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Research.

The Impact of Cooperative Insurance on Farmers' Productivity in Ekiti State, Nigeria

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Abstract. The study examined how cooperative insurance affects farmers' productivity in Ekiti State, Nigeria, from 1981 to 2021. Using the ARDL model. The study examined the effects of cooperative insurance claims and reserves on Ekiti State farmers' production, as well as the link between the two. Researchers evaluated agricultural cooperative insurance claims (ACIC) and reserves (ACIR) as possible predictors of farmers' output (FQ), a measure of productivity. In the near term, agricultural cooperative insurance claims greatly benefit farmers' productivity in Ekiti State, Nigeria. The agricultural cooperative insurance reserve instantly and positively impacts farmers' productivity in Ekiti State, Nigeria. The causation analysis shows a strong link between farmers' production and cooperative insurance. The data show a one-way link between farmer productivity (FQ) and agricultural cooperative insurance claims (LNACIC). In Ekiti State, Nigeria, cooperative insurance indices positively affect farmers' production, although agricultural cooperative insurance reserves (LNACIR) and farmer productivity (LNFQ) are not causally linked. The flow begins with farmers' productivity (LNFQ) and ends with agricultural cooperative insurance claims (LNACIR), although there's no recognized causal link. The federal government should prioritize financing and resources for cooperative organizations in Ekiti State Nigeria.

Keywords: Farmers Output (FQ), Agricultural Cooperative Insurance claims (ACIC) and Agricultural Cooperative Insurance Reserve (ACIR)

INTRODUCTION

It has been empirically proven by scholars that out of the total population of the largest black race, nearly 70% of rural dwellers in Nigerians are subsistence farmers who generate 90% of their consumption. Agriculture has been the major source of income for rural population in Africa and embraced by the western world as an avenue to generate financial resources (Nlebem & Raji, 2019). Prior to the independence of Nigeria, agriculture generated over 80% of the country's gross domestic product. At the point of oil discovery in the 1970s, government and individuals diverted attention from agriculture to oil as a result of its value tripling that of agriculture in the global market (Nlebem & Raji, 2019). Despite efforts put in place to address the value of agriculture, Toluwase and Apata (2013) reported that there was no significant improvement, rather, the business of agriculture keeps dwindling annually. At successive times, the federal and state

government have instituted various initiative and establish various institutions to address agriculture sustainability. Such institution includes the Microfinance banks for Small and Medium Scale Enterprises, Bank of Agriculture, grants to various agricultural cooperative societies. Nlebem (2018) opines that agriculture cooperative societies remains the only business structure that can eliminate economic and social poverty. Mohammed and Lee (2014) define cooperative as a self-governing group that pursues economic, social, and cultural goals. A democratically controlled community-owned enterprise promote farmer cooperation and structure as they are the ideal member-owned enterprise. Cooperatives allow members to handle marketing and production (Davis, 2008). Toluwase and Apata (2013) defines cooperative as a firm where a group of individuals owns and control its activities in a democratic manner. In addressing the need of cooperative farmers, predominantly, rural farmers are confronted with increasing droughts, floods, illnesses, pests, windstorms, accidents, fires, theft, and damage as according to Eleri, Udoka, Akuto, Onuvae and Anwara (2012), these unexpected uncontrollable incidence has a negative implication on the growth of agriculture. According to Patrick (2010), while risk and uncertainty cannot be avoided by farmers, adequate and sustainable provision must be made to reduce the negative implication in managing risks and uncertainties in their daily operations. The study of Kahan (2008) affirms that while farmers cannot forecast or withstand the weight of these dangers due to their unpredictability, risk can be shared with other farm managers so as to reduce loses that might be encountered. Farmers often use agricultural insurance to reduce risk and uncertainty as it compensates farmers to ensure their long-term sustainability, encourages them to invest more in agricultural production, gives them confidence to adopt new and improved farming techniques, and makes it easier for them to get bank loans by using insurance as collateral. From various literatures reviewed, it has been observed that less than a sizeable number of Nigerian farmers engages in agricultural insurance despite facing many risks and significant choices. According to Akinrinola and Okunola (2014), there are factors that influence farmers' decisions that includes irregular weather, fluctuations in agricultural prices, shortage of hired labour during peak seasons, key machinery and equipment malfunctions. These developments demonstrate the dangers farmers face operating their farms as companies (Kahan, 2008). Olubiyo and Hill (2006) say risk is a big issue with agricultural resources. Some developing nations, like Nigeria, depend on agriculture for food. Akinrinola and Okunola (2014) found that droughts, pests, bushfires, and floods may disproportionately harm farmers. Climate warming would boost significant catastrophe expenses, they said.

It is on this premise that the research examines how cooperative insurance affects farmers' agricultural productivity in Ekiti State, Nigeria, considering current events. In an attempt to justify this research work, the study deviates from the methodology of primary data adopted by scholars but rather adopts the use of secondary data.

LITERATURE REVIEW

Concept of Cooperative Insurance

Cooperative insurance plays an essential role as it help farmers manage economic risks from drought, severe rain, frost, wind, and animals (Governments of New Brunswick, 2019). The influence of agricultural cooperative insurance is seen as it ensures stability in agricultural prices, supply, and employment so as to be protected from harm and support farmers in times of need (Mordi, 1995). Three agents serve the agricultural cooperative insurance market: for-profit firms, public entities like governments, and non-profits and mutual groups. International reinsurers, private foundations, banks, NGOs, and the UN finance and issue insurance policies. No particular action is taken to implement insurance arrangements. Farmers have a high insurance demand. Fire, life, and casualty insurers must fulfil this requirement for most policies. No city resident survives without fire and lightning insurance, even farmers. Rural areas need windstorm insurance more than cities (Valgren, 1930). Farms are particularly vulnerable to lightning and strong storms.

Farmers and employers of agricultural labourers need liability and accident insurance to cover accidents. Farmers need crop and livestock insurance.

Challenges facing Agriculture Cooperative Insurance in Nigeria

Hellin and Hansen (2017) opines that several constraints hinder agricultural cooperative insurance growth and improvement such as climate change that affects agricultural growth, threatening food security and political stability. Since the industry employs over 70% of Nigeria's population and contributes over 40% to GDP, farmers are expected to key into cooperative insurance to guide against identified uncontrollable events. According to Onyiriuba, Okoro and Ibe (2020) went further to affirm that insufficient cooperative policies, high transaction costs that make rural areas hard to reach and lack of expertise to manage agricultural loan portfolios are identified as some of these challenges.

Agricultural Insurance

Agriculture insurance protects farmers and others in the agricultural value chain from economic risks and boosts production (FAO, 2021). Besides food production, it includes forestry, aquaculture, livestock, and other sectors. Agricultural insurance is a discrete subcategory of insurance with its own issues and constraints. The insurer must be highly specialised, and other supporting players must be engaged.

Agricultural Cooperative Insurance Claims

Indemnification is crucial for settling insurance claims. According to policy provisions, insurance firms must pay legitimate claims (Feinman, 2018; Yusuf & Ajemunigbohun, 2015). Feinman (2018) and Angima and Mwangi (2017) say insurance firms accept valid claims but refuse fraudulent ones.After reviewing and authorising a claim, an insurance company will settle or pay. Maggioni and Turchetti (2022) and Rejda, McNamara, and Rabel (2021) mention monetary, repair, replacement, and reinstatement indemnities. Insurance policies are generally indemnity and benefit contracts. The insurer commits to reimburse or indemnify the insured under indemnity contracts (Rejda et al., 2021). (Maggioni & Turchetti, 2022). Indemnity contracts include car, home, marine, and aviation insurance. Maggioni and Turchetti (2022) and Rejda et al. (2021) say indemnity insurance compensates the insured for their pre-loss finances. The policyholder may have to sign a benefit contract if an insurance company cannot restore an insured's finances.

Agricultural Cooperative Insurance Reserve

An Agricultural Cooperative Insurance Reserve (ACIR) is a type of insurance fund designed to protect agricultural cooperatives against risks associated with farming and agriculture. Typically, agricultural cooperatives create these funds by pooling together their resources, which can be used to cover losses that result from unpredictable events like natural disasters, pests, diseases, or other perils. The ACIR can be used to provide coverage for a broad range of risks, including property damage, crop loss, business interruption, and liability claims. Each member cooperative contributes a certain amount of money to the reserve pool, which is then used to pay out claims when they arise. Overall, creating an ACIR can be an effective way for agricultural cooperatives to manage risk, access affordable insurance coverage, and promote the shared objectives of the agricultural community.

Farmer Productivity

Farming includes crop cultivation, animal husbandry, fisheries management, forest management, and wildlife product extraction. This includes cultivating, processing, and transporting food and fibre. Agriculture boosts food production, employment, income, foreign currency, local business raw material availability, and rural development (Olayide,

2019). Agriculture relies on mechanisation to boost worker productivity using tools, machines, and other gadgets. Making and overseeing field machinery, utilising supplies, regulating water, and harvesting are all part of the process. Mechanisation in agriculture involves using machines to execute necessary tasks (Emami, Almassi, Bakhoda, & Kalantari, 2018). According to Belton, Win, Zhang & Filipski (2021) and Yin, Wang, Zhou, Wu & Zhang (2021), the goal is to improve rural living conditions by reducing manual labour, boosting efficiency, agricultural output, product quality, and productivity.

RESEARCH METHOD

The model of the study is specified in functional, linear and log form.
FQ = f(ACIC, ACIR) ……1
Hence, this model can, for simplicity, be stated in the econometric form of equation as depicted below:
FQ = $\beta_0 + \beta_1 ACIC + \beta_2 ACIR + \mu$……..2
Where;
f = functional notation
FQ = Farmers' Productivity
ACIC = Agricultural Cooperative Insurance Claims
ACIR = Agricultural Cooperative Insurance Reserve
μ = Error term
β0 = Constant Parameter
β_1- β_2 = Coefficients of Regression

Data Analysis and Interpretation

This research employed the ordinary least squares model to analyze the short-term effects of cooperative insurance on agricultural production among farmers in Ekiti State, Nigeria, from 1981 to 2021. The study's research model said that farmers' output (FQ) was a proxy for farmer productivity (the dependent variable), while agricultural cooperative insurance claims (ACIC) and agricultural cooperative insurance reserves (ACIR) were the explanatory factors. The OLS technique's findings interpretation focuses on short-term outcomes. This section is solely about interpreting the study's results.

Data Presentation

The raw and log-linearized data used in the study were secondary data spanning from 1981 to 2021 culled and analysed and is duly presented as shown in table below

Ordinary Least Square (OLS) Short-Run Results

The short run result of the model obtained through the use of the ordinary least square technique as presented in table is summarized below:

Table 1: Short Run Result of the Model

Dependent Variable: LNGDP

Variable	Co-efficient	Std. Error	T-Statistics	Prob.
LNACIC	0.731540	0.021497	34.02966	0.0000
LNACIR	0.222432	0.026270	8.467247	0.0000
C	-0.482796	0.209067	-2.309288	0.0268

Source: Eviews 9 (2024)

From the table above, the short run equation specifying the short run relationship among the variables can be presented below as:
LNFQ = $-0.482796 + 0.731540_{ACIC} + 0.222432_{ACIR} + \mu$
(0.209288) (0.021497) (0.026270)
Note: The standard error statistics are those stated in parenthesis

As shown in table 1 with all other variables maintained constant, the dependent variable LNFQ would fall by 0.482796 units, according to the short-run equation, which reveals that the constant parameter's coefficient is -0.482796. Agricultural cooperative insurance claims and LNFQ have a significant positive correlation of 0.731540. This suggests that a one-unit rise in claims will soon lead to a 0.731540 unit increase in LNFQ. With a coefficient of 0.222432, the positive correlation between LNFQ and income from agricultural cooperative insurance predicts that there will be a 0.222432 unit rise in LNFQ in the near future for every unit increase in revenue from agricultural cooperative insurance.

Validity of Hypothesis

Hypothesis One: agricultural cooperative insurance claims has no significant impact on farmers' productivity in Ekiti State, Nigeria

The result indicated that the coefficient of agricultural cooperative insurance claims is 0.731540 units with probability value of 0.0000, which is less than 0.05. Therefore, P < 0.05 (i.e. 0.0000 < 0.05) thereby confirming the significant impact of agricultural cooperative insurance claims of farmers' productivity in Ekiti State, Nigeria. Therefore, the alternative hypothesis is rejected while null is accepted.

Hypothesis Two: agricultural cooperative insurance revenue has no significant impact on farmers' productivity in Ekiti State, Nigeria

The result indicated that the coefficient of agricultural cooperative insurance revenue is 0.222432 units with probability value of 0.0000, which is less than 0.05. Therefore, P < 0.05 (i.e. 0.0000 < 0.05) thereby confirming the significant impact of agricultural cooperative insurance revenue of farmers' productivity in Ekiti State, Nigeria. Therefore, the alternative hypothesis is rejected while null is accepted.

Summary of the Findings

The study analyzed how cooperative insurance in Ekiti State, Nigeria, affects agricultural productivity. All of the variables were determined to be stationary at the level when the Augmented Dickey-Fuller Unit Root Test was applied to investigate their stationarity. Therefore, the ordinary least squares (OLS) approach had to be employed to estimate the short-term equilibrium connection among the variables as all of them were stationarity at their level.

In the short run, all variables (LNACIC and ACIR) had a positive and statistically significant related with farmers' production, according the OLS short-run model. That stated, you can trust the study's results to make good choices and recommendations.

Implication of Findings

This study examines how cooperative insurance affects Ekiti State farmers' productivity. The OLS method assessed short-term variable interrelations.

Farmers' short-term production and agricultural cooperatives' insurance claims were positively correlated. Olajide (2019) says expanding agricultural cooperative insurance may boost Ekiti State farmers' production.

The agricultural cooperative insurance reserve would be positively and significantly related to Ekiti State farmers' agricultural productivity. Ayodele (2015) discovered that increasing agricultural cooperatives' insurance reserves improves farmers' productivity. Everything worked well.

Pairwise Granger Causality Test

Pairwise Granger Causality Tests

Date: 02/10/24 Time: 17:17
Sample: 1981 2021
Lags: 1

Null Hypothesis:	Obs	F-Statistic	Prob.
LNACIC does not Granger Cause LNFQ	38	0.00079	0.9777
LNFQ does not Granger Cause LNACIC		5.42535	0.0257
LNACIR does not Granger Cause LNFQ	40	1.70203	0.2001
LNFQ does not Granger Cause LNACIR		0.01603	0.8999
LNACIR does not Granger Cause LNACIC	38	0.10670	0.7459
LNACIC does not Granger Cause LNACIR		0.03155	0.8600

Source: Eview 9 (2024)

Table shows causality test findings on whether cooperative insurance decreased farmers' productivity. This finding showed a causal link between cooperative insurance and farmer production. Farmers' production is one-way correlated with agricultural cooperative insurance claims (LNACIC). The Agricultural Cooperative Insurance Reserve does not affect farmers' productivity. That is, there was no causal relationship between agricultural cooperative and insurance reserve.

CONCLUSION AND RECOMMENDATIONS

The study analyzed how cooperative insurance in Ekiti State, Nigeria, affects agricultural productivity. All of the variables were determined to be stationary at the level when the Augmented Dickey-Fuller Unit Root Test was applied to investigate their stationarity. Therefore, the ordinary least squares (OLS) approach had to be employed to estimate the short-term equilibrium connection among the variables as all of them were stationarity at their level and also test for direction of causality among variables. It was concluded that cooperative insurance indices improves farmers' productivity in Ekiti State, Nigeria. Also, there was a unidirectional relationship from farmers' productivity to agricultural cooperative insurance claims in Ekiti State Nigeria while there was no relationship between agricultural cooperative insurance reserve and farmers' productivities in Ekiti State, Nigeria. Therefore, it was recommended that government should give more attention to cooperative societies in Ekiti State and grant them more grants in terms of finance assistance and asset to boost production.

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