

## **Value Chain Analysis of Maize: The Case of Demebecha District, West Gojjam Zone, Ethiopia**

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**Abstract:** This research was aimed to analyze maize value chain in Demebecha woreda, North West, Ethiopia. The district is known in its maize production. However, maize value chain and related opportunities were not studied yet. Thus, this study attempts to address mapping and identifying maize value chain actors, roles and linkages, examines marketing channel, cost margin structure and assessing opportunities in the study area. Data were collected both from primary and secondary sources using appropriate tools. Primary data were collected from 155 maize producers, 40 maize grain traders, 10 alcohol processors and 20 consumers using semi-structure questionnaire. Descriptive statistics and value chain approach were employed for data analysis. Results indicated that cooperatives, producers, collectors, wholesalers, retailers and processors were found to be core actors in maize value chain in the study area. Marketing performance analysis indicated that twelve alternative marketing channels were identified to transact 5160.5Qt of maize through intermediaries. The largest volume of maize (1356Qt) was passed through marketing channel VIII but not necessarily with largest marketing margin obtained. The result depicted that total marketing margin in the marketing system was 30% associated with 70% producers' share of the margin. Costs and benefits were found to be disproportionally distributed that the highest average profit margin (25.10%) was went to the processors while 15.25% went to the producers. The whole value chain was governed by traders particularly the wholesalers. Conducive environment in the study area, fertile land and presence of organized institutions (district agriculture office with multipurpose farmer's) cooperatives were the main opportunities for maize production and marketing in the district.

**Key words:** Value chain, actors, maize, margin, opportunities

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### **I. Introduction**

In Ethiopia agricultural production, cereals account for 65% of the agricultural value added, equivalent to about 30 % of the national GDP. Grain production in Ethiopia is almost entirely based on rain-fed agriculture and is characterized by a dominant harvest (*meher*) in November and December and a secondary harvest (*belg*) in April and May and Cereals contributed 87.29% (about 177,613,365.84qt.) of the grain production and maize alone accounts for (24.5%) of cereals production in the country (CSA, 2011). Increasing its trend of production, maize comprised 31 percent of total annual cereal production, with only 21 percent of the cereal area cultivated in Ethiopia (Getachew et al., 2018).

In the world economy, maize is one of the world's three dominant crops along with rice and wheat in which the global maize industry had revenues of US\$219.5 billion in 2015/2016 market value. Maize is the most important staple food crop in Sub-Saharan African countries with few countries on the take-off to export to the neighborhoods countries (Daly et al., 2017). Ethiopia is the fourth largest maize producing country in Africa, and the first in East African region and produces non-genetically modified (GMO) white maize, the preferred type of maize in neighboring markets(FAO, 2015).

Maize is also the most widely produced crop in Ethiopia in terms of numbers of households involved in its production, the number of hectares planted and volume of quintals produced per hectare. Maize is the leading cereal crop in Ethiopia in terms of total production and yield per hectare (Tewodros, 2011). According to CSA

(2017), maize, teff, wheat and sorghum made up 27.02 %, 17.29%, 15.63%, and 16.36% of the grain production, respectively and maize production was 36.75qt/ha

In Ethiopia, among the top maize producing zones are: West Gojjam (5.6 million qt.), East Wellega (4.3 million qt.), Kaffa (3.8 million qt.), East Shewa (3.1 million qt.), West shewa (2.9 million qt.), West Arsi (2.7 million qt.), Illubabor (2.7 million qt.), East Gojjam (2.2 million qt.), West Wellega (2.1 million qt.), and West Harerghe (2.1 million qt.) (ATA, 2013-2017). And also Jimma, Awi, and Sidama are also potential areas in the country (USAID, 2010).

In Ethiopia only two regions, Amhara and Oromia, account about 82 percent of maize production of the country (Rashid, 2010).

Maize value chain in Ethiopia involves multiple actors, including: input suppliers, producers, traders (local assemblers and wholesalers), retailers, processors and consumers and there are many actors between the producers and the consumers all performing various activities at different scales of operation and the finding reported by IFPRI indicates inefficiencies in maize value chain (IFPRI, 2010).

Currently, the majority of actors in the agricultural value-chain are small and informal, with limited resources, gaps in funding and technical skills. This imposes extremely high barriers to agricultural growth characterized by: inefficient scale of activities, high transaction costs, and insufficient information flow from end market to producer. Input needs of the producers are not satisfied both in terms of volume and coverage and highly fragmented midstream aggregation and trading impairs the links between farmers and markets as well as management and governance challenges along the value chain (BMGF, 2010).

## **II. Statement of the Problem**

Among cereals, maize is the staple cereal crop with the highest current and potential yield from available inputs, at 2.2 tons per hectare in 2008/09 with a potential for 4.7 tons per hectare based on farm field trials, when cultivated with fertilizer, hybrid seed, and farm management practices. Considering this yield gap and tapping into latent demand sinks, smallholders could increase their income from approximately USD 60 per hectare today to USD 350 to USD 450. If yield potentials are realized, maize can also contribute towards improving food security and reducing land degradation through producing an incremental 1 Million tons on 30 percent less land, and increasing the aggregate revenue (Rashid *et al.*, 2010).

However, currently the sector of agriculture in Ethiopia face different challenges and constraints like environmental degradation, recurring drought, low level of utilization of modern agricultural inputs, inadequate infrastructure and market information services in general and lack of universally acceptable and enforceable quality standards that reduce transaction costs, weak producers' organizations and limited participation in maize seed production, distribution and marketing of members' output, inadequate access to credit facilities by grain traders are some of constraints particularly for maize (USAID, 2010)

Agro-industry value chain in Ethiopia faces many challenges due to limited market outlets, limited efforts in market linkage activities and poor market information among actors in the value chain. The small scale, dispersed and unorganized producers are unlikely to exploit market opportunities, as they cannot attain the necessary economies of scale and lack of bargaining power in negotiating prices (Abraham, 2013).

Moreover, particularly in the country series of constraints span maize value chain in production, aggregation and trading, and demand sinks, or the end markets due to various challenges such as lack of a fully functioning maize market, reflecting a weak industry structure in the country (IFPRI, 2010). Regarding value chain actors, Bill and Melinda Gates Foundation (BMGF) indicated that, currently all actors in Ethiopia, along the entire agricultural value chain, from input supply, and distribution, through aggregation of smallholder production and trading, to downstream processing and export needed to be supported by identifying their particular problems through value chain analysis (BMGF, 2010).

In Ethiopia, agricultural commodity prioritization for agro industrial development is important for the sector development. And thus, different commodities prioritize based on relevance in terms of national food security; the population involved in production, marketing, processing and related services especially from income generation and employment perspectives; productivity and commodities that can achieve significant

improvements along the value chain without requiring major infrastructure investments etc. In this line, among twenty-two commodities prioritize in the country, cereals are in the first category (wheat, maize, teff and barley) (UNIDO, 2009).

In Dembecha woreda, maize play an indispensable role as food consumed alone or mixed with other crops especially with teff and wheat, used to prepare local alcohol drinks known as *areki*, and *tella* processing input at which both alcohol processing's play a significant role in income generation and employment creation particularly for females.

Hence, mainly many researches were focusing on production aspects which is non-comprehensive and research regarding the topic did not conducted in the study area and thus, to understand the situation and extent of maize value chain in the study area, the researcher need to identify and map value chain actors, their role and linkage, identifying marketing channel, actors welfare via market performance analysis as well as major production and marketing opportunities in the study area.

### III. Methodology

#### Description of the study area

Dembecha is currently one of the fourteen districts in West Gojjam Zone of the Amhara Region of Ethiopia. The district had 29 Kebeles of which 25 were rural and 4 were urban and had a total population of 151,023 of which 75559 were men and 75464 were women. From this total population, 14 % (21143) were urban dwellers whereas 86 % (129880) were rural residents. The district has an area of 971.29 square kilometers and had a population density of 133 persons per square kilometer and has on average 4 persons per household. The district agro ecology comprises Woinadega (83%), kola (6%) and Dega (11%). Regarding its topographical structure 60% of the district is plane whereas 6% and 34% are valley and hill respectively (Source: Dembecha district office of Agriculture, 2018).

**Table 1. Common cereal crops in the district.**

Major crops	2016		2017		2018	
	Area(Ha)	Production in quintal	Area (Ha)	Production in quintal	Area(Ha)	Production in quintal
Maize	13047	902430.75	15434	1095939.72	16481.97	1186701.84
Wheat	7216	69095.5	7810	402448	10216	5455797
Teff	6006.75	108452	6866	125052	6870	134069.38
Barley	4587.55	21997.875	4800	402437.2	4800	263302.3

Source: Woreda Office of Agriculture, 2018

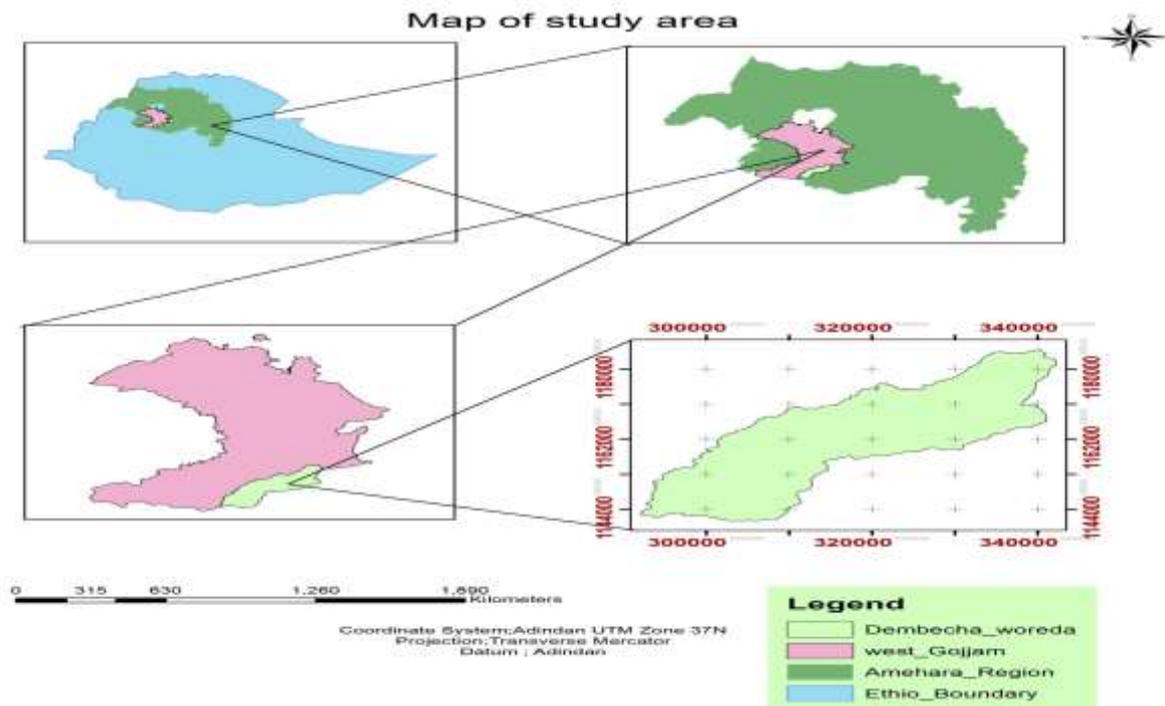


Figure 1. Map of the study area

**Types and sources of data:** In this study, qualitative and quantitative data types were used from primary and secondary data sources. The primary data were collected from maize producers, traders, processors and consumers. Moreover, all the necessary secondary data on different issues were collected from published and unpublished documents from district office of agriculture and Natural resource annual reports, bulletins, charts posted on the wall of the district office of agriculture, district trade and industry office, websites, CSA data as well as district cooperative's promotion office documents in the study area.

**Sampling procedure and sample size:** Demebecha woreda was selected purposively because of its maize production potential known from fourteen districts in West Gojjam zone. By consulting with district agricultural development office the district has currently 25 rural kebeles and almost all kebeles are maize producers of which 14 kebeles are identified (purposively) as highly maize producers. From 14 producer kebeles, four kebeles were selected randomly. Sample size was selected from each maize producer Kebeles on the bases of proportional to the size (PPS) sampling technique. Finally, 155 maize producers, 40 maize grain traders, 10 maize processors and 20 consumers selected from the district.

**Data collection and method of analysis:** A semi structured and independent questionnaire was designed and used for maize producers, maize grain traders, processors and consumers owing to their marketing capacity to purchase and activities were differ. The primary data was collected by the method of individual interview using piloted questionnaire schedule along with observation. Additional data were gathered through informal method of focus group discussion (FGD) and key informant interview using checklist. These informal techniques were also implemented to get additional information during data collection and were used for rectifying mistakes from the primary data. Two focus group discussions (FGD) were undertaken with a total of 13 members. One with model farmers and experienced maize producers and the other with agricultural development office staffs and Woreda cooperative promotion office to collect additional data on maize producer's constraint and opportunity from input usage and marketing aspect as well as on different issues regarding maize based on the appropriate guideline designed. Key informant interview was conducted with model farmers, cooperatives staff workers (chairman), and district office of agriculture staff workers. The collected data were analyzed using descriptive statistics and value chain approach. The actors' performance was analyzed using total marketing margin.

Analyzing total marketing margin is based on the price paid by the final destination of the product or the end buyer and expressed in percentage (Mendoza, 1995). Finding the price variations at different segments and then comparing them with the final price to the consumer. Therefore, consumer price was considered as the base for all margin computation after collecting relevant data from value chain actors that was identified in value chain

mapping in analysis. Total growth marketing margin (TGMM) was calculated first in order to compute gross marketing margin (GMM) of different actors, net marketing margin (NMM) and total marketing cost (TMC) that help to investigate who get what amount?, who incur what amount, to see the product flow and helps to understand who is in a disadvantageous position which is useful for intervention for improvement

$$TGMM = \frac{\text{End buyer price} - \text{First seller price}}{\text{End buyer price}} \times 100 \dots\dots\dots 3$$

The first seller of the product is known, the producer and therefore, the i node or actor in the chain along the product flow GMM was computed as;

$$GMM_i = \frac{\text{selling price of } i(\text{spi}) - \text{purchase price of } i(\text{ppi})}{\text{End buyer price}} \times 100$$

Here producers share was calculated as, 1-TGMM or

$$\text{Producers share}(ps) = \frac{\text{Producer price}}{\text{Retail price}} \times 100$$

$$NMM = \frac{GMM - MC}{\text{End buyer price}} \times 100$$

- Where, TGMM Total Growth Marketing Margin
- GMM Growth Marketing Margin
- NMM Net Marketing Margin
- MC Marketing cost
- SPI Selling price at i<sup>th</sup> actor and
- PPi Purchase price at i<sup>th</sup> actor.

#### IV. Results and Discussion

##### Maize value chain map, actors role and linkage

Since value chain is not a “pragmatic construct” and thus as generic value chain, this survey results also revealed five major stages in the current value chain namely input suppliers, producers, processors, traders and consumers.

The first stage i.e. input suppliers, multipurpose farmers cooperatives play significant role by supplying improved seed and fertilizers to each kebeles by opening its warehouses nearby with the collaboration of woreda agricultural and cooperative promotion offices.

The second stage i.e. production, local smallholder farmers were the main maize producers by using inputs delivering from their own multipurpose farmer’s cooperatives and they were the main source of maize grain supply to the market. The processing stage was traditional local alcohol makers (locally called *areki*) were one of the main users of maize grain as maize is one of the major components for local alcohols. In marketing activities local collectors, rural and urban wholesalers and retailers were observed in the study area and consumption of maize another common activity both in rural and urban areas. Rural and urban prefixes were taken from their license registration name in their respective operating areas. The map was sketched after discussion and identification the following basic questions from main actors and key informant interviewee direction.

- 1). Where or who delivers your factor of production (inputs)? to local farmers,
- 2). Where or to whom to sold your maize grain? Again for local maize producers,
- 3). To whom for each category of traders sold and who support either directly or indirectly from woreda agriculture development and rural extension and cooperative promotion offices.

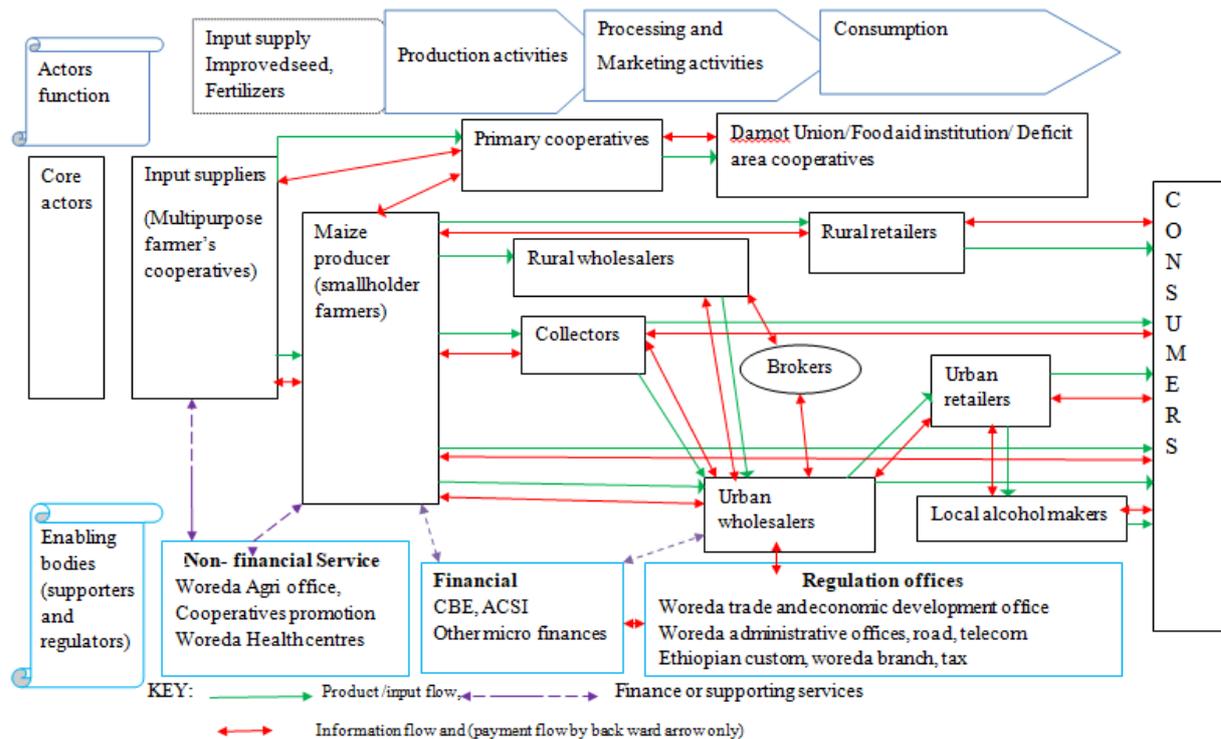


Figure.2 Maize value chain map in the study area

**Source: Own map following product flow during Survey, 2018**

Regarding actor's linkage, Survey result revealed that 38.7% of sample respondents accessed market information about daily marketing price directly from traders. Wholesaler traders have power by purchasing large quantity and they can also discussed and decide on market issues unlike unorganized smallholder farmers. On the other hand, traders particularly wholesalers had relationship with farmers by giving credit especially during sowing and harvesting seasons even for one week till the farmers meet ex anti finance for the purchase of input and labour by selling crop, livestock or livestock products. Smallholder farmers do not have alternative than taking the market price and thus wholesalers' govern the chain activity in the study area. Survey result from traders showed that about 42% of traders create linkage with their suppliers by giving short term credit. Survey result indicated that 74.8% sample households accepted the price determined by the buyers but only 25.2% have chance to take a negotiating price.

This implies farmers had limited bargaining power, weak market information and weak integration and driven by the buyers or traders.

**V. Marketing channels**

In the study area 12 alternative frequently transacted marketing channels were identified. The total estimated amount of maize that supplied by sample respondents to ultimate users through various intermediaries was 5160.5 quintals in the year 2018 production which was about 72% of total production. The identified market channels were:

Channel I: Farmers – consumers (428.32Qt)

Channel II: Farmers -rural retailers- consumers (111.47Qt)

Channel III: Farmers – rural wholesalers- urban wholesalers- urban retailers- consumers (1252 Qt)

Channel IV: Farmers–rural wholesalers–urban wholesalers– urban retailers–processors (436.46Qt)

Channel V: Farmers– collectors–consumers (17Qt)

Channel VI: Farmers– collectors– urban wholesalers– urban retailers– consumers (43.73qt)

Channel VII: Farmers– collectors–urban wholesalers- urban retailers–processors (15.24Qt)

Channel VIII: Farmers–cooperatives–union/food aid institutions/other union (1356.7Qt)

Channel IX: Farmers– urban wholesalers– urban retailers –processors (228.66Qt)

Channel X: Farmers – urban wholesalers – urban retailers–consumers (656.24Qt)

Channel XI: Farmers –rural wholesalers- urban wholesalers– consumers (403Qt)

Channel XII: Farmers- urban wholesalers-consumers (210Qt)

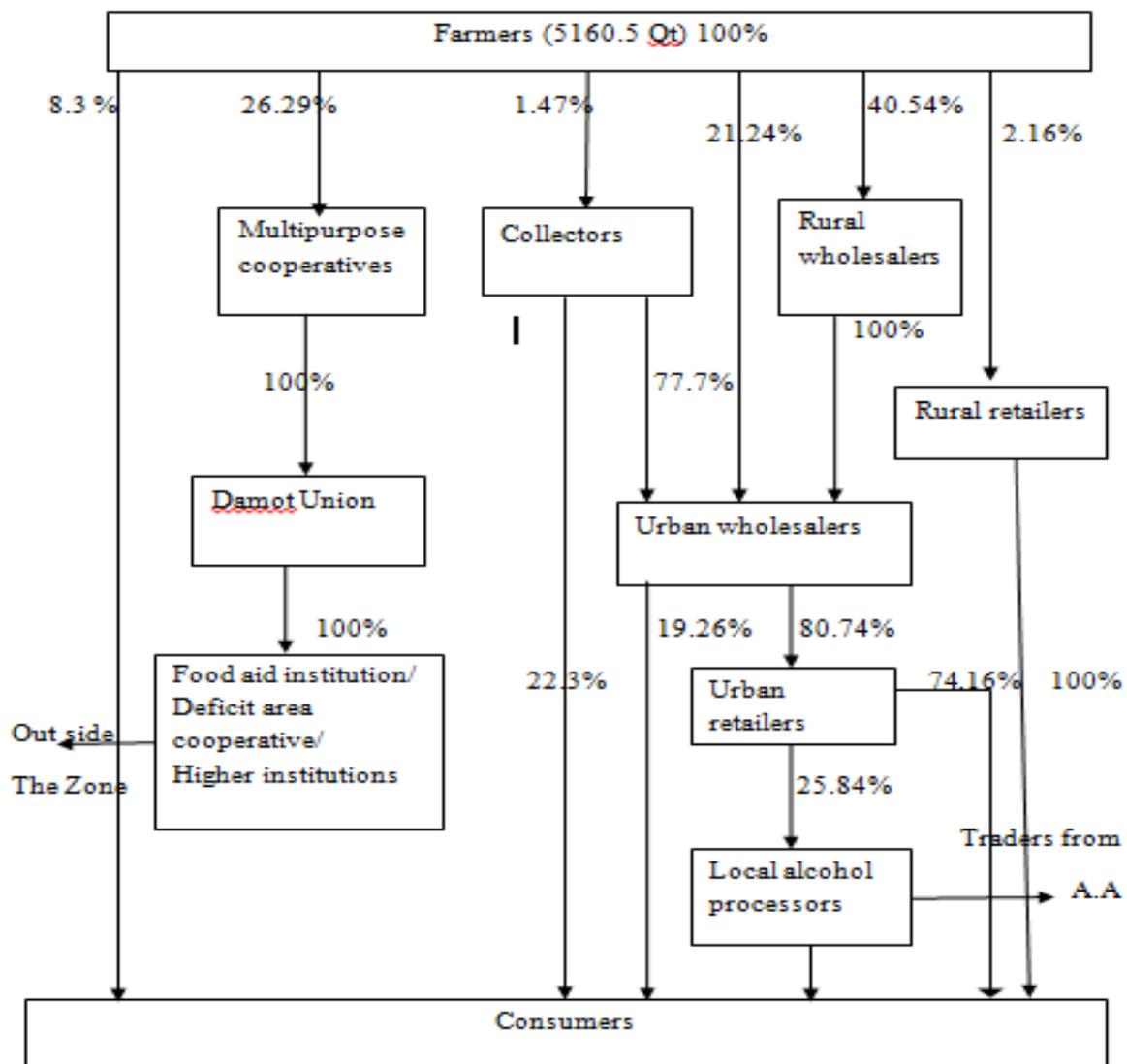


Figure 3. Marketing channel of maize in the study area

Source: survey result, 2018

Regarding channel comparison using volume of transaction from farmers' hand through traders as shown above, channel III carried the largest volume (1252 Qt) due to the high capacity of rural wholesalers directly purchased from farmers and passes through intermediaries to consumers. The smallest volume of maize was passed through channel VII about (15.24Qt). This was due to the small capacity of collectors in rural village markets

purchased smaller quantity than wholesalers. Farmers sold (1356.7Qt) of maize to their cooperatives without the involvements of intermediaries but the rest 65.41 % ( 3375.48Qt) passed through traders.

**Costs and Margin Analysis at different marketing channel of maize**

Farmers incur costs at different phase of maize production starting from land preparation, production and marketing activities. ‘‘As most of rural households used their own family labour, oxen and land using an opportunity cost of production’’ is important (Beza et al., 2016). In the study area, producers incur different costs for input, labour and land. Opportunity cost of family labour and oxen ploughing per a day and in turn in a year (season) for another farm working as daily labour were considered. An opportunity cost value for land was also considered as in the study area rental value in one production year (season). Moreover, producers incur costs for package, transporting to the market and even though one package or sack used for numbers of loads to the market they incur costs for package. As survey result indicated, cost for land was the highest (40.2%) among other costs of production.

Table 2.Maize Production cost per quintal in 2018

Production cost items	Cost per qt. in Birr	Percentage share
Input		
Fertilizers	71.00	17.84
Improved seed	16.00	4
Land value	160.00	40.2
Labour	151.00	37.94
Including land preparation, ploughing, weeding, harvesting and shelling		
Total production cost	398	100

Source: Own survey result. 2018

Table 3.Production cost of local alcohol makers

Cost items per qt of maize processed	Cost/qt of maize	% share
Labour	200	20.30
Other component (wheat and buckthorn)	560	56.85
Mill cost	25	2.54
Firewood	200	20.30
Total	985	100

Source: Own survey result. 2018

Traders jointly incur an operating expense 11.95 times less than that of maize producers’ operating costs. However, in the stream of benefit distribution jointly, traders’ profit share was found to be 3.2 times greater than the producers’ share which implies the disproportional flow of benefits along the product flow in the value

chain. Moreover, processors' operating cost was found to be about 29.16 times greater than maize grain traders operating costs but processors' profit share was 1.94 times less than traders (jointly) profit share in the chain which indicated disproportional flow of both costs and benefits in the chain as shown in Table 4. Generally, actors in the value chain incurred 50.96% of total marketing cost for transportation of which urban wholesalers added more transportation cost (15.7 birr /quintal). Processors had the highest share of market margin (24.57%) and profit margin (25.1%). Traders took a total of 84.75% out of the total profit margin.

Table 4. Maize marketing costs and benefit share of actors (per quintal)

Cost items(Birr/qt)	Producers	cooperatives	collectors	Rural wholesalers	Rural retailers	Urban wholesalers	Urban retailers	Processors
Production cost	398	-	-	-	-	-	-	985
Purchase price	-	560	530	535	560	620	750	860
Marketing costs								
Storage	0.87	-	-	0.75	0.5	0.25	-	-
Loading/unloading	-	2	-	-	-	2	-	-
Transport	5	10	2	-	-	10	2	8
Package	5	3	2	1.98	2.3	1	1	3
Commission fee	-	-	-	2	-	2	-	-
Daily labour in the market/warehouse	-	-	-	0.29	0.4	0.2	1	-
Telephone	-	0.01	0.25	0.15	0.9	0.25	1	2
Total market cost	10.87	15.01	4.25	5.17	4.1	15.7	5	13
Total cost	408.87	15.01	4.25	5.17	4.1	15.7	5	998
<b>Total cost share in%</b>	<b>28.10</b>	<b>1.03</b>	<b>0.30</b>	<b>0.36</b>	<b>0.28</b>	<b>1.08</b>	<b>0.34</b>	<b>68.54</b>
Selling price	556	680	620	620	650	750	860	2100
Marketing margin	158	120	90	85	90	130	110	255
<b>% share margin</b>	<b>15.22</b>	<b>11.56</b>	<b>8.67</b>	<b>8.19</b>	<b>8.67</b>	<b>12.52</b>	<b>10.60</b>	<b>24.57</b>
Profit margin	147.13	104.99	85.75	79.83	85.9	114.3	105	242
<b>% of profit</b>	<b>15.25</b>	<b>10.88</b>	<b>8.87</b>	<b>8.27</b>	<b>8.90</b>	<b>11.85</b>	<b>10.88</b>	<b>25.10</b>

Source: Survey result, 2018

Market channel comparisons in margin distribution were made among major value chain actors. According to Mendoza (1995) computing the total Gross Marketing Margin (TGMM) is always related to the final price paid by the end buyer and expressed as a percentage. Thus, total gross marketing margin (TGMM) was highest in channel VII (38.37%) of the consumers' price followed by channel IV (37.79%). Total gross marketing margin was lowest at channel II (13.85%) without considering channel I, farmers directly sold to consumers. On the other hand, producers' gross marketing margin (GMMp) or producers share was highest in channel II (86.15%) without considering channel I that producers directly sold to the ultimate consumers and received the whole channel portion. Whereas producers GMM was lowest at channel VII (61.63%) when producers sold to collectors and passed through intermediaries to processors. Regarding to producers' share or (GMMp), as the number of middlemen between the two ends (farmers and consumers) increases the share of farmers' decrease. For instance, without considering channel I, (GMMp) or producers' share is maximum (86.15%) at channel II when the number of intermediaries minimum between the two ends and the producers' share (GMMp) minimum (61.63%) at channel VII when the number of intermediaries maximum in number between the two ends. This proves the general truth, as the number of intermediaries between the two ends increases the share of the farmers' decrease. On the other hand, the type of value addition activities undertaken by the last actor determines the value of the producers' share in the chain. Survey result indicated that number of intermediaries remain equally three between the two ends in channel III, IV, VI and VII. However, producers' share (GMMp) in channel IV and VII (62.21% and 61.63%) respectively when the last actors were processors less than GMMp in channel III and VI (65.24% and 64.63%) respectively when the last actors were consumers. Local alcohol makers add more form value on the product and thus added more cost to accomplish the tasks before reaching in the hands of the consumers and thus lower producer's share due to increasing intermediaries. This implies processors are in advantageous position in taking consumers price in marketing of maize by adding more value to the product. And thus, producers should add form utility to different valuable products to capture maximum consumers' price in the market than selling the grain form.

Unlike urban wholesalers, rural wholesalers had no more alternative market channel to deliver significant amount and thus supplied more amount only through urban wholesalers and obtained the higher GMM at channel XI (10.37%) and the lower at channel IV (9.88%). Urban wholesalers involved in more numbers of alternative marketing channels next to the producers and obtained the largest GMM at channel XII, which accounted 29.88% and the lowest at channel VII, which accounted 15.12%. Urban retailers were among the main value chain actors that distribute maize grain to the ultimate consumers and processors at different price level and received the highest and lowest GMM at channel IV, VII and IX equally (12.79%) and channel X (8.34%) respectively.

From maize grain trader's stream, the highest net marketing margin (NMM) was received by urban wholesalers at channels XII (1.73%) and lowest at III, IV and VI (0.02%) and the poorest at channel VII (-0.07) due to the fact that processors need high quality maize for alcohol processing than consumers. But at this channel urban wholesalers purchased mixed maize from local collectors that purchased from different producers and have different defects than other traders' sale.

Depending on results from market performance analysis, channel II indicated highest producers' share but small volume of maize as compared to other channels in the market. Thus, largest volume does not necessarily mean highest producers share and vice versa. Producers should deliver value added maize at channels with minimum intermediaries.

As survey result shown, the total marketing margin in the marketing system was 30% associated with 70% producer's share of the margin. This result indicated that total gross marketing margin of maize less than hot pepper 40.61% (Mekdes et al., 2017), chickpea 45.8% (Tewodros, 2014), and durum wheat 57.9% (Haymanot, 2014) but better than teff at Halaba especial Woreda 21.3% by (Muhammed, 2011).

## **VI. Opportunities for Producers**

As explained by district office staffs during FGD, cooperatives and model farmers, presence of conducive environment in general for maize production, fertile land, availability of organized institutions at different level, from kebele level (*Mengstawi budn*) to district agriculture and cooperative offices for input supply and different trainings is an opportunity for maize producers.

As survey result revealed about 99.4% of sample households were members of multipurpose farmers' cooperative and get seed, fertilizers and different service for maize production and marketing. Since no more cash crops in the study area and cereals play a significant role especially maize. As survey result indicated about 97.4% of sample households answered that they produced maize for its high productivity and have high contribution for food security.

Another opportunity for maize production in the area was its different uses (society consumption pattern). About 95.5% of sample householders explained that they produced maize for its various uses starting from maize grain to the by-products as fire wood and animals feed as well as presence of potential traders and processors in the study area. Price was one of the discouraging factors for cereal producers due to ups and downs at different seasons. However, about 93.5% of sample respondents reported that price of maize was increasing due to increasing the purchasing power of the cooperatives and traders in the study area.

## **VII. Opportunities for Traders**

Not only constraints are available to retard the business but also there are numbers of avenues or opportunities that helps business to develop if able to exploit the existed opportunities. Among available opportunities, presence of potential maize producers and suppliers in the study area is the basic opportunity for traders business. As survey result revealed all sample respondents (100%) answered that presence of potential producers in the woreda contributed crucial role for traders. Presence of local alcohol makers and consumers is another opportunity in the study area. Alcohol makers used a quintal of maize per week per one process and thus create great linkage with traders. As survey result indicates, about 98% of respondents explained that presence of alcohol makers motivates them to stay in their business and also pulls others in to the business. And also consumers are another important user of the product almost maize present in most foods and drinks in the area and this in turn an opportunity for traders.

Presence of potential traders nearby towns namely, Amanueal, Debremarkos, Bichena, Dega segn and Debre guracha were also existed opportunities as reported by supplier traders operating from the study area towns. About 96% of respondents reported that they had good relationship with their customers expressed by frequent purchase and this relationship mainly depends on stretching credit in the market.

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## VIII. Conclusion and recommendation

Results from value chain analysis approach showed that input suppliers (multipurpose farmers' cooperatives), maize producers, collectors, retailers, wholesalers and consumers were the main maize value chain actors identified in the study area. These actors play different roles in the value chain. Producers had different alternative marketing channels and disproportional flow of costs and benefits was observed. Among alternative marketing channels TGMM was highest in VII (38.37%) of the consumers' price when farmers' maize grain passes via middlemen's to processors. On the other hand producers' gross marketing margin (GMM) was highest in channel II (86.15%) without considering channel I that producers directly sold to the ultimate consumers and received the whole channel portion and lowest at channel VII (61.63%). In traders' stream, the highest net marketing margin (NMM) was received by urban wholesalers at channels XII (1.73%) and the poorest at channel VII

(-0.07%) due to value chain marketing problems that poor quality product sometimes incur loss. Traders in general govern the value chain by controlling actors in credit and particularly the urban wholesalers govern by volume transacted and quality control criteria in the market. Production and marketing opportunities were identified include fertile land, availability of organized institutions for input delivery in production stream as well as presence of potential maize producers and suppliers in the study area is the basic opportunity for traders business in the value chain. Thus, value chain development intervention practitioners in maize area should take in to account the main value chain actors in the study area while devising initiative strategies. Finally, further research should undertake on maize value chain upgrading, maize seed value chain and local alcohol by products economic contribution and its disposal in the study area.

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