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Review on Market Chain Analysis of Wheat in Ethiopia

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ABSTRACT: Wheat is an important industrial and food grain, which ranks second among the most important cereal crops in the world after rice, and traded internationally. The area coverage, production, and productivity of wheat is increasing from time to time steadily, and fluctuating as a result of population growth, changing food preferences and a strong urbanization trend. The main market participants of wheat are producers, processor, assembler, wholesaler, retailers, and consumers, financial institutions, governments, NGO. The market concentration ratio of wheat in Ethiopia is about 31.67%, which indicates the market structure is weakly competitive. Absence of license, lack of enough working capital, higher completion and lack of trading experience are the main barriers of entry in wheat market. The price of wheat produce in the market is determined by the farmer, market through negotiation, and traders. Traders used fair scale-weighing (81.2%), giving better price relative to others (8.24%), giving credit (7.06 %), and visiting their suppliers (3.53%) as a strategy to attract their suppliers. The average marketing cost, profit margin, TGMM and GMM of wheat is 162birr, 177.5 birr/quintal, 30.32% and 14.63% respectively. Shortage of capital, lack of credit access, lack of market information, involvement of cooperatives, presence of unlicensed traders, inadequate market infrastructure higher transportation cost are the main challenges of wheat market. Therefore, strengthening the licensed traders, building market infrastructure and improving access to wheat market information and credit for wheat market participants should be recommended.

Key Words: Wheat, Market, Market Chain, Marketing Margin

I. INTRODUCTION

Agriculture plays an important role for increasing the growth domestic products (GDP) of the world, which accounts 31.3% (CIA, 2014); more than 60 percent of the world's population depends on agriculture for survival (FAO, 2015). Form this, Latin America and sub Saharan Africa covers the highest percentage (90%) so that the economy of most African countries is depending on the agriculture. In Ethiopia, it, contributes about 43% of GDP, generates 90% of export value and supply 70% of the industrial raw materials for domestic industries (MoA, 2011; Abdu *et al.*, 2016). Therefore, the agricultural sector is crucial for the overall performance of the many countries' economy, especially developing countries like Ethiopia.

From agricultural production and marketing activities, cereal crop production and marketing is highly practiced in the world. According to FAO (2018), the total output of cereal crops in 2017 was 2650.5 million tons, which is increased by 2.4% from previous year; and from these 410.9 million tons of cereal crops in the world were traded in the world cereal markets. In the same year, Africa's contribution to the world output was 7.03% (about 186.37 million tons) (FAO, 2017). Cereal crop production and marketing play a central role, contributes about 30 percent of the national GDP (Diao *et al.*, 2007). Cereal grains are the single most important source of calories to a majority of the world population, developing countries (60%) and developed countries (30%) (WHO, 2003; M. Awika, 2011). In Ethiopia, cereal crop production and marketing contributes a great role in its economic growth and development, which creates rural employment opportunities (about 60%); more than 40% of a household's food expenditure is covered by the income obtained from cereals (Rashid, 2010). Rice, wheat and maize are the three most important food crops from cereal crops produced in the world, contributing more than half of all calories consumed by human beings (M. Awika, 2011).

Wheat (*Triticumaestivum L.*) is one of the globally produced and marketed cereal crops, which covers 15% of the total sowing areas of cereal crops in the world (Kiss, 2011). It is an important industrial and food grain, which ranks second among the most important cereal crops in the world, after rice and traded internationally (FAO, 2009; Najafi, 2014;

Falola *et al*., 2017). Importance of wheat production in world economy is proven by its share of 15% from 1500 million hectares arable land in the world (Kiss, 2011). Wheat production and consumption is grown rapidly as a result of income growth and rapid urbanization in Sub-Saharan Africa (produce 30% of their domestic requirements) (Sultan, 2016). Ethiopia is the second largest wheat producers in Sub-Saharan Africa next to South Africa, with a potential expansion to 1.3 million hectare (Nigussie *et al*., 2015; Haregewoin *et al.*, 2018). In Ethiopia, wheat is one of the most cereal crops in terms of the area of land allocated (1.6 million hectares), volume produced (3.9 million tons) and the number of farmers engaged in its production (4.7 million farmers) with a productivity of 2.4tone per hectare (CSA, 2014; ATA, 2014). The highlands of the central, south-eastern and northwest parts of the country are the main wheat growing areas of Ethiopia; and regionally, wheat production comes from Oromia (57.4%), Amhara (27%), SNNP (8.7%) and Tigray (6.2%) of the national production (CSA, 2014). But nearly all wheat, except few governments owned large-scale (state) farms and commercial farms produced wheat in the country, is produced under rain-fed conditions predominantly by small scale farmers (Demeke and Di Marcantonio, 2013). Therefore, wheat is the most important cereal crops that need much emphasis on its production and marketing.

Wheat has many purposes, better than other cereal crops produced in the country. In Ethiopia, wheat grain is used in the preparation of a range of traditional food products such as the traditional staple pancake ("injera"), fermented bread ("dabo"), non-fermented bread ("hambasha/kitta"),boiled grain ("nifro"), roasted grain ("kolo"), snacks made from bread flour ("dabokolo"),cracked and boiled grain ("kinche"), porridge ("genfo"), local fermented beer ("tella"), distilled local spirit("areki"), and several other local food items (Nigussie et al., 2015). This shows that wheat is an important market oriented commodity and a major source of income for many wheat growers in Ethiopia; it is crucial for improving their way of life through growing and selling. Thus, wheat marketing is a very important factor in economic development and lack of a well-functioning wheat market and marketing system severely hinders the increase of social welfare, income distribution, and food security of developing countries.

Despite of its all importance, there are many problems that hinder the production and marketing of wheat in the country. From these challenges lack of market information, low quality of inputs used, weak market linkage, unfair and fluctuated price, low bargaining power of producers and etc are the main challenges that were identified by different scholars. Besides these there are so many other problems that hinder the production and marketing of wheat in the country. Therefore, this review is focused on market chain analysis of wheat in Ethiopia with the following specific objectives:

- To review the production and productivity of wheat in Ethiopia
- To review the marketing actors and channels in Ethiopia
- To review the marketing structure, conduct and performance of wheat in Ethiopia
- To review the challenges and opportunities of wheat market in Ethiopia

II. LITERATURE REVIEW

2.1. Production and Productivity of Wheat in Ethiopia

Wheat is a cereal crop, which is produced in most parts of the country, Ethiopia. Ethiopia is the second next to Egypt in Africa in wheat production which is 4.54 million tons in 2016 (CSA, 2017). The major types of wheat grown in Ethiopia consist of: Bread wheat (*Triticumaestivum)*, Durum wheat (*Triticumturgidum durum*) and Emmer wheat (*Triticumturgidum dicoccoides*). Emmer wheat is the wild progenitor of the domesticated durum and bread wheat varieties. Bread wheat account for about half of the area planted, and is generally grown in the highland and semi-highland areas of the Oromia, Tigray, and Amhara regions. Durum wheat covers about 40% of the national wheat area. A small amount of emmer wheat is also grown, primarily in the Oromia region (Peleg *et al*., 2008; Dixon *et al*., 2009; Gugerty *et al*. 2012).

The main wheat growing areas of Ethiopia are the highlands of the central, south-eastern and northwest parts of the country. In terms of regional contribution, the production of wheat originates from Oromia (57.4%), Amhara (27%), SNNP (8.7%) and Tigray (6.2%); and more than 41% of the annual wheat production comes from only three zones in Oromia and one in Amhara regions (CSA, 2011-2013). According to ASS of 2014, there are 4.7 million wheat farmers in Ethiopia, and live in Oromia and Amhara (78%), SNNP (13 %) Tigray (8 %) and less than 1% of wheat farmers live in other regions of Ethiopia. In the same year, the average largest wheat area per farm was 0.43 ha/farm in Oromia region where as the smallest was recorded in SNNPs (0.19 ha/farm). The majorities of the farmers are smallholder farmers; and are producing mostly for own consumption and supplying only small marketed surplus (EDRI, 2012).

Table1: Area harvested, production and productivity of wheat in Ethiopia (2008-2016)

	Area		Production		Yield	
Year	**Area harvested (ha)**	**Growth rate in area (%)**	**Production (tons)**	**Growth rate in production (%)**	**Yield (hg/ha)**	**Growth rate in yield (%)**
2016	1696083	1.89	4537852	-2.43	26755	-4.25
2015	1664565	0.04	4650934	9.91	27941	9.86
2014	1663845	3.62	4231589	7.81	25433	4.04
2013	1605654	-1.35	3925174	14.28	24446	15.85
2012	1627647	13.23	3434706	17.77	21102	4.01
2011	1437485	-7.45	2916334	2.12	20288	10.35
2010	1553240	-7.74	2855682	-7.15	18385	0.64
2009	1683565	18.17	3075644	32.89	18269	12.46
2008	1424719	-	2314489	-2.43	16245	-
Minimum	**1424719**	**-7.74**	**2314489**	**-7.15**	**16245**	**-4.25**
Maximum	**1696083**	**18.17**	**4650934**	**32.89**	**27941**	**15.85**
Average	**1595200.33**	**2.55125**	**3549156**	**8.08556**	**22096**	**6.62**

Source: CSA, 2017

The production of wheat in the country is increasing, with fluctuation, from 2314489 in 2008 to 4537852 tons in 2016 with the average growth rate of 0.094%. The yield of wheat production in the country is increasing from 16,245hg per ha in 2008 to 26,755hg per ha in 2016, growing at an average annual rate of 6.6%. This growth of productivity could largely be attributed to the use of improved technologies of wheat. The minimum and maximum wheat production was recorded in 2008 and 2015. The area coverage for wheat has increased from 1.4 million hectares in 2004/5 to 1.6 million hectares in 2016, which is a growth by 14% (Table 1).

Though the area coverage, production, and productivity of wheat is increasing from time to time, its increment is in steady state and fluctuating as a result of population growth, changing food preferences and a strong urbanization trend which has led to a growing 'food gap' in all regions, largely met by imports (Macauley, 2016). The production system of most agricultural activities in the country is mixed farming system and produce under rain fed production.

2.2. Basics Concepts Wheat Marketing in Ethiopia

Wheat is produced mainly for consumption in Ethiopia and its trend is increasing. Besides its consumption, it also used for markets; it contributes to 80% of the total marketed quantity of cereal production; there is a large demand-supply gap. Smallholder farmers market their wheat produce only 20% of production and 80% of their total production are used for consumption; the per capital share of quantity consumed in pastoral areas, humid low highlands, small and large cities are 20%, 1%, 6% and 9% of all food consumptions respectively (World Bank, 2012, Berhane *et al*., 2011; FAO, 2013; USDA, 2013).

In Ethiopia, wheat is exported to and imported from abroad for gaining the advantage; but the importing and exporting quantity and value are unbalanced. Currently importing wheat and distributing to millers in subsidized form is to stabilize the wheat price and finally to cease it by producing and selling more (Mamo *et al*., 2017). Therefore, promoting the commercial oriented wheat production to so as to increase its production and selling is crucial to cease imported subsidy. The following table shows the exported and imported quantity and its value.

Table2: Export quantity and value, import quantity and value, and producers prices of wheat in Ethiopia

Year	Export Quantity (tones)	Export Value ($)	Import Quantity (tones)	Import Value ($)	Producers price (USD/tone)
2011	1,000	239,000	1,654,282	615,000,000	293.5
2012	70,865	36,345,000	1,639,039	539,244,000	406.7
2013	4,484	1,515,000	1,618,382	640,000,000	369.9
2014	5,280	1,684,000	1,041,261	386,077,000	392.3
2015	2,360	676,000	1,259,358	433,174,000	416.7

2016	3,000	900,000	1,145,954	240,390,000	392.7
Total	**86,989**	**41,359,000**	**8,358,276**	**2,853,885,000**	**2,271.8**

Source: FAOSTAT, 2017

The above table shows that the quantity of wheat exported and imported is increasing from 1000tons in 2011 to 3000 tons in 2016; and the quantity of wheat imported from abroad is also decreasing from 1,654,282 tons in 2011 to 1,145,954 tons in 2016. The maximum volume of wheat exported was recorded in 2012 (70,865 tones) whereas the minimum tone of wheat was exported in 2011 (1000tones). Ethiopia gained the maximum revenue in 2012 which is 36,345,000$ from wheat produce export, but it is decreasing after this year due to the decline of wheat production and population growth. The trend of the price is fluctuating, maximum in 2015 (416.7$/ton) and minimum in 2011 (293.5$/ton) (Table 2). In Ethiopia, the price changes from April 2014 to August 2014 by 30% and from August 2013 to August 2014 by 75% (Macauley and Ramadjita, 2015).

2.2.1. Wheat marketing actors and their linkages

Wheat marketing actors are those who participate in production, processing, transporting, and marketing of wheat in the cereal markets. The chain actors can be categorized as direct/main actors (actors who are directly participated in the market chain) and indirect/supportive actors (actors who provide supports to the main actors either financially or none-financially). The main actors in the chain include producers, processor, assembler, wholesaler, retailers, consumers whereas the indirect actors are financial institutions, governments, NGOs (KIT, 2008; Solomon *et al*. 2017).

Producers: these are the main actors who participate in the production of wheat; and are the first link in the wheat market chain. Each activity in wheat producer market chain function associated with its costs, namely land preparation, planting activities, fertilizer application, weeding and harvesting. The main roles of the producers are producing the wheat produce and sell to the next actors in the nearest markets. According to different study, producers are supplying and selling their produce to the next different actors (either to processor or wholesaler or retailer or consumer etc.) since they are the first link in wheat market chain.

Processors: Wheat processer convert wheat into wheat flour and barn, flour into biscuits, pasta, macaroni and bread that add value to the product and to satisfy market requirement. Wheat processer purchase domestically produced wheat at market price from traders and farmers, and imported wheat at subsidized price from government. They sell former one to wholesalers and retailers at market price and distribute later one to bakeries at subsidized fixed price.

Wholesalers: are the actors who buy a large volume of wheat and its products to resell to the other next actors. They buy wheat grain mainly from individual farmers, some collectors/small traders and a few other wholesalers with in the country and sell grain to individual farmers, processors, collectors and other wholesalers (Sultan, 2016).

Retailers: these market actors are located at the end of marketing chain, directly servicing the ultimate consumers of the marketing system. They perform numerous marketing functions such as buying, processing, storing, selling and other functions related to marketing.

Consumers: are those who bought wheat and its products for consumption.

Marketing channel is a business structure of interdependent organizations involved in the process of making the product or service available for consumption starting from product origin (Kotler and Armstrong, 2003). It is important to provide a systematic information/knowledge about the flow of goods and services starting from production to final destination. Different scholar's results showed that the marketing channels of wheat looks like the following:

The identified ten different wheat marketing channels are listed below as follows

channel 1	Producer	Consumer			
channel 2	Producer	Retailer	consumer		
channel 3	Producer	Assembler	Retailer	consumers	
channel 4	producer	Assembler	Wholesaler	Processors	consumers
channel 5	producer	Assembler	Wholesaler	Retailer	Consumers
channel 6	producer	Wholesaler	Retailer	consumers	
channel 7	Producer	Wholesaler	Processor	Consumers	
channel 8	Producer	Wholesalers	Processors	Retailers	Consumers
channel 9	Producer	Cooperatives	Processors	consumers	
channel 10	Producer	Cooperatives	Wholesalers	Retailers	Consumers
channel 11	Producer	Cooperatives	Wholesalers	Processors	Consumers

Figure 3: Wheat marketing channels in Ethiopia
Source: Ashenafi, 2010; Mohammed, 2011; Sultan, 2016

2.2.2. Structure conduct and performance analysis of wheat market

2.2.2.1. Wheat market structure

Market structure is the characteristics of the organization of a market which seem to influence strategically the nature of competition and pricing behavior within the market. It can be analyzed by the number of buyers and sellers within the system, degree market concentration, product differentiation, market integration, market transparency and or market information, and barriers to entry and exit (Wolday and Eleni, 2003; Pender *et al.*, 2004).

2.2.2.1.1. Market concentration of wheat in Ethiopia

Market concentration is the number and size of distribution of sellers and buyers in the market (Kohls and Uhl, 2002; Solomon *et al.*, 2017). In determining degree of market concentration, the objectives of the firm, barriers of entry, economics of scale and assumption of the rival firm's behaviour are important (Schere, 1980). For an efficient market, there should be sufficient number of firms (buyers and sellers); firms of appropriate size are needed to fully capture economies of size; there should be no barriers to entry into and exit from the market and should have full market information (Tadesse, 2011).

To measure the wheat market concentration, CR4 ratio, Herfindhal Hirschman index, Gini coefficient methods can be used. But using concentration ratio (CR4) is better so that in order to measure the market concentration of wheat in this review, CR4 is focused. A CR4 of over 50% is generally considered as strong oligopoly; CR4 between 33% and 50% is generally considered a weak oligopoly and a CR4 of less than 33% is un-concentrated market (Kohls and Uhl, 1985). According to Mohammed (2011), the average market concentration of wheat (CR4) in Alaba Qulito Market of Halaba Special Woreda, Southern Ethiopia, is 71.5%, which was oligopolistic market, indicating the existence of market imperfection. Similarly Sultan (2016) found that the market concentration ratio of wheat in Sinana District, Bale Zone, Oromia Region, Ethiopia, was 88.7% of the total amount of wheat sold in market during peak production season at Robe town, indicated that the market structure is oligopoly market. In contrast to these, Hailu Negash (2010) found that the market concentration ratio (CR4) of wheat in Mekele market, Tigray, was 22.31%, indicates competitive market. Besides this other study reveal that the average market concentration was 27.54%, indicated that the market structure was weakly competitive markets (Gebremeskel *et al.*, 1998).

Table 3: concentration ratio of wheat in Ethiopia

Number	Wheat Market (1998)	CR4	Wheat market (2017)	CR4
1	Addis Ababa	16.06%	Etaya	26.8%
	Assossa	20.62%	Asala	37.7%
3	Nazreth	47.26%	Adama	41.4%,
4	Shashemene	49.38%	Finfinnee	42.9%
5	Enchini	20.65%		
6	Hosaena	11.24%		
Average		**27.54%**	**Average**	**35.80%**

Source: Gebremeskel *et al*., 1998; Amentae *et al*, 2017

The market concentration ratio of wheat in Ethiopia is about 31.67%, which indicates the market structure is weakly competitive market.

2.2.2.1.2. Wheat market transparency(Flow of wheat market information)

Degree of market transparency is the reliability of market information that the market participants have to make decisions regarding to marketing activities. According to Hailu (2010), degree of market transparency can be evaluated using perfect information flow, sources of information, proper standards and grades, measuring tools accuracy, unfair practices.

Having market information is crucial for enhancing market performance by improving the knowledge of buyers and sellers concerning supply and demand. Although it is crucial, there was no organized system to provide reliable market information to all market participants. Thus, traders obtained the market information through telephone, brokers, neighbors, friends, discussion with other traders, and personal observation. About 42% and 19% of sample traders in Halaba Special Woreda, Southern Ethiopia, obtained price information through telephone and from other traders; the remaining 39% of traders obtained price information through telephone, brokers, discussion with other traders, and personal observation (Mohammed, 2011).

According to Sultan Usman (2016), 98.3% of the farmers obtained market information from other farmers through exchanging information each other and about 70% of information was acquired from traders in Sinana District, Bale Zone. But the traders provide the information for farmers, which was not up-to date and mostly not true.

Generally, the market information is the main problems in wheat markets in many areas of Ethiopia. But if market participants do not have perfect market information, the market structure is tempted to market imperfection. Therefore, the market structure of wheat in Ethiopia is not perfectly competitive market and the market information is not transparent.

2.2.2.1.3. Barriers to entry and exit in wheat market

According to different authors, the following factors are the main barriers to enter and leave the wheat market in Ethiopia:

Working Capital: Working capital refers to the amount of money required by wheat traders to enter into the trading business. Fulfilling the initial capital requirement is compulsory for entry into wheat market. This means that large amount of start-up capital required for financing wheat trade operations is a needed. But for those who cannot afford it, cannot enter the wheat market that is why it is considered as a barrier to enter market (Mohammed, 2011).

License: trade license is obligatory for the wheat traders to enter the wheat market. But some wheat traders were not licensed because of the fear of high tax and costs incurred to get license card (initial capital), so that it is a great barrier to entry in the wheat market (Sultan, 2016).

Lack of trading experience: for those who have not yet experienced entering the market is very difficult so that experience is the barrier to enter wheat market. But for the experienced traders it is not a barrier to enter wheat market (Amentae *et al*., 2017).

High Competition: Competition among licensed and non-licensed traders, competition with marketing cooperatives and organized large wholesalers were the main barriers to entry in wheat markets. This means that the large traders, who have enough capital, can buy large volume of wheat in the harvesting season and control the market so that the smaller traders cannot enter the wheat markets (Amentae *et al*., 2017).

2.2.2.2. Wheat market conduct

Market conduct refers to the patterns of behavior that firms follow in adopting or adjusting to the markets in which they sell or buy (Bain, 1968). The main focus of the market conduct is on the marketing strategies and the behavior of the actors to maximize profit and the return to investment in trading business. It is focused on the policies and strategies regarding to price setting, product quality setting, and policies coercing the rivals (Tadesse, 2011; Solomon, 2017).

2.2.2.2.1. Wheat producers market conduct

Different studies reveal that the price of wheat produce in the market is determined by the farmer, the market through negotiation, and traders. According to Amentae *et al*. (2017), 82%, 14.7% and 3.3% of the respondent, in Arsi to Finfinnee, reported that the wheat price was set by buyers, the market through the interactions between supply and demand by negotiation and farmer respectively.

Similarly in Halaba Special Woreda, 49%, 37.5%, 11.5% and 2% of the respondent reported that market price was set through negotiation and haggling with traders, market, farmers and traders respectively. In order to solve the low price problem, the farmers of wheat take different measures. From these measures taking their produce back to their home and waiting till next market day, storing their produce in the home of their relatives who live near to the market are the main solution for it. For instance, in Halaba special Woreda, the wheat suppliers/producers took their wheat produce to their home (72.6%), sold with existed price (17.2%) and store in their relatives' home (10.2%) when the there is a price problem (Mohammed, 2011).

2.2.2.2.2. Wheat traders market conduct

Price information is very crucial for wheat traders in the market. It is one of the main marketing strategies that cereal traders in Ethiopian use. Therefore, using different strategies for obtaining market information (price information) is compulsory for wheat traders. In Ethiopia, the strategies for setting the price of wheat are varied from one area to the other area. For instance, in the southern zone of Tigray, the traders, follow an average of two markets on a weekly basis and use their cell phone to obtain the market information of grain including wheat (Ashenafi, 2010).

According to Mohammed (2011), the use of regular partner, long term relation with clients or suppliers, the use of intermediaries, trading with personalized network, feasibility of alternative market outlets and price setting practices were the main strategies that traders used for maximizing profit and developing their bargaining power. Regarding to the payment node in selling their products, the traders sold their products through cash and credit (42%), cash only (30.2%), credit (4.6%) and combination of cash, advanced payment and credit (23.2%).

Regarding to the attraction of their suppliers, the traders used different systems such as fair scale-weighing (81.2%), giving better price relative to others (8.24%), giving credit (7.06 %), and visiting their suppliers (3.53%). The traders also used quality (good looking seed, free from foreign materials, well dried and preferred wheat varieties by their customers) as a strategy to attract buyers, which accounts about 88% (Amentae *et al*., 2017).

3.2.3.3. Wheat market performance

Marketing performance is the effectiveness and efficiency of an organization's marketing activities with regard to market-related goals, such as revenues, growth, and market share (Homburg *et al*., 2007; Gao, 2010). According to Bain (1968) and Bressler and King (1970), market performance is the effect of the market structure and conduct as measured in terms of variables such as prices, costs, and volume of output by analyzing the level of marketing margins and their cost components. Thus, wheat marketing performance is the effectiveness and efficiencies of wheat marketing activities (revenue, growth, and market share). It is evaluated by considering associated costs, returns and marketing margins.

Wheat marketing cost is the total cost associated with delivering goods or services to customers. It may include expenses associated with transferring title of goods to a customer, storing goods in warehouses pending delivery, promoting the goods or services being sold, or the distribution of the product to points of sale. Different study result indicated that the average marketing costs of wheat in Ethiopia is 162 birr per quintal (Table 5).

The following table shows the average costs incurred by the different actors in wheat markets in Ethiopia:

Table 5: Marketing costs of wheat in Ethiopia

No.	Production cost(B/Qt)	Market costs (B/Qt)	Total cost (B/Qt)	Reference
1	260	-	260	Elias *et al*., 2017
2	450	206	656	Amentae *et al*., 2017
3	680	118	798	Minot *et al*.,2015
4	-	-	169.56	Mohammed, 2011
Av.	**463.33**	**162**	**470.89**	

Marketing margin is the difference between the price the consumers pay and the price the producers receive. Marketing margin is one of the commonly used measures of the performance of a marketing system. The different values of wheat marketing margin are depicted in the following table:

Table 6: Marketing margins of wheat in Ethiopia

Wheat market participant	Amentae *et al*., 2017			Sultan, 2016			Mohammed, 2011		
	SP (bir/kg)	GMM (%)	TGMM (%)	SP (Bir/kg)	GMM (%)	TGMM (%)	SP (bir/kg)	GMM (%)	TGMM (%)
Producers	7.50	30.00		-	80.75		2.71	74.2	
Collector/Assembler	8.50	1.00		-	0.57		2.93	5.93	
Wholesalers	9.85	1.35		-	0.44		3.04	3.17	
Retailers	10.00	1.00		-	0.69		3.65	16.7	
Processors	13.50	4.00		-	1.6				
Average	**9.87**	**2.07**	**44.44**	**-**	**16.81**	**20.73**	**3.08**	**25**	**25.8**

- ✓ The average selling price of wheat in the country was ranging from 3.08-9.87birr/kg.
- ✓ The average growth marketing margin was 14.63%.
- ✓ The average total growth marketing margin was 30.32%

Note: SP-selling price; GMM-growth marketing margin; TGMM- total growth marketing margin

Total gross marketing margin is the highest in channel 11 (Producer-cooperatives-wholesaler-processor-consumer), which is 30.32%. The highest producer's growth marketing margin is the highest in channel 6 (Producer-wholesaler-retailer-consumer), which is 61.65% (Table 6).

The profit margin of wheat is the margin which is obtained by subtracting total costs from total revenue. As shown in the following table, average profit margin of wheat that is obtained by producers is 177.5 birr/quintal.

Table 7: The average profit margin of wheat in Ethiopia

Item	Wheat
Average quintal produced (Qnt)	19.05 quintal
Average price per quintal (SP)	647.50 birr
Total cost (TC)	470.89birr
Total revenue (SP*Qnt)	12,334.88birr
Net revenue (profit) [TR-TC]	**11,863.99 birr/19.05 quintal = for farmers**

Source: Mohammed, 2011; Minot *et al*., 2015; Elias *et al*., 2017; Amentae *et al*., 2017

3.3. Challenges and opportunities of wheat market chain in Ethiopia

According to Ashenafi Amare (2010) and Gebremeskel (1998), there are many challenges that hinder the participants from wheat market in Ethiopia. Form these, the following are the main one:

Challenges	Opportunities
❖ Shortage of capital and lack of credit access ❖ Lack of market information ❖ Involvement of cooperatives ❖ Unfair pricing and cheating of traders during weighting ❖ Unfair competition with unlicensed traders ❖ Market infrastructure and Transportation cost ❖ Poor product quality and high cost of input ❖ Weak market linkages among market participants	➢ increment of the demand ➢ expansion of establishment of food processing plants ➢ provision of infrastructure facilities like telecommunication, power supply and financial institutions

III. CONCLUSION AND RECOMMENDATION

4.1. Conclusion

Wheat is globally produced and marketed cereal crops, which covers 15% of the total sowing areas of cereal crops and ranks the second most important cereal crops after rice in the world. Wheat production and consumption is grown rapidly as a result of income growth and rapid urbanization in Sub-Saharan Africa (produce 30% of their domestic requirements). Ethiopia is the second largest wheat producers in Sub-Saharan Africa next to South Africa, with a potential expansion to 1.3 million hectare. The highlands of the central, south-eastern and northwest parts of the country are the main wheat growing areas of Ethiopia; and regionally, wheat production comes from Oromia (57.4%), Amhara (27%), SNNP (8.7%) and Tigray (6.2%) of the national production. The production system of wheat in Ethiopia is based on rain- fed.

The production of wheat in the country is increasing, with fluctuation, from 2314489 in 2008 to 4537852 tons in 2016 with the average growth rate of 0.094%. The yield of wheat production in the country is increasing from 16,245hg/ha in 2008 to 26,755hg/ha in 2016, growing at an average annual rate of 6.6%. This growth of productivity could largely be attributed to the use of improved technologies of wheat.

The main market participants of wheat are producers, processor, assembler, wholesaler, retailers, and consumers, financial institutions, governments, NGOs. Total gross marketing margin is the highest in channel of "Producer-cooperatives-wholesaler-processor-consumer", which is 30.32%. The highest producer's growth marketing margin is the highest in channel of "Producer-wholesaler-retailer-consumer'', which is 61.65%.

Market structure is the characteristics of the organization of a market, which seem to influence strategically the nature of competition and pricing behavior within the market. It can be analyzed by the number of buyers and sellers within the system, degree market concentration, product differentiation, market integration, market transparency and or market information, and barriers to entry and exit. The market concentration ratio of wheat in Ethiopia is about 31.67%, which indicates the market structure is weakly competitive market. Absence of license (45%), lack of enough working capital (90%), higher completion (60%) and lack of trading experience are the main barriers of entry in wheat market.

Market conduct is the patterns of behavior that firms follow in adopting or adjusting to the markets in which they sell or buy, and focused on the policies and strategies regarding to price setting, product quality setting, and policies coercing the rivals. The farmer, the market through negotiation, and traders, determines the price of wheat produce in the market. Traders used fair scale weighing (81.2%), giving better price relative to others (8.24%), giving credit (7.06 %), and visiting their suppliers (3.53%) as a strategy to attract their suppliers. The average marketing cost, profit margin, TGMM and GMM of wheat is 162birr, 177.5 birr/quintal, 30.32% and 14.63% respectively. Shortage of capital and lack of credit access, lack of market information, involvement of cooperatives, presence of unlicensed traders, inadequate market infrastructure higher transportation cost etc are the main challenges of wheat market. The increment of the demand, expansion of establishment of food processing plants, provision of infrastructure facilities like telecommunication, power supply and financial institutions are the main opportunities that facilitates the wheat marketing opportunities.

4.2. Recommendation

From the review, the following recommendation are forwarding to concerned body;

Improvement of access to credit for wheat market participants: many traders and farmers are not entering the wheat market because of the absence of enough initial capital and collaterals. Therefore, the credit access should be improved to enable them to participate in the market so that the marketing activities of wheat in the country will be improved.

Improving access to wheat market information: having market information plays a great role in improving the efficiency and effectiveness of wheat market; but many farmers do not have market information. Therefore, in order to improve the access of market information, the extension service should be provided.

Building market infrastructure: there are many wheat growers in different areas of the country who wants to supply their produce in the market. But due to lack of market infrastructure, they were not participating in the market. Therefore, the government should build market infrastructure to improve the marketing and marketing system of wheat in the country.

Reducing transportation cost and strengthening the licensed traders: in order to maximize the profit the wheat market participants, the marketing and other costs should be considered. The government should set the price of the product by considering these costs. Licensed traders could not be competitive in buying and selling because of absence of control on unlicensed traders who do not have the obligation of paying taxes imposed on licensed traders.

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