International Journal of Agricultural Science, Research and Technology in Extension and Education Systems (IJASRT in EESs)
Available online on: http://ijasrt.iau-shoushtar.ac.ir
ISSN: 2251-7588 Print
ISSN: 2251-7596 Online
2020: 10(3): 123-132

Received: 26 August 2020
Reviewed: 10 September 2020
Revised: 15 September 2020
Accepted: 29 September 2020

Willingness to Pay For Organic Vegetables among Households in Anambra State, Nigeria

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Abstract

This paper reports the result of a study that empirically determined the willingness to pay for organic vegetables among households in Anambra State, South East Nigeria. Multi-stage sampling technique was adopted in the selection of 120 respondents for the study. Primary and a secondary data collected through the aid of a well-structured questionnaire augmented with an interview schedule and a secondary data from journals were used for the study. Data were analyzed using appropriate tools such as tobit regression, frequency tables, mean scores among others. Results of the analysis on age, sex, marital and educational status of the sample respondents showed that majority (50%) of them were aged between 41-50 years, 67% of them were males, majority (71%) of the respondents were married and 42% had secondary education respectively. Furthermore, majority of the respondents (60%) had annual income ranged between 100,000-200,000 Naira among others. Result of the study further showed that majority (57.50%) of the respondents had no prior knowledge of organic vegetables. Concomitantly, willing to pay for organic vegetable was hindered by many factors encompassing lack of knowledge on its advantage (3.6), High cost (3.2), lack of income (2.8) and distance to the source of organic vegetables (2.6). private sectors should commercialize organic vegetables since people are willing to pay for it; local government including the private sector should mount serious awareness campaigns to sensitize Nigerian populace on numerous benefits of organic vegetable especially on health related matters in the study area.

Keywords: Organic vegetables, Willingness to pay, perception, Anambra state

1. Introduction

The role of organic vegetable in securing household food has been gaining wider recognition from the world community (Van-Elzakker, Chonya & Adimdao, 2007). For this reason, the market of organic vegetable is growing as the numbers of people who are willing to eat organic food free of chemical residues and pay a premium price keep increasing with decreasing food insecurity level (Conceiçã et al, 2016). This increasing market of organic vegetable also believed to reduce the undernourishment problems in developing countries (FAO, IFAD, UNICEF, WFP & WHO, 2018). However, a consumer-oriented and decision-making approach is very important in understanding the market for these products (Aryal, 2008).

It is investigated that by increasing food accessibility in the market, organic vegetables' will reduce market constraint and thereby increases food security (Minch, 2017). Other studies also suggest that, production and marketing strategies of vegetables free of chemical residues are determined principally by consumer beliefs, attitudes, market price, infrastructure development, responses and the willingness to pay a premium price (Giannakas, 2002; Graef et al., 2014; Mojo et al. 2017). Thus, awareness and knowledge about these products are critical in the consumer demand decisions. Krissoff (1998) concluded that consumers purchase organic products because of a perception that the products are healthier, safer and more environmentally friendly than conventionally produced alternatives. Food

safety, human health, nutritive value, taste, freshness, appearance, and other sensory characteristics influence consumer preferences for organic food products (Makatouni, 2002; Bonti-Ankomah & Yiridoe, 2006).

The participation of smallholders in agricultural value chains and organic vegetables' is considered as an important measure to improve the livelihood of local farmers (Kissoly et al. 2017). This is supported with the finding of (Manlosa et al., 2019), production of vegetable crops for commercial purposes have been considered as a major way to improve food security in Ethiopia. Likewise, vegetables are common crop in Nigeria, grown and consumed by different groups of farmers. Several recent studies have assured that household participation in cash crop production such as-like organic vegetable can overcome food insecurity problems by increasing food availability (Achterbosch et al., 2014; Chamberlain & Anseeuw, 2017; Mojo et al. 2017).

In an attempt to receive the higher willingness of farmers to pay for organic vegetables', Ayinde (1994) suggests chemical free vegetable production and Lumpkin, (2005), argues that food safety is a major concern as many of today's vegetable farmers use toxic pesticides in appropriately. Other scholars (Echobichon, 1996; Engel, O'Meara and Schwartz, 2000) investigated that use of chemicals' as a major source of human health problems. In order to reduce this problem (Haas, 2006; Adeoye, 2005) put strong suggestion to use organic agriculture that allows the powerful laws of nature to increase both agricultural yields and disease resistance. In Nigeria, however, organic agriculture had existed by default because of the unavailability and sparse use of chemical inputs by farmers. Others adopt the use of animal droppings as manure (Dipeolu and Akinbode, 2005; Dipeolu, Bello and Akinbode , 2006). Indeed, Scialabba, (2007) noted that non-certified organic systems (indigenous models that follow organic principles by intent or by default) of several million small farmers may represent at least an equivalent share in subsistence agriculture of developing countries where Nigeria is not an exception. The most significant motive for choosing organic food is the health factor followed by the environmental and animal welfare factors (Lumpakin, 2005).

Many scholars suggest that market oriented organic vegetable production improves farmers income and nutritional status (Chamberlain & Anseeuw, 2017; Maertens & Velde, 2017) and decrease food security crisis (Achterbosch et al. 2014; Joosten et al. 2015). Again, the production, marketing and consumption of vegetables has potential social, economic and health benefits with a good source of essential nutrients such as vitamins A and C (Worthington, 2001; Imungi, 2002). However, micronutrient deficiencies is a major nutritional problem in Nigeria and it is a drain on the nation's human resources and a hindrance to development, with enormous costs in human, social, and economic terms (National Planning Commission, 2000). This problem of acute micro nutrients shortage and the ever increasing population of the country made it necessary to undertake such study that has to do with the consumer's perception of certification of organic vegetables (a rich source of micronutrients) and willingness to pay for organic vegetables.

In this paper, we are advocating that consumers' awareness of food safety information and decisions of producers to attain vegetable food safety (Caswell, 2003; Henson, 2005). Further, increasing awareness of food-borne diseases such as bird flu, and increasing concern about the environment, are driving consumer demand for food that are healthier, safer, more palatable and environmentally friendly (Caswel & Mojduszda, 1996; Krystallis & Chryssohoidis, 2005; Roosen,2003; Schroede & Mintert, 2000).

The consumption of organic foods in Nigeria constitutes a very small percentage (Dipeolu, Bello &Akinbode, 2009). However, the demand for organic vegetables has increased in recent years. Vegetables were the most important in their daily meal and that may spur willing to pay premium price for organic foods. Yet, it is discovered that the production of organic food is more costly than conventional food (Barkley, 2002) as a result of lack of awareness and long distance from the farm to market (Aryal, Chauhary, Pandi &Sharma, 2009).

A cursory look at the previous studies on willingness to pay for organic vegetables in Nigeria reveals that very few studies were conducted including the works of Nwofoke, Onyenekwe and Agbo, (2017) on willingness to pay for improvement in environmental quality in Ebonyi state, Nigeria, Chukwuone and Okorji (2008) on willingness to pay for systematic management of community forests for conservation of non timber forest products in Nigerians forest region and the work of Alem (2012) on households willingness to pay for restoring environment resource in eastern Ethiopia, but there is a clear dearth of information on Willingness to Pay (WTP) for organically produced vegetable in Anambra State, Nigeria and hence the need for the study.

1.1 Research questions

The study tends to ask and find answers to the following main research questions.

What are the extents of awareness of the

respondents on organic vegetables?

What are the constraints to consumers' willingness to pay for organic vegetables?

What are the socioeconomic factors influencing the respondents' willingness to pay for organic vegetables?

What are the premiums the respondents are willing to pay for organic vegetables?

1.2 Objective of the study

The broad objective of this study is to determine the consumers' willingness to pay for organic vegetables in Anambra State, Nigeria. Specifically, the objectives of the study are to:

Describe the socio-economic characteristics of the respondents in the study area;

Determine the level of awareness of the respondents on organic vegetables;

Estimate the respondent's willingness to pay for organic vegetables in the study area;

Determine the socioeconomic factors influencing the respondent's willingness to pay for organic vegetables;

Determine the constraints to consumers' willingness to pay for organic vegetables.

2. Materials and methods

2.1 Description of the Study Area

The study area is Anambra state of Nigeria. Anambra state consists of twenty-one (21) Local Government Areas and four agricultural zones viz; Aguata, Anambra, Awka and Onitsha. The four agricultural zones are known for their vast agricultural farming in both crop and livestock production. Being agrarian in nature, they are essentially agric-based and reputed as one of the food baskets of the nation. It has wide arable land and the crops grown include: rice, yam, cassava, cocoyam, maize and vegetables. Domestic animals are goats, sheep and fowl.

The Boundaries are formed by Delta State to the west, Imo State and Rivers State to the south, Enugu State to the east, and Kogi State to the north. Geographically, the state lies within latitude 5o401N and 6o481N and longitude 6o351E and 7o301E, occupying an area of approximately 4,844km2. The general vegetation consists of woodland savanna zone characterized by mixture of savanna and semi-tropical forest. The soil is generally clay loam.

The climate is typically equatorial with two main seasons, the dry and the rainy seasons. The state experiences dry season from late October to early May and has at least six months without rain in a year. The soil types of the area are suitable for varieties of crop production. The vegetation is rainforest and wooden savannah and grassland in the weather fringes.

Farming constitute the major occupation of the people found in the area, though significant number of the population engaged in non-farm occupation such as civil and public services, building and construction, trading and transportation among others. Vegetable production form part of crop produced because of the vegetation and soil type.

2.2 Sampling Technique and Sample Size

Multi-stage sampling technique was adopted for this study. First the State was purposively selected because of its agrarian nature and stratified along the existing four agricultural zones in the area. Secondly, three agricultural zones were randomly selected from the four zones (Awka, Aguata and Onitsha) since they all produce vegetables. Stage three involved random selection of two local government Areas from each of the three agricultural zones making a total of six local government areas. The fourth stage was a random selection of one community from each of the six local government areas selected making a total of six communities. The fifth stage was a random selection of two villages from each of the six communities selected, making a total of 12 villages. Finally, 10 households were randomly selected from the 12 villages to make a total of 120 respondents used as the sample size for the study.

2.3 Method of Data Collection

Primary and secondary data were used for the study. Primary data were collected through the use of structured questionnaire augmented with interview schedule while secondary data were sources from journals and e-books.

2.4 Method of Data Analysis

Relevant analytical techniques such as descriptive and inferential statistics were used to analyze the objectives of the study. Descriptive statistics such as frequency tables, means and percentages were used to achieve objectives i, ii, and iii, contingent valuation method- tobit regression were used to achieve objective iv while factor analysis were used to achieve objective v respectively.

2.5 Test of Hypothesis

The null hypothesis which states that socio-economic characteristics of the respondents do not significantly influence their willingness to pay for organic vegetable in the study area was tested using F-test.

2.6 Model Specifications

2.6.1 Contingency Valuation Method (CVM)

To explain or elicit the effect of socioeconomic characteristics of the respondents on their willingness to pay for organic vegetables, contingent valuation method was applied using survey questionnaire as used by Mitchell and Carson (1989). Double bounded dichotomous choice contingent valuation method (DBDC-CVM) was used for this study because it is more efficient and it provides more information than single bounded (Hanemann et al., 1991). Using double bounded approach, consumers will be asked two questions. Question format will be "Are you willing to pay any stated amount of money for organic vegetables that have no chemical residue. Each question has two choices: yes or no. If "yes" in the first question, higher amount of bid will be given in the second question; otherwise, lower amount with "no". Therefore, one of four abilities of consumer can be: 1. Yes–Yes (YY), 2. Yes–No(YN), 3. No–Yes (NY), 4. No–No (NN).

According to Hanemann, et al., (1991) and Hai, et al. (2013), the probability of answering "Yes" for both questions is expressed as;

$P(B,B^u) = Pr[B \leq WTP, B^u \leq WTP]$ $Eq(1)$

$= [B \leq WTP / B^u \leq WTP] r[B^u \leq WTP]$ $Eq(2)$

$= PrB^u \leq WTP = 1-(B^u)$ $Eq(3)$

Where

Pr_{yy} = the probability of answering "Yes" "Yes"

B = the price in the first question

= the higher price in the second question

WTP = Willingness to Pay

F = Cumulative Distribution function (CDF)

The probability of answering "Yes" followed by "No" in question (2) is:

$P(B,B^u) = Pr[B \leq WTP < B^u] = F(B^u) - F(B)$ $Eq(4)$

Similarly, probabilities of answering "No–Yes" and "No –No" are:

$P(B,B^d) = Pr[B^d \leq WTP < B] = F(B) - F(B^d)$ $Eq(5)$

$P(B,B^d) = Pr[B > WTP, B^d > WTP] = F(B^d)$ $Eq(6)$

where B^d= lower price in the second question

The maximum likelihood estimation will be applied to estimate the likelihood of either of the responses. Given a sample size of 120 consumers, where B_i,, B_i^d are bids used for the i[th] consumer, the log–likelihood function was specified as:

$lnL = \sum\{yy_{某} lnPr_{yy}(B_i, B_i^u) + yn_i lnPr_{yn}(B_i, B_i^u) +$

$ny_i lnPr_{ny}(B_{ii}^d) + nn_i lnP(B_i B_i^d)\}$ $Eq(7)$

where yy, yn, ny and nn are dummy variables. If one consumer answer yes–yes (yy) for two questions, then yy = 1, so others will be zero.

In order to explain WTP, standard double bounded model Hanemann et al., (1991) was used. Therefore, WTP is generally expressed by function:

$WTP_{ij} = \alpha + \sigma Bid_{ij} + \lambda X_i + \varepsilon_i$(8)

Where:

α = intercept of the model

Bid = proposed price given to consumer

σ = the coefficient of Bid

Xi = the vector of socioeconomic variables of i[th] consumer

λ = the coefficients of Xi i = individual i[th] consumer

j = kind of vegetables

2.6.2 Tobit Regression Analysis

These explains whether willingness to pay for organic vegetable is a function of the socio-economic factors of the farmer such as, famers household size, level of education, age, sex, marital status, level of farming experience and other businesses.

Y = f (x1, x2, x3, x4, x5, x6) (1.0)

Y = a0 + a1 x1 + a2 x2 + a3 x3 + …+ a6 x6 + et (1.1)

Where,

Y = Willingness to pay (WTP) (Willing = 1, Otherwise=0)

X1 = age (years)

X2 = educational level (years)

X3 = marital status (dummy: married=1, otherwise =0)

X4 = Farming experience (years)

X5 = household size (Number)

X6 = annual income (Naira)

a0 = Constant

a1 – a6= Parameters

et = stochastic term

3. Results and discussion

The results of the field survey were analyzed, presented and interpreted based on the specific objectives of the study.

3.1 Distribution of the Respondents According to their Socio-economic Characteristics

Tables 1 showed that majority (67%) of the respondents were male, while few (33%) were female. These findings may be as result that in many African household, males are known as decision makers as well as the head of the family. The analyses also revealed that majority (50%) of the respondents were between the ages of 41-50 years, with the mean age of 40.3 years; youth comprised only 17%. This is because in a consumer's household, the household head were mostly interviewed. The findings also revealed that majority (71%) of the respondents were married while few (21%) were single. This means that married household heads responded to the questionnaires than the unmarried. This conforms to the work of Horna *et*

al (2005) that most household heads that practice organic vegetable farming was found married.

The Result of the analysis on educational level showed that majority of the respondents (42%) had secondary education, while (17%) had no formal education and only few (8%) had tertiary education. This implies that the educational status of the respondents were moderate. This conforms to the work of Akpokodje et al (2003) who reported that most households were literate.

Moreover, the result of the analysis on distribution of the respondents according to their annual income showed that majority of the respondents (60%) had annual income ranged between 100,000-200,000 Naira. while only (4%) had annual income ranged between 400,000 and above. The implication of this is that the households may not meet the necessary requirement needed to acquire credit from formal financial institutions in order to promote organic farming to the fullest in the study area since they are low income earners.

On the other hand a greater proportion (42%) of the respondents had 21-30 years of farming experience (Table 1). While only 5% had farming experience above 40 years. Their mean farming experience was 22years. This is in line with the findings of Yanko and Opera (2010) who opined that experience enables farmers to set a realistic goal and adopt farm strategies more readily than inexperienced farmers.

It is evident from Table1 that majority (48%) of the respondents had a total farm size of 1.6-2 hectare, while only 1% had farm size of >3ha. Their mean farm size was 0.9ha. This implies that organic farming in the area is still at subsistence level, possibly due to the nature of land tenure system in the area. This finding corroborated the finding of Obinne and Anyanwu (1991). The result slightly agree with that of Olayide et al (2002), who reported that about 70% of the population of farmers in Nigeria are small scale farmers cultivating 1.2 – 2.0 hectares.

The result of the analysis on household size showed that majority of the respondents (35%) had household size of between 7-9 peoples; while only few (20%) had household size above 9 persons. This implies that the respondents household size were moderate. This result corroborates with the report of Ekwe (2004) which reported that most households in his study area had large households size which readily provide family labour. It is also worthy to notes that the result of the analysis in Table 1 indicates that majority (58%) of the respondents were farming with trading; while only few (8%) of the respondents combined farming with artisans and 13% were farmers/civil servants. This implies that the primary occupation of the correspondents was farming/trading.

3.2 Awareness of the Respondents about Organic Vegetables

Here, the respondents' awareness of organic vegetable was examined to know whether the people in the study area are aware of organic vegetables. The result of the analysis in Table 2 showed that majority (57.5) of the respondents had no prior knowledge of organic vegetables while few (41.5%) had prior knowledge about organic vegetable. This implies that organic vegetable was not well known in the study area.

3.3 Reasons for respondents' unawareness of organic vegetables

The result of the multiple responses in Table 3 revealed that 81.7% of those that are not aware of the organic vegetable was because they believed that all vegetables were the same. This was followed by I cannot recognize organic vegetables (58.3%), vegetables does not kill (54.2%), lack of information on organic vegetables (50%), distance to source of information (46.7%) and the least reason was I don't consume vegetables (10%). This shows that respondents who are not aware of organic vegetables in the study area were because they believe that all vegetables are the same.

3.4 Estimation of Willingness to Pay for Organic Vegetable in the Study Area

The results of the estimation of consumers' willingness to pay for organic vegetables in the study area were presented in Table 4. Table 4 revealed that majority (93%) of the respondents' gave valid responses. This implies that they are willing to pay the stated price and above while 4.2% of the respondents were willing to pay lower than the stated price. Also, 1.2% of the respondents were protested zero. This manifested in their responses that all vegetables are the same and few (0.8%) of the respondents were outliers implying that their WTP amount were over 5% of their income and well above the maximum stated price used. This is in line with the work of Nwofoke et al; (2017) that majority of respondents were showed willingness to pay for improvement of environmental quality.

Table 1. Distribution of the Respondents According to their Socio-economic Characteristics

Variables	Frequency	Percentage (%)	Mean (X)
Gender			
Male	80	67	
Female	40	33	
Age (years)			
≤30	20	17	
31-40	35	29	
41-50	60	50	
51-60	4	3	
Above 60years	1	1	40.3
Marital status			
Single	25	21	
Married	85	71	
Separated	3	2	
Widowed	7	6	
Educational level (years)			
No formal education	20	17	
Primary education	40	33	
Secondary education	50	42	
Tertiary education	10	8	7
Annual income (Naira)			
<100,000	25	21	
100,000-200,000	72	60	
201,000-300,000	8	7	
301,000-400,000	9	8	
Above 400,000	6	4	128,000
Household size(number)			
1-3	20	17	
4-6	33	28	
7-9	42	35	
Above 9	25	20	7
Farm size (hectares)			
<0.5	30	25	
0.5-1	10	8	
1.1-1.5	15	13	
1.6 -2	58	48	
2.1-2.5	4	3	
2.6-3	2	2	
>3	1	1	0.9
Farming Experience (years)			
1-10	18	15	
11-20	26	22	
21-30	51	42	
31-40	19	16	
Above 40	6	5	22
Occupation			
Full time farming	25	21	
Farming with civil service	15	13	
Farming with trading	70	58	
Farming with artisans	10	8	

Source: Field survey, 2019.

Table 2. Awareness of the Respondents about Organic Vegetables

Awareness	Frequency	Percentage (%)
Yes	51	41.5
No	69	57.5

Source: Field survey, 2019.

Table 3. Reasons for respondents unawareness of organic vegetables

Reason(s)	Frequency	Percentage
All vegetables are the same	98	81.7
Lack of information on organic vegetable	60	50.0
I don't consume vegetables	12	10.0
Distance to source of information	56	46.7
Vegetables does not kill	65	54.2
I cannot recognize organic vegetables	70	58.3

Source: Field Survey, 2019

Table 4. Analysis of consumers WTP for organic vegetables in Anambra State

Variables	Frequency	Percentage
Valid responses	112	93.0
WTP lower than stated price	5	4.2
Protested zero	2	1.2
Outliers	1	0.8
Total	120	100

Source: Field Survey, 2019

3.5 Tobit Estimate of Socioeconomic Factors Affecting Consumers' Willingness to Pay for Organic Vegetables

This section presents the results of Tobit regression that showed how socio-economic characteristics of the households affected their willingness to pay for organic vegetables. Willingness was measured in terms of the number of organic vegetables bought by respondents divided by numbers of probable organic vegetables available for individual respondents. The likelihood estimates of the Tobit model indicated that chi-square ($\chi 2$) statistic of 0.74 was highly significant ($P<0.05$) suggesting that the model has a strong explanatory power. The pseudo coefficient of multiple determinations (R^2) showed that 65 percent variation in the dependent variable was explained by the combined influences of independent variables. This implies that the model is of a good fit. Moreover, the 35% of the total variation that was not explained means that the explanatory power of the chosen model was not exaggerated. This implies that this result can be used for forecasting purpose since its output is of economic and econometric relevance. The individual assessment of the explanatory variables showed that the coefficient of age (X1) had positive sign and statistically significant at 5% level of significance. This signifies that age of the respondents exert positive influence on their willingness to pay for organic vegetables in the study area.

Education (X2): Education had a positive coefficient with the respondents' willingness to pay for organic vegetables hence it is statistically significant at 1% level of probability. It is expected that the higher level of education will contribute significantly to decision making of the respondents since it will enable him know that exposure to health implications of consuming inorganic vegetables is an added advantage in terms of achieving efficient marketing and sustainable adoption of organic vegetable (Esiobu et al., 2014).

Farming experience (X3) was positively signed and statistically significant at 1% level of significance. This shows that the more experienced a farmer is the more they are willing to pay for consumption of organic vegetables since most of them must have recognized the different in taste and colour of organic and inorganic vegetables.

Household Size (X4): Household size had a negative coefficient with the respondents' willingness to pay for organic vegetables in the study area. This could be that increase in household size makes it hard to pay probably because of its cost. The relationship was statistically significant at 1% level of probability.

Annual Farm Income (X5): Annual farm income had a positive coefficient with respondents' willingness to pay for organic vegetables and the relationship is statistically significant at 1% level of probability.

Table 5. Tobit Estimate of Socioeconomic Factors Affecting Consumers' Willingness to Pay for Organic Vegetables

Variables	Coefficient	Standard errors	t-value	Level of significance
Constant	12.613	17.959	0.702	***
Age (X_1)	0.004	0.004	1.000	**
Educational level(X_2)	0.347	2.567	0.135	***
Farming experience(X_3)	0.381	0.265	1.438	***
Household size(X_4)	-0.595	4.910	-0.121	***
Annual income(X_5)	0.581	5.029	0.116	***
Farm size(X_6)	0.914	4.346	0.210	***
LR chi-square	14.89			
Log Likelihood	42.832			
Prob>chi	0.74			
Pseudo R^2	0.654			

***= significant at 1%, **= significant at 5%*= significant at 10%.
Obs. Summary: 8 left-censored observation at WTP<0; 112 uncensored observations 0 right-censored observation.
Source: Field survey, 2019.

Table 6: Constraints to Consumers' Willingness To Pay for Organic Vegetables

Constraints	Mean	Decision
It is expensive	3.2	Accepted
It is scarce	2.2	Rejected
Lack of income	2.8	Accepted
Lack of knowledge on its advantage	3.6	Accepted
Family size	2.4	Rejected
Distance to the source of organic vegetable	2.6	Accepted

Source: Field Survey, 2019.

Farm Size (X6): Farm size was found to be positively related to respondents' willingness to pay for organic vegetables in the study area. This is because farmers with larger farm size are considered to be wealthier and will be willing to pay more for any goods of their choice than those with less farm size. The relationship is significant at 1% level of probability.

3.6 Constraints to Consumers' Willingness to Pay for Organic Vegetables

Result of the analysis in Table 6 showed that willingness to pay for organic vegetable was hindered by many factors. The major factor isolated as constraining WTP were lack of knowledge on its advantage (3.6), followed by it is expensive (3.2), lack of income (2.8) and distance to the source of organic vegetables (2.6). This implies that lack of knowledge on the benefit of organic vegetables and it's cost among others were constraining consumer's wiliness to pay in the area.

4. Conclusions and recommendations

4.1 Conclusion

The relevance of organic produce and consumer's WTP for the consumption of organic vegetable has been shown in this study. Based on the findings of this study, it was concluded that; majority of the respondents does not have prior knowledge of organic vegetables in the study area. The study inferred that household size, educational level and income were very influential in determining willingness to pay for organic vegetables in the study area. The study also opined that the major factors constraining WTP in the study area were lack of knowledge on its advantage, high cost, lack of income and distance to the source of organic vegetables. This implies that an improvement in these factors will increase the people's willingness to pay for organic vegetables in the study area.

4.2 Recommendations

The study therefore recommends that private firms should venture into commercialization of organic vegetable farming since peoples willingness to pay for it is very high; information on organic vegetables should be included in extension workers training programme and curricula to solve the problem of high cost of information about organic vegetables, unawareness of organic vegetables and distance to source of organic vegetables.

Local government of the area should mount serious awareness campaigns to sensitize Nigerian populace on numerous benefits of organic vegetable especially on health. Organic vegetables should be promoted to meet export and domestic needs since the research found that so many people are willing to pay for organic vegetables and this will also lessen

poverty and ensure food security in Nigeria. Finally, local government should also create policies that will improve the educational level of the people on organic products and its relevant to health.

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