



Socio-Economic constraints affecting the performance of banana value chain system in Pakistan

Ahmad Bilal^{1*}

¹Institute of Business Management sciences, University of Agriculture, Faisalabad, Pakistan.

*Corresponding author email: bilalvirk173@gmail.com

Abstract

A wide variety of fruits are produced in our country Pakistan, where banana is one of the major fruit crops in Pakistan. It contributes to socio economic development of the country, especially in the rural areas of Sindh being the largest banana producing province and there is a lack of livelihood generating activities in local societies of this province. Area under banana cultivation is about 27.8 thousand hectares while the production of banana is 118 thousand tons in Pakistan. Sindh contributes 87 percent of the total production with a production of 101 thousand tons. The objectives of research were to explore value chain system besides estimate marketing margins involved in the value chain of banana by analyzing and identifying central problems and suggestions. For this study a sample of 150 respondents was selected conveniently sampling from Sindh province for production and pre harvest purpose and Punjab province for marketing on selected bases. The distribution of sample participants is 30 farmers/growers/producers, 20 pre-harvest contractors, 20 wholesalers/ commission agents, 5 exporters, 25 retailers and 50 consumers. Questionnaire was developed for data collection containing close ended and open-ended questions to collect data. This analysis shows 101500 RS/acre was net margin and 37.15 percent was market margin of grower, 78.47 RS/40 kg. was the net marketing margin of pre harvest contractor, 123.6 RS/40 Kg was net marketing margin of wholesaler/commission agent and 364.4 RS/40 Kg. was the net marketing margin of retailer and 328.18 RS/40 Kg. was the net marketing margin of the exporter. At last the all actors were performing their work in a chain & new technologies and exports faces, main issues were to providing low quality fruits in off season but pay more prices for exporting in banana value chain need more attention towards its improvement and increasing production.

Key words: Socio-economic, banana value chain system

INTRODUCTION

Agriculture sector plays a key role in Pakistan economy system. Producers in the crop production particularly in Punjab depends on climatically conditions and land. They produce main cereal crops as well as minor crops of fruits and vegetables (Government of Pakistan, 2016).

Agriculture commodities value chain and agriculture marketing are very important because these are responsible for the movement of products from growers to consumers. Due to perishability and seasonality agricultural products, agriculture marketing and value chain system are more complicated. Value chain comprises set of activities which are necessary to bring a product into final product by adding value at every stage of the chain (Sabbe *et al.* 2008). Value chain included producers, Wholesaler, Traders, Transporters, Processors, wholesaler, retailer and consumers (Kaplinsky and Morris, 2000).

Horticulture zone is one of the vital zones in the agricultural economy of Pakistan and fruits comprise an important position as subsector of horticulture. (PHDEC, 2016). Fruits share in GDP of Pakistan is increasing day by day as well as

its share in exports. Fruits exports in the year 2016 raised up at 39.3 million dollars compared with the export of 22.01 million dollars in 2015 (PBS, 2016).

The major areas of banana production consist the northern and central Sindh districts (responsible for 87 percent of national banana production), total 43.5 % of labor involved in agriculture directly or indirectly (Ghani, 2012) e.g. Whole seller, retailer, consumer, commission agent, broker end to the final consumer. There are over 200,000 small-scale farmers that derive their livelihood from banana production (Sennhenn *et al.* 2010).

Banana (*Musa paradidica L.*) fruit is variable in color, size and firmness, then is usually stretched and curved, by soft skin rich now starch protected with a coat which could be green, red, purple, yellow, or brown after ripe. The fruits grown in bunches hanging from the upper of the plants. (Badar *et al.* 2016).

Bananas are an outstanding source of vitamins like B6, solvable fiber, and contains moderate quantities of vitamin C, potassium and manganese (Yakovleva, 2007). In view of limited attentiveness and technical assist know how about banana sectors, our basic aim of this study is to provide practical assistance to growers, post-harvest exporters and managers in order to stunned pre- post-harvest problems then enhance production and quality of banana for foreign and local markets while ensuring increased cost-effectiveness for banana growers (Wognum *et al.* 2011).

In Sindh province of Pakistan, marketable cultivation of banana ranges over the districts of Nawabshah, Hyderabad and Tattha, Khair pur about 89% of banana land of Pakistan in Sindh and the total share of Sindh province averaged to 81.05% of the total bananas production of Pakistan throughout 2012-13. Establish effective linkages between the key players in value chain of banana and its management including post-harvest management, production and promote marketing of banana (SEDF, 2014). Production of banana for foreign as well as local markets while safeguarding improved profitability for banana producers and also to start actual linkages among the key actors in banana value chain executive including production, post-harvest executive and marketing of banana (Amin *et al.* 2008, Best and Mamic, 2008).

The mainstream of banana produced in the country are at small-scale farmers who growing either for his home consumption or homegrown markets. (Spilsbury and Jagwe, 2002). The role of producers/farmers is mainly limited to production. After harvesting, bananas are sold indirectly or directly to rural retailers or transported to the urban centers over public transports like loader trucks. (Best and Mamic, 2008). When unripe banana reach wholesalers it is kept for limited days in cool stores to be ripened then before marketing to urban. Retailers, commission agents and hotels or restaurants (Craenen *et al.* 2000). Marketing system of agricultural commodities is of two types, direct and indirect (Obeth & Dunne, 2007) The value chain may be defined as a set of activity which is performed by the firms and their employees to bring a product to acceptable form. It covers all the business activities from production point to end consumers (Rikes *et al.* 2000). Value of banana per unit is 438\$ in our country with respect to world total value which is 91% (Zahoor and Marcos 2014).

Objectives

The present study specifically seeks the following objectives:

1. To map the existing banana value chain system in Pakistan.
2. To examine the distribution of economic benefits among value chain actors from farm to market.
3. To identify major constraints affecting the performance of banana value chain system in Pakistan and needed improvement measures.

METHODOLOGY

A research design is a complete framework through which a research is conducted and it consists on selection of study area, sample selection, data collection, appropriate statistical techniques for results and discussion. The collected data may be in form of quantitative or qualitative and then applying an appropriate model results drawn. At the last results data analysis and results presentation leads towards the successful completion of study (Creswell 2009). It is vibrant that SPSS expertise has made problematic analytical targets at ease by improvements in usability and to data admittance and also assisting the researchers to advantage from the usage of quantitative practices in making assessments (Wellman, 1998).

3.1 Selection of Sample

The major objective of this research was to study the role of major actors involved in the dynamic of banana value chain system, existing banana value chain system problems and their possible solutions. So, high Banana producing and value chain actors working in province of Sindh districts and central Punjab for marketing were selected for selection of respondents.

1. Sindh province for production purposes
2. Punjab province districts for marketing

Sample is the representative part of the whole population and it is not possible to study the whole population because resources are limited like time and money of the researcher. The sample size of my study is 150 stake holders involved in the banana value chain system. Collect more information about at production level and marketing level in which major role plays between the actors of the value chain. A value chain is completely describing the role of every actor involved in chain from grower to consumer and it consist exporters for internationally consuming of banana.

For interview a well questionnaire were designed which were containing all characteristics desired for collection of data to evaluate the final results in the research. Questionnaires were in English language and these were able to understand to the respondents due to its easy composition. All questions were asked carefully for accurate and effective collection of data.

While data collection I faced many problems in which people not provide proper information about the requirement need but I hope fully satisfied firstly then start to gathering information according to my research. Pre-testing was done by different respondents to check the effectiveness of questionnaires. After pre-testing the questionnaires were reshaped, reconstruct and modified for collection of standard data set to collect accurate data according to my study objectives.

3.2 Data Collection

Data were collected from different respondents through well-developed questionnaire from growers, pre-harvest contractors, wholesalers/commission agents, exporters, consumers and retailers. Information about the all stakeholders about their services and cost and exporters were collected effectively by the researcher himself.

After the completion of data collection, all collected information was reviewed for confirmation of collected data and it was sure that all data was in true form. All questionnaires stood numbered in a serialized. Data were transferred from feedback form to the computer for analysis. Statistical practices were applied to get results of the research.

Descriptive statistics

Descriptive statistics used in frequency distribution and average form and for exploration of socio-economic individualities and market limitations of every actors in value chain in term of services provided. This formula was used for understanding.

$$F = X / N * 100$$

Where

F= Frequency distribution

X= Observed Values

For Average Calculation this Formula was used

$$AM = \text{Submission } X / N$$

Where

A M = Arithmetic mean

X = Values of observations

N= Total numbers of Observations

3.4 Margins / Profitability Analysis

Enterprise costing was followed in calculating cost and return. Economic performance as well as relative profitability of banana were calculated on the basis of gross margin and net return of the analysis. Margins of complete value chain are spread over the whole value chain system and different actors earn different margin according to the services providing. Profit or margins is the difference between sale price of the produce and purchase price of the produce after subtracting the marketing cost.

Gross Marketing Margin = (Sale price – Purchase price)

Gross Marketing Margin = SP - PP

Where

SP = Sale Price

PP = Purchase Price

Percent Marketing Margin = (Gross Marketing Margin / Average sale price) * 100

Percent Marketing Margin = (GMM / ASP) * 100

Where

GMM = Gross Marketing Margin

ASP = Average Sale Price

Net Margin = (Gross Marketing Margin – Marketing Cost)

Net Margin = GMM – MC

Where

GMM = Gross Marketing Margin

MC = Marketing Cost

Net profit as percentage of margin = (Net Margin / Gross Marketing Margin) * 100

Net Profit as percentage of margin = (NM / GMM) * 100

Where

NM = Net Margin

GMM = Gross Marketing Margin

Net profit as percentage of sale price = (Net Margin / Average sale price) * 100

Net Profit as percentage of sale = (NM / ASP) * 100

Where

NM = Net Margin

ASP = Average Sale Price

Benefits Cost Ratio

Benefits cost ratio are calculated by dividing the average total cost over total benefits. This ratio explained about profit and cost proportion of every value chain actor.

BCR of banana was estimated as a ratio of gross returns to total cost.

BCR = Gross Returns / Total Cost

RESULTS AND DISCUSSION

Socio-Economic Characteristics of all actors in the Value chain

Table. 1 Distribution of Grower according to their age

	Frequency	
5		
5		
5		
Distribution of Grower according to their Education		
Education	Frequency	Percent
Years		
Distribution of Growers according to their Experience		

Experience	Frequency	Percentage
		3
.		30
5.		3
20.		
25.		3
1		00

Socio-Economic Characteristics are those Characteristics through which respondents are categorized into different categories on the basis of different characteristics like age, education, experience, marital status and land holding etc. In social sciences these socio-economic factors have great importance. Socio economic factors has great impact directly or indirectly on the research (Ali, 2005).

Age is considered very significant demographic constant and it reflects the attitude and behavior of the respondents. As aged persons are understood mature enough and have well information about how to run a business successfully.

Table 1 shows the age, frequency and percentage of the grower's shows that 20% of the whole respondents were in stuck between 18 to 25 ages, 50 % of the respondents were in among 26 to 35 ages and remaining 30 % of the respondents were in between 36 to 45 years old.

Education of the grower is an important variable and it is important to understand the production techniques and other activities in the value chain system. It is reality that educated farmers easily adopt new technology and apply it successfully. In result of this production increased and ultimately profit also increased.

Table 1 also displays the education level of participants that 15 percent of the total respondents were 5 years education, 6,6 % were 8 years and 10 years educated respectively and 5 % were 14 years educated.

Farming experience is very important in fruit production as well as experience about marketing practices. Highly experienced farmers obtain good and more returns by using their farm experience in the production and in the value chain. Highly experienced persons adopted modern technology and utilize in a good way according to the situation to obtain high yield and more profit. Farm experience of the producer at farm level should minimize the risk to low yield and good and most yielding varieties. In farm experience the producer has good knowledge about the pre harvest practices on farm.

Table 4.3 showing that 13.33 % of the total respondents were under 5 years experienced, 30% of the total respondents were in between 6 to 10 years experienced while 11 to 15 years' experience of the respondents are 23.33 % and 16 to 20 years' experience the percent of these respondents are 20 % and remaining 13.33 % of the respondents were in between 21 to 25 years experienced.

Distribution of Growers according to area under Banana cultivation		
Banana Cultivation Land	Frequency	Percentage
5.		3
10.		3
15.		
20.		
1		00

Step-up in production of various fruits and vegetables is flow to give up an increase in the yield areas modern technologies tools and by providing them to better quality inputs. Growers could produce more fruits in addition to getting high profit and throughout this they satisfy the necessities of his/her own families.

Area under different fruits has direct effect on the total production of that fruit. As the production area of any fruit has been increased than its production automatically increased. Because cultivated area under fruits and area under fruit cultivation are directly proportional to each other. The area under banana cultivation shows that the farmer has total production area under the banana fruits cultivation.

When the area of produce of banana is large then the production is also higher and more banana farming and yield production experience but most of the cases the area under cultivation shows the people interest to grow this fruits or other crops on their farms.

Socio-Economic Characteristics of Pre-harvest contractors

Table 3 Distribution of Pre-harvest contractors according to their age

	Frequency	Percentage
0.		
5.		
0.		
5.		
0.		
5.		
Distribution of Pre-harvest contractor according to their Education		
Education	Frequency	Percentage
rate		
ars		
ars		
ears		
ears		
ears		
Distribution of Pre-harvest contractor according to their experience		
Experience	Frequency	Percentage
5.		
0.		
5.		
0.		

Age of pre-harvest contractor is very important socio-Economic factor because age plays a very important role for taking decisions for taking orchard on contract and more aged persons are more mature and take better decision for more profit. Age of the pre harvest contractors shows the percentage that what age of this participants can took part in the pre harvest practices.

Table 4.6 represents that 5 % of the total participants were in in the middle of the age of 25 to 30 years old, 10 % of total participants were in the middle of the age of 31 to 35 years old, 30 % of the total participants were in between the age of 36 to 40 years, 25 % of the total participants were in the age of 41 to 45 years old, 10 % of the participants are in the oldness of 46 to 50 years and remaining 20% respondents were in between of 51 to 55 years old.

Education of the pre-harvest contractor plays an important role in the good production and practices. Highly educated people work better than the uneducated persons.

Table 4.7 shows the education level of the contractors that 5 % of the of the total respondents were illiterate, 25% were 5 years education, 35 % were in 8 years educated respondents, 20 % of the total respondents were in matriculation education holders, 10 % of the respondents were in intermediate education holder degrees and remaining 5 % were highly or well qualified with 14 years or graduation degree holders respondents.

Farming experience is very important in fruit production as well as experience about marketing practices. More experienced Pre-harvest contractor obtains high profit by using their experience in production and in value chain. More experienced persons adopt new technology and use in a better way according to the situation for obtaining high profit.

Table 4.8 reveals that the frequency and percentage of the respondents based on their experience. 0 to 5 years' experience their percentage were 10, 15 % of the total respondents were 6 to 10 years experienced, 25 % of the total respondents were in 12 to 15 years proficient, 30% respondents were in between 16 to 20 years experienced and remaining 21 to 25 and 26 to 30 years' experience of the respondents were in between 10,10% respectively.

Table 4. Socio-Economic Characteristics of Wholesalers/Commission agents

Distribution of Wholesaler/Commission agents according to their age

	Frequency	Percentage
5.		
0.		
5.		
0.		
5.		
0.		
5.		

Distribution of Wholesalers/Commission agents According to their Education

Education	Frequency	Percentage
illiterate		
5 years		
8 years		
12 years		
15 years		
18 years		

Distribution of Wholesalers/Commission agents according to their Experience

Experience	Frequency	Percentage

Distribution of Retailers according to their Education		
Education	Frequency	Percentage
Illiterate		
5 years		
8 years		
10 years		
Distribution of Retailers according to their Experience		
Experience	Frequency	Percentage
0 to 5 years		
6 to 10 years		
11 to 15 years		
16 to 20 years		
21 to 25 years		
26 to 30 years		

Table 5 shows the business types of the participants and their frequency and percentage that 70 % of the total respondents were sole proprietorship have their own business and remaining 30% were running business in partnership with other people. More of the actor in chain has its own business mostly 70 % are running their own business and remaining other are on partnership or contract basis business which are run combine to flow of the product to sell out. Retailers are the actor which purchase their product from other stake holder of the chain system and run the business. The socio economic of the retailers age, income, education, family size, experience and at last the profit percentage that can obtain to sell at retail level. In these tables to explain all their socio-economic characteristics to explain with frequency and percentage level at each table.

Table 5 displays that 20% of the total respondents were old between the ages 20 to 25 years, 45 % the total respondents were in among the oldness of 26 to 30 years, 20 % respondents were in stuck between of 31 to 35 years from the past and remaining 15 % of the respondents were 36 to 40 years old. Age of the retailers give the better experience of the retailer toward it selling the banana fruits and other fruits because old age people has the age not more than total of the 35 % which is totally less than 7 frequency according to age.

To finding the result to collect data from 25 retailers which selling the banana at retail shops which are illustrated in the table above their ages are in between the 20 to 40 years.

Table 5 shows that 25 % of the total respondents were illiterate, 20% of all respondents were 5 years educated, 40% of respondents were 8 years educated and remaining 15 % were 10 years educated. More percentage of the retailers in lies 40 % of the total and their education level is middle class or below middle but above the primary class.

Table 5 represents the frequency and percentage of the respondents based on their experience. 36 % of the total respondents were under 0 to 5 years' experience, 24 % of the total respondents were under 6 to 10 years experienced, 24 % respondents were in between 11 to 15 years experienced, 4, 4 % respondents were having 16 to 20 and 21 to 25 years' experience respectively and left out 8% of the respondents were in between 26 to 30 years' experience.

Socio-Economic Characteristics of Exporters/Traders

Table 6 Distribution of Exporters/Traders according to their age

	Frequency	Percentage
0.		
5.		
0.		
5.		
0.		
5.		
Distribution of Exporter/Traders according to their education		
Education	Frequency	Percentage
2.		
0.		
5.		

In this to explain the traders/exporters age, experience, education and marital status shows the frequency and education level of all the respondents in the chain of banana value export to other countries. The age impact to trade any commodity to other country and the experience of the trader does main and this is main factor.

Table 4.16 shows that the age of the participants, frequency and percentage 40 % were lies in the age of 35 to 40 years, 20 % are in the age of 41 to 45 % and remaining all other respondents of this section were in the 46 to 55 age groups is 20 % in each group of the participants.

According to the results of table 4.17 shows that the education level of the respondents their frequency, education and percentage of each participants in this table 5 to 10 years education level of their frequency 3 and were 60 % and in inter level education were 40% among all the selected respondents

Marketing Margins and different cost incurred by different stakeholders working in Banana Value chain

Marketing Cost and Profit of Banana in Sindh and Punjab Markets, Pakistan. Marketing margins of different actors shows different result in banana value chain. This study shows different result which are described as fellow.

Growers

Banana production is the forefather profession of majority of growers in Sindh and they belong to different socio-Economic characteristics.

Table 7 Estimation of marketing margins of Growers

Items	Rs/ acre
Average total production of banana per acre =	210.5 mounds
Average total production cost of the Growers =	22500
Average total fixed cost of Growers =	22300
Average total cost of the growers =	44800
Average sale price of Growers=	146300
Net Margin = (Average sale price of growers – Average total production cost)	
Net Margin =	146300- 44800
Net Margin =	101500
Percent marketing margin = (Gross Marketing Margin / Average sale price) * 100	
Percent market margin =	37.15%

Grower is the main actor in the value chain of Banana. Data from 30 Growers were collected through a well-developed questionnaire to calculate the marketing margins of growers. Detailed calculations of marketing margins of growers are presented in the tale 4.20. The results of the calculations show that average production cost of 20 growers is 22500 Rs /acre while the average sale price of banana is 146300 Rs / Acre. Hence, the net marketing margin is 101500 Rs / Acre. The role of producer is very important in the chain because without producer the production of Banana is not possible. Grower perform different activities at farm for the production of best quality of Banana production especially different varieties production. A number of growers sell their orchard to different pre-harvest contractor before maturity due the different reasons like lack of credit, new technologies, labor, harvesting techniques. At the starting point of the Banana value is different and it changed as it moves towards consumers. The Growers performs different activities in the value chain.

Pre-harvest Contractor

A contract is signed between growers and pre-harvest contractor before the harvesting of bananas at flowering and pre maturity stage. Through the contract all liabilities belong to those persons that take the orchards on contract. After the ripening of fruits, the pre-harvest contractor sold their production to commission agents/Wholesalers.

Data from 20 pre-harvest contractors were collected through a well-developed questionnaire to calculate the marketing margins of pre-harvest contractors. Detailed calculations of marketing margins of pre-harvest contractor are presented in the tale 4.21. The results of the calculations show that average marketing cost of 20 pre-harvest contractors is 27000 Rs /acre while the average sale price of banana is 1030 Rs / 40 kg. Hence, the gross marketing margin is 206.73 Rs / 40 kg while the net marketing margin is 78.47 Rs / 40 kg. The net profit as percentage of sale price is 7.61%.

Table 8. Estimation of marketing margin of Pre- harvest Contractor

Items	Rupees
Average sale price of growers is the purchase price of pre-harvest contractor	
Average purchase price of pre-harvest contractor =	146300 /acre
Average marketing cost of the pre-harvest contractor =	27000 /acre
Average yield of Banana =	210.5 Mounds/acre
Average purchase price of Banana =	695.01 / 40 kg
Average marketing cost of the pre-harvest contractor =	27000/210.5/ 40 kg
=	128.26/ 40 kg
Total Cost of Banana incurred by Pre-harvest contractor =	823.27/ 40 kg
Average sale price of Banana =	1030/ 40 kg
Gross Marketing Margin = (Sale price – Purchase price)	
=	1030 – 823.27
Gross Marketing Margin	= 206.73/ 40 kg
Percent Marketing Margin = (Gross Marketing Margin / Average sale price) * 100	
=	206.73 / 1030 *100
Percent Marketing Margin	= 20.07/ 40 kg
Net Margin = (Gross Marketing Margin – Marketing Cost)	
=	206.73- 128.26
Net Margin	= 78.47/ 40 kg
Net margin as percentage of gross margin = (Net Margin / Gross Marketing Margin) * 100	
Net profit as percentage of margin =	78.47 / 206.73 *100 = 37.95%
Net profit as percentage of sale price =(Net Margin / Average sale price) *100	
Net profit as percentage of sale price =	78.47/ 1030* 100= 7.61%

Wholesaler/Commission agent

In value chain the wholesaler plays an important role. Wholesaler purchase the banana from pre harvest contractors or directly from producers in bulk quantity and resale to the retailer in small quantity.

Main performed by the wholesaler was purchase the bananas and resale to the other shopping malls and retail shops in the vegetables/fruit's markets. Few commission agent's sales their product at the initial level of auction in the market because they could not take any risk of the price or product loss.

Data from 20 wholesalers were collected through a well-developed questionnaire to calculate the marketing margins of wholesalers/commission agents. Detailed calculations of marketing margins of wholesalers/commission agents are presented in the tale 4.22. The results of the calculations show that average marketing cost of 20 wholesalers is 75 Rs /40 Kg while the average sale price of banana is 1228.6 Rs / 40 kg. Hence, the gross marketing margin is 198.7 Rs / 40 kg while the net marketing margin is 123.6 Rs / 40 kg. The net profit as percentage of sale price is 10.06%.

Table 9. Estimation of marketing margin of Wholesaler/Commission agent

Items	Rs/ 40 Kg
Average sale price of pre-harvest contractor is the purchase price of Wholesalers or commission agents	
Purchase price of Wholesaler or commission agents Rs / 40 Kg	= 1030
Marketing cost incurred by wholesaler or commission agents Rs / 40 Kg	= 75
Average sale price of Banana Rs / 40 kg	= 1228.6
Gross Marketing Margin = Sale price – Purchase price	
= 1228.6- 1030	
Gross Marketing Margin =	198.6
Percent Marketing Margin = (Gross Marketing Margin / Average sale price) * 100	
= 198.6 / 1228.6 *100	
Percent Marketing Margin =	15.92%
Net Margin = Gross Marketing Margin – Marketing Cost	
= 198.6 - 75	
Net Margin =	123.6
Net profit as percentage of margin = (Net Margin / Gross Marketing Margin) * 100	
=123.6/ 198.6 *100	
Net profit as percentage of margin =	62.23%
Net profit as percentage of sale price = (Net Margin / Average sale price) *100	
Net profit as percentage of sale price = 123.6 / 1228.6* 100	
= 10.06%	

Retailer

Mostly in Pakistan the Fruit is consumed in fresh form and sale in small quantity. Retailers purchase banana directly from the wholesaler/commission agents and sold in small quantity to the consumers. In Pakistan mostly r etailers are working on road sides or in their owned shops. Different operations are done by the retailers like grading and displayingattracting to the consumers.

Table 10. Estimation of marketing margin of Retailer

Items	Rs/ 40 Kg
Average sale price of wholesaler or commission agent is the purchase price of retailer	
Purchase price of Retailer Rs / 40 Kg	= 1228.6
Marketing cost incurred by Retailer Rs / 40 Kg	= 88
Average sale price of Banana Rs / 40 =	1680

$$\begin{aligned} \text{Gross Marketing Margin} &= \text{Sale price} - \text{Purchase price} \\ &= 1680 - 1228.6 \\ \text{Gross Marketing Margin} &= 451.4 \\ \text{Percent Marketing Margin} &= (\text{Gross Marketing Margin} / \text{Average sale price}) * 100 \\ &= 451.4 / 1680 * 100 \\ \text{Percent Marketing Margin} &= 26.86\% \\ \text{Net Margin} &= \text{Gross Marketing Margin} - \text{Marketing Cost} \\ &= 451.4 - 88 \\ \text{Net Margin} &= 363.4 \\ \text{Net profit as percentage of margin} &= (\text{Net Margin} / \text{Gross Marketing Margin}) * 100 \\ &= 363.4 / 451.4 * 100 \\ \text{Net profit as percentage of margin} &= 80.50\% \\ \text{Net profit as percentage of sale price} &= (\text{Net Margin} / \text{Average sale price}) * 100 \\ \text{Net profit as percentage of sale price} &= 363.4 / 1680 * 100 \\ &= 21.63\% \end{aligned}$$

Data from 25 retailers were collected through a well-developed questionnaire to calculate the marketing margins of retailers. Detailed calculations of marketing margins of pre-harvest contractor are presented in the tale 4.23. The results of the calculations show that average marketing cost of 20 retailers is 88 Rs / 40 Kg while the average sale price of banana is 1680 Rs / 40 kg. Hence, the gross marketing margin is 451.4 Rs / 40 kg while the net marketing margin is 363.47 Rs / 40 kg. The net profit as percentage of sale price is 21.63%.

Exporter of Banana

Data from 5 exporters were collected through a well-developed questionnaire to calculate the marketing margins of exporters. Detailed calculations of marketing margins of exporter are presented in the tale 4.24. The results of the calculations show that average marketing cost of 5 exporters is 251.81 Rs / 40 Kg while the average sale price of banana is 1610 Rs / 40 kg. Hence, the gross marketing margin is 580.73 Rs / 40 kg while the net marketing margin is 328.19 Rs / 40 kg. The net profit as percentage of sale price is 20.38%.

Table 11. Estimation of marketing margin of Banana Exporter

Items	Rs/ 40 Kg
Average sale price of pre-harvest contractor is the purchase price of Exporter	
Purchase price of exporter Rs / 40 Kg =	1030
Marketing cost incurred by commission agent Rs / 40 Kg =	251.81
Average sale price of Banana Rs / 40 =	1610
Gross Marketing Margin= Sale price – Purchase price	
=	1610- 1030
Gross Marketing Margin	= 580
Percent Marketing Margin = (Gross Marketing Margin / Average sale price) * 100	
=	580 / 1610 *100
Percent Marketing Margin =	36.02%
Net Margin	= Gross Marketing Margin – Marketing Cost
=	580 – 251.81
Net Margin	= 328.19
Net profit as percentage of margin = (Net Margin / Gross Marketing Margin) * 100	
=	328.19/ 580 *100

Net profit as percentage of margin = 56.58%
 Net profit as percentage of sale price = (Net Margin / Average sale price *100
 Net profit as percentage of sale price = 328.19 / 1610* 100
 = 20.38%

Socio-economic distribution of consumers

Table 12. Distribution of Consumer According to their Age

	Frequency	Percentage
20-30		
31-40		
41-50		
Distribution of Consumer According to their Gender		
Gender	Frequency	Percentage
Male		
Female		
Distribution of Consumer According to their Family Size		
Family size	Frequency	Percentage
Distribution of Consumer According to their Occupation		
Occupation	Frequency	Percentage
Government Job		
Private Job		
Business		
Agriculture		
Other		

Table 12 shows the consumers into different categories with respect to their age. This table represents that 28% of the total respondents were in between 20 to 30 years old, 62% of the consumers were included in 31 to 40 years old category and remaining 10% were 41 to 50 years old.

Banana is eaten and liked by both males and females. Table 4.26 shows that 84% of the total respondents were male and 16% of the respondents were female. The results of this table frequency and percentage of the banana consumers according to their age.

Family size of respondents shows the average expenditure of family. According to table 4.27 shows that 60% of the respondents were having 1 to 5 family members and 40% of the respondents were having 6 to 10 years education. Consumer's family size was mostly between the ages 1 to 5-year-old. Their use of consuming the banana or purchasing power is more as compared to other.

According to occupation of the consumer of banana fruits and their occupation frequency level of percentage in the consuming factor. Table 4.28 shows that 18% of the respondents were doing Government jobs and 42% respondents were doing private jobs, 24% of the total respondents were running their own business, 10% of the respondents were involved in the agriculture and other remaining others are 6% of the respondents were involved in different occupations.

Distribution of Consumers According to Spending on Banana		
Spending on Banana	Frequency	Percent
500		
1000		
1500		

Table 13 shows that 58% of the respondents were spending 100 to 500 PRs/ month on Banana consumption, 36% of the total respondents were spending 501 to 1000 PRs/month on Banana consumption and 6 % of the respondents were spending 1001 to 1500 PRs/month on Banana consumption.

Table 14. Benefits/Cost Ratios of different stakeholders of banana value chain

Benefits cost ratios are calculated by dividing the average total cost over total benefits. These ratios explained about profit and cost proportion of every value chain actor.

Benefits Cost ratios	=	Average Total Cost/ Net Margins
Growers' benefits/cost ratios	=	44800/101500 (Rs/acre) = 0.44
Contractors' benefits/cost ratios	=	128/206 (Rs/mound) = 0.62
Commission Agent benefits/cost ratios	=	75/123 (Rs/mound) = 0.60
Retailers benefits/cost ratios	=	88/363 (Rs/Dozen) = 0.24
Exporters benefits/cost ratios	=	251/328 (Rs/mound) = 0.76

Conclusion

Due to few limitations of the research study it is confirmed that the growers of the banana can obtain a positive return from the production of banana cultivation. In the other context of poverty alleviation and income generation, production of crops like banana may play a vital role in to full fill the desired needs of the farmers in cash. The results findings of the study also revealed that the export of banana is a profitable business to various intermediaries. The profit was found reasonable but the retailer profit was higher as compared to other market intermediaries of the chain. In the research areas the market efficiency was not good. The price difference gap between the producer's price and the consumer's price was much higher that's reason the producer cannot obtain reasonable profit of their product, in other hands the market stakeholders of the chain especially retailers the net marketing margin is more enough then ultimately the consumers are main suffer from this marketing system. For this reason, government should take a serious step to control the price mechanism system and price separation of product in the market and make sure it that the producers can get a reasonable market price and also the consumers can get their product at reasonable price. Banana is a full source of nutrition and it also an important and good source of cash crop income to producers and exporters. Moreover, the production and marketing system of banana a large number of different market intermediaries were involved. So, banana growers and market intermediaries could be obtained more benefited financially if the production and marketing system of banana are to be well expanded.

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