Profitability of Honey Production and Honey Market Performance in Chena District of Kaffazone, SNNPR, Ethiopia

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ABSTRACT

This study was initiated to analyze profitability of honey production and the performance of honey markets in Chena district of Kaffa zone, Southern Ethiopia. Data from a total of 154 sample honey producers from three randomly selected honey producing kebeleswere collected and analyzed. Beekeepers obtained gross profits of 788.70 birr/hive from improved per year in the study area that is more than double of the gross profit from traditional beehive. Market performance analysis based on marketing margins shows that all the actors generated positive gross profit. The result reveals that the maximum producers' share from the total consumers' price is highest in when producers sell to consumers, retailers and cooperatives. Thus, the concerned bodies should focus on promoting improved beehives and encouraging the cooperative organizations that are involved marketing.

Keywords: *Honey, Profitability, Market performance, Margin, Chena district*

INTRODUCTION

Apiculture is a promising off-farm enterprise, which directly and indirectly contributes to smallholder's income in particular and it accounts 1.3% of agricultural GDP of Ethiopia [1]. Besides, it is also eco-friendly and agriculture together with beekeeping activities could be operated side by side which does not compete for scarce land resources, and provides off-farm employment and income generating opportunity [2]. To support rural economy agricultural production system should be supported by other income generating activities such as beekeeping [3]. It has been reported that annually an average of 420 million Ethiopian Birr is obtained from the sale of honey [4]. The subsector is also creating job opportunities in both rural and urban areas through organizing jobless urban and landless rural youth and women to involve in them in bee equipment production and beekeeping activities [5].

According to [6], about 10% of the honey produced 2011/12 in the country is consumed by beekeeping households. The remaining 90% is sold for income generation; of this amount it is estimated that about 70% is used for brewing *tej*

and the rest is consumed as table honey. Domestic honey consumption is increasing due to highly increasing demand for *tej*and *birzi* increased consumption of processed table honey in most urban areas and increased demand for honey in the local industries [7].

Despite the long tradition of beekeeping in Ethiopia, being the leading honey producer and the availability of huge potential, the production system of the sector is traditional [8]. According to [9], 96% of the hives are reported to be traditional and 91% of the total honey produced comes from traditional hives. This results in low productivity, which in turn result the low contribution of the sector to agricultural GDP of the country. Proper understanding of the performance of the market system apparently required for making market orientation of product [10].

Southwestern part of Ethiopia has diversified types of forest vegetation suitable for beekeeping, as a result large volume of honey was produced annually. Despite the high honey production in the study area, due to poor infrastructural facility, poor market information and long market chain there is no ready market

attracting beekeepers [11]. According to [12] knowledge on how marketing routes and systems could contribute to the household income and the implications of these for national and international trade in apiculture is the way to design any policy or institutional innovation to improve marketing for the benefit of the poor. Therefore, this study was conducted to analyze profitability of honey production and performance of honey markets in Chena woreda.

RESEARCH METHODOLOGY

Description of Study Area

The study was conducted at Southern Nations and Nationalities and Peoples Region of Ethiopia, Kaffazone, Chena district. The district

is found within the Southwestern plateau of Ethiopia which is 510km and 785km far from Addis Ababa and Hawassa, respectively. The area is located at 07º18'48''N Latitude and 036º16'25'' E Longitude and at altitude of 2020 m.a.s.l. the district is bordered on the south by the Bench Majji zone, on the west by Bita, on the north by Gewata, on the northeast by Gimbo, and on the east by Decha [13]. According to [14] , the district comprises of 42 of this 39 are rural kebles and with a total population of 158,449, of whom 78,150 are men and 80,299 women; 11,629 or 7.34% of its population are urban dwellers.
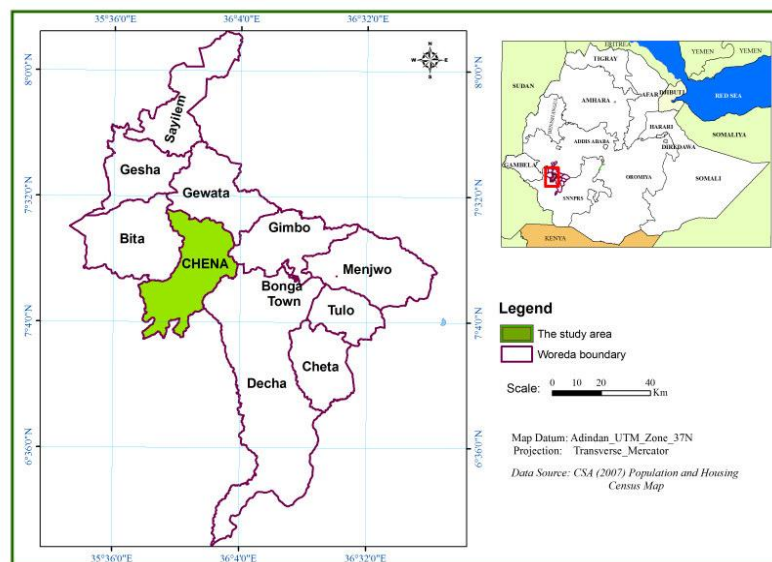

Figure1. *Map of the study Area*

Sampling Procedure

For producers sampling, a mult-stage sampling techniques were employed for this study. Chena district was selected purposively from Kaffa zone based on its high of honey production and transport accessibility. The district actually comprises of 42 kebeles with 39 rural kebeles. At the first stage the kebeles were stratified into honey producer (27) and non-producers (12); from these two groups honey producers kebles were selected. In the second stage, from the stratified honey producer kebeles, three kebeles were selected randomly. At the third stage, total households that produce honey during 2015/16 from three randomly selected kebles were identified and listed. Finally, based on the list of honey producers from the sampled kebeles, a total of 154 honey producing households were selected by employing Probability Proportional to Size (PPS). Further for traders sampling, the

list of honey traders was obtained from district office of trade and market development. On the basis of flow of honey, four markets (Wacha, Sheshonde, Woshi and Bonga) were selected purposively as, the main honey marketing sites in the study area. Here to make sample more representative sample, a purposive sampling method was used to select collectors, retailers, wholesaler and processers from specified markets. As a result, 30 honey traders were selected for the purpose of the study.

Methods of Data Analysis

Profitability Analysis

In order to perform profitability analysis, major production costs for both traditional and improved beehive type are considered. Based on the survey data, the costs of production and returns at the prevailing prices were used to estimate the benefits. This section aims at

identifying and quantifying the different costs, which are incurred by the beekeepers in production process. The purchase cost of bee colony was not considered because absence of practice of colony sale and purchase in the study area. The costs included were purchase cost of bee wax for foundation sheet preparation, labor cost during preparation of foundation sheet, harvesting and shed construction, bee keeping equipment (protective clothes, smoker, extractor and plastic container) cost, depreciation cost on beehives, feed cost and interest on input costs. Profitability analysis of each beehive type was determined using the following below formula. Simple descriptive statistics farm budget techniques and Gross Return analysis frequency, percentages and tables were utilized. The farm income model is as shown:

NI = GR – TC (1)

Where: NI = Net Income for honey production.

GR = Gross Returns to honey production (the income from honey sale)

TC = Total production cost (direct expenses and purchases for the beekeeping activities).

Market Performanceanalysis

Market performance can be evaluated by analysis of costs and margins of marketing agents in different channels. The methods employed for analysis of market performance were marketing costs for channel comparison and marketing margin.

Marketing Costs

The costs incurred by the honey producers and other honey marketing intermediaries have impact on prices as well as on the margins of the market intermediaries. By using marketing costs, 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 the final destination (consumer). Thus,marketing cost is the sum of transport cost, loading and unloading, storage cost, labour cost, market taxes and other costs associated with moving the commodity from the point of purchase to the customer or final consumer. The total marketing cost was determined by the following formula:

$$TC = Cp + \sum Mc_i \qquad (2)$$

Where, $i=1$; Tc = Total cost of marketing;

Cp = Producer cost of marketing;

Mc_i= Marketing cost by the ith trader.

Marketing Margin

Marketing margin is an important tool for analyzing marketing system performance. Costs and profit margins that make up marketing margins can be indicators of both efficiency and inefficiency in marketing systems [15]. The cost and price information obtained from the survey was used to evaluate the gross marketing margin.

According to [16], marketing margincan be analyzed using the price difference of the actors in the marketing channels. Total gross marketing margin (TGMM) is the final price paid by the end consumer, minus the producers' price, divided by the consumers' price and expressed as a percentage. TGMM is useful to calculate the producer's gross margin (GMMp) and it is given by the formula shown below:

$$TGMM = \frac{\text{End buyer price - first seller price}}{\text{End buyer price}} * 100$$

(3)

In order to gauge the level of equity in the distribution of benefits accrued along chain, producer's gross margin (GMMP) which is the portion of the price paid by the end buyer that goes to the producer is

$$GMMP = \frac{\text{End buyer price - marketing gross margin}}{\text{End buyer pricer}} * 100$$

(4)

RESULTS AND DISCUSSION

Profitability of Honey Production

The average prices of beehives obtained from survey data were 90 and 780 birr for traditional and improved beehives, respectively. The labor cost was estimated based on the price or wage of labour in the locality per man-day for combs preparation and harvesting. Family labour was evaluated at the prevailing wage rates of hired labour at the village level. Interest for input costs (beehive and bee equipment) was calculated by assuming 5% interest rate. In the study area, improved beehive is estimated to serve for 10 years, while traditional beehive is estimated to serve for 5 years. Thus, depreciation costs of beehives were calculated using the straight-line method by considering the salvage value of 10% of its original price at 5 and 10 year service life for traditional and improved beehives, respectively.

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Beekeepers obtained honey yield of 7 kg/hive/ year form traditional beehive and 23kg/hive /year form improved beehive on average. Average hive output was valued at farm gate price which was on average about birr 51 per kg. The total costs for both improved and traditional beehive types were estimated to be 384.30 birr/hive and 86.95 birr/hive per year, respectively. Accordingly, the gross profits were 788.70 birr/hive and 270.05 birr/hive for improved and traditional beehives per year, respectively. That is, the gross profit from improved beehive is more than double of the gross profit from traditional beehive. Similarly, [17] found that the gross profit of improved beehive was around two times higher than that of traditional beehive in Ahferomworeda of Tigray region, Ethiopia.

Table1. *Structure of honey production costs and profitability by type of beehives used*

Major items	Type of beehive	
	Traditional	Improved
Bee keeping equipment cost(Birr)	25	102
Bee wax(Birr)		43
Labour cost (Birr)	35	91
Feed cost (Birr)	5	34
Interest on input costs (Birr)	5.75	44.1
Deprecation cost on beehives (Birr)	16.2	70.2
Total cost of production per hive (Birr)	86.95	384.3
Average yield of honey per hive (Kg)	7	23
Production cost per Kg (Birr)	12.4	16.7
Total revenue from sale of honey per hive (Birr)	357	1173
Gross profit per hive (Birr)	270.05	788.7

Source: *Own computation (2016).*

Marketing Performance

According to [18]and [19]to measure efficiency of channel four parameters are required that is volume handled, producers share, marketing cost, total marketing margin, and market profit. Similarly, marketing costs, producers share, market profit and marketing margin were considered for analysis of honey market performance in the study area.

Marketing Costs

Marketing costs are estimated to compute the share of profit captured by key actors in the marketing chain.Table 2 reveals that the different types of costs incurred by different market actors in the transaction of honey. The highest cost was incurred by processors which is about 7.97 birr per kg of honey. This because of high storage and wastage cost due to processing of honey. The second highest cost is that of collectors and the relatively lowest marketing cost was incurred by wholesalers with 6.25 birr per kg of honey because of they buy honey form collectors thus in turn reduce transportation cost. Average marketing cost of producers was (6.5 birr/kg) when they sold honey to consumers and retailers. As the result of no transportation cost, average marketing cost is lower for producer which were 6.2 birr/kg and 6 birr/kg when they sold to cooperative and collectors, respectively as shown in the table 2 below.

Table2. *Honey average marketing costs for different marketing agents (Birr/Kg)*

Marketing Cost	Actors					
	Producer	Cooperative	Collector	Retailer	Wholesaler	Processer
Packing material	6	6	5.5	5.5	5.5	5.5
Load and unload	0.2	0.3	0.3	0.3	0.3	0.4
Transport	0.15	0.4	0.1	0.2	0.1	0.2
Storage cost	-	0.2	0.5	-	0.1	0.5
Wastage Loss	0.05	-	0.2	0.1	0.1	0.5
Telephone cost	-	-	0.1	0.2	0.1	0.2
Personal expense	0.1	-	0.2	0.5	0.05	0.2
Tax	-	-	0.5	0.5	0.1	0.4
Other cost	-	0.03	0.05	0.05	-	0.07
Total cost	6.5	6.93	7.45	7.35	6.25	7.97

Source: *Own computation (2016).*

Marketing Margin

Before calculating marketing margin the major flow directions of honey among different actors in the market chain was identified. From the total produced honey in 2015/16 by sampled households, 35513 kg of honey was suppliedto the honey markets. The main honey marketing channels identified from the point of production until the product reaches to the final consumer were:-

Channel I: Producers -- Consumers =

2835kg=7.98%

Channel II: Producers – Retailers- Consumers = 5984k.g = 16.85%

Channel III: Producers –Cooperatives – Consumers = 4125k.g = 11.6%

Channel IV: Producers -- Cooperative-Processors - Consumers = 4234k.g = 11.92%

Channel V: Producers – Collectors – Processors – Consumers = 4630k.g = 13.04%

Channel VI: Producers- -Collectors – Retailers - Consumers=3897k.g = 10.97%

Channel VII: Producers--Collectors – Wholesalers- Retailers- Consumers =9810k.g = 27.62%

Table3. *Honey market margin for different channels (Birr/kg)*

Actors		Honey marketing channels						
		I.	**II.**	**III.**	**IV.**	**V.**	**VI.**	**VII.**
Producers	Production cost	14.55	14.55	14.55	14.55	14.55	14.55	14.55
	Marketing cost	8.6	8.6	8.3	8.3	8.3	8.3	8.3
	Selling price	60	58	52	52	51	51	51
	Gross profit	36.85	34.85	29.15	29.15	28.15	28.15	28.15
	GMMpr (%)	100	77.33	76.47	62.65	61.45	63.75	63.75
Collectors	Purchase price					51	51	51
	Marketing cost					8.8	8.95	8.5
	Selling price					63	65	62
	Gross profit					3.2	5.05	2.5
	GMMcoll(%)					14.46	17.5	13.75
Retailers	Purchase price		58				65	72
	Marketing cost		8.9				8.5	6.15
	Selling price		75				80	80
	Gross profit		5.1				2.5	2.85
	GMMret (%)		22.67				18.75	13.21
Cooperative	Purchase price			52	52			
	Marketing cost			8.67	8.15			
	Selling price			68	65			
	Gross profit			5.33	4.85			
	GMMcoop (%)			23.53	15.66			
Processors	Purchase price					65	63	
	Marketing cost					9.5	9.75	
	Selling price					83	83	
	Gross profit					8.5	10.25	
	GMMprc (%)					21.68	24.09	
Wholesaler	Purchase price							62
	Marketing cost							8.5
	Selling price							72
	Gross profit							1.5
	GMMwh (%)							12.5
	TGMM (%)	0	22.67	23.53	37.35	38.55	36.25	36.25

Source: *Own computation (2016)*

The survey results in Table 3 depicted differences between the total income from honey trading and the costs incurred in the process of honey trading which gives the gross profit of each actor. To do this, average production cost of 14.55 birr/kg for producers was taken by merging the average production cost of 1kg honey for traditional and improved beehives (Table 1). Accordingly, the honey producers' gross profit was highest when they

directly sale consumers in channel I which is 36.85birr/kg while they take lowest gross profit when they sale to collectors which accounts 28.15 birr/kg. This implies producers are more profitable if they sold directly to retailers and consumers. Processors from traders shared the highest profit 10.25 birr/kg when they made purchase from collectors in channel V and they sold directly to consumers. Cooperatives gained the second highest profit 5.33 birr/kg on channel III when they directly bought from producers and they sold to consumers. Honey collectors made a profit of 5.05 birr/kg in channel VI. While retailers and wholesalers get 2.5 birr/kg profit in channel VI and 1.5 birr/kg in channel VII. This implies that processors and cooperatives received the highest profit from honey marketed in the study area while retailers and wholesalers capture the smallest profits shares from traders in honey market chain.

As indicated in Table 3, total gross marketing margin (TGMM) is highest in channel V which was 38.55% and lowest in channel II which was 22.67%. While without considering channel I where producer directly sold honey to consumers, the maximum producer's share (GMMp) is highest in channel II which was 77.33% from the total consumers' price and lowest in channel V which was 61.45%. This difference might support the theory that as the number of marketing agents increases the producers share decreases. The reason being, the more the number of middlemen in honey market, the more profit they retain for their services whether they add value to the item or not.

The survey result also shows that the lowest gross marketing margin was taken by wholesaler in channel VII which was 12.5%. While the highest gross marketing margin from traders was taken by processors which accounts 24.24% of the consumers' price in channel V and followed by cooperatives which accounts 23.53% in channel III (Table 3). This implies share of market intermediaries in the consumer's price was substantial and there was a need to reduce market intermediaries to minimize the marketing margins and thereby enhance the producers' income.

CONCLUSION AND SUGGESTIONS

Measuring effectiveness of the existing marketing channels by analyzing marketing costs, marketing margins and profitability among the different marketing channels is better to understood market performance. From the result, beekeepers obtained gross profits of 788.70 birr/hive and 270.05 birr/hive from improved and traditional beehives per year, respectively in the study area. That is, the gross profit from improved beehive is more than double of the gross profit from traditional beehive. Thus, the concerned bodies should focus on increasing the profit of honey production per hive through promoting improved beehives. The marketing margin analysis indicated that the maximum producer's share was highest when they sold their produce directly toconsumer and retailers from the total consumers' price and lowest when there was more number of intermediaries in the chain and also longer channels resulted to high product costs to the final consumers. This implies that the share of market intermediaries in the consumer's price was substantial and there was a need to reduce market intermediaries to minimize the marketing margins and thereby enhance the producers' income. Thus Supporting and encouraging the associations and cooperative organizations that are involved and interested in honey producing and marketing.

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