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ANALYSIS OF COFFEE VALUE CHAIN FINANCE IN BODJI DIRMEJI DISTRICT OF WEST WOLLEGA, ETHIOPIA

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Abstract
In Ethiopia, among other things, lack of finance is one of the fundamental problems hampering production, productivity and income of rural farm households. Since access to institutional finance is very limited, the majority of the coffee farmers are forced to search financial services through informal channels. This study was aimed at analyzing coffee value chain finance in Bodji Dirmeji District, Ethiopia with specific objectives of mapping out the coffee value chain finance and Sources of Credit for Coffee Value Chain in the study area. Two stage sampling method was employed to select 168 coffee farmers. Coffee value chain actors include producers, local collectors/assemblers suppliers, processors, service providers, exporters, wholesalers and retailers. The study reveals that the sources of credit to coffee farmers comprised of both the formal and informal sources. Formal sources included the Commercial Bank of Ethiopia (CBE) Oromia Credit and Saving Share Company (OCSSCO) and Cooperatives. Informal credit sources on the other hand comprised coffee traders. The output from the study indicates that 64 (38.1%) of the sampled farm households were formal credit users, whereas the remaining 104 (61.9%) of the sampled farm households were having fixed price forward contracting with traders. Therefore, policy aimed to accelerate agricultural development in the area could be successful if these problems are taken into consideration.

Key Words: *Value chain finance, Formal credit, Forward selling, Price risk/benefit sharing*

Introduction

The flow of funds to, and among, the various links within a value chain comprises what is known as value chain finance. Value chain finance makes use of the business relationships among the value chain partners, and in this way reduces performance, market and credit risks. Credit is provided through the value chain, principally guaranteed by the anticipated sale of the commodity in the future (Miller, 2011).

Contract farming involves traders who provide or facilitate credit to farmers willing to sell their crop forward. These buyers are motivated by their wish to

secure product supply (quality, timeliness), while farmers secure markets and lock-in prices. The forward contract specifies price and payment conditions, quantity, quality and time of delivery (AFD, 2012).

Currently, Ethiopia is a leading Arabica coffee producer in Africa, ranking the fifth largest Arabica coffee producer after Brazil, Vietnam, Columbia and Indonesia and tenth in coffee export worldwide (ICO, 2010). Coffee has, over a long period, been the most important commodity contributing with up to 24% of the country´s export (Minten *et al*., 2014). Ethiopia's economy as a whole, and an estimated 15 million Ethiopians, are highly dependent on coffee, and the prices paid for their coffee (Sida, 2011). Smallholder farmers produce 95 percent of Ethiopia's coffee (Tefera and Tefera, 2013). Besides, the livelihood of a quarter of the Ethiopian population depends directly or indirectly on the different processes of production and marketing along the coffee value-chain (Girma *et al.,* 2008). The coffee value chain in Ethiopia is composed of a large number of actors. It includes coffee farmers, collectors, different buyers, processors, primary cooperatives, cooperative unions, exporters and various government institutions (Gemech and Struthers, 2007).

Despite its importance, the value of coffee exported from Africa, including Ethiopia has declined considerably over the years due to lack of sustainability and poor competitiveness of the sub-sector at the national and international market. This is primarily ascribed to various problems, including lack of credit access, poor market access and lack of incentives (ICO, 2010).

As the lifeblood in the value chain, finance is often one of the critical constraints to economic growth. Understanding the financial structures both within and between firms in the value chain is necessary for the development of upgrading strategies that effectively increase competitiveness. There is a wide gap between owned and required capital to finance the agricultural activities of smallholder farmers. The lack of access to capital in rural areas is one of the major factors, which hinder the development of agriculture (Tefera and Tefera, 2013).

Even though coffee is economically and socially important, its value chain and credit constraint have not yet been studied and analyzed for the target study area where great level of production exists. There are marketing, credit constraint of several coffee farmers in the study area, which needs the specific focus of researchers to conduct financial analysis of coffee value chain. Hence, this study aimed at filling this research gap with specific objectives of mapping out the coffee value chain finance (find out the main actors in the chain; their link to each other and flow of fund to and among them) and identify the Sources of Credit for Coffee Value Chain in the study area.

Methodology

Description of the Study Area

Figure 1 shows geographical location of the study area. Bodji Dirmeji District was one of the 21 Woreda in West Wollega Zone known for predominantly growing coffee. It was located 472 km west of Addis Ababa and about 48 km west of Gimbi town. It has an estimated area of 1,183.44 square km; bordering by Bodji Chokorsa, Nedjo, Benishangul-Gumuz Region, and Lalo Asabi in South, West, North and East, respectively. The number of agricultural households in the District was 9,420 (7485male headed

(79.46%)) and 1935 female headed (20.54%)) while the total population of the Woreda was 55,217 from which 26,844(48.62%) are males and 28,373(51.38%) females (CSA, 2009).The major crops produced in the Woreda include coffee, teff, maize and sorghum.

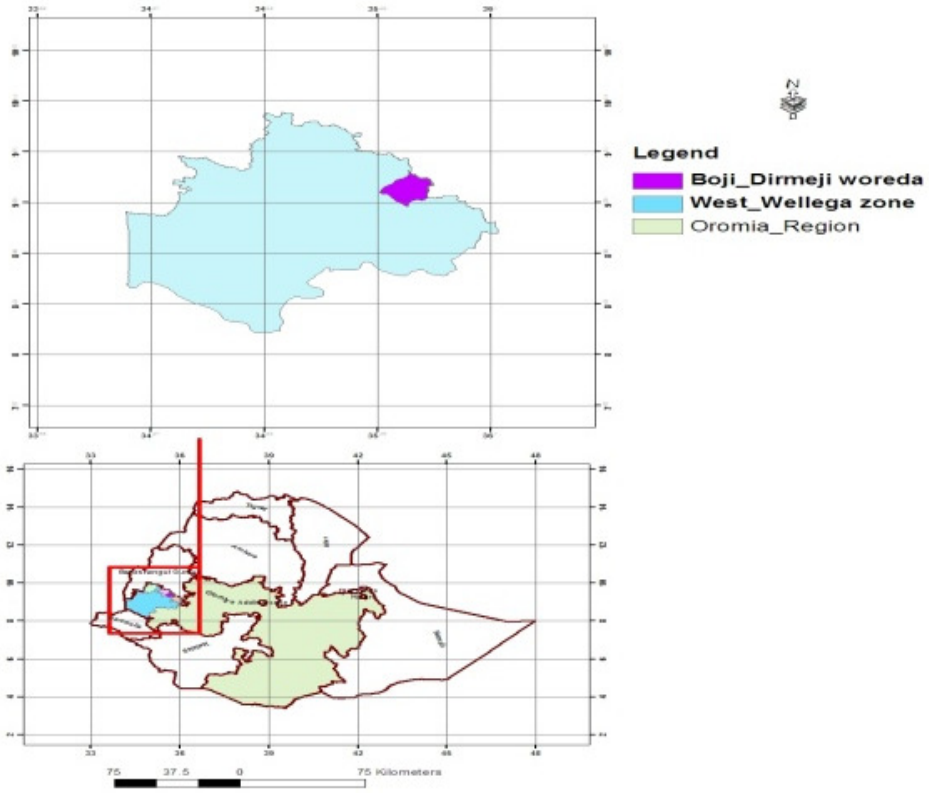


Fig. 1: Geographical location of the study areas

Types and Sources of Data

Both primary and secondary data were used to collect data. Primary data sources were coffee producer farmers from three randomly selected kebeles and traders (wholesalers, retailers, local collectors, and processors).The data was collected formally by individual interview using structured questionnaires. Secondary data was collected from different sources, such as: District Agricultural Office, Trade and Market Development Office, cooperative, CBE, and OCSSCO, reports, bulletins and websites.

Sampling Procedure and Sample Size

Two-stage sampling procedure was employed to select specific coffee producer households. First, three Kebeles were purposely selected from the available 17 coffee producing Kebeles depending on level of production. Then by employing Probability Proportional to Size (PPS) the number of farmers to be taken from each Kebeles was determined. Finally, random sampling was used to select the sample coffee-producing farmers those who are access to credit. The determination of sample size was resolved by means of Yamane (1967) sampling formula with 90 percent confidence level.

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

n= sample size for the research use
N= total number of HHs in three coffee producing Kebeles
e= margin of errors at 10%
As a result, 168 coffee producer farmers were selected for the purpose of the study.

Methods of Data Collection

Enumerators who have college diploma and working, as development agents were recruited and trained for data collection by questionnaire. Data were collected under continuous supervision of the researcher.

Methods of Data Analysis

Two types of analysis, namely descriptive and value chain analysis were used for analyzing the data collected from farmers and traders in the study area.

Descriptive Analysis

These methods of data analysis refer to the use of percentages, means, standard deviations and frequency distribution in the process of describing credit services, and household characteristics. In addition, the t-test and Chi-square statistics will be employed to measure the mean and percentage differences between credit users and non-users, having forward selling and not.

Value Chain Analysis

To analysis the value chain, mapping the value chain was a tool used to understand the characteristics of the chain actors and their link to each other, and the flow of fund through the chain.

Result and Discussion

Producer's characteristics by access to formal credit and having forward selling

The survey further revealed four groups of respondents based on credit demand status. These comprise farmers who access to formal credit for coffee farming 38.1% (64), farmers who did not access to formal credit 61.9% (104), farmers who have forward contracting with traders 61.9% (104) and those who have not forward contracting with traders 38.1% (64). One striking feature observed is that, no farmer is reported borrowing from both formal and informal source. A possible explanation for this could be that, farmers aim is to obtain credit for their coffee farming activities and once they are able to borrow from one credit source there is no need for them to borrow from the other credit source. This is consistent with the finding by Mohieldin and Wright (2000), who maintain that in Egypt, people who borrow from one credit source rarely also borrow from the other credit source for the same purpose, especially if the loan is for production purposes. Table 1presents the mean values of some selected variables used for analysis of farmers who access to formal credit, farmers who did not, farmers who having forward contracting and who did not having forward contracting with traders in the study area.

Table 1: Mean of selected characteristics of Surveyed coffee farmers by credit demand status

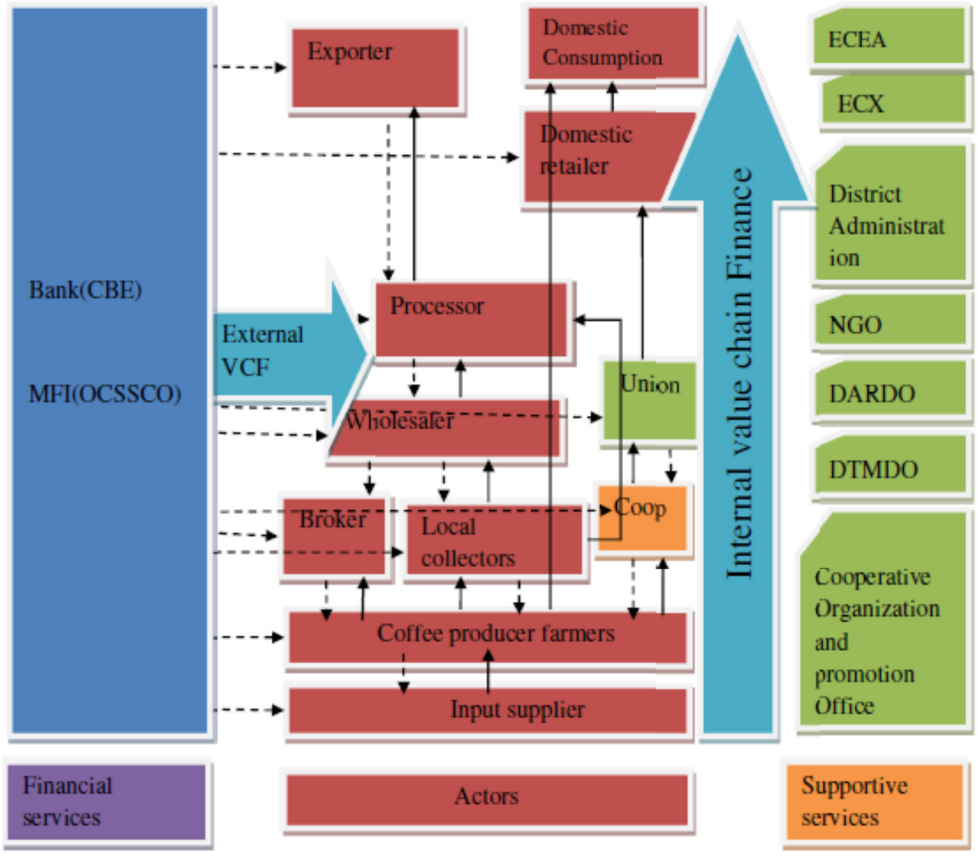
Variables	Access to formal credit		Having forward selling	
	Yes (38.1%)	t-test	Yes (61.9%)	t-test
Age	49.28	7.44***	58.63	-7.48***
Family Size	5.56	3.25***	6.37	-1.19
Experience in year	1.01	-20.54***	26.78	-17.87***
Distance to credit institutions in hour	2:30	2.42**	3:20	-2.77***
Extension service frequency per year	21	-32.06***	10.52	14.06***
Educational status		113.65***		86.37***
Illiterate	14.4		88.7	
Read and write	83.3		55.6	
Primary school(1-8)	91.3		21.7	
Secondary school(9-12) and above	96.7		10	

Note: *** and** are statistically significant at 1% and 5% probability level, respectively

Value Chain Analysis

Map of Coffee Value Chain Finance in Bodji Dirmeji District

Value chain mapping enables to visualize the flow of the product from conception to end consumer through various actors. It also helps to identify the different actors involved in the coffee value chain, and to understand their roles and linkages. Consequently, the current value chain map of coffee in Bodji Dirmeji District is depicted below.



Note: ——→ Flow of production

- - - - - - - → Flow of finance **Source:** Survey result, 2018

Fig. 2: Coffee Value chain Finance Map in Bodji Dirmeji District

Value Chain Actors, Supportive Services, and their Role in Coffee Value Chain

The value chain map highlighted the involvement of diverse actors who are participated directly or indirectly in the value chain. Direct actors are those involved in commercial activities in the chain (input suppliers, producers, traders, consumers) and indirect actors are those that provide financial or non-financial support services, such as credit agencies, business service providers, government, NGOs, cooperatives and extension agents.

Value Chain Actors

Value chain actors include all those actors in the chain who play an intermediary role between producers and final consumers at the local and international levels, such as producers, local collectors/assemblers suppliers, processors, service providers, exporters, wholesalers and retailers.

Producers: Producers are the first link in the marketing chain and the major actors in the coffee value chain. Coffee producers in Bodji Dirmeji District collect cherry coffee and supplied to the second agent. Coffee producer famers are the major actors who perform most of the value chain functions right from farm inputs preparation on their farms or procurement of the inputs from other sources to post harvest handling and marketing.

Broker: According to Abera (2009), brokers are specialists who bring together potential buyers and sellers. The major function of the brokers is to act as a bridge between buyers and sellers that are not able to directly buy and sell from each other. These brokers buy coffee directly from the farmers and hand the coffee over to whoever will finance the transactions.

Local Collectors: Locally unlicensed coffee traders purchase coffee from individual farmers. Their essential role is bringing coffee from very remote areas to the market and because they have no warehouses of their own, they transfer the coffee to 'wholesalers' immediately.

Wholesalers (Suppliers): Coffee supplier means a person who, upon meeting the required criteria, collects coffee with pulp or red cherry coffee from producers or from his own farm for delivery to the ECX. They are not allowed to export on their own account.

Exporters: Coffee exporters are companies who, upon being licensed to trade coffee by the appropriate government organ and fulfilling the requirements set by the ministry, and upon purchasing coffee from the ECX and exports coffee in compliance with the export quality and standards. Exporters are clearly the most powerful of the private intermediaries as they hold the contacts with international buyers. According to Stellmacher (2007), identify that exporters must be Ethiopian nationals and are not allowed to cup taste the coffee before buying it at the auction.

Supportive Service

Such actors are those who provide supportive services including training and extension, information, financial and research services. Access to information or knowledge, technology and finance determines the state of success of value chain actors. These include Government and Non-Government institutions (NGO).Government institutions include all MoARD, ECX, ECEA, District Administration, District Cooperative Organization and promotion Office and District Trade and Market Development Office are main supporting actors who play a central role in the provision of such services. Non-Government institutions (NGO) also include Techno service, and

Western Synod Mekane Yesus Development Project.

Ministry of Agriculture and Rural Development (MoARD): It has responsible for the full agricultural value chain. It supervises the sector with responsibilities for coffee research, marketing, quality control, handles policy matters and provides technical services such as extension and training to coffee growers. At regional, zonal and District levels, it is responsible for implementing extension services.

Ethiopian Commodity Exchange (ECX): The new institution got proclaimed in its ECX proclamation No. 550/2007 (September 4, 2007), then began trading operations in April 2008 and adds coffee among its commodities in December 2008. This accompanied the new Coffee quality control and marketing proclamation No. 602/2008 (August, 25, 2008) (ECX, 2011).It is working as a classic exchange place through members acting for users. Members are exporters, buyers, producers, etc and the exchange purpose is to ensure quality, delivery and payment by guaranteeing the product grade, quantity; operating a system of daily clearing and settling of contracts where buyers and sellers coordinate on the basis of standardized contracts; disseminating market information in real time to market actors; and offering contracts for future delivery providing sellers and buyers a way to hedge against price risk.

Ethiopian Coffee Exporters Association (ECEA): This is a private organization having an important role as one of the main contacts with the world market. The principal objective of ECEA is to promote coffee exports. It provides coffee trade information, lobbies on policies, and supplies technical support to its members.

Cooperative unions and Association of Primary Cooperatives Societies: Cooperative unions work as exporters developing linkages between remote producers and buyers, even foreign buyers by facilitating organic and fair trade certifications to export members, provide warehouse & transport services, promote high quality coffee production, and provide saving and credit services as well as training and education programs. Since 2001, unions can bypass the auction and export coffee directly, as the first alternative coffee value chain, parallel to the conventional market chain.

Financial Services

According to Miller (2011), the flow of funds to, and among, the various links within a value chain comprises what is known as value chain finance. Value chain finance makes use of the business relationships among the value chain partners (who are interdependent but share business information), and in this way reduces performance, market and credit risks. Stated another way, it is any or all of the financial services, products and support services flowing to and/or through a value chain to address the needs and constraints of those involved in that chain, be it a need for finance, a need to secure sales, procure products, reduce price risk and/or improve efficiency within the chain. Credit is provided through the value chain, principally guaranteed by the anticipated sale of the coffee. Financial institutions can become involved when they finance one end of the value chain, which then channels funds to the other links (internal value chain finance), or they can finance value chain partners directly (external value chain finance).

Internal Value Chain Finance is that which takes place within the value chain such as when an input supplier provides

credit to a farmer, or when a lead firm advances funds to a market intermediary. These kinds of financial transactions are the provision of financial services by actors within value chains (direct value chain finance).The exchange of goods for payment along the value chain creates opportunities for extending credit and other financial services. Frequently referred to as value chain finance, these loans often take the form of direct advances by an agribusiness firm providing seeds and fertilizer as in-kind credit to smallholder farmers. Loans are typically repaid by deducting subsequent payment to farmers upon product delivery. In the study area traders provide or facilitate credit to farmers willing to sell their coffee forward at fixed price.

These buyers are motivated by their wish to secure product supply (quality, timeliness), while farmers secure markets and lock-in prices. The forward contract specifies price and payment conditions, quantity, quality and time of delivery. Such financing within a chain is common between coffee farmers and traders in the study area. They consist of short-term loans to ensure a smooth flow of products, keep the chain running and maintain long-term relationships between trusted business partners. They may be given in cash or in kind.

Sources of Credit for Coffee Value Chain in the study area

This section presents the various sources from which farmers obtained credit as well as the characteristics of loan such as interest rates and collateral requirements.

Informal Sources of Credit (forward contracting) for Coffee Value Chain

From Table 3, it is revealed that the informal credit source dominates as the major source of loan to coffee farmers. Out of the total number of farmers who borrowed credit for coffee farming, 61.9% of them obtained their loans from the informal source. The principal sources of loans within the informal sectors are coffee traders (local collectors, wholesalers and processors) in the study area. Limited availability and accessibility of formal credit might be one of the reasons for the dominance of the informal credit sources as providers of credit to coffee farmers. Possible explanation for this could be that either the informal lenders such as trade creditors among others are shying away from providing credit to farmers or there are limited numbers of informal credit options for farmers to borrow.

Table 2: Informal sources of credit to Surveyed coffee farmers

Source	Frequencies	Percentage
Local collectors	96	57.1
Whole sellers	5	2.9
Processors	3	1.9
Total	104	61.9

Formal Credit Source for Coffee Value Chain

In the study area, the formal credit sources are CBE, MFI (OCSSCO), and Coop. Not a great proportion of loans originated from the formal sources as only 38.1% of total loans obtained were extended from the formal sources. The reasons for this observation could be that, since majority of farmers (75.6%) as indicated in Table 3 have never had any formal education, they tend to shy away from applying for credit from the formal sources since these sources require more papers to fill as noted by Togba (2009). Also it is possible that the formal sector is refusing to lend to the farmers given the

risky nature of agricultural production as noted by (Owusu-Antwi and Antwi, 2010). In the formal sector, the MFI (OCSSCO) is the second most important source of credit by extending 26.8% of all loans obtained from the formal source as indicated in Table 4.

Table 3: Formal Sources of credit to Surveyed rice Farmers

Source	Frequencies	Percentage
CBE	2	1.2
MFI (OCSSCO)	45	26.8
COOP	11	6.5
From both MFI and COOP	6	3.6
Total	64	38.1

Conclusion

In Ethiopia, among other things, lack of finance is one of the fundamental problems hampering production, productivity and income of rural farm households. Since access to institutional finance is very limited, the majority of the coffee farmers are forced to search financial services through informal channels. The study had the objectives of identifying the coffee value chain finance. A two stage sampling technique was employed to select a total number of 168 coffee farmers from three Kebeles of Bodji Dirmeji District of Western Wollega, Ethiopia. The study specified and estimated only credit user. The data were collected from both primary and secondary sources.

A number of interesting findings emerged from the study. The study reveals that the sources of credit to coffee farmers comprised of both the formal and informal sources. Formal sources included the Commercial Bank of Ethiopia (CBE) Oromia Credit and Saving Share Company (OCSSCO), and Cooperatives. Informal credit sources on the other hand comprised coffee traders. The output from the study indicates that 64 (38.1%) of the sampled farm households were formal credit users, whereas the remaining 104 (61.9%) of the sampled farm households were having fixed price forward contracting with traders.

Recommendations

The study revealed that the fixed price forward contracting dominate the credit market as the major providers of credit to farmers by supplying 61.9% of all credit obtained with the formal credit sources being the least (38.1%) providers of credit which may be a reflection of their relative unavailability or inaccessibility. However, given the well-established nature of formal credit institutions compared to forward contracting (especially with coffee traders being the major provider within the forward contracting source), it will be easy for government to formulate policies that will regulate the formal credit institutions than the informal credit sources. Strong linkages, communication and trust building among the local collectors, wholesalers, processors and retailers needs to be established to ensure credit facilities are bringing more sales.

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