

Determinants of Output Marketing through Cooperatives in Southwest Oromia, Ethiopia

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Abstract

Smallholder farmers encounter several challenges pertaining to marketing of their surplus products. Researches in agricultural economics showed that there are different types of factors that significantly determine marketing through cooperatives. Hence, this study aims at identifying the determinants of sales through cooperatives by smallholder farmers in south-western Oromia. The samples of the study were 400 small holder farmers who belong to membership of agricultural cooperatives. It is multi stage quota sampling procedures which was adopted to select sample respondents. Both structured and unstructured interview were conducted along with farmers and officials of selected primary cooperatives in the study areas. The multiple regression analysis reveals that livestock unit, crop price of cooperatives, availability of another marketing agent and access to credit from MFIs significantly determine sales through cooperatives. Hence, it is highly important to raise the number and the technical capacity of the cooperative officials through training programs in order to cope –up the dynamicity of the day. Furthermore, it is advisable to cooperatives to enhance the productions of livestock through technologies and creating branch marketplaces around members' area relatively closer than other marketing agents would let them increase their sales through cooperatives.

Keywords: Smallholder Farmers, Cooperatives, Output Marketing

1. INTRODUCTION

The role that agricultural cooperatives play seems similar whenever we take an experience of some nations. For example, Japanese agricultural cooperatives mainly let its members to have market access. Of course the way these cooperatives undergo their business is also similar. Accordingly, the cooperatives collect agricultural outputs from their members and then supply to the buyers. Of course, different marketing strategies are applied by these cooperatives in order to let members market access (Befekadu,2014). Among those strategies consignment marketing is the common one. It is a joint-marketing approach whereby members' outputs are delivered to agricultural cooperatives and then they sell the produce individually or through their federations at regional and national wholesale markets. Also, these cooperatives undergo the supply of inputs to their members too (Mohamed *et al.*, 2012). Pertaining to Indian case, cooperative marketing are the best strategy for the smallholders. These cooperative marketing are a means to sell their produce at best price than other marketing strategies. Also cooperatives play dominant role in distributing agricultural inputs at fair price. These Indian cooperatives function in grading and standardizing the produce, store them, transport and sell them when the price is getting an increment (Sorokhaibam and Devi, 2011).

Despite the different policy reforms and market competition held for some grain markets, poor marketing structures and other intermediaries down play the benefit that cooperative members could achieved. The main bottleneck that encountered the country is the ever increasing transaction costs related to commercialization of agricultural products (Eleni, 2001). Also, poor market information systems when coupled with poor infrastructure and weak private-sector capacity absolutely retarded the commercialization of the nation's larger and small holder farmers (Eleni *et al.*, 2003). The aforementioned problems pertaining to commercialization of agricultural products are not specific to Ethiopia only rather they are critical bottlenecks to other developing nations too. That is, smallholders encounter sever challenges pertaining to marketing of their surplus products. This is reflected through the wider variations in purchase and selling prices of surplus outputs that let retarded benefits smallholders able to accrue from their supply to the markets (Fafchamps and Hill, 2005).

Ethiopia is a country which is strategically situated in the horn of Africa at the junction between Africa, the Middle East, and Asia. It covers an area of approximately 1.14 million square kilometers. The current government of Ethiopia is a federated state comprised of nine autonomous regional states and two administrative towns. The nine regional states include; Tigray, Affar, Amhara, Oromia, Somali, Benishangul-Gumuz, Southern Nations Nationalities and Peoples (SNNP), Gambela, and Harari and the two city administrations are Addis Ababa and Dire Dawa administrative councils. Addis Ababa is the capital city of the country. The National Regional State of Oromia is located within 3°24'20" –10°23'26"N latitudes and 34°07'37"-42°58'51"E longitudes, extending for about eight degrees (8⁰) west to east and for about seven degrees (7⁰) north to south. Southwest Oromiya sub-region consists of three zones namely Jimma, Buno Bedele and Illu Aba Bora zones located in south-western part of Oromia regional state. The sub-region is located in the wettest tropical climatic zone. The sub-region is divided in to 42 local districts and about 4,351,662 populations inhabit in the sub-region. This accounts for about 15 percent of the total population of the region. Above 85 percent of the population resides in rural area and agriculture is the base of livelihood (Oromia Finance & Economic Development Bureau (OFEDB), 2008). Hence, the main objective of this study is to identify the determinants of sales through cooperatives taking sample respondents from this sub region.

2. STATEMENT OF THE PROBLEM

Despite the significant roles that have been played by the cooperatives to create marketing opportunities to small holders, still there are some bottlenecks that retard their performances. Among the bottlenecks includes : low institutional capacity, inadequate qualified personnel, low entrepreneurship skill, lack of financial resources, lack of market information, poor members' participation in areas that include: financing the cooperative, patronizing the business activities of the cooperatives, and monitoring and supports it (Dawit, 2005). In additions, the ever increasing of the prices of agricultural inputs are the other challenges for cooperatives to undergo their activities very well. These challenges obliged the small holders to have limited bargaining power and the poor marketing skill let them price takers. Of course, the government is playing its level best to raise the marketing skills and bargaining power of farmers by making use of group actions and other organizing capabilities (Alema,2008).

In line with the above findings, Haileselassie (2003) reveals out that inadequate capital, unskilled management committee, illiterate membership, unwillingness to serve as committee member, low commitment and disloyalty of members, low level of infrastructure development (transport, storage), and the unhappiness of members with the co-operative services are some of the bottlenecks that retarded the process of achieving the end results by cooperatives.

Regarding Ethiopian case, those farmers who are members of a cooperative and able to get better yields and staple crops that are marketed through cooperatives able to get higher price. Also agricultural cooperatives help in getting rid of collective action bottlenecks. That means, they are a means for members to get inputs in a more economical manner and also let them market their outputs in a better terms than they could attain by themselves. As per Ethiopia's Growth and Transformation Plan, agricultural cooperatives play a paramount role in enhancing productivity and household income of smallholder farmers (Bernard *et al.*, 2010). In additions to this, they let their members to enjoy supportive services and enhance their technical efficiency too. Despite the existence of differences in agricultural cooperatives model, most typical agricultural cooperatives in Ethiopia undergo the activities of input/ output marketing. Hence, at this moment, they undergo marketing activities for more than 10 percent of farmers produce and supply farm inputs for all farm households irrespective of membership (Gashaw *et al.*, 2013).

It is difficult to say that most cooperatives in Ethiopia have played a role that they are expected to play. That means, they were not in a position to improve the products and income of their members. Furthermore, they were not efficient in rendering services especially in the areas of input/ output marketing and in adopting quality- technology extensions services. Therefore, farmers who have been embarrassed in the umbrella of cooperatives failed to attain what they are expected to attain. This can be reflected through lower prices of outputs, smaller transaction sizes, lower quality of outputs, lack of marketing information etc to members of the cooperatives. For example, only 18% of cooperatives that had contracts with the World Food Programme in 2010 were able to fulfil them, while others delivered outputs of insufficient quality and quantity (MoA, 2012).

In order to promote the activities of cooperatives and agricultural marketing, the government has established the Ethiopian Commodity Exchange (ECX) in 2008. Despite the initiative taken by government to promote the commercialization of agricultural commodities, still majority of the cooperatives were not in a position to make use of this opportunity to promote the sale of their

products. That means, most cooperatives were unable to get the access and facilitate the commercialization of their output (Francesconi, 2009). Hence, the main objective of this study is to identify the determinants of sales through cooperatives.

3. LITERATURE REVIEW

Researches in agricultural economics showed that there are different types of factors that significantly determine marketing through cooperatives. The following are the most commonly mentioned determinant factors in many of the literatures reviewed.

a. Education level of household head

It is a continuous variable and refers to the number of years of formal schooling the member attended. The higher the education level, the better would be the awareness of the member towards the cooperative and acquire information and education about the benefits of the cooperative easily (Klien *et al.*, 1997). Hence, those members with higher formal education may be in a better position to know the benefits of cooperative and more likely to participate in the output marketing activities of the cooperative societies.

b. Family size

This variable is a continuous explanatory variable and refers to the total members in the family the household has in terms of adult equivalent (AE). It is assumed that household with larger family size consume more of what is produced in the house and little will remain to be marketed. Therefore, family size is expected to have negative Influence in the level of participation of agricultural output marketing through cooperatives (Wadsworth, 1991).

c. Nonfarm income

These activities help members to earn additional income. This additional income improves the members' financial position that in turn enables them to invest in purchasing the needed amount of farm inputs especially fertilizer and renting land. This increases the yield to be marketed. At a highest level of nonfarm income, grain farmers tend to use cooperatives more intensively (Klein *et al.*, 1997). Therefore, in this study it is hypothesized that non-farm income affects the level of participation of members in output marketing through cooperatives positively.

d. Farm size

This variable is a continuous variable and it refers to the total area of farmland that a member owns in hectare. The usage of the cooperative as marketing agent requires substantial economic resources of which land is the principal one (Wadsworth, 1991). It is assumed that the larger the total area of the farmland the member owns, the higher would be the output. This implies members with higher level of output are expected to use the cooperative than those who have not. Therefore, it is expected that this variable might have positive influence on the level of participation of members in output marketing through cooperatives.

e. Total livestock holding

This variable is a continuous variable and refers to the total number of livestock the member own in terms of tropical livestock unit (TLU). It is assumed that member with larger TLU have better economic strength and financial position to purchase sufficient amount of fertilizer (Teferi, 2003), that boost his/her production and produce more amount of output to sell to their cooperative. Therefore, this variable has assumed to have positive association with the level of participation of output marketing through cooperatives.

f. Member's perception on cooperative price for agri-output

The price effect is one that the cooperative passes on the farmer's economy (Chukwu, 1990). Therefore, if the cooperative charges competitive price for agricultural outputs in the area, the farmers sell through the cooperative (Misra *et al.*, 1993; Klein *et al.*, 1997). Therefore, member's perception on cooperative price may influence level of participation in marketing of output through cooperatives positively.

g. Availability of other marketing agents

Members will get alternative market outlet to sell their output if there are other marketing agents in their area. Cooperatives face market competition if there are other marketing agents in the area of the farmer performing similar activity with them (Bishop and McConnen, 1999). Therefore, this variable is expected to influence the level of participation of members in output marketing through the cooperative negatively.

h. Credit

Credit helps the farmer in paying the prepayment to the cooperative in order to get sufficient amount of fertilizer. It also helps in renting land and purchasing other inputs that increase production. In general, it plays an important role in using fertilizer (Teferi, 2003) and other inputs that increase productivity. This in turn leads to an increase in the amount to be marketed. Therefore, it is expected that this variable would have positive influence on the level of participation of members in output marketing through the cooperative.

i. Distance of the cooperative from the member's residence

It is a continuous variable measured in hours required to walk to the cooperative office. The proximity of the cooperative for the member residence reduces the cost of time and labour that the farmer spent in searching for a buyer for his products. The other advantage is that as the member is close (near) to the cooperative, he/she will have more knowledge about the cooperative and its benefits (Bishop and McConnen, 1999). Therefore, in this study the distance of the cooperative from the member house is expected to influence the level of participation of cooperative members in agricultural output marketing through cooperatives negatively.

4. RESEARCH DESIGN AND METHODOLOGY

The study was conducted in south-western oromia zones including: Jimma, Buno Bedele & Illu Aba Bora zones. The sample of the study was 400 small holder farmers who belong to membership of agricultural cooperatives. But only complete responses given by 231 of them were used for this specific objective. It is multi stage quota sampling procedures which was adopted to select Sample respondents. Both structured and unstructured interview were conducted along with farmers and officials of selected primary cooperatives in the study areas. Besides, secondary sources of information were consolidated from cooperative agencies, central statistical agency and Ministry of Agriculture. Finally, the data were analyzed through descriptive and inferential statistics. Hence, based on the analyzed data the conclusions and recommendations were drawn.

The dependent and Independent variables used in the study are measured as indicated in table 1 below

Table1: Variables and their Measurement for Study

| Variables | Symbol | Measurement | Impact on Sales |
|--|--------|--|-----------------|
| 1. Total Family Size | TFS | Number of labour aged Family members | - |
| 2. Education | EDU | Grade level attained | + |
| 3. Ownership of Livestock | LSTK | Tropical livestock Unit (TLU) | + |
| 4. Total Land Size | TLS | Total Land size in Hectare | + |
| 5. Distance from Cooperative | DSCO | Distance in kilometre from Cooperative | - |
| 6. Nonfarm Income | NFIC | 1 = Have additional nonfarm income 0 = No additional nonfarm income | + |
| 7. Access to MFIs Credit | CREDIT | 0 = No credit from MFIs 1 = Get credit from MFIs | + |
| 8. Crop price of cooperatives | CPOC | 0 = Low 1 = High | + |
| 9. Availability of other marketing agent | AOMA | 0= Not available 1= Available | - |
| 10. Marketing through Cooperatives | SALES | Log of sales through Cooperatives | NA |

The general functional relationship between the dependent variable and the independent variables can be given as follows and multiple linear regression was used since the dependent variable has ratio measurement.

$$SALES = f(EDU, TFS, NFIC, TLS, TLSK, CPOC, AOMA, CREDIT, DSCO)$$

The multiple regression model relating all the variables can be given as follows

$$SALES = \beta_0 + \beta_1 EDU + \beta_2 TFS + \beta_3 NFIC + \beta_4 TLSK + \beta_5 TLS + \beta_6 CPOC + \beta_7 AOMA + \beta_8 CREDIT + \beta_9 DSCO + \varepsilon$$

5. RESULT AND DISCUSSIONS

In this study, the objective is to identify determinant factors that significantly affect sales value through cooperatives. Therefore, multiple linear regression was used to identify the factors and the result is presented in the table 2 below.

Table 2: Multiple Linear Regression Result

| Model | SS | Df | MS | F | Sig. |
|------------|--------|-----|-------|--------|------|
| Regression | 46.476 | 9 | 5.164 | 25.283 | .000 |
| Residual | 35.743 | 175 | 0.204 | | |
| Total | 82.218 | 184 | | | |

| Model | B | SE | Beta | T | Sig |
|------------|-------|------|-------|---------|------|
| (Constant) | 4.528 | .167 | | 27.046 | .000 |
| EDU | .006 | .011 | .028 | .532 | .595 |
| TFS | .006 | .017 | .021 | .358 | .721 |
| NFIC | -.121 | .077 | -.086 | -1.567 | .119 |
| TLS | .003 | .004 | .047 | .713 | .477 |
| LSTK | .022 | .013 | .120 | 1.648 | .100 |
| CPOC | .208 | .094 | .130 | 2.224 | .027 |
| AOMA | -.938 | .086 | -.585 | -10.862 | .000 |
| CREDIT | -.350 | .078 | -.255 | -4.501 | .000 |
| DSCO | .015 | .020 | .042 | .769 | .443 |

Source: SPSS Result

The above table 2 reveals that Sales through Cooperatives measured by Logarithm of the 2009 sales value of each smallholder farmers through cooperatives and the nine independent variables were significantly correlated as a whole with the correlation coefficient $R = 0.752$. Also, the table illustrates that coefficient of determination $R^2 = 0.565$ which indicates that 56.5% of the variation in sales through cooperatives for the sample of 231 smallholder farmers can be explained by the changes in the nine independent variables together while 43.5% remains unexplained.

In addition, table 2 indicates the summary of Analysis of Variance and F-statistics, which reveals the value of $F = 25.283$ is significant at $P = 0.000$ level of significance. The value of F is large enough to conclude that the set of independent variables as a whole are contributing to the variance of sales through cooperatives measured by logarithm of sales value and therefore, the model represents actual practice of the smallholder farmers under study.

The next step in the evaluation of regression result is to estimate contribution of each independent variable. Therefore, table 2 shows that livestock unit, crop price of cooperatives, availability of another marketing agent and access to credit from MFIs significantly determine sales through cooperatives. On the other hand, education, total family size, non farm income and total land size are not found to be significant.

Based on the above regression results, the following inferences can be drawn. Live stock unit (LSTK) affects sales through cooperatives positively and significantly. Hence, each additional units of live stock increases sales through cooperatives by 0.022 Birr, keeping other things constant (*ceteris paribus*). Crop price of cooperatives (CPOC) affects sales

through cooperatives positively and significantly. Hence, an increase of crop price of cooperatives by one Birr, increases sales through cooperatives by .208 Birr, keeping other things constant (*ceteris paribus*). Availability of other marketing agent (AOMA) affects sales through cooperatives negatively and significantly. Hence, the more marketing agent is available, the less the sales through cooperatives. That is, if there is a marketing agent in the area, the sales through cooperatives decreases, keeping other things in to constant (*ceteris paribus*). Here it is possible to deduce that availability of other marketing agents act as that of potential competitor to cooperatives so that the portion of their sales correspondingly decreases keeping other things in to constant (*ceteris paribus*). Access to credit from MFIs (CREDIT) affects sales through cooperatives negatively and significantly. Therefore, the more access to credit, the less the sales through cooperatives. Hence, if there is an increase of credit by one Birr, there would be a decrease of -.350 Birr in the sales of cooperatives keeping other things in to constant (*ceteris paribus*).

Generally speaking, as it is illustrated on the above table 2, the most determinant variables that could affect significantly sales through cooperatives include: livestock unit, crop price of cooperatives, availability of marketing agent and access to credit from MFIs. This finding is consistent with the findings of Alema (2008) who made use of probit regression model. The model results revealed that among fifteen (15) explanatory variables included in probit model, six continuous and four discrete explanatory variables were found to be significant at less than or equal to 10% significance level. More specifically, these variables include age, own land, shareholding, non-farm income, distance of the cooperative office from the household house, perception of the household head on output price, perception of the household head on change in standard of living due to joining cooperative, membership in other cooperatives, perception of the household head on price of inorganic fertilizer and price of improved seed were found to be significantly related to the participation of farmer members in the agricultural input and output marketing by cooperatives. Also Befekadu (2014) made use of the Tobit model and found that; family size, farm size, years of membership, amount of improved seed used, output produced, perception of the member on cooperative price for agricultural output and availability of other marketing agents were significantly related to the level of participation of cooperative members in agricultural output marketing through cooperatives. Furthermore, he added that cooperative price for agricultural output was found to be significantly and positively related to the level of participation of cooperative members in agricultural output marketing through cooperatives. On the contrary, family size and availability of other marketing agents were found to be negatively significant. Furthermore, other literatures reveal out that members will get alternative market outlet to sell their output if there are other marketing agents in their area. Cooperatives face market competition if there are other marketing agents in the area of the farmer performing similar activity with them (Bishop and McConnen, 1999). Therefore, this variable is expected to influence the level of participation of members in output marketing through the cooperative negatively. In additions to this, the study is in the contrary to the findings of Teferi, (2003) who argued that credit helps the farmer in paying the prepayment to the cooperative in order to get sufficient amount of fertilizer. It also helps in renting land and purchasing other inputs that increase production. In general, it plays an important role in using fertilizer and other inputs that increase productivity. This in turn leads to an increase in the amount to be marketed. Therefore, it is expected that this variable would have positive influence on the level of participation of members in output marketing through the cooperative. But the finding of this study reveals that credit affects agricultural output marketing through cooperatives negatively.

6. CONCLUSION AND RECOMMENDATION

The study reveals that, the prime reason for the establishment of agricultural cooperatives is mainly to render the input/ output services to small holders. However it is difficult to generalize that the cooperative under the study were rendering the output marketing services efficiently. Of course, some of the reasons for poor output marketing services include: lack of skilled man power, existence of poor infrastructures, low level of awareness by their members and the low commitment level by some government officials and the management committee members were not skilled and qualified to undergo the output marketing services. Finally, as per the multiple regression analysis the main determinant variables that could affect significantly sales through cooperatives include: livestock unit, crop price of cooperatives, availability of marketing agent and access to credit from MFIs. Hence, it is highly important to raise the number and the technical capacity of the cooperative officials through training programs in order to cope –up the dynamicity of the day. Furthermore, it is advisable to cooperatives to enhance the productions of livestock through technologies. Besides, it is worth saying to cooperatives to create branch marketplaces around members' area relatively closer than other marketing agents in order to increase their sales, as these marketing agents are competing rivals to cooperatives.

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