The determinants of smallholder coffee producers' market outlet choice decision in Debub ari district of South Omo Zone, SNNPR, Ethiopia

Yidnekachew Alemayehu[1]* 🆔 and Mebratu Alemu[2] 🆔

A B S T R A C T

This study mainly aimed at analyzing coffee market chain and the determinants of coffee market outlet choice decision of smallholder coffee producers in the Debub Ari District. The descriptive statistics and econometric models were used to analyze the data. Multivariate probit model was used to identify factors affecting market outlet choices of the smallholder coffee producers. Both primary and secondary data were collected from the study area. The multi-stage sampling techniques have been employed for this study. A total of 194 coffee producer household heads have been randomly selected and interviewed with the help of pre-tested structured questionnaire. The focus group discussion and key informants interviews were conducted to supplement the formal data. The probability of choosing collector, wholesalers, retailer, processor, consumer's outlets is 67.1%, 66.4%, 36.9%, 71.6% and 15.3%, respectively. The joint probabilities of households to jointly choose the four market outlets was 0.031% which is greater than the likely of not choosing all market outlets which is 0.003%. Access to credit negatively influenced retailer, processor and consumer market outlet choice, distance to the nearest market negatively influenced processor market outlet choices, market information, off-farm participation positively influenced retailer and consumer market outlets choices. Therefore, the intervention is needed to improve coffee marketing chain through promoting cooperatives, infrastructural development and timely market information for efficient marketing system in the study area.

Keywords: Coffee market , Determinant, Outlet choices, Multivariate probit, Southern Ethiopia

[1]*Southern Agricultural Research Institute, Jinka Agricultural Research Center, P.O. Box 096, Jinka, Ethiopia*
[2]*ArbaMinch University, College of Business and Economics, Department of Economics, Ethiopia*

Corresponding author's email: yidnekachewalemayehu@yahoo.com (Yidnekachew Alemayehu)

Introduction

Coffee is the major export crop in the Ethiopian economy (Petit, 2007). Coffee in today's time is one of the most valuable sources of export for the East African nations such as Ethiopia, Uganda, Kenya and Tanzania. Coffee has accounted for an average of 60% of the total export earnings for the past five decades (Zekarias *et al.,* 2012). Ethiopia is known to be the origin and the primary center of diversity of coffee Arabica (Labouisse *et al.,* 2008).

In the SNNPR, the total area covered by smallholder coffee producers is 217,080.29 ha which gives the total production of 1,353,831.54 Qt. (CSA, 2017-18). Accordingly, in Debub Ari District the total area covered by coffee production is 9341 ha. In the woreda, the total coffee produced annually is on average 44,525 Qt. About 4,986,766 Kg of red coffee and 1,096885 Kg of dry coffee were purchased from smallholder coffee producers in the woreda. Of the total about 1,040,950 Kg of coffee has been marketed to the ECX (Debub Ari Woreda Agriculture Office, 2019).

The long marketing chain for coffee marketing which made farmers to be discouraged on coffee market. Hence, the existing coffee marketing channel includes a number of intermediaries. The farmers wet and dried coffee cherries are sold to local collectors small collectors in villages and coming from town those who buy coffee from farmers and supply to larger collectors this reduce coffee price on the need of larger collector. Marketing channel preference is one of the most important producers decisions to sell their product in different marketing outlets and has a great impact on household income (Shewaye *et al.,* 2016). The collectors operate the secondary processing facilities. After depulping the dried coffee cherries, the supplier supply coffee to the central market in Addis Ababa. Major exporters

buy coffee from the central market, though auction. Such long market chain leads to unfair/ un proportional benefit farmers obtained from their coffee, which also plays its own role in affecting the quality of coffee through its effect on farmers' capacity to invest in processing facilities (Zinabu *et al.*, 2017).

Although farmers in the study are prominent coffee producers, literature regarding determinants market outlet choice decision of smallholder coffee producers in the study area even for the countries coffee producing zones is very limited. Therefore, this study has been conducted with the main objective of analyzing the determinants of smallholder coffee producers market outlet choice decision, identify and map the coffee marketing channels as well as functions and roles of actors in the area.

Research Methodology

Description of the study area

Location and area coverage

Debub Ari woreda is one of the eight woreda's in South Omo zone with an area of 1,520 km² and is located at 5⁰.67'-6⁰.19' N & 36⁰.30'- 36⁰.73'E and has a human population of 219,708. The woreda is bordering with Semen Ari woreda in north, Mago national park in South, Salamago woreda in west, Malle woreda in east and BenaTsemay woreda in South East. The capital city of the Debub Ari woreda is Gathar, which is 17 km far away from Jinka the capital city of South Omo Zone (South Omo Zone Pastoral & Agro pastoral Development Office, 2018).

The traditional agro ecologies Dega, woina-dega and kola cover 30, 65 and 5 percent of the total areas, respectively. The altitude of the woreda ranges between 500 m.a.s.l and 3000 m.a.s.l. The woreda has a rainfall pattern of bimodal type / Belg = February-April and Meher = July-September. The mean annual rainfall ranges between 601-1600 mm. The mean annual temperature ranges between 10°C to 1°C and greater than 27.5°C (Debub Ari Woreda Agriculture Office, 2019).

Research design and data types and source

Research design

The study has been employed cross-sectional survey research design. Both qualitative and quantitative data types were collected from primary and secondary data sources. For this particular study, Debub Ari District was selected purposively based on the coffee production potential and marketing practice. The study has been employed multi-stage sampling techniques to draw sample of household heads. Accordingly, from 48 kebeles in the woreda in the first stage 30 potential kebeles in coffee production and marketing was selected purposely for this study

based on woreda information. In the second stage, out of 30 potential kebeles 5 kebeles was randomly selected. These selected kebeles were Shepi, Gedir, Shesher, Metser and Shamamer. In the third stage, the number of sample households from each sample kebeles were determined from the recent lists of households using proportional to size. Therefore, given the relative homogeneity of households in terms of their socio- economic characteristics and livelihood style sample households was drawn using simple random sampling method from each kebele.

Sample size determination

To determine the appropriate sample size, the basic factors to be considered were the level of precision required by users, the confidence level desired and degree of variability.

Thus, it was determined using a simplified formula provided by Kothari (2004).

$$n = \frac{z^2 pqN}{e^2(N-1)+z^2 pq} \tag{1}$$

Where, n: is the sample size for a finite population, N: size of population which is the number of coffee producers households in the woreda, p: population reliability (or frequency estimated for a sample of size n), where, p is 0.5 which is taken for all developing countries population and p + q= 1, e: margin of error considered was 7% for this study because of budget constraint to collect large sample with margin of error 5%. Z α /2: normal reduced variable at 0.05 level of significance z is 1.96. The sampling unit here was households and sampling frame was all the 5 kebeles coffee producers household lists which has been available in the kebele. Accordingly, sample size was determined as follows:

N = 18,426 Hhds

$$n= \frac{(1.96x1.96)x(0.5x0.5)x(18,426)}{(0.07x0.07)x18,426+(1.96x1.96)x(0.15x0.85)} = 194$$

Methods of data collection

Formal and informal methods of data collection tools were implemented to acquire primary data. Among the informal data collection tools key informant interview and focus group discussion with pre-defined social groups (elders, model farmers, women's, DAs and experts) were conducted before formal survey to collect general information about the study area, coffee production and marketing. A checklist was also used to guide the informal discussion conducted to generate data that cannot be collected from individual interviews. Formal data collection was employed with the help of pre- tested structured questionnaire. In this study, both secondary and primary data were used from different sources. Primary data was collected from a total of 194 coffee producer sample households.

Method of data analysis

Descriptive analysis was employed for estimating average, weighted average, frequencies and percentages were computed. Besides, econometric model was used to indicate the relationship between variables empirically.

Results and Discussion

Socio-economic and demographic characteristics of the respondents

Sex of household respondents

Gender was analyzed by checking the number of male and female-headed households. The sample population of farmer respondents considered during the survey was 194. Out of the total households head interviewed 95% were male-headed households while 5% were female-headed households.

Education level of the respondents

In the study area according to sample respondents, the mean grade level achieved by respondents was about grade 3.25. The minimum grade achieved was grade 0 and the maximum was grade 10.

In both theoretical and practical situations, education level plays an important role in ensuring household access to basic needs such as food, shelter and clothing. Skills and education enhances the working efficiency resulting into more income and food security. Furthermore, education is important to manage the business as well as in decision making (Kadigi, 2013).

Age of the household respondents

The survey on this major demographic factor, measured in years, provided a clue on working ages of households. The mean age of the sample household heads was 40.04 years with the minimum and maximum age of 25 and 80 years, respectively. This result is almost similar with that of Zekarias et al. (2012) who found the mean age of the sample household was 40 years old.

Coffee marketing outlets

The survey result indicated that sample households in the study area sold their coffee at different marketing center. The sample households sold varying proportion of their coffee to different market outlets in the district, which include collectors, wholesalers, retailers, processors and consumers. Result of the survey indicated that 68.0% of households sold their coffee to collectors whereas 66.5%, 36.6%, 72.5% and 15.0% of the sample households sold their coffee to wholesalers, retailers, processors and consumers, respectively. The total amount of coffee produced and marketed by the sample household was 911.00 qtls and 900.17 qtls, respectively. The survey result showed that out of

total output sold in the market collectors, wholesalers, retailers, processors and consumers purchased 18.3%, 33.0%, 13.0%, 34.0% and 1.4% of coffee with the mean supply of 134.53 qt, 231.96 qt, 178.11 qt, 227.94 qt and 72.22 qt, respectively.

The result indicates that most of the sample respondents have been used to sell their coffee to collectors, wholesalers and processors. According to the sample respondents, the reason for choosing those marketing outlets was that about 41.3% was those who said better price offer and fairness of scaling, 33.0% closeness in distance, 11.3% was those who said due to transport availability while the rest 14.4% was due to absence of alternative market in the study area.

Coffee marketing actors and their functions

According to survey result, six coffee marketing actors have been identified in the study area. These were producers, collector, wholesalers, retailers, processors and consumers which was the main actors on the coffee marketing. The role of each actor on coffee production and marketing, their interaction among different actors as well as the flow of coffee through each market channels.

Collectors: These are an actors that collect a large volume of coffee at the farm gate from the smallholder coffee producer and provide to the wholesaler and processor in the study area. The total amount of coffee purchased from smallholder coffee producer through collectors are amounted to be 177.58 qtls. The main market outlets for the collectors are wholesaler and processor.

Wholesalers: Wholesalers are traders that collect a large volume of coffee from collectors and mainly sell to exporters through ECX. According to sample survey result the total amount of coffee purchased by wholesaler from the sample smallholder coffee producer was about 292.27 qtls. They play significant role in the market chain who mainly known for purchase of bulky products with better financial and information capacity as well as reside in the town. They are major actors in the channel and they purchase coffee either directly from farmer or mainly through collectors.

Retailers: Retailers are known for their limited purchasing with low financial and information capacity. They are the main actors along the channel and deliver coffee to the consumer in small amount. The amount of coffee purchased through these actors was estimated to be 113.99 qtls. from smallholder coffee producer in the study area.

Processors: Processors are the market actors with their main motive of creating large profit through value addition on the product. These actors purchase large volume of coffee from

smallholder as well as collectors and market it to the exporters through ECX. The total amount purchased by these actors in the study area was 303.16 qtls.

Consumers: Consumers are the final purchasers of coffee mostly from retailers for consumption purpose and it is the last link along the channel. The total amount of coffee sold to this market actor was estimated to be 13.00 qtls. which is provided from the smallholder coffee producers.

Exporters: These marketing actors purchase coffee from different coffee traders within all around the country and provide to the international market in order to get more benefit from the business. ECX plays a significant role in market facilitation, which is a government established exchange market that brings the customers such as wholesaler, processor and exporters together for undertaking effective marketing of coffee and other export commodity. According to the secondary information obtained from the district about 6615.57 qtls. washed and 3793.93 qtls. unwashed coffees have been marketed to ECX for export by the traders from the district.

According to the secondary information obtained from the ECX, the coffee from south omo zone was categorized under the E- type, which lies between grade 5 and 8 due to poor quality of coffee supplied by the farmers.

Determinants of market outlet choices of small holder coffee producers

The multivariate probit model has been used to estimate several correlated binary outcomes jointly. In this study the decisions of smallholder coffee producers choosing, collectors, wholesalers, retailers, processors and consumers are correlated. Since the decisions are binary, the multivariate probit model was found to be appropriate for jointly predicting these five outlet choices on an individual-specific basis and the parameter estimates are simulated maximum likelihood (SML) estimators. Thus, an econometric approach was employed to test effects of the explanatory variables on the selection of a particular market outlet. The Wald chi^2 (75) = 181.89 is significant at 1% significance level, which indicates that the subset of coefficients of the model is jointly significant and that the explanatory power of the variables included in the model is acceptable. Therefore, the MVP model fits the data reasonably well. Similarly, the model is significant because the null that choice decision of the five coffee market outlets is independent was rejected at 1% significance level.

The results of the likelihood ratio test in the model (LR $\chi2(10)$ = 54.85, $\chi2 > p$ = 0.0000) indicates the null that the independence between market outlet choice decision ($\rho21 = \rho31 = \rho41 = \rho51= \rho32 = \rho42 = \rho52= \rho43 =\rho53= \rho54= 0$) is rejected at 1% significance level and there are significant joint correlations for two estimated coefficients across the equations in the models. This verifies that separate estimation of choice decision of these outlets is biased, and the decisions to choose the five coffee marketing outlets are interdependent household decisions. Significantly affected processor market outlet choices and six variables significantly affected consumer outlet at 1, 5 and 10 percent of probability levels.

Table 1. Multivariate probit estimations of smallholder coffee producers' market outlet choices.

No.	Variables	Market Outlet Choice				
		Collector	Wholesaler	Retailor	Processor	Consumer
1.	Sex of household head	-0.2137123 (0.4918306)	-0.0295653 (0.4935537)	0.0472331 (0.5269698)	-3.299526 (132.4195)	-0.3759172 (0.4677587)
2.	Age of the respondent	-0.0093304 (0.0120569)	-0.0148831 (0.0123609)	0.0339768 (0.0132263)**	-0.0088816 (0.013178)	-0.0275244 (0.0182429)
3.	Educational level of the respondent	-0.0727509 (0.0354859)**	-0.0627296 (0.0364709)*	-0.0407201 (0.0391008)	0.0340325 (0.0425687)	-0.0438721 (0.0501552)
4.	Family size of the respondent	-0.085016 (0.0434293)**	-0.0118866 (0.0440926)	-0.0904821 (0.0516101)*	0.0181341 (0.0493665)	-0.166687 (0.0672679)**
5.	Membership to cooperative	0.0042346 (0.229583)	0.4653586 (0.2540951)*	0.3448373 (0.2795502)	-0.2378586 (0.281681)	0.2222986 (0.3380974)
6.	Access to credit	-0.1715698 (0.2161162)	-0.4564046 (0.2474172)**	-1.092729 (0.2642758)***	-0.6426178 (0.2474172)***	-1.702854 (0.4399507)***
7.	Distance to the nearest market	0.0449695 (0.027838)	0.052931 (0.0264987)* *	0.0329049 (0.0315226)	-0.0750814 (0.0285683)***	0.0774774 (0.0559312)
8.	Price offer	-0.0184364 (0.0192507)	0.0021473 (0.0198921)	0.0693522 (0.0220586)***	-0.0867134 (0.0220265)***	-0.0516291 (0.0317817)
9.	Access to	0.0114819	-0.2698496	0.2282144	0.3032092	1.068095

	market information	(0.2068744)	(0.2128004)	(0.2251588)	(0.2255842)	(0.3587039)***
10.	No. of extension contact	-0.0075893 (0.007406)	-0.0096642 (0.0073909)	0.0043083 (0.0077596)	-0.0013918 (0.0077166)	-0.0276665 (0.0116884)**
11.	Pack animal ownership	0.0249593 (0.2107561)	0.2675632 (0.2179898)	-0.3232452 (0.2345576)	0.2645599 (0.2401084)	-0.348984 (0.3101969)
12.	Market experience	0.0010213 (0.0164185)	0.0220701 (0.0167251)	-0.1176459 (0.0247324)***	-0.0430564 (0.0168894)**	0.0559403 (0.0276098)**
13.	Offarm participation	0.5187433 (0.3016288)*	-0.3870921 (0.276207)	0.9800829 (0.3152704)***	0.7974893 (0.3762208)**	1.222317 (0.4572158)***
14.	Bargaining power	0.162345 (0.2165205)	-0.075089 (0.2218985)	-0.6880981 (0.2659015)***	0.5093613 (0.277375)*	0.5469023 (0.3378193)
15.	Total coffee land holding	0.2565628 (0.3308201)	-0.5386478 (0.2985607)*	0.0919487 (0.3120869)	0.6800661 (0.3492307)**	0.5922614 (0.3994225)
	Constant	2.017852 (0.7204324)***	1.511933 (0.7205627)**	-0.4667619 (0.7537089)	5.791882 (132.421)	1.346013 (1.002858)
	Predicted probability	0.68	0.66	0.37	0.72	0.15
	Joint probability success				0.031	

Source: Survey Result, 2019

Joint Probability of success or smallholder coffee producers the mean probability to choose the 5 outlets jointly is 0.031 whereas not to choose the 5 outlets or the mean probability of failure is 0.003. The joint probabilities of success or failure of choosing the five coffee market outlet choices suggest that households are more likely jointly select the five coffee market outlets.

Age of household: Age of household head was found to be statistically significant at 5% significance level and positively influenced choice of retailer market outlet by coffee producer smallholder farmers in the study area. The results implied that, as age of household head increases the probability of choosing retailer market outlet increased by 3.4%. This implies that, older farmers may take their decision to choose better market outlet which gives higher price more easily than the young farmers, because older people might have marketing experience, accumulated capital or a long term relationship with their clients or might have preferential access to credit due to their age, availability of land or family size. This is in line with Taye *et al.* (2018) which revealed that age of household was to be statistically significant at 10% significance level and positively influenced the retailer market outlets of smallholder onion producers.

Education level of the respondent: Educational level has significant and negative relationship with the likelihood of choosing collectors market outlet and wholesaler's market outlet at 5% and 10% significance level, respectively. As the education level increase, the probability of choosing the collectors and wholesalers market outlet decreased by 7.3 and 6.3%, respectively. This indicates that educated farmers would less likely sell coffee to collectors and wholesaler than other channels in the study area. This is due existence of limited number of

wholesaler in the study area, the price given by wholesalers are slightly different from that of collectors. As farmers educated more and more they less likely to sell their products to collector market outlet. The reason might be that as the educational level of farmers enable them to produce more and supply for appropriate outlets. Education increases the knowledge of farmers that can be used to collect information, interpret the information received and make informed decisions on the choice of appropriate market channel. The result is consistent with the study by Abraham (2013) who found that educational level has significant negative relation with collector market outlets. However, in contrary with Gizachew *et al.* (2018) that revealed that the more educated the farmer is, the more likely to sell pepper through wholesalers because more educated farmers spend less time on doing marketing activities.

Family size: Family size is negatively and significantly associated with selling coffee to collectors, retailer and consumers at 10%, 10% and 5% significance level, respectively. As family size increase, the probability of choosing collectors, retailers and consumers outlet choice by the smallholder coffee producers decreased by 8.5, 9.0 and 16.7%, respectively. This result shows that those households with large family size are less likely to choose collectors, retailers and consumers outlets and deliver more likely to other outlets like wholesaler or processor outlets. This may imply large household size is an indicator of labour availability, which enables farmers to produce more, supply large volume of coffee, and sell to wholesaler or processors outlets rather selling small units to retailers and consumers. This is in line with Addisu (2016) who revealed that family size is positively and significantly associated with selling potato to wholesalers at 1% significance level.

Membership to cooperative: The membership of the smallholder coffee producer has positively influence the wholesaler and significant at 10% significance level. This indicates that those who are the member of cooperative have been more likely to sale to wholesaler in the study area. The reason is that the cooperative members have access more information with regard to benefits obtained in providing coffee in large volume and because of this they sale to wholesale market outlets that can able to reduce transaction cost. The reason for smallholder coffee producers not to sell their coffee to cooperative was that currently nonfunctioning of cooperative in coffee marketing activities in the study area instead it has been distributing sugars and oil for its members. This is not consistent with Fikru *et al.* (2017) who revealed that those who are members of cooperative has been more likely to sell for cooperative and has the probability of choosing wholesalers and collector outlet decreases.

Access to credit: Access to credit negatively and significantly affected wholesaler at 5% and the retailer, processor and consumer market outlet choices of the smallholder coffee producers at 1% in the study area. This result indicates that as the smallholders have more access to credit the less likely to sell to the wholesaler, retailers, processors and consumers. The reason is that those farmers who have access to credit need to participate in off-farm activities rather than spending their time in searching other alternative marketing outlets to sell their coffee. Also they do not need to incur the cost in searching better market instead they need to convert loan into asset because of considering interest rate and purchase agricultural input. This is consistent with Efa and Tura (2018) who revealed that those who access to credit has been less likely to sell to wholesaler and consumers but it is inconsistent with more likely to sell to retailers.

Distance to the nearest market: Distance to the nearest market is positively and negatively associated with the likelihood of producers selling to wholesaler and processors at 5% and 1% significance level, respectively. This indicates that households who are closer to market were assumed to have more probability to choose wholesalers outlet and less likely to sell for processor. This is because the wholesalers have temporary coffee purchasing center at the nearest market to the smallholder coffee producers in the study area. Hence as the distance from the market center increase, transportation and other marketing costs are increased. This is consistent with Taye *et al.* (2018) who revealed that direct relationship of wholesaler onion market outlets with nearest distance to the market and significant at 1% .

Price offer: The market price was found to be positively and negatively affected both the retailer and processors market outlet at the 1% significance level. This indicates that the smallholder coffee producer more likely to sell to the retailers and less likely to sell to the processors outlet as market price increase. The reason could be that the retailers give better price for their coffee as compared to the processors in the study area. In contrary with Addisu (2016) who revealed that price is associated negatively and significantly at 5% level of probability with choosing retailer outlet.

Access to market information: Access to market information was found to be positively and significantly influence the consumer's market outlet at 1% significance level. This indicates that as the smallholder coffee producers are more accessible to the market information they more likely to sell to the consumers market outlet than other outlets in the study area. This is because the consumer outlet gives higher price for their coffee as compared to other market outlets. This is in line with Takele *et al.* (2017) who revealed that access to market information determined the probability of the choosing consumer outlet positively at 10% for mango producers.

Access to extension contact: Access to extension services was found to be negative and significant influence in the likelihood of choosing consumer outlets at 5% significant level. This indicates that those who have access to extension service are less likely to sell to the consumer's market outlet. Access to extension service enhanced the ability of smallholder coffee producers to get relevant market information as well as other related agricultural information which in turn increases producers' ability to choose the best market outlets for their product. This might be due to reducing the transaction cost in searching the consumer market outlet and enables the coffee producers to provide their coffee for legal traders who can supply to the exporters. This finding is in line with the findings of Oliyad *et al.* (2017) that revealed that access to extension service had significant negative effect on the likelihood of choosing consumer outlets at 5% significant level for groundnut producers. It is also similar with the findings of Mekonnin (2015) who revealed that access to extension service has significant negative relation with the choice of end consumer outlet in coffee market outlet choice.

Market experience: The market experience or farm experience was found to be negatively and significantly influenced the retailers and processors at 1% significance level and positively affected the consumer's outlet at 5% significant level. The result indicates that those who have more experience are less likely to sell to the retailers and processors and more likely to consumers. This might be because those who have more experience in coffee marketing have knowledge to receive more benefit in providing

the coffee to the one that can give better price and more likely choose consumer market outlet than those who have less marketing experience. This is consistent with the findings of Addisu (2016) who found that the likelihood of choosing consumer outlet was positively and significantly affected by number of years that a farmer had been growing onion at 10% levels of significance. With regard to negative relationship between experience and choosing of retailers market outlet the smallholder coffee producer less likely provide to the retailers market out let. This is in line with Gizachew et al. (2018) who revealed the likelihood of choosing retailer outlet was negatively and significantly affected by farming experience at 5% significance level.

Off-farm participation: Off-farm participation has been influenced collectors, retailers, processors and consumers positively and significantly at 10%, 1%, 5% and 1% significance level, respectively. This indicates that those who participated in off-farm activities have more likely to sell in all market outlets which are available in the study area than those who did not participated in off-farm activities. This might be because those who have participated in off-farm activities have better awareness, bargaining power and capacity to use all the alternative market outlets, which are available in the study area to maximize their benefit from coffee marketing. Therefore off-farm participation has positive relationship with all market outlets and enables the smallholder coffee producer to use those alternative market outlets in the study area. This is in line with Taye et al. (2018) who found that non/off farm income affect the probability of choosing assembler and retailer market outlet positively at 1 and 5% levels of significance, respectively. It is also consistent with Abebe et al. (2018) who revealed that consumer market channel was positively and significantly affected by the participation in non-farm activities at 5% level of significance.

Bargaining power: Bargaining power has negative and positive influence on the retailers and processors at 1% and 10% significance level, respectively. The result indicates that as the smallholder coffee producers have more bargaining power they more likely to sell to the processors and less likely to the retailers. The possible reason is that negotiation on price makes smallholder coffee producers empowered on price decision making and enable them to sell their coffee with a better price by using other better alternative market outlets. Also those farmers who have bargaining power can easily negotiate with the processors market outlet than other outlets because processors pay more for those who can supply quality coffee. This is consistent with Gizachew et al. (2018) who revealed that the likelihood of choosing district retailers and local collectors' market outlet was

negatively affected by the bargaining power of the producers at 1% level of significance. This finding is also consistent with Bezabih et al. (2015) who revealed in his study that bargaining power has significant and negative relationship with the likelihood of choosing collector only, retailer only and wholesaler only at 1 percent level of significance.

Summary, Conclusions and Recommendation

A total of 194 sample household head of coffee producers have been randomly selected and interviewed using structured questionnaire. The simulated maximum likelihood (SML) estimation result shows that the probability that smallholder coffee producers choose collector, wholesaler, retailer, processor and consumer market outlets were 67.1, 66.4, 36.9, 71.6 and 15.3%, respectively. This indicates that the likelihood of choosing consumer outlet is relatively low (15.3%) as compared to the probability of choosing collector outlet (67.1%), wholesaler's outlet (66.4), retailer's outlet (36.9%) and processor outlet (71.6). The result indicates that the processor market outlet is the most likely chosen market outlet by farmers whereas the consumer market outlets are less likely chosen. This is due to high transaction cost incurred by the smallholder coffee producers during search of consumer market outlet choices.

The market information is very crucial component in marketing system for a given commodity. Access to market information was found to be significantly influence the smallholder coffee producers in choosing better market outlet. It enables the smallholder coffee producers in analyzing the price difference on the farm gate and consumer market outlets that increases the probability to choose the consumers outlet market which gives better price.

Promoting the cooperative is very essential to enhance the agricultural product marketing in general and coffee marketing in particular. It plays a great role in the coffee marketing and able to lower the transaction costs in order to increases the benefits of the farmers.

Education level is very important in searching for better market outlets. Therefore, providing awareness in the benefits of attending adult and formal education is needed in order to help coffee producers in choosing the outlets that can able to maximize their benefit.

The development of infrastructure and market accessibility is critical for the smallholder coffee producers that enables them to choose the better alternative market outlets. Access to extension contact is very important for smallholder coffee producers in searching the better market. This indicates that the extension services helps the farmer in production, properly harvesting coffee and disseminating of market

information in order to aware the coffee producers and able to search for better market. Therefore, the provision of extension services focusing on the coffee production and marketing as well as the capacity building for the extension agent with technical skill and marketing knowledge is needed in order to make smallholder coffee producers to supply quality coffee as per market demand.

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Competing interests

The authors declare that they have no competing interests.

Ethics approval

Not applicable.

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