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Cocoa, Palm Tree, and Cassava Plantations among Smallholder Farmers: Toward Policy and Technological Efficiencies for Sustainable Socio-Economic Development in Southern Nigeria

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Abstract: This study is basically and centrally focused on the review of the extant literature in exploring the challenge of the under-utilization of natural fertile land for the cultivation and farming of different crops such as cocoa, palm tree, and cassava, which remain an important sector of the economy for sustainable socio-economic development in the southern part of Nigeria. The review of the cursory literature is necessary to bridge the gap in the existing body of knowledge, especially by addressing the less attention paid to exploring the non-oil sector of the economy such as cocoa, palm tree, and cassava as well as connecting policy and agro-technology to maximize agricultural productivity for the purpose of sustainable socio-economic development. The primary objective of this study is to explore cocoa, palm tree, and cassava plantations among smallholder farmers in order to enhance sustainable socio-economic development in the country. The methodology used in this study is a systematic literature review (SLR) cum content analysis (CA) of secondary sources or relevant literature whereby six themes were generated and analyzed. A consistent approach was used in order to establish exhaustive searching strategies and single-line search strategies such as using field codes and parentheses as part of a systematic literature review. The results indicated that smallholder farmers have been actively partaking in cocoa plantation, and the government has been supportive of them in this regard in order to achieve sustainable socio-economic development. In addition, agricultural transformation contributes to economic diversification through innovative policy and capacity building among cocoa, palm tree, and cassava farmers in the country, which culminates in improving the overall welfare of the smallholder farmers in attaining sustainable socio-economic development. In conclusion, it is noteworthy to say that giving support, especially cocoa, palm tree, and cassava seedlings, to smallholder farmers can be instrumental in bridging the vacuum created by poverty and unemployment which could be regarded as mechanisms for attaining sustainable development. The importance of the study was manifested in the practical aspect of giving concrete support to the smallholder farmers, and the innovativeness of the study is reflected in the advocacy for the efficiencies and effectiveness of agricultural policy and technology integration into the sector. It is therefore suggested that interventions of individual philanthropists, government, and international communities will boost the morale and resilience of the farmers toward enhancing cocoa, palm tree, and cassava production in order to enhance sustainable socio-economic development among smallholder farmers in particular and to maximize national economy growth in general.



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Keywords: smallholder farmers; cocoa; palm tree; cassava; sustainability socio-economic; agricultural transformation; innovative policy

1. Introduction

There are overwhelming studies on the impact of petroleum on the growth of the economy, and there has been agitation for the diversification of the economy in order to

attain sustainable economic development in Nigeria [1,2]. However, the agricultural sector immensely contributes to the socio-economic development of society in developing and developed countries. The motivation for this study merged as a result of the vision 2030 agenda for global sustainable development goals (SDGs) whereby food and agriculture remain an important focus of SDGs. Hence, this study will contribute significantly to addressing some aspects of SDGs such as poverty (SDG1), attaining zero hunger (SDG2), promoting good health (SDG3), and supporting economic growth (SDG8).

Indeed, the roles of smallholder farmers in socio-economic development in particular and in achieving SDGs in general cannot be underrated in the southern part of Nigeria in particular or in the entire nation in general. Specifically, the evolution of cocoa, palm tree, and cassava plantations in the 1950s and 1960s was regarded as a major revenue source for the federal government of Nigeria. Undoubtedly, the viability of cocoa, palm tree, and cassava plantations in contributing to the revenue or gross development product (GDP) of the government cannot be underestimated in the country. The literature posits that cocoa was the prime crop for foreign exchange, and the country was regarded as the second largest producer in the entire world in the 1970s [3]. Currently, there are declines in cocoa, palm tree, and cassava plantations, despite the fact that the government has been trying to emphasize sustainable agricultural productivity and the country is endowed with fertile land. Undoubtedly, the country is endowed with a quantity and quality of fertile land that can be used for the cultivation of different crops. For instance, the literature contends that

“Nigeria is blessed with 98 million hectares of arable land and 2.5 million hectares of irrigable land, out of which 83 million hectares are suitable for cultivation. The nation has one of the best agro-ecologies to grow a variety of crops. However, it has not been able to take the best advantage of her climatic conditions, large expanse of land, and ever-increasing population to make sufficient production (p. 1)” [4].

The above-mentioned quotation is explicit with respect to the natural endowment of the country and the injudicious utilization of the climatic conditions of the country's land for farming, despite the fact that the rate of unemployment is at an alarming rate. Hence, the development of the agricultural sector is essential as one of the paramount goals that must be given adequate attention or focus in order to contribute to the overall development of the country [4,5]. Table 1 indicates variables regarding males and females in terms of land productivity, age, household size, sex (male or female), plot size, hours spent on farm/year, contact extension, and marital status.

Table 1. Variables regarding males and females in terms of land productivity.

S/N	Variables	Male	Female
1.	Land productivity (bags/Ha.)	4.1	3.9
2.	Age	49.3	51
3.	Household size	7.2	6.2
4.	Sex (female =1 and male = 0)	78%	22%
5.	Plot size (Ha./household)	5.9	5.5
6.	Hours spent on farm/year	1150	1052
	Marital status:		
	i. Married	88.8%	37.6%
7.	ii. Widow	3.8%	51.4%
	iii. Single	7.4%	11.0%
8.	Exp land preparation (CFA)	84,488	91,360

For instance, studies have established that Nigeria remains one of the farming-deficient countries in sub-Saharan Africa, despite the fact that previous studies have confirmed the natural endowments such as fertile land for the cultivation of different crops and seeds such as cocoa, palm trees, and cassava [5–7]. There is a persistent concern for further exploration of agricultural potentialities, especially since studies have confirmed that approximately

one billion people are living in rural areas in different parts of the world where agriculture or farming remains an important aspect of the citizens' livelihood.

The discovery of oil in the country led to a decline and less focus on agricultural investment, as the literature contends [8]. Since the beginning of the current administration, the government has been looking inwardly to foster the agricultural sector for socio-economic development, as well as to create employment opportunities, and above all, it will enable the country to become self-reliant. Thus, a number of studies have clamored for economic diversification and a redirection of focus toward cocoa, palm tree, and cassava plantations [9]. More importantly, the consequences of agricultural self-sufficiency and self-reliance as an integral part of economic diversification should be significantly manifested in the commitment of the government to give the farmers the necessary support in order to mitigate the effects of poverty and unemployment in society [10]. Hence, there is a need to improve different schemes of human endeavors through an effective agricultural policy and the efficient use of technology for agrobusiness investment in society. Out of 36 states in the country, 18 are regarded as the most productive and independent cocoa-producing states in the country, and Ondo, Osun, and Cross-River States have the highest outputs in terms of cocoa plantations, whereas other states have infinitesimal outputs, as shown below in Table 2.

Table 2. The most productive and independent cocoa-producing states in Nigeria.

S/N	Cocoa Farm Location			GPS Coordinates		Cocoa	Production
	State	Local Govt. Area	Community	Latitude	Longitude	Tons	Output (%)
1.	Abia	Kwuano	Ikwuano	5.4093° N	7.5897° E	Below 10,000	<5
2.	Adamawa	Toungo	Toungo	8.1177° N	12.0441° E	Below 10,000	<5
3.	Akwa Ibom	Ini	Odoro Ikpe	5.2826° N	7.7634° E	Below 10,000	<5
4.	Cross River	Ikom	Ikom	5.9624° N	8.7082° E	59,087	18
5.	Delta	Aniocha South	Nsukwa	6.0167° N	6.4500° E	Below 10,000	<5
6.	Ebonyi	Afiko South	Edda	5.7839° N	7.8368° E	Below 10,000	<5
7.	Edo	Owan West	Sabongida-Ora	6.8988° N	5.9372° E	Below 10,000	<5
8.	Ekiti	Ikere-Ekiti	Aloka	7.991° N	5.2319° E	Below 10,000	<5
9.	Imo	Owerri	New Owerri	5.4999° N	6.9853° E	Below 10,000	<5
10.	Kogi	Lokoja	Lokoja	7.8023° N	6.7333° E	Below 10,000	<5
11.	Kwara	Isin	Oke-Origbin	8.2218° N	4.9987° E	Below 10,000	<5
12.	Lagos	Ikeja	Agege	6.6154° N	3.3238° E	0.0000	00
13.	Ogun	Odeda	Odeda	7.2328° N	3.5281° E	29,544	09
14.	Ondo	Ifedore	Owena	7.1961° N	5.0195° E	78,783	24
15.	Osun	Ife East	Iyanloworogi	7.3653° N	4.8164° E	72,217	22
16.	Oyo	Ido (Ibadan)	Daagi Logba	7.3900° N	3.7537° E	32,826	10
17.	Rivers	Bonny	Bonny	4.4333° N	7.1667° E	Infinitesimal	<1
18.	Taraba	Ghashaka	Gashaka	7.3667° N	11.4868° E	Below 10,000	<5
Total						328,263	100

The government has been showing dedication toward enhancing the agricultural sector by promoting plantations of cocoa, palm trees, and cassava among smallholder farmers, as the literature explicates [11]. In the past, an overwhelming number of studies have explored the efforts of the government to diversify the agricultural sector, especially by improving various aspects such as maize, yam, and cocoa farmers, among others. For instance, the government provides organic insecticides in order to protect maize against army worm infestations [11]. The literature contends that various aspects of human endeavor can be improved through the products harvested from different plantations, and more importantly, small and medium enterprises (SMEs) can be supported in society [12]. Nevertheless, there is little focus or connection between cocoa, palm tree, and cassava plantations as a mechanism for mitigating the socio-economic effects of poverty and unemployment. In other words, adequate mechanisms for using cocoa, palm tree, and cassava plantations

to mitigate the socio-economic effects of poverty and unemployment by giving support to smallholder farmers have not been adequately explored in the existing body of knowledge.

It is significant to critically explore cocoa, palm tree, and cassava plantations among smallholder farmers in order to improve socio-economic development in the country. Indeed, agriculture is considered one of the most critical sectors for bringing overall rural development to the country. Recently, there has been advocacy for collaboration between the federal and state governments, especially in addressing or averting food insecurity, poverty, unemployment, and other social shortcomings that cannot be underestimated [12]. Table 3 shows various constraints facing the agricultural sector in general that need adequate attention to be addressed.

Table 3. Multivarious constraints faced by agricultural sector in Nigeria.

S/N	Constraints	Mean Value	Standard Deviation
1.	Inadequate finances	4.91	0.36
2.	Incidence of pests	4.74	0.62
3.	Inadequate storage	4.47	0.87
4.	Inadequate processing facilities	4.44	0.92
5.	High cost of labor	4.20	0.81
6.	Lack of access to machinery	4.05	1.15
7.	Inadequate access to agrochemicals	3.89	0.96
8.	Fluctuating price of produce	3.70	0.93
9.	High cost of transportation	2.15	0.83
10.	Standardization	2.35	
11.	Cost of labor (per day)	#1000 (USD 3–6)	0.87
12.	Cost of annual remuneration of labor	#100,000–250,000 (USD 278–694)	

It is on this note that the government has been giving necessary support to the breeder, foundation seed production, and many other private companies meant for the production of seeds. Yet, there is insufficient academic research exploring cocoa, palm tree, and cassava plantations in mitigating poverty and unemployment as impediments to socio-economic development in the country. This study therefore aims to bridge this gap by exploring policy and technology for agricultural efficiency in the country. Thus, the subsequent section presents a review of the related literature explored in this study.

2. Literature Review

This part presents a review of the relevant literature. Undoubtedly, the review of the literature explores the interconnectedness of policy and technology for agricultural efficiency, cocoa, palm tree, and cassava plantations, smallholder farmers versus food security in Nigeria, and cocoa, palm tree, and cassava plantations as part of sustainable agriculture for socio-economic development. Agriculture for the maximization of productivity and sustainable agricultural practices among smallholder farmers in Nigeria. Each of these is explained in the subsequent sections.

2.1. Agriculture for Maximization of Productivity in Nigeria

Agricultural transformation is needed for the diversification of the economy by improving productivity and technical efficiency for crop production among smallholder farmers in order to reduce poverty in the country [13]. This can only be achieved when there is an increased opportunity for investors in the agricultural sector of the economy [14]. Undeniably, there have been lots of transformations, especially for smallholder farmers, that have been harmonized into market economies. This scenario is also applicable to the cocoa smallholder farmers in Nigeria because they need serious attention toward the actualization of their objectives, and these objectives cannot be attained without the support of the government, especially since cocoa production is an essential resource for its export earnings [15]. Similarly, most of the smallholder farmers of cocoa, palm tree, and cassava

plantations are not formidable enough to influence the process of policy formulation by the government, especially in favor of their cocoa, palm tree, and cassava products. As a result of this problem, they have been trying to work with some international non-governmental organizations (NGOs) in order to influence the policy of the government in their favor.

It should be reiterated that the literature acknowledges that plantations of cocoa, palm trees for the production of palm oil, and cassava can drastically reduce poverty and unemployment among smallholder farmers in society. It is therefore essential that the government invest in this kind of agribusiness, especially in the southern part of the country, because the region possesses a rich rainforest for the cultivation of land. It should be noted that agricultural investment will enable the government to achieve its target of being self-reliant. For instance, Malaysia and Indonesia have recorded success stories in the plantations of palm trees for domestic use and the importation of the product for the international market [16]. Nigeria has been trying to enhance its agricultural policy to maximize productivity. Hence, there should be an emphasis on cocoa, palm tree, and cassava plantations in the new Agricultural Promotion Policy (APP) in order to address socio-economic challenges in the country as an integral part of the social intervention program of the government [17]. Figure 1 shows Nigeria's production of crude palm oil in the thousand metric tons.

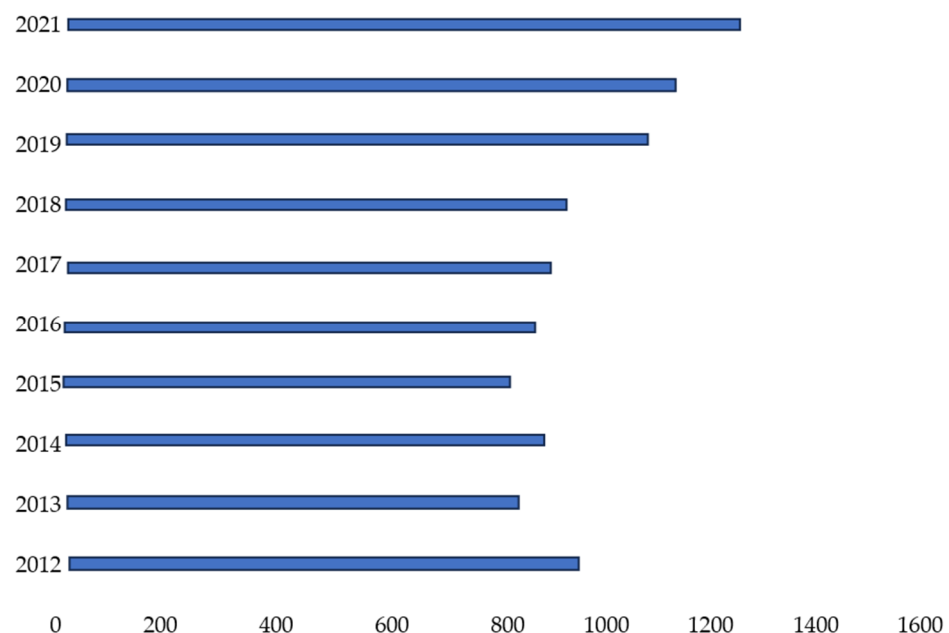


Figure 1. Nigeria's production of crude palm oil in the thousand metric tons. [Source: <https://businessday.ng/research-post/article/more-investments-in-crude-palm-oil-production-to-boost-nigerian-economy/>, accessed on 19 December 2023].

Thus, smallholder farmers play a paramount role in food security in the country, and studies contend that it refers to physical and economic accessibility to get enough or sufficient food for all citizens [18]. This inferably means that the quality and quantity of food production are very essential in order for the country to adequately attain food security because of the persistent hunger and abject poverty. More specifically, the World Bank (2014) has identified three major pillars for promoting food security, which are as follows: food availability, accessibility, and utilization. It can be said that according to the aforementioned pillars, whichever country cannot fulfill the three pillars for food production, such a country cannot be considered a nation that fulfills food security [19]. It is not disagreeable to posit that the Nigerian government has been making tremendous efforts to improve agricultural production, but it has not yielded the desired result due to

the fact that serious attention has not been given to the identified pillars by the World Bank (2014) in order to address the challenge associated with the economy [20].

As part of the effort to recover the economy from the crisis, it is important to create more awareness about agricultural investment, especially cocoa, palm tree, and cassava plantations, by driving credit to the sector in order to attain a meaningful socio-economic recovery. More importantly, the government also needs to improve its support for smallholder farmers who have been trying to invest in cocoa, palm tree, and cassava plantations in order to significantly address the economic recovery in the country [21]. It is not deniable to posit that smallholder farmers have paramount roles to play in this regard. For instance, investors can also help with investments in cocoa, palm tree, and cassava plantations, and they can also try to actively address the challenge of perceived difficult markets for the supply of harvested products. Hence, lowering the resources is an essential factor that encourages the willingness of investors to partner or collaborate with local and foreign investors by giving all kinds of support to smallholder farmers [22].

2.2. Sustainable Agricultural Practices among Smallholder Farmers in Nigeria

Sustainable agricultural practices in Nigeria are not widely adopted, with some farmers lacking awareness of the harmful effects of intensive agricultural practices. Factors influencing the adoption of sustainable practices include age, educational level, household size, extension contact, association membership, and farm size [23]. Adoption rates of sustainable practices, such as the use of improved seeds, are generally low among farmers. However, some practices, such as the use of organic manure, crop rotation, and minimum use of agrochemicals, are being implemented by a significant number of farmers [24]. The adoption of sustainable practices is influenced by factors such as the age of the household head, gender, education, household size, access to extension services, and household wealth status. Policymakers and agricultural development agencies should focus on increasing awareness, providing education and training programs, and improving access to resources to promote the adoption of sustainable agricultural practices in Nigeria [25].

Sustainable agricultural practices among smallholder farmers in Nigeria are crucial for addressing issues such as soil nutrient decline, land degradation, and food security. Various studies have examined the factors influencing the adoption of sustainable land management (SLM) practices among smallholder farmers in different regions of Nigeria [26]. Studies have found that factors such as age, gender, education, farm size, access to extension services, and land ownership influence the choice and adoption of SLM practices. Common sustainable agricultural practices include mixed cropping, minimum tillage, crop rotation, and the use of improved seeds, inorganic fertilizer, and organic manure. Agroecological farming approaches, which promote diversification through poly-cropping, agroforestry, and integrated crop and livestock systems, have been identified as effective techniques for sustainable food production. However, there is a need for greater awareness, education, and policy measures to promote the adoption of sustainable agricultural practices among smallholder farmers in Nigeria [27].

Sustainable agricultural practices among smallholder farmers in the country are influenced by various factors. These factors include demographic characteristics such as age, gender, household size, and education level [28]. Farm-specific factors such as farm size, farm distance, number of farm plots, and access to extension services also play a role in determining the adoption of sustainable practices. Additionally, factors like land tenure security, experience in farming, and off-farm income contribute to the choice of sustainable land management practices. Access to credit and membership in agricultural organizations have been found to be significant in promoting the adoption of sustainable practices [29]. Overall, a combination of demographic, farm-specific, and socio-economic factors influence the adoption of sustainable agricultural practices among smallholder farmers in the country.

Adopting sustainable agricultural practices among smallholder farmers in Nigeria has several benefits. These practices, such as agroecology, sustainable land management

(SLM), and conservation/non-tillage agriculture, contribute to sustainable food production, increased resilience of farming systems, and improved productivity [30]. Agroecology techniques, including poly-cropping, agroforestry, and integrated crop and livestock systems, enhance diversification and ensure food security. SLM practices, such as mixed cropping, minimum tillage, and crop rotation, help in land conservation and nutrient management, leading to increased agricultural productivity [31]. Conservation/non-tillage agriculture is an alternative to traditional farming methods, reducing environmental impact and improving productivity. The adoption of sustainable land management practices positively affects maize productivity and overall agricultural productivity. These practices also contribute to closing the yield gap, reducing post-harvest losses, and ensuring a sustainable balance between food and feed crops. Prioritizing tenure security and providing access to financial support and improved extension services are crucial for promoting the adoption of sustainable practices among smallholder farmers in the country [32]. The materials and methods utilized in this study are explained in detail as presented.

3. Materials and Methods

A systematic literature review (SLR) cum content analysis (CA) is used in this study. The literature explains the importance of utilizing a systematic literature review (SLR) in displaying and clarifying ideas relating to a particular area of research [33,34]. It is therefore essential to posit that the SLR is used in this study whereby essential themes are being generated in order to clarify ideas relating to the use of cocoa, palm tree, and cassava plantations among smallholder farmers in mitigating the effects of poverty and unemployment in the country. This study employed content analysis (CA) as a research design as an integral part of qualitative research, as the literature posits [35,36]. Similarly, the study also used a systematic literature review (SLR), which is most commonly utilized in academic research as the literature contends [37–39]. Undoubtedly, Web of Science (WOS) was utilized in accessing various sources such as journals, published references, research papers, library sources, and policy reports in Nigeria. Content analysis was conducted in the study through the analysis of meanings and relationships of various words or concepts such as cassava, palm tree, and cassava plantations, smallholder farmers, agricultural policy, technological efficiency, and socio-economic development. Thematic insights are provided to elaborate the interconnectedness of the variables explored in this study. In summary, the content analysis used in this study made references to cursory literature where the clarity of meanings and texts are clarified. A total of 84 articles were reviewed and analyzed in this study. The various themes generated are Policy and Technology for Agricultural Efficiency; Cocoa, Palm Tree, and Cassava Plantations; Smallholder Farmers Versus Food Security in Nigeria; Cocoa, Palm Tree, and Cassava Plantations; and Socio-Economic Development. The study also addresses salient issues such as the roles of smallholder farmers, cocoa, palm tree, and cassava plantations as mitigation of the socio-economic effects of poverty and unemployment, agriculture transformation, innovative policy, and capacity building. Search strategies are an integral part of the systematic literature review as employed in this study. Specific terms relating to the variables of the study were employed. Undoubtedly, the literature identifies standards for systematic searching strategies whereby a consistent approach was used in order to establish exhaustive searching strategies as part of a systematic literature review [40–42]. The method employed in this study is single-line search strategies such as using field codes, parentheses, etc., relating to general agricultural activities as well as smallholder farmers in cocoa, palm tree, and cassava plantations. Similarly, in order to achieve completeness in search strategies, comparisons of the results of the extant literature were retrieved through keywords, free-text synonyms, and free-text search through databases as well as interfaces. Hence, it would help researchers, specialists, practitioners, and policymakers in the agricultural sector [43–45]. Undoubtedly, as a result of the fact that the study has business and socio-economic implications, it is therefore reiterated that the study is linked with business and market models that will boost economic growth in the country. In so doing, it will add value to entrepreneurial

activities through the activities of smallholders. In so doing, this study will provide redirection of agricultural investment through the empowerment of smallholder farmers in the country. It is therefore noted that policy and technological efficiencies are significantly hypothesized in fostering cocoa, palm tree, and cassava plantations in achieving socio-economic development. Thus, the subsequent section provides a detailed explanation of the overall results and a discussion of the findings.

4. Results and Discussions

The prime objective of this study is to extensively explicate the potential of cocoa, palm tree, and cassava plantations through the instrumentality of policy and technological efficiency in enhancing socio-economic development in the southern part of Nigeria. As a response to the hypothesis formulated in the methodological part of the study, this part presents the results and discussions of the content analysis of the extant literature based on the following topics: policy and technology for agricultural efficiency, cocoa, palm tree, and cassava plantations, smallholder farmers versus food security in Nigeria, and cocoa, palm tree, and cassava plantations for socio-economic development. Each of these is explained in the subsequent sections.

4.1. Policy and Technology for Agricultural Efficiency in Nigeria

The analysis of this study demonstrated that agricultural policy is essential not only in the aspect of formulation but also in the aspect of implementation. It is paramount that the agricultural sector be made viable in order to be responsive to national and international demands by utilizing crops for domestic consumption as well as exporting the crops and productivity of various farm products. The aforementioned assertion is in agreement with the cursory literature that contends that there is a need to provide resource information for agricultural efficiency and research services in the agriculture sector [46]. This study demonstrated that Nigeria is endowed with many natural resources, such as fertile land for cultivation, but there is an inefficient utilization of most of the said natural resources. One previous study explained that most farmers in general and smallholder farmers in particular need support to boost access to seeds, fertilizers, protection of crops, and technological support, which influences the utilization of improved crop production technologies for agribusiness by smallholder farmers in the country [46]. Nonetheless, this study established that there is a need for a re-evaluation of agricultural policy and adequate coordination of relevant agricultural agencies in order to address the challenges faced by farmers in the country. More specifically, the cursory literature posits that the plantations of cocoa, palm trees, and cassava have received attention on the international market, and Ghana has been responsive to the demand of the international market. Thus, the analysis of this study demonstrated that there is a need for efficient policy that will bridge the existing gap in the context of Nigeria. This is in consonance with previous research that advocated for efficient agricultural policy, especially for fulfilling domestic demands, as well as serving the export market in order to earn foreign exchange for the socio-economic development of society [46].

This study arguably posited that innovative policy design can be instrumental in maximizing agricultural productivity. Indeed, smallholder farmers have initiated farmer groups in order to defend their interests and increase their access to market information in order to participate actively and intensify their voices to the agricultural policymakers in the country. It can be argued that the provision of market information may not be enough to direct a link to the market, which plays a vital role in the motivation of farmers on their farm produce. For instance, the aforementioned arguments are in line with the various initiatives such as the African Centre for Economic Transformation (ACET) which has been making tremendous efforts on a project called Smallholder Voice (SHV) with a research grant from the Open Society Foundation (OSF), which aims at promoting dialogue on agricultural policy with specific attention to inclusivity and value creation among the stakeholders [47]. The analysis of this study further indicated that more than a decade ago, specifically

between 2010 and 2015, the Nigerian government tried to redirect the focus of attention to the agricultural sector. There was the initiative of the Agricultural Transformation Agenda (ATA), which regarded agriculture as a business and aimed emphatically at enhancing and supporting its efficiency. The stakeholders in the Nigerian agricultural sector were engaged in making agriculture a self-sustaining agribusiness in order to foster socio-economic development. This indicates that the government attempted to cultivate a mindset of making agriculture or farming an investment, and therefore, the focus of attention should be given to this by providing efficient and effective support to the farmers as the literature contends [47]. Hence, this policy was to regard agriculture as a backbone for economic sustainability because the policy targets making the agricultural sector more productive, effective, and efficient. Despite the fact that the government aimed to create 3.5 million jobs by 2015, changes in government and a lack of policy continuity hindered the attainment of the target of the government, as the literature contends [47].

In order to address the abovementioned concern, the explication of this study showed that the federal government has initiated the Agricultural Promotion Policy (APP) as a strategy for addressing agricultural cultivation and production. The prime target of the new policy is to provide quality standards in the sector in order to improve domestic productivity, which will subsequently serve the purpose of exporting as well as improving the country's socio-economic development. The study is in agreement with a previous study that posited that the new agricultural policy emphatically stresses that end-to-end value chain solutions should be applied in the agriculture sector [47]. This implies that there is a need to partner with private investors among various groups of farmers and companies in order to boost the sector of agriculture. It is further reiterated that the new Agricultural Promotion Policy (APP) also stresses that the government is ready to give necessary support to the farmers in order to ensure that farmers make sincere commitments. It is ready to supply specialized fertilizers, protection chemicals, and wider-scale use of high-yielding seeds and stems of cocoa, palm tree, and cassava. Similarly, this position has been advocated in a previous study that the government is expected to do what needs to be done in giving necessary support to the women farmers, especially through the National Gender Plan and policies for smallholder farmers among women who are focusing on cocoa, palm trees, and cassava in the southern part of the country [48]. Notably, capacity building remains an important factor in enhancing productivity among smallholder farmers. In addition, they have been concerned recently about accessing technological equipment in order to maximize farm productivity. There have been several intensified efforts to increase the relevance of technological advancements in the agricultural sector, specifically toward mitigating the socio-economic impact of poverty and unemployment. It should be reiterated that there is a need for effective implication of the new Agricultural Promotion Policy (APP), especially among smallholder farmers that focus on cocoa, palm tree, and cassava plantations, in order to address the socio-economic effects of poverty and unemployment, which have become the central focus of attention all over the world, including Nigeria. This is in agreement with extant studies that suggested that there is a need to explore multifarious opportunities for economic development, especially through the diversification of agribusiness and investment in the country, with a specific focus on socio-economic recovery [49,50]. In addition, there is some support for the continuity of agribusinesses and economic activities in the country, especially by improving small and medium enterprises (SMEs) in order to diversify the economy and attain sustainable economic development, as the literature contends [51]. Figure 2 shows food security and technical efficiency in agriculture.

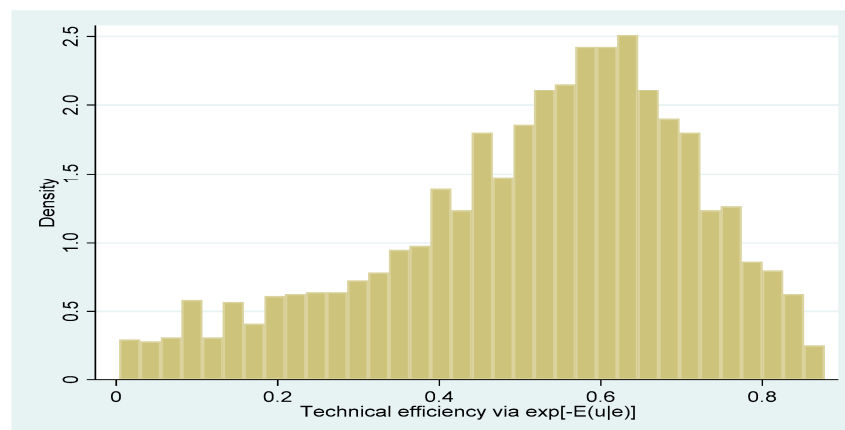


Figure 2. Food security and technical efficiency in agriculture. [Source: Reprinted/adapted with permission from <https://www.mdpi.com/2227-7099/7/4/103>, accessed on 16 December 2023].

4.2. An Overview of Cocoa, Palm Tree, and Cassava Plantations in Nigeria

The country's economy cannot be adequately discussed without making reference to the cocoa, palm tree, and cassava plantations as the core of the government's revenue in the country. Each of these is explicated in the subsequent paragraphs.

First, cocoa belongs to the class of Magnoliopsida with the botanical name of *Theobroma cacao* which is regarded as the main fruit of the genus cultivated and has value and importance [52]. The scientific or botanical name of cocoa is known as '*Theobroma cacao*' [52]. Pertaining to cocoa plantations, undoubtedly, in the 1870s, Bonny and Calabar farmers were considered as the foremost cocoa farmers; however, the land was not fertile enough for further cultivation of the land. More specifically, it was in 1880 that cocoa farms were established in Lagos, and a few other farms were also established in Agege in Lagos State and Ota in Ogun State, respectively. Between 1890 and 1950, cocoa farms spread all over Yoruba land, especially in Ogun, Oyo, Osun, and Ekiti States. Cocoa has been the leading product of export since several decades ago. The commercial and economic importance of cocoa cannot be denied because it is a crop like coconut and areca nut gardens which need partial shade to grow. Cocoa plantations are an important crop for commercial purposes all over the world. There are two major categories of cocoa commonly planted in Nigeria: Amelonado cocoa and heterogeneous strain cocoa [53]. Indeed, Amelonado cocoa was commonly imported from Brazil and has pods that are green in color while heterogeneous strain cocoa was imported from Trinidad and has pods that are red as the literature contends. Hence, the variety of cocoa should be explored, and the literature identifies three major types of cocoa, namely Criollo, Forastero, and Trinitario.

Apart from the aforementioned, the literature has recently identified an improved Indian variety of cocoa in the country [53]. Nonetheless, a number of factors contributed to a setback or stagnation of cocoa plantations in the country, and the factors inhibiting the anticipated results from cocoa cultivation are low yields as a result of aging trees, the incidence of disease attacks, and a lack of efficient agricultural mechanization. More importantly, Africa produces almost 70% of the world's production volumes of cocoa [54]. However, it must be emphatically stressed that the USA and European countries are the prime importers of cocoa. There are emerging markets of cocoa products in the world, and currently, Europe and Asia are taking the lead with respect to the market and marketability of cocoa products [54]. Cocoa plantations are used for business purposes, and cocoa beans and cocoa powder are generated from cocoa cultivation and are used for cocoa butter and mass. Cocoa beans are also considered as ingredients for commercial bakery, sweet production, and confectionery.

Apart from the economic importance of cocoa, the health benefits of cocoa cannot be denied, and this is especially relevant in addressing the problems of poverty and unemployment [55]. It should be noted that it helps in reducing blood pressure, and it especially

helps in the elasticity of blood vessels. In addition, it helps in providing anti-inflammatory and antioxidant effects, maintaining a healthy brain, improving insulin resistance and glucose metabolism, and reducing abnormal fatness such as obesity. Furthermore, prior to involvement in cocoa cultivation, it is essential to test the soil of the land so as to help the farmers in the protection of the plant as well as the management of nutrients. Notably, cocoa used to grow in areas that are not more than twenty degrees north or south of the equator because it is acknowledged in the existing body of knowledge that cocoa tree plantations used to positively respond to areas with high temperatures and where rainfall is distributed significantly, as the literature posits [56].

It should be stressed that cocoa cultivation can grow in altitudes up to 900m. In addition, the cocoa tree grows in areas with temperatures of 10 to 38 C, and it prefers areas with well-distributed rain, as the literature explains [56]. This is why most parts of the southern part of the country are suitable for the cultivation of cocoa. However, the cocoa tree cannot survive high winds, drought, and sudden falls in temperature. Putting all these together, it can be said that cocoa trees cannot adequately survive or grow in most parts of northern Nigeria. Undoubtedly, cocoa trees are the product of seedlings raised in nurseries [57]. In the contemporary world, there are leading producers of cocoa, namely Ivory Coast, Indonesia, Ghana, and Nigeria. More specifically, Nigeria is considered as the fourth largest producer of cocoa throughout the world. Further, the government created a marketing board whose primary responsibility is to market cocoa products. However, it was in the 1980s that both the World Bank and the International Monetary Fund (IMF) advised the federal government of Nigeria concerning the liberalization of the marketing board as a result of its ineffectiveness [58].

It was precisely in 1986 that the government dissolved the board and tried to look for a way forward in expanding the cocoa, palm tree, and cassava plantations and trade activities. As a result of a lack of viable and active means of selling the product, the farmers decided to sell it indirectly to either licensed agents or cooperatives who consequently sell to the exporting firms. The literature contends that small-scale farmers also engage in cocoa, palm tree, and cassava plantations or cultivations, and there are currently a number of states that partake in the production of cocoa, palm trees, and cassava such as the Cross River, Delta, Ekiti, Ondo, Ogun, Osun, and Oyo states [59]. Indeed, the roles of smallholder farmers cannot be underestimated pertaining to food security and overall socio-economic productivity in the southern part of the country in particular and the entire nation in general [60]. It is reiterated that, in the past ten years, Nigeria has led in the production of cocoa; however, in the last few years, there has been a decrease in cocoa production in the country. Figure 3 shows Nigeria's export of cocoa and cocoa preparation.

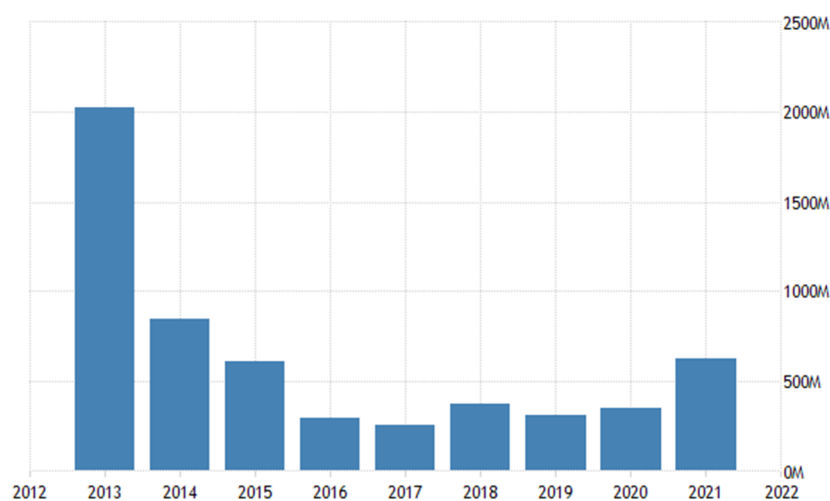


Figure 3. Nigeria's export of cocoa and cocoa preparation [2024, Forecast].

Second, the botanical name for the palm tree is *Arecaceae* which belongs to the family of monocots which are woody, large leaves, and its flowers have three sepals and petals which are arranged in inflorescences, as the literature contends [61]. Concerning palm tree plantations, the literature contends that the species through which palms are used for palm oil is termed *Elaeis guineensis*. This kind of species is found in many countries, such as Malaysia, Indonesia, America, etc. This is in agreement with the extant literature which acknowledges that the palm tree has the potential of producing oil compared to other trees that also produce oil in different parts of the world including Nigeria [62]. It is noted that the palm seedlings need sunlight for their growth or germination. Thus, healthy seedlings are paramount for the avoidance of nutritional disorders in the growth of palm trees. For instance, Palm Oil World (2020) significantly stresses that for the proper germination of palm trees, there is a need to improve the soil, which should be safeguarded from soil erosion. Hence, mineral fertilizer can be applied for proper germination of the plant [63]. The Nigerian government needs to initiate the target of having the biggest palm oil tree plantations not only in Africa but also in the entire world in order to reduce poverty and unemployment [64]. In so doing, such a program will create employment and empowerment opportunities, and it will also eradicate poverty in society. The country has maximized palm plantations, which has led to the output in palm oil production, and it is regarded as an integral part of economic diversification in the country. Figure 4 indicates palm oil output and economic diversification.

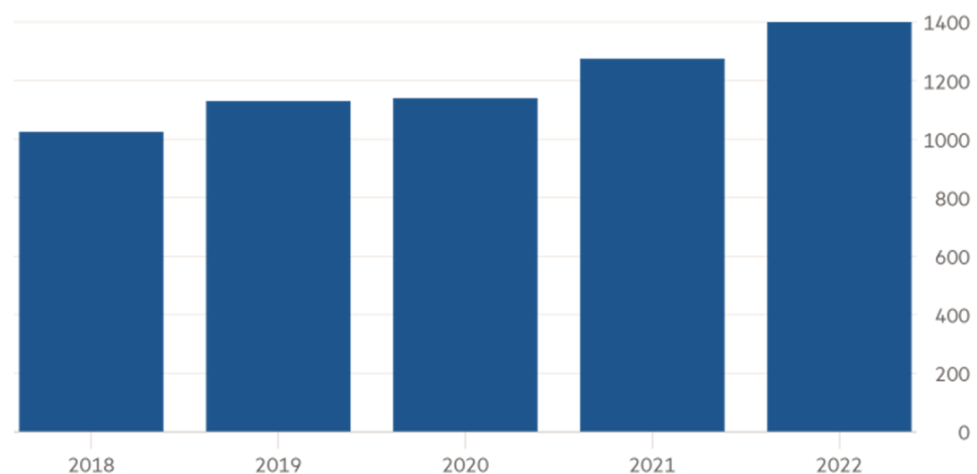


Figure 4. Palm oil output and economic diversification [Source, Reprinted/adapted from USDA, 2022 Forecast].

Third, the botanical name of cassava is *Manihot esculenta* which is a woody shrub of the spurge family [65]. Indeed, cassava is another important plantation explored in this study. Historically, cassava is a crop originally from South America that was introduced in the southern part of the country during the slave trade in the 16th century. It is noteworthy to mention, in agreement with previous studies, that there was a boost in the agricultural sector with a specific emphasis on cassava crop production in the 19th century [66]. Thus, cassava is indeed considered a prime economic sustenance crop for improving socio-economic development in the country. Reiteratively, Nigeria is one of the largest producers of cassava in the entire world, and the country's production of the product constitutes 19% of the entire world's production. A previous study has affirmed that out of 36 states in the country, 24 states such as Anambra, Delta, Edo, Benue, Cross River, Imo, Oyo, Rivers, etc., are major producers of cassava, as the literature contends [67]. In more than two decades, the country has produced more than 45 tons of cassava, and in the year 2000, the average yield per hectare was 10.6 tons. In the year 2010, the government targeted 150 million tons of cassava which led to USD 5 billion earnings from annual exports [68]. Hence, due to the exorbitant profit from cassava investment, there was an adopted innovation that led to the introduction

of vitamin A-rich cassava in the country. Subsequently, the government introduced other pro-Vitamin A varieties of cassava by targeting and empowering approximately 1.8 million farmers. Reiteratively, cassava is one of the essential commodities for the country's potential income from agricultural products with output tons of 59, 193, 708 and the potential income estimate of 11.72, as shown in Table 4.

Table 4. Nigeria's potential income from agricultural products.

S/N	Commodity	Output in 2019 (Tonnes)	Price per Tonne (USD)	Potential Income Estimate (USD Bn)
1.	Cassava	59,193,708	198	11.72
2.	Yam	50,052,977	646	32.33
3.	Maize	11,000,000	170	1.87

It should be reiterated that the cassava crop can easily and exceptionally adapt to climatic changes and can grow on fallow lands, and it is harvested between 6 months and 3 years. This study found that there are various diseases affecting cassava plantations, such as mosaic disease, bacteria blight, anthracnose, and root rot, among others. Hence, the literature identified that the government should give necessary support to smallholder farmers in the cultivation of the cassava crop [69]. It should be emphatically noted that cassava investment is well organized and considered an integral part of agricultural crops that needs more expansion of its potential especially among smallholder farmers. There was an initiative on cassava, such as the New Partnership for African Development's Pan African Cassava Initiative, but there was no legislative bill in order to sustain the cassava policy in the country. It is affirmed that the initiatives of former presidents Olusegun Obasanjo (1999–2007) and Good Luck Jonathan (2011–2015) suffered a lack of implementable policies for the efficiency of cassava plantations in the country [70]. The literature contends that there are more than forty varieties of cassava in the country. Nonetheless, there is a need for the government's support, specifically for using modern process techniques in order to maximize the profit on the production for socio-economic development. More so, the government has been striving to improve the cultivation of cassava in order to attain and promote self-sufficiency in cassava production in particular and food production in general [71]. It is reiterated that cassava is one of the fundamental crops that the government is planning to utilize in curtailing the importations of rice and wheat in the country. The succeeding governments have been trying different agricultural initiatives for the cultivation of cassava for domestic consumption and the international market. In most African countries and when compared to many other countries, Nigeria is the leading country in the production of cassava as part of the industrial revolution in the country. Figure 5 shows the cassava industrial revolution in Nigeria.

4.3. Smallholder Farmers Versus Food Security in Nigeria

In the past, there has been negligence by farmers which seriously affected their motivation to maximize agricultural productivity. Nonetheless, the analysis of this study demonstrated that there are multifarious interventions by individual philanthropists, government, and the international community to enhance agricultural production in the country. More importantly, as for the maximization of the national food security system, there is a need to boost the morale and resilience of the cocoa farmers in the country.

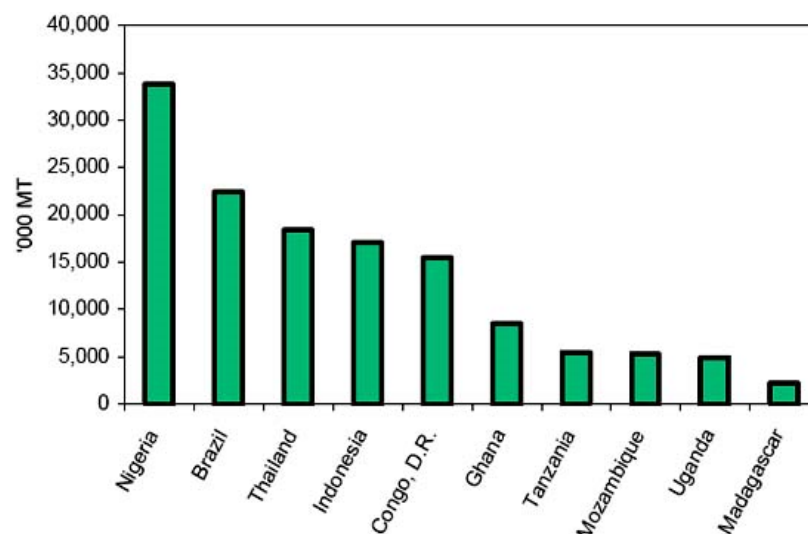


Figure 5. Cassava industrial revolution in Nigeria. [Source: Reprinted/adapted and accessed from <https://www.semanticscholar.org/paper/A-cassava-industrial-revolution-in-Nigeria:-the-of-Phillips-Taylor/514a395e685e1c0692c4c3f662c74f5f5562472e>, accessed on 26 November 2023].

It must be emphatically stressed that smallholder farmers in different parts of the world, including developing countries like Nigeria, engage largely in subsistence farming because they usually produce what they consume. In the contemporary market, smallholder farmers have gone beyond producing what they only consume; they have been increasingly supplying their products to the market. Smallholder farmers, especially those planting cocoa, have been playing significant roles, especially in collaborating with the licensed agent or cooperative who used to buy cocoa products and sell them to the government for the purpose of export. This is the reason why the cursory literature posits that, as a result of the intermediary between them and the government, smallholder farmers have been having feelings of marginalization in market exchange especially when they could not confront or face more powerful people in defending their rights in selling their products which they labored for [72]. The record shows that there are approximately 1.4 billion poor people who are living below USD 1.25 per day, and agriculture is considered a mechanism for poverty alleviation and a prime source of livelihood in either developed or developing countries like Nigeria. In this regard, previous studies have emphasized the green revolution in agricultural development which most developing countries like Nigeria have been benefiting from [53]. Indeed, agriculture contributes significantly to the gross domestic product (GDP) in the country [53,54]. It is not disputable to say that the role of smallholder farmers cannot be underestimated in expanding socio-economic development. Literature contends that smallholder farmers are those who own small land for the plantation of subsistence crops such as cocoa, and the cursory literature acknowledges that almost 80% of farmers are smallholder farmers in Nigeria, and 98% of food and crops for consumption in Nigeria used to be produced by the smallholder farmers [73]. In addition, the smallholder farming system plays a paramount role in the country's production of food which is mostly operated on a small scale and consists of different aspects such as yam, maize, cassava, millet, and cocoa, among others, as the literature suggests [73].

With the current challenge of inflation or the high cost of different products or materials, there is a hike in hunger among the citizens of the country because various business activities have not been active. It is not doubtful to posit that the country is blessed with fertile land for the cultivation or plantation of different crops such as cocoa in order to boost socio-economic development. For instance, the literature contends that the country is endowed with 98 million hectares of arable land and 2.5 million hectares of irrigable land. A total of 83 million hectares are good for cultivation; however, only 30 to 34 million

hectares are used for plantations [74]. With the challenge of poverty, there is a problem of food production in different parts of the world including Nigeria. As a result of this, there is an ongoing concern with respect to multidimensional approaches in the context of Nigeria in addressing the peculiarity of the country pertaining to the global food crisis, emanating from the consequence of socio-economic challenges. Similarly, there is a need for more exploration of land for agricultural cultivation in order to mitigate hunger, poverty, and unemployment, and consequently, overall socio-economic development will be attained. More specifically, it is on this note that the government further explores the plantation of cocoa by utilizing unused land for this purpose because the country has the best agro-ecology and good climatic conditions for the cultivation of different crops including cocoa. This is in consonance with previous studies that since there are smallholder farmers engaging in cocoa plantations in different parts of the country, it is essential to utilize the available land and adequately explore the potential of the unemployed population in partaking in agricultural investment in order to have sufficient food production in the country [75]. The issue of food insecurity is intense, especially with the current economic crisis and inflation. Therefore, there is a need for new strategies in addressing economic recovery with specific attention to supporting smallholder farmers in the country. Undoubtedly, previous studies have affirmed that the empowerment of smallholder farmers with a specific focus on cocoa, palm tree, and cassava plantations, to some extent, can address the economic recovery because the literature emphatically stresses enhancing small and medium enterprises (SMEs) in order to overcome economic challenges in society [75]. This is significantly paramount in manifesting agriculture as a vital sector in developing the economy of the country. It is not disputable to say that agriculture is an important sector of the economy, especially in providing employment, food, and export earnings. Cocoa, palm tree, and cassava cultivation can also be instrumental in achieving employment, food, and export earnings. Surely, cocoa plantations by smallholder farmers will help the poor and vulnerable citizens to get employment because it can be considered as a new strategy in addressing the envisaged challenge of economic recovery in the country. It should be acknowledged that the social wellbeing of the citizens is one of the major factors in attaining economic recovery, as the literature suggests [76].

This study further reiterated that, for cocoa plantations, various factors of production must be taken into account in order to achieve meaningful development: land, labor, and capital. The government can help smallholder farmers of cocoa with the aforementioned factors of production (i.e., land, labor, and capital), especially by expanding the size of their land for cultivation. One part of the challenges currently confronting farming is that most modern techniques are not being utilized to maximize the cultivation of cocoa. For instance, the literature has confirmed that there is a lack of capital input, advisory services, and market information in order to expand the agricultural sector of the economy [76].

Indeed, this study established that cooperation and collaboration between governmental and non-governmental agencies can bring meaningful development to the cultivation of cocoa plantations in the country. This is so because the agricultural sector of the economy contributes significantly to rural development, which will enhance the standard of living of citizens in rural areas. The provision of infrastructural development that links rural areas can further strengthen rural development, and among the infrastructural developments needed to boost cocoa cultivation among smallholder farmers are schools, electricity, roads, dams, and the efficiency of commercial banks, as the literature contends [77]. Therefore, the creation of awareness among smallholder farmers is important, especially by enlightening them about the new development of newly improved crops and seedlings, fertilizers, and storage systems in order to foster overall agricultural cultivation in the country. In so doing, these mechanisms will yield positive farm cultivation of cocoa, boost the income of the farmers, and enhance the overall economy of the country. Therefore, it is vital to explore the plantation of cocoa in mitigating the socio-economic effects of poverty and unemployment in the country. Figure 6 shows the contributions of smallholder farmers to food production in Nigeria.

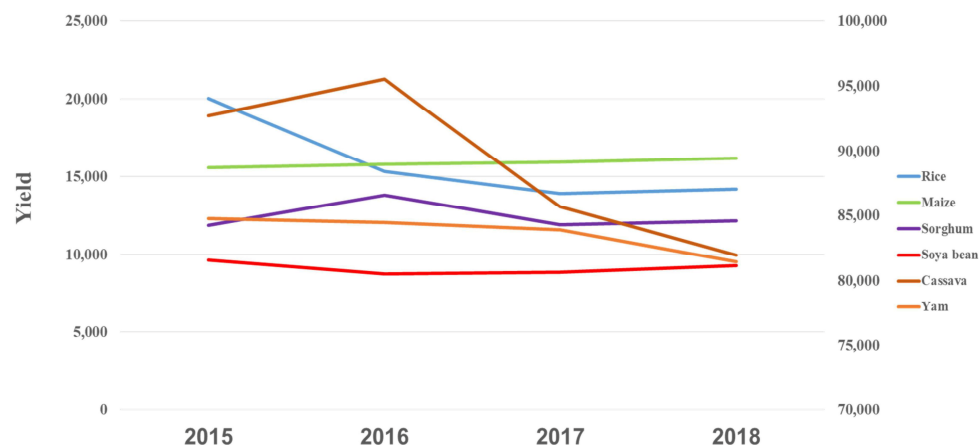


Figure 6. Contributions of smallholder farmers to food production in Nigeria. (Source: <https://www.frontiersin.org/articles/10.3389/fnut.2022.916678/full>, accessed on 16 December 2023).

4.4. Cocoa, Palm Tree, and Cassava Plantations for Socio-Economic Development

The content analysis of this study demonstrated that the Nigerian government has been proactive in fostering its gross domestic product (GDP); however, in spite of this, there is less attention to being responsive by connecting population expansion and the growth of GDP in the country. More specifically, between 2017 and 2019, the country was regarded as poorer per capita which consequently affected other African countries' economies too because Nigeria plays a vital role in the socio-economic development of different countries on the continent. The rate of poverty and unemployment shows that the country's economy needs to be rejuvenated. Moreover, cocoa, palm tree, and cassava plantations have reached a level of diversification in order to rejuvenate the economy as part of the effort to solve the problem of poverty and unemployment. A report demonstrated that in 2012/2013, Nigeria produced 238 thousand tons of cocoa beans, and the country targets to produce 280 thousand tons of cocoa in 2022/2023, as the literature contends [78]. There are some essential considerations to engage in cocoa plantations, especially when the target is for commercial purposes. In other words, farmers at the initial stage should give proper focus to the marketing of cocoa beans and powder. This assertion is in agreement with previous studies that smallholder farmers have been trying to explore the most lucrative cocoa seedling in order to maximize profit, which will contribute significantly to overall socio-economic development in the country [78]. It is, however, not disputable that most smallholder farmers used to consume cocoa beans, and this does not indicate that they do not partake in the commercialization of cocoa products. This is paramount even among smallholder farmers, and it is essential that whoever is interested in investing in cocoa cultivation should plan adequately for financial costs as the literature explains [78]. In addition, land for the cultivation of cocoa is important which can be compared with some other crops like coconut and arace nut in order to properly prepare and plan for the maximization of profit. This concern has been reflected in the recent effort of the government to distribute sixty-six thousand seedlings of cocoa to smallholder farmers, as the literature posits [78].

This study further elucidated that one of the major problems in the country is the over-dependence on oil, and there was a drastic drop in the oil prices which negatively contributed to the inadequate living conditions of the citizens. The literature contends that the non-oil sector should be revived in order to boost socio-economic development in the country. As a result of poverty and unemployment, there is a sharp decline in the fiscal or monetary aspect which has enormous challenges for the economy. Overall, the effect will not be limited to the economic aspect, but it will also cut across all aspects of human endeavors. In responding to the fiscal crisis, it is noteworthy to say that the analysis is in agreement with the previous study that the government is expected to explore other means of diversifying the economy, especially through the exploration of cocoa,

palm tree, and cassava plantations [79]. Recent efforts by the government have shown its commitment to improving or diversifying the economy by enhancing the agricultural sector. In other words, the government has been showing serious dedication to fostering cocoa, palm tree, and cassava plantations as a way of mitigating the socio-economic effects of poverty and unemployment. For instance, the federal government declares that there is an increase in government revenue where it generated revenue of USD 79.4 million from cocoa investment. This is a practical indication that the non-oil sector, specifically the agricultural sector, is bringing or yielding deserved results. Thus, it should be stressed that the government needs to carry out more expansion, especially in fostering cocoa, palm tree, and cassava plantations in particular and other crops in general. The justification for this is that with the current scenario of economic crisis, on one hand, there has been a drastic reduction in food exports, specifically as a measure to avoid scarcity of food. On the other hand, there has been a decline in oil revenue and investment in agriculture as an alternative means of bridging the socio-economic gap that can increase the high rate of poverty and unemployment in society. Reiteratively, the government's policy on agricultural investment and expansion is considered a policy in the right direction in order to mitigate the socio-economic effects of poverty and employment in the country as the literature suggests [79]. One of the essential priorities of the government is its attempt to focus on the economic recovery from the economic crisis because there is a negative socio-economic consequence of poverty and unemployment among vulnerable citizens. Thus, there is a need to explore more opportunities for agricultural investment with a specific focus on cocoa, palm tree, and cassava plantations among smallholder farmers in order to attain overall socio-economic development. One of the paramount ways of attaining socio-economic development is for the government to invest aggressively in cocoa, palm tree, and cassava plantations, as the recent literature demonstrates [79].

Furthermore, the challenge of abject poverty and the rate of unemployment has influenced the government to be proactive in the acceleration of decisions on agricultural policy in fostering socio-economic growth, especially on some structural issues that are considered as impediments to the overall progress of the country. The governmental decisions are meant to enhance investment in various aspects of the economy such as agriculture, which is expected to bring rapid economic growth and development. For instance, the policy on fuel subsidies has been there for long, and practically, it has no meaningful impact on the lives of the citizens, especially the low-income earners. It is as a result of this that there is a need to support smallholder farmers that engage in cocoa, palm tree, and cassava plantations. More so, the government has been trying to stimulate local business, and the Central Bank has been playing a vital role on capacity building in strengthening local production. It is not disagreeable to say that supporting smallholder farmers can be better improved as an attempt to strengthen local production, especially cocoa, palm tree, and cassava plantations. In so doing, the products from cocoa, palm tree, and cassava plantations can be supplied to many domestic and international industries and companies that depend largely on raw materials. More importantly, domestic industries and companies that explore local raw materials to meet local demands for production can be strengthened with the support given to the smallholder farmers in the country [80]. It is not disagreeable to say that the government has been driving credit toward improving agricultural facilities in order to reduce the importation of foodstuffs.

It should be stressed that there is a need to provide a sense of empowerment to smallholder farmers across the country because they have been experiencing a lack of government support in boosting agricultural productivity [80]. Hence, the farmers deserve the support of the government, especially by providing them with seeds which are considered the most important factor that significantly influences their yield. Reiteratively, literature has advocated that the government policy should effectively and efficiently fosters the agricultural sector value chain and extension services especially among smallholder farmers partaking in cocoa, palm tree and cassava plantations in the country [81,82]. In so doing, other studies have noted that youth participation in agricultural transformation

by fostering policy that would boost the agricultural production in the country become very significant [83,84]. Thus, it is through this support that the government can actually prepare for socio-economic development in the country. In other words, giving support to the farmers will actually be helpful in addressing or mitigating the socio-economic effects of poverty and unemployment in the country. In a nutshell, this literature review presented an overview of cocoa plantations, smallholder farmers versus food security in Nigeria, and cocoa, palm tree, and cassava plantations in mitigating the socio-economic effects of poverty and unemployment. Figure 7 shows conceptual hypothesized framework of the study.

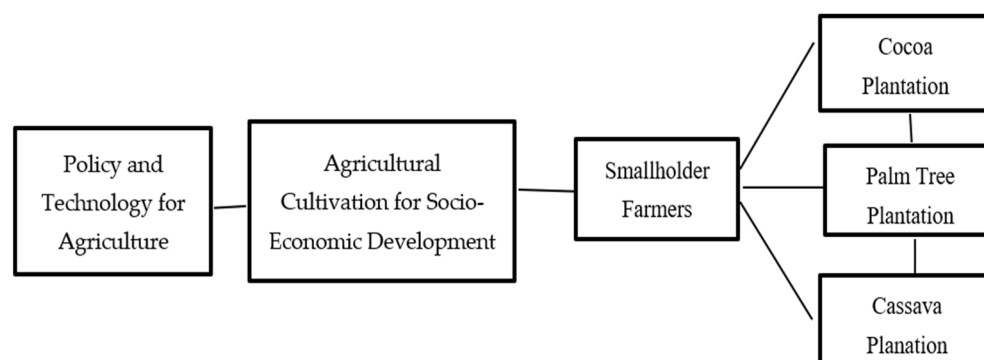


Figure 7. Conceptual hypothesized framework. Adapted from: [1,5,8,15,20–22,27].

In a nutshell, the aforementioned framework can adequately be helpful in exploring cocoa, palm tree, and cassava plantations among smallholder farmers, serving as a way forward in mitigating the socio-economic effects of poverty and unemployment in society. It was demonstrated that, in an attempt to mitigate this, there is an emphasis on agricultural transformation, innovative policy, and technology for capacity building among the smallholder farmers in the country. Based on the overall explanations, it was demonstrated that effective policy and efficient technology in agriculture can boost the agricultural productivity among smallholder farmers partaking in cocoa, palm tree, and cassava plantations in the country as part of the effort to attain SDGs. Undoubtedly, sustainable development goals (SDGs) are regarded as the 2030 agenda of the United Nations toward achieving core values and overall developments at the global level. There are 17 SDGs as universal advocacy adopted by the United Nations. Indeed, food and agriculture are basic elements for human survival, and they are the core aspects of economic transformation and have prominent relevance in achieving sustainable development goals (SDGs). Thus, the foregoing explications have significant implications, which are explained in the subsequent section.

5. Implications of the Study and Future Policy Directions

This part elucidates the implications of the study and future policy directions. Indeed, it is relevant to a number of stakeholders such as men and women farmers, the government, i.e., the Ministry of Agriculture, the international community, and researchers. Each of the aforementioned points is explained in the subsequent paragraphs.

First, this study will be useful, on one hand, to the cocoa, palm tree, and cassava farmers because it shall provide hope and resilience to them as the prime players in the national food system by strengthening the input for the maximization and expansion of agricultural investment. On the other hand, the effort of the government is to increase opportunities for farmers in general and women farmers in particular. It is therefore essential that women farmers whose government has been trying to improve their socio-economic condition will find this study significant, especially with an emphasis on the formulated National Gender Plan and Policies.

Second, the government, specifically the Ministry of Agriculture, will find the study beneficial, especially by making research institutions efficient in order to make the country

independent and self-sufficient in the quality production of cocoa, palm oil, and cassava, which should be made available for domestic and international consumption. Hence, the supply of quality seeds to the farmers can be regarded as necessary support. In addition, the Ministry should play important roles in collaborating with seed companies such as the Kenaf Producers, Processors and Marketers Association (KEPMAN) in order to revolutionize or industrialize the agricultural sector. In so doing, the country at large will attain nutritional and food security through the transformation of the agriculture sector.

Third, the modernization of agriculture expansion and exploration, strengthening the process of agricultural expansion, and maximizing production and marketability are fundamental factors for improving all aspects of agriculture. This study is paramount as it supports the existing propositions toward averting the challenges of seeds for cocoa, palm tree, and cassava plantations in the country. Hence, the application of a data-driven process, innovation, and modern technology is essential for the expansion of the agricultural sector.

Fourth, this study will be useful to researchers, especially by making further exploration of the significance of cocoa, palm tree, and cassava cultivation in the country. Indeed, this study contributes immensely to the plantations of cocoa, palm trees, and cassava as part of the effort to address the socio-economic effects of poverty and unemployment by supporting smallholder farmers in the southern part of the country in particular and the country in general. Based on the thesis of this study, the researchers cannot adequately claim accessibility to all studies on cocoa, palm tree, and cassava plantations within Nigeria. Nonetheless, the aforementioned themes (i.e., variables) in this study can be further empirically investigated. It can therefore be said that, despite the fact that some limitations were identified, it can provide direction and shape for further studies in exploring agriculture in general and cocoa, palm tree, and cassava plantations in particular toward mitigating the effects of poverty and unemployment in the country. Figure 1 shows the need for the transformation of the agricultural sector toward efficient policy and technology in enhancing agricultural cultivation for socio-economic development by supporting smallholder farmers for cocoa, palm tree, and cassava plantations.

It should be reiterated that the future policy direction of this study should focus on the enlightenment and awareness of smallholder farmers involved in cocoa, palm tree, and cassava plantations about the dynamism of entrepreneurship through the application of a business model, as the literature contends. Similarly, the policy direction should be conscious of digital innovation which can address various barriers and achieve drivers to sustainable business model innovation through the cultivation of dynamic capacities of smallholder farmers. Hence, a conclusion is drawn from the thesis of this study, and suggestions are provided for better improvement of agricultural practices in the country.

6. Conclusions and Suggestions

The objective of this study through the analysis of the extant literature to explore the significance of cocoa, palm tree, and cassava plantations among smallholder farmers in strengthening socio-economic development in the southern part of Nigeria through policy and technological efficiencies was achieved. The study explicates the significance of strengthening and implementing agricultural policy in order to expand investment in cocoa, palm tree, and cassava plantations by supporting smallholder farmers and by extension to improve the revenues or gross domestic product (GDP) of the government through domestic and international business. The study, however, demonstrates that the discovery of oil and corruption in the oil and petroleum sectors have drastically affected cocoa, palm tree, and cassava production in the country. This research therefore argues that with the current scenario of poverty and unemployment, cocoa, palm tree, and cassava plantations can significantly improve socio-economic development in the country. However, multifarious challenges facing smallholder farmers such as inadequate support for seedlings, a lack of technological facilities or equipment for easy harvesting or storage, etc., were explained. It is therefore noted that smallholder farmers of cocoa should be carried along in engaging the government toward charting a new direction for the maximization of farm products.

Thus, it is explained that cocoa, palm tree, and cassava farmers should be given access to market information, and engagement in the policy processes and capacity building is essential in addressing their challenges. The research further posits that giving special focus to the cultivation of cocoa, palm tree, and cassava among smallholder farmers will boost socio-economic development. It is further indicated that the country is exploring other natural resources instead of over-dependence on oil revenues. In so doing, the government will diversify the economy of the country through the provision of necessary orientation to the farmers in maximizing the production of cocoa cultivation in particular and other crops in general. Hence, food security will surely be guaranteed with the commitment of the farmers, and the support of the government will boost the overall development of the country. More importantly, the focus on cocoa, palm tree, and cassava plantations can specifically contribute to ending poverty (SDG1), attaining zero hunger (SDG 2), promoting good health (SDG3), and supporting economic growth (SDG 8). This study emphatically stressed the need to address the high level of poverty and unemployment through cocoa, palm tree, and cassava plantations which is in line with the advocacy of ending poverty as required by SDG1. Hence, responding to climate change and the cultivation of land can bring about attaining zero hunger as required by SDG 2. The study emphasizes the health benefits of cocoa; the food purposes of palm tree and cassava deserve investment in the aforementioned plantations as part of the effort to promote SDG3. In so doing, economic growth can be achieved as an integral part of SDGs. It is pertinent to align the agricultural sector of the economy with the specific aspects of SDGs as part of the effort to boost the economy. Therefore, based on the overall discussions of the study, the following suggestions are made:

1. The interventions of individual philanthropists, government, and non-governmental agencies are significant in boosting the morale and resilience of the farmers toward enhancing cocoa, palm tree, and cassava production by smallholder farmers in order to foster their socio-economic conditions in particular and maximize national economy growth in general.
2. The government should provide necessary support to the smallholder farmers, especially by giving cocoa, palm tree seedlings, and cassava crops in order to expand the production of various crops by smallholder farmers in the country.
3. It is essential that agricultural transformation, innovative policy, and the capacity building of farmers are given prime importance by mitigating the socio-economic effects of poverty and unemployment as well as achieving the overall development of the country.
4. Interventions by the international community will boost the morale and resilience of the farmers toward enhancing cocoa, palm tree, and cassava production in order to improve the socio-economic conditions of the citizens in particular and maximize national economy growth in general.
5. There is a need to bring new thinking and ideas to tackling peculiar socio-economic challenges through agricultural investment with specific support to smallholder farmers in the country.
6. The use of a systematic literature review (SLR) in this study is not without limitations, and one such limitation is that the study relies on a review of existing studies. Therefore, the conceptual framework hypothesized in this study can be empirically investigated in further research with an emphasis on the use of primary data.

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