

Trends and Determinants of Coffee Commercialization among Smallholder Farmers in Southwest Ethiopia: Jimma Zone Coffee Potential Districts

¹Samuel Diro, ²Solomon Assefa ¹Beza Erko

¹Agricultural Economics, Extension and Gender Research;
Jimma Agricultural Research Center, Jimma, Ethiopia

²Faculty of Business and Economics; Jimma University, Jimma, Ethiopia

Abstract: *Background:* The study was aimed to assess coffee commercialization trends and factors encourage and discourage coffee commercialization level as transforming the subsistence-oriented production system into a market-oriented production system is best option to increase the smallholder farmer's income and reduce rural poverty. *Methodology:* Primary data was collected from 156 households of three coffee potential districts of Jimma zone through personal interviews. Descriptive statistics and econometric models were used to analyze the data using Stata 12.1 software and Tobit model was used to determine factors determining level of coffee commercialization. *Result:* The result of the study revealed that the mean coffee consumption level was 21.6% and the overall mean commercialization level was 68% which is higher at Manna district (74%). The result of Tobit model also shows distance to main market and cooperatives, transport cost and land allocated for other crops affects level of coffee commercialization negatively and significantly. However, total land holding of the household head, coffee price and volume of coffee produced affects level of commercialization positively and significantly. *Recommendation:* Support towards developing institutional sectors like marketing cooperatives and improving physical access to market places could yield positive results towards coffee commercialization by smallholder coffee producers.

Key words: Commercialization • Market oriented • Marketing cooperatives • Subsistence oriented • Tobit model

INTRODUCTION

The rate of agricultural growth depends on the speed with which subsistence oriented production system is transformed into a market orientated production system. Commercial transformation of subsistence agriculture is an indispensable pathway towards economic growth and development for many agriculture dependent developing countries [1].

Agricultural commercialization refers to the process of increasing the proportion of agricultural production that is sold by farmers [2]. A farm household is assumed to be commercialized if it is producing a significant amount of cash commodities, allocating a proportion of its resources to marketable commodities, or selling a considerable proportion of its agricultural outputs [3].

Coffee is important commodity to the Ethiopian economy with about 15 million people directly or indirectly deriving their livelihoods from coffee. It is also a major export commodity generating about 25% of the total export earnings (USDA, 2013). Despite its gigantic socio economic contribution to the country, coffee production is dominated by smallholder farmers and market participation of smallholders is limited. Smallholder coffee accounts for approximately 95% of total coffee production [4].

Different studies witnessed that there is very low level of commercialization in Ethiopia as well as fragmented agricultural market (Jaleta and Gardebroek, [5]; Adane, [6]; Bedaso *et al.*, [7]). These fragmented agricultural markets has increased transaction costs and reduced farmers' incentives to produce for the market.

The commercial behavior of smallholders and the commercialization scale at which they are operating is a crucial research question to be addressed. Although there is relatively rich body of literature, analyzing the extent and trends of commercialization in coffee sector have received little attention not only on the study area but also in the country as a whole.

The objective of the study was to identify coffee commercialization and utilization trend in Jimma zone and more specifically the study was aimed to:

- Assess level of coffee production, consumption and commercialization by smallholder farmers of the study area
- To analyze institutional and socio economic factors affecting smallholder coffee commercialization intensity
- To suggest policy analysts and extensionists the way coffee production and commercialization could be enhanced and promoted in a sustainable manner

The rest of this journal embraces four sections. The second section reviewed literature on commercialization and its determinants and theoretical frameworks. Section three included data source, data collection and analysis techniques. The fourth section discussed descriptive and econometric results and the final section, section five, addressed summary, conclusion and suggests concerning bodies based on core findings of the study.

Review of Literature

Commercialization and its Determinants: Agricultural commercialization is defined as the proportion of agricultural production that is marketed. Different authors have used different yardsticks in measuring the level of agricultural commercialization at household level. Govereh *et al.*, [8] and Strasberg *et al.*, (1999) used a household commercialization index (HCI), which is a ratio of the gross value of all crop sales per household per year to the gross value of all crop production. According to the authors, the closer the index is to 100, the higher the degree of commercialization.

$$HCI_i = \left[\frac{\text{Gross value of crop sales}_{\text{hhi yearj}}}{\text{Gross value of all crop production}_{\text{hhi yearj}}} \right] * 100$$

Where HCL is commercialization index for i^{th} household (hh) on j^{th} year

It can also be measured in terms of net market position according to Gebremedhin *et al.*, [9]. The market position of a household is evaluated using the ratio of volume of sales to the total volume of stock which is the sum of storage from the previous production year and production in the current year.

$$\% \text{ of sale} = \left[\frac{\text{sales}}{V \text{ stored at the beginning} + V \text{ produced during season}} \right] * 100$$

Where V is the volume of the commodity

Generally, commercialization is measured along a continuum from zero (total subsistence-oriented production) to unity (100% of production is sold).

Coffee commercialization studies in Ethiopia are very scant despite its huge socio economic and environmental contributions. Gebreselassie and Ludi, [10] took quantitative data on production, consumption and marketing activities and resource ownership from 160 farm households in four major coffee growing districts to investigate the coffee commercialization decision at household level. Gomma and Ghimbi were took from Oromia region and Yirgachefe and Aleta Wondo were from Southern region. The result of the study revealed that household coffee commercialization was found to be high. The index of household coffee commercialization ranged from zero (for 10% of households) up to 100% (for 10.6% of households) across the sampled house-holds, with the mean value of 59%. According to the authors, there was a small variation in the degree of coffee commercialization among surveyed districts. In Ghimbi and Gomma districts, the value of coffee sold comprised 66% and 63% respectively, of the total value of output produced. Similarly, in Aleta Wondo and Yirgachefe, the coffee commercialization index was 53% and 56% respectively. They also revealed that coffee contributed 70% to the total value of output sold in the market by the average farmer (Gebreselassie and Ludi, 2008).

Results of different empirical studies, however, shows demographic, social, economic and institutional factors affect commercialization (participation) and its extent. Tufa *et al.*, [11] used truncated regression model to identify factors affect household's horticultural crops commercialization level. The result shows education of the household head, irrigation availability, farm size and

livestock ownership by the head affected the level of commercialization of horticultural crops positively and significantly. However, household size and distance to the market affected commercialization level negatively and significantly.

Tobit estimation was used by Gebremedhin and Jaleta, [12] to analyze determinants of crop output market participation. Accordingly, education of the household head, number of oxen owned and market orientation index affected participation or commercialization level positively and significantly while distance from settlement center to nearest market place affected the participation level negatively and significantly.

Agwu *et al.* [13] used multiple regression to identify factors affect commercialization of smallholder farmers. The result shows household size, income, farming experience, farm size, distance to market, membership of society and access to credits were all significant at various probability levels and with different signs in influencing commercialization. Household size and distance to market was negatively and significantly affected commercialization decision. However, income of the household, farming experience, farm size, farmer's membership to associations and accessibility to credits affected commercialization positively and significantly.

Tobit estimation was also used by Goshu *et al.* [14] to determine intensity of commercialization (%) for both crop and livestock. The size of cultivated land, quantity of fertilizer needed annually for crop production, livestock holding and family size affected commercialization intensity of livestock positively and significantly while distance to development stations affected negatively and significantly. On other hands, quantity of fertilizer needed annually for crop production, production of major cash crop and distance to major town affected crop commercialization intensity positively and significantly.

Gebreselassie and Ludi, (2008) used linear regression to assess the proportion of output sold to the market and determinants of market participation. According to the result of the study, value of output produced and specialization in coffee production affected extent of market participation positively and significantly and proportion of food purchase affected extent of market participation negatively and significantly. The degree of coffee commercialization was higher among households

with smaller families, households headed by women and households headed by older persons. Households with a higher commercialization level were smaller than those with a lower commercialization level. About 12% of highly commercialized households were headed by female household heads compared to 4% among the least commercialized. Similarly, the mean age of heads of households with a high coffee commercialization level was 51, compared to 46 years for the head of a household with a low commercialization level. However, none of these observed differences was statistically significant. That is, neither the demographic and household factors considered (gender, age and family size) nor farm size had any significant effect on the observed variation in the degree of coffee commercialization among sampled households.

Martey *et al.*, [15] used Tobit model to investigate factors determining the intensity of cassava commercialization. The authors found marital status, household head's age, extension access, distance to market places and access to market information affected cassava commercialization intensity negatively and significantly. However, number of adults in the household, farming experience, volume of cassava produced, farm size, cassava price and off farm income affected positively and significantly.

Theoretical Framework: Rational farmer tend to supply certain proportion of surplus output to the market after satisfying his demand (Braun, [16]; Govereh *et al.*, 1999; Jaleta *et al.*, [17]). This suggested that being efficient and productive farmer has a positive influence on the level of commercialization and the possible effect is indicated by blue arrow on the figure below. In some cases, farmers may supply their output to the market even they do not have surplus produce so as to meet their remaining demand (Gebre-ab, [18]). This supports the argument stating commercialization plays a key role for the improvement of technical efficiency in a situation where input market failures and credit constraints are dominant features of subsistence agriculture. The expected trade-off is indicated by red arrow on the figure. On other hand, commercialization is supposed to improve farmers' income where they can widen food consumption in terms of quality and quantity (Braun, 1995), assuming the negative effects of price constant.

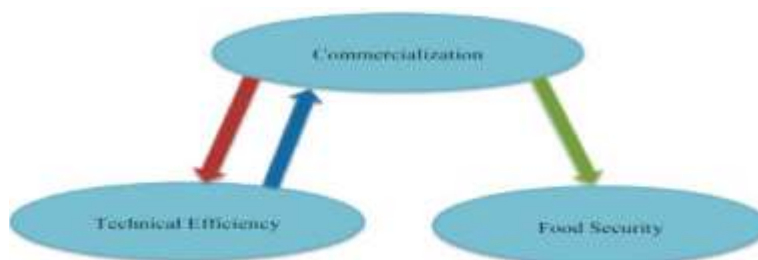


Fig. 1: Commercialization and its relations with food security and technical efficiency

Source: Tafesse, [19]

Research Methodology

The Study Area Description: The study was conducted in Jimma zone which is located 335 km to the South west of Addis Ababa. The zone is characterized by a tropical highland climate with heavy rainfall, warm temperatures and a long wet period. The mean annual rainfall ranges between 1,200 mm and 2,500 mm. Coffee is produced in 13 of 18 districts of Jimma zone; meaning coffee is the major contributor to the socio economic well being of the zone as well as for Ethiopia.

Limu-kosa, Gomma and Manna districts of the zone are randomly selected from the coffee potential *Districts* for this specific study. Gomma *district* is located 397 km to southwest of capital Addis Ababa and 50 km away from Jimma town. The annual rainfall varies between 800-2000 mm. The agro climate of the *district* is highland (8%), intermediate high land (88%) and low land (4%). Manna is another major coffee producing *Districts* in Jimma zone, which is located at 368 km southwest of Addis Ababa and 20 km west of Jimma town. The *district* is constitutes 12% is highland, 65% intermediate highland and 23% lowland with altitude ranges between 1470–2610 m.a.s.l. Limu-kosa is also a major coffee generating *Districts* in Jimma zone, which is located at 421 km from the capital Addis Ababa and 20 km from north of Jimma town. The agro climate of the *district* is intermediate highland (65%), highland (25%) and lowland (10%).

Data Type and Collection Methods: Primary data was collected from 156 coffee producing households of three districts of Jimma zone. The respondents' distribution among three districts was equal (52 respondents each). Farmers from 12 peasant associations and 64 villages were randomly chosen for the survey. All attitudinal, institutional, demographic and socioeconomic factors related to the farmers were collected through personal interviews. Structured questionnaire prepared for household heads were filled by the help of selected and well trained enumerators. Some secondary data like socio

economic data of the study areas was also gathered from zonal and district bureaus of rural development offices to supplement the primary data.

Data Analysis Technique: The Statistical Package for the Social Sciences (SPSS version-20) was used for data entry while STATA 12.1 was used for data cleaning and analysis. Descriptive statistics and econometric models were used to analyze the data collected from households. Tobit model was used to determine factors determining level of commercialization of coffee farmers.

The Tobit regression model is employed to quantify the magnitude and direction of the effects of the factors influencing commercialization of smallholder agriculture. Most studies have modeled agricultural commercialization as a two-step analytical approaches involving the unobservable decision to commercialize and the observed degree or extent of commercialization [20]. The structural equation of Tobit model is:

$$y_i^* = X_i\beta + \varepsilon_i$$

where, $\varepsilon_i \sim N(0, \sigma^2)$. y^* is a latent variable that is observed for values greater than Γ and censored otherwise. The observed y is defined by the following measurement equation

$$y^* = \begin{cases} y^* & \text{if } y^* > \Gamma \\ \Gamma_y & \text{if } y^* \leq \Gamma \end{cases}$$

In the typical Tobit model, we assume that $\Gamma=0$ i.e. the data are censored at 0. Thus we must have

$$y^* = \begin{cases} y^* & \text{if } y^* > 0 \\ 0 & \text{if } y^* \leq 0 \end{cases}$$

The likelihood function for the censored normal distribution in Logit model is:

$$L = \prod_i^N \left[\frac{1}{\sigma} \phi\left(\frac{y_i - \mu}{\sigma}\right) \right]^{di} \left[1 - \phi\left(\frac{\mu - \Gamma}{\sigma}\right) \right]^{1-di}$$

where, Γ is the censoring point. In the traditional Tobit model, we set $\Gamma = 0$ and parameterize μ as $X_i\beta$. This gives us the likelihood function for the Tobit model:

$$L = \prod_i^N \left[\frac{1}{\sigma} \phi\left(\frac{y_i - X_i\beta}{\sigma}\right) \right]^{di} \left[1 - \phi\left(\frac{X_i\beta}{\sigma}\right) \right]^{1-di}$$

The log-likelihood function for the Tobit model is:

$$\ln L = \sum_{i=1}^N \{ di(-\ln \sigma + \ln \phi(\frac{y_i - X_i\beta}{\sigma})) + (1 - di) \ln [1 - \phi(\frac{X_i\beta}{\sigma})] \}$$

The overall log-likelihood is made up of two parts. The first part corresponds to the classical regression for the uncensored observations, while the second part corresponds to the relevant probabilities that an observation is censored.

Expected value of the latent variable y^* :

$$E[y^*] = X_i\beta$$

Marginal effect on the latent dependent variable, y^* :

$$\frac{\partial E[y^*]}{\partial X_k} = \beta_k$$

The reported Tobit coefficients indicate how a one unit change in an independent variable X_k alters the latent dependent variable (Sigelman, [21]; Wooldridge, [22]; Greene) [23].

The Tobit model, in our case, analyses factors determining level of coffee commercialization (0 to 100% of coffee supplied to the market) on the study area. The following independent variables were used on the model considering model specification methods. The description and hypothesized sign of those variables are explained below on the table.

Table 1: Variables and their hypothesized sign

Variables	Description	Expected sign
District	Dummy [1=Manna; 2=Gomma; 3=Limu-Kosa	+/-
Household age	Continuous	+/-
Household education	Dummy [1=non educated; 2= Read and write; 3=primary education; 4=secondary and above]	+/-
Family size	Continuous (km)	+/-
Farming experience	Continuous (km)	+
Distance to village market	Continuous (km)	-
Distance to main market	Continuous (km)	-
Distance to cooperatives	Continuous (km)	-
Distance to extension service station	Continuous (km)	-
Single trip transport cost to main market	Continuous (Ethiopian Birr)	-
Coffee volume produced	Continuous (kg)	+
Coffee price	Continuous (Ethiopian Birr)	+
Total coffee land	Continuous (Hectares)	+
Total cultivated land for other crops	Continuous (Hectares)	+
Total land	Continuous (Hectares)	+
Off-farm income	Continuous (Hectares)	+
Buyers trust-worth	Dummy [1=yes; 2=no]	+

RESULTS AND DISCUSSION

Characteristics of Respondents: Of the total 156 households, 92% are men headed and 8% are women headed households. Regarding the educational status of the households, 17% were non educated, 43% read and write, 27% attended primary education and 13% were attended secondary education and above. Out of the total respondents, the means of livelihood for 94% of them were farming and the means of livelihood of 6% of respondents was farming plus pity trade.

Manna district farmers were relatively aged and had relatively high farming experience. The average family size of respondents is 4.53 where the highest family size is at Manna (4.98) and lowest family size is at Limu-kosa (3.99). The average coffee land holding was high at Limu-kosa (2.08 hectares) and the lowest was seen at Manna district (1.81 hectares). Similarly, the average total land holding was high at Limu-kosa (3.63 hectares) and low at Manna (2.24 hectares) [24, 25].

Table 2: Socio economic characteristics of respondents

Variables	Manna		Gomma		Limu-kosa		Overall	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
Age	47.0	9.34	45.42	12.46	41.59	7.02	44.67	10.05
Years lived in the area	45.98	8.66	44.79	11.95	40.50	7.58	43.75	9.81
Farming experience	26.07	8.61	23.19	11.20	23.09	6.53	24.12	9.03
Family size	4.98	1.64	4.62	1.90	3.99	1.71	4.53	1.79
Cultivated land (Hect)	1.51	1.64	2.28	1.39	2.81	1.77	2.22	1.68
Coffee land (Hect)	1.81	1.49	1.51	0.88	2.08	1.34	1.80	1.28
Total land (Hect)	2.24	1.74	2.63	1.57	3.63	2.43	2.83	2.02

Source: own computation, 2015

Institutional accessibility of respondents by districts shows that Manna district is more accessible to village market and Gomma district farmers are less accessible. Similarly, Manna district is more accessible to

cooperatives and extension services. However, Gomma district is less accessible to main market, cooperatives and extension services. Comparatively, Limu-kosa district farmers are more accessible to main market.

Table 3: Institutional accessibility of respondents

Variables	Manna		Gomma		Limu-kosa		Overall	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
Distance to village market (km)	1.61	1.45	5.27	1.67	2.73	1.82	3.20	2.25
Distance to main market (km)	6.69	5.57	20.09	13.51	5.11	2.19	10.63	10.85
Distance to cooperatives (km)	3.19	8.17	8.98	5.45	4.36	1.91	5.51	6.26
Distance to extension service station (km)	5.57	4.55	10.68	4.40	7.28	7.65	7.84	6.08
Single trip transportation cost to main market (Birr)	12.52	4.52	15.28	4.10	14.85	7.57	14.21	5.71

Source: own computation, 2015

Coffee Production Trend in the Study Area: The result of the survey shows huge fluctuation of coffee production in the last five years of production. The mean peak year of production of the individual

coffee farmers was 2014 on all Districts and the lowest production was seen on 2011 on both Manna and Gomma district while it was on 2015 on Limu-Kosa district (1722 kg).

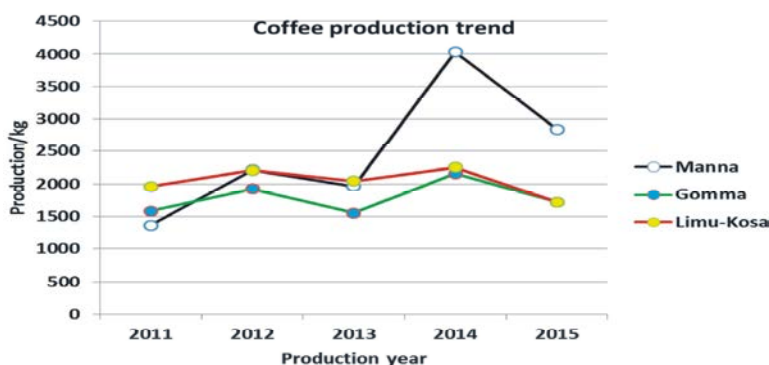


Fig. 2: Coffee production trend by year

Coffee Utilization Trend in the Study Area: The survey found that the higher mean per capita coffee was produced at Manna district (2843 kg) and the least mean coffee was produced among Gomma farmers (1720 kg). Few of the coffee produce serve as a payment for land, labor and other payments though gift

and donation of coffee is also common in the areas. The extent of coffee consumption on all districts ranges from 21-22.5% and the mean overall consumption level was 21.6%. This shows no wider fluctuation was seen in coffee consumption among districts and individual farmers.

Table 4: Coffee utilization trends in the study area

Coffee	Manna		Gomma		Limu-kosa		Overall	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
Mean Production (kg)	2843.6	4532.71	1719.8	821.53	1721.9	1436.8	2094.9	2263.7
Mean Sale (kg)	2108.9	1477.51	1102.5	664.11	1079.2	859.34	1430.2	1000.3
Paid in kind for land (kg)	25.3	21.17	67.4	33.73	-	-	30.88	18.3
Paid in kind for labor (kg)	55.4	104.86	146.4	132.41	188.7	337.22	130.17	191.49
Payment for others (kg)	15.5	13.82	25.6	17.95	34.7	22.21	25.27	17.99
Gift/Donation (kg)	31.9	33.93	15.3	15.61	32.7	32.91	26.64	27.48
Consumption	197.1	55.77	160.9	43.18	198.2	79.13	185.4	59.36
In stock for consumption (kg)	409.5	127.33	201.4	168.89	188.4	123.33	266.4	139.85

Source: own computation, 2015

The figure below also summarizes the overall coffee utilization trend in the study area. The result revealed that 68% was sold and 22% was consumed at home. On other hands, 6% of coffee was paid in kind for labor which is

very common in the study area. During peak coffee picking period labor shortage hindrances coffee picking. The only option to use is payment of coffee in kind as the laborers prefer this type of payment. See the figure below for the detail.

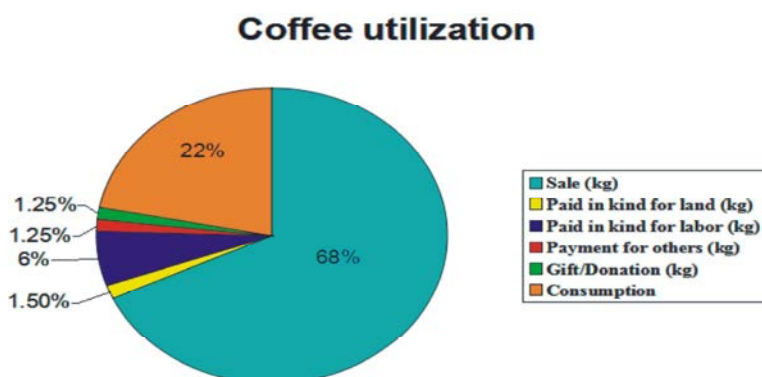


Fig. 3: Mean coffee utilization trend in the study area

The result of the survey on the study area shows difference in the extent of coffee commercialization among different geographical locations. The overall mean commercialization level was

68% as mentioned above and Manna district farmers sold more coffee (74%) of their total production and Gomma and Limu-kosa farmers sold 64% and 63% of their coffee produce respectively.

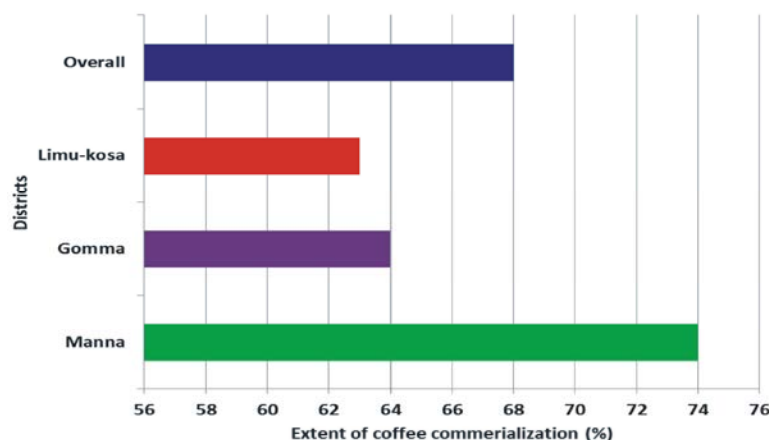


Fig. 4: Extent of coffee commercialization (%) among districts

Coffee Marketing Outlet in the Study Area: The result of the survey also shows only 3% of coffee was sold by women; 51% of coffee was sold by men in the married households and 46% of the coffee was sold by both men and women indifferently. More than 69% of coffee was sold from December to January and the rest 31% was sold in all months through the year except on August, September and October. The mode of transport for coffee

used on the study area was truck, public transport, donkey, cart and back (head) load. However, more than 70% of respondents used donkey as a mode of transport for coffee. The market outlet preference by farmers showed that 73% of respondents used formal coffee trader and 15%, 9% and 3% of respondents used informal buyers, cooperatives and brokers respectively as summarized on below.

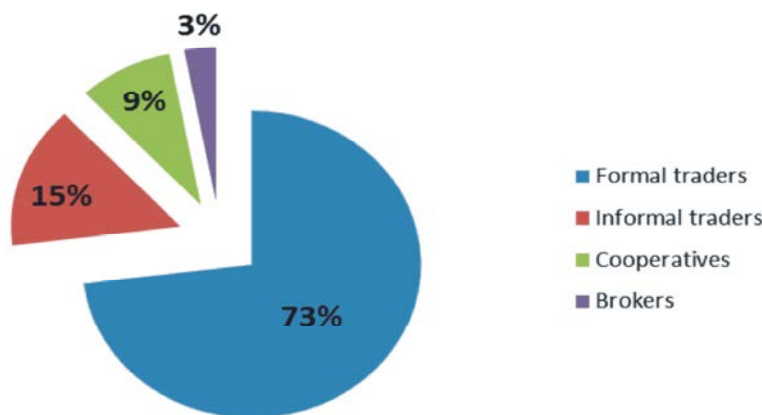


Fig. 5: Coffee market outlet preference by farmers

Farmers were raising different reasons for the preference of market outlet they sold for. The criteria of the respondents include market accessibility, trustworthy of the trader, market cost, optimum price and lack of other market outlet alternatives. The descriptive result shows accessibility and optimum offer (price) of the trader accounts more than 47% and 23% respectively though market transaction cost, trustfulness of the buyer and lack of further alternatives were important criteria they considered.

Determinants of Coffee Commercialization: Percentage of coffee sold relative to the produced was a dependent variable for the Tobit model and some demographic factors, economic factors and institutional factors was considered as independent variable. The result of Tobit model showed that location difference, distance to cooperatives, distance to main market and transport cost to the main market, coffee produced by the farmer and land holding affects commercialization scale significantly.

District: The result of the survey shows that amount of coffee supplied to the market or commercialized was higher and significant at Manna district. The coefficient of Manna district is positive and significant. The result is consistent with the finding on descriptive result where

Manna district sold more than 74% of their produced coffee. The finding suggests that commercialization level differ among different geographical locations since difference in institutional and socio economic conditions among the locations.

Distance to Main Market: One of institutional factors considered to affect level of commercialization was distance to main district market. The result witnessed negative and significant relation between commercialization level and distance to main market (coefficient= -2.484). The marginal effect of the variable was also significant at 1% significance level. The finding suggests that, a one km increase to main market declines amount of coffee to be commercialized by 1.85% which is significant at 1% significance level. The result is consistent with the hypothesized sign.

Distance to Cooperatives: Distance to cooperatives has also negative and significant relation to the level of commercialization which is also consistent with the hypothesized sign. The coefficient of the variable is -2.066 and the marginal effect was also negative and significant (5% significance level). The result implies a one kilometer increase to cooperatives decreases coffee supplied to the market by 1.54 which is also significant at 5% significance level.

Transport Cost to Main Market: Transportation cost has negative and significant impact on the level of coffee commercialization by smallholder farmers which corroborate with the hypothesized sign. The coefficient is -0.939 and the marginal effect were also significant at 10% significance level. This means that a one Ethiopian Birr increase in transportation cost to the main market decreases the coffee supply to the main market by 0.697%.

Coffee Volume and Price: The result of the study also shows positive and significant relation between the volume of coffee produced and commercialized (coefficient= 0.454) which is inline with the hypothesized sign. The marginal effect was also significant at 1% significance level. On other hands, there was a positive relation between level of coffee commercialized and coffee price (coefficient= 0.435) which was significant at 1% significance level and the marginal effect was also significant at 1%.

Total Land: Total land positively related to coffee supplied to market (coefficient= 5.574) which was significant at 1% significance level and the marginal effect was also significant. The possible logical reason behind this is those farmers with large land size tends to produce more coffee and farmers produced more coffee also supplies more coffee to the market relatively. The result is consistent with the hypothesized sign.

Total Cultivated Land: Total cultivated land negatively related to coffee supplied to market (coefficient= -6.072) which was significant at 1% significance level and the marginal effect was also significant. The possible reason behind this is those farmers with large crop land size opts to produce less coffee and farmers produced less coffee also supplies less coffee to the market. This result is against the hypothesized sign.

Table 5: Factors affecting commercialization of coffee among smallholder farmers

	Number of observation = 52			
	LR χ^2 (17) = 47.90			
	Prob > χ^2 = 0.0001			
Log likelihood = -178.19639	Pseudo R ² = 0.2185			
Variables	Coefficient	S.E	P> t	dy/dx
District [Manna]	5.440	2.036	0.011**	4.053***
Household age	0.072	0.317	0.822	0.054
Household education	2.466	1.858	0.193	1.837
Family size	0.046	0.854	0.957	0.035
Farming experience	0.117	0.322	0.717	0.087
Distance to village market	0.222	0.671	0.742	0.165
Distance to main market	-2.484	0.853	0.006***	-1.850***
Distance to cooperatives	-2.066	0.921	0.031**	-1.539**
Distance to extension service station	0.783	0.549	0.163	0.583
Single trip transport cost to main market	-0.936	0.487	0.063*	-0.697*
Coffee volume produced	0.454	0.152	0.005***	0.338***
Coffee price	0.435	0.223	0.059*	0.324*
Total coffee land	2.657	2.134	0.222	1.979
Total cultivated land for other crops	-6.072	1.415	0.000***	-4.523***
Total land	5.574	1.536	0.001***	4.153***
Off-farm income	0.0008	0.0001	0.516	0.003
Buyers trust-worth	1.634	1.360	0.237	1.218
Constant	153.39	26.585	0.000***	-

*** = statistically significant at 1%; ** = statistically significant at 5% ; * =statistically significant at 10%

Source: Own computation, 2015

CONCLUSION

The study was aimed to assess the coffee commercialization trends and factors encourage and discourage coffee commercialization level and extent as transforming the subsistence-oriented production system

into a market-oriented production system is the best option to increase the smallholder farmer's income and reduce rural poverty in rural areas. The study used descriptive statistics and Tobit model to identify extent of coffee commercialization and determinants of scale of coffee commercialization on the study area.

The descriptive result of the study witnessed that the overall mean commercialization level was 68% of the total production which is higher at Manna district (74%) and low at Limu-kosa district (63%). Market outlet preference result shows that 73% of respondents used formal coffee trader and 15%, 9% and 3% of respondents used informal buyers, cooperatives and brokers respectively. The study also investigated reasons for preferring one market outlet over another. The result shows accessibility and optimum offer (price) of the trader accounts more than 47% and 23% respectively though marketing cost, trustworthiness of the buyer and lack of further alternatives were important criteria.

The result from Tobit model also revealed that location difference, distance to main market and cooperatives, transport cost, coffee price and volume and land holding affects level of coffee commercialization significantly with their respective signs. Distance to main market and cooperatives, transport cost and land allocated for other crops affects level of coffee commercialization negatively and significantly. However, total land holding of the household head, coffee price and volume of coffee produced affects level of commercialization positively and significantly.

The study has also suggested policy analysts and extensionists the way coffee production and commercialization could be enhanced and promoted in a sustainable manner based on the above core findings of the study. We understood that infrastructure and institutional accessibility encourage commercialization level of coffee. Thus, support towards developing institutional sectors like market cooperatives and improving physical access to marketing places could yield positive results towards improving commercialization of smallholder farmers of coffee in coffee growing areas.

The size of land affected the smallholder commercialization of coffee positively and significantly. However, increasing the size of landholding cannot be an option to increase coffee supply since land is a finite resource. Therefore, we suggests researchers to popularize research outputs that increases productivity of coffee per unit area of land and aware the proper utilization of land which both in turn increases the coffee commercialized.

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