Clusters of Agrocredit Suppliers in Tanzania and their Associated Transaction Costs: A Scholarly Personal Narrative

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ABSTRACT
This paper blends the Scholarly Personal Narrative (SPN) with desk reviews of selected literature on the key concepts and their applications in understanding the key features of agrocredit supply in rural areas. The findings of this exploratory study indicate that the informality of agrocredit supply is associated with low transaction cost, low levels of credit and low levels of repayment rates. It is also noted that the formalised and regulated suppliers are more associated with higher levels of transaction cost with relatively higher levels of repayment. Transaction costs related to searching for potential borrowers, negotiation and enforcement are higher for most regulated suppliers because they involve third parties. Where the transaction involves small volumes of agrocredit, the transaction cost increases due to supplier's compliance to legal formalisation and licensing. In-kind agrocredit supply models are recommended to be the most plausible models for resource poor smallholder farmers due to the fact that in-kind credit is not agile and that it can be used on intended cause. It is also recommended that in order to reduce transaction cost, agrocredit suppliers of in-kind agrocredit should deal with the farmer groups or primary cooperatives which act on behalf of member farmers.

Keywords: *Transaction cost, agrocredit suppliers, agrocredit borrowers, agribusiness, Tanzania*

INTRODUCTION

Agrocredit in this paper refers to a loan either monetary or in kind, to be used for investment in agriculture related businesses. Of all rural financial services (savings, credit and payments), agrocredit is normally the most expensive service not only to access but to produce as well. An agrocredit intermediary has to evaluate the probability of being repaid in the future as a consequence of resources being lent to an individual borrower in the present. *Ex ante*, this is especially expensive when there

is no institutional information about the creditworthiness of a new borrower since not all potential borrowers are credit-worthy. Agrocredit demanded by smallholder farmers may be formal or informal. Formal agrocredit has contracts created and enforced by mechanisms beyond the contracting parties and formal agrocredit organisations may be regulated. In contrast, informal credit contracts are enforced without reference to third parties. In theory, formal credit contracts are enforceable in the courts or possibly by other government mechanisms. Ngaruko and Lyanga (2021) argue that although both formal and informal credits matter to smallholder farmers, the policy normally focuses only on formal credit, ignoring informal credit. There could be two explanations to this: first, informal credit is outside the government's purview. Thus, policy affects formal finance directly but informal finance only indirectly. Second, informal credit is an imperfect substitute for formal credit in the long run. In the short run, however, formal and informal credit may be close substitutes, especially for small, short term uncollateralized loans (Conning & Udry, 2005).

Abay et al. (2022) argue that credit markets are key instruments by which liquidity-constrained smallholder farmers may finance productive investments. However, the documented low demand and uptake of agricultural credit by smallholder farmers in sub-Saharan Africa pose challenges for energizing rural transformation in the region. Assessment of the effective demand for agrocredit by smallholder farmers is a task beset by imprecision and ambiguity. Farmers demand credit if they voluntarily can bear the cost of using the services as stipulated in the credit contract. This type of demand is what is could be referred to, in orthodox economics, as the effective demand. Effective demand excludes the demand by those who, such as delinquent borrowers or bankrupt banks, do not fulfil their contracts (Ngaruko, 2017). These borrowers do not really demand the temporary transfers that are finance; they demand the permanent transfers that are grants. Effective demand for agrocredit can therefore be realised if and only if three conditions are met: first, the user must want the credit i.e. expected benefits to exceed expected costs. Second, the borrower must be able to pay the costs. Third, the borrower must be willing to pay for its cost. Loan default can either be voluntary or involuntary.

Another aspect that helps to understand the nature of agrocredit demand by smallholder farmers in Tanzania is the cost to users of the credit

service. The cost of an agrocredit seems to have three major components (Ngaruko, 2008):

a) Price – this is the cash expense paid by the borrower to the supplier, including tax. The price covers at least the provider's costs, legitimate fees and real interest rate.
b) Transformation costs – these are formally observable cash expenses incurred by both the lender and borrower in completing the transaction. Transformation costs refer to costs of producing, consuming, and exchanging goods and services over space (transport costs), time (storage costs), form (processing costs), and expectations (insurance costs).
c) Transaction costs – these are either cash or non-cash costs usually referred to as opportunity costs of borrowing. A borrower incurs opportunity costs even though no one collects them. These include for example cost of time spent in applying for the agrocredit, frustration of wasted time when failing to qualify for the loan, time spent in attending training about loan repayment etc. Other transaction costs are those incurred by credit market agents when searching and screening potential contractual partners, monitoring behaviour of partners to avoid breach of contract, as well as enforcing agrocredit contract in cases of noncompliance with a credit contract.

Studies by Seibel (2001), Ngaruko (2014), Nguvava and Ngaruko (2016), Kashaga and Ngaruko (2019) and recently by Ngaruko and Lyanga (2021) confirm that the contention that rural financial services face high transaction costs associated with imperfect information (search, monitoring and enforcement), increased costs of credit transactions and loweffective demand. The dispersed nature of rural populations increases the transaction costs of servicing rural areas compared to urban areas for many credit providers. Transaction costs relate to increases in transformation costs associated with coordination, information, and strategic behaviour. Coordination costs are the sum of the costs of the time, capital, and personnel invested in negotiating, monitoring, and enforcing agreements among actors. Information costs are the sum of the costs of searching for and organizing information, and the costs of errors resulting from a lack, or an ineffective blend, of knowledge about time and place variables and general scientific principles. Strategic costs are the increased transformation costs produced when individuals use asymmetric distributions of information, power, or other resources to

obtain benefits at the cost of others. The most frequent sources of strategic costs are free riding, rent seeking, and corruption (Ngaruko, 2017; Nguvava & Ngaruko, 2016; Omamo, 2006).

Transaction costs in agrarian economies often swamp cost of credit (interest), thus farmers' sensitivity to the interest rate is strongest when it is the major component of price. A study by Ngaruko (2017) found that in most cases non-price transactions costs are excessive because of rural financial market coordination failures. Weak competition can permit satisfactory suppliers' profits even while ignoring some effective demand. Transaction costs for agrocredit borrowers are excessive when they could be reduced without harming the viability of effective supply. Access is the confluence of effective supply and effective demand. A common phenomenon is the situation where no one is concerned when a lack of access is caused by a simultaneous lack of effective supply and lack of effective demand. There is also tendency for financial market actors, including the government, not to be concerned when a lack of access is caused by lack of effective demand. The FAO's annual report on state of the food globally for 2021 (FAO, 2021) implies that it is important to appreciate that the agrocredit borrowers especially in poor countries face a variety of risks in an agrocredit transaction, which in turn affects sustained developments in world agriculture. Suppliers cannot cover their costs if no one will pay their prices. A concern is lack of access when there is effective demand but there is not effective supply. In this case the borrower farmers would be willing to pay for the cost of credit borrowed if only someone supplied it. Cementing on earlier study by Schreiner (1997), some recent studies (Kashaga & Ngaruko, 2019; Ngaruko, 2017) suggest two reasons for the mismatch between effective demand and effective supply. First, the supply could be too costly to destroy effective demand. The second reason is that supply is costly, but costs could be reduced to levels that would not destroy effective demand if treatable market failures were remedied. This explains the virtual absence of commercial bank branches in rural areas in Tanzania. The major concern by many agricultural development economists has been the second reason. See for example FAO. (2001)'s recommendations on the role of state in the co-ordination of markets in poor rural areas. There is therefore a need for providing specific information that may minimise the persistent mismatches between demand for - and supply of- agrocredit especially in thin agrarian markets like rural Tanzania.

Despite making up over 70% of the smallholder agricultural subsector sector in Tanzania, farmers have little capacity to improve production and increase their revenues, because they cling to low-technology farming techniques. Farming is labour-intensive and dependent on family members working on the land, which can be problematic if someone falls ill or suffers an injury. As a result, farmers are stuck in a vicious cycle where volatile prices, variable outputs and weakening resource conditions, perpetuate current practices and technologies of farming that lower their productivity and increase their sensitivity to unexpected life events (FSDT, 2020).

In Tanzania *rural* usually means *agricultural* and vice versa due to the economic, social and political importance agriculture plays in rural areas (Ngaruko & Lyanga, 2021). Agriculture leads to low population density in rural areas because plants and animals need more space than people. Farmers live near their work to reduce transportation costs and to deter theft. This is in contrast with those who argue that markets and non-agricultural production are cheaper when population density is high due to economies of agglomeration. According to Lwezaura and Ngaruko (2013) squeezing into townships and cities reduces transaction costs through thicker markets which include better information networks, lower search costs and a greater choice of buyers and sellers. Financial intermediaries, as with most other businesses which do not require land for production, locate into cities to take advantage of agglomeration.

There are many reasons as to why only a few or none of the major formal suppliers of credit are not extending their services to majority rural poor. Kashaga and Ngaruko (2019) argue that the cost of rural lending depends on the cost of determining if potential borrowers are willing and able to repay. Rural remoteness increases the cost of evaluating creditworthiness and thus decreases access to credit. The cost of public infrastructure per person also increases as population density decreases. As a result, rural roads are few and often rough and impassable especially during rainy season. Most households do not have electricity or telephones, if any these utilities can only be affordable at high running costs. This implies that communication and transportation are more expensive in rural than in urban areas. Thus, the traded goods and services tend to be more expensive in rural areas than in urban areas. One of the advantages of low population density in rural areas is the potential for strong social networks (Fafchamps & Minten, 2001). Friendships are stronger when people are

scarce, thus rural people may cling to social networks out of loneliness (Ngaruko, 2012). In addition, most agrocredit borrowers often run hereditary agroenterprises. This lengthens the horizon over which relationships are valued both within and between borrowers with a locality. Strong social networks reduce asymmetric information and thus decrease the costs of informal financial services. Formal intermediaries are not allies to these networks hence they are likely to incur high transaction cost to market entry as well as their business operations. These costs are assumed to be too high to inhibit participation of such organisations in lending to smallholder farmers.

Kingu (2019) contents that Tanzania's smallholder farmers are the most underfinanced group in the country, but improved agricultural and financial sector policies, enhancement of capacity of financial service providers to appraise agri-related loans and raising awareness of farming technology could improve the amount of credit they receive and help them increase their production, says a recent report. Despite the country's steady economic growth, farmers still struggle to obtain sufficient credit because the agricultural sector is considered high risk by lenders. According to the recent Credit Diagnostic report by the Financial Sector Deepening Trust (Kingu (2019) it is noted that improved policies and raising farmers' awareness of farming practices and irrigation technologies could improve productivity; henceforth, providing farmers a more credit-worthy reputation and open increased access to credit from lenders.

The agriculture sector contributes 28.7% of the GDP as well as 65.5% of direct labour force and 10% indirect labour force (FSDT, 2020). However, FSDT report unveils that out of 24 surveyed banks, only 13 banks were found to have any agriculture lending products. Many banks concentrate their activities in urban and semi-urban areas, with limited presence of branches in the rural areas where smallholder farmers are often located. Limited presence in rural areas leaves most banks out of touch and incapable of understanding the specific needs of farmers. As a result, they view smallholder farmers as unreliable borrowers because of unstable income, lack of savings, and volatile productivity which is dependent on rainfall. Therefore, FSDT recommends that banks need to reconsider their rural penetration strategies and develop business models that improve delivery of credit products to smallholder farmers.

It is from this background that this paper presents a framework for understanding the importance of Transaction Cost Economics theory in classifying players in the supply chain of agrocredit to smallholder farmers in Tanzania. This paper, which is conceptual in nature, covers features of agrocredit borrowers which in turn may increase transaction of agrocredit delivery. Further, the paper characterises clusters of agrocredit suppliers based on their transaction cost mitigating behaviours. The paper adds value to the existing literature on the application of Transaction Cost Economics theory in understanding the causes for the mismatching supply and demand for agrocredit in Tanzania. Findings from this study are expected to prompt a country-wide study to further cement applicability of Transaction Cost Economics in the provision of financial intermediation that supports agribusiness development in Tanzania and related economies

METHODOLOGY

This paper blends the exploratory research approach and Scholarly Personal Narrative (SPN) in understanding the economics of agrocredit supply in thin markets more closely comparable to Tanzania. The desk review of the relevant published and unpublished reports was complemented with a review of publications by the author of this paper on topics related to agrocredit and transaction cost. SPN enabled the author to logically draw critical issues from a variety of academic and non-academic references and findings. Using SPN allows the writer to communicate to both academic and non-academic audiences with realistic reflections of the complexities of daily life and personal identity. Scholarly personal narrative is a constructivist research methodology that recognizes the researcher's personal experience as a valid object of study. For a logical synthesis of exploratory information, findings are presented in thematic descriptions of agrocredit, agrocredit suppliers and transaction costs.

FINDINGS AND DISCUSSIONS

As stated earlier, this paper presents findings from the selected literature with much insights from the personal knowledge of the author. There are three main areas of findings: first is the characterisation of agrocredit; second part of findings is the profile of agrocredit suppliers; and the third section provides theoretical insights on the key forms of agrocredit transaction costs. The paper concludes by suggesting recommendations

for a workable agrocredit supply model that blends both formal and informal agrocredit suppliers to absorb the agrocredit transaction costs.

Feature of typical agrocredit

The features of agrocredit shape the way borrowers in their smallness, remoteness and ruralness interact when they participate in the agrocredit market. The demand for agricultural credit is characterised by three main features: required investments and the lags both between investment and production and between production and investment or consumption; the marketing intermediaries; and the risks. A summary of agrocredit features in Tanzania can be conceptualised in terms of investment lags, market intermediaries, unusual risks, agrocredit agility and flexibility.

Investment and lags

Agricultural production requires investment. Cash inflows from production lag behind the cash outflows yet investment requires finance. Most agricultural investment expenditures have both lumpy and continuous characteristics. Lumpy investments usually require a single expenditure. Other agricultural inputs are consumed over the course of a single production cycle and often require several smaller expenditures. Before harvest there are very many cash outflows for inputs such as pesticides, fertilisers, tilling, harvesting, weeding, wage labour, fuel etc. These inputs must be financed either by savings or credit. Many small cash outflows followed by a single larger cash inflow imply demand for small, short financing. Agricultural production lags behind investments so cash outflows and cash inflows are mismatched not only in one season but also over many seasons. Storage links the lags between production and use of the products. However not all products are equally storable. Unlike continually harvested produce like milk, single-harvest products such as grains and livestock are often storable.

Marketing intermediaries

Marketing can be defined as the process of finding partners for exchange. All farm output not consumed or reinvested requires marketing. Marketing is especially costly for rural enterprises because of the cost of communication and transportation over rural distances. The unusually heavy and bulky goods relative to their value also exaggerate marketing costs. Marketing margins decrease with distance from markets. This is because transportation costs increase with the distance to the farm even though the sale price in the market does not change. Produce not

consumed by the household itself (e.g. cotton, coffee, cashew, tea, tobacco, sugar cane, livestock etc) usually must be cleaned and processed before being marketed. To take advantages of economies of scale, processing plants are large and thus cannot be close to many farms. Due to this, farmers usually sell unclean and unprocessed produce to marketing intermediaries. In many cases, these intermediaries also supply credit to farmers through various linkages. This is possible because the marketing intermediaries already know the farmers and their creditworthiness. The credits are not regulated; therefore, even tax evaders have access to credit. In addition, the intermediaries can deduct loan repayments from payments for the farmer's produce. Schreiner (1997) observes that although marketing enterprises provide access to credit, they often command monopsony power, and they may offer loans with very unfavourable terms.

Unusual risks

Agriculture is unusually risky. Weather can destroy crops regardless of the efforts of the producer. Some weather risks, such as hail are idiosyncratic; others like drought are systemic. Prices fluctuate beyond the control of the farmer. The prices of spices, fruits and vegetables are particularly volatile. As in most developing countries, Tanzanian smallholder farm enterprises are completely uninsured (Mutayoba & Ngaruko, 2015). Due to these risks, agricultural loans have been perceived unusually risky. Agricultural loan delinquency has also resulted from the politicised lending. Other factors that explain weak loan repayment include poor farmers' debt to equity ratio as well as the historical use by the state, of agrocredit as a way to subsidise agriculture and as a substitute for insurance. From the supply side, production risk and price increase the uncertainty of repayment. Historical non-repayment also increases the perceived risk, thereby increasing the cost of credit and decrease in its supply. Risk tends to increase as size and length of loan increases. From the demand side, risk increases the desire for credit because without perfect guarantees, the fixed nature of the repayment obligation allows the borrower farmer to shift some risk to the lender. However, increased desire stimulated by risk does not increase effective demand. Risk decreases the effective demand for large, longer loans because such loans usually require traditional collateral such as titled land, buildings etc. Likewise, risk increases the demand for short, small loans because such loans help smooth consumption in bad seasons.

Agrocredit agility and flexibility

Agrocredit borrowers, like any other users of financial services, would prefer the best products at the lowest prices possible, thus they will never be completely satisfied. Thus, a desirable credit should impose low transaction costs on the users. As noted before, transaction costs are important because they often swamp prices. In addition, remoteness makes transaction costs in rural areas high. Credit agility and flexibility decrease transaction costs of borrowing. A credit is agile if it is fungible across different uses and it is flexible if it can be matched with the number, size, and timing of the cash flows of borrowers. Unlinked cash loans are more agile than linked loans. Decoupling tax compliance from access to regulated intermediaries opens access to many unbanked smallholder farmers (Ngaruko, 2008). Rural informal lenders, market intermediaries, and finance organisations who are currently supplying credit to smallholder farmers are precisely those intermediaries who do not link access to tax compliance. Nguvava and Ngaruko (2016) content that Linking tax compliance to access to regulated intermediaries hurts the poor because they demand credit even though they do not pay taxes. However, the poor will not stop evading taxes simply to gain access to financial services.

Kashaga and Ngaruko (2019) shows that although borrowers prefer disbursement in cash, they sometimes prefer repayments in kind. This helps to avoid costs of marketing. For some specific types of farm products, marketing intermediaries also sometimes prefer in kind repayment because it helps them utilise installed capacity. Other than individuals, in some cases only farmer groups are creditworthy. Thus lenders evaluate the creditworthiness of the groups because bands of smallholder farmers may substitute for large, single-owner farm such as the Group Lending Schemes adopted by many microfinance organisations.

In conclusion, agrocredit linked to specific purchases are useful, but they cannot be used for all expenditures. Cash loans, especially flexible cash loans, which allow the borrower to choose the timing and size of disbursements and repayments, are especially valuable for continuous production and consumption expenditures. Payment by cash is the most common and essential. However, as cash has a physical existence, it has to be transported, and kept safe, but it can also be stolen or lost. The cost of transportation and risk of loss are especially important in rural areas.

This implies that credit supply through cash payment mechanisms will attract higher transaction cost than linked (in kind) credit.

Features of agrocredit suppliers in Tanzania

Several features were considered to classify the various suppliers of agrocredit as shown in Table 1 and Table 2. Both formal and informal suppliers were observed in the study area where formal suppliers were either regulated whereas others were unregulated. The agrocredit suppliers were either privately or publicly owned. The form of agrocredit could slither be cash mainly for regulated banks but the form could either be inkind or cash for most of the unregulated supplier. Different types of suppliers and/or form of credit faced different levels of competition and risks due to lack of sufficient information on borrower characteristics. Table 1 summarises the typological framework of suppliers of agrocredit to smallholder farmers in Tanzania based on formality, regulation, ownership and competition. Based on the type of agrocredit, suppliers can be broadly categorised into four main groups: informal credit suppliers, unregulated formal private credit suppliers, unregulated formal public credit, and regulated credit suppliers.

Table 1: Suppliers of agrocredit by formality and regulatory related features

Supplier	*Formality*	*Regulation*	*Ownership*	*Competition*
Family/friends	Informal	No	Private	Medium/High
Inkind credit supplier	Informal	No	Private	Low/Medium
Commodity buyer	Formal	No	Private	Low/Medium
Agricultural cooperatives	Formal	No	Cooperative	Low
SACCOS/ROSCAs	Formal	No	Cooperative	Low
NGOs/CBOs	Formal	No	Non-profit	Low
Public credit schemes	Formal	No	Public	Low
Community banks	Formal	Yes	Public/Private	Low
Commercial banks	Formal	Yes	Public/Private	None/Low

Source: Modified from Ngaruko, 2014

Informal agrocredit suppliers: Informal agrocredit refers to credit that is not based on any rules or regulations and hence it is purely not regulated, and it can be supplied as cash or in-kind. The credit's main repayment enforcement mechanism is through threats posed on loss of family relationships and values as well loss of friendship as a result of the failure to repay them credit. Table 1 lists two main informal agrocredit

suppliers for smallholder farmers: family members and/or friends and input creditors.

Family and friends

Smallholder farmers access informal cash credit from friends and relatives. These suppliers may be employees in non-farm activities, wage earning farmers' family members residing locally or in urban areas or from other farmers. While this type of credit seems to be widespread, agile and flexible, its size is limited by the surplus of the lender. Therefore, informal credit usually finances non-durable purchases by households or farm activities. Terms are adjustable and prices and transaction costs are low, but the opportunity cost of indebtedness to relatives and friends can be high. Flexible repayment terms mean that risk of default is low. Borrower's character is usually the only form of guarantee.

In-kind credit suppliers

Some smallholder farmers receive informal credit in kind from employers, input suppliers, local consumer shops, or from other farmers. In kind credit is a sort of barter trade with non-simultaneous exchange. Examples include trading groceries for delivery of certain farm produce of certain quality after harvest. For example, a bag of seeds at planting for 2 to 3 bags of grain at harvest, one future harvest for a bicycle, beef cattle for milk cows, 2 bags of harvested grain for the piece of land rent etc. Closely related to the persistent situation in rural Tanzania, Schreiner (1997) found out that in extraordinarily isolated rural areas in Argentina, inkind credit from mobile retailers with trucks of consumer merchandise are the only external credit available, and that the retailers often set up a 50% mark-up. The mark-up reflects of transportation costs, credit risks, the time value of resources as well as monopoly power.

In general, inkind agrocredit has low transaction costs and risks, especially if the borrower and the lender already have a relationship. By avoiding cash, inkind credit is protected against hyperinflation, and it naturally subsidises cash loans for rural economy whose degree of monetisation is narrow. Inkind credit avoids marketing costs as well as taxes. However, inkind credit is neither agile nor is it flexible, terms are fixed by the production cycles and opportunity costs are high because production and delivery obligations are fixed. Lenders are often monopsonist buyers of farm produce, controlling market power and fixing

exploitative loan terms. However, NIE theory argues that provided there is no alternative, the prevailing service supply mechanisms suffice what farmers could not have had access to. Therefore they are regarded as ex ante, efficient institutional arrangements (Ngaruko, 2012).

Table 2: Suppliers of agrocredit by selected features of agrocredit

Supplier	***Guarantee***	***Agility***	***Term***	***Flexibility***		
				Number	***Size***	***Time***
Family/friends	Character	Cash	Any	Any	Small	Any
Inkind credit suppliers	Character	Linked	Production cycle	One	Large	Fixed
Contract farming	Harvest delivery	Linked	Production cycle	One	Medium	Fixed
Agricultural cooperatives	Harvest delivery	Linked	Production cycle	One	Medium	Fixed
SACCOS/ROSCAs	None	Cash	Few months	Few	Small/med	Fixed
NGOs/CBOs	None/Group	Cash	Few months	Few	Small	Fixed
Public credit schemes	Cooperatives	Linked	Production cycle	Varies	Varies	Any
Community banks	Character/license	Cash	≥6 months	Many	Varies	Any
Commercial banks	Collateral/license	Cash	Up to 2 years	Many	Varies	Any

Source: Modified from Ngaruko, 2014

Unregulated formal private agrocredit suppliers: Some farmers receive agrocredit from unregulated formal credit suppliers such as input suppliers, agricultural cooperatives, and NGOs and CBOs. They are briefly discussed in the subsequent sections.

Credit from agricultural input suppliers

Many farmers access agrocredit from retailers of agricultural inputs. Retailers who do not also market agricultural produce usually collect cash after the harvest. Retailers who also market produce usually deduct debt repayments from payments for the delivery of produce after harvest. Sometimes even retailers who do not market produce can have their repayments deducted automatically by marketing intermediaries (See for example Dorward et al. (2003), Atieno (2001), Ngaruko and Lyanga (2021)). Repayment by deductions from committed deliveries not only reduces transaction costs but also acts as a guarantee that reduces transaction risks. However, this repayment mechanism increases

opportunity costs because farmers must sell at harvest when prices are the lowest to specific intermediaries who may try to fix prices. The input supplier credit often does not carry explicit interest rate but it is insinuated in the purchase price of the farm price. Sometimes credit from input suppliers is driven by competition for certain commodities. For instance, input suppliers who also process agricultural products (e.g. coffee marketing firms) may be motivated to supply credit in order to guarantee better utilisation of their installed capacity (e.g. Specific asset investment in coffee processing plants). Credit from input suppliers has limited agility and flexibility. The size of credit is tied to the input purchase, and the term is tied to the production cycle. Supplier credit is only relevant to farmers who buy inputs and/or who sell to marketing intermediaries. With this type of credit, formal written contracts, tax compliance and formal collateral are not necessary.

Agricultural financing through contract farming

Contract farming between farmers and private companies offering credits for agricultural inputs, capital and ensuring the availability of markets, are among the strategies used in production of agricultural products in some parts of the country. This input supply system is common in outgrower schemes in sugar and tea plantations, in export horticultural farms as well as in tobacco sub sector. For example Wangwe and Lwakatare (2004) observed that Dimon (T) Ltd, which is a tobacco leaf processing company located in Morogoro region, is a supplier of tobacco to the Tanzania Cigarette Company (TCC) and deals directly with tobacco farmers through the already existing primary cooperative societies. Dimon has learnt lessons from the collapse of vast number of private companies that have failed in tobacco market due to outstanding debts. Thus instead of dealing with individual farmers, the company deals with the primary cooperative society leaders who distribute the money paid in advance to farmers as a means for buying farm inputs such as fertilizer, seed, pesticides and other essential items. It is up to the leaders to keep within budget allocated to them. As an addition to funds for agricultural inputs, the company also supplies each borrower farmer with the bag of maize seeds to encourage them to grow other crops for food as well as for additional crop sales income. A bag of maize is provided for every four bags of tobacco seeds bought by the farmer. Repayment on the loans is done at various points: the delivery of the agreed quantity of produce in the first and second phase is for the debt recovery. The farmer is only paid on the third delivered allotment.

The problem related to interlocked market contractual arrangement is evidenced by Tanzania Breweries Ltd (TBL) which has for some years been contracting barley farmers by providing them with farm inputs. The company made heavy loss from dishonest farmers of up to TShs 1.2 billion in a year (Wangwe & Lwakatare, 2004). Farmers obtained input seeds such as seeds from the company on agreement of supplying the produce to the company after harvest. However, some farmers sold the seed to other big farmers for cash and thus could not supply the required quantity and quality barley to the company. The company claims that it could be costlier to legally enforce the contracts because the defaulting farmers were too many and too poor (costly) to open court files. From this experience the company has changed terms and conditions of new agreement by carefully selecting few large farmers to contract directly and the others through their cooperative societies. Thus, instead of dealing with all individual farmers, TBL deals with two forms of contracting partners: the carefully screened farmers and the farmer cooperative societies which act on behalf of farmers who do not qualify for direct contract with the company. Other than providing agrocredit to barley farmers, TBL also provides agricultural extension services to farmers and operates the Corporate Social Responsibility Funding Scheme which provides funds for rural development initiatives in areas of their intervention. The funding scheme provides some forms of a complementary investment like education, health and transport necessary to reduce transaction failures in input credit supply and barley procurement.

Credit from agricultural cooperatives

Agricultural cooperatives supply inputs and market produce. In general, corruption and bad management has reduced the importance and scope of agricultural cooperatives. However, some regional cooperatives which have survived shocks of the structural reforms (e.g. KNCU of Kilimanjaro region), still handle a substantial share of credit supply to their members although, to a lesser extent than in the pre-reform era (Maghimbi, 2010). Cooperatives lend for inputs against the promise of delivery of harvest. None of the cooperatives lend cash for unlinked expenditures or for purchases outside of the cooperatives. Loans through universal accounts with cooperatives carry low transactions costs because application procedures are simple, disbursement is quick, disposition of assets is not required and tax evasion is ignored. However, loans through

universal accounts carry fairly high prices and high opportunity costs due to obligations to deliver produce to the cooperative at a given time. In addition, competition is low because most farmers in a given region are associated with only one cooperative. As with other linked credit forms, default risk depends on ability and/or willingness to repay or willingness to deliver farm product to the cooperative. (Kashaga & Ngaruko, 2019) observes that there is a high probability of default where there are many marketing intermediaries to which farmers can have access to linked credit. Related to agricultural cooperatives are Savings and Credit Cooperative Societies (SACCOS) and Rotating Savings and Credit Associations (ROSCA). SACCOS and ROSCA are financed by savings and member shares. Their transformation as well as transaction costs are generally low.

Credit from NGOs and CBOs

Credit from microfinance NGOs and CBOs are unregulated, tax-exempt, and often funded by donations and hence keeping their lending and borrowing transformation costs relatively low. Most NGOs/CBOs are flexible organisations which can adapt to local conditions and to grassroots demands. They also have experience with organising groups, and group based financial technologies, which tend to reduce transaction costs of supplying finance in rural areas. Normally NGOs do not reject tax evaders nor do they insist on traditional guarantees. Therefore, NGOs can make agile, flexible loans based on appropriate creditworthiness. Schreiner (1997), Stoian et al. (2016) and Sharma and Bansal (2017) point out that the best financial NGOs do not distinguish between household and the enterprise. However, lack of collateral compels NGOs to supply small, short loans. In addition, the lending technologies used by many NGOs impose excessive transactions costs on users and some of them offer loans at interest rates higher than the official interest rate in order to cover operational costs. For instance, some microfinance NGOs in Tanzania charge up to 50% interest rate whereas the official lending interest rate charged by commercial banks is on average 24%. Other highly subsidised NGOs charge interest rate less than the commercial rate.

Unregulated, formal public agrocredit suppliers: There are some special agrocredit programmes either administered purely by the government or jointly by the government and private stakeholders.

Seasonal Input Credit Scheme

In the early 1990s, the Seasonal Input Credit Scheme (SICS) was set by the government to supply input for traditional export commodities as well as for food grain production. SICS was supplying majority of fertiliser distribution as well as majority of agrochemicals to the agriculture sector as a whole. However, following the reforms that took place in the mid-1990s, especially privatisation of the Cooperatives and Rural Development Bank (CRDB) in 1996 which was responsible for running SICS, this scheme collapsed. In response to these, hybrids of public credit programmes tailored to the needs of smallholder farmers have emerged. Whereas some are run by the crop boards e.g. the Cotton Development Fund or the passbooks for cotton, others are jointly run by the state, crop boards and the private stakeholders e.g. the National Input Voucher Scheme(NIVS)(Kinuthia, 2020).

National Input Voucher Scheme, (NIVS)

NIVS is a product of mutual interest in a functional production and marketing system. A comprehensive account on NIVS is well covered in Knowles (2015). NIVS operates a special input fund whereby licensed parchment buyers issue a specified portion of farmer's coffee payments in the form of input vouchers. Vouchers channel part of each farmers' income from coffee payments in the following season. Traders purchase input vouchers proportional to the amount of parchments of coffee they expect to buy from farmers. These vouchers are then distributed to farmers at the coffee buying posts. For monitoring purposes, NIVS registers input distributors who apply to participate in the scheme. The vouchers collected by registered input suppliers are submitted to NIVS office for cash payment. In the 1996/97 season, vouchers accounted for 20% of the value of inputs required by coffee farmers in country. NIVS is another form of credit in kind; it is thus not agile although some farmers who need cash may trade the vouchers with the supplier in exchange for cash. Although it appears sustainable, NIVS does not encourage self-finance. Its operational costs are high implying high price and transaction costs running the scheme.

Agricultural Input Trust Fund

The widening agrocredit supply gap triggered the government to intervene by providing an alternative way of financing in order to ensure sustainable supplies of inputs to farmers. This led to the establishment of Agricultural Input Trust Fund (AGITF) Act in 1994 and reviewed in 2002

in order to bridge the gap left out by the importers and the co-operative system by ensuring that, agricultural inputs are readily available and can be accessed by the smallholder farmers. The objective of this among others was that the fund is to encourage the use of agricultural inputs, machinery and equipment in order to increase production and productivity of the sector (Munuo, 2014). Since then AGITF has undergone transformation and streamline its activities of providing soft loans to stockists, farmers and other beneficiaries in its efforts to enhance recovery of issued loans so that the Fund revolves and sustains itself. Credits through AGITF have been offered mainly for purchase, repair and maintenance of tractors.

The fund is channelled either directly to the farmers or indirectly by financing distributors of agricultural inputs. In any case the applications are sent through local authorities at the district level where screening is done before the forms are sent to the fund headquarter in Dar es Salaam for decision making. The applicant must have formal collateral preferably an immovable asset and the loan has to be repaid in 5 years period. The allocation of funds to this fund has been unstable and below requirements. The fund is meant to be revolving and growing but it faces very low loan recovery rate. This implies that it is unlikely that smallholder farmers can access credits offered through AGITF. Irrespective of its good intentions, AGITF does not form a reliable solution to agrocredit supply to geographically isolated poor small farmers especially those from income poor regions in the country.

Export Credit Guarantee Scheme

Export Credit Guarantee Scheme (ECGS) is another public source of agrocredit in Tanzania supported by the government and donor community. The funds of the scheme are channelled through a private bank, CRDB Bank (1996) Ltd. The ECGS has enabled a few well-established cooperative unions to secure credits for buying large quantities of crops and procure necessary inputs. By 2005 the scheme had supplied credit to only seven such cooperatives i.e. Nyanza Cooperative Union, Shinyanga Cooperative Union, Karagwe Cooperative Union, Biharamulo Cooperative Union, Arusha Cooperative Union, Kilimanjaro Native Cooperative Union, ISAYULA co-operative Union and Mbozi Cooperative Union. For example, in 2004, Shinyanga Cooperative Union secured Tshs. 3.3 billion for buying cotton; and Karagwe District

Cooperative Union secured Tshs. 2.2 billion and bought member coffee on credit guarantee scheme[1].

Small Enterprises Loan Fund

Other special credit programmes lend to organisations that on-lend to final borrowers. For instance, a state-run fund, Small Enterprises Loan Fund (SELF) lends to several SACCOS and microfinance NGOs/CBOs which then on lend to their members. However, very few smallholder farmers have access to such credit due to inherent bias of credit suppliers against farm enterprises.

Regulated agrocredit suppliers: Public and private banks provide regulated agrocredit. The central bank requires that all regulated financial intermediaries to check their customers to ensure they are in good standing with the tax and licensing authorities before borrowing or opening any type of account. This blocks small farmers from access to formal credit form banks. Virtually, no small farmers have access to bank loans. Tanzania Agricultural Development Bank Limited (TADB) is a state-owned development finance institution established under the Companies Act no. 2 of 2002. The key role of the bank is to be a catalyst for delivery of short, medium and long- term credit facilities for the development of agriculture in Tanzania. The establishment of TADB is meant to be a major step towards increasing the flow of credit to rural farmers who account for over 80% of farmers. However, the smallholder farmers are yet to realise the existence of this bank. This is due to the fact that just like any other regulated commercial banks, it follows the formalized system of agrocredit delivery which fails to cater for the intended groups of majority small borrowers of agrocredit. Being a public bank, TADB is yet to capitalise on its potential in reduction agrocredit delivery at low levels of transaction costs associated with smallness of borrowers.

Currently only two banks in Tanzania (NMB and CRDB) are offering loans to farmers indirectly through intermediaries who act as guarantors to farmers. Whereas only sugarcane outgrowers can access input credit from NMB through sugarcane companies, CRDB lends to farmers' organisations, which then on-lend to members. Smallholder farmers who

[1] http://www.tanzania.go.tz/economicsurveyf.html (July 2007)

are pensionable employees (e.g. teachers, civil servants etc) access loans from a variety of banks thus indirectly part of such loans are used to finance agriculture. All these credit delivery arrangements tend to reduce risks of non-repayments. Failure of the direct contact between borrower (farmer) and banks implies that the commissions paid to intermediaries raise the interest rate charged to final borrowers (farmers). Unlike NMB which has branches in almost each district, almost all banks are concentrated in the cities and if any at regional level. In addition, most of them have not yet adopted payment technologies such as use of credit cards that would reduce transactions costs and risks.

Other regulated sources of credit to farmers that emerged in the late 1990s in Tanzania are the community banks. They are locally based banks, implying low cost of screening and monitoring borrowers (see Table 3). These banks are faced with a lot of limitations regarding their fund-raising strategies. Their main funding sources are savings mobilised locally and to a lesser extent share capital. The scope for long term lending is usually determined by the amount of equity. Since these banks do not have branches or apex organisations, the possibilities to diversify their loan portfolio beyond the limits of their communities are restricted. Given the special features of agriculture, it's likely that these banks are marginally involved in agricultural lending. If any, they do offer short-term loans. Though borrowers might be farmers, it is unlikely that credit is used for agricultural purposes. However, community banks are crucial actors in providing complementary financial services (savings, payments etc) to help rural people manage their cash and monetise the rural economy.

Synthesis of forms of supply-side agrocredit transaction costs

To this point, it can be noted that the various agrocredit suppliers involve different forms of transaction cost. Table 3 presents incidence of each form of supply side transaction cost associated with each category of agrocredit supplier. Informal agrocredit forms may seem to have relatively low monetary transaction cost mainly due to their heavy investment in social relationships. As a result of this, agrocredit from the family members and friends experience minimal or no transaction costs resulting from screening (search) cost of a contracting partner and also of enforcing the repayment. The regulated forms of agrocredit experience higher transaction cost because of the implied requirement to both supplier and borrower having business licences and non-movable fixed

assets, which are in most cases related to asset fixity (Kuchler et al., 2022) . The regulated forms of agrocredit experience higher levels of default from the borrowers compared to unregulated ones implying that regulated agrocredit are subjected to both higher transaction cost and higher of default relative to unregulated ones. This implies that the higher the agrocredit supplier's transaction cost the likelihood of the borrower defaults. Business licenses are permits issued by government agencies that allow individuals or companies to conduct business within the government's geographical jurisdiction. It is the authorization to start a business issued by the local government. In agribusiness, requirement for business licenses to supply agrocredit seems to be associated with formal and regulated suppliers. Table 3 shows that such suppliers required to comply with business formalisation are associated with offering agrocredit at higher search, negotiation and enforcement transaction cost compared to those that are informally supplying credit. This implies that such suppliers can only recover higher transaction cost by charging higher interest rates and in some cases involving non-price levies, all of which turn up to be an additional burden to the borrower.

Policing and enforcement costs are also considered as other key sources of transaction costs associated with ensuring that the parties abide to the agrocredit contract. In real world, people often deviate from the contract, and thus, enforcement costs are incurred while governing contracts. To overcome failures by agrocredit borrowers to comply with contractual obligation, the agrocredit suppliers have to invest monetary and non-monetary mechanisms, some of which may involve coercive means and where need be use police forces and related legal machinery.

Table 3: Incidence of supply-side transaction costs by forms of agrocredit suppliers

Supplier	Asset fixity	Business License	Enforcem-ent cost	Tax evasion	Screening cost	Monitoring cost	Default rate
Family/friends	Low	No	Low	High	Low	Low	Low
In-kind	Medium	No	Low	High	Low	Low	Low
Input suppliers	Medium	No/Yes	Medium	High	High	High	Medium
Agricultural coop.	High	Yes	Medium	Low/No	Low	High	Low/Med
SACCOS/ROSCAs	Low	Yes	Medium	No	Low	High	Medium
NGOs/CBOs	Medium	Yes	Medium	No	Medium	Medium	Med/High
Public credit scheme	High	Yes	Low	No	High	High	High
Community banks	High	Yes	Medium	No	Medium	High	Low
Commercial banks	High	Yes	High	No	High	High	Low

Source: Modified from Ngaruko, 2014

Tax evasion is another possible motive for agrocredit suppliers to increase transaction cost agrocredit delivery to smallholder farmers. Tax evasion id illegal as it is the violation of the law. When the taxpayer refrains from reporting income from labour or capital which is in principle taxable, supplier is liable to legal action from the tax authorities. In evading taxes, he worries about the possibility of his actions being detected. Tax avoidance, on the other hand, is within the legal framework of the tax law. It consists in exploiting loopholes in the tax law in order to reduce one's tax liability. In engaging in tax avoidance, the taxpayer has no reason to worry about possible detection. However, efforts undertaken to avoid tax in some ways increases transaction cost, especially when the supplier is non-state. Table 3 shows that the informal and unregulated agrocredit suppliers are associated with low or no concern for evasion implying that they, not only avoid tax but they also evade taxes.

CONCLUSION AND RECOMMENDATIONS

The demand for agrocredit by smallholder farmers is determined by what happens to the marketing of the produce concerned in terms of commodity prices, marketing outlets and nature of contractual arrangements with credit suppliers. The cost of credit (interest rate) as stipulated in smallholder economy has low impact on demand for agrocredit. The supply of agrocredit is limited because of high transaction cost. The informality of agrocredit supply is associated with low transaction cost but with low levels of credit and low levels of repayment rates. The formalised and regulated suppliers are associated with higher levels of transaction cost with relatively higher levels of repayment. Search, negotiation and enforcement cost for credit from regulated, licensed or regulated suppliers are higher because in some cases they involve third parties to act a middleman between the borrowers and supplier. The third parties are those middlemen (agents) who charge for the services of giving confidence to both agrocredit borrowers and suppliers, who are distant from each other and rarely possess information on the motives of the contracting parties. This implies that in smallholder agribusinesses where the transaction involves small volumes of agrocredit, the transaction cost increases due to supplier’s compliance to legal formalisation and licensing. Thus, in order for a significant volume of agrocredit to be accessible to farmers, higher transaction cost is inevitable. The challenge remains in formalising non-monetary

transaction costs in the businesses especially when complying with legal requirements to formalise businesses.

This paper has argued that repayment of agrocredit is dependent on factors implied in bilateral relationship between farmers and agrocredit suppliers. This implies that no formal collateral is necessary to enforce repayment. Hence there is need for developing a more working agrocredit supply and repayment model outlining factors that may promote and/or inhibit the transactions. Some agrocredit suppliers prefer supplying in-kind agrocredit to cash agrocredit which is linked to commodity procurement after harvest. This supply model is highly recommended for very resource-poor smallholder farmers.

In order to increase access to agrocredit to resource poor farmers, this paper recommends that its essential for all stakeholders, under the leadership of the government to harmonise and improve coordination of agriculture and financial sector policies in order to improve capacity of smallholder farmers and subsequent supply of agrocredit, reducing the emerging agrocredit markets through market shocks. This will reduce nonmarket transaction costs which in turn will encourage more agrocredit market players to impose agrocredit supply policies that are friendlier to the resource poor farmers.

The establishment of the state-owned Tanzania Agricultural Development Bank (TADB) in 2015 is a major step towards increasing the flow of credit to rural farmers. The bank has an opportunity to use its existing mandate and infrastructure to raise more awareness and facilitate agrocredits. Being a public sectoral bank, TADB should increase its outreach for rural areas and smallholder farmers and participate more effectively and efficiently in awareness and access to finance in rural areas for smallholder farmers. This will certainly trickle down to other providers of agrocredit suppliers both formal and informal.

Formal and informal agrocredit suppliers including producers, suppliers need to engage in the provision of training on profitable farming systems and financial literacy to smallholder farmers. A well informed agrocredit supplier about the nature and form of farming systems is likely to design agrocredit products that involve less transaction costs which in turn increases more access to agrocredit. It is also recommended that instead of dealing with individual farmers the contracting supplier of in-kind

agrocredit may mitigate transaction cost by dealing with the farmer groups or primary cooperatives which act on behalf of member farmers. Working with farmer groups or farmer representatives reduces transaction cost of many small volumes of credit demanded by large number of small farmers.

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