British Journal of Marketing Studies
Vol. 8, Issue 6, Pp.71-90, December 2020
Published by ECRTD- UK
Print ISSN: 2053-4043(Print), Online ISSN: 2053-4051(Online)

STRUCTURE CONDUCT AND PERFORMANCE OF SESAME MARKET IN GURAFERDA AND MEINIT GOLDIA DISTRICT SOUTHWEST ETHIOPIA

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ABSTRACT: *Sesame is an essential cash crop and plays vital role in the livelihood of many people in Ethiopia. However, sesame production and productivity is not comparable with the productivity of other region in the country. Therefore, this study was initiated to identify sesame market chain actors and their roles, analyze structure-conduct - performance of sesame market and identify constraints of sesame production and marketing in the study area. A multistage sampling techniques was used for sample selection. Total of 270 sesame producing sample households and 17 traders were surveyed. Data obtained through the use of a structured questionnaire were analyzed using structured conduct performance model and descriptive statics. Both primary and secondary sources of data were used. The result of CR4 shows that the top four sesame traders in Biftu and Bachuma market handled 78.36% and 50.21% of the sesame purchased, respectively. This result indicated sesame markets in both districts was strongly oligopolistic market type. The results also revealed that there is imperfect flow of information, traders licensing problems and their subsequent inability to compete with the unlicensed traders are identified to be the major entry and exit barriers to sesame market suggesting that the structure of the sesame market was strong oligopoly. The finding suggests that, to change existing oligopoly market structure in to competitive market structure the government should invest on rural infrastructure; introducing yield increasing technologies; strengthening Institutions that could provide timely market information; Forming primary cooperative; strengthening extension system through training in all aspect and design financial institutions to address the challenges of financial access to smallholder farmers and traders.*

KEYWORDS: Goraferda, Meinit Goldia, SCP, market margin, sesame

INTRODUCTION

In Ethiopia, sesame is commonly cultivated in areas ranging in altitude from 500 to 1300 meters above sea level in rain-fed condition (Abadi, 2015). According to CSA (2016) reports on area and production of sesame by small farmers and medium/large commercial farms, the total production of sesame by both small farmers and commercial farms was 2,742,174.27 quintals from 388,245.50 hectares of Land with productivity of 7.06 quintals per hectare. CSA (2017) from an area of 337,926.82 hectares produce 2,678,665.46 quintals with the yield of 7.93 quintals/ha. The export of sesame seeds was 43,131 tons in the year 2007 and it was almost doubled 82,201 tons in the year 2011 (CSA, 2011/12).

Currently, the oilseeds sector is one of Ethiopia's fastest-growing and important sectors, both in terms of its foreign exchange earnings and as a main source of income for over three million Ethiopians. Sesame is now Ethiopia's second largest agricultural export after coffee in terms of source of foreign revenue earnings (Sorsa, 2009). It accounts for over 90% of the values of oilseeds exports from Ethiopia to the world. Increasingly, sesame seed is taking a significant role in the oilseeds sector over the past years and has become the most relevant commodity (NABC, 2015). In addition, different reports indicate that there is still potential arable land in different areas of the country to grow the crop and there is a considerable demand for Ethiopian sesame seed at international markets (Sorsa, 2009). This indicates that, growth and improvement of the sesame sector can substantially contribute to the economic development at national, regional and family levels. Despite the country's immense potential to increase its production and productivity and significantly increase the international demand for sesame, a number of challenges hampered the development of sesame sector along the market chain. Consequently, the Ethiopian Agricultural Transformation Agency (ATA) in collaboration with the Ministry of Agriculture (MoA) and other key stakeholders has been tasked by the Agricultural Transformation Council to develop an integrated national strategy for the sesame sector.

Sesame mainly grows in selected district of Bench Maji zone in a wide range. However, sesame production and productivity in the study area is not comparable with the productivity of other region in the country. Besides low productivity, the study area faced with various challenges like: marketing problems that need to be addressed. Market infrastructures are poorly developed in the major producing areas. The absence of adequate road network, market information and warehouse facilities has lowered the quality of sesame product and competitiveness of exports.

Different studies were conducted in different part of the country on sesame sector. For example, studies of Desale (2020), Dagnaygebaw (2019), Fikru *et al*. (2017), Terefe (2016) and Ermias *et al*, (2014). Even if such studies were conducted in different area, no adequate studies have been made in the study area to improve the sector. Analysis of Sesame market on base of market structure, conduct and performance taking into consideration of product and location specificity is useful intervention to identify bottlenecks and come up with possible solution. This study therefore, attempted to contribute to fill the information gap on structure, conduct and performance sesame market in the selected districts of southwest Ethiopia with specific objective of analyzing the structure, conduct and performance of sesame market in the study area.

RESEARCH METHODOLOGY

In this chapter, description of the study area, techniques of data collection, sampling technique, methods of data analysis and definition of variables hypothesized were presented.

Description of the Study Area

Meinit Goldiya is one of the district in the Southern Nations, Nationalities, and Peoples' Region of Ethiopia. The district center is Bachuma which is at about 626 km away from south west of Addis Ababa. Part of the southwest omo Zone, Meinit Goldiya is bordered on the south by Meinit Shasha, on the west by Debub Bench, on the northwest by She Bench, and on the north and east by the Keffa Zone. Towns in Meinit Goldiya include Bachuma. Meinit Goldiya was part of former Meinit woreda, southern part of Bench woreda was added to Meinit Goldiya. Based on the 2007 Census conducted by the CSA, this woreda has a total population of 88,863, of whom 43,594 are men and 45,269 women; 2,547 or 2.87% of its population are urban dwellers. The majority of the inhabitants were Protestants, with 65.08% of the population reporting that belief, 27.41% practiced traditional beliefs, and 6.37% practiced Ethiopian Orthodox Christianity. It is the homeland of Me'en people. The part of this woreda which lied within 15 kilometers of the Omo was included in the Omo National Park.

Guraferda district is one of the districts in Southern Nations, and Peoples' Regional State Bench sheko zone. The district center is Biftu which is at about 603 km away from south west of Addis Ababa and 42 km from the zone capital Mizan. It covers a total area of 228,281ha. The district is bordered on the south by Bero, on the west and north by Gambela region, on the northeast by Sheko, on the east by Debub Bench, and on the southeast by Meinit Shasha. There are 22 Kebeles in the District (GDAO, 2018). The total population of the District in the year 2014 was estimated to reach 43,137. Out of the total population 54.42% and 45.58% are male and female respectively (CSA, 2013). Geographically, it is positioned between 6°49'33"- 6°58'06"N latitude and 35°07'03"-35°25'02"E longitude (Belay, 2009). Agro-climatic zones of Gurafarda are lowland (Moist Qolla) and medium (Wäynadäga), which constitute 78.25% and 21.75% respectively. The altitude ranges from 700 to 1995 meters above sea level. The mean annual rainfall of the study area is between 1500-2400mm. The area receives highest rainfall in October and the lowest in February. In the area the peak monthly temperature is maintained in months of March and October. Average monthly temperature of the study area is 25°C (GDAO, 2018).

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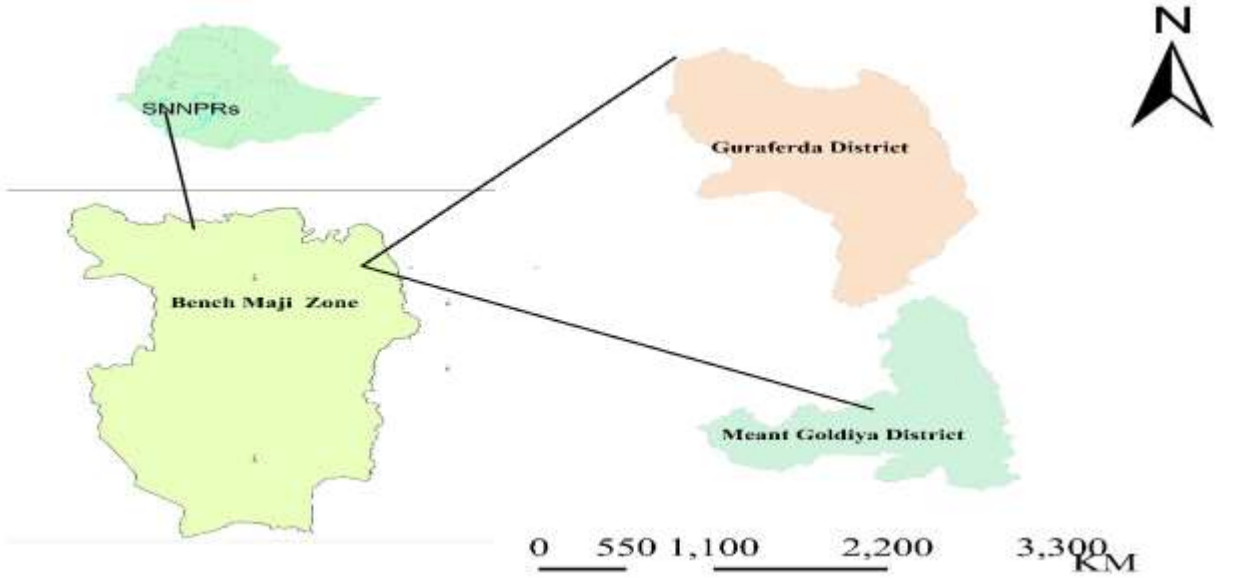

Source: ARCGIS 2018
Figure 1. Map of the study area

Types, Sources and Methods of Data Collection

Both primary and secondary data sources was used. Primary data was collected from a cross sectional sample representative farm households from seven rural *Kebele's* through questionnaires, FGDs and key informants interview. Secondary data sources was obtained from both District, Bench Maji Zone agriculture office, governmental and non-governmental institutions including both published and unpublished documents. Before embarking on collection of the actual primary data, strong attention was paid while formulating questions with respect to clarity and logical order. In order to obtain the important data, firstly individuals who completed grade 10 and above was selected as enumerators. Secondly, these enumerators took training and orientation with close supervision of the researcher. Then finally, the enumerators collected the required data through questionnaires. Furthermore, interview and focus group discussion was also hold. Secondary data were also collected from different organization at zonal and district level regarding the baseline general information to support the primary data.

Sampling Technique

Multistage random sampling technique were employed for this study. In the first stage, two Districts, namely Meinit Goldiya and Guraferda were selected purposively based on the potentiality of sesame production from Bench Maji zone*;* this information is obtained from the zone Agricultural and Rural Development office. In the second stage, *Kebeles in* each District was grouped in to sesame growers and non-growers. In the third stage, among the sesame growing *kebeles*, seven kebeles from both district was selected randomly. In the last stage, from 9210 sesame producers in Bench Maji zone, 270 sample household heads was selected randomly, using probability proportionate to size. Sample size was determined following a simplified formula provided by Yamane (1967). Accordingly, the required sample size at 95% confidence level with

degree of variability of 5% and level of precision equal to 6% was used to determine a sample size required to represent the population.

$$n = \frac{N}{1 + N(e)^2} = \frac{9210}{1 + 9210(0.06)^2} = 270 \text{ Households} \quad (1)$$

Where, $n =$ sample size, $N =$ population size (sampling frame) and $e =$ level of precision considered 6%. Also, 17 traders were interviewed.
Finally, a total of 270 sample households was selected for interview as presented in Table 1 below.

Table 1. District, Kebeles, number of households, and sample size selected from sample

Zone	**District**	Kebeles	Sesame producing HHs	Sample size	Percent
Bench Maji	**Gurafarda**	Kuja	428	31	11.48
		Gabika	470	34	12.59
		Semerta	456	33	12.22
		Sega	401	29	10.74
	Manit Goldeya	Kushanta	622	45	16.67
		Dega	670	47	17.41
		Genbab	705	51	18.89
	Total		3752	270	100

Source: Own sampling design, 2018

Method of data analysis

Structure-Conduct-Performance (S-C-P) model

The model examines the fundamental relationships between market structure, conduct and performance, and is usually referred to as the Structure, Conduct, and Performance (S-C-P) model. In SCP model, it has been recognized that the performance of a firm is associated with market structure and strategies (behavior) of a firm (Scherer, 1980). Previous studies on evaluating market performance have typically adopted SCP model (for example, Bosena, 2008; Wendmagegn, 2014). Thus, this study used S-C-P model toanalyze the performance of sesame market in the study area.

Market structure

Estimating the numbers, size and spatial distributions of each category of intermediary provides an indication of both the local structure of the market, and the range of alternatives faced by participants in the marketing chain in their buying, selling and hiring functions (Scarborough and Kydd, 1992). The following tools were employed to study the market structure.

Concentration ratio

Market concentration is defined as a number and size distribution of sellers and buyers in the market. Other factors, such as the firm's objectives, economics of scale, and assumptions about rival firm's behaviour, were relevant in determining the degree of concentration, the relationship between concentration and behaviour and performance (Scherer and Ross, 1980). The Concentration Ratio indicates the relative size of K-large firms in relation to their industry as a whole. It shows whether an industry is dominated by a few large firms or many small firms. Therefore, CRk was used as an indicator of the relative size of firms in relation to the industry as

a whole. Normally 4-firm and 8-firm concentration ratios are used conventionally. This assists in determining the market form of the industry (Wesman, 2005).

Wesman (2005) pointed out that as market concentration increases, competition and efficiency decrease and chances of collusion and monopoly increase. Therefore, a higher concentration measure represents a higher level of lack of competition. That means, few participants dominate the market.The concentration ratio (market ratio) was calculated using a formula

$$CR = \sum_{i=1}^{r} S_i \qquad (2)$$

Where CR - concentration ratio

S_i - Percentage share of the i^{th} firm

r - Number of largest firms for which the ratio is going to be calculated

According to Khols and Uhl (1985) market concentration measures the total combined market share of some number of the largest firms. Most widely used is the 4-firm concentration ratio, CR4, which is the combined market share of the four largest firms in the industry. A CR4 of greater than or equal to 50% is an indication of strongly oligopolistic industry, CR4 between 33% and 50% is an indication of weakly oligopolistic industry and less than 33% is un concentrated market. Despite wide application of concentration ratio as a measure of the ratio of market concentration, there are limitations against the index. The ratio doesn't indicate the size distribution of r firms.

Market Conduct

There are no agreed up on procedures for analysing the element of market conduct. Market conduct refers to the patterns of behavior that traders follow and how they adjust to changing market conditions. These include price setting behavior, and buying and selling practices (Kizito, 2008). Market price setting behavior includes who set the price and how are price determined? In this study, it covers buying and selling strategy of producers and traders, price formation and place of sell.

Market performance

Performances depend on conduct of sellers and buyers which intern is strongly influenced by structure of the relevant market (Purcel, 1979). A commonly used measure of the performance of a marketing system is the marketing margin or price spread (Abbott and Mekeham, 1990). Marketing channel also used to evaluate the performance of the market.

Marketing margin

As Mendoza (1995) argued, when there are several participants in the marketing chain, the margin is calculated by finding the price variations at different segments and then comparing them with the final price to the consumer. The consumer price is then the base or the common denominator for all marketing margins. Computing the total gross marketing margin (TGMM) is always related to the final price or the price paid by the end consumer and expressed as a percentage. A marketing margin is the percentage of the final weighted average selling price taken by each stage of the marketing chain. The total marketing margin is the difference between what the consumer pays and what the producer/farmer receives for his product. In other words it is the difference between

retail price and farm price (Cramers and Jensen, 1982). A wide margin means usually high prices to consumers and low prices to producers. The total marketing margin may be subdivided into different components: all the costs of marketing services and the profit margins or net returns. The cost and price information obtained from the survey were used to evaluate the gross marketing margin.

The total marketing margin is given by the formula shown below

$$TGMM = \frac{Consumers' price - Farmers' price}{Consumers' price} * 100 \quad (3)$$

Where, $TGMM$ - Total gross market margin

The TGMM is useful to calculate 'producer's gross margin' (GMMp) which is the portion of the price paid by the consumer that goes to the producer. The producer's margin is calculated as:

$$GMMp = \frac{\text{Price payed by the consumer} - \text{Marketing gross margin}}{\text{Price paid by the consumer}} * 100 \ \ or \quad (4)$$

$$GMMp = 1 - TGMM$$

Where, $GMMp$ -Producers' participation (farmers' portion)

The producers' share is the commonly employed ratio calculated mathematically as, the ratio of producers' price (ex-vessel) to consumers' price (retail). Mathematically, producers' share can be expressed as:

$$PS = \frac{P_x}{P_r} = 1 - \frac{MM}{P_r} \quad (5)$$

Where,

PS -Producer's share, P_x - Producer's price of sesame

P_r - Retail price of sesame and MM - Gross Marketing margin

The marketing margin was calculated among different actors in different channels and shares also were compared. According to Mendoza (1995) the accurate marketing costs are difficult to determine in many agricultural product marketing chains due to their costs are often cash costs and imputed costs. Thus, in this study, it was difficult to calculate the net marketing margin across different channels due to the difficultness of imputed costs during sesame marketing transaction.

RESULT AND DISCUSSION

This chapter presents the results and discusses the core findings of the study. Thus, it is organized in two sections. The first section provides descriptive analyses on the demographic, socio-economic, institutional characteristics of sample farm households, value chain actors and mapping of value chain. The second section presents econometric analyses of sesame market outlet choice it further discusses the findings of the study in comparison with earlier related research results.

Socio-Demographic Characteristics of Respondents

Study result showed that sample household taken for the study purpose involve in marketing of sesame besides to its production because sesame was one of the exportable oil crop. The average age of the sample household, during the survey period, was about 39.59 years with minimum of 21 and maximum of 72 years. The average family size of the sample household heads was 5.48, with a minimum of 2.49 and maximum household size of 12. Also, farmers in the study area stayed in sesame farming on average about 7.07 years as indicated below in (Table 2).

Table-2. Descriptive statistics characteristics of sesame producer households

Variable description	Mean/Frequency	Std./percentage	Minimum	Maximum
Age of household head	39.59	9.66	21	72
Family size	5.48	2.49	2	12
Experience in sesame farming	7.07	3.76	3	22
Education Level Households	2.48	2.10	0	9
Male Headed Households	[247]	[91.48]		

N.B: Variables in parentheses are frequency and percent
Source: Computed from survey data, 2018

As shown in Table 2, of the entire household heads interviewed, about 247(91.48%) were male headed and the remaining 23(8.52%) were female headed households, who are divorced or widowed at the time of survey. This also shows proportion of household head in the sample is much lower than the one at national level (i.e. one fourth of the total rural household head is female). Also, as shown in Table 2, on average a household head has about 2.48 years of formal education. This shows that on average, farmers attended the minimum required education level that is adequate for understanding agricultural instructions provided by the extension workers.

Socio-Economic and Institutional Characteristics

Socio-economic and institutional characteristics of farm households refer to physical endowments, income and infrastructure in line with sesame value chain. Particularly, ownership of physical resources and access to institutions are important factors that determine the operation and decision making activities of smallholder farmers. As presented in Table 3 below, the average size of arable land holding in the area was 1.36 hectare with standard deviation of 0.49. The maximum size of arable land holding was 4.5 hectare, which is less than the regional average and the minimum size was 0.35 hectare. The average distance between farm land and sample households' residence was about 3.46 kilometers with standard deviation of 1.47 in the study area. And, about 177(65.56%) of sample households classified their farm land as fertile class in fertility status and the remaining

93(34.44%) households graded it as less fertile/infertile based on their perception on sesame production during survey period.

Table-3. Sample households by resource base, farm and Institutional characteristics

Variable description	**Mean/Frequency**	**Std. Deviation/percent**
Total farm land (hectare)	1.36	0.49
Farmers participated in Off/non-farm activities	[196]	[72.59]
Extension contact (Number)	2.78	2.57
Access to training (Trained HHHs)	[115]	[42.59]
HHHs get Credit service	[184]	[68.15]
Cooperative membership (Members)	[156]	57.78
Amount of credit (Ethiopian Birr)	2930.219	3341.735
Distance to market(Kilometers)	5.89	4.16
Livestock holding in terms of TLU	5.72	4.19
Total	270	100

Note: Variables in parentheses are frequency and percent , **Source:** Computed from survey data, 2018

Also, households are engaged in various off/non-farm activities in parallel with the main farming activities during the farming season in the study area. The off/non-farm income sources in the study area include selling of local drinks, grinding mills, handcraft, leasing house and paid developmental works and beekeeping. As presented in Table 3 out of total sample households 72.59% participated in off/non-farm occupations and the remaining 27.41% were not participated in the activity. During the survey period, the average gross on-farm income of sample households was about 26985 Ethiopian Birr/year. Livestock production is also another important production activity in the study area. It serves as a means of security during crop failure in the districts and plays a vital role in the livelihood of people. The sample households own an average of 5.72 TLU with standard deviation of 4.19. Extension service provision was expected to have direct influence on the production and marketing behavior of the farmers. The higher access to extension service, the more likely that farmers adopt new technologies and innovation. Kebele level development agents are the most important sources of extension services to transfer agricultural technologies and innovations to farmers. The average frequency of extension contact during the cropping season was found to be 2.78 with standard deviation of 2.57 as indicated in Table 3 above.

An appropriate training given to the farmers may improve productivity by enhancing their management capacity. In the study area, farmers get training from FTC (farmers training center), non-governmental institutions or organizations found in the district and surrounding governmental training and research centers. Aslo, farmers access to training may capacitate ways of applying different organic and fertilizer, reduce the post-harvest loss of sesame product and loss of income which arises from the involvement of many intermediary in sesame market channel. Therefore, it is expected that access to training from different agents can increases production of sesame As

shown in Table 3 above, out of the entire sample households interviewed for this study, about 115(42.59)% of the sample households reported that they received training during survey period and the rest 155(57.41%) had not receive. This indicates that majority of the sample farmers did not received any training which might have impact on the productivity and marketing of sesame growing farmers.

In addition, there exist both formal and informal lending institutions to provide credit in the study area. The formal sources of credit are local cooperative unions, Micro-finance Institutions and Banks, whereas friends, relatives, traders, *Idir Iqub*, etc. are informal sources. As indicated in Table 3 above, on average, farmers took credit up to 2930.219 birr from the formal institutions and informal sources mentioned above survey period. Also, the average distance of market from household's residence is about 5.89. In addition**, b**eing in cooperatives benefits the majority of farm household, rather than acting individually. According to survey result in Table 3, the majority of household (57.78%) of the household are not members of sesame cooperatives, due to lack of the awareness creation related with the incentives which will be obtained from the membership and the bargaining power in group.

Sesame Marketing Channels

In this study three alternative marketing channels were identified for sesame as depicted in Figure 3. From 4500 qt estimated volume of sesame produced by sampled households in 2017/18, about 3850 qt of sesame was supplied to market. The comparison was made among channel based on the volume of the sesame that passed through each channel. Accordingly, the largest volume of sesame passed through channel II which is 45.20% of the total volume. In channel I 39.48% of the total sesame marketed which is the second largest channel. The main receivers of sesame from the producers were rural collectors and cooperatives/union who possess estimated percentage of 45.20 and 39.48 respectively.

Channel I: Producers → Cooperatives/Union →Exporters 1520 qt (39.48%)
Channel II: Producers → Rural collectors →Wholesalers → Exporters 1740qt (45.20%)

Channel III: Producers → Wholesalers →Retailers → Local consumers 590 qt (15.32%)

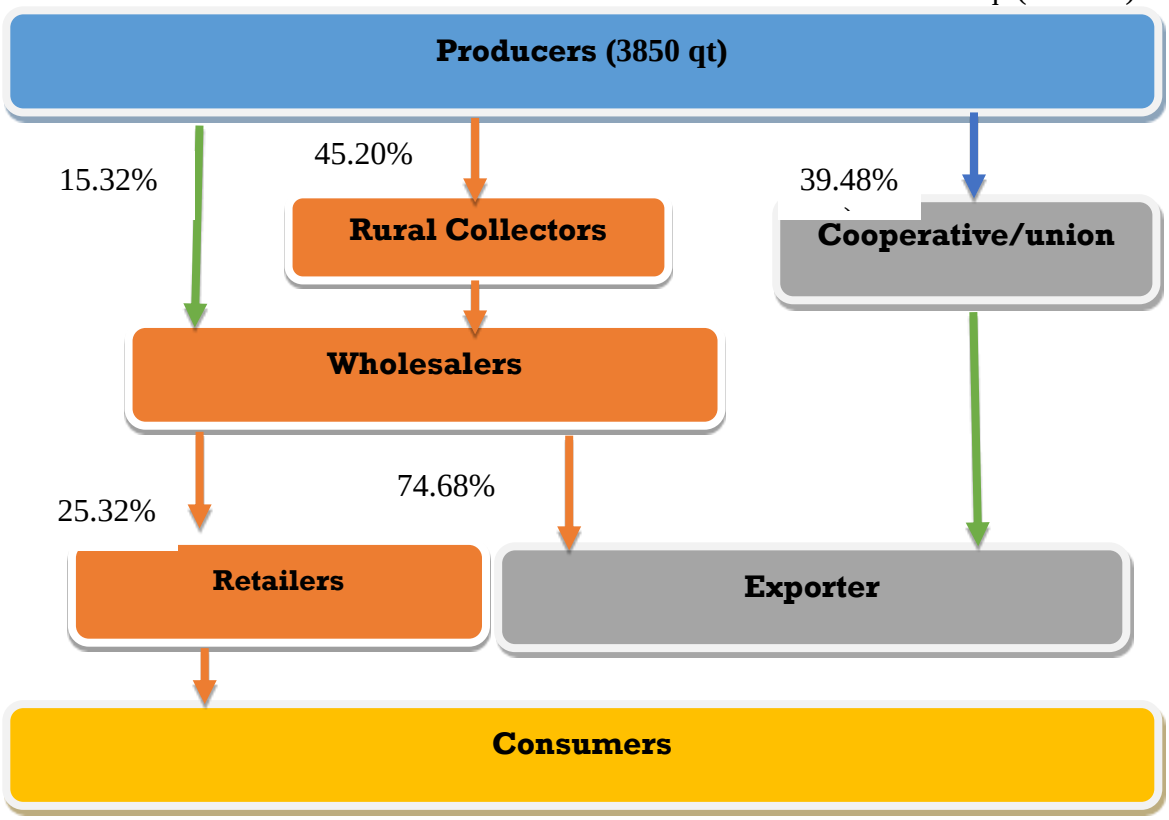

Figure 2. Sesame marketing channel
Source: Own sketch from survey result (2017/18)

Structure-Conduct-Performance Analysis of Sesame

The primary approach of examining market performance has been known as the structure-conduct-performance (S-C-P) paradigm, which postulates that certain market attributes (such as market concentration and barriers to entry) affect company profitability within the relevant market (Aleksandrova and Lubys, 2004). According to the S-C-P model, the way in which firms are organized in the market structure tells a great deal about how they make decisions about conduct, this in turn changes the level of efficiency and fairness in the market performance (Superrich, 1994). Therefore, In this section, the structure, conduct and performance of sesame market were presented and discussed as follow.

Market structure

The structure of sesame market in the study area was analyzed by market concentration ratio and degree of transparency.

The degree of market concentration: Degree of market concentration was analyzed by taking all sesame traders from Biftu and Bachuma market respectively. The concentration ratio was calculated by taking annual volume of purchased sesame in 2017/18. As indicated in Table 4, result

of CR4 shows that the top four sesame traders in Biftu and Bachuma market handled 78.36% and 50.21% of the sesame purchased, respectively. Based on Khols and Uhl (1985) market concentration measures, this result indicated sesame markets in Gurafereda and Menit Goldya is strongly oligopolistic market type.

Table 4. Sesame traders' Concentration ratio in Biftu and Bachuma market

Biftu market				Bachuma market			
Traders (Code)	Quantity purchased in Qt	% share of purchase	% cumulative purchase	Traders (Code)	Quantity purchased in Qt	% share of purchase	% cumulative purchase
TT001	520	24.65	24.65	TB001	600	14.93	14.93
TT002	423	20.05	44.7	TB002	559.8	13.92	28.85
TT003	365	17.3	62	TB003	450	11.2	40.05
TT004	345	16.36	**78.36**	TB004	408.45	10.16	**50.21**
All other traders	456.6	21.64	100	All other traders	2001.39	49.79	100
Total	2109.6	100		Total	4019.64	100	

Source: Computed from survey data, 2017/18

Degree of market transparency

The survey result indicated that about 88.24% of the total sesame traders had access or awareness to current sesame market price information in the study area. About 80% and 20% of the sesame traders obtained market information from other traders and their personal observation.

Table 5. Market information access and its source for sampled household

Variables	Category	Number of traders (N = 17)	Percent
Access to market information	Yes	15	88.24
	No	2	11.76
Source of market information	Other traders	12	80
	Personal observation	3	20

Source: Computed from survey data, 2017/18

Sesame market conduct

The conduct of sesame market is analyzed in terms of price setting, purchasing and selling strategies of producers and traders.

Conduct of the producers

The method of price setting is important in sesame trading activity. Hence, the survey result in Table 6 indicates that about 55.56% of the respondents reported price of sesame was set by buyer only, 24.07% of them reported that their selling price set by market, about 5.56% of the sample producers set their selling price by themselves and the remaining 14.81% of them reported that

their selling price was set by negotiation. With regard to place of sesame sold, 55.56%, 27.78% and 16.66% of the producers selling their product at farm gate, village market and urban markets, respectively.

Table 6. Place and selling strategies of producers

Activities	Strategies	Number of sampled households (N =270)	Percent
Price setter	Producers	15	5.56
	Buyers	150	55.56
	Negotiations	40	14.81
	Market	65	24.07
Place of sesame sold	Farm gate	150	55.56
	Village market	75	27.78
	Urban market	45	16.66

Source: Computed from survey data, 2017/18

Conduct of traders

The method of price formation has critical importance for sesame market chain actors. According to the survey result presented in Table 7, about 58.82% and 17.65% of traders purchasing price was set by traders themselves and buyers respectively. The remaining 23.53% of traders reported that purchasing price was set by negotiation with suppliers. With regarding using method of attracting suppliers, 52.94% and 29.41% of traders attracted their suppliers by paying better price and by visiting them, respectively. The rest 17.65% of traders used offering credit service to attract their suppliers. The survey results also indicated that, 82.35% and 17.65% of traders used cash and credit mode of payment to purchase the product, respectively.

Table 7. Traders buying and selling strategy

Activities	**Strategies**	**Number of traders (N = 17)**	**Percent**
Price setter	Traders themselves	10	58.82
	Buyers	3	17.65
	Negotiations	4	23.53
Attracting suppliers	Giving better price	9	52.94
	By visiting them	5	29.41
	Offering credit service	3	17.65
Terms of payment	Cash	14	82.35
	Credit	3	17.65

Market Performance Analysis

Market performance of sesame market was analyzed by estimating marketing margin, by taking into consideration associated marketing costs for key marketing channels at that production and marketing year. Based on production costs and purchasing prices of the major market participants along the chain, margins at producers, rural collectors, cooperatives, wholesalers, retailers and exporters levels were analyzed.

Marketing cost: in the process of sesame trading, each marketing actor in every channel incurred costs such as packaging materials, purchasing of sesame, labor, loading and unloading, storage losses, transportation, market search cost and so on. Analysis of profit is important in order to identify the major cost incurred in production. This helps to know the priority cost item and how those costs are reduced to increase profit of traders and producers.

Cost Structure and net profit for producers: The profitability of sesame producers was calculated by taking average total income and expenses of all sample producers' operation in 2018. As showed in the table below Producers earned a net profit of Birr 1956.85/quintal.

Table8. Cost structure and profitability for sesame producers in Bench Maji Zone

Cost items	Average per unit
Land clearing and preparation	57.17
Plowing	37.45
Inputs /seed, chemical and fertilizer	26.21
Seeding	7.85
Oxen rent	27.49
Land rent	43.22
Weeding	67.82
Harvesting	44.32
Threshing	1.64
Transportation from farm to home	9.78
Packaging material	9.96
Loading and unloading	4.09
Store rent	4.75
Labor food item	29.9
Transportation to market	10.37
Tax	5.06
Salaries of employee/production year	40.08
Interest rate	12.21
Market search cost	3.63
Total cost / quintal	**443.15**
Average selling price of sesame / quintal	**2400**
Gross Profit/quintal	**1956.85**

Source: Computed from survey data, 2017/18

Sesame producers sold their product with Birr 2400/quintal to sesame traders. As compared to other operating cost the major share of the operating cost goes to weeding followed by Land clearing and preparation harvesting.

Cost item and net profit for wholesalers: The result of (Table 9) below showed that sesame wholesalers earn a profit **391.6** Birr/quintal by involving in sesame trade which is higher than exporter's profit. Transportation cost was the highest operating cost as compared to other costs, since the study area was far away from the central market.

Table 9. Cost structure and profitability of sesame wholesalers

Purchase price	**2400**
Packing fee	6
Loading and unloading	17
Transport expense	240
Personal travel and other expense	6.55
Trade license renewal payment	0.85
Storage cost	27
Storage, transport and other losses	42.95
Telephone	7.25
Sack cost	11
Tax	4.4
Brokerage fee	32
Interest cost	36
Watching and warding	3
Cleaning cost	3.75
Quality checking expense in Addis Ababa	6
Clomping cost	1.5
Market search cost	6
Overhead cost	7.15
Subtotal	**458.4**
Total cost	**2858.4**
Wholesalers selling price	**3250**
Wholesalers gross profit	**391.6**

Source: Computed from survey data, 2017/18

Cost item and net profit for exporters: The result showed that sesame exporters earn a profit of 145.35 Birr/quintal by trading sesame. This indicates that gross profit generated from sesame in 2018 was positive for exporters.

Table 10. Cost structure and profitability of sesame exporters

Cost items	Average Cost birr/quintal
purchase price	**3,250.00**
Transport cost	140
Loading and unloading	16
Bag	11
Cleaning max	5
Fumigation	1.25
packing	6
Storage for one month	5
Selling and distribution	180
Impurity loss (2-4%)	92
Standard	3
Weight and quality fee	0.5
Forwarding	30
Overhead cost	28.06
Interest cost	43
Contingency	10
Subtotal	**570.91**
Total cost	**3,820.91**
FOB Price in birr /quintal	**3,966**
Exporters gross profit	**145.35**

Source: Computed from survey data, 2017/18

Analysis of the level of marketing margins and their cost components could help to evaluate the impact of the structure and conduct characteristics on market performance. Marketing margin is defined as the percentage of the final weighted average selling price taken by each of the market chain actors in each market channel. The margin must cover the cost involved in transporting the produce from one place to other and provide a reasonable return to those doing the marketing.

Marketing margin

A marketing margin is the percentage of the final weighted average selling price taken by each stages of the marketing chain. The total marketing margin is the difference between buying price of consumers and the selling price of producers. In other words, it is the difference between retail selling price and farm price (Cramers and Jensen, 1982). Therefore, sesame marketing margin was analyzed based on the average price of different marketing actors in the marketing channels of producers, rural collectors, cooperatives, wholesalers, retailers and exporters.

The survey result in Table 24 shows the differences between the total sesame income and the costs incurred in the process of sesame trading which results the gross profit of each actor in different channels. Sesame producers' gross profit is highest in channel I which accounts 1948.57 birr/qt and lowest in channel III which accounts 1556.85birr/qt. From traders' exporters obtained the

highest profit which is 641.85 birr/qt in channel I and the lowest profit shared by rural collectors which is 20.64 birr/qt in channel II.

Table 11. Gross marketing margins, marketing costs and gross profits of actors

Actors		I	II	III
Producers	Production and marketing cost	443.15	443.15	443.15
	Selling price	2391.72	2360	2000
	Gross profit	1948.57	1916.85	1556.85
	GMMP (%)	**60.31**	**59.51**	**55.25**
Rural collectors	Purchase price		2360	
	Marketing cost		28.52	
	Selling price		2409.16	
	Gross profit		20.64	
	GMMRc (%)		**1.24**	
Cooperatives	Purchase price	2391.72		
	Marketing cost	213.67		
	Selling price	2753.24		
	Gross profit	147.85		
	GMM Coop (%)	**9.11**		
Wholesalers	Purchase price		2409.16	2000
	Marketing cost		454.5	458.4
	Selling price		3250	2900
	Gross profit		386.34	441.6
	GMMWho (%)		**21.20**	**24.86**
Retailers	Purchase price			2900
	Marketing cost			215.54
	Selling price			3620
	Gross profit			504.46
	GMMRet (%)			**19.89**
Exporters	Purchase price	2753.24	3250	
	Marketing cost	570.91	570.91	
	Selling price	3966	3966	
	Gross profit	641.85	145.09	
	GMMExp (%)	**30.58**	**18.50**	
	TGMM (%)	**39.69**	**40.49**	**44.75**

Source: Computed from survey data, 2017/18

As indicated in Table 11, total gross marketing margin (TGMM) was highest in channel IV which was 40.49% and lowest in channel III which was 30.41%. Without considering channel I, the producer's share (GMMp) is highest in channel III which was 69.59% of the consumers' price and

lowest in channel IV which was 59.51%. From traders the highest gross marketing margin was taken by exporters which accounts 30.58%. of the consumers' price in channel I.

CONCLUSIONS AND RECOMMENDATIONS

Sesame is one the cash crop for smallholder sesame producers in the study area. Both primary and secondary data sources were used in this study. The multi-stage sampling procedure was followed to draw 270 sample households and trader sample were taken by census survey. Also, the data were analyzed applying descriptive statistics and also evaluated by using S-C-P approach.
As per the study results found, from 4500 qt estimated volume of sesame produced by sampled households in 2017/18, about 3850 qt of sesame was supplied to market. Three alternative marketing channels were identified for sesame. Among these, the largest volume of sesame passed through channel II (Producers → Rural collectors →Wholesalers → Exporters) which is 45.20% of the total volume. The study employed structure conduct and performance approach to evaluate degree of competition, behavior of the market actors and their achievement in sesame marketing in the study area. Accordingly, the concentration ratio (CR4) result shows that the top four sesame traders in Biftu and Bachuma market handled 78.36% and 50.21% of the sesame purchased, respectively. This result indicated sesame markets in Gurafereda and Menit Goldya is strongly oligopolistic market type. The market conduct analysis also shows sesame producers are price takers.

The marketing margins in three channels for each market participants were analyzed. The results showed that sesame producers' gross profit is highest in channel I which is about 1948.57 birr/qt and exporters obtained the highest profit which is 641.85 birr/qt in channel I and the lowest profit shared by rural collectors which is 20.64 birr/qt in channel II. Total gross marketing margin (TGMM) was highest in channel III which was 44.75% and lowest in channel I which was 39.69%. The producer's share (GMMp) is highest in channel I which accounts 60.31% of the consumers' price and lowest in channel III which accounts 55.25%. It is showed that as the number of marketing intermediaries increases, the producer's share in consumer's price decreases. In general, the result revealed that sesame markets in the districts were none competitive. The finding suggests that, to change existing oligopoly market structure in to competitive market structure the government should invest on rural infrastructure; introducing yield increasing technologies; strengthening Institutions that could provide timely market information; Forming primary cooperative; strengthening extension system through training in all aspect and design financial institutions to address the challenges of financial access to smallholder farmers and traders.

References

Sorsa. D. 2009. *Sesame trade arrangements, costs and risks in Ethiopia: A baseline survey*: Wageningen, 2009.

Abadi Berhane. 2015. Sesame production, challenges and opportunities in Ethiopia, (March). https://doi.org/10.13140/RG.2.1.1296.6481. Aksum University, Ethiopia.

CSA (Central Statistical Agency). 2017. Agricultural sample survey 2016/2017 (2009 E.C), report on area and production of major crops, agricultural sample survey. Volume I, Statistical Bulletin 584, April, 2017, Addis Ababa, Ethiopia.

CSA (Central Statistical Agency), 2011-2012. Agricultural Sample Enumeration Surveys, Addis Ababa, Ethiopia.

NABC (Netherlands African Business Council). 2015. Business opportunity report on oilseeds and pulses in Ethiopia. Netherlands Enterprise Agency, Ministry of Economic Affairs and Ministry of Foreign Affairs.

Fikiru Temesgen, Bezabih Emana, Fikadu Mitiku and Efa Gobana. 2017. Determinants of sesame farmers market outlet choices in Gimbi District, Ethiopia. *African Journal of Agricultural Research*, 12(38): 2830-2835.

Ermiyas Mekonnen, Endrias Geta and Belaineh Legesse, 2015. Production Efficiency of Sesame in Selamago District of South Omo Zone, Southern Ethiopia. Current Research in Agricultural Sciences *Vol. 2, No. 1, pp. 8-21.*

Terefe Negasa. 2016. Review of Sesame Value Chain in Ethiopia. International Journal of African and Asian Studies. 19(36), ISSN 2409-6938.

CSA (Central Statistical Agency). 2015. Agricultural sample survey 2014/2015 (2007 E.C.): Volume IV – Report on land utilization (Private peasant holdings *Meher* season). *Statistical Bulletin number 446*. Central Statistical Agency, Addis Ababa, Ethiopia.

BMZAO (Bench Maji Zone Agricultural Office). 2017. Area Description Annual Report.

Yamane, T. I. 1967. Statistics: An Introductory Analysis 2nd Edition. New York, Harper and Row.

Bosena Tegegne. 2008. Analysis of Cotton Marketing Chains: The Case of Metema Woreda, North Gonder Zone, Amhara National Regional State. MSc Thesis, Haramaya University, Haramaya, Ethiopia.

Wendmagegn Belete. 2014. Market chain analysis of coffee: The case of Dale district of Southern Ethiopia. MSc Thesis, Haramaya University, Haramaya, Ethiopia.

Scherer, F.M., 1980. Industrial market structure and economic performance. 2nd Edition. Rand McNally College Publishing Agency, USA. 342p.

Scarborough, V. and Kydd, J. 1992. Economic Analysis of Agricultural Markets: A Manual. Chatham, U.K. Natural Resource Institute.

Kohls, R.L. and Uhl, J.N. 1985. *Marketing of Agricultural Products: 6th edition*. Macmillan publishing Company, New York.

Abbot, J. C. and Makeham, J. P. 1981. Agricultural Economics and Marketing in the Tropics. Wing Tai Cheung Printing Co. Ltd, Rome. 58.

Mendoza, G. 1995. Primer on Marketing Channels and Margins. Lyme Rimer Publishers Inc., USA. 425p.

Cramer, G. and W. Jensen 1982. *Agricultural economics and agribusiness, 2nd Edition*. McGraw Hill Book Company, USA. 222.

Dagnaygebaw Goshme. 2020. Structure, Conduct and Performance(S-C-P) of Sesame Market in Melokoza District of Southern Ethiopia. *Journal of Biology, Agriculture and Healthcare*. ISSN 2224-3208 (Paper) ISSN 2225-093X (Online) DOI: 10.7176/JBAH Vol.9, No.2, 2019

Desale Gebretsadik. 2020. Marketing Chain and Structure, Conduct and Performance of Sesame: The Case of Kafta Humera District, Western Zone of Tigray, Ethiopia. *Asian Journal of Agricultural Extension, Economics & Sociology, 38(2): 14-36, 2020; Article no.AJAEES.54071, ISSN: 2320-7027* DOI: 10.9734/AJAEES/2020/v38i230306

Wesman, L.(2005). Assessing market power: The trade-off between market concentration and

multi-participation. Journal of Competition Law & Economics. Vol 1 (2), pp. 339-354.

Aleksandrova, A. and Lubys, J." Application of the structure- Conduct- Performance paradigm in a Transition Economy: explaining Profitability of the largest Latvian Firms". SSE Riga Working Paper, 8(63). 2004.

GDAO (Gurafereda District Agricultural Office). 2018. Annual report of the District. Gurafereda, Southwestern, Ethiopia.

CSA (Central Statistical Agency). 2013. Population Projection of Ethiopia for All Regions at Wereda Level from 2014-2017. CSA, Addis Ababa, Ethiopia.

Belay Haile. 2009. Resettlement induced land use changes and their impact on non-timber products production. MA Thesis, Addis Ababa University, Addis Ababa, Ethiopia.