Analysis Market Efficiency of Honey in Case of Abay Chomen District, Oromia Regional State, Ethiopia

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Abstract

The aim of the study was, to analysis the structure of production costs and determines profitability of the production and to evaluate structure-conduct-performance of honey marketing. The primary data were generated by individual interview and group discussions using pre-tested semi structured questionnaires and checklists. This was supplemented by secondary data collected from different published and unpublished sources. The main market actors for honey marketing of the District during the survey period were honey collectors, retailers and consumers. Besides, a significant amount of honey produced is channeled directly to consumers from producers (56.61%). About 28.47% of total gross marketing margin was added to honey price when it reaches the final consumer at the Fincha, Fincha Sugar factory, Shambu and Migiru marketing centers by honey collectors and retailers. Out of the total gross marketing margin 13.15% was gross margin of honey collectors, while 15.32% was that of retailers.

Keywords:-profitability, supply, honey, conduct, collectors. retailers, consumer

1. Introduction

1.1. Background of the Study

There is no well documented evidence that indicates when and where beekeeping practice started in Ethiopia. According to some sources, it had started in the country between 3500-3000 BC. The country has a high potential for beekeeping as the climate is favorable for growing different vegetation and crops, which are a good source of nectar and pollen for honeybees. Ethiopia is an important honey and beeswax producing country, and the leading producer of honey and beeswax in Africa. Ethiopia, with over 10 million honeybee colonies, is the country with the highest honeybee population in Africa (Aseffa, 2009).

In Ethiopian, The total amount of honey production in the country is estimated to be more than 43,000 metric tons and 3,000 MT of bee wax per year. Only about 10% of the honey produced in the country is consumed by the beekeeping households (MoARD, 2003). The remaining 90% is sold for income generation and of this amount, it is estimated that 80% is used for *tej* brewing (Hartmann I, 2004). According to (Mengistu A, 2011), domestic honey consumption is increasing due to highly increasing demand for *tej*, increased consumption of processed table honey in most urban areas and increased demand for honey in the local industries.

An efficient, integrated, and responsive market mechanism, which is, marketed with good performance, is of crucial importance for optimum allocation of resources in agriculture and for stimulating farmers to increase output (Jones, 1972; FAO, 1999; Acharya and Agarwal, 1999).Without having convenient marketing conditions, the possible increment in output, rural incomes and foreign exchange resulting from the introduction of improved production technologies could not be effective. An improvement in marketing efficiency, thus, attracts the attention of many countries and viewed as an important national development strategy (Asefa, 2009).
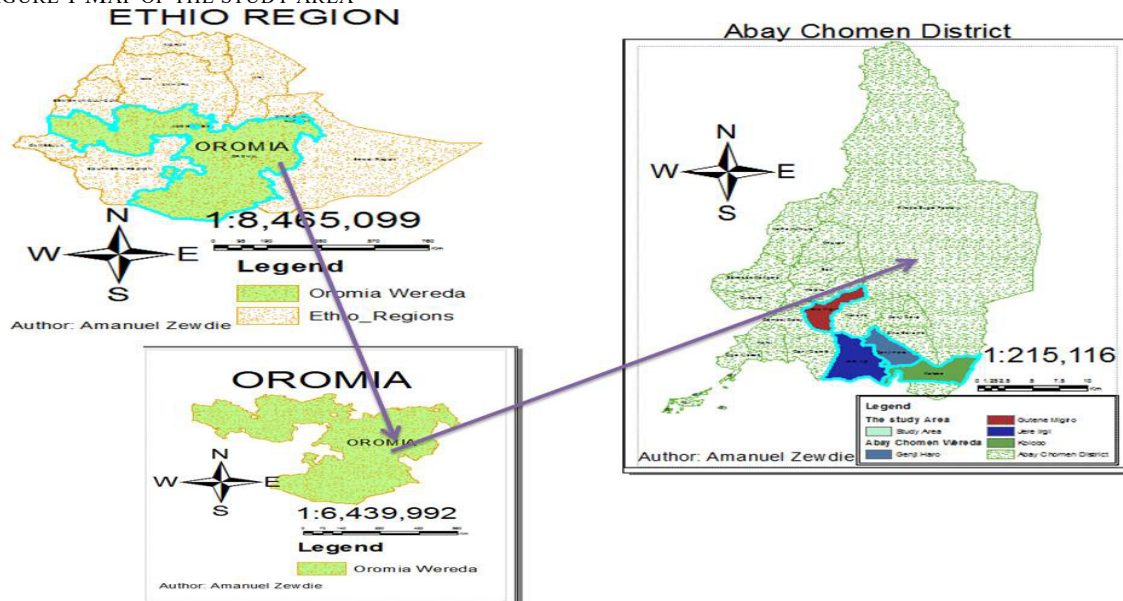
2. Materails and Methods

2.1. Description of the Study Area

Abay Chomen district was located about 285km Western part of the capital city of Ethiopia. There were seventeen *Kebele* Associations (KAs).According to the information from district Agricultural and Rural Development Office (2014), the total population of the district was 34,766 of which 13,826 (39.77%) were males and 20,940 (60.23%) were females. Urban and rural populations were 17,032 and 17,734 respectively. Generally the district had 30% and 70% Dega and Weina Dega weather condition, respectively. According Abay Chomen Livestock Resource And Health Office   (ACWLRHO) (2014), honey production from local (traditional) hives was on average about 3.5kg/harvest as opposed to the improved hives that could yield 20-35kg/harvest and it was possible to harvest twice a year. Price of white honey could range from 20 *Birr*/kg to 45 *Birr*/kg from the production season (surplus) to deficit season. The populations of livestock in Abay Chomen district were 30, 938, Sheep 4,740, Goats 6, 643, Equines 368. The numbers of poultry were estimated at about 47,265. Out of the cattle population, the district had estimated 7,469 drought oxen. There were 1,567 bee colonies of which 740 were improved box hives, 21,563 were traditional hive and 1,017 were transitional hive. There was also bee

forage planting practices in the study area such as supplementary feeding which includes sugar, barley flour, peas and beans flour. In both the traditional and modern beehives supplementary feed was provided.

FIGURE 1 MAP OF THE STUDY AREA

Source: - GIS Geographical location of the study area.

2.2. Method of Data Collection

In order to got the overall picture of honey producers, traders, and consumers of the honey marketing chain in the study area, the study was used both primary and secondary data. The primary data were collected using two types of questionnaires, one for farmers (honey producers) and the other for honey traders. The primary data were collected from farmers focuses on factors affecting honey market supply, size of output, market information, credit access, access to market, number of beehives owned, honey production cost, annual return from honey, extension service, annual income from non-honey source and demographic characteristics of the household. Moreover, the questionnaire for traders includes type of business (wholesaler, retailer, assembler, etc.), buying and selling strategies, initial capital, current working capital, source of working capital, source of market information, demographic characteristics of the traders and other relate data were collected.

2.3. Sample Size and Method of Sampling

The sample frame of the study was the list of households in Abay Chomen District and *Kebele* Association which were found in the district. Two stage sampling procedures were employed to select a specific honey producer household. First, four honey producer *Kebele* Association from seventeen *kebele* association were selected based on ease of accessibility, consultation with the experts of Wereda Office of Agriculture, extension workers.and potential production of honey of the *kebeles* purposively selleted. In the second stage, using the population list of honey producer farmers from sample *Kebele* Association, the sample sizes were determined proportionally to population size of honey producer farmers. Then the 133 representative household were randomly selected using simple random sampling technique.

This stocky applied a simplified formula by Yemane. (Yemane, 1967 cited by Yilma, 2005) to determine the required sample size at 95% confidence level degree of variability was 9 and level of precession was 0.5.

$$n = \frac{N}{1+N(e^2)}$$ 	Where n-sample size

N-population size

e-level of precession

TABLE 1 .SAMPLE DISTRIBUTION OF FARMERS (HONEY PRODUCER)

Name of KAs	Honey producer house holds	Sample size
Kolobo	50	33
Jare	51	34
Ganji Haro	49	32
Guttene Migiru	51	34
Total	201	133

Source: survey result, 2014.

The sites for the trader's survey were market towns, which were purposively selected based on the flow of the honey produced in the study district. Three market towns (Migiru, Fincha Sugar Factory and Fincha) were sampled. The sample size of honey traders were twelve.

TABLE 2 SAMPLE DISTRIBUTION OF HONEY TRADERS

Market center	Retailer	Honey collector	Total
Fincha	3	2	5
Fincha Sugar Factory	3	1	4
Migiru	2	1	3

Source: survey result, 2014.

2.4. Method of Data Analysis

This study were employed, both descriptive and econometric methods of data analysis. Descriptive statistics like mean, standard deviation and %iles were used to explain basic characteristics of the channel members besides econometric models. For this study, the data were collected from the sample producers and traders were first analyzing using descriptive statistics followed by determinants analysis of honey supply using econometric model.

2.4.1. Analysis of 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 was defined as the number and size distribution of sellers and buyers in the market. It is felt to play a large part in the determination of market behavior within an industry because it affects the interdependence of action among firms. The greater the degree of concentration the greater the possibility of noncompetitive behavior, such as collusion would be exists in the market (Pomeroy and Trinidad, 1995).

Kohls and Uhl (1985) suggest that, as a rule of thumb, a four enterprise concentration ratios of 50 % or more is indicative of strongly oligopolistic industry, of 33-50 % a weak oligopoly, and less than that, an un-concentrated industry. This is the number and size distribution of sellers and buyers in the market. The greater degrees of concentration were the greater possibility of non-competitive behavior, such as collusion, existing in the market.

$$Si = \frac{Vi}{\sum Vi}$$ Where Si-market share of buyer i

Vi-amount of product handled by buyer i

∑Vi- total amount of product handled

$$C = \sum_{i=1}^{r} Si \qquad i = 1,2,3,4, ...$$ Where C-concentration ratio

Si-%age share of the ith firm

r-number of largest firm for which the ratio is going to be calculated

2.4.2. Analysis of marketing channels

The analysis of marketing channels is intended to provide a systematic knowledge of the flow of the goods and services from their origin (producer) to final destinations (consumers) (Mendoza, 1995).

Ramakumar (2001) identified the different marketing channels based on different performance indicators from which rank were computed. The indicators included were producer's share in the consumer's money, marketing cost of intermediaries, marketing margin of intermediaries and returns per unit money of investment. In this study, volume passed, producer's share, marketing margin of intermediaries and rate of return were taken to evaluate the efficiency.

$$R = \frac{Ri}{Ni}$$ Where R-an overall rank of a channel (all performance indicator)

Ri-rank of a channel per a single indicators and

Ni-performance indicator (volume handled, rate of return, producers
share and marketing margin)

2.4.3. Analysis of market conduct

Market conduct refers to the behavior of firms or the strategies used by the firms in their pricing, buying and selling activities. There are no agreed up on procedures for analyzing the element of market conduct. Market conduct defines the conditions which make possible exploitative relationships between sellers and buyers. This was done via unfair price setting practices which Smith (1985) classified as collusive, predatory, or exclusionary. The systematic way to detect unfair price setting practices and the condition under which practices are likely prevail. Moreover, they cover the following topics:

a) The existence of formal and informal marketing groups that perpetuate such practice;
b) Formal and informal producer groups that affect bargaining power
c) The distance from the major market and its impact on prices; and
d) The feasibility of utilizing alternative market outlets. The questions also provide an indication of the type of data needed and data collection procedures.

2.4.4 Market performance

Market performance refers to the impact of structure and conduct on prices, costs, and volume of output (Pomeroy and Trinidad, 1995). Marketing efficiency was essentially the degree of market performance.
It was defined as having the following two major components:

(i)   The effectiveness with which a marketing service would be performed and

(ii)   The effect on the costs and the method of performing the service on production and consumption. These are the most important because the satisfaction of the consumer at the lowest possible cost must go hand in hand with maintenance of a high volume of farm output (Rama kumar, 2001).The two approaches to measure marketing performance are: marketing margin and the analysis of market channel efficiency.

Marketing Margin- In a commodity subsystem approach, the institutional analysis is based on the identification of the marketing channels. This approach includes the analysis of marketing costs and margins (Mendoza, 1995). A marketing margin can be defined as a difference between the price paid by consumers and that obtained by producers; or as the price of a collection of marketing services that was the outcome of the demand for and supply of such services (Tomek and Robinson, 1990).

Marketing costs and margin analysis is especially comparison of prices at different levels of marketing over the same period. Computing the total gross marketing margin (TGMM) is always related to the final price or the price paid by the end consumer and is expressed in percentage(Mendoza,1995).

$$TGMM = \frac{Consumer\ price - producer\ price}{Consumer\ price} \times 100$$

It is use full to introduce here the idea of "producer participation", "producer portion" or "farmers portion", or "producers gross margin" (GMMP) which is the proportion of the price paid by consumer that belongs to the producer. Producer that act as a middle men also receive an additional marketing margin.

$$GMMP = \frac{Price\ paid\ by\ the\ consumer - Marketing\ gross\ margin}{Price\ paid\ by\ the\ consumer} \times 100$$

In marketing chain with only one trader between producer and consumer, the net marketing margin (NMM) is the %age over the final price earned by the intermediaries as his/her net income once his marketing costs were

$$NMM = \frac{Gross\ margin - Marketing\ cost}{Price\ paid\ by\ the\ consumer} \times 10$$

deducted.
Another parameter related to marketing margin is the producer's share. The producer's share is the ratio of producer price (ex-vessel) to consumer price (retail) (Mudiantono, 1990). The producer's share can be expressed

as $PS - \frac{Px}{Pr} - 1 - \frac{MM}{Pr}$ Where PS=Producer's share
Px=producer price of honey
P r=consumer price of honey
MM=marketing margin

3. Results and Discussion
3.1 Descriptive Analysis
3.1.1 Demographic and socio-economic characteristics of sample households

Virtually 62.4 % of the respondents were protestant and 21.8 % of respondents were Orthodox Christian. The way people interact with each other was reflected in their social norms and their culture.

About 48.12 % of the households heads were in the age group of 36-55 with an average age of 45.5 and 30.075 % of the sample respondent were in the age group of 20-35 years with an average age of 27.5 (Table 3).

About 18.79 % of the household heads lie in the age range of 56-70. The mean age of the respondents was 41.53. This indicates that the sampled households were engaged in actively working age that enhances the quantity of honey supplied. Thus, this variable affect quantity of honey supplied.

TABLE 3 DISTRIBUTION OF SAMPLE RESPONDENTS BY AGE AND RELIGION

Variable category		Kolobo (n=33)		Jare (n=34)		Genji Haro (n=32)		Gutane Migiru (n=34)		Total (n=133)	
		N	%	N	%	N	%	N	%	n	%
Age group(in year)	20-35	7	21.21	14	41.18	8	25	11	32.35	40	30.075
	36-55	15	45.45	11	32.35	19	59.38	19	55.88	64	48.12
	56-70	9	27.27	7	20.59	5	15.626	4	11.76	25	18.79
	>70	2	6.06	2	5.88	-	-	-	-	4	3
Mean age(years)										41.53	
Religion	Protestant	16	48.48	22	64.7	23	71.875	22	64.7	83	62.4
	Ortodox	7	21.21	6	17.64	6	18.75	10	29.41	29	21.8
	Wakefata	8	24.24	4	11.76	2	6.25	2	5.88	16	12.03
	Muslim	2	6.06	2	5.88	1	3.125	-	-	5	3.76

Source: Own Survey data result of 2015.

The mean family size of the sample farmers during the survey period was 4.9≈5 persons, with maximum and minimum family size of 12 and two persons, respectively. These figures were 5.5, 3.89, 4.5 and 5.94 persons for Kolobo, Jare, Genji Haro and Gutane Migiru respectively.Out of the total sampled households in the study area, 96.99 % were male-headed (Table 4). This conforms to the common thinking that beekeeping was men's job due to labor requirements. In line with this, Hartmann (2004) reported that in Ethiopia traditionally beekeeping was men's job. Regarding the marital status, most of the household heads surveyed (88.8) were married with only 6.77 % Unmarried household head.

Table 4 *Distributions of sample respondents by sex, marital status and family size.*

Variable category		Kolobo (n=33)		Jare (n=34)		G/ Haro (n=32)		Gutane Migiru (n=34)		Total (n=133)	
		N	%	N	%	N	%	N	%	N	%
Sex	Male	32	96.97	34	100	30	93.75	33	97.05	129	96.9
	Female	1	3.03	-	-	2	6.25	1	2.94	4	3.01
Marital status	Married	26	78.78	29	85.29	31	96.86	32	94.11	118	88.8
	Unmarried	4	12.12	3	8.82	-	-	2	5.88	9	6.77
	Divorced	2	6.06	1	2.94	-	-	-	-	3	2.25
	Widowed	1	3.03	1	2.94	1	3.125	-	-	3	2.25
Mean of family size		5.5		3.89		4.5		5.94		4.9≈5	

Source: Own Survey data result of 2015.

Most of respondents schooling 6 grade or less were 33.08 % during survey. Among the sampled respondents, about 27.06 % were Non formal education. (Table 5). More specifically, 72.94% % of the sample respondents had attended elementary, junior schools and above.

TABLE 5 *EDUCATION LEVEL OF HOUSE HOLD HEADS.*

Variable category		Kolobo (n=33)		Jare (n=34)		Genji Haro (n=32)		Gutane Migiru (n=34)		Total (n=133)	
		N	%	N	%	N	%	n	%	N	%
Education level	Non formal education	9	27.27	12	35.29	6	18.75	9	26.47	36	27.07
	6 grade or Less	13	39.39	10	29.41	10	31.25	11	32.35	44	33.08
	7th-10th grade	6	18.18	7	20.59	12	37.5	8	23.52	33	24.82
	Certificate	4	12.12	5	14.7	4	12.5	5	14.7	18	13.54
	Dipiloma	1	3.03	-	-	-	-	1	2.94	2	1.5

Source: Own Survey data result of 2015.

3.1.2. Honey production characteristics

Honey production was an important source of household income in the region. Abay Chomen was one of the districts of Oromia Region with high potential for beekeeping development. According to Abay Chomen ACWLRHO, annual report 2015, the district had 10,191 honeybee colonies making it one of the high potential areas for developing beekeeping. The annual crude honey produced in 2014/15 per traditional beehives was 5-6 Kg/hive, From Transitional hive was 15-20 Kg/hive and From Modern hive was 35-45 Kg/hive.The entire 133 sample farmer's honeybee colony holding size in the study area ranges from 1 to 16 beehives and the majority (36.09) of sample farm household owned 11-16 bee colonies during the survey period. While 15.79, 25.56 and 22.55 % of the sample households honey bee colony holding size was 1-4, 5-10 and greater than 16, respectively (Table 6).

Table 6 Honey bee colony holding size of sample farmers

Variable category		Kolobo (n=33)		Jare (n=34)		Genji Haro (n=32)		Gutane Migiru (n=34)		Total (n=133)	
		N	%	N	%	N	%	N	%	N	%
Bee colony holding size	1-4	8	24.24	6	18.18	2	6.25	5	14.7	21	15.79
	5-10	10	30.3	6	18.18	10	31.25	8	23.52	34	25.56
	11-16	11	33.33	11	32.35	14	43.75	12	35.29	48	36.09
	>16	4	12.12	11	32.35	6	18.75	9	26.47	30	22.55
Mean		7.44		8.53		9.32		10.74		9	

Source: Own Survey data result of 2015.

3.1.3. Experience in beekeeping

The level of beekeeping experience was taken to be the number of years that an individual was continuously engaged in beekeeping activity. Majority (38.34%) of the respondents had about 2- 8 years of beekeeping experience. The mean years of experience for the entire sample was about 14 years, the minimum and maximum years of experience being 2 and 34 years, respectively. This shows that the activity was familiarize or started in the area about many years ago. Having cumulative knowledge of how to keep bees was a precondition to the ability to obtain process and use information related to the run-through.

3.1.4. Honey production

Honey was collected in the study area from August to December (peak periods) in each year. Among the total 133 respondents 25 % of them harvest honey twice within this period of the year, whereas 75 % of the sample farmers respond that they harvest once in a year in the same period. It was reported that any production acquired in the remaining periods of the year would be left as food for the colony to strengthen it for the next harvest.

The total annual production of honey from sample respondents were 9,612 kg, from this total production about 90.5 % was supplied to market and annual mean production of the sample respondents was 72.27 kg in the same year, and about 47.4 % of respondents informed that their annual production during the time was above 70 kg of honey. In the same manner, 32.3, 10.5 and 9.8 % of respondents reported that their annual production was between 46-70 kg, 26-45 kg and 5-25 respectively.

3.1.5. Annual income earned by sample respondent from the sale of commodity

Abay Chomen honey was used for consumption and tej making. During the survey, with the given size of holding of beehives, the total annual gross income of sample farmers from the sale of 8,703 kgs of honey output at an average price of 30.89 Birr/kg was estimated at 268,835.7 birr (Table 7).

TABLE 7 DISTRIBUTION OF SAMPLE FARMERS BY ANNUAL TOTAL GROSS INCOME EARNED FROM THE SALE OF HONEY

Variable category		Kolobo (n=33)		Jare (n=34)		G/ Haro (n=32)		Gutane Migiru (n=34)		Total (n=133)	
		N	%	N	%	N	%	n	%	n	%
Total income from honey production in birr/year	150-800 birr	5	15.15	2	5.9	5	15.62	3	8.82	15	11.3
	825-2050 birr	9	27.27	4	11.8	4	12.5	7	20.59	24	18.0
	2100-4000 birr	11	33.33	10	29.41	14	43.75	11	32.35	46	34.6
	above 4000 birr	8	24.24	18	52.94	9	28.12	13	38.23	48	36.1
Mean										3,887.90	

Source: Own Survey data result of 2015.

3.1.6. Access to services

However, from the total sample households who were asked to know whether they getting credit or not, about 94

% of the sample households pointed out that they getting credit. From sample respondent 48.1% need their credit for honey production but 51.9 % need their credit for other agricultural production such as buoght firtilizer and seed. During survey 89.5% respondents were faced the problem of high interest rate charged by micro finance lenders that one was 15% of interest rate.

Apiculture extension service was provided by the district Agriculture and Rural Development Office. Each sampled *kebeles* had three Development Agents (DAs) and few respondents got extension service from researcher and NGOs. As a result, all the sample respondents had access to extension service to promote the apiculture sector and thus increase the quantity and quality of the commodity at farm level.

About 97% of respondents were get the market information access such as price , Demand and market place information. Most of the respondents or 82.7% sample respondents source of information was their near by market while 11.28%,3.76% and 2.26% of respondents source of market information was from DAs, radio and woreda experts respectively.

3.1.7. Market structure

In this section of the study, honey market participants, their roles and linkages, the marketing channel of honey production, the conduct and as well as the performance of honey market were presented one after the other.

3.1.8.1. Honey marketing participants, their roles and linkages

In this study, different honey marketing participants were identified. Honey marketing participants in the study area includes producers/farmers, honey collectors/assemblers, retailers, processors and final consumers of the product.

Producers: Producers/farmers sell their honey to different buyers involved in honey in the market at village or district market center. The market place that was the closest to the residence of the farmers was the first chosen with regard to minimization of transportation costs. According to the respondents, in 2007 E.C production year, 56.61 %, 28.27 % and 15.12 % of their annual sale of honey was sold to consumers, retailers and honey collectors, respectively.

TABLE 8 AMOUNT OF HONEY OUTPUT SUPPLIED (KG) TO DIFFERENT MARKET PARTICIPANTS BY FARMERS IN 2015 PRODUCTION YEAR

Market participants	Amount of sold	%
Consumers	4,927 kgs	56.61 %
Retailers	2,460 kgs	28.27 %
Honey collectors	1,316 kgs	15.12 %
Total	8,703 kgs	100

Source: Own Survey data result of 2015.

Honey collector/assembler: Rural actors played an important role in honey assembly. The honey collectors found in the study area purchased the honey produce directly from farmers in a small village markets for resell to other collectors, retailers, and consumers who came from different areas of the woredas at the district market center.
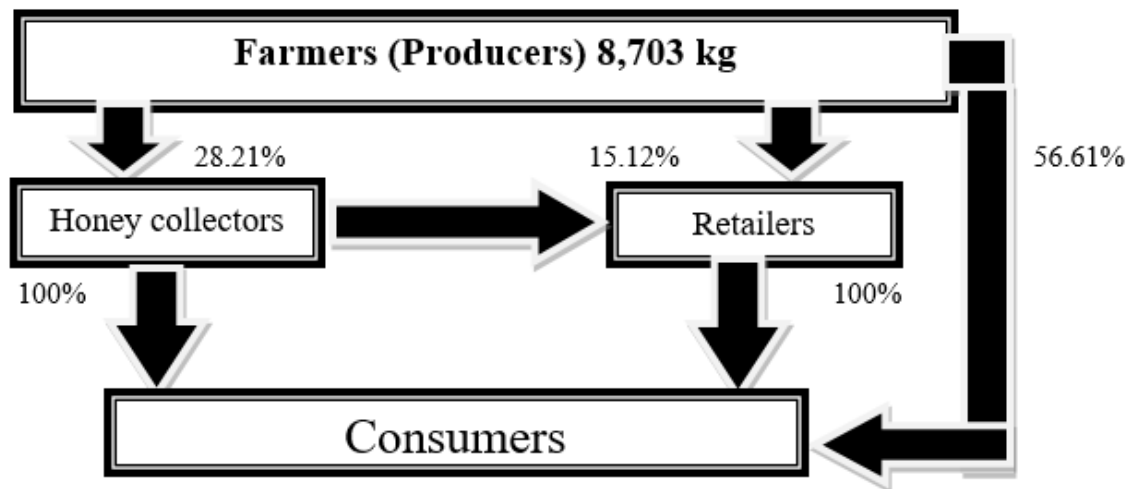
Retailers: There were super markets and other retailers who divide large-scale shipments of produce and sell it to consumers in small units. These were the final link in the channel that delivered honey to end users. The majority of honey retailers found at the regional as well as district centers had their own stores and retail shops.

Consumers: From the consumers' point of view, the shorter the marketing chain, the more likely was the retail price going to be affordable. Consumers for this particular study mean those households who bought and consume honey. They were individual households; they bought the commodity for their own consumption only.

3.1.8. Honey marketing channel

According to Mendoza (1995), marketing channel was the sequence through which the whole of honey passes from farmers to consumers. The analysis of marketing channel was intended to provide a systematic knowledge of the flow of the goods and services from their origin (produce) to the final destination (consumer). During the survey, the following honey marketing channels were identified. As can be understood from fig 1, the main receivers from the farmers were consumers, honey collectors and retailers and processors with an estimated %age of 56.61, 28.27, and 15.12 % in that order.

FIGURE 2 HONEY MARKETING CHANNEL

Source: Own Survey data result of 2015.

3.1.9. Measure of market concentration ratio

A CR_4 of over 50% was generally considered a tight oligopoly; CR_4 between 25% and 50% is generally considered a lose oligopoly and a CR_4 of fewer than 25% was no oligopoly at all. Since the number of traders at each sample market level was few, therefore, the analysis of the degree of market concentration ratio was carried out for all traders. It was measured by the %age share of volume of honey handled by the largest four traders (Kohls & Uhl, 1985). Here concentration ration for four traders was meant for all honey traders across the study area with largest upper volume in general Hence, the honey market concentration ratio in the study area was 48.32 % suggesting a lose oligopoly market type.

TABLE 9 *THE RESULT OF SAMPLE MARKET HONEY TRADERS' CONCENTRATION RATIO CR4.*

Number of traders(I)	Cumulative frequency of traders (II)	% of traders (III)	Cumulative % of traders (IV)	Quantity purchased in kg (V)	Total quantity purchased in kg VI=IV*I	% share of purchase (VII)	% cumulative purchase (VIII)
1	1	8.3	8.3	543	543	14.38	14.38
1	2	8.3	16.6	520	520	13.77	28.15
1	3	8.3	24.9	432	432	11.44	39.59
1	4	8.3	33.2	330	330	8.73	48.32
2	6	16.7	49.9	270	540	14.3	62.62
3	9	25.0	74.9	256	768	20.33	82.95
1	10	8.3	83.2	235	235	6.22	89.17
1	11	8.3	91.7	209	209	5.53	94.7
1	12	8.3	100.0	199	199	5.3	100
					3,776	100	

Source: Own Survey data result of 2015.

3.1.10. Market conduct

Market conduct refers to the patterns of behavior of firms. This implies analysis of human behavioral patterns that are not readily identifiable, obtainable, or quantifiable (Pomeroy and Trinidad, 1995). There were no agreed upon procedures for analyzing the elements of market conduct. Rather, some points were put to detect unfair price setting practices and the conditions under which such practices prevail. In this study conduct of the honey market was analyzed in terms of the traders' price setting, purchasing and selling strategies.

3.1.10.1. Producers' market conduct

Honey was an important cash income generating commodity in the study district. During the survey, farmers pointed out that supply of honey to the market occurs mainly from December to March. According to the report, about 25 %, 20 % , 12 and 10 % of the total yearly sale of honey was made in December, January , February and march respectively. The remaining portion of the output 10 %, 11 % and 12 % was sold in August, September and November, respectively. Respondents also reported that there were no significant sales in the months of March-August. During the study, it was observed that, the frequency of honey supplied to the market by most farmers (87%) was twice a year and almost 100 % of the households' term of sale was on cash basis. In the study

area, farmers organized in terms of KAs. Starting from production up to marketing, every farmer produces and sells on individual basis. This affects their bargaining power during the sale of honey.

Accordingly, 78.2 % of households reported that, generally, for the last five years, price of honey showed an increasing trend. One of the reasons for the increase in price was mainly the quality of honey produced, due to the introduction of improved beehives and dueto high demand honey according to farmers.

3.1.10.2. Traders' market conduct

The survey result showed that the dealings made on honey marketing of the study area takes place with direct contact between sellers and buyers. There were no observed operational brokers in the honey marketing channel during the survey period. The honey retailers were found to purchase honey either directly from farmers at the local/district market or from honey collectors. The method of price setting was crucial importance in honey trading activity.

About 58.3 % of the traders respond that purchase price was set by negotiation with suppliers, 33.3 % of the sample traders reported that their purchase price was set by demand and supply and about 8.3 % of traders set purchasing price themselves. About 58.3 % of sample traders set their selling price set by demand and supply and the rest (41.7 %) of them respond that selling price was set by them selves during 2015.

3.1.11. Performance of the market

Methods employed for the analysis of honey market performance were marketing margins by taking into account associated marketing costs for key marketing channels. Hence, on the consideration of 2015 production year, costs and purchase prices of the channel actors, margin at farmers,' retailers,' and honey collectors' level was conducted.

3.1.11.1. Cost and profitability analysis of honey production for farmers

This section of the study focused on activities related to producing honey at farm household. This shows an indication about the performance of honey market. Average costs and sales prices of the producers were used.

TABLE 10 COST AND PROFITABILITY ANALYSIS OF HONEY PRODUCTION FOR PRODUCERS

Costs	Cost/bee hive(birr)per year	%
Production cost=I	147.86	
Marketing cost	-	-
Labor cost	23.23	23.82
Transportation cost	15.21	15.6
Interest payment	36.62	37.56
Tax paid	22.44	23
Total marketing cost=II	97.5	-
Total cost=III	245.36	100
Average yield of honey(kg/hive)	14.12	
Average market price of honey at farm gate(*birr*/kg)	30.89	
Gross sales(*birr*/hive)=IV	436.17	
Marketing margin=IV-I	288.31	
Profit margin=IV-III	190.81	

Source: Own Survey data result of 2015.

As Table 10 indicates, cost and profitability analysis of honey production for 2015 production year in the study area was as much as possible not satisfaction concerning its profitability. This shows that a farmer with 14.12 average annual production of honey per beehives with average market price of honey 30.89 *birr* at farm gate were generated profit margin of 190.81 *birr* per beehives. With regarding to the cost items, interest payment shares the highest (37.56%) followed by labor cost (23.82%). This might be due to farmers receive credit to buy improved hives on credit basis.

3.1.11.2. Cost and profitability analysis of honey production for honey collectors

Cost and profitability analysis of honey collectors was summarized in Table 11. Average costs and sells prices of honey collectors were under taken in the analysis.

Table 11 Cost and profitability analysis of honey collectors

Cost of items	Cost per kg (*Birr*)	% from total cost
Honey collectors purchase price=I	34	
Marketing cost		
Labor cost	0.375	20.33
Transportation cost	0.1325	7.18
Tax paid	0.15	8.13
Honey container	0.875	47.42
Other costs	0.3125	16.93
Total marketing cost=II	1.845	
Total cost=III	35.845	
Gross sales=IV	37.75	
Market margin=IV-I	3.75	
Profit margin=IV-III	1.9	

Source: Own Survey data result of 2015.

The result of Table 11 shows that honey collectors of the study area during the survey period were obtained a profit of 1.9 *birr* per kg of honey. This indicates that the performance of marketing of honey collectors for the specified year 2015 was showing positive figure even though the amount of profit was small whe we compare with that of honey retailers. The table also shows that from marketing cost buying honey container of the honey collectors during the operation takes the largest proportion of overall costs (47.42%) followed by labor cost (20.33%).

3.1.11.3. Cost and profitability analysis of honey production for retailers

Cost and profitability analysis of honey retailers was summarized in Table 12. Average costs and sales prices of retailers were under taken in the operation.

Table 12 Cost and profitability analysis of honey retailers

Costs	Cost per kg (*Birr*)	% from total cost
Retailers purchase price=I	38.38	
Marketing cost		
Labor cost	0.2	18.26
Transportation cost	0.18	16.43
Tax paid	0.15	13.7
Rent of retail shop	0.38	34.7
Other cost	0.185	16.9
Total marketing cost=II	1.095	100
Total cost III	39.5	
Gross sales price birr/kg=IV	42.75	
Marketing margin=IV-I	4.37	
Profit margin=IV-III	3.25	

Source: Own Survey data result of 2015.

With regard to the cost and profitability analysis of the sample honey retailer's found in the sample markets, as the Table 12 clearly shows retailers were found to be profitable. This indicates that a retailer could obtain a profit of 3.25*birr* per kg at retail level which was higher by 1.345 than birr profit of honey collectors. Concerning cost of operation of retailers', rent for retail shop was the highest (34.7%) followed by labor cost (18.26%).

3.1.11.4. Marketing margins

Marketing margins were the difference between prices at two market levels. Therefore, for this section of the study by considering the average sales prices of different participants in the honey market channel (farmers, honey collectors and retailer).

TABLE 13 MARKETING *AND PROFIT MARGINS OF SAMPLE RESPONDENTS IN 2015.*

Items(*birr*/kg)	Producers	Honey collectors	Honey retailers	Sum of horizontal
Production cost	10.5	-	-	10.5
Purchasing cost	-	34	38.38	72.38
Marketing cost	6.90	1.845	1.095	9.84
Total cost	17.4	35.845	39.5	92.74
Gross sales price(*birr*/kg)	30.89	37.75	42.75	111.39
Market margin	20.39	3.75	4.37	28.51
%share of margin	71.53	13.15	15.32	100
Profit magin	13.5	1.9	3.23	18.63
%share of profit	72.46	10.2	17.33	100

Source: Own Survey data result of 2015.

TGMM (Complete distribution channel) 28.47%

GMM (honey collectors) = 13.15%

GMM (retailers) = 15.32%

GMMP (producers participation) 100% -28.47% =71.53%

Table 13 exposed that 28.47% of total gross marketing margin was added to honey price when it reaches the final consumer at the Fincha, Fincha Sugar factory, Shambu and Migiru marketing centers by honey collectors and retailers. Out of the total gross marketing margin 13.15% was gross margin of honey collectors, while 15.32% was that of retailers.

4. Conclusions and Recommendations

4.1. Conclusions

The study was bearing with the objective of sympathetic the market efficiency of honey in Abay Chomen district of Oromia region with exact focus on honey. Honey had identified in the district as a major cash income generating commodity next to cultivation of crops. Honey in the district was important market oriented commodity. There were about 10191 honey bees colonies in the district out of these about 98.5% of beehives were traditional hive. Pure and crude honey costs on average Birr 50 and 20 per kg respectively.

Majority (38.34%) of the respondents had about 9-15 years of beekeeping experience and the average years of experience acquired for the entire sample was about 14 years. The result also showed that total production of honey by respondents' during the survey period was 9,612 kg and out of this total production, 8,703 kg or about 90.5 % of the production were marketed through different marketing channels that were being identified during the survey period with an average price of Birr 30.89 per kg. The survey result indicated that total gross income generated by respondents from annual sale of honey was about 517,091 birr and the mean income of the sampled households was estimated at Birr 3,887.90 at the survey period.

The increased honey production during the harvest period was found to coincide with periods of low price. As a result 28 % of the sampled households indicated that there were no ready markets to attract their product. The other problem related to production and marketing problems of honey was the poor quality of the product due to improper handling which was recording about 65 % of honey traders.

Quantity of honey supplied to the market passed through different marketing agents from farmers to consumers. About 56.61% (4,927 kg), 28.27% (2,460 kg) and 15.12% (1,316 kg) of the total honey marketed were purchased by consumers directly from producers, retailers and honey collectors, respectively in 2015. The computed four-firm concentration ratio (CR4), which was the share of the largest four traders in the total yearly volume of honey purchased, was 48.32 % indicated a lose oligopolistic market structure. Starting from production up to marketing, every farmer produce and sold on individual basis. This affects their bargaining power during the sale of honey.

The results of the marketing costs, profits and margin analysis indicated that producers incurred the highest production cost followed by retailers. During production interest payment takes the largest proportion which was 37.56 % followed by labor cost which accounts about 23.82 % of the total production costs.

With regard to the marketing cost of honey retailers, without the purchase price of honey, rent for retail shop took the largest proportion. This was about 34.7 % of all marketing costs. Gross profit analysis for 2014/15 production year showed that average gross profit for farmers per box beehives was estimated at Birr 190.81 and honey collectors gross profit was Birr 1.9 per kg, while that of retailers was about Birr 3.25 per kg on the average. About 28.47%% of total gross marketing margin was added to honey price when it reaches to the final consumers at the market centers. Out of the total gross marketing margin about 13.15% was gross margin of honey collectors, while 15.32% was that of retailers. The study pointed out that all marketing participants of the commodity operated at profit. This indicated that all the marketing agents were advantageous through the channel.

4.2. Recommendations

Possible recommendations that could be given on the basis of the study so as to be considered in the future intervention strategies which were in the middle of the promotion of honey and market chain in the study area were as follows:

1. As it was indicated from the model analysis pointed out that honey marketed supply was positively and significantly influenced by access to market information. This result confirms that market information improves honey supplied to market interms of quality as well as quatity. Accordingly, the district Agricultural and rural development, other apiculture development partners and information providers should give weight practical supported accurate information regards to demand and price of product information which could decrease transportation cost as well as time consuming for beekeepers.

3. Beekeeping was culturally defined as a men's occupation. This was also indicated by the result of descriptive analysis therefore, women should be encouraged to participate and receive training and intuitional support in the form of credit in improved beekeeping methods. Major problems of beekeeping identified and prioritized in the study area were lack of beekeeping materials, marketing problems and lack adequate beekeeping management skill. Therefore, providing the necessary exposure and skills, and institutional support in the form of credit, training, experience in improved beekeeping methods and marketing linkages need to be addressed simultaneously. All the problems faced by beekeepers could not addressed by a single organization, various actors: including research, extension, decision makers, input suppliers and credit agencies need to be collaborated in search of appropriate solutions and implement them.

5. References

Abay Chomen Woreda Livestock Resource and healthy Office (2014)

Abay Chomen Woreda Agriculture and rural development Office (2014)

Acharya, S.S. and N.L. Agarwal, 1999.Agricultural Marketing in India. Oxford and Publishing Co. Pvt. Ltd., New Delhi. 370p

Asefa A 2009 market chain analysis of honey production in Atsbi Wemberta district, eastern zone of Tigray Ethiopia. A Thesis Submitted to College of Agriculture Department of Agricultural Economics, School of Graduate Studies Haramaya University.

FAO (Food and Agricultural Organization), 1999. Market Infrastructure Planning: A guideline for decision-makers, FAO, 141, Rome. 34p.

Hartmann, I. 2004. The management of resources and marginalization in beekeeping Societies of Southwest Ethiopia. Paper submitted to the conference: Bridge Scales and Epistemologies.

Jones, O.W. 1972. Marketing staple Foods in Tropical Africa. London, Cornell University Press.60p.Teff.

Kohls, RichaldL.and Joseph N. Uhl. 1985. Marketing of Agricultural Products. 6th edition.Macmillan Publishing Company, New York.

Mendoza G (1995).A primer on marketing channels and margins. P257-275.In G.J. Scott (ends). Prices, Products,and people; Analyzing Agricultural markets in Developing.

Mengistu, A. 2011. Pro-poor value chains to make market more inclusive for the rural poor: Lessons from the Ethiopian honey value chain. Danish Institute for International Studies, Copenhagen, Denmark. Pp. 35– 50.

MoARD, 2003. Honey and Beeswax marketing and development. IN DEVELOPMENT, M. O. A. A. R. (Ed.) Plan 2003. Addis Ababa, Ethiopia.

Mudiantono. 1990. The use of Structure, Conduct and Performance of the market to measure the marketing efficiency (A, theoretical framework). MEB 2(1):53-59.

Pomeroy, R.S. and A.C. Trinidad, 1995. Industrial Organization and market analysis: P217- 238. In: G.J. Scott (eds). Prices, products, and people: Analyzing Agricultural Markets in Developing Countries.LynnerReinner publishers, Boulder, London.

Rama kumar, R. (2001). Costs and margins in Coconut marketing: Some evidence from Kerala. Indian Journal of Agricultural Economics. Vol. 56. No. 4. pp. 668-682.

Scarborough, Vanessa and Kydd, 1992. Economic Analysis of Agricultural market: A Manual Marketing Series 5, Chatham. UK: Natural Resource Institute. 172p.

Smith, I.R. 1985.The economics of the milkfish fry and fingerling industry of the Philippines. ICLARM Technical Reports 1. International Center for Living Aquatic Resources Management, Manila and Aquaculture Development (ICLARM), Southeast Asian Fisheries Development Center, Iloilo, Philippines.

Tomek, WG, and K.L., Robinson, 1990. Agricultural product prices. Third Edition. Comel University Press. Ithaca and London. 240p.