IMPACT OF TOTAL SAVINGS ON AGRICULTURAL PRODUCTIVITY AMONG COMMERCIAL FARMERS IN EKITI STATE, NIGERIA

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Abstract

This research investigated the impact of total savings on agricultural productivity among commercial farmers in Ekiti State, Nigeria, utilizing a descriptive survey design. The specific population comprises 1,200 registered commercial farmers in Ekiti State, as recorded by the Ministry of Agriculture. A stratified random sampling technique was employed to select a representative sample of 300 farmers from different local government areas, considering the proportional distribution of farmers in each stratum. The study assessed the level of total savings among commercial farmers, identify patterns of investment in agricultural inputs, asset accumulation and emergency fund size Data for the study were gathered using a self-created survey called the "Impact of Total Savings on Agricultural Productivity Questionnaire" (ITSAPQ). Three null hypotheses were generated and tested at the significance level of 0.05. Data were analyzed using inferential statistics such as correlation and simple regression analysis. The study's findings revealed investment in agricultural inputs and asset accumulation significantly influenced agricultural productivity. Also, the study revealed a positive correlation between emergency fund size and agricultural productivity among commercial farmers. Based on the findings, the study recommended that government should develop and implement supportive policies and initiatives that incentivize farmers to save and invest in sustainable agricultural practices. Also, Government should implement comprehensive financial literacy programmes targeted at commercial farmers to maximize the impact of their savings on agricultural productivity.

Keywords: *Total Savings, Agricultural Inputs, Asset Accumulation, Emergency fund-size, Agricultural Productivity.*

Background to the Study

Agricultural productivity plays a pivotal role in ensuring food security, poverty alleviation, and economic development in many countries, particularly those with agrarian economies. According to Ominrin (2021) it refers to the efficiency and output of agricultural activities within a given area or system. It is a measure of how effectively resources such as labor, land, water, and inputs like seeds and fertilizers are utilized to produce crops, livestock, or other agricultural commodities. Agricultural productivity goes beyond the mere quantity of output and includes considerations of the quality, sustainability, and economic viability of the produced goods (Nsofor, 2015).

According to Omirin (2021) high agricultural productivity implies that a significant yield of crops or output of livestock is achieved relative to the resources invested. This can be influenced by various factors, including the adoption of modern farming techniques, efficient use of technology,

access to credit and resources, favorable weather conditions, and effective management practices. Robertson (2019) noted that productivity in crop farming involves maximizing the yield of crops per unit of land, often measured in terms of bushels per acre or similar units. Livestock productivity, on the other hand, considers factors

such as the growth rate, reproduction efficiency, and overall health of the animals. Sustainable agricultural productivity takes into account the long-term viability of farming practices, considering environmental conservation, biodiversity, and the preservation of natural resources. It emphasizes practices that not only increase short-term yields but also ensure the health of the ecosystem for future generations. Fadokun (2009) highlighted agricultural productivity reflects the efficiency, sustainability, and economic performance of agricultural systems. Improving agricultural productivity is a key goal in ensuring food security, economic development, and the overall well-being of rural communities. It involves a holistic approach that considers technological advancements, resource management, and socio-economic factors to achieve optimal output while minimizing negative environmental impacts.

Harrison (2010) claimed that the ability of farmers to enhance productivity is influenced by various factors and one critical yet underexplored aspect is the role of total savings. Savings, encompassing both financial and non-financial resources, constitute a crucial element in empowering farmers to invest in modern agricultural practices, technologies, and inputs, thereby potentially influencing overall agricultural productivity.

Fadokun (2009) stressed that total savings in agriculture encompass the financial reserves and investments accumulated within the agricultural sector. It involves the practice of setting aside a portion of income or profits derived from agricultural activities for future use or as a buffer against unforeseen challenges. These savings can take various forms, including money held in banks, investments in agricultural inputs or technologies, and other financial instruments aimed at enhancing the overall financial resilience of individuals, farming households, or agricultural enterprises. Farmers and stakeholders engage in total savings to address a range of needs and goals Akinmade, (2019). One common objective is to ensure a stable and consistent cash flow throughout the agricultural cycle. Savings can be earmarked for purchasing quality seeds, fertilizers, pesticides, and other inputs necessary for optimizing crop yield or improving livestock production. Moreover, these financial reserves act as a safety net during periods of market volatility, droughts, or other adverse conditions that may impact agricultural income. In essence, total savings in agriculture represent a financial strategy that goes beyond day-to-day expenses. They serve as a financial cushion, fostering resilience against uncertainties and opening avenues for growth and innovation within the agricultural sector. By building and utilizing these savings effectively, farmers can enhance their capacity to withstand economic shocks, invest in sustainable practices, and contribute to the overall development of agricultural communities.

Kolawole (2021) asserted that the link between savings and agricultural productivity is multifaceted. Financial savings enable farmers to access credit, invest in high-yielding crops, adopt modern farming techniques, and mitigate risks associated with climate variability. On the other hand, non-financial savings, such as knowledge and traditional farming practices passed down through generations, contribute to sustainable and resilient agricultural systems. In conclusion, savings empower farmers to make strategic investments, adopt advanced technologies, and navigate challenges, ultimately fostering a more resilient, efficient, and productive agricultural

sector. Hence, this study investigated impact of total savings on agricultural productivity among commercial farmers in Ekiti State, Nigeria.

Statement of the Problem

The agricultural sector in Ekiti State, Nigeria, stands at the intersection of economic significance and persistent challenges, raising a critical research problem concerning the impact of total savings on agricultural productivity. Despite the sector's pivotal role in the livelihoods of a significant portion of the

population, there is a noticeable gap in understanding how the level of total savings influences the overall productivity of agricultural activities. Farmers and stakeholders within the agricultural domain are grappling with uncertainties arising from factors such as erratic weather patterns, limited access to credit, and volatile market conditions. While total savings are recognized as a potential buffer against these challenges, the specific mechanisms through which savings affect and contribute to increased agricultural productivity remain inadequately explored. Key questions arise, including how farmers currently engage in savings practices within the agricultural sector, the extent to which these savings are effectively utilized, and the tangible impact of such savings on crucial productivity indicators like crop yield, livestock output, and overall farm profitability. Understanding these dynamics is essential for devising targeted interventions and policies aimed at enhancing the economic well-being of farmers and bolstering the sustainability of agricultural practices in Ekiti State. Hence, this study investigated the impact of total savings on agricultural productivity among commercial farmers in Ekiti State, Nigeria.

Objectives of the study

The following specific objectives guided this study.

1. Examine the influence of agricultural inputs on agricultural productivity among commercial farmers in Ekiti state.
2. Ascertain the influence of asset accumulation on agricultural productivity among commercial farmers in Ekiti State.
3. Determine the relationship between emergency fund size and agricultural productivity among commercial farmers in Ekiti State.

Hypotheses

The following hypotheses were tested in this study

$H0_1$: Investment in agricultural inputs will not significantly influence agricultural productivity
$H0_2$: Asset accumulation will not significantly influence agricultural productivity
$H0_3$: There is no significant relationship between emergency fund size and agricultural productivity

Literature Review

Total Savings in Agriculture

Total savings in agriculture refer to the cumulative financial reserves or resources that farmers and agricultural entities set aside or accumulate from their income and production activities (Adesina, 2015). This concept encompasses the various forms of savings within the agricultural sector, taking into account both monetary and non-monetary assets.

Donald & Scholes (2018) posited that monetary savings in agriculture include the funds saved in banks, investments, and other financial instruments. Farmers may deposit their surplus income in savings accounts, invest in agricultural machinery, or participate in financial markets to grow their wealth. These financial resources serve as a safety net, helping farmers cope with unforeseen expenses, market fluctuations, or economic uncertainties. Moreover, non-monetary savings in agriculture involve assets that may not have an immediate monetary value but contribute to long-term sustainability and

productivity. This could include the preservation and enhancement of soil fertility, water conservation practices, and investments in sustainable farming techniques. Non-monetary savings are essential for maintaining the health of the agricultural ecosystem, ensuring the resilience of farms over time (Donald & Scholes, 2018).

Total savings in agriculture play a crucial role in fostering resilience and stability within the agricultural sector. They provide a buffer against financial shocks, enabling farmers to withstand adverse conditions such as crop failures, price fluctuations, or natural disasters. Additionally, accumulated savings empower farmers to make strategic investments in modern technology, improved infrastructure, and sustainable practices, ultimately contributing to the overall development and growth of the agricultural industry.

Components of Total Savings in Agriculture

This refers to the specific factors or elements that can be measured and analyzed to assess the level, patterns, and impact of savings within the agricultural sector. Here are some key components related to total savings in agriculture according to Akinmade (2019):

1. **Savings Account Balance:** The amount of money held in savings accounts dedicated to agricultural purposes.
2. **Investment in Agricultural Inputs:** Expenditure on seeds, fertilizers, pesticides, and modern farming equipment using saved funds.
3. **Asset Accumulation:** The growth in the value of agricultural assets such as land, livestock, and machinery over a specific period.
4. **Emergency Fund Size:** The amount of savings set aside for unforeseen events or emergencies affecting agricultural operations.
5. **Creditworthiness:** An assessment of the farmer's ability to access credit and loans based on their savings history and financial stability.
6. **Participation in Formal Financial Systems:** A binary variable indicating whether a farmer is actively engaged in formal financial systems, such as having a bank account or being a member of a savings and credit cooperative.

7. **Investments in Diversification:** A categorical variable indicating the level of investment in diversifying agricultural activities, such as adding new crops or livestock breeds.
8. **Educational and Training Expenditure:** The amount of savings directed towards educational and training programs for improving agricultural knowledge and skills.
9. **Infrastructure Development Spending:** The allocation of funds for on-farm infrastructure development, including irrigation systems, storage facilities, and processing units.
10. **Debt Repayment Amount:** The portion of savings used for repaying agricultural debts or loans.
11. **Resilience Index:** A composite variable reflecting the ability of savings to provide resilience against economic shocks, calculated based on factors such as market fluctuations and response to weather-related challenges.
12. **Percentage of Income Saved:** A continuous variable representing the proportion of the farmer's income consistently saved over a specified period.
13. **Savings Habits Score:** A score assigned based on the regularity and discipline of the farmer in saving money, considering factors such as frequency and consistency.
14. **Savings Behavior Change:** A categorical variable indicating whether there has been a positive, negative, or neutral change in the farmer's savings behavior over time.
15. **Perceived Financial Security:** Farmer's subjective assessment of their financial security, indicating how confident they feel about their savings and financial position.

Agricultural Productivity

Agricultural productivity is a multifaceted concept that refers to the efficiency and effectiveness with which resources are utilized in the agricultural sector to generate output. According to Smith & Kwior (2022) it encompasses the ability of farmers and agricultural systems to produce a maximum yield of crops or livestock per unit of input, such as land, labor, capital, and technology. The ultimate goal of agricultural productivity is to ensure the sustainable production of high-quality and nutritious food, fiber, and other agricultural products to meet the growing demands of populations (Adesugba, 2017).

Obisanya (2020) stressed that efforts to improve agricultural productivity involve adopting and implementing advanced technologies, modern farming practices, and innovative techniques. This includes the use of improved crop varieties, precision farming methods, efficient irrigation systems, and the application of fertilizers and pesticides. The integration of technology not only enhances the quantity of output but also contributes to the overall quality, resilience, and sustainability of agricultural production.

Adesugba (2017) noted that crop productivity, a major component of agricultural productivity, is often measured in terms of yield per unit area (e.g., bushels per acre). For livestock, productivity metrics may include measures such as growth rates, reproduction rates, and overall health. The efficiency of resource utilization, including water, energy, and nutrients, is crucial in determining the environmental sustainability of agricultural practices. Sustainable agricultural productivity also takes into account the long-term impact of farming on the environment, biodiversity, and ecosystem services. Practices that promote soil health, reduce greenhouse gas emissions, and minimize the use of harmful agrochemicals contribute to the sustainability of agricultural systems.

The economic aspect of agricultural productivity involves ensuring that farmers achieve profitability and competitiveness in the market. Productivity gains often translate into increased income for farmers, promoting rural development and economic growth. Agricultural productivity is a comprehensive measure that goes beyond mere output quantities. It encompasses the responsible and efficient use of resources to ensure sustainable, resilient, and economically viable agricultural practices that meet the nutritional needs of the population while considering environmental and social implications. Continuous efforts to enhance agricultural productivity are crucial for global food security, economic development, and the well-being of farming communities.

Theoretical Framework

This study is anchored on Resource-Based View (RBV) Theory.

Resource-Based View (RBV) Theory

The RBV theory was primarily developed by Edith Penrose and later expanded upon by scholars such as Jay Barney. Penrose introduced the foundational ideas in her book "The Theory of the Growth of the Firm" in 1959, while Barney further developed and popularized the theory in the late 1980s and 1990s. The RBV theory suggests that firms (or in this case, agricultural enterprises) gain a competitive advantage and achieve superior performance when they possess and effectively leverage valuable, rare, inimitable, and non-substitutable resources. These resources, often referred to as strategic assets, can be tangible or intangible and contribute to the firm's ability to create and sustain a competitive edge.

Application to the Impact of Total Savings on Agricultural Productivity:

In the context of agriculture, total savings can be viewed as a strategic resource. When farmers and agricultural enterprises accumulate savings, they acquire a valuable and potentially rare resource that can be strategically leveraged to enhance productivity.

1. **Valuable Resource:**

Total savings can be considered a valuable resource when used to invest in modern farming technologies, high-quality inputs, and sustainable practices. These investments contribute to increased productivity, better crop yields, and improved overall efficiency.

2. **Rare Resource:**

In regions where access to formal financial systems is limited, the ability to accumulate significant savings can be relatively rare. Farmers who manage to save and invest in their agricultural activities may have a competitive advantage over those who lack access to financial resources.

3. **Inimitable Resource:**

The knowledge and experience gained through effective financial management and investment decisions may be challenging for competitors to replicate. Farmers who have developed successful savings strategies and invested wisely in their operations may enjoy a sustained advantage in agricultural productivity.

4. Non-Substitutable Resource:

While various resources contribute to agricultural productivity, the financial capital represented by total savings is often non-substitutable. The ability to invest in essential inputs, infrastructure, and risk mitigation strategies with saved funds may not have direct substitutes in terms of impact on productivity.

In applying the RBV theory to the impact of total savings on agricultural productivity, it becomes evident that the accumulation and strategic utilization of financial resources contribute to a competitive advantage for farmers. This advantage is not solely based on the quantity of savings but on how effectively these savings are leveraged to enhance the overall efficiency, resilience, and productivity of agricultural operations.

Research Method

This research investigated the impact of total savings on agricultural productivity among commercial farmers in Ekiti State, Nigeria, utilizing a descriptive survey design. The specific population comprises 1,200 registered commercial farmers in Ekiti State, as recorded by the Ministry of Agriculture. A stratified random sampling technique was employed to select a representative sample of 300 farmers from different local government areas, considering the proportional distribution of farmers in each stratum. The study assessed the level of total savings among commercial farmers, identify patterns of investment in agricultural inputs, asset accumulation and emergency fund size. Data for the study were gathered using a self-created survey called the "Impact of Total Savings on Agricultural Productivity Questionnaire"

(ITSAPQ). Three null hypotheses were generated and tested at the significance level of 0.05. Data were analyzed using inferential statistics such as correlation and simple regression analysis.

Findings and Discussion

Testing of Hypotheses

$H0_1$: Investment in agricultural inputs will not significantly influence agricultural productivity among farmers in Ekiti State

Table 1: Regression Analysis Showing Significant Influence of Investment in agricultural inputs on agricultural productivity among commercial farmers in Ekiti State

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.424	.190	.178	.40732

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
	(Constant)	1.572	.128		12.253	.000
1	Agricultural Input Investment	0.474	.048	0.425	9.916	.001

Not significant at 0.05 level of significance

Table 1 is in two parts namely the Model Summary and Coefficients which are explained below: The model summary of the multiple linear regression revealed a R of 0.425 which showed that there is a moderate positive relationship between agricultural inputs and agricultural productivity among commercial farmers in Ekiti State. The coefficient of determination is the proportion of the variance of the dependent variable (agricultural productivity) that can be explained by the variations in the independent variables (agricultural input investment). Thus, 19% of the variations in agricultural productivity can be explained by variations in investment in agricultural inputs.

Finally, the observed influence in the regression model, showing the significant influence of investment in agricultural inputs on agricultural productivity in table 1 is significant (β =0.425 t (450) = 9.916, p< 0.05). Hence, the null hypotheses which stated that investment in agricultural inputs will not significantly influence agricultural productivity among commercial farmers in Ekiti State will be rejected, and so the alternative hypotheses will be accepted. This implies that investment in agricultural inputs will significantly influence agricultural productivity.

This finding aligns with Adedoyin's (2020) research which revealed that the positive influence of investment in agricultural inputs on productivity is evident in the holistic improvement of the farming process. From the early stages of planting with high-quality seeds to the ongoing care involving fertilizers, irrigation, and pest control, each investment contributes to the overall health and resilience of

the agricultural system. These strategic investments not only amplify yields and output but also foster sustainability, ensuring that agricultural productivity is optimized for the long term. Similarly, Abdulrasaq (2015) emphasized that investment in agricultural inputs on agricultural productivity lies in the ability of these inputs to act as catalysts for optimal crop or livestock development. Strategic investments in seeds, fertilizers, pesticides, machinery, and technology contribute to higher yields, improved product quality, and enhanced overall efficiency in agricultural practices. As farmers continue to adopt and invest in advanced agricultural inputs, the potential for sustainable and resilient agricultural systems capable of meeting the demands of a growing population becomes increasingly achievable.

$H0_2$: Asset accumulation will not significantly influence agricultural productivity among commercial farmers in Ekiti State

Table 2: Regression Analysis Showing the Significant Influence of Asset accumulation and agricultural productivity among commercial farmers in Ekiti State

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.442	.195	.194	.40346

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.666	.113		14.713	.000
	Asset Accumulation	0.420	.040	0.442	10.434	.001

Not significant at 0.05 level of significance

Table 2 is in two parts namely the Model Summary and Coefficients which are explained below:

The model summary of the multiple linear regression revealed a R of 0.442 which showed that there is a moderate positive relationship between asset accumulation and agricultural productivity among commercial farmers in Ekiti State.

The model also has R Square (i.e. the coefficient of determination) of 0.195. The coefficient of determination is the proportion of the variance of the dependent variable (agricultural productivity) that can be explained by the variations in the independent variables (asset accumulation). Thus, 19.5% of the variations in agricultural productivity can be explained by variations in asset accumulation.

Finally, the observed influence in the regression model, showing the significant influence of asset accumulation on agricultural productivity table 2 is significant (β =0.442, $t(450) = 10.434$, $p< 0.05$). Hence, the null hypotheses which stated that asset accumulation will not significantly influence agricultural productivity will be rejected, and so the alternative hypotheses will be accepted. This implies that asset accumulation will significantly influence agricultural productivity.

This finding is affirmed by Drake (2014) who stated that the positive influence of asset accumulation on agricultural productivity among farmers signifies the pivotal role that building and managing assets play in enhancing the efficiency, resilience, and overall success of farming operations. Agricultural assets encompass a diverse range of physical, financial, and human resources, all of which contribute to the productive capacity of farmers. The accumulation of these assets is associated with several beneficial outcomes that positively impact agricultural productivity. Abdulrasaq (2015) also noted that farmers who actively accumulate and manage diverse assets not only increase their productive capacity but also build resilience against challenges. The strategic use of accumulated assets contributes to sustainable and efficient farming

practices, ensuring the long-term success and viability of agricultural operations. Conversely, Akinmade (2019) stated that while asset accumulation generally has positive implications for agricultural productivity, there can be certain negative influences associated with this process. It is essential to acknowledge and understand these challenges to develop strategies that mitigate potential drawbacks such as

$H0_3$: There is no significant relationship between emergency fund size and agricultural productivity among commercial farmers in Ekiti State

Table 3: Pearson Correlation on relationship between emergency fund size and agricultural productivity among commercial farmers in Ekiti State

		Emergency fund size	Agricultural Productivity
Emergency fund size	Pearson Correlation	1	.436**
	Sig. (2-tailed)		.000
	N	323	323
Agricultural Productivity	Pearson Correlation	.435**	1
	Sig. (2-tailed)	.000	
	N	323	323

**. Correlation is significant at the 0.05 level (2-tailed).

Table 3 shows a correlation value of .436 and a significant probability of .000 less than .05 level of significant. This indicated that positive correlation exists between emergency fund size and agricultural productivity among commercial farmers in Ekiti State. Hence, there is statistical reasons to reject the null hypothesis of no relationship.

This finding is in consonance with the ascertion of Oliver & White (2023) who explained that the size of an emergency fund is directly related to a farmer's ability to mitigate risks effectively. Agriculture is inherently susceptible to various uncertainties such as adverse weather conditions, pest outbreaks, and market fluctuations. A well-funded emergency fund provides a financial cushion that enables farmers to cope with unexpected challenges. For instance, if a sudden weather event damages crops, farmers with a sufficiently large emergency fund can quickly mobilize resources to recover and replant, minimizing the negative impact on productivity. This risk mitigation aspect enhances overall productivity by reducing the likelihood and severity of setbacks that could otherwise disrupt the agricultural cycle. Nwachukwu (2017) also highlighted that the size of the emergency fund influences a farmer's capacity to make timely investments in agricultural inputs and technology. In times of stability, farmers can use their emergency

funds strategically to invest in high-quality seeds, fertilizers, modern machinery, and other essential inputs that enhance productivity. This proactive approach ensures that farmers have the necessary resources at the right time, optimizing crop growth and livestock management. For example, a farmer with a well-funded emergency fund may be better positioned to adopt precision farming technologies or invest in irrigation infrastructure, contributing to increased efficiency and

higher agricultural productivity. The fund serves as a reservoir for timely investments that can positively impact the entire agricultural production process.

Conclusion

This study shed light on the significant impact of total savings on agricultural productivity among commercial farmers in Ekiti State, Nigeria. The findings indicated a positive correlation between the level of total savings (investment in agricultural inputs, asset accumulation and emergency fund size) and the overall productivity of agricultural operations. As commercial farmers allocate a portion of their income to savings, they are better positioned to invest in modern farming techniques, improved machinery, and high-quality inputs, leading to increased yields and efficiency.

Moreover, the study reveals that total savings act as a crucial financial buffer for farmers, allowing them to withstand economic uncertainties, weather fluctuations, and market volatilities. This financial resilience enhances their ability to navigate challenges and continue their agricultural activities, contributing to sustained productivity over time.

Recommendations

Based on the research findings, several recommendations are proposed to further optimize the impact of total savings on agricultural productivity among commercial farmers in Ekiti State:

1. **Financial Literacy Programmes:** Government should implement comprehensive financial literacy programmes targeted at commercial farmers. These programmes should focus on educating farmers about the importance of savings, budgeting, and effective financial management to maximize the impact of their savings on agricultural productivity.
2. **Access to Financial Services:** Improved access to financial services, such as savings accounts, credit facilities, and insurance, tailored to the needs of commercial farmers should be facilitated. This will not only encourage savings but also provide a safety net for farmers in times of financial distress.
3. **Government Support:** The government should develop and implement supportive policies and initiatives that incentivize farmers to save and invest in sustainable agricultural practices. This can include tax incentives, subsidies, and grants for farmers who demonstrate a commitment to long-term savings and productivity enhancement.
4. **Technology Adoption:** Adoption of modern agricultural technologies should be encouraged through subsidies or training programmes. By utilizing advanced farming techniques, farmers can optimize their productivity and achieve higher returns on their investments, further emphasizing the importance of savings.
5. **Collaboration and Networking:** Collaboration and networking should be fostered among commercial farmers to create a platform for knowledge sharing, joint investments, and collective bargaining. This can empower farmers to pool their resources, including savings, for larger-scale and more impactful agricultural projects.

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