Factors Affecting Onion Market Outlet Choices in Ejere District, West Shoa Zone, Oromia Region of Ethiopia

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Abstract

This study sought to analyze determinants of market outlet choices among smallholder onion farmers in Ejere district of West Shoa Zone of Oromia Region. Three stage sampling technique was used and data was collected from 85 small holder onion farmers. Multivariate probit model (MVP) was used to analyze factors influencing the choice of onion market outlets choice by the small holder onion farmer. Processing and analysis of the survey data was carried out using SPSS version 20 and STATA version 13. The multivariate probit model results indicated that quantity of onion sold, extension contact, farming experience, distance to nearest market, non/off-farm income, selling price of onion, trust in traders, ownership of motor pump and land size allocated for onion significantly influence onion producers choosing of market outlets for their produce. Policy makers should focus more on enhancing producers' volume sales of onion which could be attained through providing the marketing infrastructure, technical and organizational assistance, and access to markets and support to improve the farmers' bargaining power by establishment of farmers' organizations. Offering reasonable price per quintal can also inspire onion farmers to sell onion through the best market outlets.

Keywords: Market outlet choice; Factors; Onion; Multivariate probit; Ejere.

1. INTRODUCTION

Onion is considered as one of the most important vegetable crops produced on small scale in Ethiopia. It also occupies an economically important place among vegetables in the country. The area under onion is increasing from time to time mainly due to its high profitability per unit area and ease of production, and the increases in small scale irrigation areas. The crop is produced both under rain fed in the "Meher" season and under irrigation in the off season. In many areas of the country, the off season crop (under irrigation) constitutes much of the area under onion production. Despite areas increase, the productivity of onion is much lower than other African countries. The low productivity could be attributed to the limited availability of quality seeds and associated production technologies used, among the others(Aklilu, et al, 2015).

According to the CSA report, the volume of root crops produced and the area under root crops production during the year 2011/12 in Ethiopia was about 16.7 million quintals, and 199,899.8 hectares, respectively. Out of this volume, onion took the share of 3,281,574 quintals and 30,478.3 hectares (CSA, 2012).During the 2013/2014 cropping season, the total area under onion production was estimated to be 24, 375.7 hectares with an average yield of about 9.02 tons per hectare and estimated a total production of greater than 2, 19, 735.27 tons (CSA, 2014). In 'meher' seasonof 2015/2016, the total area coverage by onion crop in the country was 29, 517.01 hectare, with total production of 2,648,493.54 quintals with average productivity of 89.73 quintals per hectare (CSA, 2016). Despite areas increase, the productivity of onion is much lower than other African countries. The low productivity could be attributed to the limited availability of quality seeds and associated production technologies used, among the others.

Onion growers in the study area are producing both for home consumption as well as for market demand by irrigation during dry season. To the best of my knowledge, even though onion is economically and socially crucial crop, onion market outlets study have not yet been undertaken and assessed for the target study area. In order to maximize the benefits that they may earn, farmers have to make appropriate decisions as to where they should sell their product. However, there are various factors that affect households' decision to select appropriate channel for delivering their products to the market. Identifying these factors is very important in terms of pinpointing possible areas of interventions that may help farmers to maximize benefits out of their potato production and marketing activities. The studyattempts to analyze factors affecting onion market outlet choicedecisions of onion producer households in Ejere district of west shoa zone, Ethiopia.

2. METHODOLOGY

2.1. Description of the study area

The study was conducted in West Shoa Zone, specifically, in Ejere District. Ejere district, having an area of 592.19 square km, is located in West Shoa Zone of Oromia National Regional State, with the capital located at 50 km west of Addis Ababa. The district has a total of 30 kebeles of which 27 are rural based kebele administration areas and 3 are town kebele. Total human population of the district is estimated at 89,168 of whom 45,352 are males and 43,816 females. Of the total households 88.36% are rural agricultural households

(CSA, 2014). The altitude of the district varies from 2,060 meters to 3,185 meters above sea level. It receives an annual rainfall of 900-1,200 mm, and has an annual temperature range of 9^0c-18^0c. The district has two agro-ecologies which is Dega (45%) and Weina Dega (55%) (Fanos, 2012). The soils types in the district are predominantly red (58%), black (32%) and mixed (10%). The district is characterized by subsistence mixed farming system in which production of both crops and livestock is common economic activity. The total land of the district is estimated to be 56,918 ha, out of which 40,985 ha is cultivated land, 4,446 ha is grazing land, 4,456 ha is forest and 7,031 ha is covered with others (EWAO, 2015). The district is known for its high production potential of crops and livestock. Crop production takes the lion's share of consumption and income generation of the household. Cereals crops widely produced in the area include *teff*, wheat, barley and maize, pulse crops like chickpea, haricot bean, fababeans and noug are the major crops grown. Moreover, vegetables and root crops produced in the area include onions, potato, tomato, pepper, cabbage and sweet potato.

2.2. Sampling procedure, type of data and method of data collection

The sample for this study was drawn from all actors involved along onion value chain such as producers, rural collectors, wholesalers, retailers and consumers. Three stages random sampling procedure was used for the selection of sample household heads. In the first stage, Ejere district was selected purposively based on the potential it has for onion production. In the second stage, with the consultation of District Irrigation and Development Authority experts, out of 27 kebeles of the district, 4 potential onion producers' kebeles namely Amaro, Hora, Arebsa and Kimoye were randomly selected. In the last stage, from total onion producers' in Ejere district about 85 samples of household heads were randomly selected.

Both primary and secondary data were used for this study. Secondary data sources include Ejere District Irrigation and Development Authority, Ejere District Bureaus of Agriculture, District Trade and Market Development Office and its associated primary cooperatives and Central Statistical Authority (CSA), published and unpublished reports, bulletins, and websites. Primary data sources were smallholder farmers from four purposively selected kebele and wholesalers, collectors, retailers and consumers. Primary data were collected using informal and formal surveys and key informants interviews. For informal survey Rapid Market Appraisal (RMA) technique like focus group discussion and key informant interview was used with checklists. The formal survey was undertaken through formal interviews with randomly selected farmers using a pre-tested structured questionnaire. Focus group discussions were held with two groups based on predetermined checklists and a total of 15 key informants were interviewed from different organizations and institutions.Both qualitative and quantitative data were collected and used for the study.

2.3. Method of Data analysis

Descriptive statistics and econometric models were used to analysis the data collected from the households.Multivariate probit model (mvprobit) was applied for household variation in the choice of a market outlet and to estimate several correlated binary outcomes jointly. Multivariate probit approach simultaneously models the influence of the set of explanatory variables on choice of markets outlets, while allowing for the potential correlations between unobserved disturbances, as well as the relationships between the choices of different market outlets (Belderbos *et al*., 2004, cited in Hailemariam *et al*., 2012).

The observed outcome of market outlet choice can be modeled following random utility formulation. Consider the ith farm household (i=1, 2…... N), facing a decision problem on whether or not to choose available market outlets. Let U_0 represent the benefits to the farmer who chooses wholesalers, and let U_k represent the benefit of farmer to choose the Kth market outlet: where K denotes choice of wholesalers (Y_1), retailers (Y_2), consumers (Y_3) and rural collectors (Y_4). The farmer decides to choose the Kth market outlet if $Y^*_{ik} = U^*_k - U_0 > 0$. The net benefit ($Y^*_{ik}$) that the farmer derives from choosing a market outlet is a latent variable determined by observed explanatory variable(X_i) and the error term (ε_i):

$$Y^*_{ik} = X'_i \beta_k + \varepsilon_i \qquad (k = Y_1, Y_2, Y_3, Y_4) \qquad (1)$$

Using the indicator function, the unobserved preferences in equation (1) translates into the observed binary outcome equation for each choice as follows:

$$Y_{ik} = \begin{cases} 1 \ if \ Y^*_{ik} > 0 \\ 0 \ Otherwise \end{cases} \quad (K = Y_1, Y_2, Y_3, Y_4) \qquad (2)$$

In multivariate model, where the choice of several market outlets is possible, the error terms jointly follow a multivariate normal distribution (MVN) with zero conditional mean and variance normalized to unity (for identification of the parameters) where $(\mu_{y1}, \mu_{y2}, \mu_{y3}, \mu_{y4}) \ MVN \sim (0, \Omega)$ and the symmetric covariance matrix Ω is given by:-

$$\Omega = \begin{bmatrix} 1 & \rho_{y1y2} & \rho_{y1y3} & \rho_{y1y4} \\ \rho_{y2y1} & 1 & \rho_{y2y3} & \rho_{y2y4} \\ \rho_{y3y1} & \rho_{y3y2} & 1 & \rho_{y3y4} \\ \rho_{y4y1} & \rho_{y4y2} & \rho_{y4y3} & 1 \end{bmatrix} \qquad (3)$$

Of particular interest are off-diagonal elements in the covariance matrix, which represent the unobserved correlation between the stochastic components of the different type of outlets. This assumption means that equation (3) generates a MVP model that jointly represents decision to choice particular market outlet. This specification with non-zero off-diagonal elements allows for correlation across error terms of several latent equations, which represents unobserved characteristics that affect the choice of alternative outlets.

Following the form used by Cappellarri and Jenkins (2003), the log-likelihood function associated with a sample outcome is then given by;

$$\ln L = \sum_{i=1}^{N} \omega_i \ln \Phi(\mu_i, \Omega) \qquad (4)$$

where ω is an optional weight for observation i, and Φ_i is the multivariate standard normal distribution with arguments μ_i and Ω, where μ_i can be denoted as;-

$$\mu_i = (k_{i1}\beta_1 X_{i1}, k_{i2}\beta_2, k_{i3}\beta_3 x_{i3}), \text{ While } \Omega_{ik} = 1 \text{ for } j = k \text{ and} \qquad (5)$$

$$\Omega_{jk} = \Omega_{kj} = k_{ij}k_{ik}\rho_{jk} \text{ for } j \neq k, k = 1,2,3.....\text{with } k_{ik} = 2y_{ik} - 1 \qquad (6)$$

Dependent variable
Market Outlets (MktO): A categorical dependent variable measured by the probability of producers sells onion to either of the alternatives market outlets. It was represented in the model as Y_1 for those households who choose to sell onion to wholesalers, Y_2 for producers who choose retailers, Y_3 for producers who choose consumers and Y_4 for producers who choose rural collectors to sell onion.

Independent variables
Sex of the Household Head (SHH): This is a dummy variable (takes a value of 1 if the household head is male and 0 otherwise). The variable is hypothesized that sex of households would have influence on market outlet choice decisions.Both men and women participate in selling onion using different market outlets to generate income.Male household heads have been reported to have a better tendency in searching market alternative for the sale of onion than female household heads. Bebe *et al.* (2012) noted that majority of the female are resource constrained given that they do not own critical resources in vegetable marketing to obtain additional income. As a result, male household heads have more chance to choose appropriate market outlets than female household heads.

Family Size (famsz): This variable is a continuous explanatory variable and refers to the total number of family in the household. Availabilityof active labor force in a household is assumed to affect farmers' decision in choosing a given market outlets of onion. Those households who have active labor are obviously expected to choose better market outlet than others who do not have active labor force. In this context family size is expected to have positive impact on choice of market outlets.

Education Level of the Household Head (EduHH): This is a dummy variable with a value of one if a household head had attended formal education and zero otherwise. The educational status of the farmer determines the speed with which he/she likely to adopt agricultural technologies. Moreover, better educated farmers tend to be more innovative and are therefore more likely to adopt the marketing systems. Educated person also make better use of their time and available resources. Therefore, it is hypothesized that education level of household would have influence on market outlet choice decisions.

Distance from Nearest Market (DNMkt): Distance to the nearest market is a continuous variable measured in walking minutes from the household residence to the nearest market. Those households who are close to market are assumed to have more probability of choosing better market outlets.Riziki et al. (2015) confirmed that distance to the market is significant determinant of choice of marketing outlet. Therefore, it is also hypothesized to influence the decision of farmers to choose the better market outlets.

Farming Experience (exper): This is a continuous variable measured in number of years. A household with better onion farming experience are more likely to change and/or aware onion marketing and differences in profitability in the different marketing outlets. Berhanu *et al.* (2013) found a positive relationship of experience

in dairy farming and the choice of a more profitable milk marketing outlet.Therefore, it is expected that farm experience affects market outlet choice decisions.

Non/Off Farm Income (offarm): It is a dummy variable measured in terms of whether the household obtained income from off and non-farming activities. It is one if the household is involved in non/off-farm activities and zero otherwise. Farmers who gain more income from non/off farm income want to supply their onion to any nearest market outlet with low price than to go far. Hence, off/non-farm income is hypothesized to influence market outlet choice decision of onion producers.

Motor PumpOwnership (ownmotor): It is a dummy variable which takes a value of 1 if the farmers had own motor pump for irrigation 0 otherwise; this one is the most important inputs for onion production in the study area. The study of Moti (2007) showed that area allocation to onion and kale production around Ziway as well as beetroot and leek production around Haro-Maya are positively and significantly affected by motor pump ownership. Motor pump ownership helps to produce more quantity and aids to choice profitable market outlet choice by producing quality product.Therefore,motor pump ownership is hypothesized to have relation with market outlet choice to sell their product.

Quantity Supplied to Market (VVS): It is a continuous variable measured in quintals. The more quantity of onion sold, the higher would be the chances of using different market alternatives. Farmers producing small quantities are likely to sell their products to retail market within a village rather than selling to wholesale market. The study of Chalwe (2011) also indicated the relationship between quantities sold and channel choice. Thus, in this study, onion quantity sold is hypothesized to affect outlet choice decision of the household.

Average Current Farm Gate Price (pricepot and priceoni): This is a continuous variable measured as average price of onion in the current farm gate price in 2014/15 in birr per quintal. When the price of the product is promising, farmers are motivated to sell their product to a particular market outlet. This makes the supply to be directly related with a price offer. Therefore, this variable has hypothesized to have relationships with market outlet choice decision of onion producers.

Extension Contact Frequency (Extcontact): This is continuous variable which is the number of days that farmer had contact with extension agent for agricultural work supervision in a year. Farmers that have frequent contact with extension agent have better access to information and could adopt better technology that would increase their marketed supply of onion. The number of extension agent visits improves household's intellectual capitals and helps in improving onion production and impacts onion market outlet choices. So that extension contact is assumed to have direct relation with market outlet choice of onion producers.

Trust in Buyers (TRUST): It is a dummy variable which takes a value of 1 if the outlet is trusted and 0 otherwise. Farmers who have high trust in buyers are likely to spend less time screening their transacting partners or following up on payments and deliver their product to this outlet. Trust in traders is hypothesized to have positive relation with producers' decision to choose market outlets.

Land Size Allocated (areaonion and areapotato): This variable is assumed to have a positive relation with the dependent variable and is continuous variable measured in hectare. Increase in the area of land covered by the onion can directly increase the volume sales of onion.Hence, area allocated for onion is hypothesized to influence positively market outlet choice decision of onion producers.

3. Results and Discussions
3.1. Descriptive analysis
Socio-economic characteristics of the sampled households

As shown in Table 1, out of total households head interviewed 77.65% were male headed households while 22.35% were female headed households. The survey result shows that about 40% of the sampled household heads were illiterate while 60% were attended formal education. The mean family size of the total sample households was 6.93 persons ranging from 1 to 13 and this might assist them for a better participation of households in the onion markets. From sampled households about 35.29% were participating on off/non-farm income activities and 64.71% were not participating on off/non-farm income activities. As observed from Table 1, the average distance needed for producer's to travel to nearest market place was took average walking minutes of 155.34 with range from 10 to 240 walking minutes. The result also shows that the land allocated for onion is an average per household allocation of 0.42 hectares and the standard deviation of 0.42 and ranges from 0.03 to 2 hectares during survey year. The mean quantity of onion supplied to market was 48.04 quintals and ranges from 4 quintals to 247quintals during survey year. The average selling price of onion was 835.06 Birr per quintals and ranges from 300 to 1200 Birr per quintals during survey years.The respondents have an average of 4.49 years of farming experience in onion production with a standard deviation of 2.71.

Table 1: Demographic and socio-economic characteristics of sampled producers

Variables	Indicators		freq	Percent
Sex of households head	Male		66	77.65
	Female		19	22.35
Education level of households	Formal education		51	60
	Illiterate		34	40
Access to off/on farm income	Yes		30	35.29
	No		55	64.71
Trust in buyers	Yes		39	45.88
	No		46	54.12
Motor pump ownership	Yes		48	56.47
	No		37	43.53
	Obs	Mean	SD	Min	Max
Quantity of onion supplied to market(qt)	85	48.04	46.49	4	247
Selling price of onion (Birr)	85	835.06	203.85	300	1200
Extension contact (number contacted in year)	85	20.55	12.27	1	36
Family size (number)	85	6.57	2.98	1	13
Distance to nearest market (walking minutes)	85	155.34	49.84	10	240
Farming experience (years)	85	4.49	2.71	1	15
Land allocated for onion (hectare)	85	0.42	.035	0.03	2

3.2. Econometric analysis

Determinants of onion producers' market outlets choice

The model fits the data reasonably well the Wald test $(\chi^2(48) = 118.91, p = 0.000)$ is statistically significant at the 1% level, which indicates that the subset of coefficients of the model are jointly significant and that the explanatory power of the factors included in the model is satisfactory. Furthermore, results of likelihood ratio test in the model $(\text{LR } \chi^2(6) = 13.903, \text{prob} > \chi^2 = 0.0319)$ is statistically significant at 5% level, indicated that the independence of the disturbance terms (independence of multiple market outlets) is rejected and there are significant joint correlations of the several estimated coefficients across the equations in the models. The likelihood ratio test of the null hypothesis of independency between the market channel decision ($\rho_{21} = \rho_{31}$ $= \rho_{41} = \rho_{32} = \rho_{42} = \rho_{43} = 0$) is significant at 5%. Therefore, the null hypothesis that all the ρ (Rho) values are jointly equal to 0 is rejected, indicating the goodness-of-fit of the model. Hence, there are differences in market outlet selection behavior among farmers, which are reflected in the likelihood ratio statistics.

The ρ_{42} (correlation between the choice of rural collector and retailer outlet) and ρ_{43} (correlation between the choice of rural collector and consumer outlet) are negative and statistically significant at the 10% probability level, indicating a competitive relationship of collector outlet with retailer outlet and consumer outlet while ρ_{32} (correlation between choice of consumer and retailer outlet) are positive and statistically significant at 1% level of significance indicating complementarity relationships between retailer and consumer outlet (Table 2). This shows that in onion marketing producers use rural collector as a substitute for consumers and retailer outlets in Ejere district. The simulation results indicate that the probability that onion producers choice wholesaler, retailer, consumer, and rural collector market outlet were 75%, 64%, 60%, and 58%, respectively. The joint probabilities of success and failure of the four variables also suggest that it would be unlikely for households to choice all the four market outlet simultaneously, for their likelihood to do so was only 14.1%. As depicted in Table 2 out of twelve explanatory variables included in multivariate probit model, two variables significantly affected wholesaler market outlet; three variables significantly affected retailer outlet; five variables significantly affected consumer outlet; and three variables significantly affected collector outlet choices at 1, 5 and 10 percent probability levels.

Table 2: Multivariate probit estimations for determinates of onion producers outlets choice

	Wholesalers		Retailers		Consumers		Collectors	
	Coef.	RSE	Coef.	RSE	Coef.	RSE	Coef.	RSE
Constant	-3.187*	1.657	1.425	0.925	2.034**	0.938	-0.632	0.959
VVSonion	0.048***	0.016	0.010	0.007	0.007	0.008	-0.004	0.008
SHH	0.312	0.597	-0.228	0.366	-0.556	0.380	-0.024	0.397
EduHH	-0.352	0.451	-0.218	0.328	0.067	0.326	-0.033	0.323
Famsz	-0.110	0.080	0.063	0.055	0.013	0.055	0.040	0.058
DNMKT	0.004	0.005	0.007**	0.003	0.0009	0.003	-0.006*	0.004
Exper	0.085	0.116	-0.017	0.075	0.150*	0.082	-0.101	0.073
Offarm	-0.093	0.471	-0.742**	0.363	-0.012	0.333	0.030	0.355
Priceoni	0.001	0.001	-0.001	0.001	-0.001*	0.001	0.001	0.001
ownmotor	-0.622	0.449	0.287	0.340	0.546*	0.329	0.402	0.336
TURST	0.265	0.448	-0.303	0.347	-0.765**	0.339	0.621*	0.342
Extcontact	0.057***	0.019	-0.010	0.012	-0.017	0.013	-0.001	0.012
areaonion	1.628	1.882	-2.496***	0.955	-2.108**	0.847	2.127*	1.218
Predicted probability		0.752		0.647		0.60		0.588
Joint probability(success)						0.141		
Joint probability (failure)						0.005		
Number of draws (#)						5		
Observations						85		
Log Likelihood						-165.248		
Wald($\chi2(48)$)						118.91		
Prob >$\chi2$						0.0000		

Estimated correlation matrix

	ρ_1	ρ_2	ρ_3	ρ_4
ρ_1	1.00			
ρ_2	-0.336 (0.252)	1.00		
ρ_3	-0.496 (0.303)	0.487***(0.176)	1.00	
ρ_4	0.322(0.255)	-0.340*(0.191)	-0.324* (0.187)	1.00

Likelihood ratio test of: $\rho_{21} = \rho_{31} = \rho_{41} = \rho_{32} = \rho_{42} = \rho_{43} = 0$:

$$\chi^2(6) = 13.802$$

Prob >$\chi2$=0.0319**

Note: *, ** and *** indicate statistical significance at 10, 5 and 1%, respectively. RSE is Robust standard error, Y_1=Wholesalers, Y_2=Retailers, Y_3=Consumers, and Y_4=Collectors,

Source: Own computation from survey result, 2015.

Quantity of Onion Supply to Market (VVSonion): The likelihood of choosing wholesaler positively and significantly affected by volume supply to market at 1% levels of significance (Table 2). This result implies households who supply large output of onion accessed wholesaler market outlet compared to households who supply less because of wholesaler capacity to purchase large amount of onion product. The implication is that if the quantity of onion to be sold is large farmers' search a market outlet which buys large volume with high price. But, if the quantity to be sold is low, farmers are not forced to search price and market information. This finding is in line with findings of Muthini (2015) who found that farmers with a large number of mango trees were more likely to sell to export market relative to brokers. Similar findings explained the direct or positive relation between market channel choice decisions of different products with quantity sold (Chalwe, 2011 and Bezabih *et al*., 2015)

Extension Contact Frequency (Extcontact): Number of extension contact has positive and significant influence with wholesaler outlet choice decision at 1% significance level. Households who were visited more by extension agent were more likely to deliver onion via wholesaler outlets than households less visited by extension agent. Extension contact enables the farmer to improve production methods hence leading to more output which in turn more likely to sell onion via wholesaler market outlet. This result is in line with the result obtained by Abraham (2013) who found negative impact of agricultural extension service on the probability of choosing collector and retailer outlets compared to wholesale outlet in vegetable market outlet choice.**Average Current Farm Gate Price of Onion (priceoni):** This variable is associated negatively and significantly at 10% level of probability with selling onion to consumers. A negative sign on its coefficient indicates that farmers are less likely to sell onion to consumer outlet as farm gate price increase.The rationale behind is that price is the

main driving force of suppliers, producers less likely to sell onion to consumer outlet when price rise because consumer purchase small amount when price high.Tsougiannis *et al*. (2008) noted that the choice of a marketing channel by dairy farmers heavily depended on the price offered by that channel.

Farming Experience (exper): The likelihood of choosing consumer outlet was positively and significantly affected by number of years that a farmer had been growing onion at 10 % levels of significance**.** Farmers who had been growing onion more years were found to be more likely to selling onion to consumer outlet than those with less year of experience. The positive associations may imply that more experienced farmers had better knowledge of cost and benefits associated with various onion market outlets; consequently they were more likely to choose consumer outlet to benefits by retailing to consumers at market day.

Distance to Nearest Market (DNMKT): Contrary to priori expectations, distance to the nearest market influences positively and negatively the likelihood of choosing retailer outlet and rural collector outlet at 5% and 10% significant level, respectively. Households whose residences are far from nearest market are more likely to sell their produce to retailer outlet and less likely to sell to collector outlet.

Off/Non-Farm Income (offarm): The probability of choosing retailer outlet is negatively and significantly influenced by availability of off/non-farm income at 5% significance level.This implies producers who are engaged in off/non-farm activities are less likely to sell onion to retailer outlet as compared to producers who not. This may be due to low price offered by retailer outlets the farmers prefer selling onion to others outlet than retailer outlets because they are profit seeker. Riziki *et al*. (2015) also found that off-farm income influence the choice of marketing outlet at the farm gate and local open air market.

Ownership of Motor Pump (ownmotor): Ownership of motor pump had a positive and significant influence on the choice of consumer outlet at 10% probability level.The positive sign show that farmers who have own motor pump are more likely to sell onion to consumer outlet compared to those farmers who had not. This may imply that farmers who had own motor pump for irrigation produce more onion and thus deliver their product to any of available outlets compared to those farmers who had not.

Trust in Buyers (TURST): The variable was positively and negatively associated with rural collector outlet and consumer outlet at less than 10% significance level. The positive and negative results showed that farmers who trust in traders are more likely to choose rural collectors for their onion product and less likely to choose consumer outlet. A good reputation and trustworthiness of traders increase farmers' commitment to these traders because it reduces opportunistic behavior and promotes cooperation and commitment in the relationship.

Land Allocated for Onion (areaonion): Finally, as expected, those farmers who allocated more land for onion production negatively and significantly associated with retailer and consumer outlet at 1% and 5%, significance level, respectively while positively and significantly associated with choice of collector outlet at 10%, significance level. This a line with Getachew and Nuppenau (2009) and Berhanu *et al*. (2013) who found that large land allocated for banana and potato positively and significantly affects the proportion sold through wholesale traders and cooperative milk market outlets, respectively.

4. Conclusion and Recommendation

This paper examined the factors affecting onion market outlet choices, using the multivariate probit model and data collected from the smallholders' farmers in Ejere district. Descriptive result showed that the mean land size allocated for onion by sampled households was 0.42 hectares during survey years. The results also showed that a mean quantity of suppliedto market was of 48.04quintals per households during survey year. Econometric result of the multivariate probit model indicated that quantity of onion sold, extension contact, farmers' experience,distance to nearest market, access of off/non-farm income, current farm gate price of onion, trust in traders, ownership of motor pump and land size allocated for onion were among determinants which affect significantly onion producers to choose the alternatives market outlets.

The results of this study suggest several ways in which smallholder farmers can actively market their produce. The findings suggest that an adjustment in each one of the significant variables can significantly influence the probability of choice market outlets.Policy makers should focus more on enhancing producers' volume sales of onion which could be attained through providing the marketing infrastructure, technical and organizational assistance, and access to markets and support to improve the farmers' bargaining power by establishment of farmers' organizations. Moreover, the concerned authority should be able to increase the awareness of households about the importance of adult education and about the school age at which their children should join the school to choice appropriate market outlets.Distance from the farm to the nearest market significantly affect market outlets choice decision, government should ensure developing markets for onion within reach this will motivate a lot of farmers to participate in onion supply their by increase their income and choice of appropriate outlets. Price is also an important factor observed to influence choice of appropriate market outlets.Increasing production alone is not enough without getting a reasonable selling price and marketing linkage. Offering reasonable price per quintal can inspire onion farmers to sell onion through the appropriate market outlets.

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