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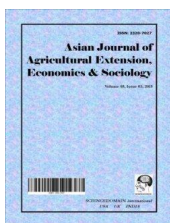
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## **Impact Assessment of Nomadic Education Extension Programme on Income 1 of Nomads in Adamawa State Nigeria**

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### **Authors' contributions**

*This work was carried out in collaboration between both authors. Author YH designed the study, wrote the protocol and supervised the work and performed the statistical analysis. Author ZI helped in distribution and retrieving of questionnaires. Both authors read and approved the final manuscript.*

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### **ABSTRACT**

The study assessed the impact of nomadic education extension programme co-ordinated by the National Commission For Nomadic Education on income of nomads in Adamawa state, Nigeria. Data for the study were obtained from 360 respondents using multi-stage sampling procedures. Descriptive and inferential statistics used for data analysis were percentage, chi-squares ( $\chi^2$ ) and two samples t-test. The result of the study indicated that there was positive impact of the programme (NEEP) on income and income generating activities of the nomads. The nomads who participated in the programme had higher income than those that did not. Also those who participated were divided / classified into diversified income generating activities than those that did not. Both chi-square analysis and test of means on income revealed that the programme had impact on the income of the nomads. The study recommended that if milk processing machines and industries are provided for the processing of their livestock products by Nigerian Government, the income of the nomads will be enhanced.

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## 1. INTRODUCTION

The nomadic pastoralist are people that wander from one place to another according to the dictates of the season. They are classified into two groups based on their mode of settlement [1]. This group was the split movement groups (FulbeWuro) and total movement group (FulbeNa'ai, Boroje). The pastoralist in Nigeria are made up of the Fulani with estimated population of 5.3 million, the Shuwa 1.0 million, the Baduman 35, 000 and the fishermen 2.8 million [2].

Nomads are valuable national human resources. Livestock production and breeding in Nigeria is predominantly in the hands of nomadic pastoralist who constitute a major socio economic group in the country's estimated 15.2 million cattle, 23 million sheep and 28 million goats with substantial holdings of other livestock species [3]. One of the operational strategies of nomadic education Extension programme is the provision of functional adult education programme for men and women involving income generating activities aimed at alleviating poverty among nomads [4].

The economic base of pastoralist depends on group herds, sale of milk and processed products. He revealed that the sell of milk and dairy products are expended on family needs and that Cattle from time to time are sold to take care of financial needs beyond subsistence such as medical bills, taxes, ceremonial expenses and clothing [5].

Despite the above enormous contribution of nomads to national building, their participation in the existing formal and non-formal education were abysmally low with literacy rate ranging between 0.2% and 2.9% [4]. In order to meet the educational needs of nomads, the Federal Government of Nigeria set up the National Commission for Nomadic Education (NCNE) in 1989. The aim of the commission was to educate the nomads in all ramification of life and to improve their standards of living through establishment of nomadic school and provision of extension services. The actual intervention of NCNE in the provision of extension services began in 1996 to 1997. The nomadic education agents were posted to various nomadic communities to educate and enlightened postural

nomads on the acquisition of relevant skills for the improvement of livestock production, provides practical lessons on animal health and husbandry, provide training for nomadic adult in numeracy on livestock number, ability to read labels and direction on drugs, encourage nomads to engage in self help projects, form co-operative societies and assist pastoralist to acquire appropriate skills, abilities and competence to contribute to development [5].

The impact of nomadic extension agents can be felt by assisting nomads to identify appropriate income generating activities through formation of cooperative society and encourage nomads to participate in poverty alleviation, food security and rural development activities [6]. The commendable work of nomadic extension agents towards increasing income of nomads was seen through formation of 88 pastoralist cooperative societies and 10 of them benefited from FEAP loan across the country [7]. The activities of nomadic extension cannot be achieved without education. It is only through education that the live style and productive activities of nomads can be improved [8]. The study therefore was designed to determine the impact of nomadic education programme activities on income of nomads in nomadic communities in Adamawa State Nigeria.

## 2. RESEARCH METHODOLOGY

A well-structured questionnaire which was pre-tested for validity and reliability using test-retest method were administered to the respondents. The validity and reliability test of the items on the questionnaire were carried out in nomadic community in Digil Mubi North Local Government Area of Adamawa State. The result of the pre-test showed that the coefficient of reliability test was high ( $r=0.84$ ) meaning that the items on the questionnaires were valid and reliable to measure the variables.

Purposive and multi-stage random samplings were employed for the study. The purposive sampling was used to select three Local Government Area in Adamawa state, namely Song, Girei and Yola south where nomadic extension programme started as a pilot project. The multi stage sampling techniques was used to select nomadic communities and respondents in the selected local government areas. In the first

stage, three communities were selected from each of the three local Government Areas giving a total of nine (9) communities used for the study. The second stage was the selection of twenty respondents who were participants of nomadic extension programme from each of the nine communities using simple random sampling. The comprehensive list of the participating nomads were obtained from the nomadic extension agents in the study areas and used as the sampling frame. In the third stage, three communities were selected from non participating areas in each of the three Local Government Areas used for the study giving nine (9) communities. Twenty respondents were selected from each of the nine non-participating communities the total number of respondents used for the study was 360 i.e. 180 participants of nomadic education extension programme and 180 non participants. The data obtained was analyzed using descriptive and inferential statistics namely percentage, chi-square ( $\chi^2$ ) and two sample t-test.

### 3. RESULTS AND DISCUSSION

Table 1 indicated the income of the respondents. 51 percent of the respondents that received the intervention had income of N 80,000 and above per annum as against 27.21 percent in nonparticipating communities. There are more respondents (27.78%) in non participating communities whose income was below N 80,000 than participating communities. The difference in income earning between the both groups indicates a change that could be attributable to the impacts of participating in the programme as the group that participated seems to earn higher than the other group.

Table 2 signified that nomads under the nomadic education extension programme were more into diverse income generating activities than in communities without the programme. About 20.19% and 18.89% for instance, were engaged in crop production and other activities in nomadic communities, while 5.24% and 0.5% were engaged in crop production and other activities in non participating communities. This result, therefore, indicated that there were more respondents in communities that participated with diverse income generating activities than in communities that did not. This difference could be attributed to the activities of nomadic extension agents of the NCNE who advices farmers to embrace diversified income generating activities. Crop production is gaining

high acceptance by nomads in communities that had opportunities of coming in contact with nomadic extension agents.

**Table 1. Distribution of respondents based on income per annum**

Earning income	Participating		Non participating	
	F	%	F	%
Yes	180	100	180	100
No	0	0	0	0
<b>Income</b>				
<20,000	15	8.33	30	16.67
20,000-39,000	59	32.78	71	39.44
40,000-59,000	12	6.67	18	10
60,000-79,000	4	2.22	12	6.67
80,000-99,000	5	2.78	20	11.11
100,000 and above	85	48.22	29	16.1

Source: Field Survey, 2011

Table 3 showed that there was an increase in earnings of nomads under nomadic education extension programme than in communities that did not. There were increase in income of participating nomads by 8.62% fattening, 8.14% sales of cattle, 21.8%, sales of sheep 24% sales of poultry, 15.23% sales of crops and 47.02% in other income generating activities over the income of those that did not participate. Apart from traditional sales of animals such as cattle, sheep, goat, and poultry, it was observed that nomads were also engaged in processing products such as cheese, (Mai Shanu), processed maize, sorghum and millet (Fura and Dambu).

**Table 2. Distribution of respondents based on income generating activities**

Income generating activities	Participating		Non participating	
	F	%	F	%
Animal fattening	45	8.87	38	9.47
Cattle production	146	27.55	110	27.43
Sheep production	80	15.09	60	14.96
Goat production	61	11.51	45	11.22
Poultry production	54	10.19	36	8.98
Crop production	107	20.19	21	5.24
Milk production	25	4.72	89	22.19
Others	10	1.89	2	0.5

Source: Field Survey, 2011

The nomads also engage in weaving traditional caps and other traditional attires. These other activities add to their income. The difference in income from income generating activities could be as a result of advice by nomadic extension

agents in the communities on the need to diversify their sources of income.

Table 4 showed a difference in income of the two groups. There were higher income from income generating activities in participating communities than in those that did not. For instance, while nomads that receive the intervention had mean income of N6083.3 in animal fattening, the control group, had N 5118.2 as their mean income. The mean differences in income from income generating activities were all positive. This difference could be attributed to the activities of nomadic extension agents posted to such communities. This result agreed with that of [9]. Who concluded in his study that nomadic education extension programme had positive impact on the pastoralist who gained knowledge and were actively involved in livestock related income generating activities through cooperative society and management.

Table 5 the summary of the Chi-square ( $\chi^2$ ) analysis of the relationship between participation in nomadic education extension programme and income level. It revealed that there is significant relationship between participation in Nomadic Education Extension Programme and level of income of the nomads. This means that Nomads who participated in Nomadic Education Extension Programme had income level higher

than those that did not. Participation in Nomadic Education Extension Programme increase income and hence changes in income level, as a result of knowledge gained from change agents. Also the Chi-square ( $\chi^2$ ) analyses on the relationship between participation and income generating activities showed a significant relationship. In (Table 5), the nomads who participated in Nomadic Education Extension Programme were more into different income generating activities than those that did not. The major reason of change in income level was as a result of extension activities which improve the income of nomads. The nomadic extension agents educated nomads, on the need to participate in diversified income generating activities to boost their income.

The two sample t-test as shown in Table 6 revealed that there were statistical significant difference in means between participating and non-participating in the sales of sheep and crops. The P-value for the sales of sheep and crops were less than the critical P value of 0.05. Also the T cal for sheep (4.13) and crops (2.04) were greater than T critical (1.96). Since P value < P critical and T cal > T critical, it means that there were mean difference in sales of sheep and crops in the two communities. Though all other income generating activities had positive means difference, they were not statistically significant.

**Table 3. Income from income-generating activities in naira income generating participation non difference percentage% difference**

Income generating activities	Participating	Non-participating	Difference	Percentage % difference
Fattening	1,095,000	921,270	173,700	8.62
Sales of Cattle	14,481,010	12,301,510	2,179,500	8.14
Sales of Sheep	1,400,000	989,210	501,398	21.81
Sales of Goat	441,000	383,210	57,790	7.01
Sales of Poultry	177,000	165,880	11,120	3.24
Sales of Crop	2,675,200	1,968,200	707,000	15.23
Sales of Milk	61,380	60,820	560	0.46
Others	77,700	28,000	49,700	47.02

Source: Field Survey, 2011

**Table 4. Mean income from income generating activities**

Income generating activities	Mean income of participating (N)	Mean income of non participating (N)	Difference in mean
Animal fattening	6083.3	5118.2	965.17
Sales of Cattle	80450	68342	12108
Sales of Sheep	10413	5495.6	4917.7
Sales of Goat	2450	2128.9	321.06
Sales of Poultry	983.33	919.61	63.722
Sales of Crop	14626	11406	3580.7
Sales of Milk	354.56	341	13.556
Others	431.67	155.56	276.11

Source: Field Survey, 2011

**Table 5. The relationship between participation in nomadic education extension programme and income**

Income	df	X <sup>2</sup> Cal	X <sup>2</sup> Tab	Remark
Income level	4	17.81	13.81	Significant
Income generating activities	7	97.94	24.32	Significant

At 0.01

Source: Field Survey, 2011

**Table 6. Test of means of income from income generating activities 95% CI for difference**

Income generating participating activities	Mean income participating	Mean income non participating	Difference	Df	T	P	Lower	Upper
Animal fattening	6083.3	5118.2	965.17	353.5	0.89	0.373	-1165.3	3095.6
Sales of cattle	80450	68342	12108	357.1	1.38	0.1694	-518512	29402
Sales of sheep	10413	5495.6	4917.7	317.9	4.13	0.0000	2573.3	7263.1
Sales of goat	2450	2128.9	321.06	333.6	0.64	0.5254	-672.42	1314.5
Sales of poultry	983.33	919.61	63.722	351.7	0.031	0.7605	-347.13	474.57
Sales of crop	14626	11406	3580.7	332.7	2.04	0.0422	127.64	7033.7
Sales of milk	354.54	341	13.554	349.7	0.26	0.7955	-116.35	654.19
Others	431.67	155.54	276.11	340.3	14.44	0.1518	-101.97	654.19

Source: Field Survey, 2011

This result therefore signified that nomadic education extension programme had impact on sales of sheep and crops but the impact was not yet felt in fattening, sales of goats, sales of poultry and other income generating activities. This suggests that extension agents need to advice nomads on marketing of their animals.

#### 4. CONCLUSION

The findings reported in this paper suggest that it is through education that the income of nomads could be improved. Nomadic education extension programme had positive and significant impact on the income and the income generating activities of the nomads.

However, since the nomads constitute an important sector of Nigerian economy, their integration into the main economy through more development programme provide a good threshold for them to actualize their income generating potential.

#### 5. RECOMMENDATIONS

Based on the findings of the study, the following recommendations are made:

- It was observed that the nomads had no modern facilities to process their animal products hence it affects their income generating activities. The nomads need to be encourage by granting them loans to

buy milk processing machines or open up industries where they could sell their livestock products.

- Nomadic extension agents should intensify efforts in forming more cooperative societies to attract incentives at subsidized rates from Government and non Governmental organization which will boost their income.

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#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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