

Millet value chain and producer's profit in Kano state

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Abstract

It is emphasized that global cereal production is becoming an essential issue due to the increased level of the world's population and the benefits of the diet content of the cereal crops. Nigeria is among the largest nation in pearl millet production in the globe. However, adoption of the improved seeds and technologies to enhance millet value chain remain a challenge. Hence, study investigates millet value chain adoption on the farmer's profits for the sample of 127 farmers in two millet production local government areas (Dambatta, and Garun-mallam) for Kano state, by the use of structured questioner and OLS method. The result illustrate that of millet value chain adoption age, education, modern storage facility, technology, fertilizer, pesticides, packaging, transportation and good marketing strategy increase the level of millet farmers profit in Kano state. Therefore, policymakers and stakeholder should emphasize on the mechanisms to elevate famers by the provision of incentives, means of new technology and extension services to improve profit.

Keywords: Millet, Value chain, adoption, profit, Kano, OLS

1. INTRODUCTION

The global trend for millet production in the world has been intensified (Eina & John 2017). In the last decade activities in millet production has increased by 0.83 % (FAO, 2014). This gives rise to almost 28.4 million tones upsurge in the world (FAO, 2014). It is argued that India and Nigeria are among the nations with higher millet production of 10.3 and 1.5 Mts (Tshilidzi, Sibanda, and Gwelo 2016). This development has translated to the increase in output level, revenue and profit generation. Nonetheless, farming activities in Africa has been confronted with several challenges that include the use of out-dated technologies, lack of financial support and ineffective government policy (Reddy et al., 2018). Moreover, it has resulted to the inability of millet farmers to add value in the millet production. In this regard, it is clear that government should engaged in promoting farmers awareness and support to enhance the product value chain, poverty reduction and better welfare (Jason et al., 2015). Agriculture and farming activities in Nigeria has dominated almost 60 % to the share of the nations economic growth and youth employment (FAO, 2017). It is stressed that millet production in the country has been increasing by 3 % annually and placed as 3rd

position on the total output production compared to other cereal crops (NBS, 2020). In this regard, millet production has engaged youth into useful activities to acquire income and generates revenue for government in facilitates economic performance.

However, the deteriorating nature of adoption level of famers on new seeds, technology and implements to enhance millet value chain has become a challenge in Nigeria World Bank (2016). FAO (2018) emphasized that highly underdeveloped millet value chain in the nation has left almost 82 million hectares of land uncultivated leading to a lost of about \$85 billion. This situation has transmits to a decline of 0.2% GDP growth rate annually (World Bank, 2019). Similarly, government and stakeholders were more concern on agricultural production instead of promoting value addition across the value chain that has leads huge loose of investment, opportunities and consequently increased level of unemployment, poverty and social unrest (World Bank, 2019). It is acknowledged that the level of unemployment have increase to tune of 23% and a drop in the famers profit by almost 45% in 2019 (NBS, 2020). This have resulted to the increased crime level and unwanted activities, like kidnapping and banditry. It is estimated that more than 1,700 people were killed from 2019 to 2020 in the nations and almost 70% of this killings are in the northern part of the country (NBS, 2020). In addition, farmers in Nigeria, particularly northern Nigeria have no spirit of value chain initiatives with emphasis on institutional and market ventures. Hence, this situation may have a link with the reduced famer's efficiency and their level of profit. Therefore, the study examines the adoption of millet value chain on the profit level of millet producers in Kano state.

2. LITERATURE REVIEW

The linkage among millet production and value chain has exists in the literature. For example, Olugbenga, Lawal, and Awoyinka (2016) examine the factors influencing millet production in Northern Nigeria. The study finds that factors like fertilizer and cost of labor increase the level of millet production. Similarly, Adam (2016) studied the influence of marketing techniques on millet value chain in Sokoto. The outcome reveals a positive link among these factors. Umar et al. (2017) investigates the effect of inputs of millet product on farmers profit using 430 samples of farmers. The result shows that input increase farmer's profit. Mnimbo et al. (2017) used 595 respondents to examine the influence of gender difference and value chain of food crops in semi-arid area. The findings illustrate that male gender respond positively on value chain adoption. Owusu-Adjei et al. (2017) investigate the influence of groundnut value chain on farmers profit in Ghana using 300 samples of farmers. Their estimate shows that value chain adoption by farmers improve profit level. Mukhtar, Mohd, and Iliyasu (2018) emphasized that technical efficiency in millet production promotes farmers profit in Kano. In addition, Reddy et al. (2018) stressed that good market strategy accelerates millet production and value chain. Adekunle et al. (2018) studied the influence of millet value chain on farmer's productivity and profit in India. The out come reveals that value chain enhance farmers productivity and profit. Theriault et al. (2018) examine the effect of serial crops value chain on productivity performance and profit of farmers. The result shows a positive influence of serial crops value chain on famer's productivity. Orr (2018) examines the influence of sorghum value chain on profit and productivity of farmers in Kenya. The outcome indicates a positive influence of value chain adoption on farmer's profit and productivity. Mango et al. (2018) investigate the effect of Maize value chain

on farmers profit in Malawi. The result shows that value chain adoption increase farmer's profit. Khanal et al. (2019) analyze the effect of coffee value chain on farmers profit in Nepal. The study reveals that value chain adoption increase the level of farmers profit. Olomu et al. (2020) emphasized that agricultural value chain promotes farmer's profit, investment and production in Nigeria.

From the literature review it appears that studies were done on this relationship. Nonetheless, fewer studies are done with regards to millet and crops in Kano state. Hence, this study examined the influence of millet value chain adoption on the profit of millet producer in Kano state.

3. METHODOLOGY

Model specification

To examine the effect of Millet value chain adoption on famers profit the study employ OLS technique for the model estimation. Thus, a modified empirical model by Danlami (2014) was used as indicated in the below equation:

$$Pro_i = \alpha + \beta_1 AGE_i + \beta_5 SRG_i + \beta_6 EDU_i + \beta_7 TEC_i + \beta_8 FER_i + \beta_{10} PES_i + \beta_{11} PKG_i + \beta_{12} TRS_i + \beta_{13} MKS_i + \varepsilon_i$$

Variables	Proxy
Profit (pro)	Amount of profit earned
AGE (AGE)	Number of years
Storage (SRG)	Dummy 1 for modern storage, 0 not
Education (EDU)	Level of education
Technology (TEH)	Dummy 1 for use of tech, 0 not use of tech
Fertilizer (FER)	Dummy 1 for use of fert, 0 not use of fert
Pesticides (PES)	Dummy 1 for use of pest, 0 not use of pest
Packaging (PKG)	Dummy 1 modern package, 0 no
Transports (TRS)	Cost of transport
Market strategy (MKS)	

4. RESULT

Table 4.1 shows the estimated outcome of the millet value chain adoption model. The outcome reveals that age, education, modern storage facility, technology, fertilizer, pesticides, packaging, transportation and good marketing strategy positively increase the level of millet famers profit. This implies that a percent increase in millet value chain adoption in respect of level of famers education, additional year of famers age, using modern storage facility and technology accelerates famers profit by 3.0 percent, 2.3 percent, 1.0 percent and 4.1 percent. Similarly, the outcome also reveals that additional increase in millet value chain adoption in respect of fertilizer, pesticides, packaging, transportation and good marketing strategy upsurge the level of millet famers profit by 3.4 percent, 0.7 percent, 0.9 percent, 0.4 percent and 0.6 percent respectively. The finding is similar with the outcome of the study by Mnimbo et al. (2017). Hence, the result shows that adoption of millet value chain increase the level of millet farmer's profit in Kano state. Therefore emphasis should be put in place from both side of policymakers and stake holders on increase awareness of the importance of millet value chain and the facilities of easy adoption for better and efficient farmers profit.

Table 4.1 estimated value chain adoption model

Variables	Co-efficient	SD error	T-value	Prob.
AGE	2.367**	0.361	0.380	0.000
EDU	3.061*	0.590	2.133	0.000
SRG	1.024*	0.464	-0.942	0.000
TEC	4.186**	0.076	3.713	0.027
FER	3.420	0.263	-2.788	0.000
PES	0.734**	0.966	1.876	0.020
PKG	0.961*	0.533	1.672	0.032
TRS	0.482**	0.144	3.083	0.000
MKS	0.631**	0.563	0.358	0.001
Constant	2.612**	0.722	2.784	0.003

R²Adjusted = 56.0

Table 4.2 shows the post estimation check of the millet value chain adoption model. The outcome reveals that the model has no problems of autocorrelation and residuals are normally distributed. Hence, the estimates are reliable for policy analysis.

Table 4.4: Post estimation check

Test	F-statistics	Prob.
Serial correlation	0.391	0.547
Breusch-Pagan	0.047	1.000

5. CONCLUSION

The study analyzes the millet value chain adoption on the farmer's profits for the sample of 127 farmers in two millet production local government areas (Dambatta, and Garun-mallam) of Kano state, using structured questioner and OLS technique. The result illustrate that the millet value chain adoption age, education, modern storage facility, technology, fertilizer, pesticides, packaging, transportation and good marketing strategy increase the level of millet farmers profit in Kano state. Therefore, policymakers and stakeholder should emphasize on improving the capacity of farmers through given incentives, extension services and the provision of new technologies for cost effective, higher profits and increased value chain in the production, processing and marketing of millet. Furthermore, the study is limited with inability to incorporate other important value chain adoption variables, like attitude of farmers toward adoption of new production strategy in the empirical model. In this regard, future studies should incorporate such variable for better analysis and policy recommendations.

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