Value Chain Financing: A Survey of Micro/Small Holder Rice Farmers in Southeast, Nigeria

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Abstract

This study investigated the impact of value chain financing on rice production in the five South-Eastern States of Nigeria, with a focus on micro/smallholder rice farmers. It became imperative to examine this relationship since all the major government policies to boost rice production in Nigeria are yet to yield commensurate result. The study applied survey research, which involved the use of questionnaires to gather data from the respondents. Correlations between the transformed questions were determined using the Pearson Product Moment techniques. The research targeted micro/smallholder rice farmers scattered over 1000 hectares of rice farmland in the Southeast States of Abia, Anambra, Ebonyi, Enugu and Imo. Specifically, the rice farming zones of Abakiliki, Ikwo, Adada, Onuimo, Uboma, Igbariam, Anambra South, Bende and Isuikwuato were targeted. The main government registered Rice Farmers Association of Nigeria featured prominently in the research. The test of hypotheses with regression test on the final study revealed the following: that micro and smallholder rice farmers in the Southeast of Nigeria were not properly integrated into Value Chain Financing. It was also found that micro/smallholder rice farmers did perceive benefits derived from modern Value Chain Financing. Again, Governments had been doing much in the promotion of micro/smallholder rice farming value chain financing in the Southeast. Also, that Value Chain Financing constraints/challenges were not hinderances to the growth of micro and smallholder rice farmers in the Southeast. It was found that these farmers had not received adequate incentives from their existing value chains. It was disclosed as well that the farmers in the Southeast were not motivated to joining value chains. It was also revealed that farmers had not perceived trust and creditworthiness among members, including risk burden spread, as the main factors that drive a successful, modern Value Chain Financing. Considering the findings, the researchers suggested among others that since most of the farmers belong to Rice Farmers Association of Nigeria (RIFAN), the various state governments and the federal, through the Central Bank of Nigeria should directly or indirectly engage RIFAN, with a view to restructure the association using modern value chain financing instruments and expanding into some other cooperative farming anchor programmes. Again, since most farmers were First School Leaving Certificate and West African School Certificate holders, they should be encouraged to improve their education to appreciate more the technicalities of Value Chain Financing.

Keywords: Value Chain Financing, Rice Production, Survey Research, Regression Test, Southeast Nigeria

1.1 Introduction

As more than 80% of the Nigerian population live on farming and related activities, rice consumption has taken a vintage position, assuming over 90% of the staple food in Nigeria. About 12.2 million rice farmers are expected to substantially bridge the gap in Nigeria's demand. Fortunately, the Southeast region of Nigeria, comprising Abia, Anambra, Ebonyi, Enugu and Imo states, has abundant natural and low-lying wetlands, including inland valleys, for the cultivation of rice, expansion, and intensification of related agribusinesses.

Presently, Ebonyi State government, regarded as the rice hub of the region, targeted about 2.1million metric tons of rice in 2018. The government mapped out a total of 58,437 hectares of land for cultivation of rice the same year. Anambra state government launched about 80,000 metric tons modern rice mill at Omor in Ayamelum LGA. In Imo state the government is developing the Uboma rice settlement, covering about 127 hectares of land, with the aim of empowering micro/smallholder rice farmers. The rice settlement plan is also being extended to Onuimo and Arondizuogu rice farming axis. Abia state government is developing the Bende and Isuikwuato rice zones through interventionist strategies of establishing smallholder rice mills in targeted communities in the zone with the aim of producing Abia packaged rice (Eze, 2020).

Due to the high demand and huge importation of milled rice, its cultivation, milling, trading, transportation, as well as other agribusinesses have witnessed remarkable development over the last five decades in the Southeast and in Nigeria as a whole. Total milled rice in Nigeria has astronomically increased from 2.2 million metric tons in 1961 to more than 12.5 million metric tons in 2019 (Osabuohein, et al., 2018). Today, rice consumption is high in Nigeria and has a high market, but production is relatively insufficient. More than 644,000 metric tons of rice is imported into Nigeria annually from Thailand (Thai Rice Exporters Association, 2020). Research has shown that about 75% of rice production in the Southeast is by manual labour, and harvest is about 42.5% in the region (Osabuohein, et al, 2018).

Generally, rice import dependence is very high in the region and other regions of Nigeria. Micro and small-holder rice farmers can offer the recipe for a large-scale diversification of the Southeast rice value chain and financing. Value chain financing (VCF) is a way of financing value chain actors. Such a financing scheme provides credit and non-credit services to members, based on cooperation, in the value chain. The services build on the relationships in the chain. The seller, the buyer and financial agents work together, using the business relations in the chain as a carrier to provide financial services.

VCF is a growing approach worldwide aimed at increasing the productivity, income of micro/small producers and the economically active poor. It uses trust among members and an understanding of production, value added and marketing processes to determine the financing needs of actors in the chain and how best to provide financing to those involved (Miller et al., 2012). An efficient value chain financing (VCF) model enhances the establishment of a strong partnership and alliances which provide investment opportunities in the value chain. Through partnerships, the banks offer market linkages to farmers.

A Value Chain Financing model enhances the deployment of high technology which improves efficiency and convenience to access finance. It also enhances agencies and digital banking which bring financial services to farmers' doorsteps. VCF enhances customized loan

products that are relevant to farmers' needs (Equity Insurance, 2017). Generally, VCF is a financial inclusion which brings to the core the holistic approach to financing for desired impacts.

The Federal Government of Nigeria has created different financing schemes aimed at improving existing relationships among farmers' groups in the country. How far have these schemes proven a key element for success, in practical terms, to modern VCF in Nigeria? Hence, there is a need for paradigm shift from the orthodox approaches to boosting value chain financing (VCF) to modern practicable systems in the micro/small-holder rice subsector. The financial and supportive services to rice farmers in a value chain will be investigated in this study, using the Southeast of Nigeria as a case study.

1.2 Statement of Problem

In 2019, Nigeria was ranked the 14th largest consumer of rice in the world with China at the top of the chart. Nigeria was also reported to be the largest producer of rice (Paddy) in Africa with the production volume of 8 million metric tons (Reuters, 2020). Prior to the report, Nigerian governments at various levels have made frantic efforts to boost rice production: prominent among them is the Central Bank of Nigeria (CBN) Anchor Borrowers' Programme (ABP) launched by President Muhammadu Buhari on November 17, 2015. The programme is aimed at creating a link between anchor companies involved in processing and micro and small holder farmers (MSHFs) of the required key agricultural commodities. The thrust of ABP is provision of varieties of farm inputs and cash (for farm labour) to micro and small holder farmers to boost production of those basic commodities, stabilize input supplies to agro processors and address the country's negative balance of payments on food. Rice farmers seem to be the greatest beneficiaries of the ABP in Nigeria.

Another policy that seemed to stimulate rice production was also in 2015, when the CBN imposed a stringent policy of total ban in the foreign exchange payment for rice imports and backed the loans of at least 40 billion naira ($130 million) to assist micro and small holder farmers to boost output. In addition to that, the Nigerian government banned rice imports across land borders and kept high (70%) tariffs on imports coming through ports (Reuters, 2020). The Nigerian incentive-based risk sharing system for agricultural lending (NIRSAL), incorporated in 2013 by CBN, has been fixing agricultural value chains, including rice cultivation, so that banks can lend with confidence to the sector (The Guardian, 2015). According to the paper, CBN voted USD300 million to address banks' perception of high risks in agriculture, USD30 million to expand insurance products for agricultural lending, and USD60 million to provide technical assistance to enable banks sustain lending to the agricultural sector.

The value chain development programme (VCDP), established in 2015 in partnership with the Nigerian Government by IFAD, was aimed at assisting micro and smallholder cassava, and rice farmers through value chain financing approach. With this, the farmers' productivity would be enhanced; processing would improve; and marketing and food security would be ensured.

Despite these major government policies to boost rice production in Nigeria, a plethora of problems such as miscalculation of appropriate farming seasons for rice growing in the Southeast by the implementers of the policies, persistent attacks by pests, late arrival of farm inputs, inadequate supervision by CBN and NIRSAL officials, late release of loans by agent banks, etc. All these and more account for the failure of the policies. In addition, challenges such as poor infrastructure in the rural areas, increasing climate variability, rampant land

degradation and insecurity, over reliance on rain fed agriculture and low technology face small-holder rice farmers in the Southeast.

Research has shown that about 80% of rice production in Zambia, Rwanda, Zimbabwe, Kenya, and other countries in Sub Saharan Africa have been achieved using modern VCF approaches (Kwizera, 2017). In the above countries, VCF has acted as an enabler to mechanization of farming operations, has improved productivity and financial wellbeing of the farmers, has expanded production, and leading to a higher level of food security. VCF has helped value chain actors in these countries to address their needs and constraints, be it to obtain financing, to secure sales, procure products, reduce risk and/or improve efficiency.

This research is motivated by the fact that problems in accessing adequate, timely and better financial services to micro and smallholder rice farmers in Nigeria (Southeast inclusive) persist, and there is the need for a paradigm shift in thinking and practice to fill the existing gap in finance and make way for sustainability in financing rice production in Southeast Nigeria.

The questions that this research is set to answer are: To what extent are Southeast micro/smallholder rice farmers aware of VCF? What are the constraints/challenges of VCF of rice farming in this region? Is the government forthcoming in the promotion of rice value chain financing? Are the financial and nonfinancial need requirements of smallholder rice farmers being met by the existing value chains in the South-East region of Nigeria? What is the micro/smallholder rice farmer's perception of the benefits derivable from value chain participation? What could be the innermost contextual factors that motivate the success and sustainability of value chain financing of rice farming in South-East? There are more.

1.3 Objectives of the Study

The general objective of this study is to investigate the relationship between value chain financing (VCF) and performance of micro/small holder rice farmers in the South-East, Nigeria, whereas the specific objectives are to:

i. examine the level of awareness of VCF among micro/smallholder rice farmers in South-East Nigeria;

ii. find out how micro/smallholder rice farmers perceive what value chain finance offers to strengthen rice farming in the region;

iii. critically investigate the perception of micro/smallholder rice farmers on the involvement of governments in strengthening the demands of modern rice value chains financing in the South-East, Nigeria;

iv. identify the value chain financing constraints/challenges in smallholder rice farming in South-East, Nigeria;

v. examine the extent to which South-East micro/smallholder rice farmers perceive reception of services from the existing traditional value chains;

vi. ascertain the extent to which micro/smallholder rice farmers are motivated into embracing and joining modern value chain financing in the South-East; and

vii. evaluate micro/smallholder rice farmers' perceptions of key elements of creation and enhancement of creditworthiness, lender-borrower relationship, credit risk spread, etc. as main success factors of modern value chain financing.

1.4 Research Questions

To accomplish the above objectives, the following research questions were asked.

i. What is the level of awareness of existence of modern Value Chains Financing among micro/smallholder rice farmers in the Southeast of Nigeria?

ii.   How do micro/smallholder rice farmers perceive the basic benefits of modern-day value chain financing in this region of Nigeria?

iii.   To what extent have governments been involved in the satisfaction of the basic demands of modern micro/smallholder rice farmers' VCF in the South-East?

iv.   What are the micro and smallholder rice farmers' perceptions of the basic VCF constraints and challenges in the South-East?

v.   How do micro/smallholder rice farmers perceive reception of services from their existing value chains?

vi.   How do micro/smallholder rice farmers perceive motivations/incentives to embrace and join rice value chain financing in the Southeast?

vii.   What are the perceptions of smallholder rice farmers in the Southeast on factors that create and enhance creditworthiness, lender-borrower, credit risk spread, etc. in VCF?

1.5 Research Hypotheses

The following null hypotheses were formulated:

i.   Micro/smallholder rice farmers in the South-East of Nigeria are not aware of the existence of modern Value Chain Financing (VCF)

ii.   Micro and smallholder rice farmers do not perceive any benefits derivable from modern VCF.

iii.   Governments have not been forthcoming in the promotion of micro and smallholder rice farming value chain financing in the South-East.

iv.   VCF constraints/challenges are not hinderances to the growth of micro/smallholder rice farmers in the South-East.

v.   Micro and smallholder rice farmers have not received adequate services from their existing value chain financing schemes.

vi.   Micro/smallholder rice farmers in the South-East are not motivated to join value chains.

vii.   The farmers have not perceived trust and creditworthiness among members, including risk burden spread, as the main factors that drive a successful, modern VCF.

1.6 Significance of the Study

The research identified varied areas of concern in micro and smallholder rice farming value chain financing in the South-East, Nigeria. These concerns were laid bar in the work, and the policy makers were expected to leverage on them for articulating decision making in the future. Again, the research findings constitute an area of further research by students of business, finance, and economics in Nigerian Universities.

1.7 Scope of the research

The research targeted micro and smallholder rice farmers scattered over 1000 hectares of rice farmland in the South-Eastern States of Abia, Anambra, Ebonyi, Enugu and Imo. Specifically, the rice farming zones of Abakiliki, Ikwo, Adada, Onuimo, Uboma, Igbariam, Anambra South, Bende and Isuikwuato were targeted. The main government registered Rice Farmers Association of Nigeria (RIFAN) featured prominently in the research. Also, targeted rice farmers in the rice fields of the States were respondents.

1.8 Organization of the study

Taking Section one (Introduction) into consideration, the rest of the paper is divided as follows; Section two (Literature review) looks at conceptual, theoretical, and empirical review. Section three is the methodology. Section four looks at the analysis and results, while section five is the conclusion and recommendations.

2. Review of Related Literature

2.1. Preamble

In the Southeast of Nigeria, providing more cost-effective and consumer-attuned agricultural practices is especially important as in the other industries. This implies that efficiency improvements in rice farming may have profound effects on the region's agricultural competitiveness. Currently, it seems that the Southeast region is burdened with a slowing growing rice economy. In this chapter, the researchers reviewed literature on the concepts of value chain financing, theoretical issues, and earlier empirical studies. The aim is to discover any seemingly gaps that need to be bridged in the Southeast and in Nigeria as a whole.

2.2. Conceptual Framework

2.2-1. Value Chain

A value chain development is a growing approach worldwide. Porter (1998) introduced the concept of a value chain (VC) as a means of creating and sustaining superior performance of many discrete activities of chain actors. In the manufacturing industry, VC entails the entire production process from input of raw materials to output of the final product consumed by the end-users. This arrangement is called a VC because each link in the process adds some value before the product or service is delivered to the ultimate customer.

Who are the chain actors? Government agencies, firms and other agents are the actors. In the rice subsector, cultivators, millers, banks, providers of input and technical assistance, etc., are the chain actors. The arrangements and incentives under which the VC process takes place help to determine the value, cost and quality features of the final product or service.

For VCs, there are myriad policy options, cooperative arrangements, rules and regulations available at various stages. Such arrangements characterize the quality, cost, and variety of the final product or service. Competitive pricing, availability of information, partnerships, delivery innovation and cost efficiencies are outcomes of well-functioning VCs.

2.2-2. Value Chain Development Program (VCDP) in Nigeria

The Value Chain Development Program (VCDP) established in 2015 in partnership with the Nigerian Government by IFAD, is working to improve the livelihoods of micro and smallholder rice farmers in Nigeria (Agri-trade, 2019). This IFAD-funded programme was launched to assist micro and smallholder cassava and rice farmers through a value chain approach. The goals are to enhance productivity, promote agro-processing and increase access to markets. The overall aim of the programme is to transform the agricultural sector of rural Nigeria by achieving food security, increasing incomes, and creating new employment opportunities.

The resources and tools made available by the IFAD were tended to help the value chain actors to have access to tractors, rice pulling machines, improved seedlings, and training on dry season farming. With this, the actors would be able to double their rice production and income.

Under VDCP, farmers were expected to organise into formal groups, through which they can access land, extension services, and agro- inputs; essentially everything they need to increase their productivity and quality standards. Farmers were also expected to have better access to credits using new partnerships of financial institutions, as well as receiving training to develop the financial literacy and business management skills necessary to engage with the market and supply of the required volumes and quality of products. With such a partnership, a commodity alliance forum (CAF), an implementation model for scaling up VCDP, targeting rice farmers and buyers, can be established by linking farmers with major buyers, financial institutions, seed and fertiliser input suppliers, and the government. VCDP should empower farmers to actively engage in business and policy discussions (Ojo & Ayanwale, 2019).

Agri-trade (2019) reports that the partnership with other industries and providers would improve the agricultural practices of smallholders. For example, weather index operators and meteorological agencies are promoting environmentally friendly climate-smart practices to mitigate annual flooding.

Since VCDP's inception, farmers have produced and marketed over 450,000 metric tons of rice. The spike in demand for local rice and cassava products has had the knock-on effect of stimulating new and attractive job opportunities in production, processing and marketing for young people and women in rural communities. In fact, women represent 40% of the VCDP beneficiaries, which is significant given the resource constraints (Agri trade, 2019).

Participating farmers have seen their rice yields increase by 125% - from less than 2 MT/ha to an average of 4.5 MT/ha - while cassava yields have grown by 66%. 70% of the 45,000 participating smallholders, processors and marketers are now linked to buyers and have guaranteed access to markets for their produce, resulting in them doubling their agricultural income. In three years, roughly $137.5 million from sales was deposited in the bank accounts of these farmers (Agri trade, 2019). Looking at industry-wide changes, it has been encouraging to see more smallholder farmers partnering and securing long-term deals with national and international agri-businesses. This is a step change for many farmers from the previous supply-driven market and has allowed them to move away from subsistence farming into commercial agriculture (Ojo & Ayanwale, 2019).

Therefore, the collaboration under VCDP brings mutual benefits by providing rice smallholders rice farmers in Nigeria with support, allowing them to be more productive. These have increased their incomes, while consistent and high-quality supplies of rice are making a significant contribution to national priorities on import substitution and food security. How far the Southeast region has benefited from the VCDP is tested in this work.

2.2-3. Value Chain Financing

In our fast-paced development context, value chain finance is the flow of funds to and among the various links within a value chain (Miller et al., 2012). Stated in another way, it is the financial services flowing to and/or through value chain, be it a need to access finance, a need to secure sales, procure products, reduce risk and/or improve efficiency within the chain.

Royal Tropical Institute (2010) called value chain finance 'an available finance when one or more financing institutions link into the value chain offering financial services which build on the relationships in the chain to achieve the goals of the chain'. According to the Institute in a further explanation, value chain finance is not a goal, and only seldom is it the ultimate solution for a problem in a chain. In other words, often the most severe constraints in value chain are not financial but include a lack of support services such as lack of technical knowledge coming from governments and related agencies.

Gonzalex-Vega, et al., (2007) opined that the explicit or implicit contractual obligations within a value chain financing process are the strong intangible assets that improve the ability of chain borrowers to signal and the ability of the lenders to recognize creditworthiness. This is strengthened by a set of compatible incentives among the chain actors, banks, and providers of inputs.

VCF entails aligning and structuring of finance within a value chain. It is a remedy to financing problems in rural and agricultural finance in Nigeria (Ojo & Ayanwale, 2019). Where this is absent, farmers often rely on informal instruments, which are accessible and flexible but are also inefficient and costly in the short term and do not always offer the support needed to help transform subsistence farming into a profitable business.

Unfortunately, due to the challenges associated with delivering rural agricultural finance, most deposit money banks and other financial institutions are not interested in financing farmers and other rural clients because they represent a less familiar, riskier, and less profitable market than their more traditional urban clientele. (World Council for Credit Union, 2009; International Food Policy and Research Institute, 2010; Anang et al, 2015; Okonjo-Iweala & Madan, 2016). Therefore, there is need to urgently explore VCF, an innovative approach to rural and agricultural finances.

2.2-4. A Well-functioning value chain financing

Templar, et al (2012) enumerated chain financing instruments as factoring (trade financing), fixed asset financing, working capital financing and supplier financing. These financing instruments are buyer-driven payables, supported by the appropriate information and technology documentations.

The driving force for change in well-functioning VCF is competition to provide the best value to the chain actors and to the ultimate customers (kahan and William, 2008). Who determines this value? Reinhardt, 2007; Carmel, 2007; Serota, 2007; and Olszewski, 2007, have argued that value in any chain should be determined by the various actors in the chain since each has varying motivation and requirements. Values should not necessarily be aligned along a value chain financing as is currently being done by the Nigerian Government through its incentive-based risk sharing system for agricultural lending (NIRSAL). Since 2013, CBN has been using the agency to fix agricultural VC, including rice cultivation but not much has been achieved. A plethora of problems such as miscalculation of appropriate farming seasons, true farmers, and farming tools for rice growing in the southeast and other parts of Nigeria. Under the current arrangement, costs, procedures, and the whole care cycles are largely hidden from true farmers - a shortcoming that needs correction.

Researches have shown that the value criteria in VCs must be focused on the real actors, the ultimate receivers of benefits. Conditions and incidents should be leading in making decisions in their specializations (Carmel, 2007; Serota, 2007; and Olszewski, 2007). Why? The actors are aware of the best ways to safely cut waste, are best equipped to evaluate new technology, and can implement change.

2.2-5. Researchers' Model

Research has shown that different models of value chain financing are in existence in different regions of the world depending on a region or a country-specifics and climates (Miller, et al 2012). There is a model which provides credit, savings, guarantees or insurance among value chain actors, In the model, seasonal loans move from buyers to farmers; agro-processors advance credits to farmers; input providers supply in-kind loans to farmers; and there is a partial

guarantee from a financial institution to leverage credit to value chain actors. Another is the one that creates strategic alliances through financing extended by a combination of VC actors and financial institutions. This model consists of market facilitators who partner with banks to develop credit franchise. In the model, a commodity exchange links future buyers and sellers to reduce price and market risks; and banks lend to cooperatives and farmers' associations. Yet, another model is the one in which tools/services are offered to chain actors to manage prices, production, or market risks. Warehouses, bank screening and/or collection centers and insurance agents are provided to serve members (USAID 202I).

This research adopted a combination of the above three models in which financial and supportive institutions are integrated with actors in a VC. This is shown in a simple diagram below:
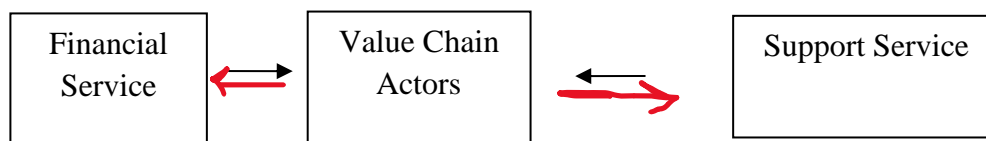
In the diagram, the black arrows depict the flow of financial products and services, such as loans/advances, thrift accounts, etc., and support services such as technical knowledge, technical/technology and government guarantees to the chain actors. The red arrows represent, mostly intangibles, such as trust, cooperation, creditworthiness, and risk burden sharing and corporate finance decision making from the chain actors.

2.3 Theories
The sources of literature in this work dwell on and are derived from chain financing as proposed by Hofmann (2005), Pfohl and Gomm (2009), and Hofmann and Belin (2011). The key propositions and reviews of chain financing of these authors are consistent with the common understanding of a value chain. Hofmann proposed that finance intersects with chain management to open new business areas for finance providers and chain service providers. Pfohl and Gomm (2009) proposed flows of finance, technology, and documentations from suppliers through end-users as integrated part of a chain. In the literature, chain management is a concept based on the idea of optimizing various flows constituting a chain. The propositions look at financial f l o w s as part o f t h e entire chain rather than a separate part. Hofmann and Belin (2011) proposed information, technology, and documents' flow from suppliers to buyers in a chain, while finance flows from buyers to suppliers.

2.2.5. Research Gap
A well-functioning VC is not synonymous with a group association, such as a Rice Farmers' Association of Nigeria. A Value Chain is much more than a mere group association. Again, a well-functioning VC should be privately driven through a framework of decision-making, with a clear-cut government or agency promotional activities, if need be.

To the best of knowledge of the researchers, a well-functioning VCF scheme may not be rooted in Nigeria; it is still a recent and nascent phenomenon. This research used primary data to investigate whether any form of value chain financing truly exists in micro and smallholder rice farming in the South-East region of Nigeria.

3. Methodology

3.1 Research Design
This study used survey design structure to address the central research questions and hypotheses.

3.2 Source of Data
The data for this study is primarily sourced through the distribution of questionnaires.

3.3. Research instrument
This study applied survey research, which involved the use of questionnaires to gather data from the respondents. The questionnaire was divided into two sections: section A takes care of the demographic features of the respondents, whereas Section B focuses on questions from each of the research questions designed from the research questions stated in chapter one of this study. Copies of the questionnaire were distributed by the researchers themselves and the recruited research assistants.

3.4 Population of the study
The population of this study comprise of micro and smallholder rice farmers in the five states (Abia, Anambra, Ebonyi, Enugu and Imo) of the South-East Nigeria. Registered members of the Rice Farmers' Association of Nigeria (RIFAN) and unregistered, independent/unverified farmers found resident and nonresident in the rice fields constituted the population.

3.5 Sample and Sampling Techniques
A sample is seen as a group of objects selected from a population for study aimed at making a generalization about the population (Nworuh, 2001). In this study the researchers adopted the judgmental sampling method, a non-probabilistic approach where researchers select the category of people considered most likely to provide the needed data for a particular study. Though the approach involves guessing, which is subjective, the size is usually a compromise between desirability and feasibility. Therefore, this purposive sampling was used to choose respondents from the farmers.

The research team made several visits to the State and Local government offices of RIFAN and held meetings with members. With this opportunity, questionnaires were distributed, and prompt collection of completed questionnaires was achieved, but with minimal losses. The research assistants made visits to remote and nearby rice fields, distributed questionnaires, and collected complete copies but with some losses. The returned questionnaires were 204 (Abia), 101 (Ebonyi), 41(Enugu), 61 (Imo), and 32 (Anambra), totaling 439.

3.6 Validity and Reliability of the Instrument
In this study, preliminary survey which serves as the pilot study was used to improve on the research instrument before using it for the final work as the test case of a qualitative measuring instrument as its validity and reliability. Validity is largely focused on reducing error in the measuring instrument, while reliability evaluates the stability and consistency of measurement instruments. The validity of an instrument is its being able to accurately measure the phenomena under study (Ukonu, 2005).

3.6.1. Pilot Study (Preliminary Survey)

As already stated, the pilot survey was carried out to test the reliability of the instrument. Abia State was used as the pilot study and the correlation between the transformed questions was determined using Pearson product moment correlation techniques to measure the reliability. The research assistants were properly educated and allowed to ask questions for clarity on the need for the pilot study; and they were advised to properly guide respondents.

3.7 Data Analysis Techniques

The descriptive statistics, mainly tables and percentages, were applied to know the distribution features of the questions. The Pearson moment correlation technique was engaged to determine the relationship between the dependent and independent variables since it would be transformed in linear form as described below. Correlation was also used to know if there exists possible multicollinearity among the variables in consideration. Finally, the established model's relationship was estimated using linear regression which also took care of the test of hypotheses as to know the direction of effect.

3.8. Re-Statement of Hypotheses and Models Specification

H_{O1}: Micro/Smallholder rice farmers in the Southeast of Nigeria are not aware of existence of modern
    Value Chain Financing (VCF) in rice farming.

H_{O2}: Micro/Smallholder rice farmers in Southeast of Nigeria do not perceive any benefits derivable
    from modern VCF.

H_{O3}: Governments have not been forthcoming in the promotion of micro and smallholder rice farming
    value chain financing in the Southeast.

H_{O4}: VCF constraints/challenges are not hinderances to the growth of micro and smallholder rice
    farmers in the Southeast.

H_{O5}: Micro/Smallholder rice farmers have not received adequate incentives from their existing value
    chains or associations such as RIFAN.

H_{O6}: Micro/Smallholder rice farmers in the Southeast are not motivated to join value chains.

H_{O7}: The farmers have not perceived trust and creditworthiness among members, including risk burden spread, as the main factors that drive a successful, modern VCF.

The relationship between the dependent variable and independent variables was transformed to appropriately test the hypotheses. The dependent variable is transformed to A, which covers questions 1-15 in the Appendix. That is, A= mean (A1, A2, A3, A4, A5, A6, A7, A8, A9, A10) for Questions 6 to 15 Dependent Variable. And independent variables are as follows:

B = mean (B1, B2, B3, B4, B5, B6) for Questions 16 to 21
C = mean (C1, C2, C3, C4, C5) for Questions 22 to 26
D = mean (D1, D2, D3, D4, D5) for Questions 27 to 31
E = mean (E1, E2, E3, E4, E5, E6) for Questions 32 to 37
F = mean (F1, F2, F3, F4, F5, F6) for Questions 41 to 46
G = mean (G1, G2, G3, G4, G5) for Questions 47 to 51
See Appendix 1.

Therefore.

H$_{O1}$ = A; H$_{O2}$ = B; H$_{O3}$ = C; H$_{O4}$ = D; H$_{O5}$ = E; H$_{O6}$ = F; H$_{O7}$ = G

Note that in the rejection and non-rejection of hypotheses, 5% significant level was used.

4. Presentation and Analysis of Data

Data collected from this study is presented in this section, analyzed and results interpreted. The data are from the questionnaires administered to the rice farmers association and other individual rice/farmers in the five states in the southeast of Nigeria (Abia, Anambra, Ebonyi, Enugu and Imo).

4.1 Data presentation and Analysis

This section commenced with the distribution features of the questions raised in this study as presented in the Appendix 1 (question 1 to question 51) using frequency tables. However, the results of the analysis using frequency tables presented in Appendix 11 found the following:

On the average, about 42% of the rice farmers in the South East Nigeria participate in the rice cultivation, milling 22%, technical services 8%, and wholesale/Retailing, 8%. About 66% of the respondents started rice farming between 1972 and 2022, while 34% did not indicate the year of commencement. On the number of years, the farmers respondents have been in this rice farming or business, about 64% of them indicated 10 years and above; 22% indicated 1-5 years; and 7%, 6-10 years and 8% not indicated.

On education qualification, 50.3% of the farmers respondents attained WASC, above WASC was 22.1%, FSLC was 21.6% and 5.9% did not indicate. 65.4% of farmers who responded to our questionnaires were males, while 34.6% were females.

About 73% of the respondents knew and heard about rice farmers association (RFA); in the case of Nigeria, the association is rice farmers association of Nigeria (RIFAN). On the hand, only about 26% of our respondents were aware, knew and heard about the existence of modern and structured rice farmers-miller VCF, i.e., RFMVC; 22% on rice farmer-miller-distributor/transporter chain, i.e., RFMDVC; 16% on rice miller-distributor-input supplier chain, i.e., RFMDIC; and 16% on farmer-miller-distributor-input supplier-banker VCF, i.e., RFMDIBC. The above distributions show that South-Eastern rice farmers were aware, knew, heard, and were highly involved in a mere rice farmers association not structured on features of modern value chain financing. RIFAN, an association not structured on the tenets and features of modern value chain financing. RIFAN is an association, managed based on providing welfare services and seeking financial assistance from the governments.

In terms of the extent of involvement in real and structured rice value chain financing, only about 4% of the respondents were highly involved in RFMVCF; 2% in RFMDVC; 2% IN RFMDIC; 2% IN RFMDIBC. About 37% of the respondents were highly involved in RIFAN. This means that the Southeast Nigeria rice farmers knew, heard and were highly involved in RIFAN, than in modern, real and structured VCF.

Generally, about 48% of the respondents benefited poorly from government assistance; 43%, greatly; and 9% not at all. Specifically, only 6% of the respondents voted benefitting from capital services of the governments; 8% in government subsidized input services; 3% in government assisted market access and price controls; 3% in government infrastructural services; and 4% in government technical and management expertise. This means that the generality of rice farmers in the South-East either poorly or not received government assistance

in capital employed, subsidized agricultural input, market access and price control, infrastructure, technical and managerial expertise.

Respondents ranked, in order of importance, the services they received from their supposed VCF of associations in which they actively participated. In descending order, obtaining loan from their VCF or association without collateral' was ranked first and highest (about 56% of respondents). 'Repaying loans with ease' was ranked second (above 46%). 'Market expansion services was ranked third (about 36% of respondents). 'Lowering of risks and costs of inputs' was ranked fourth (about 34% of respondents). 'Sales incentive/strategies' was ranked lowest (about 28% of respondents). This shows that 'obtaining loans without collaterals was the most important service the respondents received from the VCFs or rice associations they actively participated.

On the rating fo perceived constraints/challenges of modern VCFs by the respondents, 82% rated the inability of conventional commercial banks to fund micro and smallholder rice farmers the highest. About 70% rated 'doubtful creditworthiness of members highest. Also, about 72% of respondents rated internal squabbling or politics highest. About 77% rated government inefficiency in distribution of agricultural inputs the highest. And about 34% of respondents rated the poor dissemination of information highest.

From the above, the inability of conventional banks to fund rice farmers became the highest perceived constraint/challenge to micro and smallholder rice farming. This is followed by inefficiency in government distribution of rice inputs, internal politics, doubtful creditworthiness of members, and poor information dissemination.

The respondents strongly agree on the benefits of modern chain/cooperative financing in the following order: increased integration/interdependent relationships, about 48%, easy identification of financial needs of members, 46%; reduction of interest on loans for members, 44%; reduction of operational costs and risks, 42%; and tailoring financial products to fit the needs of members, 41%.

The highest ratings of the constraints/challenges to the personal growth of the rice farmer respondents in the South East Nigeria were shown below in a descending order: lack of money to engage in meaningful farming, about 68%; limited understanding of how to get a loan, 62%; lack of business/financial management skills, 57%; and lack of opportunity to joining modern VCF, 52%.

To the extent to which the respondents agree that they would greatly be satisfied if they would join rice value chains, about 57% strongly agree that high standards in production and agribusiness would motivate them. Again, about 56% of respondents strongly agree that high technology will satisfy them if they join the value chain. Also, about 55% strongly agree that the ability of the value chain to attract government assistance would greatly satisfy them.

About 52% strongly agree that the ability of future value chain to attract funding from conventional financial institutions would greatly satisfy them. Again, about 51% of the respondents strongly agree that the ability of such value chains to guarantee easy market access for their rice products would really satisfy them. At the end of the order of descendance, 50% of the respondents strongly agree that the ability of such a value chain to satisfy their quest for improved technology and management expertise would endear them to join such a value chain.

In the descending order of ratings, about 78% of the respondents cast the highest rating 'provision of loan collaterals by members,' as a factor that could create and enhance creditworthiness, lender-borrower relationship, and credit risk reduction in any value chain. This is followed by about 68% of respondents who cast the rating that 'government guarantee

of bank loans made to members as a factor that could create and enhance creditworthiness, lender-borrower relationships, and reduction of credit risk in a value chain.

The highest rating of 61% was on 'the ability of members of the value chain to repay loans as and when due'. This is followed by 44% on 'vested interest in the success of the organization by a member'. The least in the descending order of the highest rating is the 41% of respondents on 'owned capital employed in the business of the value chain by each member'.

4.2 Estimation of the relationship between the variables

Table 4.52 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.355ª	.126	.113	.29404	2.058

a. Predictors: (Constant), G, C, D, E, B, F

b. Dependent Variable: A

The result of table 4.52 shows that the coefficient of adjusted R-squared is 11.3 implying that the independent variables explain about 0.113 of the total variations in the dependent variable within the scope of the study. Durbin-Watson statics (Dw) is 2.058 announcing that the researchers should not border about autocorrelation. That means the outcome or result of this study is reliable and valid for further inferences and policy making. The researchers can boldly say that the model did a good job of describing the relationship between the variables employed in this study.

Table 4.53 Correlation Test

		A	B	C	D	E	F	G
A	Pearson Correlation	1	.259**	-.150**	.118*	.223**	.108*	0.077
	Sig. (2-tailed)		0	0.002	0.014	0	0.024	0.106
	N	439	439	434	439	439	438	438
B	Pearson Correlation	.259**	1	-.291**	.100*	0.008	.097*	.151**
	Sig. (2-tailed)	0		0	0.037	0.862	0.042	0.002
	N	439	439	434	439	439	438	438
C	Pearson Correlation	-.150**	-.291**	1	.155**	.101*	0.075	.113*
	Sig. (2-tailed)	0.002	0		0.001	0.035	0.121	0.018
	N	434	434	434	434	434	433	433

D	Pearson Correlation	.118*	.100*	.155**	1	.184**	.270**	.166**
	Sig. (2-tailed)	0.014	0.037	0.001		0	0	0
	N	439	439	434	439	439	438	438
E	Pearson Correlation	.223**	0.008	.101*	.184**	1	.352**	.207**
	Sig. (2-tailed)	0	0.862	0.035	0		0	0
	N	439	439	434	439	439	438	438
F	Pearson Correlation	.108*	.097*	0.075	.270**	.352**	1	.420**
	Sig. (2-tailed)	0.024	0.042	0.121	0	0		0
	N	438	438	433	438	438	438	438
G	Pearson Correlation	0.077	.151**	.113*	.166**	.207**	.420**	1
	Sig. (2-tailed)	0.106	0.002	0.018	0	0	0	
	N	438	438	433	438	438	438	438

**. Correlation is significant at the 0.01 level (2-tailed).

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

Table 4.53 above revealed the correlation existing among the variables. The following ranges of the correlation were established; Variable 'A' has -0.118 to 0.259 range of correlation to other variables (B, C, D, E, F, and G), while variable 'B' has -0.291 to 0.151 range of correlation to other variables (A, C, D, E, F, and G). It was also identified that variable 'C' has -0.15 to 0.113 range of correlation to other variables (A, B, D, E, F, and G), whereas variable 'D' has 0.118 to 0.166 range of correlation to other variables (A, B, C, E, F, and G). The range correlation between E and others is 0.101 to 0.352, for F, it is 0.075 to 0.352. Variable 'G' has 0.077 to 0.420 range of correlation to other variables (A, B, C, D, E and F). The established ranges of correlation though weak, indicate that the variables are not perfectly and linearly correlated, suggesting absence of multicollinearity among the variables.

4.2.2 Test of Hypotheses

Table 4.54 Coefficients of the Estimates

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.162	.079		27.533	.000
	B	.093	.021	.214	4.404	.000
	C	-.052	.021	-.121	-2.476	.014
	D	.001	.001	.081	1.681	.094
	E	.002	.000	.192	3.859	.000
	F	1.983E-5	.001	.002	.039	.969
	G	3.466E-5	.000	.004	.072	.942

a. Dependent Variable: A

H$_{O1}$: Micro/Smallholder rice farmers in the Southeast of Nigeria are not aware of existence of Value Chain Financing (VCF).

The result of correlation test on table 4.54 disclosed that the range of variable 'A' and other variables (B, C, D, E, F, and G) is -0.118 to 0.151, indicating weak and insignificant relationship. This implies non-rejection of the hypothesis that Smallholder rice farmers in the Southeast of Nigeria are not properly integrated into Value Chain Financing (VCF).

H$_{O2}$: Micro/Smallholder rice farmers do not perceive any benefits derivable from modern VCF.

The result of regression on table 4.54 indicates that Variable 'B' has P-value of 0.000, highly significant at 5% level. This enough evidence rejects the null hypothesis that micro and Smallholder rice farmers do not perceive any benefits derivable from modern VCF. Therefore, the researchers boldly affirm that Smallholder rice farmers do perceive benefits derivable from modern VCF.

H$_{O3}$: Governments have not been forthcoming in the promotion of micro/smallholder rice farming value chain financing in the Southeast.

The regression result on table 4.54 shows that Variable 'C' has P-value of 0.014 which is significant at 5% level, suggesting rejection of the null hypothesis that Governments have not been forthcoming in the promotion of smallholder rice farming value chain financing in the Southeast. That means Governments have been forthcoming in the promotion of smallholder rice farming value chain financing in the Southeast.

H$_{O4}$: VCF constraints/challenges are not hinderances to the growth of micro/ smallholder rice farmers in the Southeast.

Table 4.54 revealed that Variable 'D' has P-value of 0.094 which is insignificant at 5% level, indicating non-rejection of the null hypothesis that VCF constraints/challenges are not hinderances to the growth of smallholder rice farmers in the Southeast. Therefore, the researchers have sufficient evidence to assert that VCF constraints/challenges are not hinderances to the growth of micro/smallholder rice farmers in the Southeast.

H$_{O5}$: Micro/Smallholder rice farmers have not received adequate incentives from their existing value chains.

The result from table 4.54 shows that Variable 'E' has P-value of 0.000 which is highly significant at 5% level, indicating rejection of the null hypothesis that Smallholder rice farmers have not received adequate incentives from their existing value chains. That means Smallholder rice farmers have received adequate incentives from their existing value chains.

H$_{O6}$: Micro/Smallholder rice farmers in the Southeast are not motivated to join value chains.

The result of regression on table 4.54 shows that Variable 'F' parades P-value of 0.969, highly insignificant at 5% level. This signposts non-rejection of the null hypothesis that Smallholder rice farmers in the Southeast are not motivated to join value chains. That means Smallholder rice farmers in the Southeast are not motivated to join value chains.

H$_{O7}$: The farmers have not perceived trust and creditworthiness among members, including risk burden spread, as the main factors that drive a successful, modern VCF.

Table 4.54 informed that Variable 'G' has P-value of 0.942 which is insignificant at 5% level, that confirms non-rejection of the null hypothesis that the farmers have not perceived trust and creditworthiness among members, including risk burden spread, as the main factors that drive a successful, modern VCF. Therefore, the researchers have good pointer to believe that farmers have not perceived trust and creditworthiness among members, including risk burden spread, as the main factors that drive a successful, modern VCF.

5. Conclusion and Recommendation

This study examines the awareness and efficacy of Value Chain Financing in boosting Micro/Small Holder Rice Farmers' production in the Southeast, Nigeria. After empirical evaluations, it found that Smallholder rice farmers in the Southeast of Nigeria are not properly integrated into Value Chain Financing (VCF). Again, that micro and micro and smallholder rice farmers do perceive any benefits derivable from modern VCF. It was also discovered that Governments have been forthcoming in the promotion of smallholder rice farming value chain financing in the Southeast. Also, that VCF constraints/challenges are not hinderances to the growth of smallholder rice farmers in the Southeast. Besides, that micro and smallholder rice farmers have received adequate incentives from their existing value chains. It was also revealed

that micro and smallholder rice farmers in the Southeast are not motivated to joining value chains.

   Finally, farmers have not perceived trust and creditworthiness among members, including risk burden spread, as the main factors that drive a successful, modern VCF. It was also revealed in this study that in Southeast most farmers are mainly involved in nursery and cultivation stages of rice production, where they are mainly FSLC and WASC holders. That could be the reason for the low level of involvement in the VCF. This study did reveal that rice farming in the Southeast is mainly dominated by the male gender, where majority of them primarily belong to Rice Farmers Aassociation of Nigeria (RIFAN). Again, most of the incentives from the federal government have not been properly implemented or distributed in various states. The ones received are either hijacked or given to a select few, in most cases most farmers have not heard about them.

Considering the above findings, the researchers suggested the following.

i.   Graduates should be encouraged to embrace rice production to harness the benefits of value chain financing.
ii.   Since majority of the farmers belong to rice farmers association, rather than passing their various state governments, the Central Bank of Nigeria should directly engage the association at least to reduce hijacking of the various anchor programmes or incentive on rice production.
iii. Again, since must farmers were First School Leaving Certificate, West African School Certificate holders, they should be encouraged to improve their education to appreciate more the technicalities of Value Chain Financing.

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