Effects of Coffee Certification on The Livelihood of Small Scale Households(A case of Aleta Chuko District, Sidama Zone, Ethiopia)

Mekonnen Tsehay Belay, Genet Gebre Tirfe (PhD),

Management department, Hawassa University
Corresponding Author: Mekonnen Tsehay Belay

Abstract: *The main objective of this study is to assess the effects of coffee certification on the livelihood of small scale household in Aletachuko district, Sidama Zone. Cross-sectional survey research design with quantitative and qualitative research approach was employed. Both primary and secondary sources of data were used.. Secondary data were collected from district marketing and cooperative office, to cross-check the income and asset holdings of primary co-operative members in coffee certification. Besides, books, published, and unpublished sources were reviewed. Primary data was collected by using structured questionnaire and key informant interview. A total of 386 sample cooperative members were selected through stratified random sampling technique. The collected data were analyzed using descriptive and inferential analysis using SPSS version 20. Inferential analysis such as correlation and multiple linear regressions were used to identify factors that affect coffee certification. Furthermore, the data collected through key informant interview were analyzed qualitatively through narration. The result of multiple linear regression showed that independent coffee certification variables such as socio-economic; institutional; physical and, cooperative characteristics; were found to be the factors that significantly affected the livelihood of small scale households in the study area. The results of quantitative analysis indicated that Coffee certification has been highly affected by socio-economic factors and physical factors as compared to institutional and cooperative characteristics. Therefore the findings of the study implied that Aletachuko district marketing and cooperative office should perform its level best in promoting social premium investment and take actions to improve price volatility and enhance certification effectiveness, with appropriate coffee certification measures.*

Keywords: *Coffee certification, Factors, , small scale house hold, Income, Aletachuko district,*

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I. Introduction

In the global trading system coffee is one of the world´s most traded commodities employing millions of people worldwide. Twenty five million households are estimated to depend on coffee cultivation. The producing countries are concentrated in the global south, while consuming countries are mainly in the developed west (ICO, 2011). Coffee is a global commodity with trade networks spreading worldwide. International exchange markets in New York and London largely determine coffee prices, making it difficult for producing countries, except for major producers such as Brazil and Vietnam, to influence world price formation. The international nature of coffee marketing and sales directly exposes coffee producers in developing countries to international price fluctuations (Kodama, 2007).

Ethiopia is the origin of Arabica coffee. Coffee is deep-rooted in both the economy and culture of the country. Though coffee is a traditionally worldwide traded cash crop with new markets emerging, many coffee-dependent developing countries such as Ethiopia are struggling with production and marketing of their coffee. In the early 2000s, a historic world market price slump hit millions of coffee farmers hard, especially smallholder producers in Africa and Latin America (Ponte, 2002). Ethiopia is facing a boosting Brazilian coffee production and Vietnam as a new export country, as well as the competition from neighboring African countries. The strategy to add value to the green bean before export is complementary to quality improvements to raise the reputation of coffee unions, and it requires good marketing as well as better products.

Ethiopian cooperatives give farmers an alternative market and consequently the possibility of choosing buyers. Their presence is a counterbalance to private buyers that stabilizes the market. Farm-gate prices are therefore less volatile, and they are higher because of the competition (Backman, 2008). The volatility of coffee markets in combination with poor production infrastructure and services have sunk the majority of coffee producers in developing countries in low-input, low-output cycles, and structural poverty. In the recent past, due to the interplay between increasing poverty of coffee smallholders in major producer countries and growing

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demands for healthier and more socially and environmentally-friendly produced coffee in larger consumer countries, certification of cooperatives has gradually gained wider significance worldwide (Petit, N., 2007). In recent years, however, certification of agricultural products in Ethiopia increasingly gained attention of international certification agencies and standard holders, governmental and nongovernmental development agencies, and private companies supplying to specialty markets. The overwhelming majority of certification activities in Ethiopia focus on coffee (*Coffeaarabica*) which is both: The backbone of the countries' economy and income source for millions of Ethiopian smallholders that live in or close to poverty and a resource with considerable high potential to be marketed as a specialty product in the world's major coffee markets(Backman, 2008).

Despite the growing number and vigor of newly established value chains for certified coffees from Ethiopia with presumably drastic and multidimensional impacts on livelihoods of thousands of coffee producing smallholders throughout the country, there is still a considerable lack of empirical local studies that can substantiate and quantify the welfare impact of certification on small-scale coffee producers' livelihoods in Ethiopia. This study therefore intends to empirically analyze the effects of coffee certification on the livelihood of small-scale coffee producers in Aleta chuko district.

1.2. Statement of the problem

The primary livelihood strategy for many smallholder farmers in Ethiopian national economy is the production of coffee. Enhancing the bargaining power of these producers in relation to the world market is therefore crucial to maintain the sustainability of peoples' livelihoods and environmental resources in the study area. Due to a falling price of coffee during the late times, a considerable influence on coffee producer lacked financial capacity, interest and motivation to invest in coffee, high yielding varieties, and to provide good management to the existing tree stand (Nigussie, etal., 2008).The small-scale farmers are faced with increasing competition in markets, and they find it difficult to penetrate in international markets. Moreover, the inefficient operation on wet coffee processing plants limits the quantity and quality of processed output or washed coffee, most rural farmers are not even aware of such certifying boards and practices. Inaccessible infrastructure in the farming community significantly affect volume and quality of coffee supplied because of an increased cost of transportation. Factors such as socioeconomic, institutional, physical and cooperative characteristics problems influence coffee certification on the livelihood of small scale households in the study area.

Previous empirical studies mainly focused on the impact of coffee certification on the livelihood of smallholder farmers on single certification (fair trade only) and triple certification (fair trade, organic and Utz certified). However, this study focuses on double (fair trade and organic) certification. Hence,this study investigates effects of coffee certification on the livelihood of small scale households in Aleta chuko district. The study also examined whether the ever existing types of certification have achieved their objectives of contributing toward sustainable development in coffee production and improvement for the livelihood of small scale households.

1.3. Objectives of the Study
1.3.1. General Objective
The general objective of the study is to assess effects of coffee certification on the livelihood of small scale households in Aleta chuko district
1.3.2. Specific Objectives
In line with the general objective above, this study focuses on the following specific objectives**:**

- To identify coffee certification factors that affects the livelihood of small scale households.
- To evaluate the effect of coffee certification factors (socioeconomic, institutional, physical and cooperative characteristics) on the livelihood of small scale households.

1.4. Research Hypothesis.
As per the existing theoretical and empirical literature, this study assessed effects of coffee certification on the livelihood of small scale households with reference to primary marketing cooperatives. Based on the objectives of the study the following research hypothesis is drawn.

Ho$_1$: Socio economic factors have no significant effect on the livelihood of household's income and asset holdings.
Ho$_2$: Institutional factors have no significant effect on the livelihood of household's income and asset holdings.
Ho$_3$: Physical factors have no significant effect on the livelihood of household's income and asset holdings.
Ho$_4$: Cooperative characteristics have no significant effect on the livelihood of household's income and asset holdings.

1.5 Significance of the study

Selling coffee on fair trade terms provides a more stable income, while the fair trade and organic premium can be invested in building wet coffee processing businesses, diversifying income to reduce dependence on coffee and in community improvements at large. Fair trade offers security in good times and bad, and in addition to the price paid for their coffee, helps them to improve their crop, strengthen their businesses, and build a stronger future for their communities.Most developmental agents who work to improve the income of small-scale farmers in the coffee growing areas give more attention for coffee certification by organizing farmers in cooperatives and providing capacity building program. Policy makers also use the findings of this research to enhance the competitiveness of coffee sector internationally and to earn higher foreign exchange from the sector. Coffee certification is a relatively new approach focusing on poor coffee farmers in Ethiopia and the practice is not yet fully understood by development practitioners. This study therefore makes an attempt to contribute to the field and by identifying areas that need special attentions for researchers.

II.   Literature Review

In order to develop a theoretical framework for this study, the researcher focused on important empirical evidences in different study areas. Some empirical research has been carried out in the last years to assess the impact of certification on smallholder producers' livelihoods in the agricultural sector of developing countries. Poncelet (2005) shows a positive impact of fairtrade certification on local cooperatives in terms of capacity building. Philpott et al. (2007) also showed that smallholder coffee farmers in the Chiapas highlands, Mexico, that are certified according to Fairtrade and Organic standards reap economic benefits of certification.

Dorr (2009) conducted empirical studies on the impact of certification on smallholders' livelihoods in Northeast Brazil by comparing certified and non-certified smallholders that produce grapes, mango, melon and cashew nuts. Her study showed that certified farmers receive higher net income than non-certified farmers. Valkila (2009) also studied the impact of fair-trade certification on coffee farmers, cooperatives and laborers in Nicaragua. He analyzed the possibilities and challenges of fair-trade certification as a movement seeking to improve the well-being of small-scale coffee growers and coffee laborers in the global South. His results indicated that a significant price premium for participating farmers largely depend on world coffee prices in mainstream markets. While fair-trade has promoted premiums for social development for participating producers and strengthened the institutional capacities of the cooperatives involved, its ability to enhance significantly the working conditions of hired coffee laborers remains limited.

Lucy (2010)studied on the impact of coffee certification on small holder coffee farming and concluded the prices of coffee and household's awareness level both had a high statistically significant impact on the participation of the program. There were inconsistencies in the results of impact of certification on coffee productivity. Whereas results from the study showed that the certified farmers produced more coffee in some years, other years the non-certified farmers produced more coffee than the certified farmers. Certified farmers received higher coffee prices in some years and have shown a remarkable income gained compared to the non-certified farmers, on the other hand, Dahlberg (2011) evaluated the economic impact of fair-trade certification for small-scale coffee farmers in Ethiopia by using a regression analysis, based on primary data collected from coffee farmers, his result showed that Fair-trade certified farmers were economically better off. Fair trade certified farmers received a remarkably higher price than other farmers despite the fact that FLO did not claim to increase prices for farmers at a time of high world market coffee prices.

 Amsaya et. al.(2014) study conducted on the impact of multiple certification on smallholder coffee farmers' livelihoods. The study comes up with important and new empirical findings and evidence which help us to understand the impact of double and triple certification on smallholder coffee farmers' livelihoods. Generally, due to different certifications there are significant additional effects (double more than single and triple more than double) of the number of certifications on the livelihoods of smallholder coffee farmers along identified indicator variables.

The overall conclusion of the reviews above is that previous studies of certification have focused on the impact of fair trade certification on coffee producers, cooperatives. A few empirical studies on the impact of certification on smallholders' livelihoods have been conducted by comparing certified and non-certified smallholders only and no in-depth empirical study has been conducted on fair trade and organic certification and its determinants in coffee marketing cooperatives. Therefore this study, attempted to address research gap on the effect of coffee certification on the livelihood of small scale households specifically focused on double certification (fair trade and organic coffee) in Sidama zone, Aleta chuko district.

2.14. Conceptual framework

The Conceptual framework below depicts that the effect of independent variables (Socio economic,, institutional, , physical factors; and cooperative characteristics) on the dependent variable(Small scale

households Income &Asset holding). The independent variables are factors that affect the dependent variable, notably farmers livelihood income and asset holdings to certification.
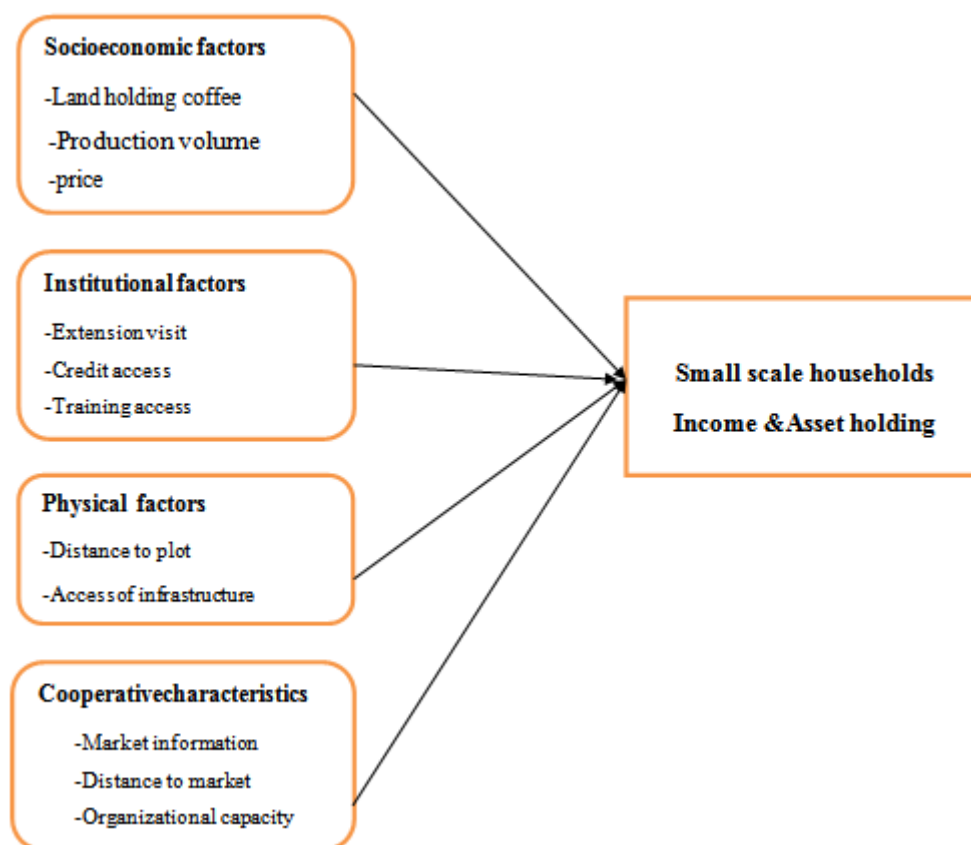
Fig. 2.1. Effects of coffee certification on the livelihood of small scale households
Source :(Adopted from Tium thesis, 2013)

III.   Research Methodology

This section focuses on the description of the techniques adopted in this research work. It aims to highlight the overall methodological considerations of the research, which includes: Research Design, Types and sources of data, Study Population, Sample Design, Data collection methods, Data processing and Analysis

Table 3.1:Primary coffee marketing cooperatives in Aleta chuko district

No.	Co-operatives name	Fair trade organic certified				No. of Wet mills Owned
		Members No.			Year Certified G.C.	
		Male	Female	Total		
1	Dongorakebado	1175	35	1210	2012	2
2	C Chuko lamella	2753	60	2813	2015	2
3	L Lela honcho	1871	75	1946	2010	3
4	G Gure	1576	44	1620	2013	2
5	Korke&Gunde	959	6	965	2014	1
6	K Kosorcha	1614	40	1654	2015	2
7	H Halo&Gelma	1205	27	1232	2012	2
	Total	**11,153**	**287**	**11,440**		**14**

Source: Aleta chuko district marketing and cooperative office (Annual report,2016).

3.2. Research design

Research design is a blue print plan for empirical research aimed at answering specific research questions or testing specific hypothesis (Bhattacherjee, 2012).The appropriate research design to be employed in this study was descriptive survey research and explanatory research design, Descriptive research followed in this study because it provides precise information concerning the effect of coffee certification on small-scale farmers' livelihoods in the study area so as to draw valid general conclusion. Explanatory research design also employed in order to identify and analyze factor(s) that affect coffee certification of cooperatives and to

examine small-scale farmers' income, in Aleta chuko district, both quantitative and qualitative approach was employed.

3.3. Types and source of data

The primary data were gathered from members of coffee marketing cooperatives through structured questionnaires for those who can read and write, and by enumerator's using interview questionnaire for illiterate respondents to generate data on some independent variable factors. The Secondary data were collected from written document based on recording of day today activities, such as coffee purchase records, trend on sales, income and price of products, patronage dividends, profits and assets gathered from cooperative promotion office. Besides, land use pattern, trends to coffee expansion, agronomic practices, demographic and socio-economic characteristics of coffee farmers, took from office of agriculture and natural resource

3.4. Study population

The study population consists 11, 440 members who are organized under 7 primary coffee marketing cooperatives. According to district cooperative promotion office report, on (June, 2017) each cooperative had been registered for fair trade organic certification. All of them engaged in wet coffee processing operations as a prime task by purchasing red coffee from their members

3.5. Sampling Design

3.5.1. Sampling size

The sample size determination is purely statistical activity which needs statistical knowledge. Respondents have been selected to represent Fair trade organic certified smallholders from Aletachuko district. The district is selected purposively, because it's larger numbers of fair trade organic producers' availability and a high potential coffee growing coverage; where the environment and soil is suitable to produce for quality coffee. Since the number of target population is large, the formula suitable for this study to get the sample size is by using Yamane (1967:886) provides a simplified formula. The minimum required sample size for this study is mentioned below.

$$n = \frac{N}{1 + N(e)^2}$$

Source: Yamane (1967)

Where, n= the minimum required sample size

N = Population size of coffee cooperative members in the study area

e = Precision level $\pm$ 5 % where confidence level is 95%

$$\text{Therefore, the sample size (n)} = \frac{11440}{1+11440\,(0.05)^2} = \mathbf{386}$$

In order to draw sample respondents from total population this study has been intended to utilize probability sampling technique. A stratified random sampling technique was used in this research, because the population of coffee marketing cooperative members in the study area is heterogeneous and this technique is generally applied in order to obtain a representative sample. The following formula(Kothari,2004) is used to stratify the sample size(386)

$$I = n * pi, \text{ Where, } I \text{ represents sample size of each strata}$$
$$n = \text{Total sample size}$$
$$Pi = \frac{\text{Population of strata}}{\text{Total population}}$$
$$I = \frac{\text{Total sample size* Population of strata}}{\text{Total population}}$$

Proportional distribution of the sample size to each cooperative of member's strata was made in table 3.2

Table3.2 Population distribution by coffee cooperatives and the number of sample size.

No.	Cooperatives	Population	Percent (%)	Number of sample size
1	Dongorakebado	1210	10.58	41
2	Chuko lamella	2813	24.59	95
3	Lela honcho	1946	17.00	66
4	Gure	1620	14.16	55
5	Korke&Gunde	965	8.44	32
6	Kosorcha	1654	14.46	56
7	Halo &Gelma	1232	10.77	41
	Total	**11,440**	**100**	**386**

Source: (MCO, 2016).

3.6. Data Collection methods

In this research both qualitative and quantitative data were collected from both primary and secondary data sources. The mix use of these data types is from the standpoint that insufficiency and incompleteness was minimized. This research intended to collect the primary data using structured questionnaire in the form of schedule and a pilot test was conducted with thirty six respondents who are out of the study. After pilot test,

problems were observed and a few adjustments of the questionnaires were made for unclear and difficult questions. In the process 7 enumerators were used. 4 of them are employees of cooperatives working in the areas of coffee certification, and 3 of them are experts at district cooperative promotion office. The main reason why enumerators were recruited was their skill and knowledge, ability to speak, read and writes both Sidamic and English languages and hired for the purpose of data collection. The selected enumerator's were given training about data collection and on how to conduct proper way of greeting, asking questions, data record keeping, and detailed explanation of the ideas for each questionnaire has been made and create clear understanding of the questionnaire. A time table for data collection has been set for each assigned enumerators and the data collection process was end- up within 24 working days available. The required secondary data was also gathered from the district Agriculture and Natural Resource Development Office (ANRDO), Marketing and Cooperative Office (MCO), Sidama zone marketing and cooperative department and from Sidama Coffee Farmer's Cooperative Union.

3.7. Data processing and analysis

After collection of the required data, proper tools and techniques were used for classification and analysis of data. The field editing for verification of data and post coding method were applied towards data collected for fulfillment of the objective of the study. The data collected from respondents is analyzed by using quantitative data analysis techniques. The data which have been gathered from respondents was manually fed to computer then it was imported to software called Statistical Package for the Social Science (SPSS version 20) for analysis, for presenting data appropriately.

The study used descriptive statistical analysis; these are frequency, mean, percentage and standard deviation. To evaluate the functional relationship between the dependent and independent variables, inferential analysis such as correlation and regression analysis was used.

3.7.1 Model specification

The study was examined the level of significance for factors affecting coffee certification using multiple regression models. Besides these, to test the influence of independent variables on the dependent variable that is coffee certification.

$$L = \beta_0 + \beta_1 X_1 i + \beta_2 X_2 i + \beta_3 X_3 i + \ldots\ldots + \beta_{ni}\ldots\ldots..\text{equation} \qquad (1)$$

Where, L represents the dependent variable (Livelihood). β_0 = denotes the intercept of the regression which is constant. $\beta = 0, 1, 2, 3, ...$ n is known as regression coefficients, the parameter βi represents the expected change in coffee certification as per unit change in each factors when all the remaining regress or variables are held constant. For these reason the parameter $\beta = 0, 1, 2…4$ are often known as partial regression coefficients. Xi= f (SOEF = Socio economic factor, INSF= Institutional factor, PHYF = Physical factor, COPCF = Cooperative characteristics factor). It is assumed to have a true functional relationship exists between dependent and independent variable. Moreover, it is also advisable to test the existence of multicollinearity among the continuous explanatory variables, Variance inflation factors (VIF) technique will be used (Gujarati, 2004). Thus, the VIF can be stated as,

$$\text{VIF (Xi)} = \frac{1}{1 - R^2_i}$$

Where, R^2_i = is multiple correlation coefficient among Xi and any other explanatory. In this measure if there is larger value of R^2, this will indicate the existence of higher co linearity among the variables. As ordinary assumption multi-co linearity existed between continuous variable, if VIF value is higher than 10.

3.8. Validity and Reliability Test

The validity is the ability to measure what one intended to measure, and construct validity involves the operational measures for the study subjects. More precisely, it includes the way in which the researcher translates theory in to operational and measurable questions, and variables (Yin.2003). In this research to assure the validity of the study, the content of the questionnaire is revised by experts in the field.

Reliability is the degree to which the measure of a construct is consistent or dependable. If a multiple-item construct measure is administered to respondents, the extent to which respondents rate those items in a similar manner is a reflection of internal consistency. (Bhattacherjee, 2012).In order to increase the reliability of the data collected, interview questions were prepared carefully. To ensure validity and relevance of interview questions, the pre-test survey and Cronbach's alpha analysis was conducted. Table 3.3 was developed to ensure the reliability of the instrument by using Cronbach's alpha analysis

The average Alpha value in table 3.3 indicated that the tools used in this study are reliable and accurate because George and Mallery (2003) also stated that a reliability score of greater than 0.9 is excellent, greater than 0.8 is good, greater than 0.7 is acceptable, greater than 0.6questionable, greater than 0.5 is poor and less than 0.5 is unacceptable., therefore the instruments used in this study indicates excellent reliability.

Table 3.4: Reliability test

No.	Variables	No of items	Cronbache's alpha value
1	Socio economic factors	5	0.945
2	Institutional factors	5	0.964
3	Physical factors	5	0.921
4	Cooperative characteristics	6	0.955
	Average alpha value		**0.946**

Source: (Own survey data, 2017)

IV. Data Analysis

4.1. Demographic characteristics of the respondents

This section deals with the descriptive analysis results of socio-demographic characteristics of the respondents .It is important to understand the general background of profile of sample coffee marketing cooperative members included in the study. Accordingly, under this section, respondent's sex, age and educational status have been assessed and the results are presented below.

Table 4.1 Socio-demographic characteristics of sample respondents.

No.	Variables	Categories	Frequency	Percent
1	**Sex**	Male	311	84.9
		Female	55	15.1
		Total	**365**	**100**
2	**Age**	18-30	13	3.6
		31-40	64	17.5
		41-50	133	36.4
		51-60	110	30.1
		.>60	45	12.3
		Total	**365**	**100**
3	**Educational status**	Illiterates	91	24.9
		Below s/ school	197	54.0
		Certificate	63	17.3
		Diploma	12	3.3
		Bachelor	2	0.5
		Total	**365**	**100**

Source: (Own survey data, 2017)

4.2 Descriptive Analysis

This section deals with the results of descriptive analysis which is made based on survey questionnaires using 5-point Likert's scale. It helps to summarize and understand the demographic, socio-economic, institutional, physical and cooperative characteristic factors of the sampled coffee marketing cooperative members in the study area

Table 4.2   Five – Scaled Likert's Criterion factors

No.	Mean Range	Response Options
1	[1.00, 1.80)	Strongly Disagree
2	[1.80, 2.60)	Disagree
3	[2.60, 3.40)	Un decided
4	[3.40, 4.20)	Agree
5	[4.20 ,5.00]	Strongly Agree

Source: Al-Sayaad et al. (2006)

With the usage of any Likert scale that although the scale is truly ordinal in nature, it is assumed to be on an interval scale with which statistical properties such as the mean can be justifiably used. Accordingly, the study applied mean and standard deviations as the best measures for analysis based on the mean range developed byAl-Sayaad et al. (2006)

Table 4.3 Response on study factors

No.	Independent Variable	Mean	Standard deviation
1	Socio-economic factors	3.8	0.8995
2	Institutional factors	3.6	1.055
3	physical factors	4.1	0.751
4	cooperative characteristics	3.6	1.111
	Dependent variable		
1	Perception on the effects of coffee certification	**3.55**	**.9482**

According to the findings from the descriptive statistics(Table4.3) based on (Al-Sayaad et al,. 2006) the mean scale of the independent   variables: Respondents intention on socio-economic factors(M=3.8, S.D=0.8995),

institutional factors(M=3.6,S.D=1.055), physical factors(M=4.1, S.D=), and cooperative characteristics(M=4.1, S.D=1.111). These results implied that respondents feel at agree level in all independent variables. Respondents response on the dependent variable: Perception on the effects of coffee certification (M=3.55, S.D.=.9482) indicated that their response was at agree level

4.3 Inferential analysis

Inferential statistics is a finding something about a population from a sample taken from that population (Lind, Marchal, & Wathen, 2006). The major objective of this study is to trace out the inferential factors determining coffee certification in marketing cooperatives. As specified in the methodology to address this objective, both correlation and multiple linear regression analysis were employed in this study

In the context of this study, the researcher explains multiple correlations and regressions taking independent variables under socioeconomic, institutional, physical and cooperative characteristics. Stating only the relationship is not enough as it may involve both dimensions from zero (negative, zero itself, or positive).Therefore, to know the strength and type of correlation between variables, the following table is set as a rule of thumb for discussion of this thesis.

Table 4.4: Rule of Thumb for about the Strength of Correlation of Coefficients

Range of Coefficient	Description of Strength
±.81 to ±1.00	Very strong
±.61 to ± .80	Strong
±.41 to ±.60	Moderate
±.21 to ±.40	Weak
±.00 to ±.20	None

Source: Bhattacherjee (2012)

The table below indicates that the correlation coefficients for the relationships between livelihoods and its independent variables are linear and positive ranging from substantial to strong correlation coefficients.

Table 4.5 Correlations

		Socioeconomic	Institutional	Physical	Cooperative	Livelihood
Socioeconomic	Pearson Correlation	1	.841**	.804**	.871**	.908**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	365	365	365	365	365
Institutional	Pearson Correlation	.841**	1	.798**	.790**	.879**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	365	365	365	365	365
Physical	Pearson Correlation	.804**	.798**	1	.821**	.754**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	365	365	365	365	365
Cooperative	Pearson Correlation	.871**	.790**	.821**	1	.852**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	365	365	365	365	365
Livelihood	Pearson Correlation	.908**	.879**	.754**	.852**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	365	365	365	365	365

**. Correlation is significant at the 0.01 level (2-tailed).
Source : (Own survey data, 2017)

As it is clearly indicated in table 4.5 above, a very strong positive relationship was found between socioeconomic factors and livelihood of farmers(r =.908, p < 01); institutional factors and livelihood of farmers (r =.879, p < 01); cooperative characteristics factors and livelihood of farmers (r =.852, p < 01) and a strong positive relationship with physical factors and livelihood of farmers (r =.754, p < 01), which are statistically significant at 99%confidence level. This implies that at a 1% level of significance it was discovered that the socioeconomic, institutional and cooperative characteristics plays a significant role in determining the livelihood of farmers with reference to marketing cooperatives in the study area. Moreover, the table presents the association between the selected variables and livelihood of marketing cooperatives of 365 respondents in Aleta chuko district. There is also a substantial statistically significant relationship between physical factors and livelihood of small scale households (r =.754, p < 01). This implied that, the more physical factor (infrastructure) the better coffee certification would be.

4.3.1. Regression analysis

In order to determine the extent to which the explanatory variables explain the variance in the explained variable, regression analysis was employed. The results of such analysis are narrated under below. Before applying the model for testing the significance of the variables and analyzing the regression result, assumptions on normality and linearity test was conducted. Besides, co linearity tests were also conducted for identifying   misspecification of data if any, so as to fulfill research quality

Table 4.6: Results of multiple linear regression analysis

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	β		
(Constant)	.477	.077		6.217	.000
Socioeconomic	.427	.038	.482	11.200	.000
Institutional	.368	.032	.412	11.361	.000
Physical	-.159	.037	-.154	-4.361	.000
Cooperative	.193	.034	.233	5.754	.000

a. Dependent Variable: Livelihood

Note: B = Regression coefficient (parameter estimate), Std. Error = Standard Error,β= beta coefficient.
Source: (Own survey data, 2017)

According to multiple linear regression output(table 4.6), out of four major factors/variables which are included in the model, 3 predictors have found to be significant effect on livelihood of farmers income and asset holdings. These are socioeconomic (.482) institutional (.412) and cooperative characteristics (.233). On the other hand, physical factor has significant negative (-.154) effect on the livelihood of farmers. The beta coefficient is used to determine which independent variables have the most influence on the dependent variable. Variable with beta coefficient indicates that the highest contribution of that independent variable in the variability of the dependent variable. The independent variable factors amongst the three with the greatest beta coefficient is = .482, indicated as the cooperative increases its effort by one under socioeconomic variables, the livelihood income and asset holdings of households in coffee certification can be boosted up by the amount of .482, followed by institutional factors and cooperative characteristics factors, with beta coefficient = .412 and .233 respectively. On the other hand, as the cooperative increases its effort by one under physical factor variables, the livelihood income and asset holdings of households in coffee certification goes down negatively by the amount of -0.154.

Based on table 4.8 using "**β₀**" (un standardized) coefficients, the regression equation of the research model becomes in the form:
L= .477 +.482 * SOEF +.412* INSF+ (-.154* PHYF) +.233* COPCF
Where,
L =   Livelihood of small scale households/farmers
SOEF=   Socio Economic Factor
INSF=   Institutional Factor
PHYF= Physical Factor
COPCF= Cooperative Characteristic Factor.
In this part of the study, proof of the null hypothesis is made based on a hypothetical table 4.16 here below for the variables SOEF, INSF, PHYF and COPCF either to accept or reject. Because, to test the research hypotheses already set in section1, it is possible to find out if the independent variables are significant predictors of the dependent variables. To test the relationship and the set hypothesis 1, the regression analysis was applied here under in table 4.9.

Table 4.7: Independent Variables with their Coefficients and P-Value

Hypotheses	Unstand ardized	Stand ardized	P-Value (Sig.)	Tool	Result
	B	β			
Socio economic factor has no significant effect on coffee certification	.427	.482	.000	Regression	Rejected
Institutional factor has no significant effect on coffee certification	.368	.412	.000	Regression	Rejected
Physical factor has no significant effect on coffee certification	-.159	-.154	.000	Regression	Rejected
Cooperative characteristic has no significant effect on coffee certification	.193	.233	.000	Regression	Rejected

Source:(Own survey data, 2017)

5.2. Conclusions

This study focused on the effect of coffee certification in the livelihoods among small holder coffee farmers in Aleta chuko district. Factors affecting coffee certification were education level, land holding coffee, production volume ,price of coffee, extension visit, credit access, training access, distance to plot, access of infrastructure, market information, distance to market, organizational capacity, and coffee quality. Educated members of cooperative become more performed than those members who did not attend formal education. Educated members use new agricultural technologies and can get management experiences easily.

The results of the descriptive statistics based on Al-Sayaad et al. (2006,Cited in Bassam, 2013) the mean scale of the independent variables: Respondents intention on socio-economic factor, institutional factor, physical factor, and cooperative characteristics implied that respondents feel at agree level in all independent variables. Respondents response on the dependent variable: Perception on the effects of coffee certification) indicated that their response was at agree level. According to the multiple linear regression output, out of four major factors/variables which are included in the model, 3 predictors (socioeconomic, institutional, and cooperative characteristics) have found to be significant positive effect on coffee certification in terms of livelihood income and asset holdings. It was found that physical factors have a negative significant effect on the livelihood of small scale farmers. The findings implied that the effect of fair trade/organic certification has brought a positive impact on the livelihood of household's in the study area. On the other hand, physical factor has a negative significant effect in explaining the variation in coffee certification of marketing cooperatives, since beta value for the mentioned variable is below zero. Therefore, one can suggest that farmers get higher income from the sale of coffee through fair trade market if socioeconomic, institutional and cooperative characteristics improved and maintained to the required standard that affects coffee certification positively.

5.3. Recommendations

Agriculture is the backbone of the economy of the country, characterized by poor agricultural practices and low productivity. It also employs the largest proportion of the rural population. Coffee being one of the commercial commodities represents the livelihoods of many small farmers who could not even feed themselves. Therefore, any program or intervention to improve the income of the farmers requires careful identification of the root cause of problems.

In order to fill the identified gaps of coffee certification in the livelihoods of small scale households in the study area the following recommendations are forwarded.

In order to fill the identified gaps of coffee certification in the livelihoods of small scale households in the study area the following recommendations are forwarded.

- Certification in the district coffee cooperatives alone will not bring significant improvement in the livelihoods of cooperative members. More focus should be given in the areas of extension visit, provision of training and credit to access to increase the technical, financial and human capacities of the local coffee cooperatives to make them stronger and more effective partners in the value chain along with promoting certification.
- Market information regard with price and demand conditions shall be freely transmitted to the producers so as to encourage the ability of small-scale farmers to successfully participate in upgrading activities.
- The study revealed that a very low level of access of infrastructure, including transport facilities, feeder roads, schools, health clinics, electrification and reliable sources of drinking water that poses a serious challenge to the coffee-growing communities in improving their livelihoods. A due attention should be given on social premium investment by the respective marketing cooperatives, mainly through a coordinated effort and facilitation of SCFCU.
- Given the critical role of proximity of farmers to market center, nearest from the farthest plot area for promoting participation gains by a reduction in transport cost and available working time. The effort of investment in improved roads infrastructure should be expanded to achieve increased income and asset holding.
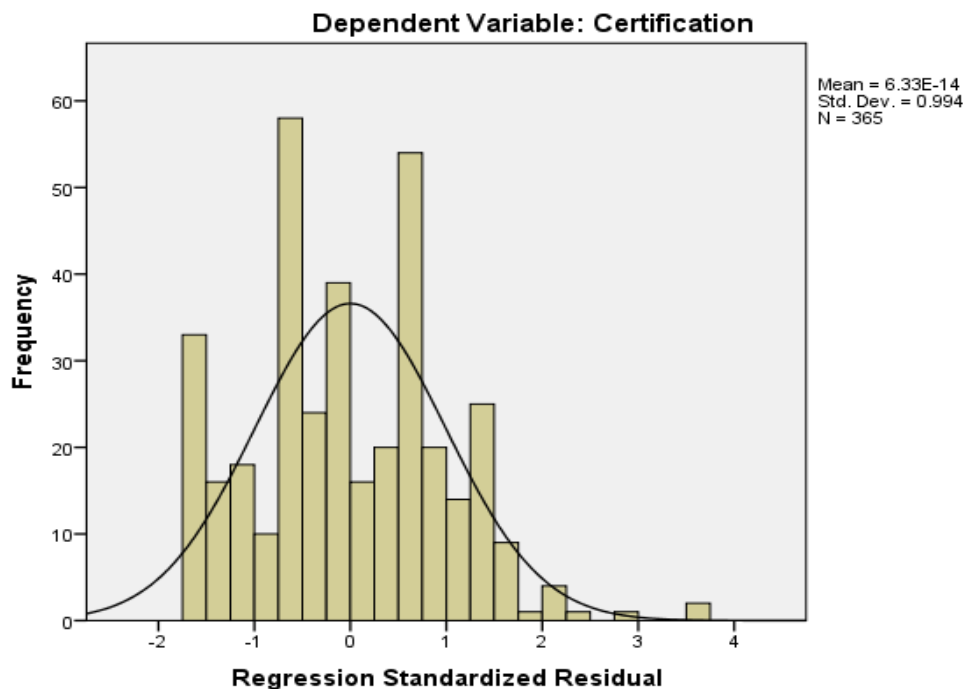
5.4. Future Research direction

This research has focused on specific certified marketing cooperatives at Aleta chuko district. So, it is possible to extend the scope of this research at country level for the whole coffee cooperatives which are fair trade organic certified. More research is also needed to closely examine the effects of coffee certification towards the detailed income of small scale households.
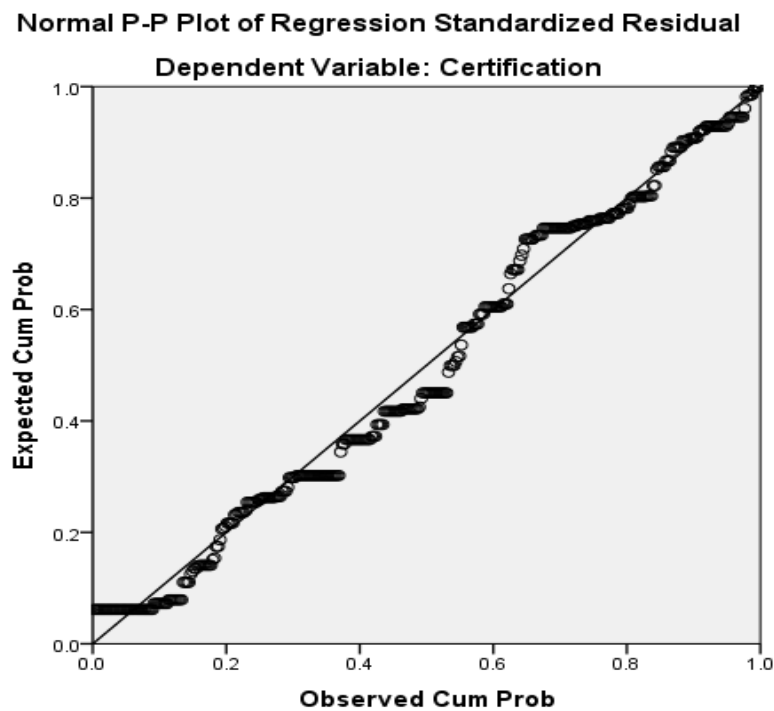
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Appendices

Histogram

Dependent Variable: Certification

Mean = 6.33E-14
Std. Dev. = 0.994
N = 365

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Certification

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