



MARKETING SERVICES FOR CHOICE OF MARKET CHANNELS AMONG SESAME SMALLHOLDER FARMERS IN TANZANIA: THE MODERATING EFFECT OF AGRICULTURAL MARKETING CO-OPERATIVE SOCIETIES

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ABSTRACT

The study examined the influence of marketing services on choice of marketing channel when moderated by agricultural marketing co-operative societies. It employed a cross-sectional research design, whereas a sample of 392 smallholder sesame farmers was randomly drawn through probability sampling techniques. Data were collected using a survey questionnaire and analysed using the Generalized Structural Equation Modelling Approach (GSEM). The study found that market services positively influence the choice of marketing channel when moderated by agricultural marketing co-operative societies among smallholder sesame farmers. It was found that the selection of proper marketing channels improved among members of agricultural marketing co-operative societies than non-members. The study recommends training to be given to non-members regarding the importance of agricultural marketing co-operatives societies as well as strengthening co-operatives by enhancing marketing services.

Keywords: Agricultural marketing co-operative societies, marketing services, market choice, sesame, warehouse receipt systems

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1. INTRODUCTION

Poor choice of marketing channel causes serious income problems among smallholder sesame farmers in Tanzania (FAO, 2017; Mashindano and Kihenzile, 2013; TanTrade, 2016). Smallholder farmers were expected to produce surplus and choose among formal market channels to sell their produce (Nyaupane and Gillespie, 2010). According to utility maximization theory, farmers are assumed to use formal market channels to maximize their expected utility of net returns (Ito *et al.*, 2012; Fischer and Qaim, 2012; Ma and Abdulai, 2016). Marketing channels of sesame in Tanzania, especially in the Lindi and Mtwara regions, are mainly explained in three ways; local open market, middlemen (Chomachoma), and Warehouse Receipt Systems (WHRS). According to Mashindano and Kihenzile (2013), the local open market refers to the channel through which sesame producers sell their sesame directly to consumers in the rural and urban markets. Middlemen marketing channel

refers to the channel where smallholder farmers sell their sesame through intermediaries. WHRS refers to the formal marketing channel organised and administered by Agricultural Marketing Co-operatives Societies (AMCOS). WHRS channel is destined for the export market, where traders purchase the sesame for export to Japan, Turkey, China, and India (Mashindano & Kihenzile, 2013).

Smallholder sesame farmers in Lindi and Mtwara regions are constrained by higher transaction costs related to poor marketing services (ILRI, 2007; Mashindano & Kihenzile, 2013; TanTrade, 2016). This has affected their productivity and decisions on choosing the formal market as a proper marketing channel (Nyaupane & Gillespie, 2010). Low productivity implies less likelihood of smallholder sesame farmers choosing the formal market as a marketing channel. According to Nyaupane & Gillespie (2010), surplus production is associated with the choice of the formal market as a marketing channel. Consequently, the probability of farmers' orientation towards commercialization becomes low. Most of them opt to choose informal markets such as the middlemen who pay a low price, hence decreasing their income and increasing poverty levels.

Tanzania Development Vision 2025 and policies such as Agricultural Marketing Policy (AMP), National SME policy and regulations governing Sesame marketing in Lindi and Mtwara regions (URT, 2018, 2019) lay the fertile ground and provide an opportunity to address the prevailing constraints. On the other hand, initiatives undertaken by actors such as Farm Africa, Netherlands Development Organisation (SNV), and Fair Trade Labeling Organisation (FLO) make part of the combined efforts to address sesame production and marketing challenges.

However, regardless of these initiatives, smallholder sesame farmers in Lindi and Mtwara are still constrained by low productivity and poor choice of marketing channel (FAO, 2017; TanTrade, 2016). To this end, more had to be done to find out the solution; Co-operatives societies often play a pivot role in agricultural marketing by providing critical services to their members (Schulz and Mbuvi, 2010). By taking the role of intermediaries, co-operatives can connect the farmers and markets by offering economies of scale and specialized skills in assembling, grading, and transferring information between buyers and sellers (Moustier *et al.*, 2010; Verhofstadt and Maertens 2014). Co-operatives are vital in improving price information, providing economies of scale to members, and enhancing collective bargaining, lobbying, and advocacy (ILO, 2006; Tchami, 2007). In addition, AMCOS are designed to reduce transaction costs and improve farmers' market participation ability (Chagwiza *et al.*, 2016). However, the literature has not stipulated clearly to what extent the adoption of AMCOS among the smallholder sesame farmers resulted in the selection of formal marketing such as WHRS as a marketing channel. Therefore, this study aimed at discovering the relationship between marketing services and the choice of marketing channels when moderated by AMCOS—studying this relationship provided insights on the moderating effect of AMCOS between agricultural services and the choice of marketing channel.

2. METHODOLOGY

The study was carried out in the Lindi and Mtwara regions of Tanzania. Lindi and Mtwara are among the leading areas of sesame production in the country account for 35% of the total sesame (FAO, 2017). Therefore the selection of this location was based on its supremacy on sesame production. The study adopted a cross-sectional research design; the design enabled the researcher to obtain a general picture that stood at the time of the study (Kumar, 2014). Overall results were established by integrating the qualitative and quantitative results to provide a comprehensive analysis of the research problem (Creswell, 2014). The study population was 17,581 smallholder sesame farmers, from which a sample of 392 was

randomly drawn using the multistage sampling method. Unit of analysis and inquiry of the study were smallholder sesame farmers. Quantitative data were analysed using Generalized Structural Equation Modeling (GSEM). GSEM represents a generalization of SEM by allowing the use of discrete binary outcome variables and non-Gaussian distributions (Lombardi *et al.*, 2017).

3. RESULTS AND DISCUSSION

The participation of a sesame farmer informal markets was viewed as a binary choice resulting from maximization of utility or returns within maximization of utility (Ito *et al.*, 2012; Fischer & Qaim, 2012; Ma & Abdulai, 2016). This study assumes that farmers' decision on whether to use a formal (WHRS) channel is dependant of the difference in utility among the existing options. The independent variables were treated concerning the extent to which they influenced a farmers' decision whether to use WHRS as a marketing channel, which gave the value of one if a farmer chose the WHRS as a marketing channel and zero if a farmer chose otherwise (other market channels). The researcher drew these variables (independent and dependent) from existing literature (Fischer & Qaim, 2012; Hao *et al.*, 2018; Ma & Abdulai, 2016).

3.1 Descriptive Analysis

Table 1: Summary of statistics of the variables used in the analysis

Variable	Mean/Percent		
Dependent Variable	Non Members	Members	Overall
WHRS Market choice	45.09%	62.50%	52.55%
Independent Variables			
Market Services			
Market Information	3.25	3.96	3.55
Bargaining and Negotiation	3.13	3.93	3.47
Storage	3.05	3.51	3.25
Payments	3.33	3.47	3.39
Market Assurance	3.45	4.05	3.71

The findings in table 1 show that about 52.55% of smallholder sesame farmers prefer WHRS. These statistics indicate that the majority, regardless of membership status, choose to sell through WHRS. In addition, 62.50% of small sesame farmers were found to be AMCOS members, while 45.09% were non-AMCOS members. However, regardless of these percent, the study found that selling sesame through WHRS means additional costs for a farmer, such as cleaning, transportation and packaging costs. Therefore, some of the smallholder farmers opted to sell through middlemen who, in most cases, incurred the additional costs by themselves. Further, some smallholder sesame farmers did not appreciate the WHRS as they considered it a mere crop collection point designed to facilitate government revenue collections.

To determine the effect of market services on the choice of marketing channel, the study analysed five latent variables of market services (Table 1): market information, bargaining and negotiation, storage services, payment method, and market assurance. The mean for the market information (Table 1) was 3.55, whereas members had (mean=3.96) and non-members had (mean=3.25). The findings indicate that access of smallholder sesame farmers to market information in the study area was average. However, compared between members and non-members of AMCOS, members of AMCOS had a greater extent of access to the market information (mean =3.96) than non-members (mean=3.25). This implies that AMCOS in the study area had put in place measures that increased access of their members to the market information. The findings tell two things; first of all, they suggest that smallholder

sesame farmers in the study area generally had access to the market information. Secondly, they indicate that AMCOS played an essential role in increasing awareness among their members about market information. AMCOS helps farmers to gain more insights that helped them choose market channels(Thamthanakoon, 2018).

According to USAID (2013), identifying additional buyers and having multiple buyers available is advantageous to producers. Farmers need to get the network to expand their activities; the network through both government and external is essential for funding, training and marketing (Kingu & Ndiege, 2018). Agricultural co-operatives mean institutional arrangement which help to reduce transaction costs and information asymmetry through collective actions which can enhance members to access market output (Fischer & Qaim, 2012). Information sharing reduces information asymmetry (Fischer & Qaim, 2012). Similar observations were made by Thamthanakoon (2018) in his study of factors affecting marketing channel selection by rice farmers in Thailand. Thamthanakoon (2018) argued that group membership and access to information (e.g., market, price, and production information) influenced farmers' market participation. Harrizon *et al.*, (2016) argue that membership in an organisation is considered a proxy for information access. It is expected that members are more likely to participate in a marketing channel and have increased supply intensity (Harrizon *et al.*, 2016).

The overall mean score of the bargaining and negotiation (Table 1) was 3.47, whereas members (mean=3.93) and non-members (mean =3.13). The findings show that the ability of individual smallholder sesame farmers in the study area to bargain and negotiate was average. Still, compared between AMCOS members and non-members, AMCOS members had more ability to deal and negotiate than the non-members. Farmers who sell in groups have more bargaining power than farmers who sell individually. According to Githaiga (2007), groups can trade in more complex markets, while individual farmers are more likely to sell to markets closer to their farms. Since a better price is a driving force for market channel choice, price negotiating and negotiation are important. Many farmers prefer market channels that deliver better prices (Kihoro *et al.*, 2016). Higher prices raise farmers' profit margins, motivating them to grow more and earn more money. Pricing, according to Kihoro *et al.*, (2016), is crucial when farmers are deciding which marketing channel to use. Households with a higher expectation of profiting from price signals are more likely to produce in the assembler marketing channel than wholesale, according to Kihoro *et al.*, (2016).

The overall mean score of storage services was 3.25, whereas members (mean =3.51) and non-members (mean =3.05). The findings show that access of smallholder sesame farmers to storage facilities in the study area was average, with AMCOS members having more access than non-AMCOS members.

Concerning payments, the overall mean score of payment (Table 1)was 3.39, whereas members (mean =3.47) and non-members (3.33). This means that the overall effectiveness of the mode of payment to the smallholder sesame farmers in the study area was average, with a high impact on payments through bank and payment deductions. It was revealed that, as AMCOS did not provide credit support, smallholder farmers who needed immediate payments engaged with middlemen to get credit arrangements, and upon harvesting, they had to sell to them in party or in whole to repay for the credit. Concerning deductions, the price-setting policy discouraged some Smallholder sesame farmers from selling through the WHRS market channel. Jensen (1990) indicated that higher prices and lower beliefs influenced the choice of marketing channel, with farmers preferring marketing channels with higher prices and lower deductions. Elsewhere, second payments have proven to be

effective in attracting farmers to sell through Co-operative Societies. Harrizon *et al.*, (2016) argued that a second payment (Bonus) influenced the decision to participate in the marketing channel.

Market assurance score 3.71, whereas members (mean =3.71) and non-members (mean =3.45). The findings show that the sesame market in the study area was assured and it was more so for AMCOS members through the WHRS. An assured market is an incentive for high production and participation in co-operatives. An increase in production provides farmers with a surplus, encouraging them to sell through the formal market channel (Nyaupane & Gillespie, 2010). Therefore, the findings imply that the smallholder sesame farmers in the study area had an incentive to increase production and participate in co-operative societies. According to Liu *et al.*, (2018), 75 percent of sellers' initial incentive to join a co-operative is to be able to sell their goods. Jensen (1990) discovered similar results among dairy farmers. Dairy farmers must have a guaranteed market and better facilities in order to market their milk through co-operative milk handlers.

3.2 Inferential Analysis

The fitted model results presented in Table 2 revealed that the WHRS market channel's use was significantly positively associated with market services ($\beta = 0.2893$, $p = 0.005$). Thus, increasing market service was related to increasing the likelihood of the farmers selling their products through WHRS compared to other market channels. The odds ratio associated with selecting WHRS instead of other market channels for a unit increase in market services was 1.34 ($\exp(0.2893)$), implying that the odds of using the WHRS market channel increased by 1.34 unit increase in market services. Table 2 presents the results of GSEM for the influence of marketing services on the choice of marketing channel.

Table 2: Results of GSEM for influence of marketing services on choice of marketing channel.

Effect	Estimate (β)	Standard Error	Odds Ratios	Z-Value	P-value
Intercept	0.105	0.1036		1.01	0.311
MARSERV	0.2893	0.1031	1.34	2.81	0.005

The findings demonstrate that smallholder sesame farmers in the study area had access to market services, based on which they gained insights that helped to choose marketing channel (Harrizon *et al.*, 2016; Jari & Fraser, 2009; Jensen, 1990; Kihoro *et al.*, 2016; Nyaupane & Gillespie, 2010; Takavarasha & Jayne, 2004; Thamthanakoon, 2018). The findings are confirmed by Jari & Fraser (2009), who analysed market services from the perspective of market information, and found an increase in formal marketing, resulting from market information availability was about twice the increase in informal marketing, which means that there was a significant positive relationship between market services and the choice of market channel. Such findings are consistent with the qualitative results that most respondents admitted during the field study. It was revealed that information such as buyers', price, dates of auctions (marketing), variety of sesame required by the market, and quality and standards requirements of the market were communicated to co-operative members during the Annual general meetings. Non-members were also able to access such information through village meetings, interactions with AMCOS members, and access to notice boards of AMCOS or through ICT enabled facilities such as radio, TVs, telephone text messages and whatsapp.

Similarly, the findings tally with Mburu *et al.*, (2007), Harrizon *et al.*, (2016), and Staal *et al.*, (2006). Mburu *et al.*, (2007) reported a positive relationship between price and choice of co-operative marketing channels among dairy farmers in the central highlands of Kenya. Harrizon *et al.*, (2016) analysed determinants of tea marketing channel choice and sales

intensity among smallholder farmers in the Kericho District in Kenya. It was found that tea price was a significant determinant in the tea marketing channel. Also, Staal *et al.*, (2006) studied smallholder dairy farmer's access to alternative milk market channels in Gujirat. It was found that the price offered for milk influenced marketing channel choice. These three studies imply that market services that render price information and market services that lead to the increased price or reduced transaction costs significantly influence the relationship between market services and market channel choice.

Market services such as facilitation of payments and payment methods, specifically bonus or second payments, were also impactful on the choice of marketing channel among smallholder sesame farmers. The findings are confirmed by Harrizon *et al.*, (2016), who argued that second payment (bonus) had a positive influence on the intensity of participation (sales volume) in a chosen marketing channel. This variable was hypothesised to have a positive association with farmers' choice of green gram marketing channels. This means to market services such as the facilitation of payment methods have a bearing in the choice of the market channel among the smallholder sesame farmers in the study area. The relationship between market services related to improving grades and standards of sesame and market channel choice was also consistent with some previous studies. One of such study is the study by Jari and Fraser (2009), who established that improvement in expertise on grades and standards resulted in an increase in the formal market participation choice by households. It was further learned that smallholder sesame farmers, particularly AMCOS members, were trained on quality management issues and were facilitated with facilities such as dryers to ensure that they meet the quality standards required by the market. Such market services played a critical role in ensuring that the farmers meet the marketing requirements and choose a formal market channel as their marketing channel.

As far as the moderating effect of AMCOS on the influence of marketing services was concerned, the study found that among AMCOS members, the use of the WHRS channel for selling the products was significantly positively related to the choice of marketing ($\beta = 2.3665$, $p=0.008$). In contrast, the influence was significantly negatively associated among the non-members. These findings meant that the impact of market services on the choice of WHRS depends upon AMCOS membership, implying that the influence of market services on the choice of the market channel was moderated by AMCOS membership. Table 3 presents the results of GSEM for the influence of marketing services on the choice of marketing channel among smallholder sesame farmers stratified by AMCOS.

Table 3: Results of GSEM for marketing services and choice of marketing channel

Effect	Estimate	Standard Error	Z-value	P-Value
Member of AMCOS				
Intercept	0.5772	0.1865	3.09	0.002
MARSERV	2.3665	0.8915	2.65	0.008
Non Members of AMCOS				
Intercept	-0.2148	0.1485	-1.45	0.148
MARSERV	-1.9306	0.8259	-2.34	0.019

The findings show that AMCOS members generally have more access to market services than non-AMCOS members. The analysis indicated that AMCOS in Lindi and Mtwara regions provided their members with market-related services such as free access to information about buyers, price and quality, auction dates, and transportation arrangements. Such information was normally made available through AMCOS notice boards or on-demand. Further, the AMCOS organised capacity building for their members during AGMs in the areas such as WHRS operations and quality management. Such services

enhanced the capacity of AMCOS members to participate in the WHRS Marketing Channel. This explains why the moderating effect of AMCOS on the influence of marketing services on the choice of marketing channel is positively associated with the AMCOS members but negatively associated with the non-members.

The findings are consistent with Harrizon et al., (2016), who argues that membership in an organisation is considered a proxy for information access. Hence members are more likely to participate in a marketing channel and have increased supply intensity. Similarly, Thamthanakoon (2018), in his study about factors affecting marketing channel selection by rice farmers in Thailand, confirmed the relationship between group membership and choice of Market Channel. Thamthanakoon (2018) found that group membership and access to information (e.g., market, price and production information) influenced farmers' market participation. Participation in collective actions is essential, as it uses economies of scale, improved involvement in markets, and generated social capital through networking (Kangile *et al.*, 2020). According to Fischer & Qaim (2012), Agricultural co-operatives are an institutional arrangement that can help reduce information asymmetry and transaction costs through collective actions (Fischer & Qaim, 2012), which finally enhance members' access output markets. The findings agree with Githaiga (2007) that farmers who sell in a group have a higher bargaining power than farmers who sell individually because farmers in groups can trade in more complex. However, better management of the co-operative society is critical for it to attract membership, as argued by Hao *et al.*, (2018) that co-operative members may choose to sell their products to different marketing channels, such as co-operatives, wholesalers, and small dealers, due to the loose management structure of agricultural co-operatives.

4 CONCLUSION AND RECOMMENDATIONS

The choice of the marketing channel depends on AMCOS Membership. The increase in market services among AMCOS members increases the chance of choosing WHRS as a marketing channel. Among non-AMCOS members, the increase in Market services decreases that chance. 62.50% of the AMCOS members sold sesame through WHRS while 37.50% sold through other marketing channels, indicating that members of AMCOS also choose to sell their products to different marketing channels, particularly to middlemen. The dominance of middlemen (*Chomachoma*) in the sesame sub-sector in the study area is the direct effect of weak marketing services provided by AMCOS to its members and the lack of policy framework to guide the sub-sector. The heavy involvement of unions and government in the marketing system of sesame increased the market and transaction costs which were eventually borne by producers, which violates the agricultural liberalisation policy that provides for the government's gradual withdrawal from the direct participation in productive activities. Because of this, the study recommends that the regional and district co-operative office should conduct capacity building of AMCOS to provide marketing services to their members, and the government should enact bylaws and regulations that will regulate the participation of middlemen (*Chomachoma*) in the sesame value chain in the manner that would benefit the Smallholder sesame farmers. Specific measures include the Lindi and Mtwara region government adopting the participatory approach in setting out indicative price of sesame by involving AMCOS and the government sticking to its fundamental role of policy formulation, regulation, and enforcement.

The statistical findings of this study provide the only evidence of the extent to which such services are delivered or not delivered by the AMCOS and the extent of the relationship between the services offered and the choice of marketing channel, as moderated by AMCOS. The findings do not provide any statistical evidence of the factors that affect the marketing services by the AMCOS, and such study could not be found in the study area. Therefore this

study proposes an analysis of factors affecting marketing services delivery in the sesame sub-sector to be conducted in the future.

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