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RESEARCH ARTICLE

MARKET PERFORMANCE OF ENSET PRODUCTS – KOCHA AND BULLA: THE CASE OF DIRE ENCHINI WOREDA, OROMIA REGIONAL STATE, ETHIOPIA

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NMM- Net Marketing Margin,
TGMM-Total Gross Marketing Margin,
TGPM -Total Gross Profit Margin,
TOE- Total Operating Expense.

ABSTRACT

Enset is a traditional staple food crop in many parts of the densely populated south and south-western highlands of Ethiopia. Enset has multipurpose uses and nothing will be left from the plant and can be dependable source of income. Market performance can be evaluated by analysing costs and margins of marketing agents in different channels. Therefore, an attempt was made to study the marketing cost and market margin of enset in the selected study area, Dire Enchini District, West Shoa Zone, Oromia Regional State, Ethiopia which was selected purposively because of the potential for enset production. In the second stage, out of 18 kebeles and 1town kebele in the district, two of them namely HomiHane and Waldo Hine were purposively selected based on the area under enset cultivation. Then the sample respondents were stratified into male and female headed households. A total of 144 respondents were selected randomly using simple random sampling technique in which Proportional Population Sampling system was employed. For the purpose of this study, key informants such as 6 input suppliers, 6 collectors, 6 wholesalers, 12 retailers, 30 consumers and 14 persons from support services like; cooperatives and extension were randomly selected at various levels using simple random sampling from selected kebeles. The data required for the study were collected from both primary and secondary data sources. For primary data collection, semi-structured interview schedule was used after pretesting. Marketing margin was calculated by taking the difference between producers and retail prices. Traders (collectors, wholesalers, and retailers) operating expense was small in amount but the profit margin they got was more than the producer farmers. The traders simply bought from the farmer and sold to consumers. But they took high amount of share profit than the farmers who did all the works from producing enset to processing of enset. This implied that unequal share of benefit was the reflection of power relationship between actors. Based on findings of the study, the following recommendation was made to improve enset value chain in the study area. Encouraging cooperative organizations to collect the enset products from the producers since cooperatives are not involved at present. This will help the farmers to get better price for their products.

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INTRODUCTION

Ethiopia mainly depends on agriculture. Over 85 per cent of its population lives in the rural area where crop production and animal husbandry is their main stay. Enset based farming systems play an important role in food security in Ethiopia (Spring *et al*., 1996). Enset (Enset ventricosum) is one of the indigenous root crops widelycultivated in the south and south-western parts of Ethiopia, but recurrent droughts have led to the expansion of enset cultivation to other parts of the country (Brandt *et al*., 1997; Taye, 1996).

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Enset is a traditional staple food crop in many parts of the densely populated south and south-western highlands of Ethiopia. Although the exact age of enset domestication is not yet established, it was practiced in Ethiopian highlands between 5,000 and 10,000 years ago (Brandt *et al*., 1997). It is one of the most drought tolerant crops sustaining the lives of many Ethiopians during drought periods (Bayush, 1991; Shigeta, 1990). Enset has multipurpose uses and nothing will be left from the plant and can be dependable source of income. Thus, farmers in enset growing areas describe the importance of enset by saying that it is everything for us our food, cloths, houses; cattle feed and plates (Birmeta *et al*., 2004). The major foods obtained from enset are kocho, bulla and amicho. Kocho is the bulk of the fermented starch obtained from the mixture of

decorticated (scraped) leaf sheaths and grated corm (underground stem base). Bulla is the small water-soluble starchy product that may be separated from kocho during processing by squeezing and decanting the liquid. Amicho is the fleshly inner portion of the enset corm, which may be cooked and eaten separately, tasting similar to potato (Ayalew, 2006). The average yield of refined enset product kocho ranged from 7 to 12 tons /ha /year. The amount of food attainable from 50 -60 enset plants per year could provide enough food for an average family of 5-6 persons (Brandt *et al*., 1997). Enset products are available throughout the year and can be stored in pits for long periods of time without spoiling so that it can be used at any time of the year. Enset is the main crop of a sustainable indigenous African system that ensures food security in a country that is food deficient (Brandt *et al*., 1997).

Enset represents about 65 percent of the total crop production in the southern region of Ethiopia. Productivity is very high compared to other crops but varies depending on ecology factors, altitude, cultural practices and varietal differences (Birmeta *et al*., 2004).

It is estimated that a quarter or more than 20 million of Ethiopia's population depends on enset as staple and co-staple food source, for fiber, animal forage, construction materials and medicines (Brandt *et al*., 1997). Even though there is huge demand and potential of agro-ecology for enset production in the study area, the farmers are still facing different problems like, input supply, modern enset farming system, and market information for selling enset, and accesses to market.

Efficiency in marketing is the most used measure of market performance. Improved marketing efficiency is a common goal of farmers, marketing organizations, consumers and society. It is a common place notation that higher efficiency means better performance whereas declining efficiency denotes poor performance. Most of the changes proposed in marketing are justified on the grounds of improved efficiency (Kohls and Uhl, 1985). Market performance can be evaluated by analyzing costs and margins of marketing agents in different channels. A commonly used measure of system performance is the marketing margin or price spread. Margin or spread can be useful descriptive statistics if it is used to show how the consumer's price is divided among participants at different levels of marketing system (Mendoza, 1995). Marketing costs are the embodiment of barriers to access to market participation by resource poor smallholders. It refers to those costs, which are incurred to perform various marketing activities in the transportation of goods from producer to consumers. Marketing costs includes handling cost (labour, loading and unloading, costs of damage, transportation and etc.) to reach an agreement, transferring the product, monitoring the agreement to see that its conditions are fulfilled, and enforcing the exchange agreement (Holloway and Ehui, 2002).

Marketing Margin is a commonly used measure of the performance of a marketing system (Abbot and Makeham, 1981). It is defined as the difference between the price the consumer pays and the price that is obtained by producers, or as the price of a collection of marketing services, which is the outcome of the demand for and supply of such services (Cramers and Jensen, 1982). The size of market margins is largely dependent upon a combination of the quality and quantity of marketing services provided the cost of providing such services, and the efficiency with which they are undertaken and priced. For instance, a big margin may result in little or no profit or even a loss for the seller involved depending upon the marketing costs as well as on the selling and buying prices (Mendoza, 1995). The efforts of increasing agricultural production and productivity have to be accompanied by a well-performing marketing system which satisfies consumer demands with the minimum margin between producers and consumer prices. Higher prices for producer can encourage farmers to adopt new technologies, increase production (Wolday, 1994).Therefore, analysing market margins is an important means of assessing the efficiency of price formation in and transmission through the system through computations of share of the consumer's price obtained by producers and traders at each stage of the marketing chain. Marketing margin can be used to calculate the share of the final selling price that is captured by particular actor in the value chain. The relative size of various market participants' gross margins can show where in the marketing chain value was added or profits are made. Therefore, an attempt was made to study the marketing cost and market margin of enset in the selected study area, Dire Enchini District, West Shoa Zone, Oromia Regional State, Ethiopia.

RESEARCH METHODOLOGY

The study was conducted in Dire Enchini District, West Shoa Zone, Oromia Regional State, Ethiopia. Enchini town is the capital city of Dire Enchini District and it is located 40 km south west of Ambo town. The district is located between 8^o 1'N to 8^o 46 'N latitude and 37^o 35' E to 37^o 38'E longitude. The study area, Dire Enchini District, was selected purposively because of the potential for enset production and there was no research conducted before on the related issues. The area under enset cultivation was 3,610 hectare (District Agricultural office Report, 2014). In the second stage, out of 18 kebeles and 1town kebele in the district, two of them namely Homi Hane and Waldo Hine are purposively selected based on the area under enset cultivation. Enset was cultivated in 210 hectares in Homi Hane and 190 hectares are covered by enset in Waldo Hine (WOARD, 2014). Then the sample respondents were stratified into male and female headed households. A total of 144 respondents were selected randomly using simple random sampling technique in which Proportional Population Sampling system was employed. For the purpose of this study,key informants such as 6 input suppliers, 6 collectors, 6 wholesalers, 12 retailers, 30 consumers and 14 persons from support services like; cooperatives and extension were randomly selected at various levels using simple random sampling from selected kebeles. The data required for the study were collected from both primary and secondary data sources. For primary data collection, semi-structured interview schedule was used after pretesting. Pretesting was done to identify and avoid vague and sensitive questions. Attempt was made to train enumerators practically about how to approach respondents and collect the needed data. The primary data was collected using four development agents (enumerators) working

in the district. They are hired and trained on how to conduct and approach the sample members. The researcher preferred development agents because they have intimate relationship with enset growing farmers.

Estimates of the marketing margins are the best tools to analyse the performance of market. Marketing margin was calculated by taking the difference between producers and retail prices. The producers' share is the commonly employed ratio calculated mathematically as the ratio of producers' price to consumers' price. Mathematically, producers' share can be expressed as:

$$Ps = \frac{Pp}{Cp} = 1 - \frac{MM}{Cp} \quad \text{.. (1)}$$

Where: PS= Producer's share
Pp= Producer's price
Cp = Consumer price
MM = Marketing margin

The above equation tells us that a higher marketing margin, diminishes producers share and vice versa. It also provides an indication of welfare distribution among production and marketing agents. Calculating the total marketing margin was done by using the following formula. Computing the Total Gross Marketing Margin (TGMM) is always related to the final price paid by the end buyer and is expressed as a percentage (Mendoza, 1995).

$$TGMM = \left[\frac{\text{Consumer's price} - \text{farmer's price}}{\text{Consumer's price}}\right] \times 100 \quad \text{................................. (2)}$$

Where,

TGMM=Total gross marketing margin

Net Marketing Margin (NMM) is the percentage over the final price earned by the intermediary as his net income once his marketing costs are deducted. The equation tells us that a higher marketing margin diminishes the producer's share and vice-versa. It also provides an indication of welfare distribution among production and marketing agents.

$$NMM = \left[\frac{\text{Gross margin} - \text{Marketing costs}}{\text{Consumer price}}\right] \times 100 - \text{----------------------------------- (3)}$$

From this measure, it is possible to see the locative efficiency of markets. Higher NMM or profit of the marketing intermediaries reflects reduced downward and unfair income distribution, which depresses market participation of smallholders. An efficient marketing system is where the net margin is near to reasonable profit. To find the benefit share of each actor the same concept was applied with some adjustments. In analyzing margins, first the Total Gross Marketing Margin (TGMM) was calculated. This is the difference between producer's (farmer's) price and consumer's price (price paid by final consumer) i.e.

$$TGMM = \text{Consumer's price} - \text{Farmer's price} \quad \text{--------- (4)}$$

Then, marketing margin at a given stage 'i' (GMMi) was computed as:

$$GMMi = \left[\text{Spi - PPi}\right] \times 100 \quad \text{-------------------------- (5)}$$

Where, SPi is selling price at ith link and PPi is purchase price at ith link.

Total gross profit margin also computed as:

$$TGPM = TGMM - TOE \quad \text{---------------- (6)}$$

Where, TGPM is total gross profit margin, TGMM is total gross marketing margin and TOE is total operating expense.

Similar concept of profit margin that deducts operating expense from marketing margin was done by Dawit (2010).

Then profit margin at stage "i" is given as:

$$GPMi = \left[\frac{GPMi - OEi}{TGPM}\right] \times 100 \quad \text{--------------------------- (7)}$$

Where,

GPMi =Gross profit margin at ith link
GMMi =Gross marketing margin at ith link
OEi =Operating expense at ith link
TGPM=Total gross profit margin

RESULTS AND DISCUSSION

Processing is the act of converting enset into enset products such as Kocho, Bulla and Amicho.According to the respondents and key informant interview, enset processing was labour intensive, and was usually done by women using traditional tools, although men help with cutting and harvesting the mature plant.

Figure 1. Enset at production stage

Figure 2. Cutting and Harvesting of mature Enset plant

Processing involves: Cutting and harvesting the mature plant, digging and lining a pit for fermenting the pulverized corm or root, scrapping (decorticating) the outer sheaths of the stem to remove edible parts. The leaf sheath was decorticated using a locally made bamboo scraper while the leaf sheath was held on an incline (at 45 to 80 degrees from the ground) against a wooden plank. In some groups, women may sit on the ground (often on enset leaves) and use one leg to hold the leaf sheaths in place.

The working area used for decortications were covered with fresh enset leaves. After the completion of decorticating, the leaf sheath pulp was spread on fresh enset leaves. During processing the following activities like turning, mixing, rinsing, and chopping were done over a period of time until the mixture partially ferments. The resultant product was called as Kocho. The kocho can also be stored for many months and even for several years.

Figure 3. Kocho in retail market

Figure 4. Bulla in retail market

Bulla was processed by scraping the leaf sheath, peduncle, and grated corm into a pulp, squeezing liquid containing a starch from the pulp allowing the resultant starch to concentrate into a white powder and rehydrating with water. It was considered as the best quality enset food and was obtained mainly from fully matured enset plants. Bulla can be prepared as a pancake, porridge, or dumpling.

Amicho was processed usually from younger plant. The corm was boiled and consumed in a manner similar to other root and tuber crops. Enset plants may be uprooted for preparing meals quickly if the amount of enset harvested was insufficient, or for special occasions. The producers did not sell amicho in the market. They used amicho for their own consumption.

Average Amount of Enset Product Produced, Consumed and Sold At Household Level

Enset products kocho and bula are traded within and outside the district also. These products are traded mainly in Guder town, Ambo town, and Addis Ababa city. The result of the household survey shows that the average quantity of kocho produced per household during 2014/2015 production season was 11.88 Qt (as depicted in Table 1).

Table 1. Average amount of kocho produced, consumed and sold at a household level

Descriptive stat.	Total amount of kocho produced (Qt)	Total amount of kocho consumed (Qt)	Total amount of kocho sold (Qt)
Mean	11.88	5.38	6.21
Standard Deviation	4.37	2.61	3.93

Source: Computed from Field Survey (2015)

Table 2. Average amount of Bulla produced, consumed and sold at a household level

Descriptive measures	Total amount of Bulla produced (Qt)	Total amount of Bulla consumed (Qt)	Total amount of Bulla sold (Qt)
Mean	9.78	1.62	5.6
Standard Deviation	3.26	0.93	2.64

Source: Computed from Field Survey (2015)

The average quantity of kocho consumed and sold was 5.38 and 6.21 Qt per house hold respectively in the study area. This implied that the largest proportion of kocho was sold to the market.

The results of the household survey shows that the average quantity of bulla produced per household during 2014/2015 production season in the study area was 9.78 Qt as depicted in Table 2. The average quantity of bulla consumed and sold was 1.62 and 5.6 Qt per house hold respectively in the study area. This implied that the largest proportion of bulla was sold to the market.

Performance of Enset product Market

The performance of enset product market was evaluated by considering associated costs, returns and marketing margins. The methods employed for analysis of performance were channel comparison and marketing margin. The analysis of marketing channel was intended to know the alternative routes the product flow from the origin of production to end user. The marketing cost of enset product mainly involves the cost of post-harvest activities incurred before reaching the consumers. This includes cost of packaging material, labour costs, storing, cleaning, loading, and unloading, transportation and tax costs. Generally, these components constitute a large share in the total margin between the final retailer price and the cost of production. The margin calculation is done to show the distribution throughout the various actors as enset products move from producer to collectors, wholesalers, retailers, and finally to consumers.

Marketing margin can be used to calculate the share of the final selling price that is captured by particular actor in the value chain. The relative size of various market participants' gross margins can show where in the marketing chain value was added or profits are made. For calculating the marketing margin of a particular actor, the average price of product for that particular actor was taken. Marketing margins, related costs and benefit share of value chain actors and marketing margins throughout different main channels are presented below.

Kocho Market Performance

The different types of marketing costs related to the transaction of kocho by collectors, wholesalers, and retailers, and the benefit share of each marketing actors are presented in table 3.
Each of the kocho value chain actor's added value to the product as the product transfer from one actor to another are shown in Table 3. The traders (collectors, wholesalers, and retailers) operating expense was small in amount but the share of profit they got was more than the producer farmers. The trader's simply bought from the farmer and sold to the consumers. But they took high amount of profit share than the farmers who did all the works from producing enset to processing kocho. Farmers obtained only 24.04 per cent of profit margin. This implied that unequal share of benefit was the reflection of power relationship between actors. Traders (Collectors, wholesalers, and retailers) profit margin was 12.84 per cent, 41.27 per cent and 21.85 per cent, respectively. This means trader took 75.96 per cent of the total profit share of the kocho value chain analysis in the study area.

Table 3. Kocho Marketing Costs and Benefit Share of Actors Average Price

Items/Birr/Qt	Producers	Collectors	Wholesalers	Retailers	Horizontal sum
Purchase price		500	533	1042	2075
Production cost	117				117
Marketing cost					
Labour cost	6	9	13	30	58
Transport		18	34	34	86
Packing material	10	10	10	10	40
Storage cost		4	5	4	13
Tax	8	8	8	9	33
Total marketing cost	24	49	70	87	230
Total cost	141	549	603	1129	2422
Sales price	448	713	1130	1408	3699
Marketing margin	331	213	597	366	1507
%Share of margin	21.96	14.13	39.62	24.29	100
Profit margin	307	164	527	279	1277
%Share of profit	24.04	12.84	41.27	21.85	100

Source: Computed from Field Survey (2015)

Bulla Market Performance

Each of the enset value chain actors added value to the product (Bulla) as the product passes from one actor to another. From Table 4 it was inferred that the marketing cost of the product was more for retailers (81 Birr/Qt) whereas it was 31 birr /Qt for producers. The % share of profit was high for wholesalers (36.10%) and it was low for collectors (14.94%). The producers got a profit share of 25.45 per cent. Even though the producers do all the work for producing bulla and has all the risks, they got less profit share than the wholesalers.

Table 4. Bulla Marketing Costs and Benefit Share of Actors Average Price

Items/Birr/Qt	Producers	Collectors	Wholesalers	Retailers	Horizontal sum
Purchase price		700	933	1300	3208
Production cost	147				147
Marketing cost					
Labour cost	10	10	14	15	49
Transport cost	5	25	35	35	100
Packing material cost	10	10	10	10	40
Storage cost		6	2	13	21
Tax	6	6	6	8	26
Total marketing cost	31	57	67	81	236
Total cost	178	757	1000	1381	3316
Sales price	677	1050	1708	1842	5277
Marketing margin	530	350	775	542	2197
%Share of margin	24.12	15.93	35.28	24.67	100.00
Profit margin	499	293	708	461	1961
%Share of profit	25.45	14.94	36.10	23.51	100

Source: Computed from Field Survey (2015)

Marketing margin

Marketing margin is the difference between the price received by producers and paid by consumers. However, it may also describe price differences between other points in the marketing chain, for example, between producer, collectors,

wholesalers and retailers. Therefore, for this study the average sales price of different participants in the kocho market channel (producer, collectors, wholesalers, and retailer) was considered. The details are presented in Table 5.

Table 5. Kocho Marketing Margin

Marketing channel participants	Purchase price (birr/quintal)	Sales price (birr/quintal)	Operation cost/ quintal	Growth profit(birr/ quintal)	GMM (%)
Producers		448	141	307	31.82
Collectors	500	713	446	267	18.82
Wholesalers	533	1130	603	527	29.62
Retailers	1042	1408	1129	279	19.74

Source: Computed from Field Survey (2015)
TGMM (Complete distribution channel): 68.18%
GMM for Collectors: 18.82%
GMM for Wholesalers: 29.62%
GMM for Retailers: 19.74%
GMMP (producers participation):100% - 68.18% = 31.82%

It is evident form Table 5 revealed that 68.18 per cent of total gross marketing margin was added to kocho price when it reaches the final consumer. Out of the total gross marketing margin 18.82 per cent was gross margin of kocho collectors, 29.62 per cent was gross margin of wholesalers and19.74 per cent was that of retailers.

It is evident form Table 6 revealed that 63.24 per cent of total gross marketing margin was added to bulla price when it reaches the final consumer. Out of the total gross marketing margin 20.25 per cent was gross margin of bulla collectors, 35.29 per cent was gross margin of wholesalers and 7.70 per cent was that of retailers.

Table 6. Bulla Marketing Margin

Marketing channel participants	Purchase price (birr/quintal)	Sales price (birr/quintal)	Operation cost/quintal	Growth profit (birr/quintal)	GMM (%)
Producers	-	677	178	499	36.76
Collectors	700	1050	757	293	20.25
Wholesalers	933	1700	1000	700	35.29
Retailers	1300	1842	1381	461	7.70

Source: Computed from Field Survey (2015)
TGMM (Complete distribution channel): 63.24%
GMM for Collectors: 20.25%
GMM for Wholesalers: 35.29%
GMM for Retailers: 7.70%
GMMP (producers participation) 100% - 63.24% =36.76%

Conclusion

The performance of enset product market was evaluated by considering associated costs, returns and marketing margins. Each of the kocho and bulla value chain actors added value to the product as the product transferred from one actor to another. Traders (collectors, wholesalers, and retailers) operating expense was small in amount but the profit margin they got was more than the producer farmers. The traders simply bought from the farmer and sold to consumers. But they took high amount of share profit than the farmers did all the works from producing enset to processing of enset. Farmers obtained only 24.04 per cent of profit margin. This implied that unequal share of benefit was the reflection of power relationship between actors. Traders (Collectors, wholesalers, and retailers) profit margin was 12.84 per cent, 41.27per cent and 21.85 per cent, respectively. This means trader took 75.96 per cent of the total profit share of the kocho value chain analysis in the study area. It was inferred that the marketing cost of Bulla was more for retailers (81 Birr/Qt) whereas it was 31 birr/Qt for producers. The % share of profit was high for wholesalers (36.10%) and it was low for collectors (14.94%). The producers got a profit share of 25.45 per cent. Even though the producers do all the work for producing bulla and has all the risks, they got less profit share than the wholesalers. Based on findings of the study, the following recommendation was made to improve enset value chain in the study area. Encouraging cooperative organizations to collect the enset products from the producers since cooperatives are not involved at present. This will help the farmers to get better price for their products.

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