Research Journal of Finance and Accounting
ISSN 2222-1697 (Paper) ISSN 2222-2847 (Online)
Vol.9, No.19, 2018

The Effect of Marketing Mix Elements on Sales Volume for Onion Marketing: Evidence from Dugda Woreda, Oromia Region, Ethiopia

Gobezie Getachew
Lecturer, College of Business and Economics, Department of Management, Raya University, P.O.Box: 92, Maichew, Ethiopia

Abstract
The main objective of this study was to assess the effect of marketing mix elements on sales volume for onion marketing; the total population that produces onion in the woreda was 1221 and total sample of 300 onion producers were selected. A multi-stage and proportional stratified sampling technique was used to select sample onion producers from each stratum. Finally, systematic sampling technique was used to select the sample onion producer individual farmers based on the sample frame from each 60-primary cooperative. A structured schedule that has four sections was used to collect the necessary primary data from onion producer farmers and semi-structured self-administered interview was used to collect data from key informants. Enumerator administered schedule was distributed to all the selected onion growers. However, only 280 onion producers responded genuinely and hence, the response rate was 93.4 percent. Descriptive and inferential statistical tools such as; frequency tables, percentages, means, standard deviations, Pearson correlation and multiple regression analysis were used in data analysis. Based on regression model, Product, Price, Promotional and Distribution factors significantly affected sales volume for onion marketing. With these findings, the study provides many implications to boost the sales volume of onion marketing.
Keywords: Marketing Mix, Onion, Sales Volume, Meki-Batu cooperative, Dugda Woreda.

Background of the Study

Marketing is a societal process, by which individuals and groups obtain what they need and want through creating, offering, and freely exchanging products and services and value with others (Kotler and Armstrong, 2003). According to Shilpi and Umali et al. (2007), marketing has an intrinsic productive value, in that it adds time, form, place and possession utilities to products and commodities. Through the technical functions of storage, processing and transportation, and through exchange, marketing increases consumer satisfaction from any given quantity of output (Mendoza and Rosegant, 1995).

Agricultural marketing means the marketing of agricultural products to the first handler. Consumers spend a large amount of income on basic foods hence with the growth of urbanization the agricultural marketing system is expected to play a significant role in linking the rural and the urban population (Sarfraz, T. and Khurram et al., 2008).

The primary origin of onion is Central Asia with secondary center in Middle of the Mediterranean region. From these centers, onion has spread widely too many countries of the world. Onion is different from the other edible species of alliums for its single bulb and is usually propagated by true botanical seed. Onion is one of the oldest cultivated vegetables, and has been in cultivation for more than 4000 years. Records came from Egypt, where it was cultivated at the time of the old kingdom (Shigyo and Kik, 2008).

Ethiopia has different varieties of fruit and vegetable crops that can grow in different agro- ecological zones produced 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 the production is concentrated to some pocket areas. In spite of this, the production of fruits and vegetables varies from cultivating a few plants in the backyards for home consumption up to a large-scale production for domestic and export markets (Dawit et al., 2004).

Ethiopia has an enormous potential for production of onion (Ethiopian Horticulture Development Corporation, 2004). The country has a great potential to produce onion every year for both local consumption and export with an average yield of 13.3 tons per hectares. In the Year 2005, Ethiopia produced 2.3 million quintals of onion according to the Ministry of Agriculture and Rural Development. According to the CSA (2008), onion production in Ethiopia covers 15,628.44 hectare and an annual production of quintal was estimated 1,488,548.9 Qt. Small farmers, private growers and some larger state enterprises in many parts of Ethiopia cultivate onions. Areas with good soil and weather conditions for the cultivation of onions are the Awash valley, lake region and areas close to the Sudan border (Lemma, D. and Shimelis, A., 2003). In Ethiopia, the planted area for Onion was 22,036 hectares in 2011, which correspond to about 0.5 percent of all onion-cultivated areas in the world. The production of Onions in Ethiopia in 2011 was estimated to 236,922 tons, which was about 0.27 percent of all world onion production (FAOSTAT, 2013). Meki and Ziway are located in the Fertile Lake region and this area is known as the onion belt of Ethiopia. Of the 46,600 inhabitants in Meki, 11,320 are farmers

working with onion cultivation in an area of 5,650 ha (Meki and Ziway agricultural office, 2014).

Major types of fruit and vegetable crops currently growing in Dugda woreda, from Fresh Fruits and Vegetables: Tomato, Onion, Pepper, Potato, Cabbage, Green beans, Papaya, Water melon, others like egg plants and from Seeds: Beans (G/beans&, H/beans), Onion and maize. Onions can be produced throughout the year in Dugda woreda due to the mild climate and the rainy season that provide water for irrigation. But there are so many production and marketing problems that challenge onion marketing development in the site.

According to Shankar and Chin (2011), for any business to be successful in today's increasingly competitive marketplace, it must provide a quality product that satisfies customer needs, offer affordable price, and engage in wider distribution and back it up with effective promotion strategy.

Hence, this study attempted to organize the above listed variables into a category of product, price, promotion and place factors and assessed their contribution to Onion Sales Volume in the study area.

Statement of the Problem

According to preliminary assessment in the study area, even though the farmers produce onion products, they are facing the following major constraints in marketing the products successfully. Those problems encountered in the study area are lack of improved seed (vegetable crops), lack of adequate annual rainfall due to climate changes, market price fluctuation, limitation of market information, absence of warehouse in consumer cooperatives to stock product for short time, high involvement of the middle men as a whole, lack of transportation facilities, and weak value chain actors (unions, research centers and governmental bodies).

By taking into account the above major problems, the researchers organized those factors that affect sales volume for onion marketing into four major factors: product, price, promotion and place factors. There is no pre-conducted research on the study area regarding the effect of marketing mix on sales volume for onion marketing by taking variables such as, promotion, price, product and distribution factors. By taking these gaps into consideration the researchers intends to assess the effect of marketing mix elements on sales volume for onion marketing in case of Dugda Woreda.

Objectives of the Study

The overall objective of this study is to assess the effect of marketing mix elements on sales volume for onion marketing in case of Meki Batu fruit and vegetable growers' cooperative union. The specific objectives of the study include:

- To assess the effect of product factor on sales volume of onion marketing
- To examine the effect of price factors on sales volume of onion marketing
- To examine the effect of promotional factors on sales volume of onion marketing
- To assess the effect of place (distribution) factors on sales volume of onion marketing

MATERIALS AND METHODS

This study adopted mixed methods design in which quantitative and qualitative approaches were simultaneously used. Of the several techniques used for data collection a survey was employed, as the most appropriate technique to gather data for this study. The data were obtained by using a schedule administered to a sample; these data are standardized, allowing easy comparison. The research design is cross sectional when we see in time aspect. The study is about assessing the effect of marketing mix elements on sales volume for onion marketing in case of Meki-Batu vegetables and fruits growers' cooperative union onion producer Dugda Woreda. In order to meet this objective, descriptive research was employed. Primary data was collected through self-administered semi-structured interview and through schedule; which comprises both open ended and close ended questions that was filled up by recruited and trained enumerators under the close supervision of the researchers. Secondary data was obtained from various sources such as reports of bureau of agriculture at different levels, NGOs, Central Statistical Authority (CSA), woreda administrative office, Meki-Batu Vegetables and Fruits growers' cooperative union overview documents, previous research findings, internet and other published and unpublished materials, that have relevance with the research topic.

Out of six Woredas, Dugda Woreda was purposively selected because it has the largest number of primary cooperatives and onion producing farmers than any other Woreda. A complete list of onion producers in each primary cooperative in the Woreda was used for sampling. Then, a total of 300 producers were selected based on proportional systematic sampling i.e. according to the number of onion producers in each primary cooperative.

The schedule were designed firstly in English version and translated into Amharic. The translation of schedule makes the respondent familiar with the concept as well as easy understanding. Items in the questionnaire were checked for the reliability using Cronbach's alpha. Cronbach's alpha values for all items under each constructs were checked, minimum of 0.7 were obtained, and thus the literature considers this value acceptable. The survey instrument was pre-tested on some onion producers for clarity, and questions were matched with the appropriate factors. Modifications were made on the pre- test results. The instrument was also checked for its validity based on expert judgment.

Variables in the study were measured by using a five- point Likert – type scale ranging from strongly

disagree (1) to strongly agree (5). On the other hand, the researchers collected the qualitative data through self-administered semi-structured interviews with managers of the cooperatives and the marketing unit leaders of the Meki-Batu fruit and vegetables growers' cooperative union. For the analysis, Multiple Linear Regression Analysis method was used to test the hypothesized relationships between sales volume for onion marketing and the five factors. The assumptions of multiple regressions such as linearity, independence of residuals, and absence of Multicollinearity (Hair et al., 2014) were checked before running the regression models.

RESULTS AND DISCUSSION

To achieve the objective of the research, 300 sample respondents of onion producer farmers were selected from members of the cooperative by using Yamane (1967) sample size determination formula. A total of 300 questioners were distributed to the potential respondents and a total of 280 were completed properly and were used for data interpretation. Out of this, 10 sets of questioners were considered unusable because they were not properly filled by the enumerators, while the reaming 10 of the questioners were not filled totally because of unwillingness of the farmers. Therefore, only 280 usable sets of collected questioners were used for the data analysis. The response rate was (93.33 percent).

This section starts with description of sample respondents and descriptive analysis of the determinants of sales volume for onion marketing. It is followed by the regression analysis with the aim of finding out the relationship between the dependent and independent variables.

Characteristics of Sample Respondents

The majority of onion producers are males that constitute 209 (74 .6 percent) and the remaining 71 are females (25.4 percent) out of the total 280 respondents. This could be attributed to the fact that males are mostly involved in farming and marketing of the agriculture products in the area. With regard to age, those in the category of 36 to 45 are the majority of onion producers that account 78 (27.9 percent), followed by 25 to 35 years, which constitute 66(23.6 percent). Respondents under the age of 46 to 55 rank third, which contain 64 (22.9 percent) while 31 (11.1 percent) are with age category of 56 to 65 and below 25. From all of the respondents of onion producers in Dugda Woreda, those above the age of 65 years account the least in number, which are 10 (3.6 percent).

Regarding the level of formal education, among the sample onion producers, 109 (38.9 percent) were illiterates, followed by 59 (21.1 percent) who takes non-formal education. Out of 280 overall respondents, 55 (19.6 percent), 44 (15.7 percent), 7 (2.5 percent) and 6 (2.1 percent) are with level of education below grade 8, grad 8-12, certificate and diploma, bachelor's degree and above, respectively. The household provides a major source of labor for agricultural activities. From the sample respondents 113 (40.4 present) of the total household members are between4-6, while 80 (28.6 percent) of the household members were between 1 -3, 70 (25.0 percent) and 17(6.1 percent) were between the category of 7-9 and above 9 respectively.

Table 1: Characteristics of Respondents

Characteristics	Items	Frequency (n= 280)	Percentage	Cumulative Percentage
Sex	Male	209	74.6	74.6
	Female	71	25.4	100.0
Age	Below 25	31	11.1	11.1
	25-35	66	23.6	34.6
	36-45	78	27.9	62.5
	46-55	64	22.9	85.4
	56-65	31	11.1	96.4
	Above 65	10	3.6	100.0
Levels of Education	Illiterate	109	38.9	38.9
	Non-Formal Education	59	21.1	60.0
	Below Grade 8	55	19.6	79.6
	Grade8-12	44	15.7	95.4
	Certificate and Diploma	7	2.5	97.9
	Bachelor Degree and above	6	2.1	100.0
Number of Family	1-3	80	28.6	28.6
	4-6	113	40.4	68.9
	7-9	70	25.0	93.9
	Above 9	17	6.1	100.0

Source: Survey Questionnaire, 2017

Table 2: Further Characteristics of Respondents

Characteristics	Items	Frequency (n= 280)	Percentage	Cumulative Percentage
How many years have you worked as onion producer?	1-5	56	20.0	20.0
	6-10	58	20.7	40.7
	11-15	78	27.9	68.6
	Over 15	88	31.4	100.0
How many times you cultivate onion per a year?	One time	78	27.9	27.9
	Two times	188	67.1	95.0
	Three times	14	5.0	100.0
Income per production period	Below 5000.00	0	0	0
	5001.00-10000.00	26	9.3	9.3
	10001.0-15000.00	82	29.3	38.6
	15001.00-20000.0	77	27.5	66.1
	20001.0 and above	95	33.9	100.0

Source: Survey Questionnaire, 2017

With regard to the relevant experience, majority 88 (31.4 percent) of the onion producer farmers stated that they have been in this business of producing onion on their small pieces of land for over 15 years, 78(27.9 percent) stated that they have been farming onion for a period between 11-15 years, 58 (20.7 percent) mentioned that they have been in such business for about 6-10 years and the rest for 1-5 years. About frequency of production per year, 188 (67.1 percent) of the onion producers in Dugda woreda produce onion two times a year, 78 (27.9 percent) produce one time per year, and the other 14 (5.0 percent) produce three times per year. With regard to the income per production period, the majority respondents have income level of above Ethiopian Birr 2000 which accounts 33.9 percent of the total respondents, followed by those with income level of 10,000 to 15,000 that constitute 82 (29.3 percent). Respondents with income level of 15,001 to 20,000 are 77 (27.5 percent) while those with income level of 5001.00 to 10,000.00 are 26 (9.3 percent) of the sample respondents who stood 3rd and 4th respectively. There are no respondents under the category of income level below 5000 Ethiopian Birr per production period.

Descriptive Analysis of the Study Variables

This part of the analysis is made based on survey schedule gathered from 280 onion producers in Dugda Woreda using 5-point Likert's scale. The study has four independent variables: product factors, price factors, promotional factors and place (distributional) factors; and a sales volume as a dependent variable. For a consistent interpretation of descriptive analysis, the following criterion is used.

Table 3: Five-Scaled Likert's Criterion

No.	Mean Range	Response Options
1	[1.00, 1.80)	Strongly Disagree
2	[1.80, 2.60)	Disagree
3	[2.60, 3.40)	Neutral
4	[3.40, 4.20)	Agree
5	[4.20, 5.00]	Strongly Agree

Source: Al-Sayaad et al., (2006)

Table 4: Descriptive Statistics on Product Factors

Scale Items	Statistics			
	Minimum	Maximum	Mean	Std. Deviation
Lack of Improved seeds	1.00	5.00	3.825	1.51743
High Cost of production	1.00	5.00	3.857	1.44961
Inadequate supply of Pesticides and fertilizer	1.00	5.00	3.646	1.35201
Lack of modern farming system	1.00	5.00	3.767	1.52390
Climate change	1.00	5.00	3.685	1.40192
The prevalence of diseases	1.00	5.00	3.803	1.53361
Traditional Farmers' know-how	1.00	5.00	3.778	1.46191
Insufficient and interrupted water supply	1.00	5.00	3.660	1.41011
Perishable nature of Onion	1.00	5.00	3.714	1.42324
Lack of credit access	1.00	5.00	3.775	1.47722
Lack of extension services	1.00	5.00	3.732	1.38981
Soil degradation	1.00	5.00	3.725	1.42661
Overall production factors	1.25	5	3.7476	1.3571
Valid N (listwise)				

Source: Survey Questionnaire, 2017

As it can be seen in table above, the high cost of production which is the predominant constraint of the farmers in the study area was certainly the problem that is outside the farmers control and can lead to low productivity. The mean score is 3.8571. This is followed by Lack of improved seeds and their judicious use by the farming community and the prevalence of diseases. The problem of pest and diseases can affect the productivity and marketing of the farmer's onion product negatively, due to the impact of disease and pest at production level, the damaged, bruised and unhealthy parts of onion are the major problems for marketing process. The mean scores are 3.825 and 3.803, respectively. The overall mean score of the product variable is 3.7476. According to the criterion set under table 3, the mean value falls to "agree level" of the respondents.

Table 5: Descriptive Statistics on Price Factors

Scale Items	Statistics			
	Mini Mum	Maxi mum	Mean	Std. Deviation
High price fluctuation	1.00	5.00	4.132	1.30633
Delay in payment from the customers side	1.00	5.00	3.503	1.31165
Low price of the product	1.00	5.00	4.125	1.37649
Farmers are the price takers	1.00	5.00	4.271	1.26629
Preference of cheaply priced Onion products	1.00	5.00	3.510	1.31434
Lack of Price Information in the market	1.00	5.00	4.132	1.31180
lack of willingness for cooperation	1.00	5.00	3.810	1.41037
Overall Price factors	1	5	3.926	1.2321
Valid N (listwise)				

Source: Survey Questionnaire, 2017

As shown in the table above, price factor consisted of seven items. From these factors Farmers are the price takers of their own onion product in the market, Price fluctuation, Lack of Price information in the market, lower onion prices are critical factors in onion marketing in the study area. The mean scores i.e. 4.2714, 4.1321, 4.1321 and 4.1250 respectively clearly show respondents' agreement on the variables. According to Table 5, the overall mean score of the price factors is 3.9265. Hence, the mean value falls to "agree level" of the respondents.

Table 6: Descriptive Statistics on Promotional Factors

Scale Items	Statistics			
	Mini Mum	Maxi mum	Mean	Std. Deviation
Harvest season Promotion only	1.00	5.00	3.478	1.40643
Lack of access to different trade show and other selling promotional programs	1.00	5.00	3.717	1.48916
Lack of one's own sales force	1.00	5.00	3.635	1.47238
High cost of promotion	1.00	5.00	3.600	1.43834
Unable to select proper promotional tools	1.00	5.00	3.492	1.37305
Absence of persuasive advertisement on TV, radio and print media	1.00	5.00	3.696	1.42582
Lack of Promotion through flyers and brochures local bill board in its promotional strategies	1.00	5.00	3.5929	1.54686
Overall promotional factors	1	5	3.6020	1.360
Valid N (listwise)				

Source: Survey Questionnaire, 2017

Trade show and advertisement creates awareness about the product to the customers, but in the study area such types of promotion access are not available, this problem hinders the sales volume of onion product in the study area. As shown in the table 6, promotional factor has consisted of seven items. From these factors, lack of access to different trade show and other selling promotional programs, absence of persuasive advertisement on TV, radio and print media, and lack of one's own sales force are found to be major problems of onion marketing in the study area. That is mean scores are 4.36, 3.72, 3.74 respectively. The overall mean score of this variable is 3.6. According to the criterion set under table 3, the mean value falls to "agree level" of the respondents.

Table 7: Descriptive Statistics on Place (Distributional) Factors

Scale Items	Statistics			
	Minimum	Maximum	Mean	Std. Deviation
Weak market linkages	1.00	5.00	3.8821	1.36404
lack of knowledge regarding the existing distribution chains	1.00	5.00	3.6821	1.34765
Direct sale to customers	1.00	5.00	3.8321	1.40035
Exploitation by Middlemen	1.00	5.00	3.8393	1.43155
An involvement of a lot of middlemen	1.00	5.00	3.8393	1.38575
Lack of interest in Brokers	1.00	5.00	3.7607	1.36122
Lack of alternative channel	1.00	5.00	3.8179	1.42898
Lack of appropriate transportation mode	1.00	5.00	3.7036	1.38657
Overall Place (Distributional) Factors	1.13	4.88	3.7946	1.30167
Valid N (listwise)				

Source: Survey Questionnaire, 2017

As can be seen from the above table, the first item of Place factor "weak market linkages" has the highest mean value of 3.8821. According to the Likert Scale criteria, the mean value falls on the response scale of "agree". This implies that most onion farmers are affected by weak market linkage. And these ideas were shared in the study by Ponguru, and Nagalla (2016) on Value Chain and Market Analysis of Vegetables in Ethiopia – especially in onion and tomato products. The next variable which states "exploitation of farmers by middlemen" has mean value of 3.8393. This mean value has also a response scale equivalent to "agree" with the construct item. From this, one can say that middlemen don't only exploit onion farmers unfairly but also they take the lion share the onion market. The scale item, "there are a lot of middle men involved in onion marketing" has mean value of 3.8393. Similarly, the mean value 3.83 falls in the range "agree" scale indicating that onion marketing is marred by large number of middlemen. According to Table 7, the overall mean score for the Place factor is 3.79 indicating that respondents are in agreement on its influence in the Onion marketing.

Table 8: Descriptive Statistics on Sales Volume

The dependent variable in this study is sales volume for onion marketing which is measured in quintals and expected to be affected by explanatory variables.

Item	Statistics			
	Minimum	Maximum	Mean	Std. Deviation
Sales Volume (in quintals /100 kg)	30.00	69.50	44.7660	10.23677
Valid N (listwise)				

Source: SPSS Output of Survey Data, 2017

The survey result reveals that the sales volume for a majority of onion producers' is about 44.76 quintals. This is depicted in the table by the mean values 44.76 and the standard deviation 10.236. The minimum sales volume is (30 quintals) and the maximum sales volume in sample respondents were (69.5 quintals). The implication of this result is that there is some sort of variations in sales volume among the sample farmers.

Results of Inferential Statistics

In this section, the results of inferential statistics are presented. In order to address the objectives of the study, Pearson's Product Moment Correlation Coefficient and regression analyses were performed. With the aid of these statistical techniques, conclusions are drawn and decisions are made with respect to the research hypothesis.

Correlation Coefficient

Table 9: The Relationship between Independent Variables and Sales Volume

Variables of the study		Sales Volume	Product	Price	Promotion	Place
Sales Volume	Pearson Correlation	1	-.721**	-.727**	-.760**	-.753**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	280	280	280	280	280
Product	Pearson Correlation	-.721**	1	.718**	.570**	.690**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	280	280	280	280	280
Price	Pearson Correlation	-.727**	.718**	1	.600**	.702**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	280	280	280	280	280
Promotion	Pearson Correlation	-.760**	.570**	.600**	1	.662**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	280	280	280	280	280
Place	Pearson Correlation	-.753**	.690**	.702**	.662**	1**
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	280	280	280	280	280

Source: SPSS Output of Survey Data, 2017

As it is clearly indicated in the table 9, a strong negative relationship was found between promotional factors and sales volume ($r = -.760$, $p < .01$), place and sales volume ($r = -.753$, $p < .01$), price factors and sales volume ($r = -.727$, $p < 0.01$), and product factors and sales volume ($r = -.721$, $p < 0.01$), which are statistically significant at 99 percent confidence level. This implies that at a 1percent level of significance it was found that the promotional, place, price and product factors have a significant relationship with sales volume of onion products in the study area.

Regression Analysis of the Study

Multiple regression analysis is used because there are two or more independent variables that are hypothesized to influence one or more dependent variables (Kothari, 2004). Regression analysis can determine how much of the variation in the dependent variable can be explained by the independent variables. That is, the strength of the relationship. In regression analysis this is measured by Adjusted R Square, R^2.

Generally, the study tested four major assumptions such as Normality, Multicollinearity, Linearity, and Homoscedasticity that must be fulfilled to analyze data using multiple linear regression models. Since all the four assumptions were not violated, the researcher examined the data collected by the schedule using multiple regression models as follow.

Table 10: ANOVA (Analysis of Variance)

ANOVAa

Model	Source	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	21835.873	4	5458.968	179.597	.000b
	Residual	7400.957	275	26.913		
	Total	29236.830	279			

a. Dependent Variable: sales volume
b. Predictors: (Constant), promotion, product, price, place

Source: SPSS Output of Survey Data, 2017

Table 11: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.864a	.747	.743	4.984	1.676

a. Predictors: (Constant), promotion, product, price and place
b. Dependent Variable: Sales Volume

Source: SPSS Output of Survey Data, 2017

From table 11 above, "R" has a score of .864. It is a multiple correlation coefficient between dependent and independent variables of the study. "R" represents the value of the multiple correlation coefficients between the predictors and the outcome (Field, 2005). In order to analyze the determinants of sales volume for onion marketing, the multiple linear regressions has been employed and the results are presented in Table -11. The factors affecting sales volume of onion derived from exploratory factor analysis are considered as independent variables and sales volume for onion marketing is considered as dependent variable. The results show that the coefficient of multiple determinations (R^2) is 747 and adjusted R^2 is 743 indicating the regression model is good fit. It reveals that about 74.3 per cent of the variation in dependent variable (sales volume for onion Marketing) is explained by the independent variables (determinants of sales volume for onion Marketing).

Table 12: Coefficients' Table on Multiple Regression of the Research Model

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	73.896	1.097		67.378	.000		
	Product	-1.660	.357	-.220	-4.653	.000	.411	2.431
	Price	-1.577	.404	-.190	-3.905	.000	.390	2.566
	Promotion	-2.826	.317	-.375	-8.922	.000	.520	1.924
	Place	-1.723	.388	-.219	-4.438	.000	.378	2.649

a. Dependent Variable Sales Volume

Source: SPSS Output of Survey Data, 2017

Table 12 further shows that, all the explanatory variables included in this study significantly explain the variation of the dependent variable at 99 percent confidence level. The standardized beta coefficient column shows the contribution that an individual variable makes to the model. Accordingly, the most contributing factors for sales volume of onion marketing are promotional with beta value of -.375 followed by product factors with the value of -.220.

CONCLUSION AND RECOMMENDATION

The purpose of this study was to identify and examine the effect of marketing mix elements on sales volume for onion marketing. And to this end, the study sought to identify the most important factors that are behind the sales volume of onion marketing in the study area. As depicted by the results of descriptive statistics, onion marketing in the study area is challenged by product, price, promotion and place factors.

As a supplement to the quantitative results, qualitative findings also show that the onion growers in the study area are also affected by climate change, Pest and disease, soil fertility reduction and shortages of water, Cost of production, lack of improved seeds, price taker capacity of farmers, high price fluctuation, lack of access to trade shows, lack of own sales force, poor market linkage, exploitation by middlemen and their high involvement in the channel, lack of storage facilities, and poor rode network.

The empirical evidence also shows that increasing cost of inputs, lack of improved seeds and chemicals (insecticides and fungicides), price fluctuation, and high market involvement of brokers are the variables that strongly challenge vegetable market in Dugda Woreda.

Based on the results of regression analysis, product, price, promotion and place factors are the independent variables that have statistically significant effect on the sale volume of onion marketing. The result shows that, promotion takes the highest beta value in relation to sales volume followed by product factors, price, and place factors stood at third and fourth influential factors respectively. The ANOVA test that produced a P-value of 0.000 which is below the alpha level, i.e. 0.05 indicates the regression model fit.

The study suggests that improving the productivity of onion per unit area of land, introduction of improved varieties, application of chemical fertilizers, using modern technologies, controlling disease and pest practices, assigning efficient extension system, updating the extension agent's knowledge and skills should be promoted to increase production and marketing system to enhance the sales volume of onion product in the study area.

With regard to Pricing, the bulky and perishable nature of Onion leads to storage loss and quality deterioration which in turn results in price fluctuation. In order to overcome this problem, the concerned governmental bodies should help farmers improve postharvest handling by constructing modern warehouse and cold storage.

The result of this study also shows that farmers in the study area do not get timely market price information up on which to base their marketing decision. They depend on traders and their social networks for price information. Therefore, there has to be a mechanism in which institutions like Ethiopian Commodity Exchange (ECX) engages in providing price information weekly or monthly through any available media like TV, Radio, and local billboard. This would make the marketing system to operate efficiently and harmoniously. The availability of timely and precise market price information increases producers' bargaining capacity to negotiate with buyers of their produce.

Brokerage system in the study area is found to be one of the major concerning factors in Onion marketing. Hence, the study suggests that this system should call for special attention and needs to be controlled for the betterment of the farmers. The brokers need to be registered and recognized by relevant authorities and, on the other hand, get trusted while connecting the farmers with the buyers. The local governmental agencies, the cooperatives and other relevant bodies should facilitate to establish sustainable marketing linkage between producers and consumer cooperatives and facilitate the linkage of producers to relevant markets regionally, nationally and internationally. A marketing linkage among Onion farmers and the government institutions consuming high volumes of Onions (university, military camps, and other sectors) need to be established.

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