A study on marketing channels of perishable agricultural products (with reference to selected perishable agricultural products in central zone of Tigray regional state, Ethiopia)

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Abstract
Ethiopia, one of the developing economies based on agriculture that accounts for 45 percent of GDP and 85 percent of total employment (Central statistics Authority, 2015). Knowing that agricultural sector is the economic backbone of the nation, the country’s government is doing its best level to enhance the farm production. However, it is not yet known whether the producers’ income is increasing in line with their productivity and the market channel is benefiting the producers or not. Thus, the study deals with analysis of marketing channels of selected perishable agricultural products with main objective of finding out the possibility of improving the existing market channel between producers and consumers for perishable agricultural products in Central Zone of Tigray Regional State of Ethiopia. In this study both primary and secondary data were used as source of information. Stratified random sample selection was used to choose 90 samples of which 30 from farmers, 30 from final consumers and 30 from middlepersons of tomato, onion and papaya and key informant interview was held with some selected bodied. It is shown that local collectors and retailers are the most important buyers of fruits and vegetables from producers. The market major actors in the survey period were producers, local assemblers, retailers, wholesalers and consumers. It is also shown that large number of middlemen in the marketing system, absence of marketing institutions safeguarding farmers’ interest and rights over their marketable produces; lack of coordination among producers to increase their bargaining power. Thus, it is recommended that the government and NGOs should intervened to boost productivities and modernize the market channel by supplying improved agricultural inputs, promoting education and providing trainings about on how to produce and marketing. It is also recommended to assign efficient extension system, updating the extension agent’s knowledge and skills with improved production and marketing system. In addition public authorities in collaboration with representatives of traders should devise means of controlling illegal traders.

Keywords: Channel, marketing, perishable

Introduction
According to Lumpkin et al (2005) [11], worldwide production of fruit and vegetable crops has grown-up faster than cereal crops and the total value of horticultural crops traded at present is more than double that of cereal crops. For such achievements there are a lot of different reasons were found contributors for the global increase in production and trade of fruit and vegetable crops. Among these reasons, farmers involved in horticultural production usually earn much higher farm incomes as compared to cereal producers, and their per capita income is also five times higher than cereal producers.

Furthermore, Jacques (2011) [7], add that globalization and expanding international markets as well as the fast-growing middle and high income classes in many developing countries tender opportunities for developing country producers to operate in emerging national and international markets. This by implication results that producers most likely farmers gain better control over production, trade and distribution in order to assure the quality and value addition of their products they produce keeping in mind the market opportunities and challenges. In line with this, he also added that barriers for developing country producers are found to be the lack of an enabling environment offering institutional and infrastructural support and efficient and effective coordination in value chains.
For centuries, the economies of developing countries including Ethiopia have been depended largely on agricultural sectors which employ majority of the population. It is the mainstay of the economy for most developing countries particularly to the non-oil exporting ones. In Ethiopia, one of the developing countries, agriculture is providing for 45% of the GDP, and above 85% of total employment (Central Statics Authority, 2013). This forms the basis for employment and food supply for majority of population in Ethiopia.

Marketing Channels
Marketing channels are sets of interdependent organizations involved in the process of making a product or services available for use or consumption. Marketing channel decisions are among the most critical decisions that management is facing (Kotler, 2003) [10]. The complex pattern of marketing channels and the part played by each and every channel in the total market movement can be viewed best in flow charts. The importance of the distribution function in marketing is apparent when one considers the magnitude of goods and services that are transported and sold at millions of locations throughout the world. Many professionals believe that the distribution decision is the most important marketing decision a company can make. The design of an organization’s distribution system is a key factor in creating customer value and in differentiating one company’s offering from that of another company that exists in the business environment. Anderson and Vincze (2000) as cited by Assefa (1999) notes that, the field of distribution is made up of two distinct branches: those are channels of distribution and physical distribution. Channels of distribution consist of a network of intermediaries that manages a flow of goods and services from the producer to the final consumer. The success of this network depends on relationships among manufacturers (producers), wholesalers, retailers, sales representatives, and others. As products move from one intermediary to the next, exchange takes place-exchange of physical goods, intangible services, and value added dimensions. Physical distribution activities include the actual movement of goods and services (i.e., logistics), with a focus on transporting and warehousing them. A number of well tried and tested channels have been used throughout generations by farmers, and the most important of these will be considered from the point of view of their use for particular commodities, and their individual advantages and disadvantages. According to kotler et al., (2003) [10], marketing Channel is a business structure of interdependent organizations that reach from the point of product origin to the consumer with the purpose of moving products to their final consumer destination. This is to mean that marketing channels is intended to provide a systematic knowledge of the flow of goods and services from their origin (producer) to their final destination (consumer). This knowledge is acquired by studying the “participants” in the process those who perform physical marketing functions in order to obtain economic benefits. In carrying out the functions, marketing agents achieve both personal and social goals. They add value to production and in so doing help satisfy consumer needs. This price also serves as a signal to all the actors in the marketing channel, i.e. producers, rural assemblers, transporters, wholesalers, and retailers. In addition to the above points kotler (2003) [10] reviled that marketing agent take the line share of moving goods and serve from point of production to point of consumption. The following are marketing agents with their respective activities that they carried out so as to move materials (goods and service) and information from end to end.

Producer: It is first link in the marketing chain analysis of agricultural products. The producer harvests the products and supply to the second agent. From the movement he/she decides what to produce, how to produce, how much to produce, when to produce, and where to sale.

Rural Assembler: Sometimes also called transporter or the trader; he/she is the first link between producer and other middlemen.

Wholesaler: He provides the optimum combination of functions and services for different kinds of retailers, and performs desired distribution functions for different kinds of processors. Carry a wide range of products that meet almost all the retailers’ requirements and his emphasis is on a complete line of products and several major brands.

Agents and Brokers: They handle individual brands and sell to food chains, general wholesalers, and institutional markets on a commission or fee basis. Agents and brokers do not take title to or warehouse the products they sell. They operate under a franchise or contract agreement. Their duty is to provide a major sales effort for the brands they represent.

Retailers: Middlemen, which includes super markets and other large scale retailer who divides up large scale shipments of produce and sell it to consumers in small units. The basic function they provide is bulk breaking.

Consumer: The last link in the marketing chain. The participants and their respective functions often overlap. The widest spread combinations are: traders- wholesalers that collect the commodity and supply it to retailers, wholesalers-retailers (wholesalers that also sell directly to consumers and wholesalers- exporters).

Nature of Vegetables Marketing
Being produced both by commercial and smallholder farmers vegetable marketing is influenced by a number of factors that can be attributed to production, product, and market characteristics. Kohl and Uhl (1985) identified these attributes as- Perishability-as vegetables are highly perishable, they start to loose their quality right after harvest and continued throughout the process until it is consumed. For this purpose elaborated and extensive marketing channels, facilities and equipments are vital. This behavior of vegetables exposed the commodity not to be held for long periods and fresh produce from one area is often sent to distant markets without a firm buyer or price. Prices may be negotiated while the commodities are en route, and they are frequently diverted from their original destination of a better price can be found. Sellers might have little market power in determining a price. As a result, a great deal of trust and informal agreements are involved in marketing fresh vegetables. There could not always be time to write everything down and negotiate the fine details of a trade. The urgent, informal marketing processes often leads...
to disputes between buyers and sellers of fresh fruits and vegetables. Producers are normally price takers and are frequently exposed for cheating by any intermediary.

**Price /Quantity Risks:** Due to perishable nature and biological nature of production process there is a difficulty of scheduling the supply of vegetables to market demand. The crops are subjected to high price and quantity risks with changing consumer demands and production conditions. Unusual production or harvesting weather or a major crop disease can influence badly the marketing system. While food-marketing system demands stable price and supply, a number of marketing arrangements like contract farming provide stability.

**Seasonality:** Vegetables have seasonal production directly influencing their marketing. Normally they have limited period of harvest and more or less a year round demand. In fact, in some cases the cultural and religious set up of the society also renders demand to be Seasonal. This seasonality also worsened by lack of facilities to store.

**Product Bulkiness:** Since water is the major components of the product, it makes them bulky and low value per unit that is expensive to transport in fresh form every time. This, therefore, exposed farmers to lose large amount of product in the farm unsold. These above listed characteristics of the product require a special complex system of supportive inputs. It demands a regular marketing preparation process like washing, cooling, proper management from the time of harvest until the produce is put on display. It is frequently believed a vegetable not only remain attractive to the consumer it must also have a shelf life of few days after having purchased by the consumer.

According to Jema (2008) [8], agriculture in Ethiopia is the basis of the country's economy, accounting for half of gross domestic product (GDP), 90% of exports, and 85% of total employment. Even though, till now agriculture is the country's most promising sector and largely, used for subsistence.

Ethiopia has highly-diversified agro ecological conditions which are suitable for the production of various types of fruits and vegetable (Milaku, 2004; FAO, 2004) [12, 6]. Agriculture is the foundation of Ethiopia’s economy and it provides all the necessary dietary foods, raw materials for food industries and quality products for export market. The country’s agricultural potential for food production is known to be immense and over 90 percent of its export earnings come from this sector. Coffee, oil seeds, spices, fresh fruit and vegetables contribute the largest portion of the export earnings.

As per Shimelis (2003), explanation, at the national level, agriculture is important as a vehicle for addressing food security problems. Scaling up agricultural growth will therefore be the major instrument for increasing the income of the country and households in particular with which food can be bought domestically and imported from abroad. The largest groups of people in Ethiopia who suffer from food insecurity are the rural poor who have insufficient land and other resources to provide sufficient income or food.

In the last two decades, the Ethiopian government is doing its best level in all regions of the country including Tigray to enhance the farm production and its market channels knowing that agricultural sector is the economic backbone of the nation. Some of the roles the government is playing include: designing fruitful strategies; introducing various programs, packages, technologies; and importing and supplying agricultural inputs. Theses all efforts of the government are towards boosting productivity of land and the people involved in the agricultural activities there by making the sector successful.

The Federal and Regional governments are doing their level best to transform the existing subsistence agriculture into market oriented commercial production system (Minster of information 2006). According to Shimelis Admassu (2002), at national level, agriculture is important as a vehicle for addressing food security problems. Thought-provoking agricultural growth will therefore be the major instrument for increasing the income of the country and households in particular with which food can be bought domestically and imported from abroad. He concludes that the largest groups of people in Ethiopia who suffer from food insecurity are the rural poor who have insufficient land and other resources to provide sufficient income or food.

According to report of central statistics (CSA, 2013) at country level more than 47 thousand hectares of land is under fruit crops in Ethiopia. Bananas contributed about 60.56% of the fruit crop area followed by Mangos that contributed 12.61% of the area. Almost 3.5 million quintals of fruits was produced in the country. Bananas, papaya, mangoes and orange took up 55.32%, 12.53%, 12.78% and 8.35% of the fruit production, respectively. Dawit et al (2004) states that, Ethiopia has a diversity of vegetable crops grown in different agro ecological zones produced all the way through commercial as well as small farmers both as a source of income as well as food. However, the type is limited to few crops and production is concentrated to some pocket areas. In spite of this, the production of vegetables varies from cultivating a few plants in the backyards for home consumption up to a large-scale production for domestic and export markets.

In a country like Ethiopia where the amount, timing and distribution of rain fall is irregular, use of irrigation would significantly improved and raise the level of production. However, irrigation is not extensive in Tigray region. According to CSA (2013) report in Tigray region, where this study was conducted, crop lands that are actually irrigated was only 19.1thousand hectare and this accounted for 3.4% of the total crop land areas. From the total irrigated cropland areas in the region 72.2% were found under cereals, 10.3% under pulses, 4.3% under vegetables, 9.3% under fruits and 3.6% under stimulant crops. On the same year the census data indicate that irrigated crop land area was relatively highest in south Tigray zone (74.4%) followed by central Tigray zone (16.6%). Even though, Tigray National Regional State has an abundance production potential and market access even within the region it had never reaped the opportunity, as it would suppose to be.

Central zone of Tigray is where this study focused is one of the naturally endowed Zones in terms of capacity to grow different horticultural and other crops. The expansion of modern irrigation from deep walls enhances production of horticultural crops particularly vegetables. On top of this,
the existence of spate irrigation supplements the erratic nature of rain. Major types of horticultural crops currently growing in the district are onion, tomato, green pepper from vegetables and papaya, banana, avocado and guava from fruits. At zone level the production of horticultural crops is mainly for market. The production of horticultural crops are very random and fragmented resulting in over supply. Fruit and vegetable production in Central zones of Tigray is mainly with irrigation, dew pond, shallow wall and sometimes flood diversion especially to vegetables where oversupply of harvested products is the main characteristics. The nature of the product on the one hand and the lack of organized market system on the other hand have resulted in low producers’ price. There are production and marketing problems challenging fruit and vegetable development in the District. The main challenges with regard to fruit and vegetable production is that, because of market and food security concerns, rural farmers prefer to produce cereals and pulses. In addition, other constraints embrace low production (FAO, 2004) [12, 6]. The key challenges of perishable fruit productions are shortage of input supply, pest and disease, low productivity, production seasonality from the production side and lack of transport, storage, post handling facilities, less organized market system from the marketing side which can expressed interims weak market channels. This therefore demands a holistic study of the system in the form of market chain analysis of perishable products in the study area. A number of factors related to technological, institutional, organizational and political situations influence competitiveness of market chain. So information on factors that affect competitiveness of fruit and vegetable market is essential for the design of any strategy or policy that has an objective of intervention. Identification, characterization and evaluation of market chain help’s to remove barriers affecting performance and to strengthen strong sides. Eventhough fruits and vegetables are economically important commodities there was no study made on perishable fruits and vegetables marketing to identify the key constraints and potentials on the system in the study area with regard to identifying their market channels. It is essential that the marketing system of a commodity like fruits and vegetables operates efficiently. Market chain analysis of perishable products is believed in studies of production and marketing problems. Investigation of the system in terms of fruit and vegetable market structure, conduct and performance and institutional support services taking in to consideration the product and location specificity will, therefore, be used to identify the restricting factors and come up with specific possible solutions of the District which is central zone of Tigray. It is for these specific reasons that the study was designed to be under taken in the District. Efforts of the government as well as the people all together are able to improve agricultural output from season to season. The team members had conducted preliminary assessment on the market channel of the perishable goods through personal observation in the central market of the zone, i.e., at weekly market centre of Aksum town for eight successive market days. From the observation it is found that harvest of perishable agricultural produce is increasing from time to time, however it is not yet known whether the producers’ income is increasing in line with their productivity and the market channel is benefiting the producers or not and was apparent to investigate it.

Objective of the Study
The main objective of this study is to analyze the marketing channels of selected perishable agricultural products by identifying the existing marketing channel between producers and consumers for perishable agricultural products in central zone of Tigray region.

Methodology of The Study
Data Type and Source
In this study both primary and secondary data were used as a source of information. The primary data were collected through a structured questionnaire directly from the producers and middlemens and key informant interview were held with selected market actors, experts of Woreda Office of Agriculture and Rural Development, Woreda Trade and Industry Office and with some traders. The secondary data were also collected from journal articles, text books, reports and web sites to get background information regarding market linkage and supply chain of perishable agricultural products.

Sample Size and Sampling Technique
The study were undertaken in central zone of Tigrai region of Ethiopia. From each wereda of the zone, stratified simple random sampling technique was used to choose 90 respondents (30 producers, 30 middlemen and 30 ultimate consumers).

Data Collection Instruments
To collect primary data both focus group discussion and a self administrated questionnaire were prepared. Pilot survey on 5 households was also conducted in order to check quality and completeness of the questionnaires. The questionnaire were collected from the 90 respondents and then four focus group discussions with 20 participants (i.e., discussions with 5 producers, 5 whole sellers, 5 retailers and 5 ultimate consumers) was conducted separately to understand the existing marketing channel of the perishable agricultural product. For this research purpose, small scale perishable agricultural product refers to fruits and vegetables produced by micro farmers at a household level of the zone.

Data Analysis, Procedures and Techniques
In order to analysis specific objective with regard to finding out the extent to which the price earned by farmers vary from the price paid by ultimate users marketing margin analysis were used. When there are several participants in the marketing chain, the margin is calculated by finding the price variations at different segments and by comparing them with the final price to the consumer. The consumer price is then the base or the common denominator for all marketing margins. Comparing the total gross marketing margin is always related to the final price or the price paid by the end consumer and then expressed as a percentage (Mendoza, 1995 cited by Assefa, 2009).

Marketing margin is most commonly used to refer to the difference between producer and consumer prices of an equivalent quantity and quality of a commodity. However, it may also describe price differences between other points in
the marketing chain, for example between producer and wholesale, wholesale and retail prices. The quality and quantity of marketing services depends on supply and demand of marketing services and/or the degree of competition in the market place. Therefore, in using market margin analyses to assess the economic performance of markets, it is always preferable to deconstruct them in to their cost and return elements.

Mendoza (1995) warns that precise marketing costs are frequently difficult to determine in many agricultural marketing chains. The reasons are that these costs are often both cash costs and imputed costs, the gross and not the net marketing margin is advised to be calculated. According to Mendoza (1995), “marketing margins” should be understood as the gross marketing margins. He advises that marketing researchers to emphasize on gross marketing margins in reporting their findings. In similar manner, in this study, gross marketing margin was considered instead of net marketing margin, as it was difficult to estimate the implicit costs incurred during transaction of onion, tomato and papaya.

The total marketing margin is given by the following formula.

\[ \text{TGMM} = (\text{Consumer Price - Farmer Price/ Consumer Price}) \times 100 \]

Where TGMM=Total gross marketing margin

Producers’ participation or producers’ gross margin is the proportion of the price paid by the end consumer that belongs to the farmer as a producer.

\[ \text{GMMp} = (\text{Consumer Price-Marketing gross margin/ Consumer Price}) \times 100 \]

Where GMMp- Producers’ participation (farmers’ portion).

\[ \text{PS} = \frac{\text{PX}}{\text{Pr}} - (\text{MM/Pr}) \times 100 \]

Where

\[ \text{PS} - \text{Producer’s share} \]

\[ \text{PX} - \text{Producer’s price of fruit and vegetables} \]

\[ \text{Pr} - \text{Retail price of fruits and vegetables, and MM – Marketing margin} \]

**Study Results**

This study was conducted primarily to analyze the marketing channels of selected perishable agricultural products with reference to some specific type of crop namely Tomato, Onion and Papaya in Central Zone of Tigray Regional State. The selection of the crops is mainly based on their relative importance and marketability. In fruits and vegetables and marketing with respective to supportive services like input supply, extension service, market information and access to credit were very crucial elements in order to increase the fruit and vegetables productivity.

**Table 1:** Actors’s Marketing Margin as a proportion of final consumer price (Birr/quintal) in tomato marketing.

<table>
<thead>
<tr>
<th>Participants</th>
<th>Tomato’s Market Channel</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Producers: Selling price</td>
<td>465</td>
<td>465</td>
<td>450</td>
<td>450</td>
<td>450</td>
<td>465</td>
<td>465</td>
<td>465</td>
<td>465</td>
</tr>
<tr>
<td>Farmer’s share %</td>
<td>100</td>
<td>84.55</td>
<td>82.57</td>
<td>81.82</td>
<td>-</td>
<td>84.55</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TGMM %</td>
<td>15.45</td>
<td>17.43</td>
<td>17.43</td>
<td>18.18</td>
<td>-</td>
<td>15.45</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Local collector: Selling price</td>
<td></td>
<td>545</td>
<td>545</td>
<td>545</td>
<td>545</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TGMMLC%</td>
<td></td>
<td>17.43</td>
<td>17.43</td>
<td>17.27</td>
<td></td>
<td>17.43</td>
<td>17.27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wholesaler: Selling price</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>545</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>TGMWM%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14.54</td>
<td>14.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retailer: selling price</td>
<td></td>
<td>550</td>
<td>550</td>
<td>550</td>
<td>550</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TGMMR%</td>
<td></td>
<td>15.45</td>
<td>0.91</td>
<td>0.91</td>
<td></td>
<td>15.45</td>
<td>0.91</td>
<td>0.91</td>
<td>0.91</td>
</tr>
<tr>
<td>Final consumer price</td>
<td>465</td>
<td>555</td>
<td>545</td>
<td>550</td>
<td>545</td>
<td>555</td>
<td>550</td>
<td>540</td>
<td>540</td>
</tr>
</tbody>
</table>

**Source:** Survey result, 2015

Total gross marketing margin in tomato trading is highest in channels 4 as it is clearly shown in the above table 1 which accounts a total marketing margin of 37.11%. Producers share in tomato trading from the price paid by consumers is highest in channel 1 which accounts 100% of the price paid by consumers. In addition to this, in all tomato traders, local collectors get the highest gross marketing margin which accounts 17.43% of the consumer price.

**Table 2:** Actors’s Marketing Margin as a proportion of final consumer price (Birr/quintal) in onion marketing.

<table>
<thead>
<tr>
<th>Participants</th>
<th>Onion’s Market Channel</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Producers: Selling price</td>
<td>400</td>
<td>350</td>
<td>350</td>
<td>350</td>
<td>400</td>
<td>400</td>
<td>350</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>Farmer’s share %</td>
<td>100</td>
<td>78</td>
<td>70</td>
<td>70</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>TGMM %</td>
<td>22</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Local collector: Selling price</td>
<td></td>
<td>450</td>
<td>400</td>
<td>400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TGMMLC%</td>
<td>2</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wholesaler: Selling price</td>
<td></td>
<td>440</td>
<td>450</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TGMWM%</td>
<td>8</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retailer: selling price</td>
<td></td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>TGMMR%</td>
<td>20</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Final consumer price</td>
<td>400</td>
<td>450</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
</tr>
</tbody>
</table>

**Source:** Survey result, 2015
Similarly as is shown in table 2, the highest producer share is observed in channel 1 of onion marketing chain that is 100% of the price paid by consumers. The highest gross marketing margin in onion marketing chain is observed in channel 4 and 6 and also local collectors has the highest marketing margin as compared to other members that accounts 22%.

Table 3: Actors’s Marketing Margin as a proportion of final consumer price (Birr/quintal) in papaya marketing.

<table>
<thead>
<tr>
<th>Participants</th>
<th>Papaya’s Market Channel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Producers: Selling price</td>
<td>100</td>
</tr>
<tr>
<td>Farmer’s share %</td>
<td>100</td>
</tr>
<tr>
<td>TGMM %</td>
<td>55</td>
</tr>
<tr>
<td>Local collector: Selling price</td>
<td>200</td>
</tr>
<tr>
<td>TGMM PLC %</td>
<td>55</td>
</tr>
<tr>
<td>Retailer: selling price</td>
<td>250</td>
</tr>
<tr>
<td>TGMMR%</td>
<td>20</td>
</tr>
<tr>
<td>Final consumer price</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Survey result, 2015

In papaya product total marketing margin(TGMM) in channel 1 is highest (shown in table 3), which accounts 64% of the final consumer price and among other traders, retailers have the highest TGMM which accounts 60% of the final consumer price.

It is also found that in the study area, though the traders and farmers share market information there is no well established system of dissemination of market information. The majority of traders had no license and the there were no regulatory action to control unlicensed traders. Moreover, the tax is determined by guess and it is very subjective. Due to this, licensed traders have claimed that the tax rate is unfair and high. In terms of market conduct, farmer’s selling strategy was unstructured to any buyers and there is no any contract-based marketing. They offered to anybody as far as he/she offered better price. But, most of the time producers did not acquire any power in price decision. Hence, they are found to be price takers. Discussions conducted with key informants during focused group discussion and interviews of the study reviles that there are factors which constrain fruit and vegetables marketing like large number of middlemen in the marketing system especially in tomato and onions; absence of marketing institutions safeguarding farmers’ interest and rights over their marketable produces like cooperatives; lack of coordination among producers to increase their bargaining power, portability of the product, lack of semi-processing industrie and production seccessability. The increasing price of fruit products within the country and abroad also provide real and sustainable business opportunity for the rural poor.

Conclusion
In the study area it was reviled that productivity and productions of horticultural crops like tomato, onion and papaya had been increased over the last five years due to the increase involvement of the government to irrigation facility coming up different policy and strategies. As a result production and market related problems are becoming multifarious over space and time in Tigray in general and the study area in particular. The marketing channel of the three crops was through the interconnection of different performer specifically producers, wholesalers, rural assemblers, retailers, brokers and consumers. Among the different market players, brokers and wholesalers were the main actors in the system.

Wholesalers looked to have influence over the whole channel reason being they do have easy access to up to date information resulted in an inequitable market behavior especially in onion marketing during peak production period. Tomato traders, local collectors get the highest gross marketing margin which accounts 17.43% of the consumer price which inversely affects farmers’ wailings to produce. It was observed that there is highest gross marketing margin in onion marketing chain is observed in channel 4 and 6 and also local collectors has the highest marketing margin as compared to other members that accounts 22% which makes the producers less beneficiary. It is possible to conclude that retailers have the highest TGMM which accounts 60% of the final consumer price.

It is also found that in the study area, though the traders and farmers share market information there is no well established system of dissemination of market information.

Recommendation
Based on the analysis result of the study, the following recommendations are given so as to be considered in the future intervention strategies which are aimed at the promotion of fruits and vegetables production and marketing in the study area.

➢ The survey result indicated that the overall onion, tomato and papaya marketing system were found to be traditional and underdeveloped, fragmented and inefficient. Thus, government actions are required to certify and scrutinize competing product traders to ensure achievement in the sector by letting the participants to have equal competition situations like prohibiting traders with no license and levying based efficient study.

➢ On top this, all assemblers and some of retailers have no business license. This has put the legal traders at a disadvantage when competing in the market and the regulatory action to control unlicensed traders weak. Therefore, the administration has to establish and enforce a legal system in the marketing management. Putting regulatory frameworks to enforce pricing based on standards, means public authorities in collaboration with representatives of traders should devise means of controlling those engaged in illegal trades.

➢ According the survey result it is analyzed that there is no well established system of dissemination of market information in the study area. Hence, in order to make information available to the farmers the zonal administers should communicate the relevant information related to price and marketing through available public Medias.

➢ The survey results also indicated that prices of fruits and vegetables have been decided by traders, and traders were price makers and the farmers in study area were price takers. Due to these farmers were not benefiting inline to their effort and productivity rather the market favoring middlemen’s. Hence, in order to enhance the bargaining power of the producers and the government should promote the formation of cooperatives at all levels so that they will help producers via supplying different inputs and information on time.
Reference