products and handicraft. Although agriculture is believed to be too strenuous for women, it is the most important economic activity for most women in sub-Saharan Africa (Iliya, 2009). Contrary to the general belief that religion and the biology of women are barriers to direct physical involvement in farming, there is evidence that an increasingly large number of women in predominantly Muslim communities are seen to contribute to agricultural labour (Iliya, 2009). Umar et al. (2009) reported that because of the significant contribution of women to agriculture, their roles in poverty alleviation cannot be neglected.Research findings proved that women's participation in urban agriculture contributes to food security, increases household income, offers employment and reduces poverty (Mhache & Lyamuya, 2020).

It appears that the full potentials of agriculture in Nigeria may not be realized if there is no paradigm shift in favour of women, who account for 70% of agricultural workers, 80% of food producers and whose income contributes to household food security and nutrition than income controlled by men (Iliya, 2009). The objective of this study is to assess the effect of small ruminant animals kept by women in alleviating poverty in the study area. Specifically, the study intends to determine how flock size contributes to income among women. The study is important because of the urgent need to reduce poverty among our rural populace, especially women, as well as to increase the production of animal protein which the small ruminant animals have the attributes to be used for (Jirgi et al., 2009).

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METHODOLOGY

Study Area

Takakume and Falalia villages are located in Goronyo Local Government Area, a dry sub humid agro-ecological zone of Nigeria. The villages are 90 km away from Sokoto capital city and specifically located in the northwestern part of Sokoto State. It lies on latitude 15^0 20^1 north and longitude 16^0 55^1 east. The annual rainfall of the area ranges between May to September. Temperature ranges between 17^0 during the cooler part of the year (December to January) to a maximum of 40^0C during the hotter part of the year (April to May) with an average of 27^0C (Mohammed, 2007). The villages are located between Goronyo dam near Katsira village to the north east and about 5 km downstream of the village of Shinaka to the Southwest. The people are predominantly farmers producing millet, guinea corn, cowpea and cassava during the rainy season, while they engage in rice and vegetable crops production during the dry season in addition to Artisanal fishing in Goronyo dam reservoir. Women in the area are mostly housewives predominantly keeping small ruminant animals as an economic activity. Over 90 percent of small ruminant animals found in the area are kept by Women.

Sampling and Data Collection

In order to determine the effect of small ruminant keeping in alleviating poverty among women in Takakume and Falalia villages of Goronyo L.G.A., structured questionnaires were administered to 20 households in the two villages of the local government area. Multi-stage sampling technique was adopted in the study. Firstly, the two villages were selected purposively, because it was identified that over 99 percent of the small ruminant animals in the two villages were owned by women. At the second stage, 20 households were randomly selected, 10 households for each village. The final stage involved the random selection of 5 respondents from each of the 20 households. The total respondents involved in the study were 100. The study was conducted between July and August, 2024. Data collected included socio-economic characteristics of households, flock size of livestock kept, value of flock size, livestock income, annual income of livestock keepers, index of food security and nutritional status, education, experience, marital status as well as the gender of the respondents.

Data Analysis

The data were analyzed using descriptive statistics and multiple regression analysis. Descriptive statistics was used to describe the socio-economic characteristics of livestock keepers, role of animals in poverty alleviation and problems of production faced by the women. The multiple regression analytical model was used to determine the effect of age, experience, marital status, education and income on the flock size of the respondents.

Multiple Regression Model Used for the Analysis

$$Y = a + b_1 x_1 + b_2 x_2 + b_3 x_3 + b_4 x_4 + b_5 x_5 + U$$

Y = Flock size kept by livestock keepers (no)

X_1 = Age of livestock keepers in (years)

X_2 = Experience in livestock keeping (years)

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X_3 = Family size (no)

X_4 = Formal education (years)

X_5 = Income (₦)

a = Constant

$b_1 – b_5$ = Parameters estimated

u = Error term

RESULTS AND FINDINGS

Socio-economic Characteristics of the Livestock Keepers

The results from Tables 1 and 2 indicated that about 43% of the livestock keepers acquired western education while the remaining 57% acquired Quranic education. The average age of the livestock keepers was 38 years while the average years of experience in livestock keeping was 21 years. The average family size was 6, while most of the livestock keepers had a flock size of 4-8 animals. Less than half of the livestock keepers owned both sheep and goats, with the majority of them keeping goats only; this may be due to the attributes of hardiness, prolificacy, adaptability and ease of management possessed by goats. All the livestock keepers employed only family labor in managing their enterprises except for the herdsman that took the animals to the field everyday from 11:00 a.m. to 6:00 p.m., excluding Fridays. The family labor was used because it may be cheaper, readily available and can cater for all the needs of the animals. The herdsman got a handful of threshed millet weekly for each animal, as payment for his services.

The results further indicated that all the livestock keepers (100%) adopted the extensive system of management during the dry season, but confined their animals and fed them concentrated rations during the rainy season, when there were crops grown on the field. This is in agreement with the findings of Ayoade et al. (1993) and Abubakar et al. (2000). They reported that animals kept under an extensive management system are exposed to unfavorable conditions and inadequate care leading to disease infection, slow growth and generally low productivity. A large number (57%) of the livestock keepers did not acquire Western education. This corroborates earlier reports by World Bank (2005) and NBS (2006) that there is low level of Western education in the rural areas. The study also observed that most of the livestock keepers acquired their foundation stock as a gift when they got married or through inheritance. It was also found that livestock keepers within the age group of 41-50 kept the largest number of animals and had the highest income.

Livestock keepers that fell within the age group of 41-50 years may have a large number of animal holdings due to the experience they gathered over time and the need to provide animals as foundation stock to members of their families, especially girls, when they got married. Another reason is the fact that some of them were divorced or widowed and were shouldering the responsibility of maintaining a family and the need to earn more money to meet their financial obligations.

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Regression Results

The estimated results for Equation (1) are shown in Table 4 with an adjusted R^2 value of 0.557 implying that about 55.7% of the variation in flock size (Y) is explained by the input variables X_1 to X_5 (age, experience, family size, years of formal education and income) included in the model. The result confirms that the variables of age and family size had a negative and significant effect on the dependent variable (flock size) while experience and income had a positive impact on flock size; this implies that respondents with more experience and those with more income will have large flock size. The results conform with a priori expectations on the signs of regression coefficients. As reported by Inoni (2009), a rise in individual income will enable farmers to expand the size of their holdings which will increase their financial capability and provide better management and care that results in more profitable animal keeping. Years of education also had a positive and significant effect on flock size; this is an indication that those women who attain a certain level of education will be able to manage their livestock better than uneducated women.

Age and family size had a negative effect on flock size; this may be due to the fact that livestock keepers across all age groups kept small or large size of animal holdings because livestock keeping was a means of accumulating capital investment in the rural economy and so small ruminant animals, being highly mobile capital goods, could be liquidated easily during period of economic crisis or to meet any financial obligations (Javis, 1993). Family size also has a negative relationship with flock size because of the same reason that livestock animals are investments that can be easily liquidated to finance other obligations, and so, livestock keepers with large or small families may keep a large or small number of animals and the number at a time depends on the family's financial commitments.

Generally, the economic implication of the results is that livestock keepers with higher average annual income, education and experience tend to have higher flock size; women with better income, education and experience in livestock keeping will be able to keep large number of animals; and having a large number of animals implies that livestock keepers will have better income. This conforms with the a priori expectations as reported by Inoni (2009) and Nicola et al. (2015) that flock size is a proxy for poverty alleviation potential of smallholder livestock keepers among rural women. The findings of this study showed that women in the area of study view animal husbandry practice as a major means of livelihood and have a high expectation of high economic returns on the practice (Halilu et al., 2022; Nath, 2024). Therefore, implementing a policy that can enhance the size of the flock of rural women will alleviate poverty by raising their income and purchasing power. It will also stabilize food supply, improve the nutritional status of the rural poor and contribute to the growth of the rural economy (Birdsall et al., 1995).

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CONCLUSION

The study examined the effect of small ruminant animals in alleviating poverty among rural women in Falalia and Takakume villages of Goronyo Local Government Area, Sokoto State. The study based on its findings concluded that small ruminant animals hold great potential as a strategy for alleviating rural poverty among women. Small ruminant keeping provides a major source of cash income among rural women and since the size of the flock kept translates into more income, it means the size of the flock is a proxy for poverty alleviation, and so policies that will increase the size of the flock should be pursued to improve the livestock keepers' income generating capacity and strengthen their economic capability in order to reduce rural poverty.

FUTURE RESEARCH

Future research efforts should focus on exploring more ways of targeting rural women and improving their capacity to improve their productivity and raise their income.

Funding

This research was supported by the Tertiary Education Fund tetfund Nigeria.

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Research Journal of Agricultural Economics and Development
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APPENDIX

Table I: Distribution of livestock keepers according to age and family size

Age of livestock keepers (years)	Frequency	Percentage
Less than 20	16	16
20-30	20	20
31-40	11	11
41-50	41	41
51 years and above	12	12
Total	100	100
Family size		
Single	7	7
1-5	38	38
6-10	46	46
11-15	9	9
Total	100	100

Source: Field survey (2024).

Table 2: Distribution of livestock keepers according to educational attainment and livestock keeping experience

Educational Attainment	Frequency	Percentage
Primary education	31	31
Secondary education	12	12
Tertiary education	-	-
Quranic education	57	57
Total	100	100
Livestock keeping experience (years)		
1-5	14	14
6-10	10	10
11-15	21	21
16-20	19	19
21 years and above	36	36
Total	100	100

Source: Field survey (2024).

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Table 3: Distribution of livestock keepers according to income and flock size

Average annual Income (₦)	Frequency	Percentage
Less than 10,000	8	8
11,000 – 20,000	19	19
21,000 – 30,000	15	15
31,000 – 40,000	21	21
41,000 and above	37	37
Total	100	100
Flock size		
Less than 2	17	17
3 – 6	36	36
7 – 10	29	29
11 – 14	14	14
14 and above	4	4
Total	100	100

Source: Field survey (2024).

Table 4: Regression results of determinants of flock size among women keeping small ruminants

Variables	Estimated coefficients	t-value
Constant	2.357	1.908
Age	-4.953	-0.0869
Education years	5.901	0.0242
Experience	9.491	0.02.48
Family size	-6.898	-0.065
Income	4.580	7.805
$R^2 = 0.580$ F – value = 25.937	Adjusted $R^2 = 0.557$	

Source: Field Survey, (2024). Significant at 1% level of probability

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