

Agricultural Productivity, Co-Operatives and Organisational Innovations: A Case of Selected Coffee Production Communities in Mbinga District Tanzania

M. Bwabo, A. Mchopa and H. Huka
Email: bwabomaulid@gmail.com

Abstract: Agriculture is the backbone of the majority of developing countries accounting between 30 and 60 percent of their Gross Domestic Product. Studies indicate that presence of cooperative societies, institutional support and other organisational linkages can enhance productivity and increase farmers' income by bringing financial services closer. The study objectives aimed at establishing coffee production level in the last farming season; examining the contribution of cooperative societies in the production of coffee; and determine organisation innovations existing in coffee production. Methodologically, the study made use of cross section research design and data were collected from five villages namely Utiri, Mtama, Mahumba, Mahande and Iringa located in Mbinga District. Key respondents were the coffee smallholder farmers located in the aforementioned villages who were also members of Kimuli Agricultural Marketing Co-operative Society (AMCOS) and Muungano Savings and Credit Co-operative Society - a SACCOS. Multistage sampling procedure was used to select five villages and smallholder farmers were obtained through systematic random sampling. Results indicate that smallholder farmers own small land sizes which limit their productivity where the average land size per household is 7 acres and average yield was 1145.14kg per household. The cooperatives had a great contribution to the production of coffee as they enabled members (smallholder farmers) to get inputs at reasonable prices, provide extension services, provide credits at reasonable interest rates, provide coffee processing as well as finding markets on behalf of farmers at regional, national and international levels. Also, coffee farmers were able to innovate a new structure for harmonising the institutional linkages between their cooperative societies (AMCOS and SACCOS) which is called "integrated co-operative model". The model proves to be one among the key organizational tools for revamping and sustaining agricultural productivity while improving rural smallholder farmer's livelihoods.

Key Words: Production, coffee, cooperative societies, integration.

INTRODUCTION

Cooperatives have a long history in Tanzania as they flourished after independence, but then became part of state structures in a top-down approach and were used as a tool for government policy. Marketing cooperatives expanded their business tremendously in the early 1960s. One source indicates that in 1966 there were 1,616 registered cooperatives and out of these 1,339 were engaged in the marketing of agricultural products. In 1960 cooperatives handled 145,000 tons of produce, in 1965 they handled 496,000 tons, and in 1966 they handled 628,833 tons of produce, which was worth TZS 605,200,500. By 1967 the cooperative movement had 3,000,000 members in rural areas (Kimario, 1992: 27). The data quantify that the cooperatives sector was making huge business and members benefited out of it.

Furthermore, radical changes in government policy on cooperatives occurred after the government's introduction of socialism to all macroeconomic and social programmes. On 14 May 1976 all primary cooperatives were abolished by the government. Their crop marketing functions were taken over by ujamaa villages (communal villages). At the same time, cooperative unions were also abolished and their functions were taken over by parastatal

crop authorities (government owned), which had to buy crops directly from the villages. The abolished unions never bought crops directly from the peasants, but through primaries cooperatives. The other services which were rendered by the abolished cooperatives, such as wholesale and retail trade, were taken over by state owned companies, such as the Regional Trading Companies and District Development Corporations (Maghimbi, 1992:224-225). This reveals that government policy lead to significance impact of market power of the primary cooperatives.

The primaries positively started taking full business responsibilities on behalf of their members. Such a scenario of shifting to the primary societies is considered a positive outcome of liberalization and conducive to the implementation of the co-operative integration as we shall see in the analysis section, because it opened new possibilities for the members of primary societies to operate differently, in a more self reliant way (Sizya, 2001). Traditionally, the co-operative movement was based on a four tier structure with primaries, secondary unions, apex co-operatives and the federation. As the process of liberalization continued, the apex and unions were challenged by economic viability. Most apex bodies disintegrated in the past fifteen years. As a result the primaries had to come up with functional innovations in order to sustain their operations and fulfil members' expectations.

Globally, innovation at the cooperative level has emerge in a natural way between agricultural marketing and saving and credits cooperative, innovation in value chain financing whereby two institutions depend on each other. Access to sufficient and well-timed financial services for all actors in the value chain is a key element for business success. This financing may come in many forms – through other businesses involved in the chain, through banks, micro-finance organizations, or financial co-operatives (credit unions). The inter-dependent linkages of a value chain and the security of a market-driven demand for final products can provide those throughout the chain (suppliers, producers, processors and marketing companies) with more secure channels for access to and sale of products. Financial instruments developed or adapted for use in financing value chains include warehouse receipts, forward contracts, and guarantees (FAO, 2012).

The questions which emerge after long cooperative movements are such as : What exists in Tanzania in terms of innovations in the cooperative sector? How can cooperative innovations in Tanzania be characterized? And, how such innovations would benefit members? These questions are paramount towards assessing means of development support to cooperatives and their members with a focus on improving productivity and achieving rural development goals aiming at improvement of smallholder farmer's livelihood.

METHODOLOGY

The study was conducted in Mbinga District in Ruvuma Region which is among the areas with high coffee production and marketing in the country. The study focused on coffee smallholder farmers who were members of Kimuli Agricultural Marketing Co-operatives (AMCOS) and Muungano SACCOS in five villages namely Utiri, Mtama, Mahumba, Mahande and Iringa.

The approached smallholder farmers were either both members of both AMCOS and SACCOS or only members of AMCOS or SACCOS. The areas was selected because it has both active coffee producers and dynamic primary co-operatives with long history of agriculture and co-operative business development dealing with coffee marketing

Respondents Profile

The approached coffee farmers who had different background in terms of farming experience, membership in cooperative societies, sex, age and education background. This allowed the study to have data coming from respondents with different perspectives regarding coffee production, processing and marketing in Mbinga District. The profiles are presented in Table 1 below and discussed thereafter:

Table 1: Respondents Profile

Attributes		Frequency (n=101)	Percentage
Sex	Female	45	44.6
	Male	56	55.4
Age	21-30	15	14.9
	31-40	31	30.7
	41-50	21	20.8
	51-60	26	25.7
	61-70	3	2.9
	71-80	4	3.9
	81-90	1	0.9
	Education	None	3
Primary		85	84.2
Secondary		12	11.9
Tertiary		1	0.9
Cooperative Membership	Single Member	54	53.5
	Double Member	27	26.7
	Non Member	20	19.8

Coffee production has been like a traditional activity in Mbinga District where both males and females do participate in the farming activities together. This is evidenced by the statistics in Table 1 which shows that 44.6% of approached farmers were females while the remaining 55.4% were males which demonstrate trivial difference in terms of gender participation. Furthermore, most of the farmers fall within the age group of 21 to 50 years which is the most active group - as most of them are youth and energetic to deal with coffee production activities. Most of the farmers (84.2%) were primary school leavers whereas only few of them (11%) had managed to attend secondary schools. Hence, coffee farming seems to be the highest priority for gaining income and sustaining family expenditures.

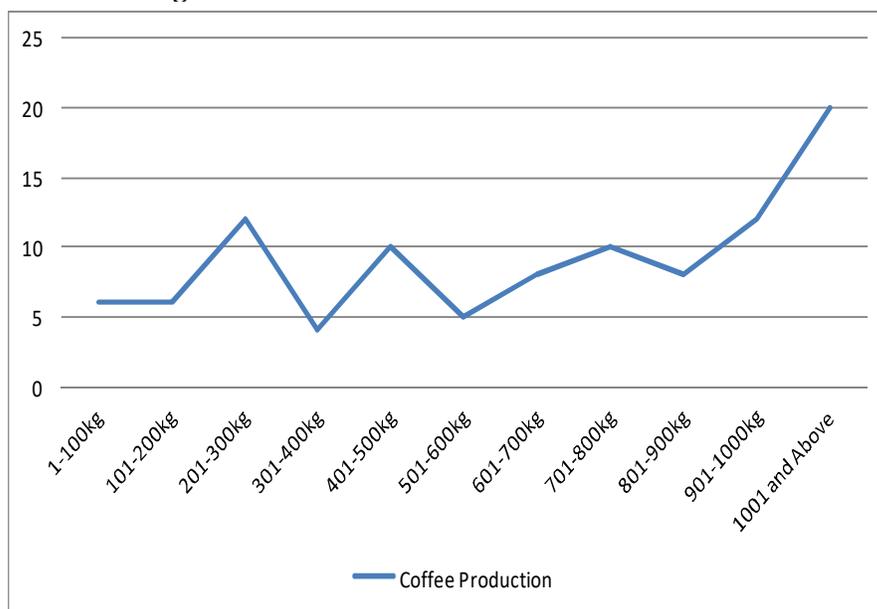
Majority of farmers were active members of cooperative societies as single members or double members. Of the single members (53.5%) were members of Kimuli AMCOS or Muungano SACCOS alone while the double members (26.7%) were members in both AMCOS and SACCOS at the same time. Some of the farmers (19.8%) who were the emerging farmers had chosen not to be members of any of the cooperative societies, either due to lack of interest or unawareness of the cooperative societies. Farmers who chose to be members of cooperative societies were able to access farm inputs or credit for buying the inputs as well as extension services. Also, they had the opportunity to access processing services, storage services and marketing services.

Coffee production levels in the last farming season

Agricultural production is the key activity in Mbinga District and particularly in rural areas, villages such as Utiri, Mtama, Mahumba, Mahande and Iringa, coffee production is the main commercial crop in every household. The land size - particularly for coffee production, is not large enough to guarantee more produce where the minimum land size is 2 acres and maximum is 12 acres while the average land size per household is 7 acres. Farmers use a variety of inputs to support coffee production which were either coming from AMCOS, SACCOS or own stock from last season. The inputs included local seeds, manure and pesticides for dealing with pests that attack coffee plants. The production units in the last farming season ranges according to the land size, inputs used and implementation of the extension advice provided by the extension officers.

The majority of farmers (19.80%) harvested about 1001kilograms and above, followed by those in the category of 901-1000 kilograms (12.87%) and 701-800 kilograms (10.89%). Statistics show that the minimum yield was 25kg, maximum yield 10,000kg and the average was 1145.14kg per household. According to the farmers who participated in the focus group discussion the trend of coffee production has been dwindling over the past 3 years as a result of having same old trees and diseases.

Figure 1: The production levels are presented in the figure below as per identified categories



Also, farmers mentioned other production challenges limiting high yield to include harsh weather conditions, pests, lack of improved seed varieties and small land holdings that do not allow expansion. Nonetheless, through being members of cooperative societies they have been able to get trainings and extension services on how to deal with pest or coffee diseases and to use new seeds from the Coffee Research Institute though the results were yet to mature to the expected levels.

Contribution of cooperative societies to coffee production

The study wanted to measure the contribution of cooperative societies to coffee production. In five villages where the study was conducted, there were two cooperative societies

namely, Kimuli AMCOS and Muungano SACCOS. All these were owned by farmers, cooperative societies were established by farmers to cater for their interests. Kimuli AMCOS - was the oldest, was pointed out by farmers to having a great contribution in the coffee production and marketing. The statistics are presented in Table 2.

Table 2: Contribution of Kimuli AMCOS

Sn	Contribution	Percentage from Multiple Responses
1.	Source of Farm Inputs	48.0%
2.	Provide Extension Services	37.3%
3.	Source of Market Information	67.1%
4.	Provide Temporary Storage and Processing Services	70.0%
5.	Provide Marketing Services	59.4%

Kimuli AMCOS has a small store for selling coffee farm inputs at reasonable prices compared to other shops in the village or town centre. The inputs sold included improved seeds, farm tools and pesticides. Hence, farmers who were members of AMCOS could access the inputs conveniently and even by credit when they do not have cash. This allowed them to start production at the right time. Also, the AMCOS always made some arrangement with public or private extension officers and other coffee experts to train farmers in the field or at the AMCOS premises on how to prepare their coffee farms, the use of improved seeds, application of pesticides, harvesting, storage and processing. The services provided farmers with an opportunity to improve their production practices and adopt the best practices to increase productivity.

Information asymmetry is one among the challenges facing coffee farmers in the rural setting. However, in the study area, farmers who were members of AMCOS had the advantage of getting reliable market information from the AMCOS offices. The leaders normally collect information from the District Council, extension officers, NGOs, and research institutes then share the information with farmers through notice boards and mobile phone messages which helps them to know the coffee market trend and prices in the private market or auctions. More importantly, the AMCOS had a storage area and offered temporary storage services to member farmers but also, it had two CPUs (Coffee Processing Units) with modern machine and tools that process and grade coffee according to their quality. The machines contributed greatly to the value adding process that enabled coffee farmers to get good prices for their produce in the market. Moreover, AMCOS look for coffee buyers with good price offers on behalf of the member farmers in Mbinga as well as throughout the country rather than allowing farmers to be exploited by private buyers. In most cases the coffee is sold through the coffee auction at Tanzania Coffee Board premises in Moshi Municipality. The auction enables farmers to get good prices depending on the coffee quality. This has enabled farmers who were members in the AMCOS not to struggle in finding buyers or being exploited.

On the other hand, Muungano SACCOS has also made a big contribution to the production of coffee in Utiri related villages. The SACCOS offered saving and borrowing services which were highly needed by farmers to support coffee production activities. Only farmers who were members of SACCOS had access to the identified services when needed. Most of the farmers (78.1%) have used SACCOS as their main place for savings after selling coffee and on receiving payments. Since there were no banks or financial institutions in the village, SACCOS has remained a safe place for farmers to keep their money for future use thus reducing the risks of keeping cash at home. It has been found that 89.2% of the farmers had borrowed money from SACCOS and the majority of them used the money to buy farm inputs, pay school fee or invest into small businesses. Therefore, SACCOS is the main source

of credit to farmers in Utiri, Mtama, Mahumba, Mahande and Iringa villages to support purchasing of inputs from the AMCOS or other traders in the town center.

It can be argued therefore that the contribution of cooperative societies is significant and cannot be ignored in the coffee production particularly in the rural setting where most of the services are not available or available but not timely. However, Cooperative networks share common characteristics with complex organizations (Cillier, 2005). Both are based on relationships and interactions among the members and they are open systems that interact with other organizations and with their environment, and therefore shape and get shaped by them. Co-operative networks abide by the principle of open membership, leaving the boundaries of the organization open to external influence and re-examination of its purpose and functioning.

The existing organisational innovations

The innovation done by the smallholder farmers was to integrate the operations of AMCOS and SACCOS by considering the 6th principle of cooperatives which is *cooperation among cooperatives*. The principle calls for cooperatives to strengthen each other by working together through local, national, regional and international networks. Innovations in the value chain financing have been predominantly practices between Kimuli AMCOS and Muungano SACCOS. Access to sufficient and well-timed financial services for all actors in the value chain is a key element for business success and growth for both institutions. This financing can come in many forms - through other businesses involved in the chain, through banks, micro-finance organizations, or financial co-operatives (credit unions). The inter-dependent linkages of a value chain and the security of a market-driven demand for green coffee beans provide interested stakeholder throughout the network market chain (suppliers, producers, processors and marketing companies) with more secure channels for access to and sale of products. Financial instruments developed or adapted for used in financing value chains include warehouse receipts, forward contracts, and guarantees between agricultural marketing cooperatives and saving and credits cooperatives.

Through the innovation in the value chain financing between AMCOS and SACCOS brought significance impact to smallholder farmers who are members in both cooperative societies at the same time (double members). It is through the double member farmers where some smallholder farmers are allowed to borrow from SACCOS to buy farm inputs from AMCOS and continue with production until the harvest season where the coffee will be brought to the AMCOS for processing and selling. After selling, smallholder farmers get paid and on payday, AMCOS the SACCOS officials - on behalf of the farmers, will take the money and save them to the farmers accounts in SACCOS. If a farmer has a debt to settle then it will be settled automatically at the SACCOS and the remaining cash will go to farmer's savings for future use. Hence, this creativity by the smallholder farmers allows them to access inputs on credit, produce quality output and build saving habit among coffee farmers in order to sustain future expenses.

CONCLUSION

Coffee production has been declining over the years and initiatives should be done in order to assist the farmers to change their production techniques and address the associated challenges. Research institutions as well as cooperative societies remain to be the best alternative institutions for reaching the rural majority who are the smallholder farmers., Research institutions will be able to provide extension services and distribute new improved seeds with high yield as well as pesticides to deal with pests and diseases through cooperative societies.

Most of the rural smallholder farmers are organised into cooperatives, hence through their societies it becomes easier to reach them and work with them collectively to address the common needs. The integrated cooperative model is a key organizational tool for revamping and sustaining coffee agricultural productivity and improvement of farmer's livelihoods in rural Tanzania. Hence, there is a need to formalize and popularise it into other areas of the country so that coffee farmers and other crop farmers can benefit from the model and sustain their production activities while improving their livelihoods as well as the community at large.

However, most of the smallholder farmers in rural areas have only primary level education. This has an implication on capacity building approaches, technological advancement and the conceptualization of policy and legal documents disseminated by the government. There is a need to use appropriate capacity building and mobilization approaches that take into account the level of education.

Therefore, there is a need to enhance the existing integrated model by involving the members and anticipated members who will take into account their business environment, entrepreneurial capabilities, agro-ecological factors and social aspects. Double members often choose to diversify their income sources as a successful livelihood strategy. Others are barely participating in rural primary co-operative societies at all. Co-operatives have very few women members due to the traditional land ownership system, and youth are not participating in co-operatives and agriculture. There is a need to diversify the traditional cash crop marketing agricultural co-operatives to deal with food crops, livestock and value addition activities that will increase the participation of women and youth in rural primary co-operative societies.

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