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Analysis of Factors that Affect Coffee Value Chain Development in the Upstream Supply Chain Members in Gudeya Bila District, Oromia, Ethiopia

Matiwos Ensermu*

Abstract

Purpose – The study analyzed factors that contributed for coffee value chain underdevelopment in the upstream supply chain members (farmers) in Ethiopia in terms of factors related to coffee value chain governance, coffee value redistribution among actors, and the level of government support to develop coffee value chain in the area. *Design/Methodology/Approach* – The survey of 202 respondents was made in East Wollega Zone, Gudeya Bila District, Ganda Gute Canco coffee farmers located in the West of Addis Ababa, Ethiopia. In addition, observation and two key informant interviews were made to triangulate the surveyed data from farmers to enable conclusion about coffee value chain development in the study area. *Findings* – The findings indicated that factors attributed to the underdevelopment of coffee value chain are mainly explained by: value chain governance dominance in the downstream coffee supply chain, lack of subsidy and hedging to coffee farmers, high logistics cost to market due to poor accessibility to road infrastructure to coffee farm site, long coffee cash-to-cash cycle time, low margin to farmers in the coffee value chain, no value addition to intrinsic coffee value chain up to export gate but increased price at downstream coffee value chain, and low level of mechanization and innovation. *Research Limitation/Implications* – The findings of the survey on reasons for coffee value chain underdevelopment are generalizable for other agricultural commodity value chain in Ethiopia and developing countries. *Practical Implications* – The way coffee value chain is governed in the upstream supply chain member can be optimized through policy intervention by government through coffee value chain development. *Originality/Value* – The paper has significant contribution in terms of case observation in the area, and the way coffee value is redistributed among coffee supply chain members in the absence of governance.

Keywords: Coffee Value Chain, Subsidy, Hedging, Value Chain Governance, Coffee Farmers

Introduction

Logistics system should be built and led as a system instead of fragmented activities from source to end. The logistics system demands the coordination of inbound to outbound logistics activities. About 85% of all Ethiopians are employed in agriculture (Hanna & Stefan, 2015). However, Ethiopia stands in the extreme end of the continuum of value chain. Structurally, it means that the Ethiopian economy is mostly dependent on agricultural product of export commodities like coffee and sesame with little to no intrinsic value addition on the extreme left side of the continuum of value chain, and finished goods import like vehicle, edible oil on the extreme right side. The non-value addition of the export commodity (low value farm products) has negatively affected Ethiopia's trade balance with limited capacity to generate more export earning as compared to the high-end finished goods to be imported to Ethiopia. This requires restructuring the position of Ethiopia in the continuum of the value chain by focusing on transformation of agricultural commodities

* Associate Professor, Department of Logistics & Supply Chain Management, College of Business & Economics, School of Commerce, Addis Ababa University, Ethiopia. Email: ensermujalata@gmail.com

into finished goods (high value products) as a branded Ethiopian product in the international trade market and at the same time, the production of import substitute finished goods in the industrial parks through domestic assembly or domestic manufacturing of imported goods with local materials. This directly affects the way logistics functions are built across the value chain in the Ethiopian context to shift the value chain position of Ethiopia to the center through additional value-added services by logistics companies like third-party, fourth-party, and fifth-party logistics service providers (Matiwos, 2015).

To support Ethiopian coffee value chain, logistics function is also an important factor which should be developed in terms of infrastructure, regulation, and operation. The logistics function development mainly relies on the way Ethiopian economy is structurally developed. Ethiopian economy is mainly agriculture driven, which is underdeveloped in terms of many aspects; say low-value addition, low productivity, low mechanization, no automation (backward technology), low irrigation practice (from household to commercial scale or state farm), lack of innovation, small land size holdings by the household farmers with scattered location that hampers large scale production; little to no support by the government in terms of incentives to the household farmers, no subsidies, and no hedging from mostly natural risks to their agricultural products. This underdevelopment of the sector negatively affected the way Ethiopian economic structure is developed even if sustained double-digit economic growth is registered for more than a decade. This structural flaw in the economic development of Ethiopia is characterized by low value of agricultural products at the production site with low return and low wealth creation for the household farmers. Household coffee farmers are the ones who actually created the commodity value, contrary to no intrinsic value transformation with high wealth creation at the retail end of the agricultural products in Ethiopia. On the other side of the economy, developed agriculture should lead into developed industrialization in terms of transforming the inputs to outputs through value addition at manufacturing sites. Ethiopian economy is characterized by structural problems due to underdeveloped agriculture. The reason behind underdeveloped Ethiopian agriculture in the value chain is its complexity in terms of number of coffee supply chain as explained for example by (Alemayehu, 2014), as "coffee supply chain is for example, complex and small farmer's sale to local traders, local trader's sale to big coffee milers and exporters, after processing local trader sale to international exporters and primary cooperatives purchase a number of coffees and sale to cooperative union the union process it and sale to exporters on behalf of cooperatives".

A study made by Dubale (2018) also revealed that the absence of a license, lack of enough working capital, higher completion, and lack of trading experience are the main barriers of entry in the wheat market. In addition, the price of wheat production in the market is determined by the farmer, market through negotiation, and traders. In addition, long wheat value chain actors were also identified in the study made by Nefisa (2018) as: input suppliers, producers, rural assemblers, wholesalers, flour factories, retailers, primary cooperatives, bakeries, flour wholesalers, flour retailers, consumers, and supportive actors. For example, a study made by Matiwos (2015) on 'Teff' value chain analysis recommended on the need to govern teff value chain price via maximum price setting at retail shop and technology enabled tracking system.

In addition, the study made on '*Teff'* farmers' production and marketing constraints were double taxation, shortage of fertilizer and seed supply, price setting, and access to credit whereas that of teff traders were double taxation, absence of infrastructure, capital shortage, access to credit, farmer reluctance to sell, lack of demand, absence of storage facility, and absence of government support (Efa et al., 2016). On the other hand, based on large-scale primary surveys, we find significant changes in the last decade. First, there is increasing adoption of modern inputs (chemical fertilizer, improved varieties, and herbicides) by farmers, especially by those living close to urban centers. Second, quality demands are rising and there are important shifts from the cheap red varieties to the more expensive white ones. Third, we see an increasing willingness-to-pay for convenience in urban areas, as illustrated by the emergence of one-stop retail shops—that provide sales, cleaning, milling, and transport services—as well as by a sizable foodservice industry. Fourth, the share of rural-urban marketing, urban distribution, and milling margins in final retail prices are declining, indicating improved

marketing efficiency over time (Minten, 2013). The actor making the biggest profit is the wholesaler. The farmers have a higher profit per kg of onions, but the fact that they only get three harvests per year makes the annual profit low. The wholesalers have (by far) the highest sale rate and the second highest profit per kg (Akalu & Durr, 2016). Furthermore, value chain development may need a multidimensional strategy of awareness creation between all stakeholders, specific nutrition-sensitive extension services, infrastructural and technical improvements, and market development as well as political support from the local to the national level (Hanna & Stefan, 2015). The low productivity of Ethiopian agriculture will persist in the near medium term unless there is a policy shift in the way the current agricultural operation is managed by the government. For example, the study by Dzomeku (2017) showed that factors which were responsible for quality deterioration of coffee in Ethiopia include variety, environmental conditions, agronomical practices, diseases and pest, post-harvest factors and poor marketing infrastructure, crop replacement, and adulteration of high-quality coffee. This is contrary to the behavior of Ethiopian government as it pursues developmental state where government plays an active and dominant role in key economic sectors. The study on fruits and vegetables also identified the following horticulture value chain challenges. The main drivers, bottlenecks, and potentials for the intensification and/or diversification of fruit and vegetable production include: on the supply side, seasonal constrained production systems, competition with cash crops (mainly coffee), crop damages through wild animals, lack of nutrition-sensitive farming systems, gender division in horticultural production, lack of research and extension supports, marketing problems, and non-availability of improved technologies; on the demand side, lack of awareness for nutritional issues, existence of underutilized crops, reluctance to consume indigenous fruits and vegetables, and low purchasing power; and on the intermediation side, technical problems with storage, processing and packaging, existence of weekly markets in the nearby towns but with inadequate infrastructure for perishable products, seasonal unavailability of products in the market (Hanna & Stefan, 2015). A study made by (Trienekens, 2011) revealed that major constraints for value chain upgrading in developing countries found to be: market access restrictions, weak infrastructures, lacking resources, and institutional voids. Similar study made by Ashenafi et al. (2016) in developing country (Ethiopia) on '*Warqe*', which is a multipurpose perennial plant, domesticated and grown as a food crop only in Ethiopia identified major constraints in '*Warqe*' value chain" as: poor information flow, poor transportation system, using perishable packaging, lack of cooperation between actors, a poor infrastructure such as road and warehouse services, and poor policies concerning the *warqe* market.

Research Methods

Description of Study Area

Location

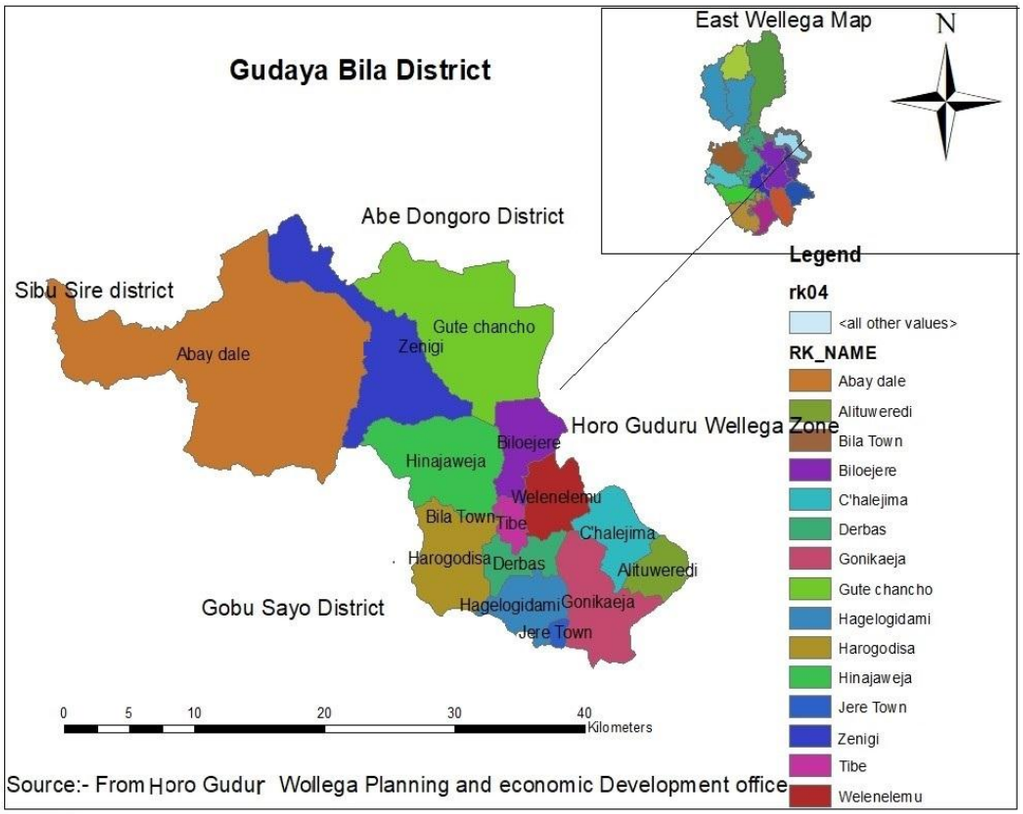
The study was conducted in *Gudeya Bila* District, Eastern *Wollega Zone*, Oromia, and Western Ethiopia of the coffee producing farmers. *Gudeya Bila* was found in the Western of Ethiopia in Oromia State. It is the recent district established in 2002. *Gudeya Bila* was situated at of 274-km West of Addis Ababa and it is 105 km far from Nekemte town and it was part of formerly named *Bila Sayo* district. It is bounded by *Abe Dongoro* district in the North, *Gobu Sayo* district in the South, Horo Guduru Wollega Zone in the East, and *Sibu Sire* district in the West. It was located at Longitude and Latitude of 9° 17'25" and 37°01'28" South and North, respectively[1]. The district has three-agro ecologies *Kola* 26.6%, *Weina Dega* 55.8%, and *Dega* 17.6%, (low land, mid land, and high land, respectively). Majority of the land possesses loam and clay loam soil type and some of sand, silt and clay soil type with well drainage. Generally, the climate of *Gudeya Bila* is very suitable for life, because of its high humidity and low-winds. Specifically, the district is endowed with natural resource around these areas, like *Bosona Bolale* (*Bolale* Forest) which has huge number of forests especially indigenous trees.

Gudeya Bila has different rivers used for irrigation purpose: like *Laga Gorochan, Laga Tokir, Llaga Jare, Laga Alaltu,* etc. However farming system of *Gudeya Bila* depends on rain-fed agriculture. Cereal crops growing are mostly maize, sorghum, teff, wheat, cash crops like

[1] Report of Eastern Wollega Zone, Gudeya Bila District, 2018

coffee, sesame, pulse (Niger), soya bean, haricot bean, fruits (banana, avocado, mango, Ttiringo, papaya, etc.), and vegetables (cabbage, onion, tomato, potato, sweet potato, *anchote,* beetroot, carrot, and pepper) are also cultivated in *Gudeya Bila* district. Around 3322 hectare of land was covered by coffee production by private farm and local farmers in the area. This area is famous for coffee production known with the brand name '*buna lagie'* or *lagie* coffee.

Map of the Study Area



Source: Gudeya Bila District Coffee and Tea Plantation report, 2019

Fig. 1: Map of the Study Area

Sample

Sample survey of selected coffee farmers located in Oromia States, East Wollega Zone, Gudeya Bila District, Ganda Gute Canco were used for data collection. The total number of household farmer population in *Ganda Gute Canco* is found to be 426[2]. Based on sample size-determination formula with confidence level of 95% and confidence interval of 5% the sample size considered for this survey is 202[3]. The case unit, *Ganda Gute Canco*, is purposively selected from the Woreda as it is characterized by surplus capable of producing agricultural products that can be stocked at least for two years by the farmers.

Instrument and Measurement

Fourteen-item questionnaires is distributed to randomly selected 202 coffee farmers in Ganda *Gute Canco*, of

[2] Gudeya Bila District Coffee and Tea Plantation report, 2019

[3] https://www.surveysystem.com/sscalc.htm (access date:29/06/2020

Gudeya Bila District of Oromia using locally trained enumerator to ask in local language, *Afan Oromo*, and all of the distributed 202 questionnaire are successfully filled and returned from the respondent farmers. The measurement used for the factors identified is perception of the coffee farmers on the degree of agreement on the statement for each factor in affecting coffee value chain development in that particular *Gute Canco*, in a Likert scale of 5, where 1 = strongly disagree to 5 = strongly agree, and 3 is the mean score. Furthermore, in addition to observation, key informant interview with two commercial investors on the coffee value chain actors were made. And accordingly, content analysis was made from the qualitative data through coffee value chain mapping.

Data Analysis

Based on enumerator-based data collection from the survey, a response rate of 100% (202 respondents) was correctly and completely filled that can be used for analysis using descriptive and inferential statistics.

Results

The results of the study are presented based on the analysis of 14 variables attributed to the factors that explain coffee value chain under development in upstream supply chain members in Ganda Gute Canco of Oromia State, Ethiopia.

Source: Own Observation, 2020

Fig. 2: Coffee Product at *Ganda Gute Canco* Farmer's Site

Table 1: Factors for Underdeveloped Coffee Calue Chain in *Ganda Gute Canco*

Descriptive Statistics			
	N	*Mean*	*Std. Deviation*
Coffee price is regulated	202	2.8416	1.17801
Coffee value chain well developed	202	2.5297	1.36830
There is high productivity of coffee	202	2.4505	.77268
Coffee price at Traders is low	202	2.3663	1.02915
Coffee price at Farm gate is high	202	2.2723	.84649
There is high coffee innovation	202	2.0693	.79498
There is subsidy to coffee producing farmers	202	2.0693	.56880
Coffee chain actors are few in numbers	202	2.0050	1.01969
There is low logistics cost	202	1.8762	.70501
Coffee value chain governance	202	1.8614	.69868
Cash to cash coffee cycle time is short	202	1.8614	.69868
There is adequate availability of improved coffee seed	202	1.8564	.70123
Coffee farm is mechanized	202	1.6139	.48807
Farmers are protected against price fluctuation(hedged)	202	1.6139	.50805
Valid N (listwise)	202		

Source: Own survey, 2020

As depicted in Table 1, based on their experience, 202 farmers were asked by enumerator to show and rank their degree of agreement on the statements based on the factors that contributed to coffee value chain activities in their area and the responses were analyzed and discussed as follows.

The first variable, coffee price regulation, across the coffee value chain was found to be below average with mean of 2.8 and standard deviation of 1.2, implying coffee price is not mostly regulated across coffee value chain from farm site to consumption site. Due to small-scale farm size (on average below 2 hectares of land in the stated area) will give low bargaining power to farmers to negotiate on the price of coffee due to small amount of production from their farm land, if left unregulated and left to the market. This will ultimately give power to the collectors (consolidators) of coffee to have more bargaining power against farmer's offer that lead to underpricing of coffee price at farm gate.

Farmers' engagement on coffee farm activities didn't result in improvement of their livelihood or accumulation of wealth as shown in their perceived response of below average (mean of 2.5 and standard deviation of 1.4). This implies that underdeveloped coffee value chain couldn't create wealth for the farmers and their livelihood remains at subsistence level throughout generations. The third variable, coffee productivity, as measured in terms of average yield of quintal per hectare is 1.75[4]. Consistent to this data, farmers rated their level of disagreement on the high level of productivity of coffee production per hectare as rated with mean of 2.45 and standard deviation of 0.8 implying low productivity of coffee in the production area. On the other hand, farmers were asked to rate their level of agreement on coffee price on how value created is equitably distributed according to the contributions (efforts) made by coffee chain actors; mainly farmer and traders. Coffee product development requires an average of five years period for the farmers. Due to long cash to cash cycle time and low productivity of coffee per hectare for farmers, it is reasonable for the farmers to expect a high profit margin from coffee commodity sale. However, it is to the contrary that retailers got higher margin due to quick coffee turnover and consolidation benefit by buying from different farmers and selling a higher profit margin than the coffee farmer does. However, farmers rating were found to be in disagreement category for both variables indicating contrary to the value chain profit margin equitable distribution being there is high profit margin for traders and low profit margin for coffee farmers. Based on the analysis, low price of coffee at coffee farm sites is the reason behind low profit margin and low wealth creation for coffee farmers as compared to other coffee supply chain actors in the area.

Coffee farmers were also asked to rate the level of coffee farm innovation and mechanization and found to be in the disagreement category for both with mean of 2.1 and 1.6, and standard deviations of 0.8 & 0.5, respectively, implying low level of innovation and mechanization of coffee farm in the area. This is mainly attributed to lack of comprehensive agricultural development policy support and lack of tailored support by the government to boost coffee production at small-scale land size owned by household farmers.

[4] Gudeya Bila Agriculture and Rural Development, Coffee Production Office Report of 2018

Other related factors contributed for coffee value chain development are subsidy and hedging to farmers and their ratings were found to be among the lowest indicating strong disagreement on the availability of support in the form of hedging and subsidy to farmers with mean of 1.6 and standard deviation of 0.5 for hedging; and mean 2.1 of and standard deviation 0.6 of for subsidy to farmers. In the absence of regulated coffee price, and traders' (downstream coffee supply chain members) dominance in coffee value chain, coffee value chain governance through support by government for small holder farmers (upstream coffee supply chain members) is critical. Among government's intervention to balance the coffee value chain governance is to support household coffee farmers through subsidy by providing improved seed, fertilizer, and working capital. Besides, the government should also hedge farmers against the risk of coffee development by insuring in the areas of price fluctuation, bad weather, fire and other manmade and natural risks.

Finally other factors like improved seeds availability, short coffee cash-to-cash cycle time, and availability of few value-adding coffee value chain actors we all rated in the disagreement category by farmers implying that supply of improved seeds by the district to the household farmers is not to their satisfaction. In addition, coffee production takes long cycle time (average of five years to get yield in the area). As a result, the money famers invested to buy improved seeds of coffee for plantation and their waiting time of five years to get yield, sell, and get back their cash considering time value of money is not yielding benefit in the form of wealth accumulation to the coffee farmers in the area. Coffee value chain actors from farm site by coffee household farmers to consumers at coffee shape has many players, as some of them do not add value on the intrinsic component of coffee commodity, but sharing profit margin from the farmers without their fair share.

Table 2: Variance Explanation

Model	*R*	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*
1	.807[a]	.652	.630	.83277

a. Predictors: (Constant), seed, regulation, hedging, mechanization, coffee actors, Trade price, subsidy, innovation, farm price, logistics, productivity, governance

As depicted in Table 2, the twelve factors, namely: improved seed, coffee price regulation, hedging to coffee price fluctuation, number of players in the coffee value chain, price set at traders, subsidy provided to coffee farmers, level of coffee farm innovation and mechanization, farm gate coffee price, logistics cost, productivity of coffee at household farm site, and coffee value chain governance together explain 63% of variation in coffee value chain development. Though these factors significantly explain the overall development of coffee value chain in that particular area, other factors that are not accounted in the study like climate variability, soil, pests, and coffee variety may have their own share to explain the coffee value chain development as intrinsic component of coffee value chain development.

Table 3: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	245.249	12	20.437	29.470	.000[b]
	Residual	131.073	189	.694		
	Total	376.322	201			

a. Dependent Variable: CVCD
b. Predictors: (Constant), seed, regulation, hedging, mechanization, coffee actors, Trade price, subsidy, innovation, farm price, logistics, productivity, governance

As shown in Table 3, model fitness was checked for the data and found to be fit (F=29.470, p=0.000), which is eligible for regression analysis.

Table 4: Predictors and their Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.457	.770		5.791	.000
	Regulation	.002	.062	.002	.039	.969
	Hedging	.036	.157	.013	.227	.820
	Subsidy	1.124	.215	.467	5.227	.000
	Mechanization	1.619	.173	.578	9.345	.000
	Logistics	.217	.188	.112	1.150	.252
	Innovation	.250	.165	.145	1.519	.131
	Farm Price	.116	.159	.072	.731	.466
	Trade Price	.534	.115	.401	4.650	.000
	Productivity	.012	.219	.007	.057	.955
	Coffee Actors	.115	.082	.086	1.406	.161
	Governance	2.208	.961	0.127	2.298	.023
	Seed	1.854	.968	.950	1.915	.057

a. Dependent Variable: coffee value chain development

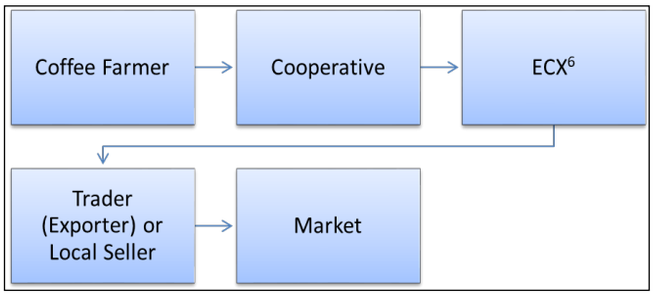
As portrayed in Table 4, four variables, namely: subsidy, mechanization, coffee price by trader, and coffee value chain governance have statistically significant effect on coffee value chain development with value $\beta = 0.467$, $p = 0.000$, $\beta = 0.578$, $p = 0.000$, $\beta = 0.401$, $p = 0.000$, and $\beta = 0.127$, $p = 0.023$, respectively, for the three variables. On the other hand, availability of improved coffee seeds has a statistically significant positive effect on coffee value chain development at $p < 0.1$. However, the remaining variables, namely: regulation, hedging, logistics cost, innovation, coffee price at farmer site, productivity, and coffee value chain actors have a statistically insignificant (weak) relationship with coffee value chain development based on the surveyed data. Based on the identified four factors, it can be inferred that more exogenous factors like governance, downstream coffee supply chain actors, and

government support through subsidy, mechanization, and provision of improved seeds to household coffee farmers in the area have significant effect on coffee value chain development in the area.

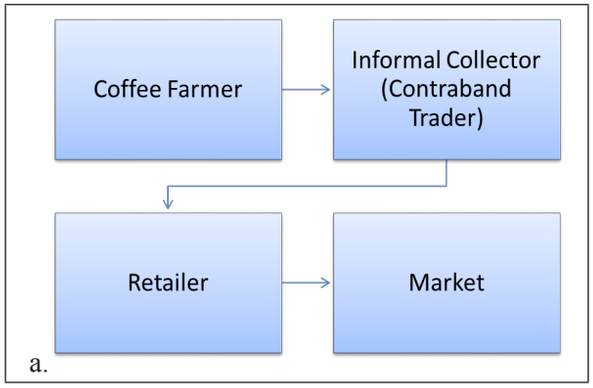
Analysis of Coffee Value Chain Actors in Ganda Gute Canco

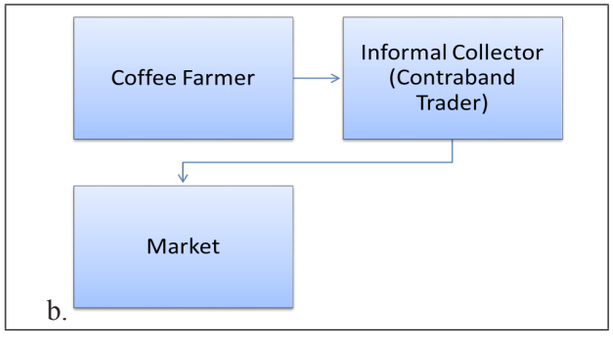
Based on the interview made with two commercial coffee farmers at *Ganda Gute Canco*, six coffee supply chain actors (the longest) for the formal coffee supply chain and three to four coffee supply chain actors in the informal coffee supply chain were identified as shown in the following distribution channel.

1. Formal Coffee Supply Chain Actors



2. Informal Coffee Supply Chain Actors





As per the interview data from the coffee farmers, the first approach (formal coffee supply chain using ECX as intermediary) was found to be constrained by several eligibility factors to trade at ECX, *Nekemte* branch, which demands the coffee farmer to produce and supply minimum of 30 quintals of coffee. Furthermore, grading the quality of coffee supplied from farmers was frequently rejected due to four factors; absence of close coffee-hauling machine, lack of standard storehouse at farm site, lack of standard packing material for coffee at farm site, and lack of dedicated vehicle to transport coffee to ECX warehouse. The minimum closest hauling machine is available at *Gimbi* town, which is 215 kilometer from the farm site, which is found to be infeasible from logistics cost point of view for small amount of coffee production at household farming. On the other hand, in the absence of coffee cooperatives in the area and as household farmers do not qualify to most of the criteria set by ECX of the high standards to maintain quality of coffee for export standard, they resort to the second-best option to sell to coffee informal collectors (coffee contrabandists) at a lower price than the formal price they get at ECX. As a result, the informal coffee supply chain is the common distribution practice in the area to reach the market where traders secure over 100% profit margin from informal coffee trading at the expense of coffee farmers who developed the intrinsic coffee product in the area.

Discussion

Based on the results of the study, value addition on Ethiopian coffee product by the trader, for example, will give the benefit of creating a higher value product which is positively correlated with higher price and higher profit margin accounting the cost factors. On the other hand, coffee farmers producing coffee products up to commodity level with no further processing to add value to the existing product contributes to low profit margin for household coffee farmers. It also has long cash-to-cash cycle time for the farmer to get their cash investment back after coffee plantation. This is a comparably longer period of return on investment at the upstream supply chain (coffee farmers) as compared to the high turnover of the commodity itself in the downstream supply chain players (retailers). Furthermore, the long-chain created to trade coffee product by household farmers in the domestic or export market further created inefficiency due to the involvement of many coffee value chain actors from

ultimate source to ultimate end without adding value on the intrinsic commodity of coffee until it reaches the household consumers.

Wealthy distribution in the coffee value chain governance is to the advantage of coffee traders. In contrast, coffee farmers' benefit in the coffee value chain governance is meager. This is mainly attributed to: small land size holding of the coffee farmer that results in small amounts of product supply to the market and coffee farmers' low bargaining power in coffee price-setting at coffee farm sites. Instead, they transfer the profit margin that should have gone to the farmer to themselves at the expense of the coffee farmers. Coffee farmers are the ones who created the intrinsic value of coffee commodity and remain the same until coffee is further processed (roasted) for coffee or macchiato making, but coffee farmers are rewarded less with low price setting from the traders, which made them, remain poor as the profit margin they get from their product is meagre to help them accumulate wealth and in turn help invest to modernize their agricultural activities. Besides, the informal coffee supply chain is the common distribution practice in the area to reach the market where traders secure over 100% profit margin from informal coffee trading at the expense of coffee farmers who developed the intrinsic coffee product in the area. This common trading practice by coffee farmers in the area is due to the high standards and criteria set by ECX to be eligible to trade at ECX. Furthermore, coffee supply chain is, for example, complex and small farmer's sale to local traders, local trader's sale to big coffee milers and exporters, after processing local trader sale to international exporters and primary cooperatives purchase a number of coffees, and sale to cooperative union the union process it and sale to exporters on behalf of cooperatives (Alemayehu, 2014). To justify why coffee value chain should be governed in Ethiopia (which requires a regulated market by the government on how wealth is distributed based on the value created on the product), it took the farmer five years to produce coffee, which is laborious, high cost of household labor at family level which in most of the case unaccounted for in the Ethiopian context, long year of cash-to-cash cycle time with high degree of risk, like low yield, coffee disease, etc., and finally sell at the rate of 60 Birr per kilo at *Ganda Canco* coffee production area. The same product is sold at the rate of 150 Birr[5] per kilo at retail shop at Addis Ababa market, with high profit margin and daily turnover contrary to five years for the farmer. That is why wealth should be redistributed for agricultural commodity. Wealth redistribution can be undertaken by the government policy intervention in two ways: 1) With the objective of value maximization for the customer setting maximum retail price for the consumers, which should be competitive price as perceived by the customer, and 2) Considering the contribution that the farmer makes in the intrinsic value creation of the agricultural product, setting maximum profit margin to go to the farmer equitably. This will in turn discipline the middle-level players to stick to the theoretical lowest profit margin to secure from the agricultural commodity transaction in the entire supply chain activity in the domestic market.

A closer look in to agricultural commodity value chain analysis in Ethiopia revealed the following: Considering the supply chain inefficiency created as a result of multiple players involved in the chain without justified activity as a value addition, the current retail price sold to the consumers in Ethiopian market is artificially kept low or subtly low priced by the government at the expense of the farmer. Here is why? Almost all rural agriculture carried out at household farmer with small land size ownership is done manually or plough with traditional animals, mostly oxen or donkey for which daily labors and animal costs are unaccounted for (not calculated as part of production cost). In the agricultural sector, labor cost is supposed to be expensive (at least theoretically), as it is laborious and demanding diligence than intelligence, with the low conducive work environment. This should be compensated for high pay and accommodation costs for this type of work design. However, in the context in which coffee farm and agriculture in Ethiopia, in general, is considered as a family business and the family is not paid for its contribution, hence the coffee production cost is not clearly accounted for, and the farm gate price is set like 60 birrs per kilo in the coffee case is arbitrary. Hence, the set price is arbitrary and doesn't reflect the real cost and profit margin of the product for the coffee farmer. Or, it is an imposed price by the trader to keep the price low to help the trader expand the remaining pie from the coffee farmer to take the lion's share of the profit margin at final selling price to the consumer market. If

[5] 1USD = 35Birr, June 2020

all costs be accounted for during the long cash-to-cash cycle time from coffee development to harvest and selling time, it is logical to expect the farm gate price of coffee be higher than the current arbitrary price set at 60 Birr per kilo which will naturally push the current retail price even higher. So, the way coffee value chain governance is dominated and hence benefited the downstream coffee supply chain members (trades) in the coffee value chain of Ethiopia.

On the other hand, there is little to no support by the government in terms of financial incentives and subsidies for the household coffee farmers, except for the commercial investors or downstream supply chain members. However, agriculture is an important sector in holding over 20 million household employments in Ethiopia including their rural livelihood, which is directly attached to agriculture for a population of over 80 million. Hence, special attention should have been given by the government to transform this underdeveloped sector through infrastructure development, innovation, mechanization, and provision of improved seeds to coffee farmers.

Lack of financing, incentives, and subsidies to the large household coffee farmers in Ethiopia has stifled them from wealth creation, which could help them to accumulate money for further investment, and to mechanize and modernize their agricultural activity. As a result, most rural coffee farmers continue to pursue subsistent economy with little or no progress in meaningful way in quality of life in general. By its nature, agriculture is a risky business vulnerable to mostly natural risks like fluctuation of weather conditions. Ethiopian farmers depend mostly on rain to conduct their agricultural activity and any deviation of season from expectation results in yield loss or low productivity. As most of the rural farmers do not have adequate capital or credit financing for the next season, they dare risk (entrepreneurial) to access to credit informally through informal loan, which most of the time put them in poverty trap. Besides, lack of working capital during the farm season, the long cash to cash cycle time to get the money back from investment on agriculture, puts the farmers in speculative behavior (again entrepreneurial) to sell their crop in advance while on farm (before harvesting the actual crop) for shortage of working capital or life expenses. In this situation, negotiation is made at individual level, and most of the time brokers buy it at a very low price and sell it at market price in most of the case high profit margin goes to the broker at the expense of the farmer. Therefore, coffee value chain development for smallholder farmers like the case of *Ganda Gute Canco* of Oromia State, Ethiopia, needs to be supported through value chain governance with the support of subsidy and hedging to enable coffee farmers create wealth and protect them against price fluctuation and exploitation by downstream coffee supply chain members. Finally, as household coffee farmers are spatially scattered in the rural areas, poor logistics infrastructure especially all-weather roads and inaccessibility of warehouse to stock coffee production contributed to high logistics cost to the nearby market (six hours' walking distance from the district market) that has ultimately affected the benefit they theoretically expected to reap from coffee harvest.

Conclusions and Recommendations

With a small landholding of coffee farmers in the area coupled with low productivity due to lack of improved seed, mechanization and innovation have made coffee farmers to remain poor and they have found it difficult to create wealth as a result of long cash-to-cash cycle time and from the low price of coffee sold at farm gate price to retailors, who in turn sell it with high profit margin and quick turnover in addition to consolidation benefit from many small coffee farmers at farm site. This has resulted in underdeveloped coffee value chain for the upstream supply chain members (farmers). This mainly characterized by lack of value chain governance to be played by government institutions to drift the wealth-creation mechanism in the intrinsic coffee commodity from traders to coffee farmers by redistributing wealth (profit-sharing formula) according to the value created to coffee commodity, cycle time, and risk factors. This is possible through setting coffee commodity maximum retail price (MRP), which should be regulated through theoretical wholesale and retail price setting. The difference between the cost of producing coffee at farmer site and the maximum retail price set for coffee should be distributed through coffee value chain governance by arranging joint profit sharing scheme according to the value creation at each stage of coffee value chain from source to end.

Furthermore, the government could involve in supporting the coffee farm sector through financing (subsidizing) of inputs like improved seeds and fertilizers, chemicals, etc., and provide tax incentives for household farmers to buy modern agricultural tools and farms for mechanization and innovation. In addition to subsidy, if Ethiopian coffee farm in particular and agriculture, in general, should develop, Ethiopian farmers like the European Union or US farmers should be hedged (insured) from price fluctuations of their agricultural products. In addition to the financial incentives and subsidies, the government should intervene and buy farmers' product and stock at warehouses to mitigate the problem of price fluctuation. If the market price of the commodity falls below the cost of production, the government should buy it at fixed price which accounts for cost of production and fair profit margin for the farmer, regardless of current market price. If the market price of the coffee is competitive for the farmer, the government should allow the farmer to sell it at market price as far as the profit margin is to the advantage of the household farmer. Finally, rural roads to the farm nodes for agricultural commodities should be accessible and regular logistics services primarily transport, warehousing should be available at least at district and at best at Ganda level of coffee farm area at an affordable price. This, however, demands policy makers to shift resource allocation to rural livelihood development, which in turn generates huge employment, rural urbanization, and in the long run freeing rural space for commercial farming and mechanization that will ultimately increase agricultural productivity of Ethiopia.

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