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# CONSUMER PERCEPTION AND WILLINGNESS TO PAY FOR ORGANIC VEGETABLES IN BANGALURU.

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**Abstract:** “As is the food so is body and mind”, the food intake should be good which is whole and complete, without chemical residues. The pollution in general and poisoning of food, that we eat with harmful chemicals and their effect on human health and environment is making people to look for organic food. Indian organic food market is anticipated to grow at a significant growth rate of around 19% during 2012-2017 (**India Organic Food Market Forecast & Opportunities, 2017**). In India, majority of the demand for organic foods is originating from Tier I cities such as Mumbai, Delhi, Chennai, Bangalore, Gurgaon and Pune. The present study analyzed consumer preference and willingness to pay for organic vegetables In Bengaluru city of Karnataka. The data for the study was collected through random sampling. Further, Maximum willingness to pay was captured with the help of double bound contingent valuation. Result of the study revealed that consumers are willing to pay Rs. 56 per kg of Tomato, which is nearly double the price of conventionally grown tomato mainly due to perceived benefit of health and nutritional status.

**Keywords:** Consumer Awareness, Willingness To Pay, Principal Component Analysis, Logit Model.

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**Introduction:** Worldwide it is observed that the market for organic food products is expanding. The demand for organic foods seems to have originated from deterioration of human health over time which motivates an individual to protect against such depreciation losses by purchasing various types of ‘insurance’(Yiridoe, Bonti, and Martin 2005; Winter and Davis 2006). One such insurance is buying organic foods, perceived to be ‘healthy’. Organic vegetables are perceived as containing less contaminants (pesticides and heavy metals) and more nutrients, and as such, as being healthier and safer compared to conventional vegetables(Williams 2002)(Hoefkens et al 2009).

Though there is a gap between consumer perception and scientific evidence regarding health benefits of organic products. A study by (Woese et al. 1997)is based on 150 different scientific investigations comparing the quality of products under organic and conventional system of cultivation. The study found that in case of vegetables, the pesticide residue in organically grown vegetables is much lesser. The organic vegetables also had less nitrate contamination. However, with respect to all the nutrients, there was no difference between organic and conventionally grown vegetables.

Many other studies have reported lower pesticide residue in organically grown products visa vis products produced by conventional method. However, the studies are equivocal about health benefits, tastes and nutrient benefits of organic products over conventional products(Forman and Silverstein 2012; Johansson et al. 2014; Winter and Davis 2006; Bourn and Prescott 2002).

Present study examines the consumers’ willingness to pay for organic food, which is perceived as healthy by consumers. So, this will also act as proxy for consumer’s willingness to pay for healthy foods. This can

provide interesting insights on demand side factors of efforts to eliminate malnutrition by means of provision of healthy foods.

**Methodology:** Random sampling technique is used for collecting data. The Data for the study was collected from 30 Tomato consumers in Bangalore city. Further, consumer preference is studied through Descriptive analysis. Willingness to Pay (WTP) was captured with the help of double bound valuation method.

**Double Bounded Dichotomous Choice (DBDC) method of Contingent Valuation (CV):** Assigning monetary value to non- marketed goods and measuring benefits of govt policies (including non -use values) has been an interest of economists (Hanemann *et al.* 1991). Hedonic pricing, travel-cost method, contingent valuation method (CVM) are the most commonly used to estimate the economic value of non-marketed goods and services (Carson *et al.* 2001) (Abebe & Bogale 2014). Contingent valuation is one of the mostly used method, where the objective is to estimate the willingness to pay (or accept) for change in provision of some goods or services, contingent upon hypothetical market situation (López-feldman 2013). National Oceanic Atmospheric Administration (NOAA) has provided set of guidelines and recommendations for implementing CVM studies(Abebe& Bogale 2014)(Birol *et al.* 2008)(Kimenju & De Groote 2008). Amongst different methods of carrying out contingent valuation, open ended questions, bidding game, single bound or double bound dichotomous choice question and choice experiment are commonly used. In our study, we have used 'double bound contingent valuation method' to elicit the consumers' willingness to pay for organic tomato. As a test, i have also asked an open ended follow up question on how much amount the consumers is willing to pay to get organic tomato.

Each responded is offered with a random bid amount (range from Rs. 20 to Rs. 60) with a question whether he/she is willing to pay that amount to get organic tomato. The consumer's response in the form of yes or no is captured by dichotomous variable. If the response of the consumers is yes, then the new bid amount (which is 10 rupees more than the initial bid amount) has been offered with second dichotomous choice question. If the answer to first question is no, then new bid amount will be 10 less than the initial bid. Depending on the answer we have information on two bids and yes or no response to the bids which distinctively increase the efficiency of WTP estimates (Hanemann *et al.* 1991; Hanemann & Kanninen 2008; Gaoet *al.* 2010). This is information can be used econometrically to estimate Willingness to Pay (WTP).

### Result and Discussion:

**Table 1: Summary Statistics of the Respondents. (N = 30)**

Sl. No	Variable	Unit	Average value
1	Education	Years of schooling	15.5
2	Age	Years	36.3
3	Monthly Income	Rupees	57580

**Table 2: Consumer Perception on organic Tomato**

Category	Frequency( N=30)	Percentage (%)
Are you aware of Organic tomato growing without Agro- chemicals.		
1. Yes	27	90
2. No	3	10
What you look out for Purchasing Organic Tomato		
1. Price	2	6.66
2. Taste	25	83.33
3. freshenss	3	10

Table 1 depicts the socio economic characteristics of the sample respondent. Average value of education was 15.5 years that means all most all the respondents are graduates and monthly income was more than 50000 rupees.

Table 3 revealed that consumer perception on organic tomato. 90 percent of respondent are knew about organic tomato growing without agrochemicals, only 3 respondents are not aware. And more than 83 percentage of the respondents purchasing Organic Tomato based on better Taste, followed by freshness.

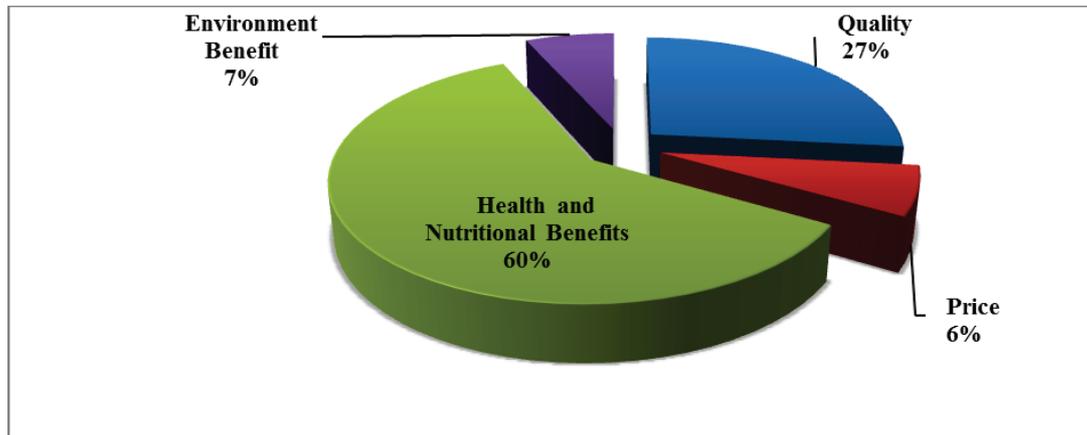


Fig. 1: Factors that determine Purchase of Organic Tomato

Figure 1 revealed that factors that determine purchase of organic tomato. 60 percentage of respondent opined that nutritional and health benefits are the major reason for purchase of organic Tomato followed by quality and environment Benefit.

Table 3: Consumers Willingness to pay for Organic Tomato

Variable	Coefficient	P value			
Education	7.28	0.53			
Gender	10.26	0.31			
Marital status	5.14	0.59			
Type of family	6.74	0.60			
Monthly income	0.0003	0.03			
Bitá_cons	17.67	0.38			
Sigma_cons	17.76	0.000			
	<b>Coef.</b>	<b>Std. Err.</b>	<b>P Value</b>	<b>[95% Confidence interval]</b>	
<b>WTP</b>	53.54	4.56	0.00	49.59	67.48

Willingness to pay was estimated using maximum likelihood estimation; results are presented in table 3. First part of the table presents coefficients of control variables used in the analysis. Variables relating to Education, Gender, Marital status, Type of family and Monthly income used as control in estimating WTP to increase the accuracy of estimation. Significance and positive coefficient for control variable indicates positive relationship between getting ‘yes’ response and variable. But, magnitude of influence cannot be inferred from this analysis. Monthly income and gender found to increase the probability of getting a Yes response to the bid presented.

Consumers WTP for Organic tomato were estimated to be Rs. 53.54/ kg. The estimate was statistically significant too. As a reality check, i have also asked Consumers an open ended follow up question about how much the amount he/ she is willing to pay for organic tomato, and the mean value of responses found to be 52.50Rs/ kg.

**Conclusion:**

- Due to health deterioration, the demand for the organic vegetables increasing worldwide.
- Most likely factors influencing consumers' willingness to pay for organic tomato are income, age, educational status, awareness of effect of Agrochemicals, health and environmental benefit.
- Consumers are willing to pay Rs. 54 per kg of organic tomato, which is nearly double the price of conventionally grown tomato mainly due to perceived benefit of health, and nutritional status.
- Estimation of WTP provides interesting insights on demand side factors of efforts to reach the Nutritional security.

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