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Consumers' attitude for organic food attributes in India: Evidence from conjoint analysis

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Abstract

This research objective of the study intends to study the role of different attributes of the organic food products influencing the customer preferences towards organic food. The affective attitude of the consumers of organic food products is studying with the help of conjoint analysis approach. To achieve the objective, the primary data is collected from the 389-customer consuming the organic food regularly. The data was collected with the help of a questionnaire from the different cities in Haryana state of India. The questionnaire used in the study consists of eight selected attributes namely *Brand, place of purchase, certification, visual appearance, packaging and price*alongwith their choices. These attributes, considered in selecting the organic food products were identified through literature review and customers consuming the organic food. The consumers are selected using a non-probability judgemental sampling method. The paper found that in the pricing, reasonable price is found to have the highest positive utility followed by certified organic food in the certification attribute. The utility is the highest negative in case ofhigh price in the pricing attribute. In the case of branding, the consumers have a positive utility with branded organic food compared to unbranded organic food. Similarly, in the case of appearance, consumers have positive utility with attractive organic food as compared to organic food those are not attractive.Also,it examined the Relative Importance of different attributes and found *Pricing of the organic food is* the highly preferred attribute in selecting organic food products by the consumers.

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Introduction

Conventional agricultural production techniques degrade soil fertility and contaminate the environment, which contaminates agricultural food products. As a result, more and more customers are choosing organic food and organic farming products. Food classified as organic is produced, processed, and stored without the use of pesticides, herbicides, or other artificial chemical treatments. Genetically modified ingredients are absent from organic food to create a sustainable agricultural system. Food produced organically is becoming more and more popular. Given that the current supply is insufficient to meet the potential demand on global markets, developing nations may be able to expand the production of organic food in their rural areas where ecological conditions are ideal.India, along with Argentina, Brazil, China, and Hungary, is among the nations with the greatest area under organic management.Both the production and consumption of organic food have dramatically increased over a specific period, showing a considerable change towards more sustainable agricultural practices and an increased awareness of the importance of selecting healthful, ecologically friendly foods. Now India is the second largest producer of organic food in the world after China. India may have the greatest potential for organic food marketers, but their high-quality goods will win over the trust of devoted organic food consumers.

However, organic food production has typically been associated with lower yields and higher prices when compared to traditional farming methods. The lower yields are a result of restrictions on the use of synthetic fertilisers and pesticides, which can have an impact on crop protection and production. The main reasons for the greater expenses in organic farming are the adoption of more labour- and resource-intensive practises, as well as the costs associated with organic certification and adherence to organic standards. Further, customers are willing to pay the higher prices despite these challengesbecause they feel doing so will benefit their health, the environment, and their desire to support sustainable agriculture. Nevertheless, in order to keep organic farming successful and the organic label's integrity, it is critical to give ongoing assistance and follow high organic standards that benefit both consumers and the environment.

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From a marketing standpoint, it's critical to comprehend consumer attitudes toward sustainably produced foods and how to encourage their consumption. Customer attitudes, beliefs, and responses also impact marketing strategies and product development. Depending on where you live in the world, this could change. Therefore, it's critical to comprehend customer attitudes and the driving forces behind their responses to products grown organically in India.Examining consumer attitudes and perceptions of organic food was the main objective of this study, which also aimed to supply information that the organic food industry needed to grow its market and increase profitability. To be more precise, a conjoint analysis is used to determine how consumers rank key attitude attributes and how important they are to one another.

Research Methodology

The objective of this study is to explore the attribute preferences of the consumers concerning the organic foods in the Haryana state of India. The conjoint approach is used to analysed the preferences of the consumers for the organic food. The conjoint questionnaire is designed using the SPSS software, which is a random selected of the possible profiles of the different choices of the selected attributes of the organic food. The responses of 389 consumers are collected. The customers were requested to rate the different profiles of the organic foods included in the questionnaire. The consumers are selected using non probability judgmental sampling method. The responses are collected from the customers with different demographic profiles.

Analysis

The relative importance and utility values are displayed in the conjoint analysis results. Higher utility values indicate greater preference. Utility is a number that represents the value that consumers place on an attribute (the relative worth of the attribute). Any combination of utilities can have its total utility reached by adding them all together. Each attribute's range of utility values indicates how significant the attribute was to the preference as a whole. Higher utility range attributes are more important than lower utility range attributes. The measure of the relative importance of each attribute known as an importance score.

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Attributes taken in this study, considered in the selection of the organic food products were identified through literature review and customers consuming the organic food. These six attributes are then further classified into various alternatives. The set of attributes with their alternatives (conjoint layout) are shown below in Table 1.

Table: Conjoint layout for organic food products

Attributes	Alternative Choices
Brand	*Branded, Unbranded*
Place of purchase	*Supermarket, local market, online*
Certification	*Certified, Not Certified*
Visual Appearance	*Clean and Attractive, Not Attractive*
Packaging	*Paper, Plastic, Without Package*
Price	*Reasonable, High*

The conjoint layout represents the different levels of choices for each attribute related to organic food products. Considering all attribute levels, the possible number of profiles is 2x3x2x2x3x2= 144. Being difficult to rate 144 profiles at the same time by the consumers of organic food, the "fractional factorial design" is performed with the help of IBM SPSS software, which provided the optimal number of profiles (sixteen profiles).The sixteen profiles representing the combinations of the selected attributes of the organic food products generated by the software were used to develop a questionnaire. The selected consumers of organic food were requested to rate the 16 profiles on a scale of 1 to 10, where 1 means not at all preferred and 10 means absolutely preferred. The selected sixteen profiles are shown in table 2:

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Table: Profiles of the different choices of organic food attributes

Profile	Brand	Place of Purchase	Certification	Visual Appearance	Packaging	Price
1	Branded	Local Market	Certified	Not Attractive	Not Packaged	High priced
2	Unbranded	Supermarket	Not Certified	Not Attractive	Not Packaged	High priced
3	Unbranded	Supermarket	Not Certified	Clean & Attractive	Plastic	High priced
4	Branded	Supermarket	Not Certified	Clean & Attractive	Paper	High priced
5	Unbranded	Local Market	Not Certified	Not Attractive	Paper	Reasonable
6	Unbranded	Local Market	Not Certified	Clean & Attractive	Paper	Reasonable
7	Branded	Supermarket	Certified	Not Attractive	Paper	Reasonable
8	Unbranded	Online	Certified	Not Attractive	Paper	High priced
9	Branded	Online	Not Certified	Clean & Attractive	Not Packaged	Reasonable
10	Unbranded	Supermarket	Certified	Clean & Attractive	Not Packaged	Reasonable
11	Branded	Supermarket	Not Certified	Not Attractive	Paper	High priced
12	Unbranded	Supermarket	Certified	Not Attractive	Plastic	Reasonable
13	Branded	Online	Not Certified	Not Attractive	Plastic	Reasonable
14	Branded	Supermarket	Certified	Clean & Attractive	Paper	Reasonable
15	Unbranded	Online	Certified	Clean & Attractive	Paper	High priced
16	Branded	Local Market	Certified	Clean & Attractive	Plastic	High priced

4.2 Utility estimation

The utility towards a choice represents the affective attitude of the consumer towards an alternative. The utility can be defined as perceived value or satisfaction derived from the choice against the cost to be paid for it. The utilities for different choices included in the study is estimated with the help of regression analysis. The table reported the results of the multivariate regression analysis, where the estimated customer average rating is the dependent variable and the different choices were the independent variable.Since the independent variables were the dummy variables, the regression coefficients represent the differential utilities of each choice to reference choice(which is dropped from in regression due to avoid dummy trap problem). The differential slope coefficient in the regression results represents the direction and magnitude of the utility of the respective choice of specific attribute and with respect to dropped choice of the same attribute.

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Table 4: Regression analysis for Utility Estimation

Dependent variable	Independent Variable	Regression Coefficient	T stats (p value)	F stats (R square)
Customer Average Ratings	(Constant)	10.940	13.486 (0.000)	11.708 (0.002) 93%
	Unbranded	-1.431	-2.572 (0.037)	
	LocalMarket	-2.054	-3.148 (0.016)	
	Online	-.304	-.466 (0.656)	
	NotCertified	-2.929	-5.482 (0.001)	
	Not Attractive	-1.429	-2.674 (0.032)	
	Plastic packaging	-.116	-.178 (0.863)	
	Not Packaged	-.991	-1.519 (0.172)	
	Highprice	-3.679	-6.885 (0.000)	

The utility of each choice included in the conjoint layout is estimated with the help of the following equations

$$a_1 + a_2 + \cdots + a_i = 0$$

$$a_2 - a_1 = \beta_1$$

$$a_2 - a_2 = \beta_2$$

Where a_1, a_2, $a_i$are the utilities of the choices for an attribute for organic food products. It is assumed that the sum of utilities for all the choices within an attribute is zero. This is due to the reason that few utilities of certain choices are positive and others may be negative making the sum of utilities equal to zero. The difference of the utility i.e. (a_2-a_1) indicates the difference in the utility. These differential utilities were estimated by the slope coefficients of the regression model. Table 4 shown below reported the estimated utilities for the different choices of selected six attributes of the organic food products included in the conjoint design.

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Table: Utilities estimation

Attribute	**Choices**	**Estimated Utility**
Brand	Branded organic food	0.7155
	Unbranded organic food	-0.7155
Place of purchase	Supermarket	0.786
	Local Market	-1.268
	Online purchase	0.482
Certification	Certified organic food	***1.4645***
	Not Certified organic food	-1.4645
Appearance	Attractive organic food	0.7145
	Not attractive organic food	-0.7145
Packaging	Paper packaging	0.369
	Plastic packaging	0.253
	No packaging	-0.622
Pricing	Reasonable price	***1.8395***
	High price	***-1.8395***

For each attribute of the organic food product, the highest positive utility represents the most preferred choice, while the lowest negative utility represents the least preferred level. As the estimated utilities are expressed with a common unit, utility estimations for a product profile can be added to calculate the total utility. For example, the total utility of (a) branded organic product (b) supermarket (c) certified organic food (d) attractive appearance (e) paper packaging, and (f) reasonable pricing can be calculated as (0.7155 + 0.786+ 1.4645+ 0.7145 + 0.369 + 1.8395) is 5.889. The utility of the reasonable pricing of organic food is found to be highest (1.8395) followed by the certified organic food (1.4645). To put it another way, the reasonable prices of organic food is the most desirable choice from the consumers perspective. The next most preferred choice is certified organic food which actually creates the difference from the normal food products. The consumer of organic food products has

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negative utilities with high pricing of the organic food products. The consumers do not like to pay high prices for the organic food products. The utilities for not certified organic food products is also found negative as the consumers are not confident enough about the quality of the organic food without certification. The consumers preferred branded organic product over the unbranded organic food. Todays, many brand entered into the organic food segments and making efforts to increase the awareness of their brand. The consumers also found to prefer to buy the organic food products of the brands. The consumers also found to prefer to buy the organic food products from the supermarket over local market and online. The ambience of the supermarket provides comfort for the consumers to see, check and select the product to buy. The consumer also prefers attractive appearance for the organic food products. Finally, the consumers found to prefer paper packaging over plastic packaging or no packaging. The estimated utility for each choice for the selected attribute of organic food products is shown in Fig 1.

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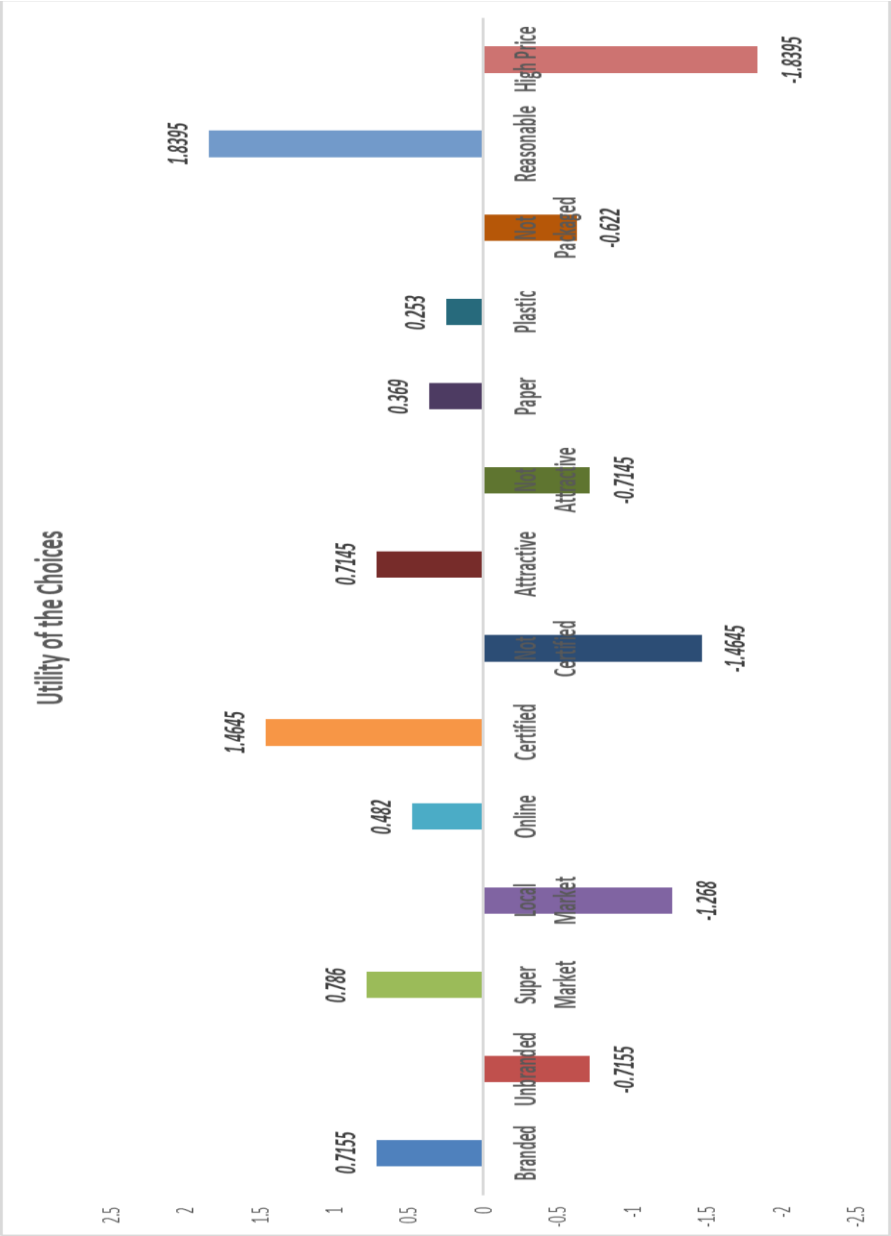

4.3 Relative importance

The utility estimations for the different choices of selected attributes of organic food products included in the conjoint layout are used to estimate the relative importance of each attribute. The range of utility is estimated for each attribute by subtracting the minimum value of the utility from the highest utility value. The sum of ranges of the utility is estimated. The range of the utility indicates the importance attached to the attributes by the participants. The range

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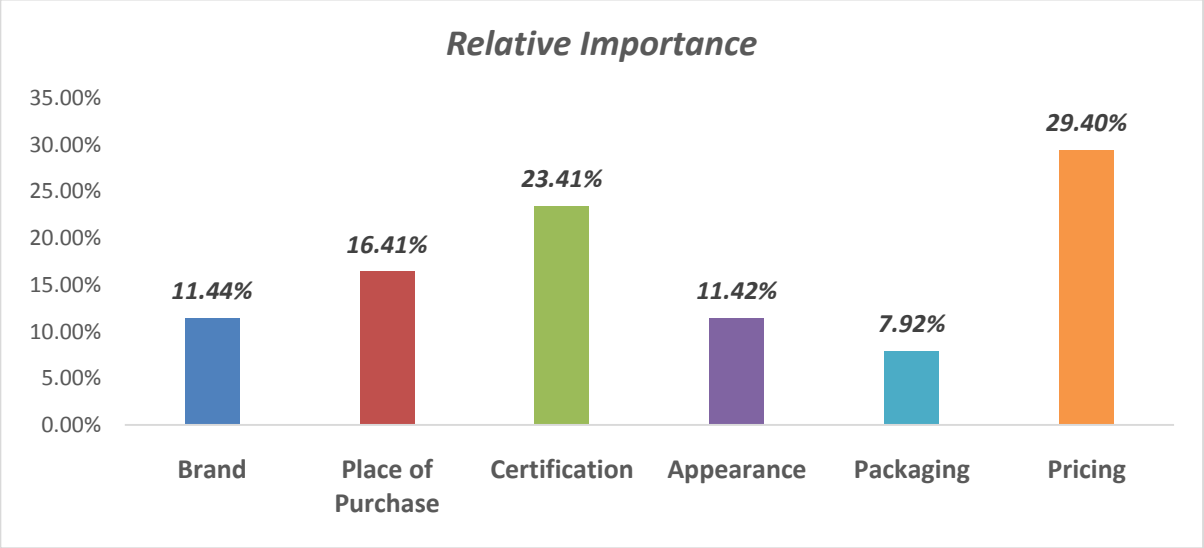
of the utility represents high involvement of the consumers to find the best food products. Table 5 reported the relative importance estimated for each attribute of organic food products. The attribute *"Pricing of the organic food" (29.40%)"* ranked as the highly preferred attribute in selecting organic food products. This is followed by the "*Certification of the organic food*" *(23.41%)" and "Place of purchase (16.41%)".*The other attributes seem to be secondary namely "*Brand*" (11.44%), "*Appearance" (11.42%)* and "Packaging" (7.92%).

Table 5: Relative importance of the attributes

Attribute of the organic food products	***Relative importance***
Brand	11.44%
Place of Purchase	16.41%
Certification	23.41%
Appearance	11.42%
Packaging	7.92%
Pricing	29.40%



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Discussion and Conclusion

The market for organic goods is expanding along with the number of people who are willing to consume organic food and the shift in public perception. The attitudes and driving forces behind organic food products will also play a significant role in the future of organic agriculture.In this study we analyse the different attributes of attitude. Therefore,it is concluded in the study that in the case of the attributes, place of purchase of organic food, supermarket is found to have the highest positive utility followed by the next positive utility in case of online purchase. However, in the case of local marketutility is found to be negative.From the findings, it can be inferred that organic food consumers prefer to buy their organic food online and from supermarkets. After all, it allows them to easily purchase the goods without wasting time in their hectic schedules.The relative importance of the place of purchase is found to be 16.41 per cent.Similarly, in the case of packaging attribute, paper packaging is found to have the highest positive utility followed by the next positive utility in the case of plastic packaging. The utility ofUnpackaged organic food is found to be negative.The relative importance of the packaging is found to be 7.92 percent.

In the case of pricing attribute, a reasonable price is found to have the highest positive utility. The utility is negative in the case of the high price. This can be concluded from the results that the consumers of organic food prefer to buy organic ata reasonable price, and don't prefer to buy at high price.The relative importance of the pricingoforganic food products is found to be 29.40 percent which is the highly preferred attribute in selecting organic food products.Similarly in case of certificationconsumers have positive utility with certified organic food as compared to not certified organic food. Similarly, in case of appearance consumers have positive utility with attractive organic food as compared to organic food those are not attractive. In case of brand attribute also, branded organic food have positive utility as compared to not branded organic food.

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