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### Marketing channel choice of vegetable farmers in Guntur district of Andhra Pradesh

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#### Abstract

Vegetables are important source of farm income, assures more farm employment and marketing of vegetables has significant importance due to perishability, seasonality, bulkiness and high post-harvest losses in transportation and storage. In India, Andhra Pradesh have vegetables area of 228.73 thousand hectares (2.08%) and production of 6084.7 thousand tonnes (4.30%) (Agricultural Statistics at a Glance, 2021). The main aim of present study is to assess the marketing channel choice of okra farmers in the Guntur district of Andhra Pradesh with a sample of 120 farmers. Results of Multinomial Logistic Regression Model (MLRM) revealed that the farming experience, education and number of middle men, gender, area under crop and distance to market were significant for the farmers who are selling their produce to local wholesaler channel and household size, price of the commodity and number of middlemen, gender, area under crop and distance to market were significant in case of local vendor channel. Gender, area, prompt payment of sales proceeds, price of the commodity, distance to market education and access to credit were significant for the farmers who are selling their produce to retail malls and distance to market and own transport facility, gender, household size and farming experience were significant in case of rythu bazars. Study also revealed that the low bargaining power of farmers, low price of the product especially in the harvesting season, poor infrastructure of marketing channel, poor handling and storage facilities were the major constraints faced by the farmers in marketing of vegetables. Study suggested that proper care has to take to maintain the vegetables availability throughout the year, proper storage and transport facilities to reduce the wastage and post-harvest losses and FPOs and NGOs may strengthen farmer linkages (forward & backward) were important measures for the better marketing of vegetables.

**Keywords:** Marketing channels, multinomial logistic regression and vegetables

#### 1. Introduction

In India, over 70 percent of the rural households depend on agricultural sector which engages 54.6 percent of the total workforce enables one to say that agriculture is one of the corner stone of Indian economy. Vegetables are highly perishable as they start to lose their quality right after harvest and continued throughout the process until it is consumed. The crops are subjected to high price and quantity risks with changing consumer demands and production conditions. In the global scenario, vegetables stood third position (12 percent) after cereals and sugar crops in the production of all major crops while the production value of vegetables was 20 percent to the total value. India stood second position in vegetable production with 141.195 million tonnes (12.29 percent) after China with 596.166 million tonnes which are contributing 12.29 percent and 51.91 percent respectively (FAO, 2022). In India, Andhra Pradesh have vegetables area of 0.229 million hectares (2.08 percent) and production of 6.085 million tonnes (4.30 percent) (Agricultural Statistics at a Glance, 2021). In India, Okra crop has area of 0.544 million hectares (4.96 percent) and production of 6.494 million tonnes (3.27 percent).

A large proportion of farmers are now diversifying into vegetable farming as it fetches continuous flow of income either throughout the year or at least in the season for the farmers (Devaraja, 2004) <sup>[3]</sup>. Vegetable cultivation is capital intensive and production risks are very high (Alam, 2001) <sup>[2]</sup>. About 90-98 percent of the vegetables are sold and used afresh, except some roots and tubers (Subramanian *et al.*, 2000; GOI, 1989) <sup>[11]</sup> and only 1 percent of the vegetable output is being processed commercially (Verma *et al.*, 2002) <sup>[12]</sup>. Marketing of vegetables has significant importance due to perishability, seasonality, bulkiness and high post-harvest losses in transportation and storage. Production and marketing of these crops were constrained with marketing problems such as low bargaining power arising from lack of alternative market outlets, low price for the produce specially during the harvesting season, poor infrastructure, poor handling and storage facilities and lack of marketing information (Sisay, 2018) <sup>[10]</sup>. On the other hand, lack of capital, lack of storage facilities, climatic conditions, pest and diseases and lack of standard measure for vegetables/pricing are the important problems faced by farmers. The prices of vegetables fluctuate frequently and often fall drastically during harvesting, hampering the

efforts of growers and real returns depends upon how the production more specifically marketing of the vegetable through different channels undertaken by the farmers. With this background, the aim of present study is to assess the marketing channel choice of vegetable farmers in the study area with special reference to Okra crop.

**2. Data and Methodology**

The present study entitled Marketing Channel Choice of Vegetable farmers in Guntur district of Andhra Pradesh” was undertaken to examine the factors influencing farmers’ choice of Okra marketing channel in Guntur district of Andhra Pradesh.

**3. Technical Programme of Work**

A sample of 120 farmers are who are cultivating Okra crop were selected by using simple random sampling technique through the pre tested schedules in Guntur district of Andhra Pradesh. Four marketing channels transacting okra crop were identified through which sample farmers dispose their produce viz., (i) local wholesalers, (ii) local vendors (iii) Retail malls and (iv) Rythu bazars in Guntur district of Andhra Pradesh.

- Local Wholesalers (n=30)
- Local Vendors (n=30)
- Retail malls (n=30) and
- Rythu Bazars (n=30)

**3.1 Collection of data**

Primary as well as secondary data was collected to fulfil the designed objectives. Primary data was collected through pre tested schedules and secondary data was collected from FAO, 2022 and Agricultural Statistics at a Glance, 2021.

**3.2 Tools Used**

**3.2.1 Multinomial Logistic Regression model**

Multinomial logistic regression model is used when the dependent variable is categorical representing more than

two categories. Each category is compared with the reference category (Jobson 1992; Lesschen *et al.* 2005; Kumar *et al.* 2007) [4, 6, 5]. Four marketing channels were identified through which farmers dispose of their produce in the study area viz., (i) local wholesalers, (ii) local vendors (iii) Retail Markets and (iv) Rythu bazars. The determinants that influence the choice of Okra market channels includes gender, education level of farmer, household size, farming experience, area under Okra, price of the commodity, number of middlemen, access to credit, distance to market, own transport facility and prompt payment of sales proceeds. The multinomial logistic regression for the farmer choice of Okra marketing channel can be written as:

$$y_i = \beta_0 + X'_{ij}\beta_j + \epsilon_{ij}$$

Where,  $Y_i$  is the probability of household participation in market channel,  $j$  is the treatment variable of market channel choice (0=local wholesaler channel, 1=local vendors, 2=retailer malls and 3=rythu bazars),  $X_{ij}$  denotes the vector of explanatory variables,  $\beta_s$  are the regression coefficients estimated by the maximum likelihood method,  $\epsilon_{ij}$  is the error term and  $j$  is the treatment variable. The base category ( $j=0$ ) here comprises of the farmers selling vegetables to local wholesaler channels. Usually, a positive coefficient on the independent variable is associated with a greater probability of its positive influence on the dependent variable. In this model,  $X_{ij}$  is the vector of independent variables.

Impacts of the explanatory variables were measured by their marginal effects (MEs), as the interpretation of coefficients is less straightforward in the multinomial logit model.

$$\frac{\partial P_{ij}}{\partial X_{ik}} = P_{ij} - \sum_{m=1}^{j-1} P_{im}\beta_{mk}; j = 1, \dots, j - 1,$$

Where each  $b_j$  represents the influence of selected independent variables on the chosen alternatives  $j$  to  $m$ .

**Table 1:** Description of independent variables used in the model

Variable	Definition	Coding of variable	Category
X <sub>1</sub>	Gender	1 if male, 0 if female	Dummy variable
X <sub>2</sub>	Household Size	Number of family members	Continuous variable
X <sub>3</sub>	Area	Number of acres	Continuous variable
X <sub>4</sub>	Farming experience	Number of years	Continuous variable
X <sub>5</sub>	Education level of farmer	1 if literate, 0 if illiterate	Dummy variable
X <sub>6</sub>	Prompt payment of sales proceeds	1 if yes, 0 if no	Dummy variable
X <sub>7</sub>	Price of the commodity	Rupees/Kg	Continuous variable
X <sub>8</sub>	Distance to market	Number of kilometres	Continuous variable
X <sub>9</sub>	Number of middlemen involved	Number of individuals	Continuous variable
X <sub>10</sub>	Own transport facility	1 if yes, 0 if no	Dummy variable
X <sub>11</sub>	Access to credit	1 if yes, 0 if no	Dummy variable

**4. Results and Discussion**

From the above table 2, it is revealed that the average house hold size of farmers who sold their produce to local wholesaler channel was 4.27 and for local vendors and retail malls was 3.13 and 4.57 respectively but highest in rythu bazar channel which is 5.3. Average area under crop of farmers who sold their produce to local vendors was 0.5 and

for retail malls and rythu bazars was 1.1 and 1.5 respectively but highest in local wholesaler channel and it was 1.96. Average mean of farming experience of farmers who sold their produce to local vendors was 2.3 and for retail malls and rythu bazars was 4.9 and 5.80 respectively but highest in local wholesaler channel and it was 5.9. The average education level of farmers who sold their produce to

local wholesaler channel was 0.2 and for local vendors and rythu bazar was 1.13 and 1.4 respectively but highest in retail malls channel and it was 2.5. Average distance to market of farmers who sold their produce to local wholesaler channel was 4.53 and for local vendors and rythu bazar was 2.31 and 3.9 respectively but highest in retail

malls channel and it was 4.62. The average price of commodity in local wholesaler channel was 20.5 and for local vendors and rythu bazar was 30.5 and 25.3 respectively but highest in retail malls channel and it was 45.5.

**Table 2:** Socio-economic characteristics of survey respondents (Mean)

Variables	Local Wholesalers	Local Vendors	Retail malls	Rythu bazars
Household size	4.27	3.13	4.57	5.3
Area	1.96	0.5	1.1	1.5
Farming experience	5.9	2.3	4.9	5.80
Education	0.2	1.13	2.5	1.4
Distance to market	4.53	2.31	4.62	3.9
Price of commodity	20.5	30.5	45.5	25.3

Source: Field survey

**Table 3:** Socio-economic characteristics of survey respondents (S.D)

Variables	Local Wholesalers	Local Vendors	Retail malls	Rythu bazars
Household size	1.3	1.1	0.6	0.4
Area	0.4	0.8	0.6	0.5
Farming experience	1.9	3.0	2.0	1.8
Education	0.9	0.3	0.4	0.8
Distance to market	0.5	0.4	0.5	0.3
Price of commodity	0.1	1.9	0.2	0.2

Source: Field survey

From the above table 3, it is showed that the standard deviation of household size of farmers who sold their produce to local wholesalers channel, local vendors, retail malls was 1.3, 1.1, 0.6 respectively and it was lowest in case of rythu bazar channel which is 0.4. Standard deviation of area under crop of farmers who sold their produce to local vendors, retail malls, rythu bazar channel was 0.8, 0.6, 0.5 respectively and it was lowest in case of local wholesalers channel which is 0.4. Standard deviation of farming experience of farmers who sold their produce to local wholesalers channel, local vendors, retail malls was 1.9, 3.0, 2.0 respectively and it was lowest in case of rythu bazar

channel which is 1.8. Standard deviation of education level of farmers who sold their produce to local wholesalers channel, retail malls, rythu bazar channel was 0.9, 0.4, 0.8 respectively and it was lowest in case of local vendors which is 0.3. Standard deviation of distance to local wholesalers channel, local vendors, retail malls was 0.5, 0.4, 0.5 respectively and it was lowest in case of rythu bazar channel which is 0.3. Standard deviation of price of the commodity in local vendors, retail malls, rythu bazar channel was 1.9, 0.2, 0.2 respectively and it was lowest in case of local wholesalers channel which is 0.1.

**Table 4:** Socio-economic characteristics of survey respondents (C.V)

Variables	Local Wholesalers	Local Vendors	Retail malls	Rythu bazars
Household size	29.6	20.1	19.3	25.7
Area	39.9	25.2	20.9	30.3
Farming experience	32.9	29.1	30.1	20.2
Education	75.8	54.1	32.1	20.4
Distance to market	11	12	10	11.5
Price of commodity	13	23	11	10

Source: Field survey

From the above table 4, it is showed that the coefficient of variation of household size of farmers who sold their produce to local wholesalers channel, retail malls, rythu bazar channel was 29.6, 19.3, 25.7 respectively and it was lowest in case of local vendors which is 19.3. Coefficient of variation of area under crop of farmers who sold their produce to local wholesalers channel, local vendors, rythu bazar channel was 39.9, 25.2, 30.3 respectively and it was lowest in case of retail malls which is 20.9. Coefficient of variation of farming experience of farmers who sold their produce to local wholesalers channel, local vendors, retail malls was 32.9, 29.1, 30.1 respectively and it was lowest in

case of rythu bazar channel which is 20.2. Coefficient of variation of education level of farmers who sold their produce to local wholesalers channel, local vendors, retail malls, was 75.8, 54.1, 32.1 respectively and it was lowest in case of rythu bazar channel which is 20.4. Coefficient of variation of distance to local wholesalers channel, local vendors, rythu bazar channel was 11, 12, 11.5 respectively and it was lowest in case of retail malls which is 10. Coefficient of variation of price of the in local wholesalers channel, local vendors, retail malls, was 13, 23, 11 respectively and it was lowest in case of rythu bazar channel which is 10.

**Table 5:** Multinomial logistic regression results with base category local wholesaler channel

Base category: Wholesalers	local vendors		Retailer malls		rythu bazars	
Variable	Coefficient	SE	Coefficient	SE	Coefficient	SE
Gender	3.831*	1.818509	3.361**	0.002685	4.065*	1.772715
Household Size	-0.712**	0.008142	-0.140	0.467747	0.533*	0.268
Area	-1.466*	0.607417	1.274**	0.101128	-3.472	1.987075
Farming experience	-0.433	0.373178	-0.386	0.314822	0.088*	0.005679
Education	0.597	0.797876	0.717*	0.635676	0.709	0.609457
prompt payment of sales proceeds	0.551	1.77935	1.453**	0.416079	2.307	1.869383
Price of the commodity	0.177**	0.07232	0.059**	0.000023	0.270	1.746295
distance to market	-0.564*	0.056445	0.732**	0.196575	1.053**	0.352281
number of middlemen	9.363**	2.05055	-	-	-	-
own transport facility	1.516	1.807961	0.786	0.767847	0.851**	0.040094
Access to credit			0.786*	0.060784		
Intercept	-2.515	7.093906	-6.874	5.879423	-22.459	6.048062

Source: Field survey

\*, \*\* imply level of significance at 5% and 1% respectively

From the above table 5, it is revealed that household size, price of the commodity and number of middlemen were significant at 1 percent level of significance while gender, area under crop and distance to market were significant at 5 percent level of significance for the farmers who are selling their produce to local vendors. Gender, area, prompt payment of sales proceeds, price of the commodity, distance to market were significant at 1 percent level of significance

while education and access to credit were significant at 5 percent level of significance for the farmers who are selling their produce to retail malls. Distance to market and own transport facility were significant at 1 percent level of significance while gender, household size and farming experience were significant at 5 percent level of significance for the farmers who are selling their produce to rythu bazars.

**Table 6:** Multinomial logistic regression results with base category local vendors channel

Base category: Vendors	local wholesalers		Retailer malls		rythu bazars	
Variable	Coefficient	SE	Coefficient	SE	Coefficient	SE
Gender	-3.831	2.318509	0.470*	0.094153	7.896**	2.540326
Household Size	0.712	0.278142	0.572	0.36844	0.379**	0.0911
Area	1.466*	1.597417	0.208*	0.10217	-2.006	2.236142
Farming experience	0.433**	0.003178	0.047	0.208344	0.521**	0.001903
Education	-0.597**	0.197876	0.425**	0.021891	0.112	0.934155
prompt payment of sales proceeds	-0.551	1.77935	0.901**	0.230309	1.756	2.186023
Price of the commodity	0.177	0.71232	0.117*	0.049298	0.446	0.988704
distance to market	0.564*	0.04075	0.167*	0.07022	0.488**	0.2101
number of middlemen	-9.363**	2.05055	-	-	-	-
own transport facility	-1.516	1.807961	0.730	1.289146	0.664**	0.049198
Access to credit	-	-	0.786*	0.267847	-	-
Intercept	2.515	7.093906	-4.359	4.383544	-19.944	8.101049

Source: Field survey

\*, \*\* imply level of significance at 5% and 1% respectively

From the above table 6, it is revealed that farming experience, education and number of middle men were significant at 1 percent level of significance while gender, area under crop and distance to market were significant at 5 percent level of significance for the farmers who are selling their produce to local wholesalers channel. Gender, area, prompt payment of sales proceeds, price of the commodity, distance to market were significant at 1 percent level of

significance while education and access to credit were significant at 5 percent level of significance for the farmers who are selling their produce to retail malls. Distance to market and own transport facility were significant at 1 percent level of significance while gender, household size and farming experience were significant at 5 percent level of significance for the farmers who are selling their produce to rythu bazars.

**Table 7:** Multinomial logistic regression results with base category retail malls

<b>Base category: Retailer malls</b>	<b>local wholesalers</b>		<b>local vendors</b>		<b>rythu bazars</b>	
<b>Variable</b>	<b>Coefficient</b>	<b>SE</b>	<b>Coefficient</b>	<b>SE</b>	<b>Coefficient</b>	<b>SE</b>
Gender	-3.361	2.102685	0.470**	0.094153	7.427**	2.365212
Household Size	0.140	0.467747	-0.572*	0.00844	0.393*	0.573644
Area	1.274*	0.551275	-0.192**	0.02017	-2.198	2.073597
Farming experience	0.386**	0.004822	-0.047	0.208344	0.474**	0.003579
Education	-0.172**	0.010102	0.425	0.521891	0.537	0.801871
prompt payment of sales proceeds	-1.453	1.346079	-0.901	1.230309	0.855	1.86235
Price of the commodity	0.059	0.055024	0.117*	0.049298	0.329	1.086478
distance to market	0.732**	0.00955	-0.167*	0.003622	0.321**	0.10802
number of middlemen	-6.454**	1.842319	-2.910**	0.916349	-	-
own transport facility	-0.786	1.567847	0.730	0.969146	0.066**	0.002131
Access to credit	-	-	-	-	-	-
Intercept	6.874	5.879423	4.359	4.383544	-15.585	7.027204

**Source:** Field survey

\*, \*\* imply level of significance at 5% and 1% respectively

From the above table 7, it is revealed that farming experience, education and number of middle men were significant at 1 percent level of significance while gender, area under crop and distance to market were significant at 5 percent level of significance for the farmers who are selling their produce to local wholesalers channel. Household size, price of the commodity and number of middlemen were significant at 1 percent level of significance while gender,

area under crop and distance to market were significant at 5 percent level of significance for the farmers who are selling their produce to local vendors. Distance to market and own transport facility were significant at 1 percent level of significance while gender, household size and farming experience were significant at 5 percent level of significance for the farmers who are selling their produce to rythu bazars.

**Table 8:** Multinomial logistic regression results with base category rythu bazars

<b>Base category: Rythu bazars</b>	<b>Local wholesalers</b>		<b>Local vendors</b>		<b>Retailers malls</b>	
<b>Variable</b>	<b>Coefficient</b>	<b>SE</b>	<b>Coefficient</b>	<b>SE</b>	<b>Coefficient</b>	<b>SE</b>
Gender	4.065	3.772715	7.896**	2.540326	7.426**	2.365212
Household Size	0.333	0.465787	-0.379**	0.007609	0.192	0.573644
Area	3.472*	1.487075	-2.006**	0.006142	2.198*	1.073597
Farming experience	0.088**	0.005679	-0.521**	0.441903	-0.474	0.393579
Education	-0.709*	0.309457	-0.112	0.934155	0.536**	0.018709
prompt payment of sales proceeds	-2.307	1.869383	-1.756	2.186023	0.854*	0.06235
Price of the commodity	-0.270	0.87463	0.446**	0.09887	0.329**	0.086478
distance to market	1.053**	0.352281	-0.488**	0.008158	0.321**	0.12011
number of middlemen involved	-3.433**	1.211359	5.931**	1.727645	-	-
own transport facility	-0.851	1.540094	0.664	1.849198	-0.065	1.621391
Access to credit					0.851**	0.000094
Intercept	22.459	6.048062	19.944	8.101049	15.585	7.027204

**Source:** Field survey

\*, \*\* imply level of significance at 5% and 1% respectively

From the above table 8, it is revealed that farming experience, distance to market and number of middle men were significant at 1 percent level of significance while area under crop and education were significant at 5 percent level of significance for the farmers who are selling their produce to local wholesaler channel. Gender, Household size, area under crop, farming experience, price of the commodity, distance to market and number of middlemen were

significant at 1 percent level of significance for the farmers who are selling their produce to local vendors. Gender, education, price of the commodity, distance to market and access to credit were significant at 1 percent level of significance while area and prompt payment of sales proceeds were significant at 5 percent level of significance for the farmers who are selling their produce to retail malls.

**Table 9:** Average marginal effect of multinomial logistic regression results

Variable	Local wholesalers		Local vendors	
	ME (dy/dx)	SE	ME (dy/dx)	SE
Gender	0.051	0.067	0.043*	0.018
Household Size	0.018	0.043	-0.021**	0
Area	0.150**	0.032	-0.006**	0.001
Farming experience	0.035**	0.004	-0.005	0.008
Education	-0.124*	0.059	0.015	0.023
prompt payment of sales proceeds	-0.206	0.235	-0.03	0.071
Price of the commodity	0.003	0.006	0.006**	0.002
distance to market	0.076**	0.009	-0.004**	0.001
number of middlemen	-0.636*	0.292	0.143**	0.003
own transport facility	-0.072	0.115	0.036	0.051

Source: Field survey

\*, \*\* imply level of significance at 5% and 1% respectively

From the above table 9, results showed that area under crop, farming experience and distance to market were positively influencing while education and number of middle men involved negatively influencing farmers probability of participating in local wholesalers channel. With 1 percent increase in farming experience of farmer, the probability of participation in local wholesalers channel increases by 3.5 percent. With 1 percent increase in distance to market, the probability of participation in local wholesalers channel increases by 7.6 percent. With 1 percent increase in area under crop, the probability of participation in local wholesalers channel increases by 15 percent. On the other hand, with 1 percent increase in education level of farmer, the probability of participation in local wholesalers channel decreases by 12 percent and with 1 percent increase in number of middlemen, the probability of participation in local wholesalers channel decreases by 63 percent.

In case of local vendors channel, gender, price of the commodity and middlemen were positively influencing while household size, area and distance to market negatively influencing farmers probability of participating in local vendors channel. With 1 percent increase in price of the commodity, the probability of participation in local vendors channel increases by 4.3 percent. With 1 percent increase in number of middlemen involved, the probability of participation in local vendors channel increases by 14 percent. On the other hand, with 1 percent increase in household size of farmer, the probability of participation in local vendors channel decreases by 2.1 percent, with 1 percent increase in area under crop, the probability of participation in local vendors channel decreases by 0.6 percent and with 1 percent increase in distance to market, the probability of participation in local vendors channel decreases by 0.4 percent.

**Table 10:** Average marginal effect of multinomial logistic regression results

Variable	Retail malls		Rythu bazars	
	ME (dy/dx)	SE	ME (dy/dx)	SE
Gender	0.819**	0.091	0.913**	0.078
Household Size	0.017	0.072	0.014**	0.002
Area	0.034*	0.013	-0.178	0.165
Farming experience	-0.062	0.05	0.033**	0.01
Education	0.031**	0.008	0.041	0.059
prompt payment of sales proceeds	0.170**	0.046	0.066	0.086
Price of the commodity	0.023**	0.014	0.025	0.01
distance to market	0.048**	0.011	0.032*	0.03
Access to credit	0.670*	0.317	-	-
own transport facility	0.028	0.122	0.009**	0.002

Source: Field survey

\*, \*\* imply level of significance at 5% and 1% respectively

From the above table 10, results showed that gender, area under crop, education level of farmer, prompt payment of sales proceeds, price of the commodity, access to credit and distance to market were positively influencing the farmers probability of participating in retail malls channel. With 1 percent increase in area under crop, the probability of participation in retail malls channel increases by 3.4 percent. With 1 percent increase in education level of farmer, the probability of participation in retail malls channel increases by 3.1 percent. With 1 percent increase in prompt payment of sales proceeds, the probability of participation in retail malls channel increases by 17 percent. With 1 percent increase in price of the commodity, the probability of

participation in retail malls channel increases by 2.3 percent. With 1 percent increase in distance to market, the probability of participation in retail malls channel increases by 4.8 percent. With 1 percent increase in access to credit for farmers, the probability of participation in retail malls channel increases by 67 percent.

In case of rythu bazar marketing channel, gender, household size, farming experience, distance to market and own transport facility were positively influencing the farmers probability of participating in rythu bazar channel. With 1 percent increase in household size of farmer, the probability of participation in rythu bazars increases by 1.4 percent. With 1 percent increase in farming experience of farmer, the

probability of participation in rythu bazars increases by 3.3 percent. With 1 percent increase in distance to market, the probability of participation in rythu bazars increases by 3.2 percent. With 1 percent increase in own transport facility of farmer, the probability of participation in rythu bazars increases by 12.2 percent.

## 5. Conclusion and Suggestions

Average house hold size of farmers who sold their produce was highest in rythu bazar channel which is 5.3. Average area under crop of farmers who sold their produce was highest in local wholesaler channel and it was 1.96. Average mean of farming experience of farmers who sold their produce was highest in local wholesaler channel and it was 5.9. The average education level of farmers who sold their produce was highest in retail malls channel and it was 2.5. Average distance to market of farmers who sold their produce was highest in retail malls channel and it was 4.62. The average price of commodity was highest in retail malls channel and it was 45.5.

The standard deviation of household size of farmers who sold their produce was lowest in case of rythu bazar channel which is 0.4. Standard deviation of area under crop of farmers who sold their produce was lowest in case of local wholesaler channel which is 0.4. Standard deviation of farming experience of farmers who sold their produce was lowest in case of rythu bazar channel which is 1.8. Standard deviation of education level of farmers who sold their produce was lowest in case of local vendors which is 0.3. Standard deviation of distance to market was lowest in case of rythu bazar channel which is 0.3. Standard deviation of price of the commodity was lowest in case of local wholesaler channel which is 0.1. Farming experience, education and number of middle men were significant at 1 percent level of significance while gender, area under crop and distance to market were significant at 5 percent level of significance for the farmers who are selling their produce to local wholesaler channel. Household size, price of the commodity and number of middlemen were significant at 1 percent level of significance while gender, area under crop and distance to market were significant at 5 percent level of significance for the farmers who are selling their produce to local vendors. Gender, area, prompt payment of sales proceeds, price of the commodity, distance to market were significant at 1 percent level of significance while education and access to credit were significant at 5 percent level of significance for the farmers who are selling their produce to retail malls.

### 5.1 Constraints faced by the farmer in wholesaler marketing channel

- Low bargaining power of farmers
- Low price of the product especially in the harvesting season
- Poor infrastructure of marketing channel
- Poor handling and storage facilities
- Lack of marketing information
- Transportation cost
- Poor road conditions
- Lack of amenities for channel

#### 5.1.1 Suggestions

- Bargaining power farmer can be improved with

collective action of farmers and high quality produce.

- Proper care to maintain the vegetables availability throughout the year
- Proper storage and transport facilities to reduce the wastage and post-harvest losses
- Measures to take for proper market information dissemination
- Increase the collective action amongst the farmers though government, FPO and NGO may strengthen farmer linkages (forward & backward),
- Government could reduce the transportation costs and
- Infrastructure development

### 5.2 Constraints faced by the farmer in local vendors marketing channel

- Low bargaining power of farmers
- Low price of the product especially in the harvesting season
- Poor infrastructure of marketing channel
- Poor handling and storage facilities
- Lack of marketing information
- Delayed payment of produce
- Consumer tastes and preferences
- Nature of the produce
- Transportation cost

#### 5.2.1 Suggestions

- Bargaining power farmer can be improved with collective action of farmers and high quality produce.
- Proper care to maintain the vegetables availability throughout the year
- Proper storage and transport facilities to reduce the wastage and post-harvest losses
- Measures to take for proper market information dissemination
- Payments should be paid at the time of purchase of produce
- Ensures good quality of produce

### 5.3 Constraints faced by the farmer in retail malls marketing channel:

- Less price changes due to agreement

#### 5.3.1 Suggestions

- Prior price will be maintained at any season of the year.

### 5.4 Constraints faced by the farmer in rythu bazars marketing channel:

- Low price of the product especially in the harvesting season
- Poor handling and storage facilities
- Consumer tastes and preferences
- Transportation cost
- Quality of the produce
- Poor transport facilities
- Lack of amenities for the channel

#### 5.4.1 Suggestions

- Proper care to maintain the vegetables availability throughout the year

- Provides access to crop credit
- Proper storage and transport facilities to reduce the wastage and post-harvest losses
- Increase the collective action amongst the farmers through government, FPO and NGO may strengthen farmer linkages (forward & backward),
- Government could reduce the transportation costs and
- Infrastructure development

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