



Theoretical and Conceptual Framework of Access to Financial Services by Farmers in Emerging Economies: Implication for Empirical Analysis

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Abstract. This paper presents a discussion on the theoretical and conceptual framework on issues relating to access to financial services. The discussion begins by providing details of various theories that underpin the demand and supply side of access to financial services. The supply dimension of access to financial services is guided by the information asymmetry theory and the transaction cost theory, while the key demand dimension theories are the delegated monitoring theory and the rational choice theory. In the later sections, a conceptual framework was developed for the empirical evaluation of access to financial services and its impact on productivity with particular reference to farmers in emerging economies. The last section provides the concluding remarks, which recommends the use of empirical analyses to access factors influencing access and the impact of the access to farmers' productivity.

Keywords: financial services, savings, credit, developing economies, farmers
JEL Classifications: G21; Q14

Introduction

In developing nations, most of the citizens are employed in the agricultural sector of economy. This is either direct involvement in the agricultural production of crops or livestock or indirect involvement in agriculture for their livelihood by either marketing agricultural input to farmers or marketing agricultural produce from the farmers or carting the produce to the market centres. Others are indirectly employed in the agricultural sector by processing agricultural produce into semi-finished and finished goods. The agricultural sector contributes between 35 and 60% of the GDP (ISSER, 2008).

Due to the key role played by the agricultural sector in developing countries, several attempts have been made to develop agriculture and increase foreign exchange earnings from the export of agricultural produce to support the overall development of the country. In spite of these attempts, agricultural output has consistently fallen in most of these countries. This is coupled with the declining prices of agricultural products. Consequently, the smallholder farmers, who form the majority of agricultural producers, receive very little incentive to improve productivity. This is further exacerbated by poor infrastructure and the increasing prices of farm input and technology.

The literature has established the role of the financial system in agricultural development, particularly in developing countries. For example, Schumpeter (1934) opined that a nation with a well-developed financial system would support economic growth. This can be achieved via funds mobilization from savers for onward lending to lenders at a lower transaction cost.

Access to finance would similarly enable farmers to procure insurance to mitigate possible production and marketing risk. This would encourage more people to go into agricultural production at a commercial level and improve productivity. Theoretically, Richardo (1815) noted that agriculture can achieve great improvement with the increased application of capital to fixed factors of production. However, capital accumulation is influenced by the development within the financial system of a nation.

Access to financial services is important to the operations of the agricultural sector, especially with the diversification of agricultural exports, where effort is being made to increase the export of agricultural produce – these farmers require credit for their activities as most of these activities are capital intensive. In addition, due to the cyclical nature of the production, an optimal combination of productive resources is important to achieve an increase in productivity.

In view of the above, most developing countries have intervened in the agricultural sector to improve access to financial services for the participants therein, assuming a *trickle-down* effect that would ultimately benefit the poor. Thus, most of them have established state financial institutions under quasi-Keynesian principles of financial repression. This has been designed to improve access to financial services to farmers via cooperative agencies, these being the primary vehicles providing credit to the agricultural sector. This was followed by the establishment of state banks, which were used to provide funds for the agricultural sector's development. However, this approach was observed to aggravate inefficiencies in the financial sector saddled with moral hazards and adverse selection (Berger et al., 2002).

This has created a gap between credit supply and demand in the agricultural sector in developing countries. It was therefore necessary to develop a banking system in which rules and regulations guiding the access to financial services

suit the socio-economic circumstances of the participants in the agricultural sector, particularly smallholder farmers. This is necessary to improve farmers' access to financial services and increase productivity. High productivity in the agricultural sector would lead to improved income for the farmers and other agricultural sector participants.

Economic growth can be achieved through growth in the agricultural sector. Factors that contribute to agricultural productivity include investment in purchased agricultural inputs and use of appropriate technology coupled with technical efficiency. The efficiency of the farmers is influenced by the adoption of new technology and better infrastructure, availability of funds to purchase the needed inputs and agricultural producers' managerial capabilities. Farmers need funds to support purchase and optimal use of input.

Thus, access to financial services by farmers is a key ingredient in the promotion of agricultural production and the modernization of agriculture, and this forms an essential element of any poverty reduction/-oriented strategy for future development. According to Carter (1989), access to financial services, particularly to credit, affects the performance of agriculture via an efficient allocation of resources as it helps farmers to overcome credit constraints. He stressed that "this sort of effect will shift the farmer along a given production surface to a more intensive and more remunerative input combination". These funds can also be used to buy new packages of technology, for example, improved seed varieties that are high-yielding and resistant to diseases. A study by Hazell et al. (2007) revealed that the low level of crop production in Africa can be attributed to lack of access to financial services by smallholder farmers (Awunyo-Vitor, 2014). These results come close to a 50% loss of potential income; consequently, they are unable to get out of poverty (Hazell et al., 2007).

Generally, poverty reduction and food security in emerging economies can be achieved through improved agricultural productivity that requires access to financial services for adoption of new and improved technologies by the farmers (Bashir et al., 2010). However, the key challenge is how access to financial services can be improved for farmers in emerging economies. In fact, some authors have argued that current-day financing schemes, which are available to farmers, particularly in developing countries, are not very effective. Hulme and Mosley (1996) argued that poverty cannot be alleviated by access to credit alone. In some cases, the poorest individuals who have had to access credit become worse-off as a result of the terms and conditions attached to the service. Yet, nearly a decade later, DFID (2004) noted that strong evidence exists to support the theory of the linkage between farmers' access to financial services and poverty alleviation, therefore growth in the economy. Levine (2004) observed that many economists believe in a positive relationship between access to financial services and improved productivity (Awunyo-Vitor & Al-Hassan, 2014a).

For example, a study by Wongnaa and Awunyo-Vitor (2013) in Ghana revealed that credit influenced the productivity of yam farmers in Sene District. Similarly, a study by Chillo et al. (2017) in Pakistan shows that credit influenced the productivity of rice in Sindh. Thus, credit is an important factor among production factors that can lead to an increase in productivity and income for farmers (Khalid et al., 2010; Hussain, 2012). Several authors examine the relationship between access to finance and agricultural production efficiencies, using different econometric estimation techniques. For example, Asante et al. (2014) and Martey et al. (2015) used propensity score matching, while Coelli and Battese (1996) and Moses and Adebayo (2007) employed stochastic production frontiers in assessing the impact of credit on agricultural productivity. The results of the above studies revealed that access to finance that satisfied the need and aspirations of the farmers would result in increased productivity and efficiency of farmers. The results of these studies also revealed that the decision by farmers to undertake investment in farming activities is closely affected by their access to financial services. According to Awunyo-Vitor et al. (2014), access to financial services has a significant effect on input use and the productivity of maize farmers in Ghana. However, if the mode of operation of the financial intermediaries who offer services to farmers does not match farmers' needs, they are discouraged from new initiatives and investment – for example, the purchasing and use of inputs at an optimal level that would lead to an increase in productivity and efficiency. Therefore, improvement in access to financial services by farmers can provide incentives for investment and use of purchased inputs for efficient productivity.

A study conducted in Swaziland by Masuku et al. (2015) to assess how credit impacts the technical efficiency of farmers showed that in Swaziland credit has a significant positive impact on farmers' technical efficiency. Duy (2015) similarly arrived at this conclusion in their study on the impact of formal and informal credit on the production efficiency of rice farmers in the Mekong Delta. Likewise, Laha (2013) used customers of banks and non-bank entities to evaluate the impact of credit on the efficiency of farmers in West Bengal. The results of his study revealed that farmers who had access to formal credit had achieved higher efficiency than those who received credit from non-bank financial intermediaries sources. This supports the position of Shahidur and Khandker (2003) that credit from formal financial intermediaries is largely used to spur investment in agricultural production. In Ghana, a study by Abdallah (2016) to evaluate the impact of credit on the technical efficiency of maize farmers revealed that credit has increased the efficiency of farmers by 3.8%.

Thus, access to finance by farmers has the potential of improving the welfare of most people in the agricultural sector in developing countries where the majority of the population are in the agricultural sector. It also has the potential to reduce the level of unemployment being experienced by developing countries,

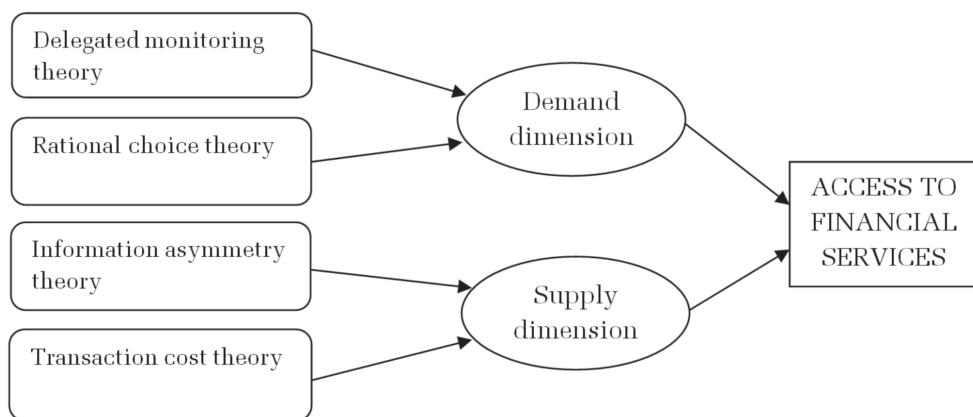
particularly African nations, by creating incentives for commercial agricultural production (World Bank, 2007).

In view of the evidence supporting strong positive linkages between access to financial services and economic growth via an increase in productivity, access to financial services by farmers in developing economies has emerged as a leading and effective strategy for food security and reduction in poverty. According to Bee (2007), it is now widely accepted that production opportunities for rural households can be opened up with access to financial services, which also supports job creation and builds up their asset base. This has been referred to as a new development paradigm that is built on market principles (Bee, 2007). In this context, the livelihood of rural households will be improved with access to financial services through efficiency gained in their production efforts. However, ineffective and inefficient analyses result in inadequate policies that do not allow farmers to gain full advantage of access to financial services. Appropriate analysis is required to develop a suitable policy to encourage farmers' access to financial services, which would support productivity and reduce poverty with an overall impact on economic growth. This requires the understanding of theories and concepts that underpin issues relating to financial services access and the impact finance has on the productivity of farmers. Thus, this study examined the theoretical and conceptual framework that underpins access to financial services and suggests empirical analysis that can be undertaken for an appropriate policy on access to financial services to be developed.

The paper furthermore presents a theoretical framework for access to financial services. Under this section, an exposition of the theories is presented, grouped into the demand-side and supply-side dimension of access to financial services. This is followed by a conceptual framework that was developed based on the theoretical exposition. Finally, concluding remarks summarize the thought process behind the theory and conceptual framework. In addition, this section highlights the implications for empirical analysis of access to financial services.

Theoretical Framework for Access to Financial Services by Farmers

Financial services access has two dimensions: demand and supply (Stijin, 2005). The demand side examines the choice made by individuals with regard to services provided by financial institutions, while the supply side relates to financial services provision or financial intermediation. Theories on access to financial services provide a general framework for demand for financial services (demand dimension of access) and financial intermediation (supply dimension of access to financial services) or, at least, for understanding these concepts of access to financial services.



Source: frame by author based on information from Coase (1937), Diamond (1984), and Stijin (2005)

Figure 1. *Four theories of access to financial services*

There are several theories that relate to decision making in the economic literature. These theories include rationality theory, bounded rationality theory, theory of satisficing, prospect theory, intertemporal theory, delegated monitoring theory, information asymmetry theory, and transaction cost theory (Scholtens & Wensveen, 2003). However, based on the theme of the current study, which deals with access to financial services by smallholder farmers in developing countries, the study concentrates on the four theories as presented in *Figure 1*.

Figure 1 presents the linkages between the theories and access to financial services. Two theories, the delegated monitoring and the rational choice theory, explain demand for financial services, while the information asymmetry and the transaction cost theory explain financial intermediation, or the supply side-dimension of access to financial services.

The theory of delegated monitoring claims that financial institutions possess the ability to act as delegated monitors for net savers (Diamond, 1984). In this context, depositors have delegated the role of safekeeping of their savings to the financial intermediaries as well as entrusting them to invest their savings prudently for better returns. Thus, financial service providers have the fiduciary relationship with their clients to ensure no depreciation in deposit value or losses occur through bank staff negligence or excessive risk taking. They are likewise being entrusted with keeping depositors' and borrowers' accounts strictly confidential as financial information is costly.

These intermediaries are being delegated to assess information correctly and sufficiently to arrive at sound investment and loan decisions. In this case, after loan disbursement, depositors expect the financial intermediaries to act as their agents to monitor the loan accounts and the financial position of the borrowers

in order to ensure smooth loan repayments and interest. Therefore, financial intermediaries take the necessary action to execute their delegated monitoring function honestly, effectively, and efficiently to ensure that the shareholders' wealth is maximized. In view of this, savers may withdraw their savings to discipline the financial institution if they believe the interest is not being upheld by the financial institution or if they believe the activities of the financial institutions are not in their interest.

This theory is linked to the demand side of access to financial services because, based on the theory, individual savers see the financial intermediaries as an entity that they can delegate their responsibilities to. For example, they are savers; they have surplus funds to give as loans or investment funds from which they would earn interest income. However, they do not have the resources to perform these duties or function themselves; hence, they decide to delegate this function to the financial intermediaries. This is assumed to influence the savers demand for the saving and other products of the financial intermediaries. Consequently, this theory is linked to the demand dimension of access to financial services.

The rational choice theory is propounded by neo-classical economists. The theory, generally, starts with the consideration of the choice behaviour of the individual farmers making the decision. The proponents of the rational choice theory believe that the individual making the decision is a "representative" of a group in a financial market, such as farmers. The analysis of rational choice theory of demand for financial services generally involves a description of the following: (i) the desire for financial services (savings, credit, and money transfer services); (ii) nature and type of services provided by the financial institutions; (iii) the condition under which these services are provided. The individuals face the problem of choice among services provided by the intermediaries. The approach of the rational choice theory is based on the fundamental principle that the choices made by the individual are the best choice to help him/her to achieve their objectives in the light of all the uncontrollable factors. The utility function is used by the rational choice theory as a mathematical function that assigns a numerical value to each of the possible alternatives the individual making the decision faces. The demand for financial services is a function of the service characteristics, the attributes of the provider of the service, and the decision-making unit.

This theory has been heavily criticized on the basis that the assumptions made under the rational choice theory fail to take account of the fact that the success of the outcome of a decision is also influenced by the conditions that are not within the control of the individual making the decision. Despite this criticism, the theory has demonstrated a good basis in explaining how individual economic decisions are affected by their attributes. In this regard, this theory is important in explaining access to financial services as the attributes of the individual heavily influence both the demand and supply dimensions of access to financial services.

This has led to the development of the bounded rationality theory. The bounded rationality theory proposed that, although individuals are rational in making decisions, their rationality in any decision making is limited by the tractability of the issues they make decisions about. In addition, it is influenced by the time available to make the decision and the cognitive limitations of their state of mind. This means that their decision is influenced by the contingent claims associated with access to the services provided by financial intermediaries.

Financial intermediation or financial services provision involves contingent claims relating to future resources for which the claims are determined in the present. Alternatively, it involves the sale and purchase of contingent promises. The ability of financial service providers to monitor their clients' conduct and credit worthiness depend greatly on the extent of information available. Some information on clients is not made accessible to these financial institutions. Thus, clients have more information than the institutions. This uneven distribution of information, known as information asymmetry, arises out of the fear that promises may be broken. This has a negative effect on the credibility of the promises issued by the intermediaries within the financial market resulting in an incomplete market. Therefore, the neo-classical economic theory of a complete market, where market participants are rational with perfect information, is inconsistent and inadequate to explain the supply dimension of access to financial services (Coase, 1937).

New institutional economists modify and extend neo-classical theory; and this can be used to explain the supply dimension of access to financial services. New institutional economists retain the fundamental assumption of scarcity, and hence competition that underlies micro-economics and, consequently, the theoretic choice approach, and introduce the theory of information asymmetry and transaction cost. The information asymmetry theory postulates that there is imperfect information resulting in an information problem. The consequences of information problems within the financial market can be classified as either ex-ante or ex-post. The ex-ante problems associated with information within the financial market result in adverse selection and moral hazard, while information problems that relate to ex-post leads to assurance services or expensive compliance verifications.

Hoff and Stiglitz (1990) classify the consequences of an information problem within a financial market into three main issues: (i) determination of the extent of the default risk (screening problem); (ii) the cost involved in ensuring credit contracts are honoured (incentives problem); (iii) the cost involved in the monitoring of credit beneficiaries to ensure loan repayment (enforcement problem). Information theory argued that financial services provision is an attempt to overcome these costs, at least partially, through improved access to information. For example, Leland and Pyle (1977) viewed intermediaries within the financial market as a coalition that facilitates access to information through information sharing and minimized information asymmetries. Diamond and

Dybvig (1983) argued that entities that provide financial services are a coalition of individual depositors within the financial market, who provide insurance against idiosyncratic shocks, which affects their liquidity position adversely due to lack of access to information. Diamond (1984) demonstrates that economies of scale can be achieved by the financial intermediaries as they can share information faster (Leland & Pyle, 1977).

The transaction cost theory argues that financial intermediaries emerged to utilize economies of scale as well as transaction technology. The key element of transaction cost theory includes costs associated with gathering and processing information that is needed to reach a decision during the transaction process, successful contract negotiation, and policing and enforcement of contracts (Benston & Smith, 1976). Thus, financial institutions convert one financial claim into another, which is referred to as transforming an asset qualitatively. As such, the financial intermediaries offer liquidity and the opportunity of diversification to their customers. The ease or difficulty used in achieving these objectives is determined by the level and nature of the cost of the transaction. Transaction costs are derived from a combination of bounded rationality (which reflects both imperfect information and a limited capacity to analyse it) and opportunism, which Benston and Smith (1976) defined as “self-interest seeking with guile”. This has been the key problem of informal financial intermediaries serving larger borrowers. As a result, government intervention was necessary to reduce transaction costs and information asymmetry. Consequently, after Ghana’s declaration of independence, the Bank of Ghana created a Rural Banking department to advise on appropriate methods of increasing access to financial services by farmers. The recommendation from this Department has led to the establishment of a specialized bank of the Agricultural Credit and Cooperative Bank, now known as Agricultural Development Bank (ADB) to offer financial services to farmers (Addaeh, 1989).

Due to the asymmetry information and cost associated with the administration of credit to farmers, by the mid-1970s, it had become evident that the Agricultural Development Bank did not have the capacity to offer services to small-scale farmers. Over the period, institutional innovations within the financial market emerged to minimize transaction costs (North & Thomas, 1973; Demsetz, 1967). This resulted in the establishment of rural banks in Ghana, designed to provide services to farmers at a lower cost. However, these rural banks are similarly finding it difficult to provide optimal services to small-scale farmers.

In conclusion, a financial service provision by intermediaries that emerges as a result of market imperfection does not allow optimal trading between savers and investors directly with each other. The market imperfection that affects savers and investors is information asymmetries between net savers/investors and net borrowers. Thus, individuals rationally demand financial services in order to

delegate monitoring to financial service providers. Financial intermediaries specifically attempt to narrow the gap between savers, investors, and borrowers. This is because the financial intermediaries have a comparative advantage with respect to information relative to savers and investors. They screen loan applicants and monitor those that they lend money to on behalf of the depositors. They furthermore bridge the maturity mismatch between savers and borrowers/investors and offer money transfer services to facilitate payment between economic parties. These functions are the justification for the commissions they charge to clients.

The sustainability of financial intermediaries, who provide appropriate services to farmers, particularly in a developing country, requires appropriate regulation from the government. Hence, the justification of the intervention in the financial market by many governments, via regulations and supervision of the financial intermediaries, ensures that these intermediaries take appropriate action to effectively perform their financial intermediation roles.

Conceptual Framework

There is a well-established literature on access to financial services (Stijin, 2005) that covers or explains the determinants of credit constraint (Chen & Chivakul, 2008; Awunyo-Vitor & Al-Hassan, 2014a), lenders' credit-rationing behaviour (Stiglitz & Weiss, 1981; Awunyo-Vitor et al., 2013), and the effect of credit on farmers' productivity (Boucher & Guirking, 2007; Simtowe et al., 2006; Awunyo-Vitor & Al-Hassan, 2014a). Availability of finance (either from savings or credit) and insurance provides greater incentive for farmers to venture into technologies that raise productivity and incomes (Ghosh et al., 1999). Access to financial services has an effect on technology choices with a subsequent influence on productivity.

The financial market has formal and informal segments. Informal intermediaries provide only credit facilities while formal ones provide savings, credit, and money transfer services. Within each of the markets, farmers need to make rational choices as to the amount of services they utilize. In the case of informal intermediaries that provide only credit facilities, farmers need to make a choice between using credit or not. Formal financial intermediaries provide savings, credit, and money transfer services; hence, the farmers have the option to make a choice between these services or a combination of them.

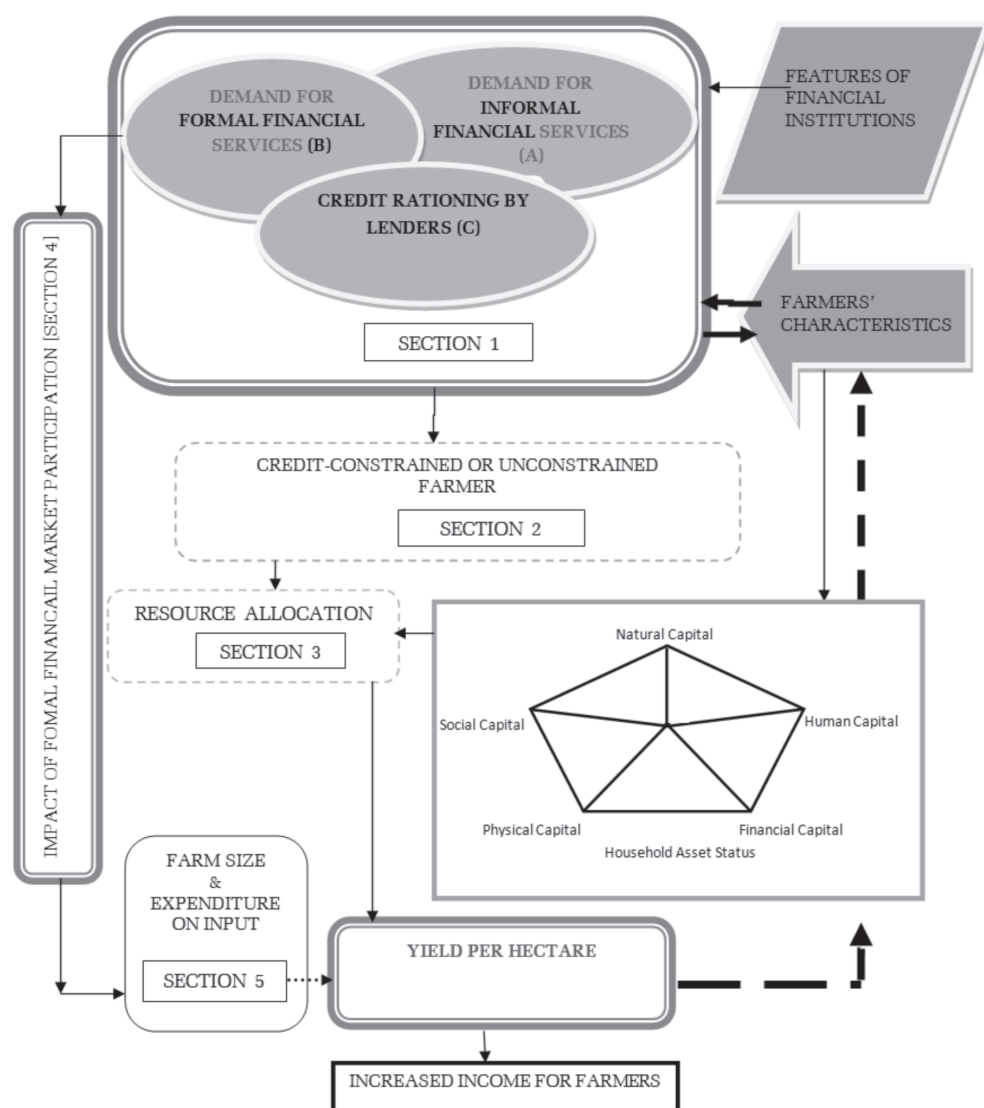
The financial market in an agrarian economy is characterized by a low level of savings, funds transfer facilities, and inadequate insurance (Bendiget al., 2009; Awunyo-Vitor & Al-Hassan, 2014b) coupled with limited coverage. Thus, farmers have to access credit to ease liquidity constraints for production and to smoothen

consumption. However, due to asymmetric information and adverse selection within the financial market, lenders tend to adopt rationing as the optimal behaviour in the credit market. This behaviour of lenders leaves some farmers credit constrained (Petrick, 2005), which has an adverse effect on resource use and productivity.

To conceptualize the factors that influence access to financial services by farmers and how these credit facilities influence their input usage and productivity, we draw on Beck and de la Torre (2006), Stijin (2005), Feder et al. (1990), Awunyo-Vitor and Al-Hassan (2014a), and Boucher and Guirkingner (2007). Beck and de la Torre (2006) argued that any investigation of access to financial services should examine both the supply and demand dimensions. According to Stijin (2005), the supply side of access to financial services relates to the availability of financial intermediaries providing services, the conditions under which these services are available, and rationing. The demand side, on the other hand, relates to factors influencing individual decisions to use financial services. Thus, for informal intermediaries, the demand side deals with the decision of the farmer to make use of a creditor or not, while in the case of a formal institution the demand side deals with a farmer's choice of services provided by the formal financial institutions.

This study examines both demand and supply dimensions of access to financial services (see *Figure 1*). Farmers are assumed to be rational; hence, if they are able to accumulate enough savings to support their production and consumption activities, they do not need to borrow, as credit is associated with cost, and so they are described as credit unconstrained. However, those who are unable to accumulate enough savings need to borrow to augment their equity resources to support their consumption and production activities. Yet, farmers who need credit may ration themselves out of the credit market due to risk and transaction costs, which might be unfavourable to them.

This group of farmers are risk-rationed and transaction-cost-rationed (Boucher & Guirkingner, 2007). Farmers who apply for credit and are either refused or offered an amount less than what they have applied for are classified as quantity-rationed in line with the theory of information asymmetry and transaction cost theory. Therefore, a farmer's decision to apply for financial services and subsequently rationing by the financial intermediary is assumed to be influenced by institutional attributes and the characteristics of the farmer. The activities within the financial market (Section 1, *Figure 2*) give rise to two distinct groups of farmers: farmers who are constrained in their access to credit and those farmers who are not constrained in their access to credit (Section 2, *Figure 2*).



Source: framed by the author

Figure 2. Conceptual framework of access to financial services and its impact on farmers' income

Resource allocation differs between the two groups of farmers. Petrick (2005) asserts that the credit constraint status of farmers may result in significant interaction between the production and consumption activities that influence the resource combination of the farmers (Section 3, Figure 2) and consequently productivity (Section 5, Figure 2).

It is conceptualized that farmers who use formal financial services are able to relieve liquidity constraints for the purchase of inputs and the cultivation of larger areas (Section 4, *Figure 2*). Therefore, formal financial market participation is conceptualized to have a positive effect on the amount of money the farmer spends on variable inputs, farm size, and, consequently, productivity. This is because farmers who use formal financial services would be able to relieve liquidity constraints for the purchase of inputs and the cultivation of larger areas. Farm productivity is expected to have a spin-off on farmers' access to financial services through asset endowments. Thus, factors influencing farmers' access to financial services and the effect of credit on productivity must be investigated empirically by examining:

- features of informal financial intermediaries and demand for services they offer,
- features of formal financial institutions and demand for their services,
- credit rationing,
- impact that the farmers' participation in the financial market has on expenditure, farm size, and input usage, and
- the effect of credit on farm productivity.

Concluding Remarks

The study aimed at presenting the theoretical underpinning of access to financial services and developing a conceptual framework for analysis. Based on the above theories, an analysis of access to financial services should be done by examining dimensions, that is, the supply-side and demand-side dimensions. This implies that the empirical analysis of access to financial services should be done with both qualitative and quantitative research methods with a multi-empirical analysis. The qualitative analysis should be used to examine the behaviour of both the supply and demand side while the quantitative approach should be used to examine the amount of supply and demand as well as factors that increase the demand and supply. Thus, a rigorous empirical analysis is required to identify factors influencing access to financial services and how access to these services influences farmers' productivity. This would support the development of an appropriate policy framework that would positively influence farmers' access to financial services and have a positive impact on farmers' productivity and ultimately national food security, poverty alleviation, and economic growth.

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