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Strategies for Improving Small Farm Profitability in Sierra Leone

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Walden University
2023

Abstract

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BA, University of North Florida, 2012

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Doctoral Study Submitted in Partial Fulfillment

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Abstract

Climate change and water shortages negatively affect the food and agricultural sectors in Sub-Sahara Africa leading to price fluctuations and shortages. Smallholder farmers in Sierra Leone are challenged to respond to these external threats to sustain productivity and profitability. Grounded in Schumpeter's innovation theory of profit the purpose of this qualitative multiple case study was to explore strategies some owners of small-scale farms in Sierra Leone use to improve business profitability. Data were collected from eight smallholder farmers using semistructured interviews and a review of company documents. Four themes were identified via thematic analysis: crop and livestock diversification, cost management and efficiency, value addition and processing, and education and knowledge acquisition. A key recommendation is for government agencies and NGOs to collaborate to set up tool banks in rural areas, ensuring equitable access and proper equipment maintenance. The implication for positive change includes the potential for smallholder farmers, policymakers, and agricultural stakeholders to foster economic growth, self-sufficiency, and agricultural sustainability and assist in poverty eradication in Sierra Leone and similar contexts.

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Dedication

This study is dedicated to my rock, The Lord – Jesus Christ, my strength, and my salvation. Thank you, Lord Jesus!

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I thank The Almighty for His grace through my Lord Jesus Christ for all. I express gratitude towards my family, particularly my wife, for the invaluable support. Additionally, I extend my appreciation to my sister, Dr. Comfort Panda, for her steadfast and unwavering support. I express my thanks to Dr. Frank Bearden and Dr. Craig Martin for their unwavering efforts in fostering my self-assurance. Honorable commendations to Dr. Michael Gottleib for his unparalleled feedback and academic leadership. I would like to express my gratitude and appreciation to Bishop Dr. Abiola and Reverend Omolara Idowu for their invaluable spiritual guidance and leadership. To my father, Mr. Edwin Sama, I offer my sincerest appreciation. I'd like to take this opportunity to thank and acknowledge everyone who has helped me along my educational journey at Walden University. Thank you, Dr. Emmanuel Nzuzu, for all his help and advice.

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Section 1: Foundation of the Study

The concept of smallholder farming in Sub-Sahara Africa is as old as the continent itself. Agriculture is a business enterprise that employs countless families in Sub-Sahara Africa from generation to generation. Agriculture is a significant economic enterprise contributing to 30% of national incomes. Around 75% of Africans' livelihoods depend on agriculture (United Nations, 2022). However, numerous issues affect agriculture in Sub-Sahara Africa, such as climate change and a lack of water resources, which lower the productivity and profitability of its farming systems (Saravia-Matus et al., 2021). The global food prices have increased by approximately 52% since 2019 because of the global epidemic and shortages caused by the war in Ukraine. Elevated food prices can lead to a rise in headline inflation, which, if not controlled, could pose a risk to macroeconomic stability (Unsal et al., 2022). Moreover, current rising food prices have amplified scrutiny regarding African agriculture. Africa imports food worth roughly $78 billion annually (Africa’s Agricultural Revolution: From Self-sufficiency to Global Food Powerhouse, 2023). The annual value of Africa's food imports is approximately US$ 60 billion. Cereals contribute approximately US$ 25 billion annually in net terms, while meat and dairy contribute US$ 8 billion, the sugar sector contributes US$ 4 billion, and the vegetable oil sector contributes US$ 9 billion (Von Braun et al., 2021).

The African food and agricultural sectors have a lot of potential in this predominantly urban market. As a result, there are numerous chances for increased African food production to gain market share (Von Braun et al., 2021). The reality of African agriculture moving beyond sustainable subsistence agriculture as an enterprise

toward profitability requires innovation. In this qualitative multiple case study, I explored the strategies some small farm owners in Sierra Leone use to improve business profitability.

Background of the Problem

In most Sub-Saharan African countries, agriculture is the primary employer of a considerable percentage of the population. The world's youngest and fastest-growing population is found in Sub-Saharan Africa. The region's population is anticipated to quadruple by 2050, increasing the subcontinent's percentage of the world's population to roughly 23% (International Labour Organization, 2017). The labor force in Sub-Saharan Africa is growing at a pace of 3% annually, and by 2035, an extra 375 million young people are anticipated to be of working age (International Labour Organization, 2017).

Smallholder farmers in Africa face problems ranging from production inputs, credit access in the formal sector, improved seeds, and an inefficient produce market for commercial purposes to new technologies (Gad et al.,2019). Therefore, loss of profit and agricultural business closure contributes to food insecurity, poverty, and socio-economic problems in the region. Agriculture in Sierra Leone is a vital sector in the economy which translates to 60% of the country’s gross domestic product, and 58% of the Sierra Leone’s population live in rural area and 86.1 % of that population are smallholders engaged in agricultural production (Food and Agriculture Organization, 2021).

The purpose of this qualitative multiple case study was to explore the strategies some small farm owners in Sierra Leone use to improve business profitability. Section 1 includes the background of the problem, the problem statement, the purpose statement,

the nature of the study, and the research question. The conceptual framework that grounds this study includes the innovation theory of profit. Section 1 includes concept definitions, assumptions, limitations, and delimitation, the study's significance, and the conclusion consist of academic literature on the study.

Problem and Purpose Statement

The specific business problem was some small farm owners in Sierra Leone lack strategies to improve business profitability. The purpose of this qualitative multiple case study was to explore the strategies some small farm owners in Sierra Leone use to improve business profitability. The target population consisted of eight small farm owners located in Sierra Leone, West Africa, who have been profitable in the business of small farming continuously for over 5 years. Smallholder farmers play a critical role in the region's economy and are a driving force in promoting rural food security. There is a critical need for subsistence farming in Sub-Sahara African countries to shift agriculture characterized by low productivity to higher agricultural production for sustainable food security. This research study could help farm business owners apply research strategies to plan effective agrarian measures. The anticipated outcome may increase agricultural productivity to alleviate poverty and food insecurity. The implications for positive change are poverty eradication, self-reliance, and agricultural sustainability for the farmers.

Nature of the Study

To address the research question in this qualitative study, I used a multiple case study design. This approach was appropriate for this study because I was able to explore innovation as a strategy in small farms from the owners as participants. In the qualitative

approach, several qualitative data collection and analysis techniques were an option for the research (Saunders et al., 2016). I explored in-depth the events and cases in their natural domain using data collection tools and processes to uncover the experiences of individuals (Ezer & Aksüt, 2021). Researchers use quantitative methods to characterize variables or assess the degree of association between independent factors and dependent variables (Maciąg, 2019). The quantitative and mixed methods were not appropriate for my study because they were too restrictive for participant choices. I selected the qualitative approach because I wished to interact with the participants during the data collection process, thereby uncovering strategies used by small farm owners to improve profitability.

There are many qualitative research designs including case study, ethnography, and phenomenology. I used a case study design for my study because I was able to create an in-depth research process and focus on data collection relating to a particular issue, individual, or event, thereby uncovering the holistic account of strategies used by the small farm owners. Researchers using a multiple case study design investigate a real-world situation in which the context and position are not completely clear (Yin, 2018). By using a multiple case study design, I was able to evaluate the contextual outcomes of each case. Case studies include structure and forensic criticality for a wide range of why, what, and how questions, which others may use to decide if findings apply to them and opening new areas of learning and investigation (Cleland et al., 2021). The ethnographic research approach involves a methodological process that entails extended involvement with a particular community in order to gain a comprehensive understanding of the

perspectives held by its participants (Canevacci, 2017). The application of ethnography as a research design may not be appropriate for this study, as the objective does not involve an exploration of cultural systems. Researchers use phenomenological designs to explore, describe, and analyze individual experiences using memories and perspective (Yin, 2018). The choice of employing a phenomenological design in this study was deemed inappropriate because of the absence of an intention to explore the participants' subjective lived experiences through prolonged observation.

Research Question

What strategies do some small farmers in Sierra Leone use to improve business profitability?

Interview Questions

1. What strategies have you found successful to improve profits that has been effective over the last 5 years?

2. What are the options available to you that have helped educate you on improved farming practices?

3. What barriers do you encounter in using farming strategies to increase business profitability?

4. Is there anything you would like to share about current traditional and customary farm practices and strategies that you believe will contribute to increasing profit?

Conceptual Framework

The theory and concept that I used to ground this study was the innovation theory of profit. The theory written by Schumpeter in 1934 explains that an entrepreneur could earn economic profits by introducing innovations. The theory is used to address profit as a reward for innovation. Schumpeter (1934) defined an entrepreneur as someone who innovates despite social opposition and cited invention, foresight, and creativity as critical elements in entrepreneurial success. According to some, an entrepreneur is referred to as a *change-maker* because of their ability to bring together previously unrelated resources or production elements in order to create novel new combinations. (Nieuwenhuizen, 2022). The entrepreneur is an innovator whose continuous innovation brings profit to the entrepreneur as a reward. The logical connections between the framework presented and the nature of my study include innovation applied to strategies and tips that address profitability. I developed my studying using the conceptual lens of innovation as it applies to small farms that seek to promote profitability. Innovation forms an underlining force behind the emergence of profit, and capital as a conceptual framework applies to small farms that seek to promote profitability (Callegari, 2018). Innovation is a theoretical notion that refers to doing something differently by introducing new ideas, processes, or products. Innovation implies doing something in a new way (Nieuwenhuizen, 2022).

Operational Definitions

This study has several terms that need interpretation for the readers to expand their understanding of the usage.

Agro-ecological: The implementation of sustainable concepts and principles in agricultural practices (Jones et al., 2022)

Agro-processing: Agricultural post-harvest management including a range of activities aimed at preserving and managing agricultural produce to ensure its suitability for use as food, feed, fiber, fuel, or industrial raw material (Mthombeni et al., 2022)

Smallholder farmer: Farmers who cultivate less than two acres of land with rudimentary farm implements (Akite et al., 2022).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions are fundamental considerations inferred to be true in that without them, the research problem cease to exist (Leedy & Ormand, 2019). Bloomberg and Volpe (2018) defined assumptions as settings or conditions that the researcher takes for granted in research. My first assumption was that all the participants gave truthful responses to all the interview questions, and I could use these responses to understand the strategies small farm owners in Sierra Leone use to improve business profitability. My second assumption was that all participants would understand the purpose and significance of the study and desire to participate in the study without bias. My third assumption was that I could uncover strategies small farm owners have implemented in their businesses to improve business profitability.

Limitations

Limitations are weaknesses beyond the researcher's control and are related to the research design, statistical model, financing, or other issues (Theofanidis & Fountouki, 2018). The first limitation was the time available for the research interview may have affected the participants during the interviews. The second limitation was that ethnic cultural activities by farmers can limit full participation. The third limitation was that participants' inability to recall events affected the responses during the interview.

Delimitations

Delimitations address the limits or boundaries imposed on the study (Theofanidis & Fountouki, 2018). Yin (2018) stated that borders, limited breadth, and scope of an investigation are all examples of delimitations. I sought to explore the strategies that small farm owners in Sierra Leone use to improve business profitability; therefore, I selected only participants who were small farm owners in Sierra Leone.

Significance of the Study

Contribution to Business Practice

I contributed to the literature on smallholder farming profitability with this study's findings. There is a critical need for farming enterprises in Sub-Saharan African countries to shift agricultural operations characterized by low profit or no profit to profitable business entrepreneurship. The strategies gained from my research may provide small farm owners with a profitable operational strategy that will move Sub-Saharan

smallholder farming beyond sustainable subsistence agriculture as an enterprise toward profitability.

Implication for Social Change

This study is significant in that the results of this study contribute to social change as reducing turnover in this industry (through increased support and job satisfaction) may, directly and indirectly, affect the lives of farmers in Sierra Leone. Successful implementation of strategies and support may improve the work environment for the farmers and employees by potentially increasing morale and helping the small farms to thrive, thus providing the opportunity for the Sierra Leone farming community, which will contribute to the local economy. Revenue from thriving businesses may benefit the overall country and the job market in Sub-Saharan Africa**.**

A Review of the Professional and Academic Literature

Performing literature reviews is one of the most essential techniques to emphasize and identify the gaps and limitations of current published information (Raza & Hameed, 2022). I conducted this literature review to produce a complete assessment of the literature linked to the research issue. Researchers synthesize prior work to enhance the foundation of knowledge for a particular topic while adhering to the principles of transparency and bias reduction (Williams et al., 2021). Business leaders can use research analysis to develop strategies to promote social changes and bring solutions to social problems. Research studies are highly engaged as to how business leaders can use their partnerships to create a better society (Siemieniako et al., 2021). The purpose of this

qualitative multiple case study was to explore the strategies some small farm owners in Sierra Leone use to improve business profitability.

The literature review consists of peer-reviewed articles about Schumpeter's original theory of innovation profits, other peer-reviewed articles about entrepreneurs who use innovation, and peer-reviewed articles about agriculture in general and agriculture in Africa. The literature review includes the following topics:

- Agriculture in Sub-Saharan Africa,
- Agriculture in Sub-Saharan Africa after COVID-19,
- Climate, and agriculture in Sub-Saharan Africa,
- Irrigation and agriculture in Sub-Saharan Africa,
- Agricultural challenges for small farmers in Sierra Leone, and
- Farming practices and systems in Sierra Leone.

The review consists of both qualitative and quantitative research studies.

The primary databases that I used for this literature review included Business Source Complete, Directory of Open Access Journal, Elsevier, Emerald Management, ProQuest, Rutledge, Sage, ScienceDirect, Taylor and Francis Online, the Google Scholar search engine, and Walden University Library resources. I identified specific keywords to search the literature including: *agricultural productivity in Sub-Saharan Africa, agriculture in Sub-Saharan Africa, climate in Sierra Leone, COVID-19, entrepreneurship and agriculture in Africa, farm practices in Sierra Leone, innovation and agriculture in Africa, rural farming in Africa, Schumpeter's theories,* and *smallholders in Sub-Sahara Africa.*

This literature review has 230 included sources, such as peer-reviewed journals, government publications, scholarly books, magazines, and newspapers, as well as scholarly textbooks and reliable online resources. Africa only accounts for 2% of global research output (Moahi, 2012). International journals often overlook African research articles due to a lack of support from ecological periodicals (Moahi, 2012). Between 1991 and 2002, Sierra Leone was ravaged by a civil war. Because of the long-term effects of the war on academic publishing in the country and the low number of scholarly articles in the region, it was hard to meet the 85% threshold for current literature. One hundred seventy-two, or 75%, of the references are from works published within 5 years of the end of my study, which targets 2023. Only 147, or 64%, of the references are peer-reviewed due to the civil war destruction of academic recordings.

I summarized the research on different parts of agriculture and business in African countries. Moreover, this review includes a comprehensive examination of some materials over 5 years due to their content and relevance to the techniques for achieving profitability in agricultural enterprises located in Sub-Sahara Africa. This study explains critical ideas about agriculture and innovation in Sub-Saharan Africa. Highlights agricultural productivity, agriculture in Sub-Saharan Africa after COVID-19, climate and irrigation, and the challenges faced by Sierra Leone's small farmers.

The Theory of Innovation Profits

The rationale for adopting Schumpeter's theory of innovation profits as a conceptual framework in this study was to investigate the innovative strategies employed by small farm owners in Sierra Leone to enhance business profitability. Schumpeter's

1934 theory of innovation profits was the theory that I used as theoretical foundation for this study. The theory addressed profit as a reward for innovation. Schumpeter (1963) pointed out that innovation faces an uphill battle, and the strategies an entrepreneur requires lie outside the known and therefore, it is unclear what will happen. Secondly, the entrepreneur's objective to venture into the unknown can be met with due reluctance.

Thirdly, there is an existing opposition for a non-innovator to explore. Therefore, an entrepreneur must be an extraordinary individual ready to take on all these forces to win. The entrepreneur is more like a superhero, a visionary willing to risk it all, and they are fully prepared to face all opposition. Schumpeter calls the entrepreneur a conqueror rather than professional financial personnel. Nieuwenhuizen, (2022) stated entrepreneurship involves recognizing an opportunity and an idea to commercialize, planning, starting, managing, and expanding a firm.

Innovation strategies use by entrepreneurs result in the flow of income. Schumpeter's (1934) original theory of innovation profits puts the entrepreneur as a value-generating strategist that attracts the flow of income. The theory focuses on the union between innovation and entrepreneurship as a distinctiveness that creates new capacity that leads to new profit. Entrepreneurs create new innovations through introducing new goods or manufacturing processes, establishing new markets or sources of new resources, and establishing new industrial structures (William et al., 2021). The focus here is on how innovation and entrepreneurship create additional capacity and profit. The innovation process is mostly guided by consumer demand and business

competitiveness (Suprun et al., 2022). Innovation and entrepreneurship result in new capacity and profit.

Entrepreneurs employ innovation to turn change into a new business or service. The essence of Schumpeter's work, economic dynamism, lies in the innovations introduced by entrepreneurs, without whom the economy's circular flow would not be disrupted (Dalton et al., 2020). Profits are made when market pricing and entrepreneurial activities diverge. Entrepreneurial gains occur when a new production function is introduced (Callegari & Nybakk, 2022). Every entrepreneur is creative and imaginative in order to guarantee the success of their company strategies (Nieuwenhuizen, 2022). Entrepreneurs use innovation, which is one of their special tools.

Entrepreneurship sees business venture as an activity that requires inventiveness and originality. Schumpter's (1934) entrepreneur paradigm considered entrepreneurship as an innovative and creative endeavor. Entrepreneurs create new things. The entrepreneur is the one who thinks of and is responsible for bringing to market the innovations that are necessary for economic growth (Dalton & Logan, 2020). The driving forces behind economic expansion are creativity and entrepreneurship. The idea that innovation and entrepreneurship are necessary for economic growth is not unique to Schumpeter, but it is one that is still developing in the principles of neo-Schumpeterian economics. Dalton and Logan (2022) stated that entrepreneurs derive much of their power from their ability to recognize the value of new innovations and make them marketable and commercially useful. Steve Jobs saw Xerox's demonstrations of the

digital mouse and graphical user interface and promptly incorporated them into the popular Macintosh computer (M, 2023). Entrepreneurship is a creative business activity.

The key to organizational success and sustainability is centered around entrepreneurship and innovation. Innovation promotes pioneering and novelty, whereas entrepreneurship focuses on practice. Innovation is the cornerstone of innovative entrepreneurship, whereas entrepreneurship extends innovation (Deng et al., 2021; Duan et al., 2021). Innovation and entrepreneurship are potential tools for addressing the local and global issues of the 21st century and beyond by fostering sustainable development, producing fresh economic growth, and enhancing human wellbeing (Alan, 2019).
In today's dynamic and changing environment, entrepreneurship and innovation are complementary and critical to organizational success and sustainability.

Entrepreneurship and Agriculture in Africa

Subsistence farmers must switch to entrepreneurial farming to reduce poverty. Sub-Saharan Africa is a region where the potential for entrepreneurship to spur economic growth is promising (Anosike, 2018). Entrepreneurs possess a drive when they think and act. Entrepreneurial drive is what separates someone with entrepreneurship potential from someone who acts on it (Cele & Wale, 2020). Innovation and productivity both benefit from an entrepreneurial spirit. Entrepreneurship is a vital component for boosting productivity; nevertheless, other essential factors that support entrepreneurship include corporate environment, technology, networking, and institutions, entrepreneurship (Kriese et al., 2021). Entrepreneurship is an important component of the agricultural industry in reducing poverty.

Farming demands entrepreneurial skills. Most people develop entrepreneurial abilities via practice. Entrepreneurship places a greater emphasis on the habit of getting rewards via practice, whereas innovation places a greater emphasis on pioneering and uniqueness (Yu & Du, 2021). Therefore, the farmers' ability to engage in entrepreneurial endeavors is crucial if they are to successfully navigate the complicated and varied environment in which they operate. Several institutional, social, and traditional issues limit smallholders in Africa. In this region of the globe, smallholder agriculture is a lifestyle, not a business, and there is no separation between farming and family enterprises. The primary incentive for farming is sustenance, not profit (Wale & Chipfupa, 2021). Enhancing entrepreneurial activity can generate jobs by transforming household farms into small commercial operations, increasing agricultural product value and national production (Kriese et al., 2021). Farming requires entrepreneurship, which boosts national output.

Entrepreneurial farmers are more likely to use new technologies and generate higher profits. Smallholders increase the profitability of their farms by diversifying their operations, reducing their farming expenses, and growing their enterprises (Cele & Wale, 2020). According to Barzola Iza and Dentoni (2020), when farmers adopt new ways of organizing their farms as a result of having access to new information, they are engaging in what they call process innovation. Etriya et al. (2019) stated that entrepreneurial farmers have superior technology adoption and revenue. For instance, Ojiewo et al. (2020) described a case study of chickpeas in Ethiopia; through partnerships with agencies, the Innovation Laboratory, and the Alliance for Green Revolution in Africa.

Over a while, adoption of improved chickpea varieties climbed from 31–80%, chickpea growers rose from 65–90%, chickpea acreage per farm rose from 0.17–0.4 ha, and household wellbeing increased; adoption was motivated more by profits and disease resistance than by yield increases. Farmers are led to adopt new strategies for increasing profitability as a result of entrepreneurial innovation.

Innovation and Agriculture in Sub-Saharan Africa

Organizations must be more innovative and less linear to capitalize on new opportunities and overcome obstacles**.** Sub-Saharan African or continental African agricultural development goals emphasize modern technology, particularly Green Revolution hybrid and genetically modified (GM) crops, yet there is little evidence that these technologies are effective for smallholder farmers (Adenle et al., 2019). To achieve their agricultural development goals, African countries are investing heavily on cutting-edge technologies, especially Green Revolution hybrid. The rate of technical dispersion and the hurdles smallholders face in adopting new agricultural innovations are directly connected to how successfully they can improve long-term food security in Africa. (Adenle et al., 2019). Modern technology is key to improving Africa's long-term food security.

Innovation is the successful incorporation of a new idea. According to Fursov and Linton, (2022), the term *innovation* often refers to developments that have been made in making available products to prospective customers. Similarly, innovation is not simply the act of users trying something new for the first time; rather, it is the successful incorporation of a novel concept or product into a procedure that incorporates technical,

economic, and social aspects. The successful implementation of a novel concept is what they refer to as innovation. Agricultural innovation is when individuals or organizations use new or existing products, processes, or ways of an organization for the first time in a specific context to increase effectiveness, competitiveness, shock resilience, or environmental sustainability and contribute to food security and nutrition, economic development, or sustainable natural resource management (FAO, 2018). Innovation is not merely the act of attempting something new.

In Sub-Sahara Africa attempts have been made at various levels to harness and use technologies to combat food insecurity. Information and communication technologies (ICTs) advancements have been essential in filling critical gaps in agricultural extension and development infrastructure. For example, Vodafone's M-Pesa mobile money transfer app is transforming agriculture in Sub-Sahara Africa by giving mobile payment services to farmers (Jellason et al., 2021). African agriculture is undergoing a technological revolution due to the adoption of modern technologies. Governments and international organizations are supporting innovative technologies because conventional farming practices are unsustainable (Adenle et al., 2019). Agricultural innovation should be improved to boost productivity, which will ultimately result in increased food safety (Anser et al, 2021). Modern technology is transforming African agriculture.

It is important to innovate agriculture to increase productivity and ensure that agricultural innovation contributes to economic growth. Aerni et al., (2015) concluded a study and they uncovered three significant restrictions in Africa. The first restriction is planning. Inadequate targeting is partly caused by a lack of national, provincial, and

institutional investment strategies and plans, leading to limited methods or poor local cooperation. Private sector stakeholders are typically excluded from agriculture investment policies and decision-making. The second restriction was implementation. Agricultural innovation capacity development is often unilateral, limited, and ignores institutional and organizational skills. Finally, the third restriction is government. This constraint has numerous dimensions: insufficient political and practical procedures at the upper levels to fully coordinate, the public sector's reliance on theoretical methodologies and social planning approaches, and a lack of investment in research and development. Modernizing agriculture will increase production and help economic growth.

Challenges Smallholders Face in Sub-Sahara Africa

Many countries in Sub-Saharan Africa rely on agriculture as their primary economic driver, and agricultural practices have far-reaching effects on all societies and economies. The agricultural industries of the countries that make up Sub-Saharan Africa are still responsible for an average of 18% of the GDP in the region (World Bank 2020) and currently employs 60 to 75% of the population in rural areas (African Development Bank 2019). Sub-Saharan Africa's agricultural and food production industries are supported by smallholder farms, which manage fewer than 5 hectares (Jayne et al., 2022), accounting for 60-80% of total agricultural output (Mapiye et al., 2021). Agriculture has a profound impact on the economies and cultures of all nations in Sub-Saharan Africa.

Africa's smallholder farmers rely on policy frameworks that promote access to markets and adequate technologies. The labor content of agricultural activities, including quantity and quality of labor and share of workforce employment, provides information

on structural change in every economy and society. The way agriculture will provide food, feed, environmental, and societal services is related to the labor-capital mix that characterizes each farming development model and the policy environment that surrounds it (Losch, 2022). Agriculture continues to be a fundamental component of Africa's development. In comparing Africa to Asia, America, and Europe using performance and productivity growth in agriculture, Adom and Adams (2020), pointed out that persistent technical inefficiency deters technical efficiency. Using data from 49 countries from 1990 to 2016 to uncover that 62% of potential agricultural output is untapped. That writers also stated that although there was an indication that government policies should have a long-term goal of agricultural development, the convergence of technical efficiency showed a good effect on increasing productivity, which can increase food production and alleviate poverty. Technical incompetence is a business problem in agriculture in Africa.

The effects of climate change and its variability can be felt throughout the year for smallholder farmers. Sub-Sahara Africa farmers struggle to get adequate water for crops because the cold dries out soil. Without irrigation, tropical agriculture is difficult and expensive. Tropical dry seasons and torrential rainfall deplete soil nutrients. Continuous cloud cover in the humid tropics might inhibit photosynthesis. Temperate regions have longer summer days than tropics, increasing photosynthetic activity. Insects thrive in tropical climates, reducing worker and livestock production. Most agricultural research and development takes place in industrialized nations and focuses on temperate climates. Four difficulties hinder tropical agriculture (Gallup & Sach, 2000; Sachs, 2001). Once

these obstacles have been surmounted, agriculture will experience an increase in both performance and productivity.

Rainfall is the primary factor determining agricultural output in southern and eastern Africa (Sub-Sahara Africa), and the unpredictability of rainfall makes crops more vulnerable for most African farmers. Africa is the second-driest continent on Earth. Within Sub-Sahara Africa, however, rainfall is either excessive or insufficient: 25 mm in the south-west, 1500 mm in the north-east, and 2000 mm in tropical West Africa (Bjornlund et al., 2020). Complex traditional strategies may exist to minimize losses due to rainfall variability. However, these techniques may be low-yield farming techniques. The productivity of agriculture in Sub-Saharan Africa requires a large increase of effort from the region. It is extremely improbable that there will be a structural change that will result in an increase in the number of jobs available in manufacturing if agricultural productivity is not boosted (Grabowski, 2022). To boost agriculture's production and turn it into a profitable industry, more effort is required.

The advantages brought about by agriculture's positive externalities do not receive the recognition they merit. The challenge is that the focus must shift from what the developed world dictates to what Africa needs, which is to develop its people and production base. This shift is necessary in order to overcome the challenge (Bjornlund et al., 2020). Agribusiness is widespread. Its development is closely related to the location's particular challenges. If the costs of agriculture's negative externalities aren't calculated and the benefits of the positive ones aren't credited, economic profitability won't solve sustainability challenges. Natural resource management, biodiversity preservation,

employment creation, cultural heritage, and local development are all significant aspects of agriculture that must be discussed if we are to progress beyond food and feed production (Losch, 2022). Zoaka and Gungor, (2023) stated that financial development and capital accumulation are positively related to labor productivity in Africa and its subregions. Agriculture's productivity can be improved with a significant increase in financial development, capital accumulation and labor, which, in turn, will lead to the sector's transformation into a more lucrative enterprise.

Agriculture Post – COVID-19 in Sub-Sahara Africa

The limitations imposed by COVID-19 have an effect on smallholder farmers in Sub-Sahara Africa. At the beginning of the year 2020, the entire world was struck with an outbreak of the coronavirus COVID-19, which prompted a number of countries to establish stringent rules in order to preserve the health of their citizens **(**Weible et al., 2020). Outside of places hit by the Ebola virus disease, farmers across much of Sub-Sahara Africa were not familiar with policy initiatives designed to slow the spread of an infectious disease before the outbreak of COVID-19 (Huss et al., 2021). Sub-Sahara Africa is one of COVID-19's most susceptible regions. Poor health facilities in many Sub-Sahara Africa nations and inadequate capacity for testing, prompt detection, and response to COVID-19 infections contribute to Sub-Sahara Africa’s vulnerability (Ayanlade et al., 2020). Demand and supply-side impact from COVID-19 slowed African economic growth in 2020 and beyond. COVID-19 in Sub-Sahara Africa shut down domestic economic activity, left people unable to work, reduced output, cost employment, disrupted supply chains, worsened welfare and livelihoods, and increased

poverty and risk (Adam et al., 2020) COVID-19 imposed limits affected smallholder farmers in Sub-Sahara Africa.

Agricultural markets were permitted, but market booths had to comply with social and hygiene standards. Farmers said agricultural markets were distorted, limiting their ability to sell surplus supplies and buy food. Agricultural markets were allowed to function, but market stalls had to meet social and hygiene norms, which many market participants couldn't meet (Huss et al., 2021). There is still a lot we don't know about the dynamics of COVID-19 and the possible detrimental impacts on global food security, despite the fact that a lot of effort has been put into learning about them (Roubík et al., 2022). Home cooking increases demand for farm products. Farmers may adopt a more resilient business model. Farm-to-table will grow globally. The producers expect value-added products to make small and large-scale operations more resilient. Developing countries must add value to farm produce and make it accessible (Roubík et al., 2022). The pandemic disrupted food supply chains and altered the way farmers conducted business.

Lockdowns and border closures affect farmers' access to seeds, fertilizers, and agrochemicals. Many farmers faced and still experience large losses due to natural calamities (droughts, floods, insect invasion), and the pandemic aggravated critical situations (WFO,2020; 2021). According to Ayanlade et al. (2020), Sub-Sahara African countries must establish better policies and initiatives to reduce hunger and improve food security after the COVID-19 epidemic. All Sub-Saharan Africa countries must move promptly under the African Union to respond and establish a recovery plan post-COVID-

19 pandemic to enhance food supply on the continent. The epidemic caused disruptions in food supply systems and caused changes in the way farmers ran their businesses.

Agricultural Productivity in Sub-Sahara Africa

Access to technology on the part of smallholders is critical for the development of agriculture and the economy. Technology plays a significant role in transforming agriculture, ensuring food security, and reducing poverty in developing countries. Despite some apparent progress, technology adoption rates have remained stubbornly low in Sub-Saharan Africa, where smallholding agriculture predominates. (Bambio et al., 2022) Although there is widespread agreement that giving these small-holders access to technology is essential for agricultural and economic progress, actual data shows that even when potentially promising technologies are made available, they are rarely extensively embraced in Sub-Sahara Africa. A chronically low level of agricultural productivity is the result of the region's slow adoption of agricultural technologies. According to research from the West Africa Agricultural Productivity Program (WAAPP), it is crucial to introduce new technologies to farmers through well-coordinated initiatives since adoption choices can significantly affect a family's financial stability (Bambio et al., 2022). The growth of agriculture and industry depends on smallholders having access to technology.

Smallholder farmers in Africa have low productivity, yet there is room for improvement. Smallholder farmers do not have the same capabilities as commercial farmers; therefore, it can be much more difficult for smallholder farmers to adopt new agricultural technologies due to financial constraints and other considerations. Instead of

working to raise people's awareness, international organizations are putting their efforts towards research and development (Adenle et al., 2019). Increasing food production with low-cost technology for smallholders is best accomplished by ensuring a stable and sustainable agro-ecological system. Boosting agricultural output in Africa would have far-reaching consequences. Additionally, it will serve as a driving force in the development of the agro-processing sector of the industrial economy. Irrigation is singled out as the primary focus as a critical ingredient to increase productivity (Darko et al., 2020). Many African countries consider water and irrigation crucial for food security and drinking water. Sub-Sahara African farms struggle to implement irrigation technologies. Digital technology offers untapped potential for farmers, investors, food production, and environmental benefits. Increasing private sector investment and involvement is vital for expanding irrigation technologies (Darko et al., 2020). Stable and sustained agro-ecological systems provide low-cost technology for smallholders.

Climate and Agriculture in Sub-Sahara Africa

Humanity faces an existential threat because of climate change. Climate change has long been recognized as an existential threat to humanity due to the cross-sectoral and irreversible effects it has on global agri-food production systems and ecosystems. Climatic change impacts agricultural regions differently owing to the region's particular influence on climate resources (Ogundari, 2019). Agriculture, which is the most weather-dependent of all human activities, is heavily influenced by climate. Many critical agricultural decisions that interact with climatic conditions must be made months before the effects of climate manifest themselves. Agriculture is changing due to climate change.

In every part of Sub-SaharanAfrica, plants, animals, and ecosystems are adapting to the new, unbalanced climate. Climate change affects plant and livestock growth, even if it seems beneficial to humans (Kombat et al., 2021). Given the erratic nature of the climate and the ongoing threat that climate change poses to human survival, action must be taken.

Climate change is an existential threat to humanity. Climate change could harm Sub-Saharan Africa's agriculture. Concerns have been raised at the national, regional, and worldwide levels concerning the short-, medium-, and long-term effects that climate change will have on agricultural production (Emediegwu et al., 2022). The effects of climate change on agriculture have the potential to greatly thwart development initiatives aimed at guaranteeing adequate food supplies and reducing levels of poverty (Freduah et al., 2019). Smallholder farmers appear to be the most vulnerable to weather variability, both in terms of floods and droughts, in comparison to large-holder farmers as well as those that are not involved in farming (Azzarri & Signorelli, 2020). Climate change may hinder development efforts in agriculture. Weather variability affects smallholder farmers most.

Population growth in West Africa is accelerating, and climate change has an impact on agricultural production. Extreme droughts and floods have resulted from climate change anomalies in West Africa, as evidenced by the region's rising temperatures and weather conditions that surpass normal estimates, as well as rainfall variability. These changes affect planting, harvesting, and agricultural production. As West Africa's population grows faster than the rest of the world, a rise in food supply will coincide with a drop in agricultural production (Mechiche-Alami & Abdi, 2020).

Uncertainty in weather forecasts makes it hard to plan agricultural seasons. As West Africa's population grows faster than the rest of the globe, an increase in food supply will coincide with a decline in agricultural production in a region where undernutrition is already a problem. Although remote sensing, trend analysis, and land management shows that assessing the effects of climate on agricultural productivity in West Africa have increased. Changes in climatic projections affect planting start and length, harvest success, and agricultural production (Mechiche-Alami & Abdi, 2020). Climate change affects West African farming. Weather forecasts hamper agricultural season planning.

Climate and Agriculture in Sierra Leone

Climate change affects agricultural production in West Africa, and Sierra Leone is particularly vulnerable to the economic repercussions of climate change. Sierra Leone has two distinct seasons and a tropical climate. The Dry Season (December to April) is characterized by winds from the northeast ("i.e.," the North-east trades), whereas the wet season (May to November) is driven by winds from the southwest (May to November). There may be changes in the beginning and duration of both seasons (UNDP., 2019) Districts in the south, east, and west of Sierra Leone see slightly larger variability in their average rainfall distribution than districts in the north, as measured by the standard deviation and the coefficient of variation. Most farmers in Sierra Leone rely on rainwater for their crops, and they plan their harvests accordingly (Amara et al., 2020). It is anticipated that the effects of climate change will have a devastating impact on Sierra Leone's agricultural sector.

Sierra Leone is located on the west coast of Africa, which results in a wide range of weather patterns. The country sits between 13.5° and 10.5° west and 6.5° and 10.5° north, covering 72,325 km2. It borders Guinea in the northwest, Liberia in the south and southeast, and the Atlantic Ocean west of Greenwich Meridian. The wet season averages 3000 mm, coastal and southern parts up to 5000 mm, and interior areas 2000–2500 mm (Amara et al., 2020). From the middle of March until the end of May is a crucial time for farmers. If they plant too soon, there is a risk of a dry period and seedlings dying; if they wait too long, weeds may become established, and newly emerged seedlings may perish (Wadsworth et al., 2019). It is known that climate change has negatively affected the environment. Flooding is known to have affected the agricultural production and natural environments of the people of Sierra Leone, with their suffering exacerbated by water-borne diseases (typhoid, dysentery, cholera, and diarrhea) (Wadsworth et al., 2019). There is a potential for the country of Sierra Leone's agriculture sector to be impacted by shifting climatic conditions.

Most farmers in Sierra Leone rely on rainwater for their crops, and they tailor their practices to the yearly precipitation. Prolonged dry days in Sierra Leone, have had an impact on crop productivity, even during the rainy season (July–September), further highlighting the vulnerability of crop production to climate change. Heavy rains in March have become increasingly rare, but in recent years they have caused major problems for farmers by interfering with their efforts to prepare fields for planting and harvest by burning unwanted vegetation. (United Nations Office for Disaster Risk Reduction (UNDRR), 2019). As a result of the farmers' reliance on rainwater, agricultural practices

in Sierra Leone are adapted to reflect seasonal shifts in precipitation that have the potential to influence crop production.

Agriculture as a Business in Sub-Sahara Africa.

Agriculture is the primary economic activity in Sub-Saharan Africa. Over the past decade, the African economy has showed growth, rising at a rate of 5% per year on average. If this growth pattern persists, Africa's GDP may increase by a factor of three by 2030 and seven by 2050 (UN, 2022). Smallholders are Africa's largest private sector. Smallholders are customers and entrepreneurs, and companies want them as customers and suppliers (African Development Bank Group, 2019). Most people in Sub-SaharanAfrica rely on agriculture as their primary source of income, and this sector of the economy contributes a considerable amount to the overall economy of the region (Gashu et al., 2019) More agriculture business empowerment is needed in the area. Traditionally, farms in Sub-SaharanAfrica are more focused on self-consumption and less focused on the market. Significant interest exists in transforming smallholder agriculture in Sub-Saharan Africa (SSA) from subsistence farms to productive and profitable farm companies (Saravia-Matus et al., 2021). Given that the majority of Sub-Saharan Africans depend on agriculture for a living, it is essential that the industry be developed.

In most circumstances, agriculture faces a significant challenge in preparing rural business owners to understand and implement competitiveness, quality, and management principles. In addition, many agricultural regions do not always achieve sustainable productivity and profit. In most cases, a farmer's (rural producer's) attention is best spent on technical matters and mundane tasks, with an emphasis on production, while the

adoption of various administrative concerns is put off until a later time (Junior & Bliska, 2022). Agricultural entrepreneurs are individuals engaged in agricultural economic activities that meet the following three criteria: (a) they produced agricultural goods or services; (b) these products or services were market-oriented; and (c) the activities were performed to generate personal income for the entrepreneur and were not perceived as a household effort (Thoto et al., 2021). Creating a database of agricultural entrepreneurship in Sub-Saharan Africa will help overcome a knowledge vacuum that hinders policy and practice. There are more male than female farm startup founders now. Additionally, it seems that women (70.39%) and men (54.81%) are more involved in the agricultural processing and primary production sectors, respectively. In terms of age, nearly half of all agricultural business owners were between the ages of 35 and 60, while 44% were young adults. However, despite recent initiatives to increase the number of young people working in agriculture, this age group is still not the predominant one (Thoto et al., 2021). Understanding and using competitiveness, quality, and management ideas in agricultural economic activities in Sub-Saharan Africa will boost agricultural entrepreneurship's contribution to the economy.

Innovative Strategies for Profit

Schumpeter (1934) stated that an entrepreneur is an innovator, which he described as a person who creates innovative combinations of existing inventions or ideas. Introducing new ideas, techniques, or products is the theoretical definition of innovation. Innovation means doing something differently (Nieuwenhuizen, 2022). The introduction of a new means of production or market by an entrepreneur is an example of innovation.

In a case study in Sierra Leone, Silvia et al. (2021) investigated eastern and northern Sierra Leone agricultural production systems. In both agricultural zones, staple crops (primarily rice) and tubers are grown under shifting cultivation, but the range of commercially grown tree crops differs greatly. Silvia et al., 2021 stated that the findings suggest that farm efficiency and crop variety contribute to farm economic viability. Crop diversification with market-oriented income crops helps meet reproductive threshold conditions. Cultivation systems must balance cash and food crop portfolios to ensure economic viability and efficiency, especially in the east where cash tree crops have greater market integration potential. Agroecological systems that are reliable and can continue to meet the demands of smallholders both the food crop portfolio and the cash crop portfolio need to have a healthy balance.

African agriculture must innovate to drive social and economic growth. Improved seed and planting materials boost production. Jama and Pizarro, (2008) stated it must be done while using fertilizer, water, and pest and disease management. Better germplasm isn't enough. This combination has greatly increased yields. One of the biggest obstacles to technical progress in Sub-Saharan Africa's small-scale agricultural activities has been inadequate technology adoption in Sub-SaharanAfrica (Adejuwon, 2019). Agricultural innovation can improve soil quality and prevent nutrient leaching and erosion. It can improve sustainable resource management and minimize greenhouse gas emissions (Ogundari & Bolarinwa, 2018). Organic inputs are used primarily by the poor, whereas mixes of organic and inorganic fertilizers are used by the middle and upper classes. The system selected will be that which provides nutrients at the farm gate at the lowest

possible cost (Jama & Pizarro, 2008). Agricultural innovation improving agricultural production and these new approaches to agricultural production both contribute to increasing agricultural production.

In Africa, the increase in agricultural production is largely due to a rise in labor, land, and animals, with a focus on cultivated areas and manpower. Digitalization is proving beneficial to the sector. Successful digital services have increased smallholder farmers' productivity and profitability (Tsan et al., 2019). Most African farmers still struggle to acquire real-time marketing and price information that helps them sell their goods at the right time, market, and price. The use of mobile phones has resulted in a cost savings of 50% for farmers searching for agricultural price information in remote areas of Niger when compared with the expense of personal travel (Aker and Mbiti, 2010). Farmers can benefit considerably from gaining knowledge and maintaining their access to a variety of information concerning sustainable yield improvement technologies.

In Africa, agriculture practiced by smallholders is being more prominently integrated into discussions pertaining to the digital economy. The use of technologies such as mobile phones, radio, computers, drones, satellites, artificial intelligence, cloud computing, the internet, and big data has grown ingrained in agricultural systems in Africa and across the globe, particularly smallholder agricultural systems (Abdulai, A., 2022). In a study conducted in rural Tanzania, farmers boosted their use of sustainable agricultural intensification methods based on legumes through the dissemination of information by radio and SMS about topics such as planting, seeds, fertilizers and soil fertility, pest and disease management, weeding, harvesting, and storing (Silvestri et al.,

2020). Agriculture-led expansion is the key to reducing poverty, increasing productivity, and increasing profitability in most of the countries in sub-Saharan Africa.

Irrigation and Agriculture in Sub-Sahara Africa

Water is one of the most important natural resources that sustain life and is required for all manufacturing processes. Irrigation is essential to food production and security. In Sub-Saharan Africa, irrigation efficiency has improved with low-pressure center pivot sprinkler systems, sub-surface drip irrigation systems, small motorized pumps, drip kits, treadle pumps, rope, and washer pumps. However, challenges remain and show more opportunities for water use efficiency improvements through situation-appropriate efficient technologies (Darko et al., 2020). Irrigation is vital to food security and the battle against hunger in the region. Darko et al. (2020) noted that increasing agricultural productivity catalyzes agricultural industrialization in Sub-SaharanAfrica. Irrigation has become a critical factor in increasing agricultural productivity for food security and the fight against hunger in the region. Irrigation is crucial to enhancing agricultural productivity for food security and fighting hunger in the region.

Irrigation systems increase smallholder farmers' productivity. When compared to other parts of the world, the Sub-Saharan Africa area and the continent of Africa as a whole have fallen behind in terms of their access to water (Sun et al., 2021). West Africa has the largest potential for dryland irrigation expansion among Sub-Saharan Africa's four sub-regions. Equatorial Guinea, Gabon, Liberia, and Sierra Leone have no dryland irrigation potential (Xie et al., 2018). Colonial governments in Sub-Saharan Africa implemented formal irrigation schemes without considering the region's unique socio-

economic and biophysical conditions in order to serve the growing demand for export crops. After gaining independence, governments in Sub-Saharan Africa continued to expand irrigation facilities with financial support from donors. However, these projects weren't driven by farmers' economic interests or used to boost local output (Bjornlund et al., 2020). In Sub-SaharanAfrica, agriculture production trails other global regions, and irrigation plans have a track record of underperformance and failure (Bjornlund et al., 2020). A reliable system of irrigation is essential to the success of any system aimed at increasing yields and ensuring the safety of food supply.

Sub-Saharan Africa has seen significant improvements in irrigation efficiency over the past few decades thanks to innovations like low-pressure center pivot sprinkler systems or sub-surface drip irrigation systems, small-motorized pumps, drip kits, treadle pumps, rope and washer pumps, and more. There are still obstacles to overcome, and new opportunities to improve water use efficiency have been revealed by implementing situationally appropriate efficient technologies (high untapped irrigation potential; rainwater harvesting to increase water availability; low-cost irrigation technologies adaptable to local conditions; rehabilitation of traditional schemes) and other management practices (high commitment of national governments, NGOs, and donors to securing water supplies) (Darko et al., 2020). The rate of progress in innovation is expected to accelerate. Irrigation is an important aspect in improving agricultural productivity among smallholder farmers.

Agricultural Challenges Facing Small Farmers in Sierra Leone

Agriculture is crucial to Sierra Leone's economic and social growth. Sierra Leone is one of the world's poorest and least developed countries. The Human Development Index of the United Nations placed Sierra Leone 182 out of 189 nations in 2020. In 2017, approximately 60% of the country's seven million inhabitants lived in multidimensional poverty, including lack of access to basic amenities like clean water and education (Okeke-Ogbuafor et al., 2021; UNDP., 2020). In recent years, the agricultural sector in Sierra Leone has contributed less than half of the country's gross domestic product, despite the fact that the agricultural population (about five million people) accounts for roughly two thirds of the overall population. Several issues hinder agriculture's economic performance (Saravia-Matus & Paloma, 2015). First, the agricultural systems are characterized by highly inefficient input/output combinations that prioritize risk mitigation over tactics for cash-income creation. In many rural regions, pre- and post-harvest losses are also high, exceeding 30% of total yield (Saravia-Matus & Paloma, 2015). The agricultural sector of Sierra Leone's economy is plagued by extremely inefficient combinations of inputs and outputs.

The climate of Sierra Leone is humid tropical monsoon with two distinct seasons. During the wet season, some land becomes utterly uncultivable, and as a result, farmers are compelled to give up their fields and look for other ways to make a living. Bad or nonexistent roads, especially feeder roads, make village and farm access difficult during the wet season. This constraint on service suppliers to the industry contributes to ineffective farm support. Bad roads limit access to important markets (FAO, 2005).

According to Cadzow and Binns (2016), lack of equipment (watering cans, shovels, protective shoes, gloves, etc.) exacerbates the need for laborious work. This is especially challenging for older women and widows who lack access to family labor. Smallholders are unable to invest in agricultural equipment due to a lack of financing in the industry and village-level institutional frameworks that prohibit the use of land as collateral for loans. For example, the notion that the extended farm-household family (including the deceased and unborn) must consent to land transactions is a substantial barrier (Saravia-Matus & Paloma, 2015). Farmers in Sierra Leone are frequently hampered by several limitations, which works against the agricultural output of smallholder farmers.

To increase their productivity and earnings, smallholder farmers require access to technologies that can increase their yields. Rice farms in Sierra Leone are nearly totally non-mechanized, and they have low levels of input, both of which help to explain the country's low average rice yields as well as the wide range of yields that can be seen from farm to farm (Chenoune et al., 2016). Poverty in farming communities reduces the utilization of tools, seeds, and technology. Inadequate government support through extension services and the sluggish adoption of improved technologies by farmers have contributed to the sector's dismal performance (NSADP, 2009). Smallholders in Sierra Leone require techniques that will enable them to surpass their respective reproductive thresholds in order to be successful.

Small Farm Owners in Sierra Leone

Rice is the primary source of nutrition for the great majority of people living in Sierra Leone. It is a staple item that is consumed daily in the vast majority of households

across the country. Approximately 200,000 metric tons of rice are produced each year in Sierra Leone, where the crop occupies about 40% of the country's arable land (Louhichi &. Gomez y Paloma, 2014) In West African nations such as Sierra Leone, one of the most persistent challenges is providing smallholder farmers, who make up a significant portion of these societies, with an adequate food supply that is easily accessible and of a high nutritional quality despite the fact that the political, socioeconomic, and climatic environments are fraught with unpredictability (Katic et al., 2013). According to the World Bank, smallholder farmers drive many economies and play a crucial role in promoting rural poor lives and food security. If small holder farmers in Sierra Leone are going to have any chance of making a good living, agricultural operations there need to improve.

Most farm households in Sierra Leone (which amounted to around 400,000 farm families) that are engaged in crop production are overseeing plots that do not surpass two cultivated hectares. Smallholders using the shifting cultivation system can grow up to 15 different crops (including sorghum, millet, maize, fundi (digitaria), benniseed, groundnuts, cowpeas, root crops, and tubers) sweet potatoes, cassava roots, and Yams (along with a variety of other vegetables) are traditionally grown in rice as a dominant staple in mixed stand (Jalloh A, 2006). Farms in Sub-SaharanAfrica have historically focused more on producing for internal consumption than on selling on the market (Frelat et al., 2016). Upland farmers employ intercropping for smoother labor input supply and gender/age division of tasks, risk minimization, improved pest and disease management, longer food availability, and better special organization. Jalloh and Njala, (2006) stated

risk minimization rather than profit maximization is given priority. Women mix other crop seeds with rice seeds to ensure a diverse crop production, especially vegetables. These harvests are sold to buy non-farm goods like salt. Mixed cropping is limited by farmers' lack of information about crop populations and planting times (Jalloh & Njala, 2006). Smallholder farming can be productive and competitive with the right support. This reduces poverty.

The welfare of Sierra Leonean households is directly impacted by the country's agricultural revolution. For most observers, alleviating poverty requires strengthening smallholder agriculture to drive broad-based economic growth and employment (Jama & Pizarro, 2008). Sierra Leone's rice production increased 21% in 2021-2022, after increasing 12% in 2020-2021, signaling a long-awaited turnaround in the sector. Tony Blair Institute for Global Change cooperated with the Sierra Leonean government to boost rice production over 4 years through expanding access to finance, mechanization, and strengthening the private sector (Kpaka et al., 2022) For agriculture in Sierra Leone to be able to effectively create broad-based economic growth and employment, the sector would require ongoing innovative strategies.

Farming Practices in Sierra Leone

Intercropping is the principal system favored by upland farmers due to less labor input, gender/age division of tasks, risk minimization, enhanced pest and disease management, and extended food supply. Most African smallholder agricultural methods prioritize risk mitigation over profit maximization (Sammeth et al., 2010). Rising population and dwindling soil fertility require a reevaluation of the traditional farming

practice. The government would like a higher value permanent cropping system that includes tree crops and food crop intercropping since it is more sustainable (NSADP, 2009). Over 90% of Sierra Leoneans rely on rice as their primary food source, and nearly 80% of all agricultural households grow rice. Upland and lowland ecosystems are both part of the rainfed rice agriculture ecologies. On the first year after clearing the bush fallow, rice is cultivated on mixed plots in the uplands (Sammeth et al., 2010). Since fertilizers are typically either not available or too expensive for farmers, most farmers rely instead on the natural fertility of the soil. In Sierra Leone, there is a need for reform to improve farm production, efficiency, and economic viability at the smallholder level.

Most of the work on farms is accomplished using relatively simple tools, such as hoes and cutlasses. The farmers must pay a high price for labor since it is expensive: the daily wage for a man is Le 6000 Sierra Leone, Leones (SLL). Therefore, the home relies heavily on the work done by family members (Sammeth et al., 2010). After 2-3 crop cycles, land is left fallow to rebuild organic matter, soil structure, and nutrients. Due to population pressure, changes in the economy, and technical progress, bush fallow intervals have cut from 20 years in the 1960s to 4-7 years today (NSADP, 2009). Sierra Leonean farm households lack resources. First, they must keep idle land, and second, they have limited capital and labor for the cultivated region. Hoe, axe, and cutlass are the major tools, and family members' work. Unimproved crop varieties, animal breeds, fertilizer use, and cultural habits harm agricultural production. Small-scale farmers in Sierra Leone produce barely enough food for home consumption and none for the market (Jalloh, 2006). Traditional laws govern the collective ownership of land in Sierra Leone,

which is held under customary tenure. Land is a heritage given to a village's populace. The conviction that land is available to the following three groups: the living, the dead, and the unborn. Land cannot be permanently alienated as a result. This essential aspect of the culture has a significant impact on land ownership in rural Sierra Leone, affecting existing land tenure, food security, and market-oriented investment (Unruh & Turray, 2006). Sierra Leone needs to enhance smallholder agricultural production, efficiency, and economic sustainability.

Emerging Themes from Literature Review

Literature reviews enhance subject knowledge. Paul and Criado (2020) stated that a literature review is a detailed evaluation of important literature relating to a certain theme, theory, or methodology that enhances subject knowledge, uncovers knowledge gaps, and may build new theoretical frameworks. The emerging themes from this literature highlight agricultural innovation directly connected to increasing profitability. Farmers with superior technology adoption, implementation of novel concepts, boost their productivity which translates to increased profit. Technology plays a significant role in transforming agriculture. Climate change affects agricultural production. Water and irrigation technologies are critical ingredients to increase productivity. Smallholder farmers need yield-boosting technologies to boost productivity and incomes.

Transition and Summary

The theory of innovation profits by Schumpeter as a conceptual framework for this study is to explore innovative strategies small farm owners in Sierra Leone used to improve business profitability. The literature on this topic reveal that to effectively

alleviate poverty in Africa, more smallholder farmers must shift from subsistence to entrepreneurial farming. Agricultural innovation should be improved to boost productivity, which will ultimately result in increased food safety (Anser et al, 2021). Sub-SaharanAfrican countries must establish better policies and initiatives to reduce hunger and improve food security in this post COVID-19 epidemic timeframe.

The agricultural sector of Sierra Leone's economy is plagued by extremely inefficient combinations of inputs and outputs. The use of water and other forms of irrigation technology are essential components in the process of boosting productivity. Rising population and dwindling soil fertility require a reevaluation of the traditional farming practice. Sierra Leone needs to enhance smallholder agricultural production, efficiency, and economic sustainability. The primary objective of this research was to investigate novel approaches that small farm owners in Sierra Leone have implemented to increase the profitability of their businesses. The findings of this investigation will be used to educate and train farmers in the region.

In Section 1 of this study, I provided the study's foundation and background and presented an extant literature review on agriculture in Sub-SaharanAfrica. In Section 2, I present the purpose statement, the role of the researcher, and the participants. Then, I discuss the research method and design, population and sampling, and ethical research. Furthermore, I discuss data collection techniques, analysis, reliability, and validity. In Section 3, I present the results of the study and substantiate the implications and recommendations for future research.

Section 2: The Project

In this section, I discuss the purpose statement and then describe the role of the researcher and participants within the study, the research methodology, addressing the research method and design, the population, and sampling. Subsequently, I then expound upon the ethical standpoint, methodologies for data acquisition, and analytical techniques. I then discuss the data analysis method, addressing the study reliability and validity.

Purpose Statement

The purpose of this qualitative multiple case study was to explore the strategies some small farm owners in Sierra Leone use to improve business profitability. The target population consists of eight small farm owners situated in Sierra Leone, West Africa, has been profitable in the business of small farming continuously for over 5 years. Smallholder farmers play a critical role in the region's economy and are a driving force in promoting rural food security. There is a critical need for subsistence farming in Sub-SaharanAfrican countries to shift agriculture characterized by low productivity to higher agricultural production for sustainable food security. The findings of this research study could help farm business owners apply research strategies to plan effective agrarian measures. The anticipated outcome may increase agricultural productivity to alleviate poverty and food insecurity. The implication for positive change is poverty eradication, self-reliance, and agricultural sustainability for the farmers.

Role of the Researcher

As the researcher, it was my responsibility to gather information from small farm owners in Sierra Leone by carrying out a qualitative study with the help of the research instrument. Qualitative researchers use people's natural environments to collect and analyze data (Clark & Veale, 2018). As the primary instrument for this research, I recruited eight small farm owners from different sections of the country, explain the research's goal and objective, and collect, evaluate, and present the results. I facilitated the data collection process, which involved semistructured interviews with small farm business owners in the four regions of Sierra Leone who have had profitable farming enterprises for 5 years. The purpose of carrying out an interview protocol is to elaborate upon the responses provided by the participants, particularly those that may not be entirely clear. In order to mitigate bias, researchers strive to maintain objectivity in data collection. One technique that aids in this endeavor is known as bracketing (Chan et al. 2013). To avoid biasing or hindering the data collection process, I used open-ended semistructured interview questions, and I strived to achieve full data saturation along with performing member checking. Moreover, participants and I had no prior or ongoing professional or personal ties.

My association with the research topic included many years of living in Sierra Leone, my birth country before migrating to The United States during the civil war in 1996. This research was conducted ethically by following the guidelines and regulations established by the Institutional Review Board (IRB) on data collection and informed consent. The researcher's role in the research is to mitigate bias during the data collection

process while following interview protocols (National Institutes of Health, 2015). In demonstrating integrity systematically throughout this research, I considered three ethical principles of the Belmont Report: The first is beneficence. The second is justice. Finally, the third is respect for persons (U.S. Department of Health and Human Services, 1979). These were the acceptable ethical principle and guidelines for this research.

Participants

A researcher may follow the eight principles or steps of motivational interviewing, which include choosing a distracting framework, describing the interview's purpose, and addressing confidentiality (Yin, 2018). An eligibility criterion for selection for this study was that individuals were natives of the country Sierra Leone. They were to be 18 years or older and fluent in English and have a minimum West African School Certification (WAEC), the equivalent of a high school diploma in the United States. The participants for this study were a group of eight small farm owners selected from the country's different regions. Sierra Leone has four regions. East, North, South, and West regions. These small farm business owners have sustained their enterprises profitably for 5 years.

I gained access to participants through collaboration with the leadership of the Njala University of Sierra Leone, an agricultural institution with records of successful small farm owners in the country. Nemat Shahrbabaki et al. (2018) emphasized that research institutes connect researchers to participants. In establishing a working relationship with the participants in WhatsApp conversation, I identified myself and explained the study goals, participant selection process, and prerequisites. For ethical

guidelines and protection, by signing the consent form, all participants gave their permission to participate in the study. I ensured that the inform consent process was in line with Walden University Review Board (IRB) permission. The participants voluntarily completed a consent form that allowed the option to audio record the interview. The participants could withdraw at anything as it is stated in the consent form. I estimated how long the interview would take. Participants were informed that a phone or in-person interview would likely last between 30 and 45 minutes. Participants must align with the study research question (Castleberry & Nolen, 2018). Considerable effort was ensured to establish participant selection for the study aligned with the research question. During this investigation, I was responsible for gathering the data, performing the analysis, and presenting the results.

Research Method and Design

Quantitative, qualitative, and mixed methodologies make up the trifecta of research approaches. Data are collected and numerically processed in a quantitative study form, allowing for statistical testing, hypothesis generation, and conclusion (Landrum & Garza, 2015). When investigating the connections or contrasts that exist between different factors, a quantitative research approach is the one to use (Barnham, 2015). Qualitative researchers use data collected from participants as a process that focuses on solutions to a contemporary business problem (Yin, 2018). I selected a qualitative research method for this study, as it did not require the examination or comparison of variables. For this qualitative research, I used a multiple case study. The use of multiple case studies facilitate researchers to assess the contextual outcomes associated with each

individual case. A researcher that uses multiple case designs offers in-depth insight into a phenomenon using various sources rather than a single case study that provides a homogenous sample (Yin, 2018).

Research Method

There are three primary research methods: qualitative, quantitative, and mixed method (Zoellner & Harris, 2017). Qualitative research combines inductive and deductive investigation focusing on human and subject contexts (Klassen et al., 2012). Qualitative techniques examine natural events and instances to reveal human experiences. (Ezer & Aksüt, 2021). The primary objective of this qualitative multiple case study was to investigate the strategies employed by small farm owners in Sierra Leone with the intention of enhancing their business profitability. Qualitative researchers can interact with individuals face-to-face during data collection, regardless of theoretical framework (Aletaha et al., 2020). The qualitative method was appropriate in exploring the strategies some small farm owners in Sierra Leone used to improve business profitability.

The quantitative research method features an investigation that depends on statistical techniques using variables, identities, and relationships (Yin, 2018). A quantitative researcher focuses on the relationship between numerical variables, and they do not include the reasoning surrounding the circumstances (Barnham, 2015). The goal of quantitative research is to put hypotheses, predictions, and control mechanisms, as well as findings that are given with a degree of statistical certainty, to the test (Holloway & Galvin, 2016). The quantitative method was not ideal for this research because I did not

intend to examine relationships based on variables using statistical instruments and analysis.

A mixed method combines qualitative and quantitative methodology in a research study. A mixed method is suitable for a research study when the researcher uses both qualitative and quantitative methods in a particular study (Creswell, 2014). The qualitative research method was chosen for this study as it aims to investigate and offer valuable insights into the strategies employed by small farm owners in Sierra Leone to enhance their business profitability.

Research Design

Three possible research designs for undertaking a qualitative research study are: Case study, ethnography, and phenomenology (Castleberry & Nolen, 2018). The use of a case study design enables the researcher to conduct investigations with heightened levels of rigor and credibility (Gergen et al., 2015). The ethnographic research approach involves a methodological process that entails extended involvement with a particular community in order to gain a comprehensive understanding of the perspectives held by its participants (Canevacci, 2017). The application of ethnography as a research design may not be appropriate for this study, as the objective does not involve an exploration of cultural systems. Researchers use phenomenological designs to explore, describe, and analyze individual experiences using memories and perspective (Yin, 2018). The choice of employing a phenomenological design in this study was deemed inappropriate because of the absence of an intention to explore the participants' subjective lived experiences through prolonged observation.

The qualitative case study was the most appropriate for exploring strategies some small farm owners in Sierra Leone used to improve business profitability. A case study entails a comprehensive research methodology that aims to reveal a comprehensive overview of the strategies employed by small farm owners. The researcher has the option of using a case study approach for the evaluation of a single or several phenomena. In a comprehensive study, researchers employ a multiple case study approach to examine several examples for more than one organization via diverse lenses (Farrugia, 2019). Using a multiple case study design enables the examination of a genuine real-world scenario characterized by an ambiguous context and indeterminate position (Yin, 2018). Therefore, a multiple case study design was most suitable for this study. To achieve data saturation, I created a summary of interviews with each participant and collaborate or clarify the interpretation of data through a member checking procedure to assure the validity of the study. Data saturation emphasizes the breadth of acquired data and is an indicator of study data adequacy when additional data does not improve comprehension (Yang et al., 2022). Data saturation is a primary goal in qualitative research and is used to confirm the findings. Saturation offers sufficient data to answer the research question. To achieve data saturation, I continued interviews until no new themes emerged.

Population and Sampling

Researchers engage value judgment in undertaking purposeful sampling to select participants based on research specifications (Korstjens & Moser, 2017). Instead of using the entire population, researchers use sampling as a process to select a sample size as a representation of the community for a study (Nakkeeran, 2017). This sampling is

purposeful. The benefits of purposeful sampling in a qualitative research study are the opportunity for the researcher to appropriate insightful information from the participants using limited resources (Campbell et al., 2020). I used the method of purposive sampling to select participants who have a particular experience and level of expertise pertaining to the subject of the research. Anderson (2017) stated that two to three participants should constitute the minimum size of the sample size permitted for multiple case studies. Cassell et al. (2020) stated that more than eight people should be included in the study for it to be effective and yield reliable results. The participant sample in this qualitative multiple case study included eight owners of small farm businesses from the four provincial regions of Sierra Leone that maintained profitability for over 5 years.

Qualitative research relies heavily on reaching a point of data saturation. Researchers confine saturation to the scope of their research to prevent losing effectiveness if saturation is imagined and applied broadly (Abdul Majid et al., 2018). When there is no more information that participants can provide, the researcher may decide that the data have been saturated (Islam & Aldaihani, 2022). To achieve data saturation, I continued to conduct interviews and I performed document review over documents from public organizations, using member checking procedure. I further applied methodological triangulation until there is no longer any new data or themes emerging.

Ethical Research

Research ethics and professional codes of conduct are critical concerns for researchers undertaking a qualitative study, especially studies with human subjects (Shaw

et al., 2019). Ethical research practices require obtaining agreement from participants before beginning a study. The IRB process takes research ethics and the exploitation of study participants seriously. The primary objective of the IRB process is to safeguard the well-being of individuals participating in research studies by upholding three fundamental ethical principles: respect for autonomy, beneficence, and justice (Shore, 2009). Therefore, I received approval from Walden University's IRB through the IRB application process (04-20-23-0437734), and I also obtained Collaboration Institutional Training Initiatives (CITI) certification offering training on ethics on human subjects.

Yin (2018) described the relevance for researchers to acquire from participants' informed consent form, which includes the nature of the study, expectations of participants, possible risks and benefits, and finally, researchers' contact information. I used WhatsApp communication to all participants with an attached informed consent form that went participants. It is the responsibility of the researchers to brief participants on their rights and tell them of their ability to decline further participation in a research study (Surmiak, 2018). I did not use any form of coercion towards the participants, and they were free to withdraw from the study at any moment. I ensured participants were aware that they can use a text message, phone call, use an email or an in-person approach to communicate their withdrawal at any time. Part of conducting research in an ethical manner is ensuring the privacy of research participants and their information (Dixon & Quirke, 2018). Researchers have the responsibility of selecting, maintaining, and preserving data in order to protect data confidentiality, encrypt confidential material, and enable confirmation of analyses (Perrier & Barnes, 2018). I protected participants'

identities by simply referring to participants as Participant 1, Participant 2, and so on, and will keep data in a safe and secure place for 5 years. To avoid ethical and legal issues, confidential analysis records will be password encrypted. Files will be removed, and the hard disk destroyed after 5 years.

Data Collection Instruments

I was the primary data collection instrument for this qualitative multiple case research. The primary role of the researcher includes data collection and recording (McGannon et al., 2019). The semi structured interview is the most prevalent form of instrument used for the collecting of qualitative data (Bearman, 2019). I collected data using semistructured, open-ended, and informal interviews along with any available archive documents. According to Dent 2019, the researcher's appropriate data collection selection method has an effect on the entire data analysis in a study. I ensured that I establish a cordial and respectful relationship with participants that enabled them to participate willingly and freely throughout this process of data collecting.

I used member checking to make sure the information is reliable. I had a clearer picture of the information the participants submit by member-checking. I compared the data collected before and after the interviews using member checking to ensure that the data is reliable. Member checking lowers the likelihood of participant bias, responder bias, and reactivity, which improves the validity of qualitative data (Candela, 2019). I employed methodological triangulation. The use of triangulation, or the collection of data from a variety of sources to better understand a phenomenon, is an effective method for ensuring accurate and thorough information (Ashour, 2018). Using triangulation in this

research was to address the research reliability. The use of methodological triangulation helps verify results, gather more comprehensive data, increase validity, and get a deeper understanding of the topic being studied (Santos et al., 2020).

Data Collection Technique

This qualitative multiple case research will use semistructured interviews with open-ended questions as its primary method of data collection. Semistructured interviews provide participants the freedom to express themselves freely and can produce precise, comparative, in-depth qualitative data (Wilton et al., 2020). The advantage of data collection technique using semistructured is that it empowers the participant to speak freely. In conducting qualitative research, researchers can utilize telephone interviews as an alternative to face-to-face interviews for individuals and groups (Namey et al., 2019). However, the disadvantage of using semistructured interviews for most researchers is the inability for the interviewer to ask effective follow up questions (Meerts, 2019). For this project, I met with participants in person for semistructured interviews at a mutually convenient time and place. Archibald et al., 2019 points out that, in effect, to conform to health and safety restrictions, researchers and participants could use telephone communication for data collection. In qualitative research, interviews are a common method for collecting data, although they can be time-consuming.

The qualitative research methodology presents both opportunities and limitations. Using a semistructured interview, the researcher can collect voluminous and detailed data (Bearman, 2019). A researcher must prepare, plan, listen carefully, record the interview, and take notes to conduct qualitative interviews (Castillo-Montoya, 2016). I employed an

interview protocol (See Appendix A) consisting of semistructured interview questions followed by in-depth questions. I utilized member checking to follow up with participants who reviewed my interpretation and summaries of their replies to add rigor and credibility to my research and to guarantee that the study accurately reflects the participants' actual viewpoints.

In qualitative research, data gathering through interviews can be time-consuming, as it involves recruiting suitable participants, planning and executing the interview, and a laborious transcription procedure for significant volumes of recorded data (Doody & Noonan, 2013). According to Yin (2012), conducting interviews can take more time, can be more expensive, and can result in a large amount of data that can be challenging to manage and interpret. Member checking, or participant feedback, has become so extensively and regularly advocated as a validity or reliability check that it almost appears to be a need for quality qualitative research (Motulsky, 2021). I utilized member checking to follow up with participants who will review my interpretation and summaries of their replies to add rigor and credibility to my research and to guarantee that the study accurately reflects the participants' actual viewpoints. I started with a brief introduction and research overview, clearly stating the purpose of the study and the time duration. After confirming the participant's consent, I proceeded with recording the interviews.

Researchers read and act on a document. Document analysis is a technique used by researchers to systematically examine a document in order to learn everything they can about it (Cardno, 2018). The usage of triangulation is a method that can be implemented to improve the reliability and validity of a study's findings (Noble & Heale,

2019). I employed methodical triangulation by conducting document review by aggregating data from government papers such as leadership briefings, global agricultural development agencies, websites, news articles, and reports made public. When organizing data for analysis, researchers should make use of a system that allows for quick retrieval, and they should be prepared to modify pre-defined categories while they are in the process of doing the analysis, if necessary (Cox, 2018). In addressing retrieval of data for this research, I sorted out the alphabetical codes for each participant, and public documents that are stored in both digital and physical files.

Data Organization Technique

Yin (2018) stated that researchers' use of organizational data techniques such as interview guide or protocol allows the researcher to demonstrate consistency and orderly data collection process, analysis, and storage. The research process relies heavily on well-organized data. I used a personal computer, storage component, namely, a thumb drive, and an external hard drive to store and safeguard the data collected. The safeguarding process included password protection on all devices used for storing data. I encoded participants' information by assigning a code to each participant. NVivo is a collection of qualitative software that is utilized for the analysis of unstructured text, audio, video, and image files. These types of files include things like interviews, focus groups, polls, social media, and journal articles (Maher et al., 2018). I used NVivo to organize the analysis of data that was collected. I built an electronic folder on a computer system and then upload the interviews conducted with a computer and a portable audio recorder. For each participant, I created a folder and electronically add the audio file, the transcript, and any

scanned interview notes. I safely stored all raw data for 5 years in a locked and secure place. Then, I converted all additional electronic documents, including email correspondence and the electronically signed consent form, into Portable Document Format (PDF).

Data Analysis

Researchers utilize data analysis to organize, evaluate, and analyze all data gathered during the collection phase (Yin, 2018). Triangulation is a strategy used to strengthen the reliability and validity of a study's results (Noble & Heale, 2019). I ensured the trustworthiness, credibility, and reliability of the data acquired by employing methodological triangulation and member checking. There are four different types of triangulation: (a) data triangulation, which takes into account time, place, and people; (b) investigator triangulation, which makes use of multiple researchers in a study; (c) theory triangulation, which promotes the use of various theoretical frameworks to enable an analysis of a phenomenon; and (d) methodological triangulation, which promotes the use of various data collection techniques like interviews and observations (Noble & Heale, 2019). Methodological triangulation is best suited for this qualitative research.

During data analysis, a researcher looks for patterns within the data, then they interpret the patterns that they find and interpret the significance of the patterns that were found (Bernard et al., 2016). Analyzing qualitative research data can be done in one of two ways. Deductive and inductive research compare categories between studies (O'Kane et al., 2021). I applied thematic analysis. Thematic analysis is a tool utilized by qualitative researchers with the purpose of discovering, describing, and reporting on

overarching themes or concepts within a dataset (Ben-Hador et al., 2020; Lehmann et al., 2019). I conducted an analysis of the data acquired from interviews by reading, rereading, and reflecting on the data collected in order to get a better understanding of the overarching themes that emerged from the transcripts.

Qualitative data analysis demands precision. Qualitative data analysis software includes transcription analysis, coding and text interpretation, recursive abstraction, content and discourse analysis, and grounded theory approach (Cypress, 2019). Throughout the process of completing the data analysis, I transcribed each interview and any field notes into a Microsoft Word document and then imported them into NVivo.

I used the five-step methodology outlined by Yin (2018) in order to perform the data analysis for this project. The steps of compiling, disassembling, reassembling, interpreting the meaning, and concluding with the data are included in Yin's analysis method. As a data analyst in the private sector for over 7 years. I used the techniques and skills acquired over the years to analyze the research data by using M.S. Excel and NVivo 12 qualitative data analysis software. After analyzing the data, I classified the identified concepts, themes, phrases, and terms in accordance with the findings of the literature review. Academics and professionals utilize NVivo to analyze qualitative and mixed-methods data. The program makes labor more efficient, saves time, and rigorously backs up results with proof. The software can import data from text, audio, video, emails, photos, spreadsheets, online surveys, social media, and more (Cypress, 2019). After reassembling the data, I conducted a theme analysis in order to acquire a more in-depth comprehension of the methods that are utilized by small farm owners in Sierra Leone to

increase the profitability of their businesses. After finishing the data interpretation for my research, I moved on to doing the data analysis.

I identified the most important themes recurring motifs. The theory written by Schumpeter in 1934 explains that an entrepreneur could earn economic profits by introducing innovations. Nieuwenhuizen (2022) stated that to innovate is to accomplish something differently from before. Innovation strategies utilized by entrepreneurs result in the flow of income. The final stage of the data analysis was the formation of conclusions, which I did after finishing the interpretation of the data. Yin (2018) describes how analytical software such as NVivo locates textual data, themes, and patterns within the data. I used NVivo to identify data themes and create themes and subthemes for data analysis. Based on the conceptual framework, the analysis and conclusions reflect the themes identified from the interviews and the literature review.

Reliability and Validity

One of the critical roles of a researcher is to establish the reliability and validity of their research findings. Reliability and validity in qualitative research, promote transparency and reduce potential for researcher bias (Singh, 2014). Noble and Smith (2015), emphasized that reliability is a critical parameter for determining the quality and dependability of research findings. Validity is predicated on the reliability, trustworthiness, dependability, and transferability of the study's findings. Researchers establish their credibility through observation, member verification, and triangulation (Johnson et al., 2020). Reliability and validity are also used to increase transparency and decrease bias in the research procedure (Mackieson et al., 2019). Yin (2018) stated that

the elements in establishing the reliability and validity of a qualitative case study are as follows: dependability, credibility, confirmability, and transferability. I ensured this research's reliability, and validity process is a must through triangulation, self-reflectivity, and member checking.

Reliability

The reliability of a quantitative study is a typical quality control measure. In quantitative research, reliability means another researcher can replicate the study (Leung, 2015). A researcher has a critical role in establishing the research's reliability and validity. The researchers establish a study's reliability if the results are dependable, consistent, and replicable (Yin, 2018). In quantitative research, reliability refers to exact replicability of the processes and the results (Leung, 2015). Reliability can be defined as the extent to which measurements can be repeated – that is, when the measurements are carried out by different people on different occasions, in different locations, and under different environmental conditions, using ostensibly alternative instruments that measure the same thing (Drost, 2011). To prevent inaccuracies in research, Sabar and Ben-Yehoshua (2017) pointed out that researchers should standardize the methodology for data collection and validation techniques. I checked the accuracy of the interview responses by using member checking, and I standardized the method for data collection and validation.

Qualitative researchers improve study dependability by conducting member checks and reviewing transcripts for interview data, and they employ interview techniques to ensure data reproducibility (Langtree et al., 2019). The protection of the

correctness of the interpretations and the facts is the primary objective of dependability (McGinley et al. 2021). Member checking was used to address dependability. Following receipt of approval from the IRB, I carried out the interviews in accordance with a predetermined plan. Participants are given the opportunity to review my interpretation during the member checking that takes place after the interviews and to submit any adjustments that they feel are necessary. In instances where participants are unavailable for follow-up member verification, I used transcript review to ensure that I had accurately recorded the participant's interview.

Validity

Validity means being well-grounded. reasonable, relevant, significant, logical, following accepted principles, or sound, just, and well-founded (Cypress, 2017). Validity in qualitative research is the degree to which the outcomes of a qualitative study correspond to the research question. The validity of the research question is supported by data, instruments, and procedures, and the approach chosen is appropriate for the desired conclusion (Leung, 2015). A researcher must establish the validity of their research. Noble and Smith (2015) describes the purpose of validity in a qualitative research study as the required effort by the researcher to minimize errors and establish integrity, truthfulness, and accuracy. Validity in a research study is the measure that addresses quality. The significance of the research components lies at the heart of validating the findings (Drost, 2011). A researcher must ensure credibility, conformability, and the collected data should be transferable (Yin, 2018). I established the validity of my research and findings.

Yin (2018) stated that research credibility holds to the accuracy of the researcher's procedure throughout the research process. I ensured credibility in this research by conducting member checking and data triangulation. Confirmability is a process by which other researchers can validate the result of a study. The researcher should demonstrate that the data collected from the participant connects with the research findings (Kiln & Ihantola, 2015). To establish confirmability, I ensured member checking.

Transferability is the process of applying a study discovery to the research environment and scenario. Transferability can be improved using triangulation and purposive sampling (Yin, 2018). Purposive sampling and triangulation ensure my study's transferability. Data saturation in a qualitative study refers to the point in research where no new information is attainable. I ensured that the findings of the study may be transferred by translating detailed and extensive explanations of the findings of the study, which may be of assistance to the farming community in the region.

There is a connection between confirmability and reliability. When it comes to the study data, verifying confirmability is possible when they are unbiased and objective (Abdalla et al., 2018). Confirmability, or the ability to independently verify results, is essential to the reliability of scientific research; I achieved this using member checks. I also utilized data triangulation and ensure member checking as a strategy to reach data saturation. To further address data saturation, I ensured the credibility of this study through member verification and data triangulation.

Transition and Summary

Section 2 contains the purpose statement, an explanation of the role I play as a researcher, a description of the participants, research method and design, population and sampling method, details on ethical research, data collection instrument and techniques, data analysis, reliability, and validity. Section 3 shows, the findings from this research and their application to professional practice, implication for social change, recommendations for, additional research, reflections, and conclusion.

Section 3: Application of Professional Practice and Implications for Change

In this section, I provide an overview of the study and present the strategies some smallholders use for improving small farm profitability in Sierra Leone. I use examples from the research participants to connect the study findings to the conceptual framework regarding innovation. The section also includes discussion of applications to professional practice, social change implications, suggestions for future research and action, reflections, and a summary and study conclusion.

Introduction

The purpose of this qualitative multiple case study was to explore the strategies some small farm owners in Sierra Leone use to improve business profitability. The conceptual framework for this study was Schumpeter's (1934) innovation theory of profit. Schumpeter (1934) explained that an entrepreneur could earn economic profits by introducing innovations. The data came from smallholder farmers who are natives of Sierra Leone selected from different regions in the country and who have had profitable farm businesses for 5 years. I used methodical triangulation in conjunction with thematic analysis to identify themes.

I identified four themes based on participant responses to interview questions, organizational documentation, and thematic analysis: (a) diversification of crops and livestock, (b) cost management and efficiency, (c) value addition and processing, and (d) education and knowledge acquisition. These findings are linked to the innovation theory

of profit, which provide a comprehensive understanding of the strategies small farmers apply to improve business profitability.

Presentation of the Findings

The underlying research question for this qualitative multiple case study was: What strategies do some small farmers in Sierra Leone use to improve business profitability? I conducted face-to-face, semistructured interviews with eight smallholders in four different regions in Sierra Leone for data collection using open-ended questions. I coded my participants as P1, P2, to P8 for confidentiality purposes. In addition to the semistructured interviews, I conducted document review by aggregating data from government papers to include leadership briefings, global agricultural development agencies, websites, news articles, and reports made public.

The findings from the interviews align with well-established principles and theories in the field of agricultural economics and smallholder farming. These findings shed light on the distinctive obstacles encountered by these farmers and provide a compelling insight into the actualities of rural agriculture in Sierra Leone. The four themes that emerged from the thematic analysis of participants' responses to the interview questions and document review were: crop and livestock diversification, cost management and efficiency, value addition and processing, and knowledge acquisition.

Theme 1: Diversification of Crops or Livestock

The first theme that emerged during the thematic analysis was diversification of crops or livestock; all the participants emphasized the importance of diversifying their agricultural activities. This involves cultivating or raising multiple crops or livestock

products throughout the year, rather than relying on a single product, or redirecting strategic farm assets. P3 pointed out that she uses different products in the farming operation to maximize profit. P5 said, “I decided to invest in machinery, providing machinery service to other farms.” The mixed farming system plays a crucial role in supporting the livelihoods of numerous smallholder farmers in the Sub-Saharan region (Gebremariam & Belay, 2023). Crop–livestock diversification is the method that increases the number of varieties and scale of cultivation of these crops and livestock within the overall framework of a mixed farming system. It is also referred to as crop–livestock integration (Danso-Abbeam et al., 2021). In agricultural systems, crop–livestock diversification increases crop and livestock variety and growth.

All the study's participants agreed that a diversified portfolio is the best way to deal with uncertainty, maximize returns on fixed assets, and adapt to ever-changing consumer preferences. P2 emphasized, “I plant cassava, maize, peas, and other vegetables through the year to maximize profit.” In addition to her primary crops. Through the implementation of crop diversification, the individual effectively mitigates the potential negative impact of crop failure, while concurrently establishing a consistent and uninterrupted stream of revenue over the course of the year. The use of this strategy holds significant value within the context of Sierra Leone. The unpredictability of climate change is becoming increasingly evident, particularly in its impact on agricultural production in Sub-Saharan Africa (Omotoso et al., 2023).

P3 described engagement in the cultivation of vegetables, “I plant different crops all year round. For example, the Gari, a product derived from processing cassava, sells at

higher price than rice." In addition, P3 mentioned that the practice of poultry farming and the management of small livestock are diverse activities that help maximize profit. By adopting a diversified approach in agricultural practices, including year-round cultivation of crops, processing specific farm products, and strategically marketing during periods of high demand, the individual successfully reduces reliance on a single income source. The European Union has allocated funds to support initiatives aimed at enhancing livestock and crop diversification in Sierra Leone (European Union Funds, 2019). This ensures a steady flow of financial resources. Profitable cash crops can help farmers surmount capital constraints on the acquisition of capital-intensive assets and inputs. These funds can then be used to expand production of both cash crops and food crops (Saravia-Matus et al., 2021). The implementation of diverse agricultural practices, such as cultivating multiple crops or raising various livestock products throughout the year, can serve as a viable strategy for farmers to mitigate capital limitations and enhance food crop production.

Participant 4's primary objective is to cultivate various varieties of crops with the aim of optimizing their overall yield. Through the implementation of crop diversification strategies, P4 effectively reduces the potential risks associated with crop failures. Furthermore, P4 emphasized the significance of diversification in improving their capacity to efficiently reduce post-harvest losses, consequently resulting in increased profitability. P5 engage in rice processing as her primary income source but also explores other opportunities for income generation. By processing rice, she adds value to her

product, increasing its profitability. She collaborates with local market traders and offers loans for selling and repaying, contributing to her income diversification strategy.

P6 runs a poultry farm that includes 5,000 hens. While poultry is the primary focus, he also generates income by selling hens, eggs, and feces. This diversified approach allows him to maximize profit from various aspects of his poultry business. The poultry industry is increasingly emerging as a crucial contributor to national economies due to its ability to generate income and promote agricultural diversification (Nwobodo et al., 2023). P6 exemplifies the strategy of mitigating risk through diversification, optimizing revenue generation, guaranteeing food security, and effectively managing agricultural endeavors. P7 relies on various income-generating activities. He combines farming with fishing, demonstrating diversification not only within agriculture but also across sectors. Income from fishing complements his agricultural earnings and provides an additional safety net. Participants in the research utilize diversification as a fundamental profitability strategy in various ways. Diversification is a key component of their efforts to improve their livelihoods and contribute to sustainable rural development in Sierra Leone.

Relationship Between Findings and Conceptual Framework

The innovation theory of profit is the theory and conceptual framework underlying this study. According to Schumpeter's (1934) theory, entrepreneurs have the ability to generate economic profits through the introduction of innovations. The theory underscores profit as an incentive for innovation. Schumpeter defined an entrepreneur as a person who innovates in spite of social opposition and cited invention, foresight, and

creativity as crucial elements of entrepreneurial success. Schumpeterian entrepreneurship comprises farmers who engage in the exploration and implementation of diversification strategies. These farmers can be regarded as entrepreneurial actors, actively embracing change and innovation to enhance their economic outcomes. Schumpeter emphasized the role of entrepreneurial activities in propelling economic advancement and generating profits.

The process of diversifying crops or livestock frequently and entails the adoption of innovative farming practices, the introduction of novel crop varieties, or the integration of technological advancements. These technological advancements have the potential to enhance agricultural productivity, mitigate potential hazards, and optimize profits for farmers**.** The process of diversifying crops or livestock frequently entails the adoption of innovative farming practices, the introduction of novel crop varieties, or the integration of technological advancements. These technological advancements have the potential to enhance agricultural productivity, mitigate potential hazards, and optimize profits for farmers. P1 for instance, exemplifies Schumpeter's (1934) theory by initiating a partnership-based approach to smallholder farming. By providing fellow smallholders with high-yielding seeds, machinery services, and agronomic training, P1 not only increased his own productivity but also catalyzed innovation within his community. P1 partnered with smallholders as cultivating partner, providing high yielding seeds at zero interest rates. This collaborative spirit fosters knowledge-sharing, which aligns with Schumpeter's view that innovation arises from the exchange of ideas and the application of new techniques.

P2 reinforces Schumpeter's (1934) theory through her journey of resilience and diversification. In response to the scarcity of quality seeds, P2 persisted and gradually increased her yields, showcasing her adaptability and commitment to innovation. P2 diversification into various crops reflects the entrepreneurial spirit emphasized in Schumpeter's theory. By exploring multiple products, she seeks to maximize profit, demonstrating that innovation can emerge from diversified farming practices. P3 embodies Schumpeter's theory by tackling both production and marketing challenges with innovative solutions. P3's emphasis on time management, the use of low-cost transportation, and sensitive retail marketing timing illustrates the ability to adapt to resource constraints and market dynamics. This resourcefulness aligns with Schumpeter's notion that innovation often arises from creative problem-solving in the face of constraints.

P4 showcases innovation in farm management, addressing the high cost of tools and equipment. P4's emphasis on group farm programs, the substitution of costly tools, and early harvesting for seed processing demonstrates an entrepreneurial spirit aimed at cost minimization and improved productivity. P4 said, “I helped other farmers learn how to use low-cost tools in the place of expensive machinery.” These actions resonate with Schumpeter's (1934) theory, which highlights the role of cost-saving innovations in driving profit. In each case, the smallholder farmers in Sierra Leone exhibit behaviors and strategies that align with Schumpeter's innovation theory of profit. They engage in partnerships, diversify their products, creatively solve problems, and seek cost-saving

innovations, all with the overarching goal of enhancing profitability in the agricultural sector.

Farmers who engage in the exploration and implementation of diversification strategies can be regarded as entrepreneurial actors, actively embracing change and innovation in order to enhance their economic outcomes. These farmers' actions are in accordance with Schumpeter's (1934) emphasis on the role of entrepreneurial activities in propelling economic advancement and generating profits.

Theme 2: Cost Management and Efficiency

The second theme that emerged during the thematic analysis was cost management and efficiency. Participants frequently use various strategies to effectively manage and mitigate production costs. This entails the exploration of economically viable substitutes for tools, machinery, and inputs, alongside the implementation of effective strategies in relation to time management, transportation, and resource allocation. Farmers select innovative solutions that demonstrate a favorable ratio of benefits to costs, as well as overall positive gains and minimal levels of risk. Other desirable characteristics include a low level of risk and overall positive benefits (Akinseye et al., 2023). Effective cost management is a critical factor in enhancing profitability.

One of the key elements contributing to the profitability strategies of P1 as a smallholder farmer, is the implementation of a rice processing operation. Additionally, the effective exploitation of resources plays a vital role in enhancing P1's profitability. P1 said, "I substitute local resources to reduce the cost of foreign resources." To manage costs effectively, he seeks to reduce fuel costs by using local resources for energy

production. Energy is one of the most important factors driving efforts to promote efficiency of agriculture (Hercher-Pasteur et al., 2021). By using local materials for energy, he can significantly lower his operational expenses, making rice processing more cost-efficient. P3 emphasizes time management in farming operations. Effective time management ensures that labor hours are used efficiently, reducing labor costs. Additionally, P3 uses local materials like compost instead of expensive foreign chemicals, which helps in cost reduction without compromising productivity. An integrated farming system is characterized by the incorporation and reutilization of many on-farm components, facilitating diverse forms of profitability (Garrett et al., 2020). The use of local materials, such as organic matter, in lieu of expensive foreign chemicals, offers a cost-effective approach that does not compromise profitability.

P4 discussed the difficulties associated with the exorbitant expenses of indigenous tools and seeds. To manage costs effectively, P4 focuses on making timely decisions to purchase fresh chicks as the laying period of the current batch declines. By ensuring efficient replacement of livestock, P4 maximizes the poultry business return on investment (ROI). Innovative solutions are required to address wide-ranging issues at their root source (Garrett et al., 2020). Participants manage production costs and resource implementation to increase profitability. P5 said, “I adjust the selling price of my rice to be lower than the cheap foreign rice sold in the market.” In response to the competitive pressures posed by the influx of low-cost imported rice, the farmer strategically modifies pricing strategies. The implementation of effective market timing strategies enables her to sustain the competitiveness of her products while simultaneously preserving profit

margins. Pricing strategy is crucial to any organization. Prices are crucial to a company's revenue—if controlled well, they can yield large profits and cash (Pajic, 2018). P5 demonstrated that pricing strategies are essential for profitability.

P6 engages in collaborative efforts with other enterprises to enhance the efficiency of raw material use and mitigate expenditure. P6 describe how interacting with motorcycle taxis (MTC) commonly called “Okada” enables him to gain access to resources that may be financially impossible for small-scale farmers. MTCs have transformed urban Sub-Saharan Africa mobility and access by providing rapid, door-to-door transport, supporting livelihood activities, and facilitating access to essential services like health, markets, and education (Peters et al., 2022). P7 in the absence of electricity, uses local resources, such as locally made barbecue grills, to maintain the necessary temperature for bird growth. Additionally, the participant uses sugar or glucose as an energy-boosting substance. This creative strategy reduces energy costs while ensuring the health and well-being of his chickens. Context-gathering strategies development and widespread implementation support specific knowledge as an alternative design tool (Montero Botey et al., 2022). Such developments demonstrate a dedication to resource and cost management.

Relationship Between Findings and Conceptual Framework

Schumpeter's (1934) innovation theory of profit, which emphasizes the role of innovation in generating profit, can also be applied to analyze how each participant in this study demonstrated cost management and efficiency in their smallholder farming practices. Schumpeter emphasized that entrepreneurs, driven by the pursuit of financial

gain, are incentivized to discover and implement more effective methods of conducting business operations. The pursuit of profit through differentiation and improved operational effectiveness is exemplified by the advancements in cost management and efficiency within entrepreneurship.

P1's approach to cost management and efficiency is evident through his partnership strategy. By collaborating with other smallholders, P1 reduces individual production costs by sharing machinery services and resources. This efficient use of resources aligns with Schumpeter's (1934) view that innovation can result from optimizing the utilization of existing assets. P2's entry into smallholder farming and steady rise in yields show a dedication to cost control. P2 demonstrates the effective use of resources, a crucial component of Schumpeter's theory, by persevering in improving her harvests and achieving higher productivity without incurring significant additional costs.

The emphasis placed by P3 on effective time management and the utilization of affordable transportation options, such as establishing partnerships with local motorcycle taxi (Okada) riders, demonstrates a strong commitment to achieving cost efficiency. These measures align with Schumpeter's (1934) theoretical framework, which posits that the implementation of innovative strategies can effectively reduce costs and enhance profitability. P4's approach to cost management and efficiency is highlighted through the substitution of expensive tools with low-cost alternatives and early harvesting for seed processing. These strategies demonstrate a commitment to reducing production costs and

improving efficiency, aligning with Schumpeter's theory that cost-saving innovations contribute to profit.

Theme 3: Value Addition and Processing

The third theme that emerged during the thematic analysis was value addition and processing. According to the Ministry of Agriculture, Forestry and Food Security (MAFFS) publication on National Agriculture Development Plan 2010-2030, there is a lack of significant value addition in agriculture in Sierra Leone. Average post-harvest losses for perishable fish and crops like vegetables, fruits, cassava, and sweet potato are estimated at 40% or higher. Perishables can be damaged due to improper handling, transportation, storage, and processing facilities. Participants employed and demonstrated value addition and processing strategies to enhance the value of raw agricultural products through various techniques, methods, and practices. The participants pointed out how expanding their product range through processing reduced dependency on single crop and mitigate risks associated with price fluctuation and crop failures. Agriculture in Africa is vulnerable to climate change (Mapanji et al., 2023). Climatic conditions have the potential to induce alterations in various aspects of the market, including the supply chain, availability, diversity, price, and purchasing capacity of consumers (Islam et al., 2023). Participants adjusted their strategies based on the market demand and innovated to overcome specific challenges.

P2 said, “when I harvest my cassava, depending on the market conditions, I process cassava to gari [a granular product made from cassava]. I can store easily and sell at a higher price.” P2 increased profitability by selling processed cassava products; and

achieved higher profit margins compared to selling raw cassava roots at a lower market price. Cassava processing for gari and fufu is pursued as a means of livelihood, particularly in the southern regions. There is a preference for cultivating cassava varieties that fulfill the necessary processing criteria (Sesay et al., 2023). P6 said, “I sell feces from my poultry to organic gardeners, and this increase my profit.” P6 pointed out that as demand increases for poultry feces as organic fertilizer for gardeners, P6 used a diversified revenue stream and reduced waste by creating a new stream of income based on the demand for poultry feces.

P8 said, “when the market is flooded with fish in the city, I process my harvest by smoking the fish and selling them in low supply areas around the country, looking for high demand areas.” P8 employed fish processing techniques such as smoking and drying to preserve and enhance the value of his fish products. The costs of transportation, lack of logistical infrastructure (storage and warehousing facilities), and the current environment for commercial agriculture appear to be barriers (MAFFS, 2009). P8 asserted that processed fish products possess superior suitability for transportation and exhibit an extended shelf life, thereby facilitating access to wider markets. The participants employed value addition and processing techniques to increase profitability, reduce waste and post-harvest losses, and diversify their product offerings. These strategies allowed them to tap into new markets and command higher prices for their processed goods.

Relationship Between Findings and Conceptual Framework

Value addition generally refers to the process of developing novel products or improving existing ones in order to better fulfill the requirements of customers.

Schumpeter's (1934) innovation theory of profit, with its focus on innovation as a driver of economic success, is highly relevant when analyzing how each participant in this study supported value addition and processing within Sierra Leone's smallholder farming context. The implementation of innovative strategies in product development has the potential to lead to higher pricing and improved profit margins.

P1 emphasized partnership and collaboration as an initiative to value addition. P1 enhances the efficiency of crop processing by collaborating with fellow smallholders and offering machinery services for land preparation. The cooperative approach described herein is consistent with Schumpeter's (1934) theory, as collaborative innovation has the potential to generate additional value within the production process. The trajectory of P2's gradually rising yields points to a focus on value addition via improved crop production. As P2 harvests increase, the standard of living they experience increase and this also helps community's processing and value-added businesses. The potential for innovation to boost productivity and value creation is highlighted by Schumpeter's theory.

P6's business model of poultry farming and value addition through the sale of hens, eggs, and feces is a prime example of innovation for value addition. This approach not only generates revenue but also minimizes waste, contributing to a more sustainable and profitable farming operation. Schumpeter's (1934) theory emphasizes how innovative business models can lead to increased profitability. With a background in fishing, P8 illustrates the significance of value addition and processing within the context of agriculture. Through fish processing and smoking, P8 adds value to the raw catch,

thereby increasing the products' market value. Schumpeter's theory acknowledges the importance of processing and value addition as profit-driving forms of innovation.

Theme 4: Education and Knowledge Acquisition

The fourth theme that emerged during the thematic analysis was education and knowledge acquisition. Participants emphasized the importance of education and knowledge acquisition in improving their farming practices, and the participants used education and knowledge acquisition to enhance their agricultural businesses. Building capacity, adaptation practices, desire to increase productivity and increase income are primarily driven by farmers ambition, social networks, and local information, farmer training courses, and more (Quarshie et al., 2023). Education and knowledge acquisition plays a critical role in enhancing agricultural productivity, sustainability, and profitability.

P1 stated, “I continuously engage in self-training using social media, participate in extension training opportunities and business relationship training or mentorship as a means to improve my farm practices.” P1 emphasized commitment to self-education, and demonstrated how self-driven learning improves farming practices, increases productivity, and helps overcome challenges. The extension system once relied solely on government staff, but after the war, NGOs expanded their involvement from seed and implement distribution to on-farm activities. The Farmer Field Schools (FFS) and Agricultural Business Centres (ABCs) are initiatives to strengthen Farmer Based Organizations at the village level (MAFFS, 2009). P2 points out that engagement with local community extension training, emphasizing the support from NGOs provided

valuable insights and knowledge on improved farming practices. P2 stated, “I attend training opportunities provided by NGOs – called farming extension training and use these training to improve my farming knowledge to make profit.” In Sierra Leone, the agricultural extension agents play a vital role (Philip et al., 2022). The participant mentioned receiving training and support from NGOs contributes significantly to her knowledge and skills that help increase profitability through networking.

P6 emphasized self-education and mentorship in his poultry farming venture. P6 also engaged in self-training in various aspects of poultry farming, such as feed formulation and farm management. P6 also sought mentorship from more experienced individuals, indicating a willingness to learn from those with expertise in the field. P6 said, “I became a student to a visiting professor from Europe who taught me a lot of techniques in poultry business.” Peer effects can affect innovation diffusion in hands-on learning (Amadu, 2023). P6 demonstrates mentorship provides a valuable platform for knowledge transfer and practical guidance. P7 also describes mentorship as a hands-on approach to knowledge acquisition. P7 stated, “I was born in a fishing community, my parents were fishers.” P7 learned most of his techniques through mentorship.

Relationship Between Findings and Conceptual Framework

The theory and concept that grounds this study is the innovation theory of profit. The theory originated by Schumpeter (1934) posits that an entrepreneur could earn economic profits by introducing innovations. Schumpeter's innovation theory of profit can be used to examine how each participant in this study use education and knowledge acquisition in Sierra Leonean smallholder farming. Education is a highly valuable

capacity due to its significant role in fostering human development and enhancing individual capabilities (MacKenzie & Chiang, 2023). Education is crucial to human capital development. It gives people essential knowledge and skills. This phenomenon has the potential to foster creative cognition and enhance problem-solving skills, thereby empowering individuals to actively participate in entrepreneurial endeavors. Schumpeter acknowledged the significance of individuals who possess education and expertise in stimulating innovation. Individuals with a higher level of education are more inclined to generate innovative ideas and make significant contributions to economic advancement by means of entrepreneurial endeavors.

The findings from the interviews with smallholder farmers in Sierra Leone align with Schumpeter's (1934) innovation theory of profit. These farmers embody entrepreneurial behavior by introducing innovations in their farming practices, responding to market demands, and actively seeking knowledge and learning. Schumpeter's (1934) ideas remain relevant in agricultural entrepreneurship as these smallholders innovate to boost profitability and economic growth in their local agricultural sector.

Application to Professional Practice

The findings from this study are relevant in assisting other business leaders in agriculture or related industries to consider diversifying their crop or livestock portfolios. This could involve exploring new crop varieties, livestock breeds, or related products to reduce dependence on a single revenue stream. The implementation of diversification strategies can effectively reduce the potential risks that arise from market fluctuations,

adverse weather conditions, or the outbreak of diseases that specifically impact certain crops or livestock. One potential strategy that farmers may employ to mitigate risks and enhance the resilience of their businesses is the diversification of farming systems, which involves the incorporation of new sources of income derived from farming activities (Meuwissen et al., 2019; Benedek et al., 2021). Diversification lowers market, weather, and crop/livestock disease risks. It opens emerging markets and may boost profits.

The findings in this study illustrate cost management and efficiency strategies companies should implement that can lead to higher profit margins. This encompasses conducting routine cost analysis, identifying areas characterized by inefficiency, and implementing measures aimed at reducing costs. The findings derived from this study possess significance in assisting business executives in the agricultural sector or related industries to contemplate the practice of value addition. This approach has the potential to rationalize the implementation of elevated pricing structures, bolster the standing of a brand within the market, and cultivate deeper levels of customer allegiance. By strategically implementing these research findings, business leaders have the potential to enhance their decision-making processes, optimize operations, and ultimately address specific business problems more effectively. This can result in enhanced profitability and sustainability.

Implications for Social Change

The results of this study demonstrate that these findings have the potential to bring about positive changes in various areas, including individual empowerment and societal progress. By effectively implementing the identified strategies and fostering an

entrepreneurial mindset, individuals and organizations can collectively work towards achieving financial stability, sustainability, and an improved quality of life. Research findings can help business leaders create social change and problem-solving strategies (Siemieniako et al., 2021). The findings of this study carry significant implications that have the potential to catalyze beneficial social change and behaviors across various levels of society.

The study's findings can inspire individuals, governments, international organizations, and NGOs to address the challenges related to tools and equipment. Once relieved from the financial constraints and restricted access to indispensable agricultural machinery, small holders will have the capacity to enhance their productivity, mitigate post-harvest losses, and ultimately augment their financial gains. The presence of economic stability has the potential to engender enhanced living conditions, increased opportunities for education and healthcare, and diminished levels of poverty within rural communities.

The prioritization of agricultural education and training serves as a significant catalyst for promoting beneficial transformations. With a comprehensive understanding of contemporary agricultural techniques, these farmers possess the ability to not only enhance their crop production but also make a significant contribution towards ensuring food security in Sierra Leone. Smallholder farmers can break free from commodity dependence with better market access and diversification. They can protect themselves from market volatility and feed their communities a more varied and nutritious diet by

diversifying crops and products. This change may affect children and vulnerable populations' health.

The insights of this research are of greatest significance because they shed light on the important part that communities play in promoting entrepreneurship. The presence of entrepreneurship has a positive impact on local economies. Promoting the adoption of agriculture among young individuals constitutes a strategic investment in the long-term development of the nation. The results emphasize the necessity of enhancing the appeal and profitability of agriculture among the younger generation. When individuals perceive the prospects of achieving success and fostering innovation within the agricultural sector, they are inclined to remain in rural regions, revitalizing local communities, and stimulating economic expansion.

The results of these interviews with smallholder farmers in Sierra Leone are more than mere data points; they are the seeds of positive social change. With each smallholder farmer who gains access to tools, knowledge, and financial services, stakeholders move closer to a Sierra Leone where rural communities flourish, food security is guaranteed, and equitable economic growth is a reality. This positive social change will not only revolutionize agriculture but will also serve as a beacon of hope for a better future for all Sierra Leoneans.

Recommendations for Action

The findings in the research call on smallholders, educational institutions, governments, international organizations, NGOs, and businesses to empower smallholder farmers, enhance their profitability, and improve their overall well-being. These

initiatives would provide farmers with access to essential tools and machinery at affordable rates. To ensure broad dissemination and knowledge sharing, I will publish the finding in peer-reviewed agricultural journals, policy reports and briefs targeted at government agencies, policymakers, and agricultural organizations. I will disseminate these findings at agricultural conferences and seminars held at regional, national, and international levels. I will conduct structured training workshops targeting participants, smallholder farmers and local agricultural cooperatives using local community engagements, outreach initiatives, community dialogues, and awareness campaigns.

The research findings will be accessible through the Walden University ProQuest dissertation database, thereby facilitating the utilization of this study by future scholars and organizations. Small-scale farmers' unique needs should be addressed by agricultural education and training programs. This includes expanding government extension services, holding practical workshops on modern farming methods, and using digital platforms to share knowledge. Training programs must be accessible, relevant, and timed for the farming season.

Furthermore, government agencies, non-governmental organizations (NGOs), and agricultural institutions could establish partnerships to formulate and enhance education and training initiatives targeted towards smallholder farmers. Agricultural businesses and international agencies could utilize the research findings to establish innovation hubs or centers of excellence in significant agricultural regions. These hubs would serve as platforms for farmers to access valuable resources, information, and mentorship opportunities.

Recommendations for Further Research

The results of this study contribute to the existing literature in the field of strategies for improving small farm profitability. The study may serve as a valuable resource for future researchers in identifying areas of research that require further research, such as to evaluate the effects of governmental assistance programs and initiatives designed to facilitate farmers' acquisition of crucial agricultural equipment and machinery. Further researchers could investigate how different educational and knowledge-sharing platforms, including formal education, social media, and mentoring, can improve farming practices and profitability. This could help to determine where agricultural training and education gaps exist.

Future studies could aim to examine the various challenges encountered by smallholder farmers when marketing their products, particularly considering the competitive landscape posed by low-cost imported goods and examine novel marketing strategies that have demonstrated efficacy within the Sierra Leonean context. This will give government agencies and officials a view of the impact of infrastructure development, including road networks, electricity supply, and storage facilities, on the profitability of smallholder agriculture. In addition, future researchers could evaluate the effect of infrastructure improvements on transportation costs and product preservation.

Reflections

The experience of pursuing a Doctor of Business Administration (DBA) degree was occasionally tedious, yet ultimately proved to be an exceptional educational

endeavor. The experience also provided me with a deep comprehension of academia in various capacities, including as a student, an educated individual, and notably as a researcher. The pursuit of this objective was intertwined with my lofty professional and personal aspirations. I often encountered difficulties in effectively prioritizing and harmonizing the demands of my family, employment, ministry, and education during this endeavor. The attributes of persistence and effective time management played a crucial role in ensuring success throughout the entirety of the process.

I have a great deal of respect and admiration for the analytical skills and dedication required to plan, execute, and communicate reliable scholarly research. Researchers frequently hold personal biases, preconceived notions, and standards, which can influence the process of data collection and analysis. Nonetheless, I made a concerted effort to minimize my own biases and conducted my research without consulting any of my personal, social, or professional networks.

Moreover, the process of conducting this research has shed light on the significant prospects present within Sierra Leone's agricultural sector. Through a comprehensive analysis of key themes including crop and livestock diversification, cost management, value addition, and education, I have discovered the entrepreneurial spirit and resiliency that characterize the farming communities of the nation.

Conclusion

The findings of this study have the potential to contribute to the advancement of knowledge within the agricultural domain. In the context of Sierra Leone, located in Sub-Saharan Africa, smallholder farming encompasses four primary profitability strategies.

These strategies not only have the potential to enhance the economic status of individual farmers but also contribute significantly to the sustainable development of rural communities. The utilization of partnership approaches, diversification of crops, cost reduction through resource optimization, and effective marketing are powerful strategies that have the potential to generate favorable outcomes in the livelihoods of smallholder farmers and the geographical areas in which they reside.

Hence, it is essential for authorities, non-governmental organizations, and stakeholders involved in agricultural development to acknowledge the significance of these strategies aimed at enhancing profitability and allocate resources towards their promotion and execution. Through this approach, it is possible to cultivate an environment wherein small-scale agricultural practices not only serve as a means of nourishment but also contribute significantly to the economic well-being of rural areas and the promotion of sustainable development.

This study has merely begun to explore the transformative potential of the agricultural landscape in Sierra Leone. The insights provided have the potential to foster Sierra Leone's entrepreneurial spirit, which in turn can serve as a catalyst for a more promising and prosperous future for the entire nation.

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Appendix A: The Semi-structured Interview Protocol

Strategies for improving small farm profitability in Sierra Leone

Semi structural Interview Protocol

Introduction

The goal of this interview is to understand the practical perspectives about the issues and strategies smallholders utilize to improve small farm profitability in Sierra Leone. The data acquired from the interviews will provide valuable insights into the tactics smallholders employ to increase the profitability of small farms in Sierra Leone. Consequently, there are no correct or incorrect responses to the questions; rather, it is a matter of representing the interviewee's experience with the events as he or she perceives them.

The study method will involve Interviews that will be recorded with your consent. Only the researcher and his academic supervisors can view the tapes and transcribed text. Participants' data will be kept private. You can leave the research study at any moment without explanation. You can request removal or destruction of your data. You can ignore any question. If it doesn't affect the study's outcome, you can ask procedure questions. You can ask the researcher any questions about this information sheet.

Section 1. warm up questions

1. What are your responsibilities and functions inside your organization?
2. How long have you been a small farmer?

3. How would you define your work experience as a small farmer?

Farm practices and management

What are some challenges you face with tools that limit your profitability?

1. Production
2. Markets
3. Personal
4. Challenges
5. Steps to address barriers in archiving goals

What are the options available to you that have helped educate you on improved farming practices?

1. Production
2. Markets
3. Personal
4. Challenges
5. Steps to address barriers in archiving goals

What barriers do you encounter in using farming strategies to increase business profitability?

1. Production

2. Markets

3. Personal

4. Challenges

5. Steps to address barriers in archiving goals

Is there anything you would like to share about current traditional and customary farm practices and strategies that you believe will contribute to increasing profit?

1. Production

2. Markets

3. Personal

4. Challenges

5. Steps to address barriers in archiving goals