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Market Outlet Choices of Smallholder Wheat Farmers in South Gondar Zone, Amhara National Regional State, Ethiopia: A Multivariate Profit Approach

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Abstract: Wheat is an important cereal crop in farta district. It is a source of food and provides cash income for majority of smallholder farmers. To commercialize wheat producers, selecting an appropriate market channel and determining the factors affecting producers sellingdecisions is important. Developing an effective and efficient marketing strategyis not an easy task because there are different factors that influence market outlet choicesbehaviors. Therefore, this study aimed to describe the socio-economic characteristics of wheat farmers& to identify factors that influence wheat farmers market outlet choices. A two-stage random sampling procedure was used and a total of 154 smallholder farmerswere randomly and proportionally selected to collect primary data. Multivariate probit model was employed to identify factors affecting wheat market outlet choices. The result of the study showed that the probability of wheat producers to choose consumer outlet is relatively high (56.9%) as compared to the probability choosing wholesaler(54.4%), retailer(49.2%) and cooperatives outlet (37.4%). This showed that consumer was the most likely chosen market outlet while cooperative was the less likely chosen market outlet.The likelihood of households to jointly chose the four outlets is only 6.3% compared to their failure to jointly choose them (6.6%). This suggest that households were less likely to fail to jointly choose the four outlets. The result of multivariate probit model revealed that family size, Members of cooperative, other crops price, lagged price, Oxen, Sex, Time of sale, Age, Distance, education were found to be statistically and significantly affecting the market outlet choice behavior of wheat producers. Therefore, the study suggested that improving the existing production system, giving better price for farmers and being membership for any cooperative are important strategies to select the appropriate market outlet.

Key words: 1. Market Outlet Choice 2. Market channels 3. Multivariate Probit Model 4. Wheat

1. Introduction

1.1. Back ground of the study

Wheat is an important food crop in theworld, with an estimated 36 million tons of annually produced(Sall et al., 2019). Themost wheatproducing countries areTurkey, Canada, Italy, India, France, Greece, Morocco,Pakistan, Portugal, Kazakhstan, Russia, Spain, Australia, andsub-Saharan African countries(Shewry, 2012). Ethiopia is the largest producer of wheat, with approximately0.6 million ha in sub-SaharanAfrica(Gebreselassie et al., 2017). In Ethiopia, wheat has beenselected as one of the target crops inattaining national food self-sufficiencygoal(Ghanney et al., 2020).

According to(Dube et al., 2019), the Ethiopiangovernment, in its two-consecutive 5-year Growth and Transformation Plans(GTP-I and GTP-II), has given much emphasis for agricultural commercialization, among which the second pillar intends to achieve growth and thereby improve people'slivelihoods and reduce poverty. Agricultural commercialization clusters with the primary goal of commercialization of smallholders'agriculture and agro-industrial development, offering a strategic entry point for privatesector engagement implemented in the government of Ethiopia (Cheber, 2018).

Commercializationof agricultural production is conceived as the process of agricultural modernization,specialization, and structural transformation of the economy toward more rapidand sustainable growth(Getahun, 2020). Commercialization entails agricultural production decision,intended for market-based signals, offered produce for sale and use of purchased inputs.Cereal production and marketing are the main means of livelihood for millionsof smallholder households in Ethiopia. Among cereals, wheat stands third in termsof land area coverage, afterteff and maize. Wheat is a staple food and one of themost important crops for generating farm income, cultural heritage, national identityand nutritional security.TheEthiopian agriculture sector is composed of the crop,livestock, forestry, and fishing subsectors of which the cropsubsector takes the lion's share of the agriculture sectors,comprising 65.3%, followed by livestock production (25.3%).

As discussed by CSA, (2018), the crop production subsectoris showing improvement in terms of productivity andthe extent and use of modern farm inputs and modernfarming system practices though the production comes fromsmallholder farmers. Grain crop production isthe most widely spread crop production activity both interms of the extent of cropped land area and volume ofproduction in Ethiopia(Central Stastics Agency, 2015). Cereal crops that are classified within thegrain crops category are also produced in greater volumecompared to the other crops by commercial farms becausethey are the principal staple crops and export commodities(CSA, 2016).But, the majority of the farmers in Ethiopia aresmallholder farmers, producing mostly for own consumptionand generating only a small marketed surplus (Kabiti et al., 2016).Especially, five major bowls of cereal (teff, maize, sorghum,barley, and wheat) are the core of Ethiopia's agriculture,accounting

for about 75% of the total area cultivated (Taffesse et al., 2011).Among cereal crops, wheat ranks third in total grain productionand second in yield next to maize (Workineh et al., 2015). In Ethiopia,wheat is one of the largest produced cereal crops in terms ofthe area coverage (1.6 million hectares), the volume produced(3.9 million tons), and the number of farmers engagedin wheat production (4.7 million farmers) with an averageproductivity of 2.4 tons per hectare (CSA, 2015).

Wheat production in Farta district is mainly produced for market demand besides to consumptionby smallholder farmers. In spite of wheat is an economically, socially and culturallyimportant crop, wheat market channel choices' study has not yet been undertakenand assessed in the study area. Wheat products are filled with the same products of different tastes, prices, features, quality and packaging and as a result, some outputs do not get sold. Producers require their products to be recognized and purchased, in order to sustain their businesses and keep providing jobs. Hence to maximize the benefits that they may earn, farmers have to make appropriate decisions as to where they should sell their product.

1.2. Statement of the problem

Wheatisan important market-oriented commodity and a major source of income for many smallholder farmers in Ethiopia (Abera, 2009). Even though it has a huge potential, only 20% of the total wheat production is sold, while 80% of its total production is used for human consumption, seed, in-kind payments for labor, and animal feed(Abafita et al., 2016). The smallholders in the country are improving their way of life through growing and selling wheat produce so that the government promotes them to produce more for alleviating poverty.

In spite of the conducive agricultural commercialization policy environment, thereturn and incentive for growth in wheat through agricultural commercialization face anumber of demographic and marketing challenges (Getahun, 2020). There is alack of information in terms of identifying factors affecting market outlet choices&consumers buying decisions of wheat producer particularly in Farta district, South Gondar Zone, Amhara National RegionalState, which is one of the potential areasof wheat production in Northwestern Ethiopia.

Market outlet choice is one of the most important farm householddecisions to sell their produce in different marketing outlets and has a great impact onhousehold income. Market outlet choices are household-specific decision and severaldrivers have to be considered as a basis for such decision. There is a need to understandthe characteristics of the various wheat marketing channels, and to enhance the capacity offarmers to make informed decisions regarding marketing channels.

Understanding thefactors that influence the choice of marketing outlet selection strategiesis imperativesince the exploitation of such strategies has the potential to increase crop production,investment and farm income. The information could further assist indeveloping strategies to mitigate the effect of some factors, thereby enhancing smallholderfarmers' market access and increasing their chances of running a sustainable andprofitable crop farming business. (Muricho et al. (2015)argue that understanding therelationships between the marketing channels and the factors that determine the utilizationof each market channel is fundamental in profiling the markets, as well as establishingpolicy interventions that are carefully designed to benefit farmers.

Hence, this study aims to identify factors that influence wheat market outlet choices and consumer buying behavior, inorder to narrow the information gaps between producers, consumers, cooperatives,traders and other market participants.

1.3. Research questions

- How are the socio-economic characteristics of wheat farmers be described?
- What are the factors that influences wheat market outlet choices of small holder farmers in the study area?

1.4. Objectives of the study

1.4.1. General objective

To examine the socio-economic and demographic factors influence market outlet choices of wheat farmers in Farta district, South Gondar Zone.

1.4.2. Specific objectives

- To describe the socio-economic characteristics of wheat farmers.
- To identify factors that influence wheat market outlet choices of small holder farmers in the study areas.

2. Conceptual frame work of the study

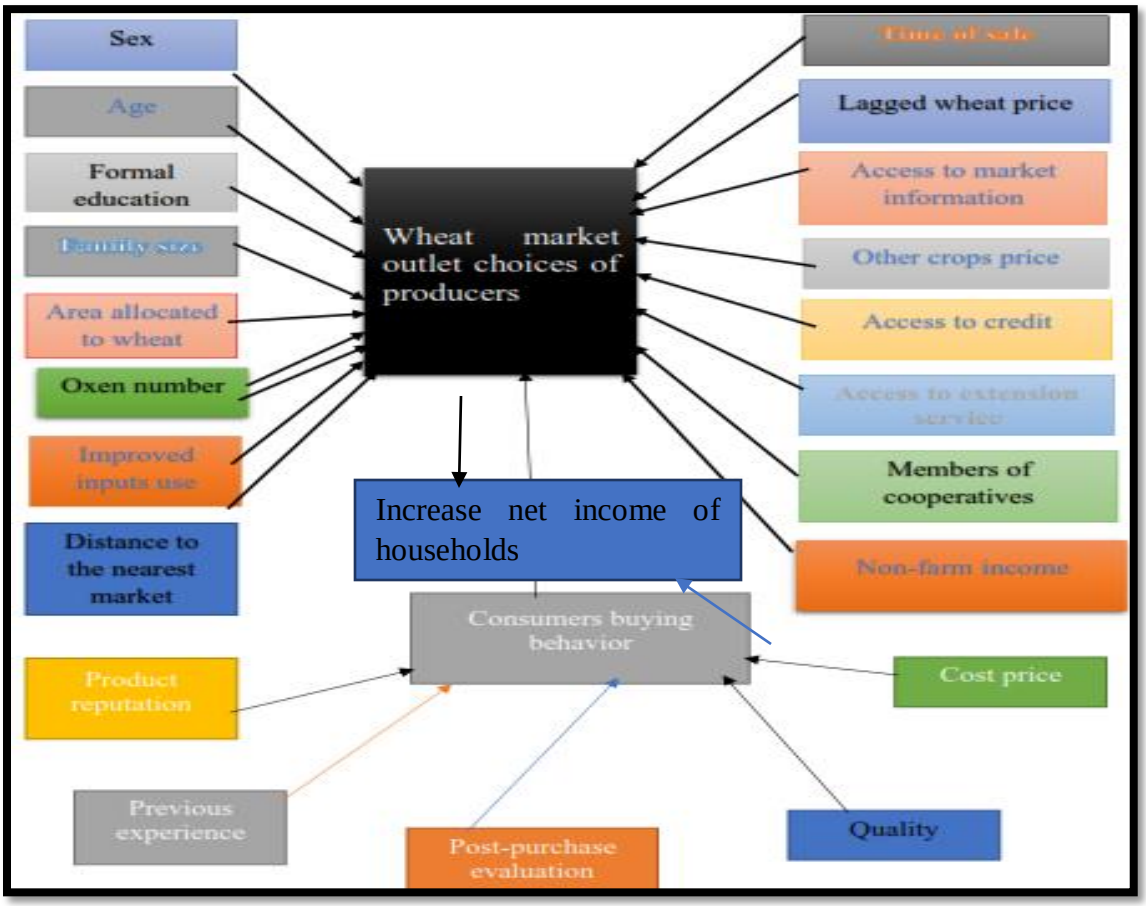

Figure 1: Conceptual Framework Model Source: Own Sketch

3. Research Methodology

3.1. Description of the study area

Farta District is bordered on the South by Misraq Este district, on the West by Fogera district, on the North by Ebenat, and on the East by Lay Gayint. The district specific location lies between $11^{0}32'$ to12^{0} $03'$latitude and $37^{0}31'$ to 38^{0} $43'$ longitudes. Based on the 2014 national census conducted by the Central Statistical Agency of Ethiopia (CSA, 2015), this District has a total population of 264,273 with male 133,923 and female 130,349 With an area of 1,070.77 square kilometers, Farta has a population density of 246.81, which is greater than the Zone average of 145.56 persons per square kilometer. A total of 49,986 households were counted in this district, resulting in an average of 4.64 persons to a household, and 48,465 housing units.

The main economic and commercial crops grown in the district are barley, wheat, linseed, teff, sorghum, maize; beans, peas, chickpeas, oil crops, vegetable crops like cabbage, tomato, pepper and root and tuber crops like potato, onion, garlic and sweet potato. Potato is the first and most dominantly produced crop among root and tuber crops and it compared to other grain crops produced in the area, potato ranked the third crop produced next to wheat and barley.

Geographical location of the study area.

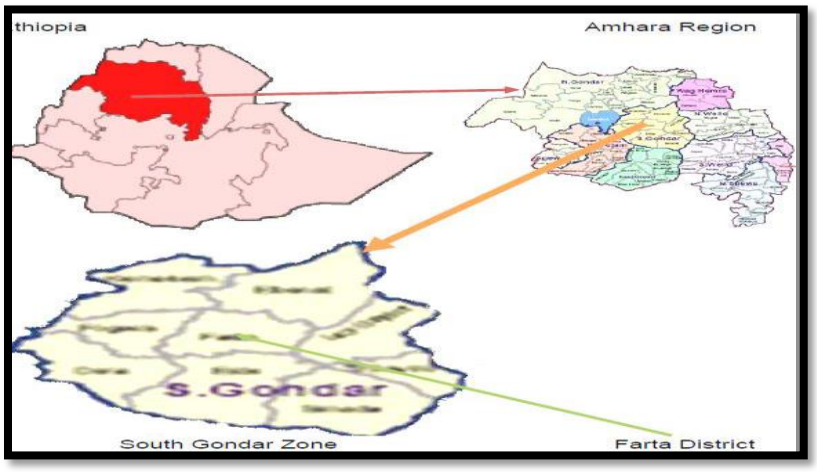

Figure 2: Map of the study areas
Source: Mequanint, (2010)

3.2. Data sources and types

In this study qualitative and quantitative type from both the primary and secondary data were collected.

Primary data: Its source was154 smallholder farmers randomly selected from six different ruralkebeles.

Secondary data: thesedata were collected reviewing documents of secondary sources from relevant published and unpublished reports namely woreda office of Agriculture and Rural Development, Office of Small-Scale Trade and Transport, books of Central Statistical Authority (CSA).

3.3. Sampling procedures

A two-stage sampling procedure was employed to select potential wheat producer households.First, sixpotential wheat producer kebeles out of 38 from the district were selected throughpurposive sampling method. During the selection, the kebele's potential for wheat productionand the accessibility of the areas to travel were taken into consideration. In the secondstage, using the population list of wheat producer farmers from sample kebeles, theintended sample size was determined proportionally to population size

of wheat producerfarmers. Then, 154 representative households were randomly selected using simple randomsampling technique using (Tepping, 1968) formula;

$$n = \frac{N}{1 + N(e^2)}, = \frac{9852}{1 + 9852((0.08)^2)} = 154$$

Where n is the sample size, Nisthe population size (total household size) and e the levelof precision. The population is homogeneous in terms of wheat production in the samplekebeles. Due to the homogeneity of the population, 8% precision level was used for thisstudy to avoid incurring additional costs and taking more time for collecting the sameset of information on different small-scale wheat producer farmers. Based on the numberof the total households (9852) in the sampling frame, the formula equated and reached aminimum of 154 respondents to be drawn.

3.4. Method of data collection

Both primary and secondary data on a wide variety of variables were gathered to meet the objectives of the study. Primary data were collected through the administration of semi-structured and personal interview by a team of five trained enumerators to 154 small-scale wheat farmers. Secondary data were collected from past reports and studies conducted by institutions and researchers.

3.5. Method of data analysis

Two types of analyses, namely descriptive and econometric analyseswere used for analyzing the collected data.

3.5.1. Descriptive statistics

The main descriptive statistics indicators that were employed are percentage,mean and standard deviations.

3.5.2. Econometrics analysis

The appropriate econometric models that can help to identify the factors affecting marketoutlet choices of sample households are multivariate probit and multinomial logitmodel. Multivariate probit model was employed because of its advantages over multinomiallogit model.Multivariate probit model simultaneously set out the influence ofa set of explanatory variables on choice of market outlets, while allowing for the potentialcorrelations between unobserved disturbances as well as the relationship betweenthe choices of different market outlets.

The selection of appropriate market outlet i by farmer j is Y_{ij}^A defined as the choice offarmer j to transact market channel i(Y_{ij}^A= 1) or not (Y_{ij}^A= 0) is expressed as follows;

$$Y_{ij}{}^{A} = \begin{pmatrix} 1 \text{ if } Y_{ij}{}^{A} = x_{ij}{}^{A}\alpha_{ij} + \varepsilon^{A} \geq 0 \leftrightarrow Y_{ij}{}^{A} \geq -\varepsilon^{A} \\ 0 \text{ if } Y_{ij}{}^{A} = x_{ij}{}^{A}\alpha_{ij} + \varepsilon^{A} < 0 \leftrightarrow Y_{ij}{}^{A} \geq -\varepsilon^{A} \end{pmatrix},$$

Where α_{ij}Is a vector of estimators, ε^{A}A vector of error terms under the assumption ofnormal distribution, $y_{ij}{}^{a}$is dependent variable for market outlet choices simultaneouslyand $x_{ij}{}^{a}$ is combined effect of the explanatory variables.

The selection of one type of marketoutlet would be dependent on the selection of the other, since smallholder farmers'choice decisions are interdependent, suggesting the need to estimate them simultaneously.To account for this problem, a multivariate probit simulation model wasemployed (Arinloye et al., 2015). Since smallholder farmers' market outlet choice decisions wereexpected to beaffected by the same set of explanatory variables.

$$\begin{cases} \text{Wholesalers}_{j} = X'_{1}\beta_{1} + \varepsilon^{A} \\ \text{Retailer}_{j} = X'_{2}\beta_{2} + \varepsilon^{B} \\ \text{Cooperative}_{j} = X'_{3}\beta_{3} + \varepsilon^{C} \\ \text{Consumer}_{j} = X'_{4}\beta_{4} + \varepsilon^{D} \end{cases}$$

Where Wholesalers_{j} , Retailer_{j} , Cooperative_{j}And Consumer_{j}Are binary variables taking Values 1 when farmer j selects wholesalers, retailers, consumers and cooperatives,respectively, and 0 otherwise; X_1 to X_4 are vector of variables; β_1To β_4A vector of parametersto be estimated and Ɛ disturbance term.In multivariate model, the use of several market outlets simultaneously is possibleand the error terms jointly follow a multivariate normal distribution (MVN) with zeroconditional mean and variance normalized to unity and ρ_{ij}Represents the correlationbetween endogenous variables, given by;

$$\varepsilon^{B} \quad \ldots N \quad \begin{pmatrix} \varepsilon^{A} \\ 0 \\ 0 \\ 0 \end{pmatrix} \quad \begin{bmatrix} 01\rho_{12}\rho_{13}\rho_{14} \\ \rho_{21}1\rho_{23}\rho_{24} \\ \rho_{31}\rho_{32}1\rho_{34} \\ \rho_{41}\rho_{42}\rho_{43}1 \end{bmatrix}$$

ε^{C}

ε^{D}

$\text{Ɛ}(\varepsilon/X = 0$

$\text{Var}(\varepsilon/X) = 0$

$\text{Cov}(\varepsilon/X) = \rho.$

4. Result and Discussion

4.1. Demographic and socio-economic characteristics of sample households

Majorities of sample respondents weremale-headed households in the study area. This implies that male-householdheads have access of marketing information with goodmarket networks due to theinteraction ability with one or more wheat product buyers than femaleswho are in mostcases restricted to home tasks.

Table 1: Mean and proportion of sample households' characteristics.

Continuous variables	**Means**	**Standard deviations**
Age (years)	47.49	1.08
Family size (adult equivalent)	2.99	.071
Areas allocated to wheat(hectare)	.33	.016
Oxen numbers (number)	1.37	.069
Distance to the nearest urban market (hours)	31.87	1.01
Lagged wheat price (birr)	545.43	6.78
Other crops price (birr)	563.43	6.32
Non-farm income (birr)	1062.67	223.7
Dummy variables	**Frequency**	**Percentage**
Sex (male)	133	86.36
Formal education (attend for schooling)	67	43.51
Uses of Improved input (yes)	133	86.36
Access to market information (yes)	96	62.34
Access to credit (yes)	43	27.92
Access to extension services (yes)	147	95.45
Members of cooperatives (yes)	113	73.38
Time of sale (immediately after harvest)	80	51.95

Source: Survey data result, 2020

Table 2: Proportion of market outlets chosen by sample wheat producers.

Decision to choose	**Market outlets for wheat producers**							
	Consumer		**Retailer**		**Wholesaler**		**Cooperatives**	
	N	Percent	N	Percent	N	Percent	N	Percent
Yes	88	57.14	77	50	83	53.90	58	37.66
No	66	42.86	77	50	71	46.10	96	62.34

Source: Survey data result, 2020

Wheatproducers in the study area sell their product in four market outlets. These wereconsumers which accounts for 57.14% of total sells followed by wholesalers, retailers andcooperatives with total sales of 53.90%, 50% and 37.66%, respectively. This impliesthat farmers have limited market outlets to sell their produce. Therefore, the concernedbody should give enough information for farmers to maximize the return of farmer fromthe sales of agricultural products.

Marketing Channels of Wheat

Market channel analysis is important to provide a systematic knowledge of the flow of products from producers to consumers. Therefore, wheat market channel for this study were designed based on the direction and volume of flow of product (wheat) passing through different routes during the 2019 /20 production year. The main marketing channel identified from the point of production until the product reaches to the final consumer through different intermediaries were:

I. Producers → consumers
II. Producers → cooperatives
III. Producer's → retailers
IV. Producer's → wholesalers → regional traders

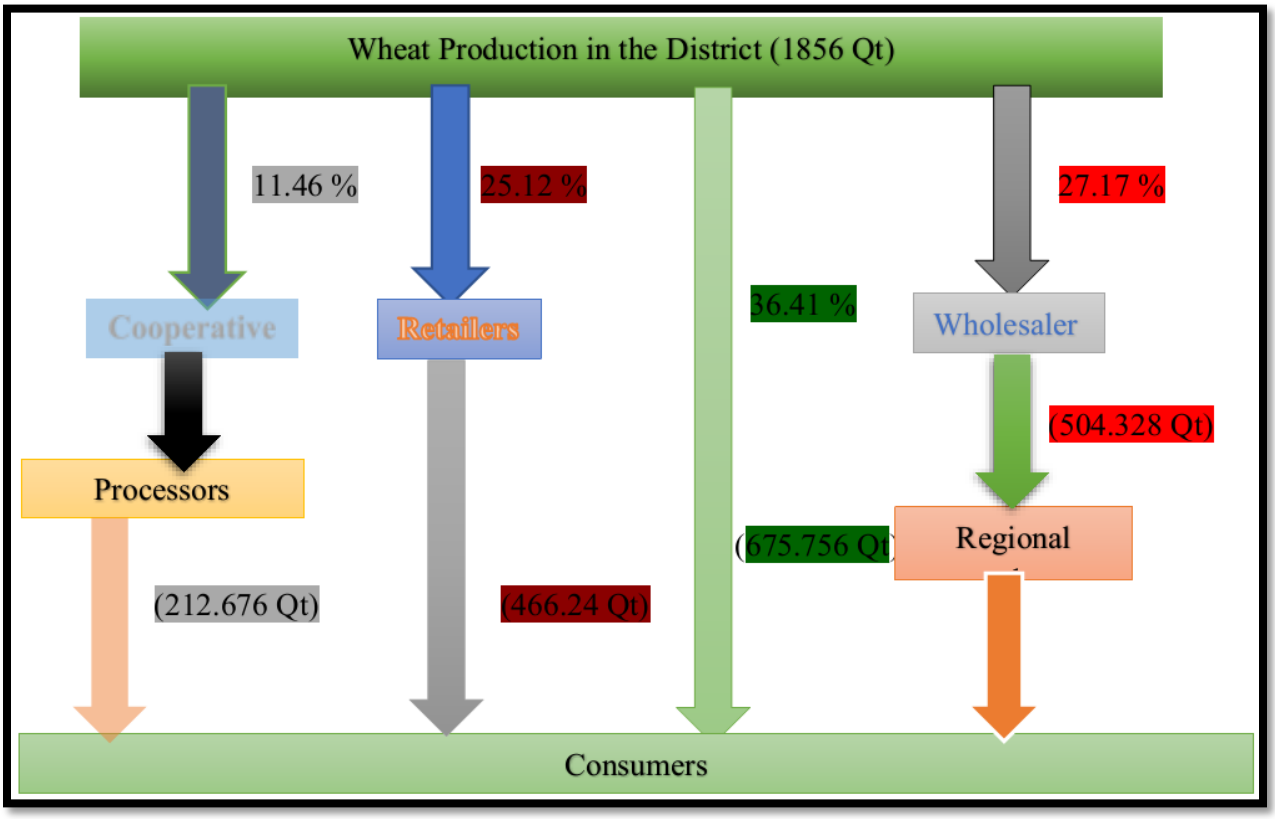

Figure 3: Market channel of wheat in Farta district of South Gondar Zone

Wheat market outlets

The sample wheat producer households used different market outlets to supply wheat to market.The study showed that one outletis mostly chosen in combination with one another.

Table 3: Description of wheat market outlets

Decision	Wheat market outlets			
	Consumers Cooperatives	Retailers		Wholesalers
Numbers of respondents (Yes)	88	77	83	58
Proportion (%)	0.5714	0.50	0.539	0.3766
Quantity of wheat supplied (Qt)	Mean SD 3.42 4.95	Mean SD 2.35 3.82	Mean SD 2.46 3.68	Mean SD 1.11 2.50

Source: Survey data result, 2020

4.2. Determinants of market outlet choices of wheat farmers

Table 4: Overall model of fitness, probabilities, and correlation matrix of market outletchoices from the MVP model.

Variables	Consumer	Retailer	Wholesaler	Cooperative
Predicted probability (marginal success probability)	56.9	49.2	54.4	37.4
Joint probability of success	0.063			
Joint probability of failure	0.066			
Estimated correlation of market outlets				
ρ_{21}		0.411		
ρ_{31}		0.234		
ρ_{41}		0.995		
ρ_{32}		0.115		
ρ_{42}		0.091*		
ρ_{43}		0.955		
Likelihood ratio test of $\rho_{21}=\rho_{31}=\rho_{41}=\rho_{32}=\rho_{42}=\rho_{43}=0$				
x^2 (6) = 7.01657, Prob >x^2 = 0.000***				

Numbers of draws ((SML, #draws) = 5
Number of observations= 154
Log likelihood = -352.40
Wald χ2 (76) = 103.57

*** And * are statistically significant at 1% and 10% significance level, respectively

Source: survey data result, 2020

Table 5: multivariate probit estimations for determinants of market outlet choices of wheat producers.

Variables	Coefficients (choice of market outlet)											
	Consumer (1)			Retailer (2)			Wholesaler (3)			Cooperative (4)		
	Coe.	P-value	Marginal effect	Coe.	P-value	Marginal effect	Coe.	P-value	Marginal effect	Coe.	P-value	Marginal effect
Sex of household heads	.97**	0.03	.38	.96**	0.03	.34	-.24	0.57	-.12	.30	0.47	.13
Age of household heads	.03**	0.02	.01	.01	0.17	.01	.01	0.25	.00	.02*	0.08	.01
Formal education	.19	0.44	.06	.02	0.92	.02	.83***	0.00	.32	.14	0.57	.05
Family size	-.40**	0.02	-.16	-.31*	0.07	-.11	.04	0.82	.03	-.02	0.92	-.05
Area allocated to wheat	.11	0.87	.05	.93	0.15	.38	-.79	0.22	-.31	-.04	0.95	-.07
Oxen number	-.35**	0.02	-.14	-.36**	0.02	-.16	.02	0.88	.00	-.24	0.13	-.07
Improved inputs use	.41	0.24	.18	-.25	0.48	-.09	.36	0.32	.16	-.05	0.88	-.06
Distance to the nearest urban market	.01	0.24	.01	-.00	0.93	-.00	-.00	0.91	.00	-.02**	0.03	-.01
Time of sale	.04	0.88	.02	.49**	0.05	.18	.45*	0.08	.18	-.41	0.12	-.16
Lagged wheat price	-.01**	0.02	-.00	.00*	0.08	.00	.00	0.83	.00	.00*	0.05	.00
Access to market information	-.21	0.43	-.09	-.28	0.28	-.12	.05	0.86	.00	.16	0.55	.03
Other crops price	.01**	0.04	.00	-.00	0.17	-.00	.00	0.85	.00	-.00*	0.09	-.00
Access to credit	.10	0.70	.03	-.06	0.81	-.02	-.11	0.67	-.02	.14	0.59	.01
Access to extension service	.28	0.66	.12	-.03	0.97	-.02	-.46	0.47	-.17	-.24	0.71	.00

Members of cooperative	-.48*	0.08	-.18	-.21	0.44	-.04	-.92***	0.00	-.34	.22	0.44	.10
Non-farm income	-.00	0.13	-.00	.00	0.30	.00	-.00	0.44	-.00	8.14e-07	0.98	-3.8e-06
Quality of the product	-.02	0.95	-.01	-.20	0.39	-.08	-.38*	0.10	-.15	-.09	0.70	-.03
Previous experience	-.03	0.80	-.01	-.04	0.78	-.02	-.15	0.38	-.07	.99***	0.00	.39
Post-purchase evaluation	.23	0.37	.09	-.28	0.24	-.12	.13	0.59	.04	.56**	0.04	.21

***, ** And * are statistically significant at 1%, 5% and 10% significance level, respectively

Source: survey data result, 2020

4.3. Discussion on Determinants of market outlet choices of wheat farmers

The result in Table 8 indicated that out of 16 explanatory variables used in multivariate probit simulation model; family size (AE), members of cooperative, other crops price, lagged wheat price, oxen number, sex of household heads, time of sale, age of household heads, distance to the nearest urban market, formal education were found to be statistically and significantly affecting the market outlet choice behavior of wheat producers.

Family size (AE): Family size was found to have a negatively and significantly effect with the likelihood of choosing consumer and retailer market outlet at 5% and 10% significance level. This result revealed that for those farmers who were members of cooperatives, the likelihood of choosing consumer and retailer market outlet decreased by 16% and 11%, ceteris paribus, respectively, as compared to those farmers who were not members of any cooperatives. This implies that the households will sell fewer amounts of wheat in the consumer and retail market as compared to cooperative. This is mostly related to the reality that those multipurpose cooperatives passing down production and market information they accessed directly or indirectly to their members.

Sex of house hold heads: Gender difference highly affects the likelihood of participation in market outlet decisions positively and statistically at the 5% level of significance. The finding implies that being maleness have a 38% &34% probability of choosing consumer & retailor market outlet strategies than female farmers respectively.

Age of household heads: Age of household head was found to have a positive and significant effect in choosing consumer wheat market outlet at 5% and 10% significance level. This implies that as the age of household increases by a year, the probability of farmers to sell their product to the consumer& cooperatives market outlet increases by 1%, ceteris paribus. This might be due to the fact that older peoples in Ethiopia are relatively

illiterate as compared to younger peoples. Due to this, the older people do not know how much price can be received for selling a product from consumer market outlet that is relatively higher than selling a product to other market outlets.

Formal education: The education level of wheat producer farmers was found to have a positive and significant relation with the likelihood of choosing wholesaler market outlet less than 1% significance level, ceteris paribus. This implies that as a wheat farmer is more educated and literate, the likelihood of joint probability of choosing four market outlets is more than uneducated and illiterate person. Educated farmers may have a greater ability to decide to choose any of better outlets from market channel.

Oxen number: Oxen number of household heads was found to have a negative and significant relation with the likelihood of choosing consumer and retailer market outlet at less than 5 % significance level, ceteris paribus.This implies that as the number of oxen increases by a one, the probability of farmers to sell their product to the consumer and retailer market outlet decreases by 14% and 16 %, ceteris paribus respectively.

Distance to the nearest urban market: Distance to the nearest urban market was found to have a negative and significant relation with the likelihood of choosing cooperative market outlet at less than 5 % significance level, ceteris paribus.This result revealed that those households whose residence from the nearest market increases by a kilometer, the likelihood of households choosing cooperative market outlet decreases by 1% ceteris paribus. This implies that households located far from the nearest market are less likely in delivering wheat produce to cooperative market outlet. The reason for this is that farmers located distant from the market are weakly accessible to the cooperative market outlet, and the closer to the market the lesser will be the transportation cost and time spent.

Time of sale: Time of sale of household heads was found to have a positive and significant relation with the likelihood of choosing retailer and wholesaler market outlet at less than 5 % significance level, ceteris paribus. This is due to the fact that those households who decide to sale their wheat output to the market immediately after harvest, the likelihood of households choosing retailer&wholesalermarket outlet increases by 18%, ceteris paribus.

Lagged wheat price: The lagged price of wheat was found to have negative and significant relation with the likelihood of household heads choosing consumer market outlet at 5% significance level while positively and significantly related with the likelihood of household heads choosing retailer and cooperative market outlet at 10% significance level. This indicated that as the lagged market price of wheat increases by a birr/kg, the probability household heads to choose consumer market outlets, retailer and cooperative market outlets neither increase nor decreases, ceteris paribus. In contrary to this study, (Honja et al., 2017) found that price of mango is negatively correlated with the probability of choosing retail market outlet. The reason for this study result washouseholds/producers

receive higher market price from the sale of wheat as in retail and cooperative market outlet as compared to consumer and wholesale market channel.

Other crops price: The price of other crops was found to have positive and significant relation with the likelihood of household heads choosing consumer market outlet at 5% significance level while negative and significantly related with the likelihood of household heads choosing cooperative market outlet at 10% significance level.This indicated that as the price of other crops (teff) increases by a birr/kg, the probability household heads to choose consumer & cooperative market outlets neither increase nor decreases, ceteris paribus. This means that farmers receive higher price from consumer market outlet&cooperative market outlet from the sale of wheat productas compared to teff products.

Members of cooperative: Membership in any cooperative by wheat producers was found to have a negative and significant relationship with the likelihood of choosing consumer and wholesaler market outlet at 10% and 1% significance level, respectively. This result revealed that for those farmers who were members of cooperatives, the likelihood of choosing consumer and wholesaler market outlet decreased by18% and 34%, ceteris paribus, respectively, as compared to those farmers who were not members of any cooperatives. This implies that the households will sell fewer amounts of wheat in the consumer and wholesaler market as compared to cooperative. This is mostly related to the reality that those multipurpose cooperatives passing down production and market information they accessed directly or indirectly to their members. This result is in line with Endris et al. (2020)who found thathouseholds that were a member of any cooperatives negatively influence the probability of choosing collector market outlet. This result is also consistent with (Getahun, 2020). Who found that households that were members of any cooperatives negatively influence the probability of choosing wholesale, retail and consumer market outlet.

5. Conclusion and Recommendation

5.1. Conclusion

The result of this study affirms that family size (AE), Members of cooperative, other crops price, lagged wheat price, Oxen number, Sex of household heads, Time of sale, Age of household heads, Distance to the nearest urban market, Formal education were found to be significantly influencing the choice of households' wheat market outlet. The result of the study also shows that consumers are the most likely chosen market outlet while cooperatives are the less likely chosen market outlet. The likelihood of households to jointly chose the four outlets is only 6.3% compared to their failure to jointly choose them (6.6%). This suggest that households were less likely to fail to jointly choose the four outlets.Consumer buying behavior was associated with the evaluation of the products after

purchase which the product provides such as the final stage of the buying behavior process was to evaluate the purchase. The consumer was used this post-purchase evaluation as part of his/her next buying decision as an information source before he/she re-buys the specific product.

5.2. Recommendation

Hence, based on the finding of this study, the concerned bodies should give information for farmers on the importance of being a member of cooperatives because farmers get inputs at a lower price and at convenience time for wheat production and get better price in marketing activities of their wheat products and facilitate the time to search the appropriate market channel. Appropriate policies should be strengthening to facilitate all necessary infrastructures for improving wheat production and marketing system. This means that the concerned body should establish wheat market center near to farmer's residence or production area. The study also suggested that improving the existing production system, giving better price for farmers and being membership for any cooperative are important strategies to select the appropriate market outlet. Since female purchasing decisions does differs from male purchasing decision for wheat products, production process and different concerned bodies have to consider gender when selling&delivering information for wheat products. Wheat producers should develop a new business model that to combines low cost, quality, sustainability, and profitability. Cost price, previous experience and post purchase evaluation were found to be the most dominating factor that influence the consumer buying decision. Therefore,producers should strongly consider these three elements in order to sustain their business, increase market share and gain market superiority. Generally, strong intervention could be taken by government to upgrade producers and benefiting consumers through improving trade regulation of wheat.

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