

# Study on Consumers' Preference and Price Premium for Organic Vegetables in Budhanilkantha Municipality Kathmandu Valley

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## ABSTRACT

Paying regard to the increasing concern of consumers towards nutrients-loaded food products and agriculture sustainability, the main aim of this paper is to assess the consumers' willingness to pay the price premium for organic vegetables and to know their perception of the organic vegetables in Budhanilkantha-8 municipality, Kathmandu. A total of 100 respondents were randomly surveyed using a questionnaire. The first part of the questionnaire included the demographic section, while in the second part, consumers were asked about their perception of organic vegetable consumption. The consumers' survey revealed that 28% of the respondents were willing to pay a 0-10% price premium compared to inorganic

vegetables. Similarly, 24% were willing to pay a 20-30% price premium. Some (22%) were willing to pay a 10-20% price premium, 9% liked to pay a 30-40% price premium, 1% liked to pay a 40-50% price premium, and 8% were willing to pay greater than 50% price premium, while 8% of surveyed consumers denied paying price premium even in case of product availability. The consumers' willingness to pay was health properties, followed by freshness and taste. Few factors, such as low availability, low trust, lack of information, and high price, were considered barriers to purchasing organic vegetables. The survey also suggested that the consumption of organic vegetables is increasing; however, to stimulate further demand for its consumption, huge production and timely availability, credible certification, processing, and packaging are needed to be promoted.

**Keywords**— Business and Management, Organic vegetables, Price premium, Willingness to pay, consumer preference, agriculture sustainability, Nepal

## INTRODUCTION

An organic farming system is an integrated farming system that promotes environmentally, economically, and socially sound production, enhances self-regulation of natural resources, and avoids using synthetic inputs. Several pieces of evidence have shown that organic plant-based food usually contains higher anti-oxidants, minerals, vitamins, and other beneficial substances (Woese et al., 1997; Worthington, 2001).

Consumers' concerns regarding health, food, and environmental safety have increased the production and consumption of organic products in recent years (Liu et al., 2019). The market for organic products is expanding, for the number of people preferring organic products and willing to pay a premium price is increasing (Aryal et al., 2009).

Agriculture in Nepal traditionally resembled organic agriculture, but adopting inorganic practices with time has caused agriculture productivity, environmental sustainability, and human health to degrade (Banjara & Poudel, 2016).

Developed countries worldwide are raising their organic product market rapidly, whereas its growth in developing countries like Nepal is quite slow, with several challenges. Some instances of progress are observed, which are still less. Since the formal prioritization of organic agriculture in Nepalese Agriculture in the 10th-five year plan, organic farming practices mounted, and some organic products like ginger, tea, coffee, cardamom, honey, buckwheat, root, and leaf vegetables, essential oils have been even exported to foreign countries (Tamang

et al., 2011). The certified organic land in 2017 was 9,361 ha (0.2%) of total cultivated land (Willer et al., 2016).

Organic farming's future in Nepal highly depends upon the demand of consumers, their response to organically grown products, and their willingness to pay a price premium. The willingness to pay for organic products is comparatively high in urban areas, which provides some hope for the flourishing of the organic market. From different studies, it was found that the potential of a market is determined by the expectation of consumers on product attributes like quality (Ramesh et al., 2005) and certification. Consumers' willingness to pay the price premium for organic products depends upon motivators like awareness, healthiness, perception, and environmentalism (Xia & Zeng, 2008).

Some studies also revealed that socio-demographic factors like gender, age, education, income, marital status, and the number of children in the family affect the consumers' willingness to pay (Ariyawardana et al., 2009). To stimulate demand for the purchase, product development and innovations in certification, processing, labeling, and packaging play a crucial role (Aryal et al., 2009).

## OBJECTIVES OF THE STUDY

The research mainly deals with studying the willingness about the consumers to pay for organic products and determinants in the 8 municipalities in Budhanilkantha, Kathamandu. According to notions from Wier and Calverley (2002), a price reduction of organic food encourages its purchase, and the authors believe that the significant fall in prices would increase the demand for organic food.

With the increasing concern for health and food safety, consumers are willing to pay a price premium as a sacrifice for their healthy lifestyle. In addition to health and food safety, other motivational factors determine consumers, willingness to pay for organic products as taste, freshness, availability, palatability, nutrition, and other exogenous factors such as processing, packaging, labeling, and certification. Similarly, sociodemographic factors such as age, education status, annual income, gender, marital status, and the number of children also influence the willingness to pay. Consumers' decision on whether to buy a product or not is based on knowledge, attitude, and intention. However, the translation of willingness to pay into demand is limited due to low purchasing power.

## METHODOLOGY

### Research Design

The research uses the simple random sampling design to obtain information about the consumer. It was done by surveying the consumers. Survey was conducted through a structured interview. For this purpose, a questionnaire with both open and closed-ended questions was prepared, and pretesting was done near the survey area before the real administration of the questionnaire. Data regarding socio-economic information, degree of knowledge, perception, sources of information, preference of organic products, willingness to pay, price premium, the determinants, etc., were collected during the interview.

### Procedure

The data was generated by interviewing the respondent. Primary information from the respondents was collected after preparing the interview schedule. Information about the respondent's demography, degree of knowledge, perception, awareness, and attitude, willingness to pay a price premium and the determinants, etc., were collected from the prepared schedule. The sample size used in the study was determined using Taro Yamane's Formula in finding the sample size:

$$n = N/(1 + N \times e^2)$$

Where n = Sample size

N= total number of population (16885)

e = the critical value/accuracy (0.10 for this study)

Therefore,  $n = 16885 / (1 + 16885 \times 0.1) = 100$

### Research Site

The study was conducted in the eight municipalities of Budhanilkantha, Kathmandu, to assess consumers' willingness to pay for organic products. The research site was selected purposively for data collection. This is one of the prime centers in the capital city for the organic production of vegetables, and some identified organic farms are located in this region. The municipality lies at the foot of Shivapuri hill in the northern part of the Kathmandu valley, Bagmati Province, Nepal.

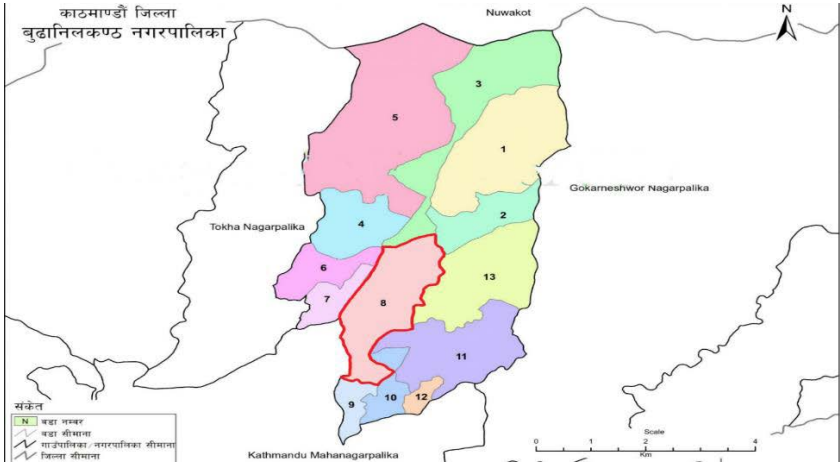


Figure 1. Map of the study area (Budhanilkantha -8, Kathmandu)

## Respondents

100 consumers of ward no.8 were selected for the survey using a simple random sampling method. In addition, 15 different organic and inorganic vegetable entrepreneurs, five organic vegetable farmers, five organic vegetable sellers, and five general vegetable sellers in the study area were selected for the survey through a simple random sampling technique. This made a total of 115 samples for the study.

## Instrumentation

Both primary and secondary data were collected and analyzed in the study. Various sources and techniques were used for the collection of the necessary information. For primary data collection, a structured questionnaire was used after pretesting. A household survey was carried out to obtain information from a targeted group of people about their socio-demographic characteristics, attitudes, behaviors, knowledge, opinions, and preferences with the help of a prepared questionnaire. The secondary data were obtained through books, journals, articles, websites, reports, government records, local institutions, and the thesis.

Primary data were obtained through a structured interview. For this purpose, a questionnaire with both open and close-ended questions was prepared, and pretesting was done near the survey area before the real administration of the questionnaire. Data regarding socio-economic information, degree of knowledge, perception, sources of information, preference for organic products, willingness to pay a price premium, the determinants, etc., were collected during the interview. Based on respondents' frequencies, weighted indexes were calculated to analyze

consumers' perceptions of organic products. Then the indexes of importance for the preference and non-preference of organic products were calculated to draw a valid conclusion and make a reasonable decision. The index of importance was computed by using the formula:

$$I_{imp} = \sum \left( \frac{S_i F_i}{N} \right)$$

Where,

$I_{imp}$  = index of importance

$\sum$  = summation

$S_i$  =  $i^{\text{th}}$  scale value ( $i = 0, 1$ )

$F_i$  = frequency of  $i^{\text{th}}$  importance given by the respondents

$N$  = total number of respondents

### Data Analysis

The collected data were analyzed using MS- Excel and Statistical package for social science (SPSS). Both descriptive and analytic methods were used in data analysis.

### Ethical protocol

The participants of the survey were voluntarily selected. It was stated that the name of the respondent, the company they work for, and their other personal details would be kept confidential. It was explained to the respondent that the questionnaire does not include content that may harm their personal sentiments. The researcher obtained ethical clearance from the ethics review committee and also got signed information from the respondent.

## RESULTS AND DISCUSSION

This section includes a detailed study of the factors influencing consumers' willingness to pay for organic vegetables, and the price premium consumers are ready to pay in Budhanilkantha's in Kathmandu.

### Economic Involvement of Family Members

Figure 2 shows the economically active and inactive population. Out of the total members of the surveyed families, 45.5% were economically active, and 54.48% were economically inactive.

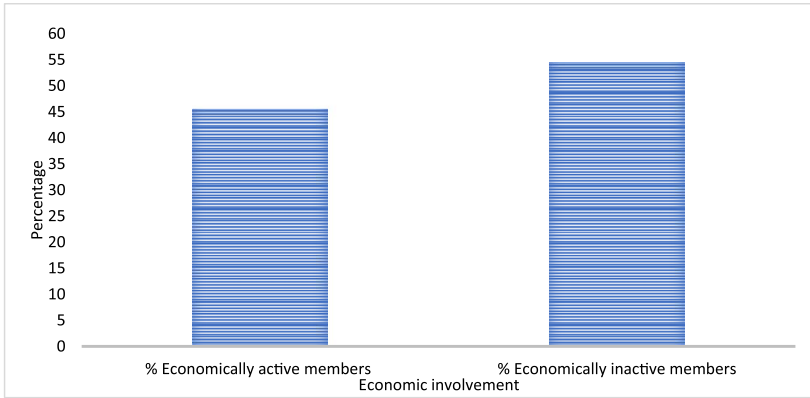


Figure 2. Economic Involvement of Family Members

### Respondents

Figure 3 illustrates the gender of respondents in a bar diagram. Most respondents in the study area are male. The result showed that 54% of the total respondents are male, and 46% are female.

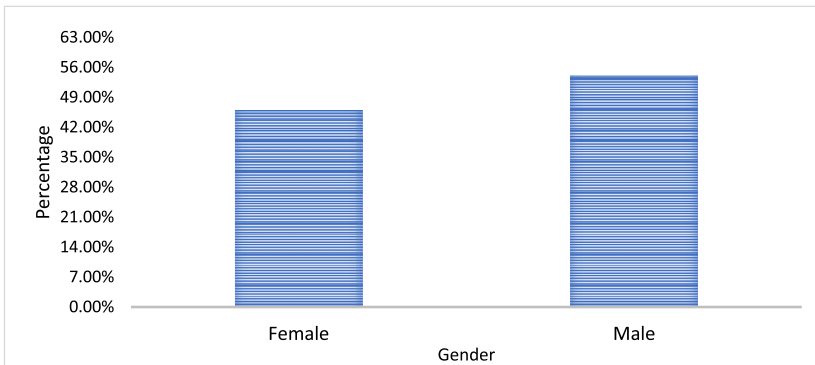


Figure 3. Gender of Respondents

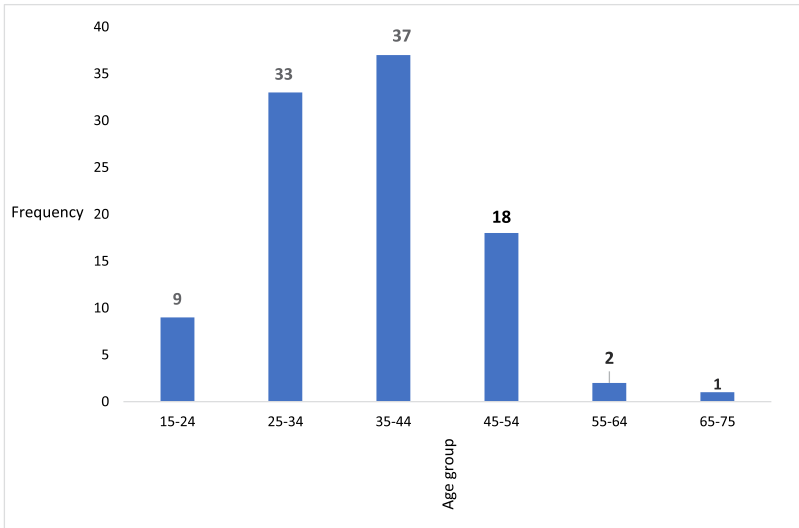


Figure 4. Age Group of Respondents

The age group of consumers plays an important determinant in consumers’ willingness to pay for organic vegetables. The result showed that most of the respondents in the study area belong to the age group 35-44, followed by 25-34 and 45-54, respectively. 37 respondents belong to the age group 35-44, 33 respondents to the age group 25-34, 18 respondents to the group 45-54, 9 respondents to the group 15-24, 2 respondents to the group 55-64, and 1 respondent to the group 65-75.

**Primary Occupation**

Figure 5 shows the primary occupation of the respondents in the study area. The results showed that 52% of households’ main source of livelihood was service, followed by 20% involvement in business, 16% in agriculture, 3% in industry, and only 9% in other activities.



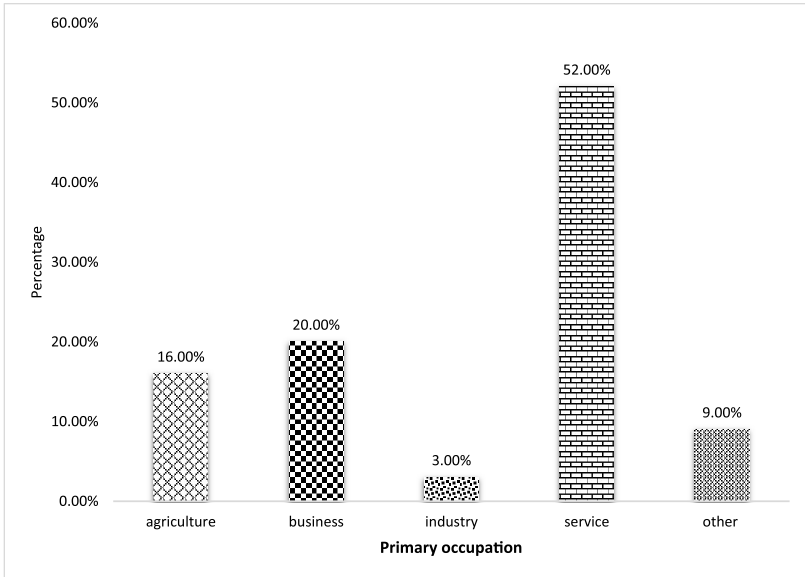


Figure 5. Primary Occupation

### Highest Level of Education in The Family

The educational level of the family members plays an important role in consumers' willingness to pay for organic vegetables. Table 1 illustrates the highest level of education in the family. Most respondents' families had obtained a bachelor's degree, followed by higher secondary education as their family's highest level of education.

Table 1. Highest Level of Education in the Family

Highest Educational Level of Family	Frequency
Secondary education	12
Higher secondary education	25
Bachelor's degree	37
Master's degree	19
M.Phil degree	2
Doctorate degree	1
Illiterate	4
Grand Total	100

### Level of Awareness of Organic Foods

Figure 6 shows the level of awareness of respondents on organic vegetables. The results showed that the knowledge and awareness levels among the surveyed consumers were good but not adequate. More than half (55%) of the respondents had medium knowledge of organic vegetables. Moreover, the level of awareness of 15% of respondents was high, 14% was low, 8% was very low, and 8% was very high.

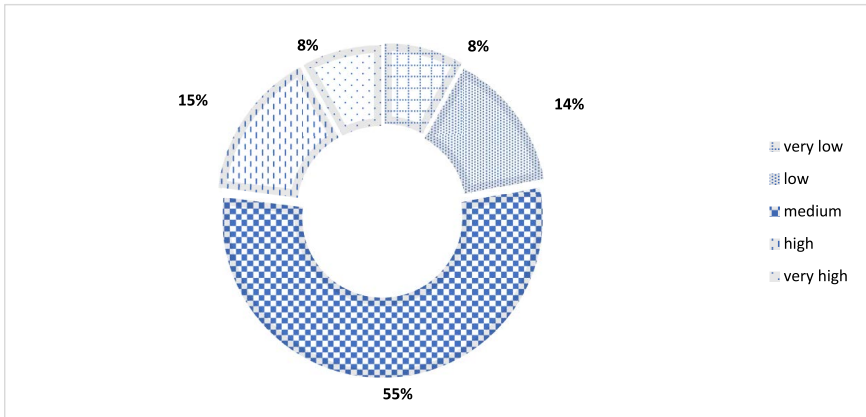


Figure 6. Level of Awareness of Respondents on Organic Vegetables

### Organic Vegetable Consumption Status

Figure 7 illustrates respondents' organic vegetable consumption status in the doughnut chart. The result showed that the majority of the respondents, i.e., 53% consume organic vegetables sometimes, followed by 25% who do not consume organic vegetables at all, and 22% consume organic vegetables too frequently.

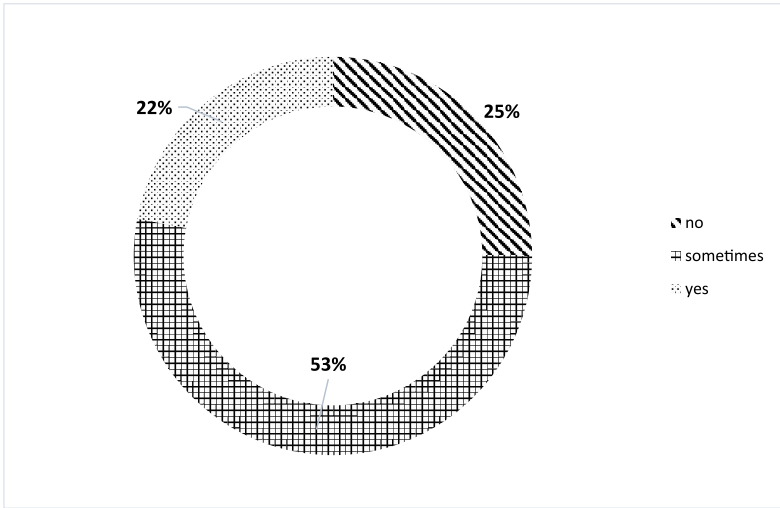


Figure 7. Organic Vegetable Consumption Status

### Price premium

The result showed that most consumers were willing to pay a higher price for organic products in the case of product availability. The consumer survey revealed that 28 % of the respondents were willing to pay a 0-10% price premium compared with nonorganic products. Similarly, 22% of the consumers were willing to pay 10-20%, and 24% were willing to pay 20-30% price premiums. Similarly, 9% population were willing to pay 30-40% premium, only 1% population were willing to pay 40-50% premium, 8% of the surveyed consumers were willing to pay >50% price premium, and finally, 8% of consumers were not willing to pay any premium price.

### Factors Influencing Consumers' Willingness to Purchase

Among many factors influencing consumers' preference and willingness to pay for organic vegetables, consumers were asked to rank within the health/nutritional property, freshness, environment, taste/palatability, and good appearance. The following formula was used to analyze the ranks given by people.

$$I_{imp} = \sum ( )$$

Value 1, 0.8, 0.6, 0.4, and 0.2 (represented by variable x) were given for the ranks I, II, III, IV, and V, respectively, 'f' represents the frequency, and N represents the total number of respondents. It was found that health/ nutritional

property was the major reason for the preference for organic products, followed by freshness and taste/ palatability, respectively.

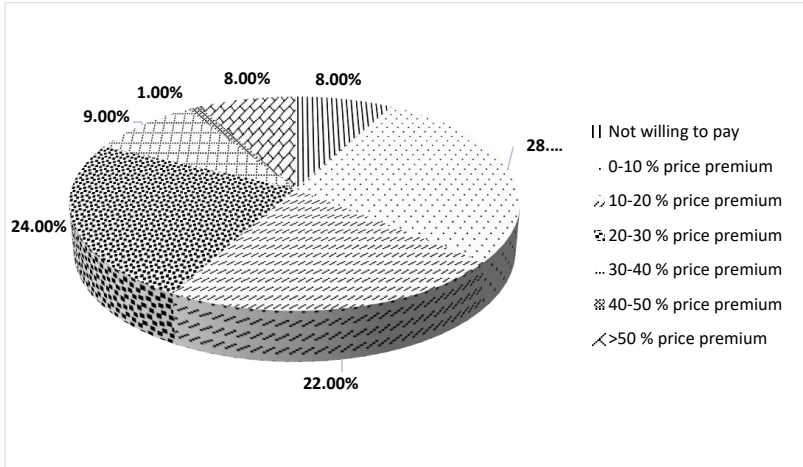


Figure 8. Consumers' Willingness to Pay for Organic Products

Table 2. Factors Influencing Consumers' Willingness to Purchase

Factors	Score	Ranking
Health/ Nutritional property	0.886957	I
Freshness	0.747826	II
Taste/ Palatability	0.676068	III
Environmental care	0.395652	IV
Good appearance	0.28913	V

**Factors Contributing to Non-Preference of Organic Products**

To find out the reasons that led to the non-preference of organic products, a few factors viz: high price, lack of information, low availability, and low trust were selected. Low availability was the major factor behind non-preference, followed by low trust and lack of information. The high price was selected by only a few people.

Table 3. Factors Contributing to Non-Preference of Organic Products

Major Reasons Behind Non-Preference	Percentage
Low Availability	35.80%
Low Trust	29.63%
Lack of Information	18.52%
High Price	16.05%
Grand Total	100.00%

### Relationship between Education of Household Head and WTP

Figure 9 shows that household heads with Master's degrees, M. Phil degrees, and Bachelor's degrees are willing to pay a higher price premium. The result showed that the relationship between the education status of household heads and price premium was significant at a 1% level of significance. The willingness to pay increases as the educational status of the household head increases

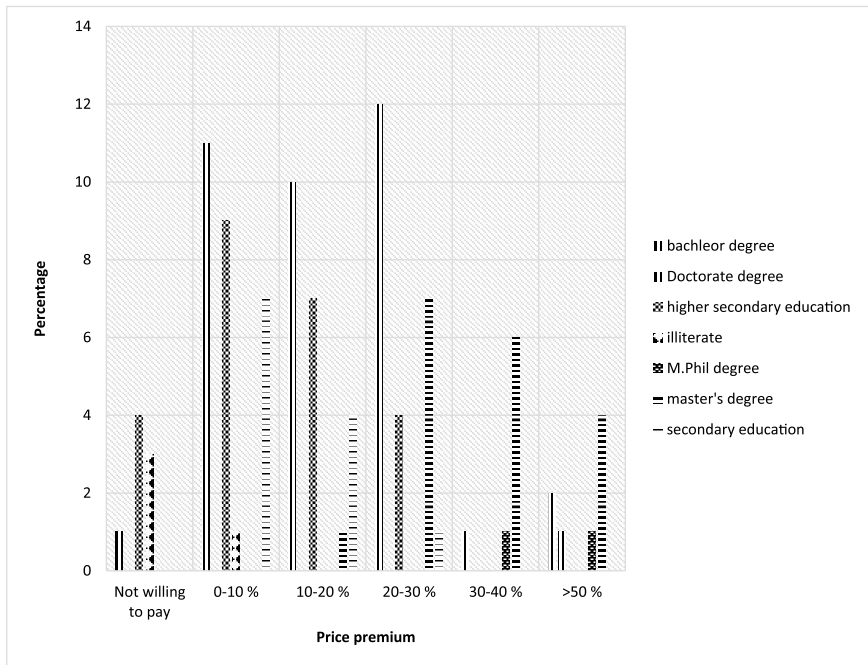


Figure 9. Relationship between the Education of Household Head and WTP

### Relationship between Level of Awareness and WTP

Figure 10 shows that respondents with a very high and high level of awareness were willing to pay >50% price premium. The result showed that the relationship between the level of awareness and WTP was significant at a 1% level of significance. The WTP increases as the level of awareness increases.

### Relationship between Primary Occupation and WTP

Figure 11 shows that the respondents who served as a primary occupation were willing to pay a higher price premium. The relationship between primary occupation and WTP was significant at a 1% level of significance.

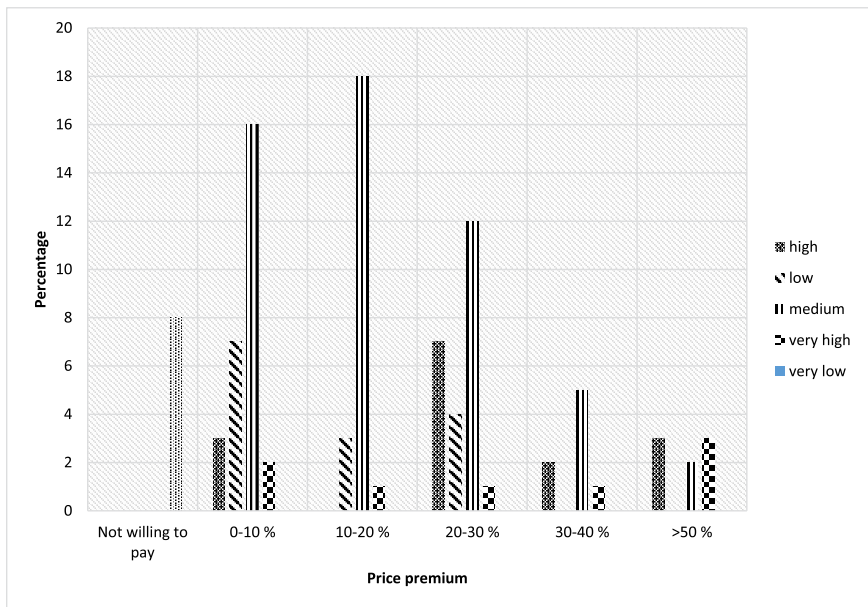


Figure 10. Relationship between Level of awareness and WTP

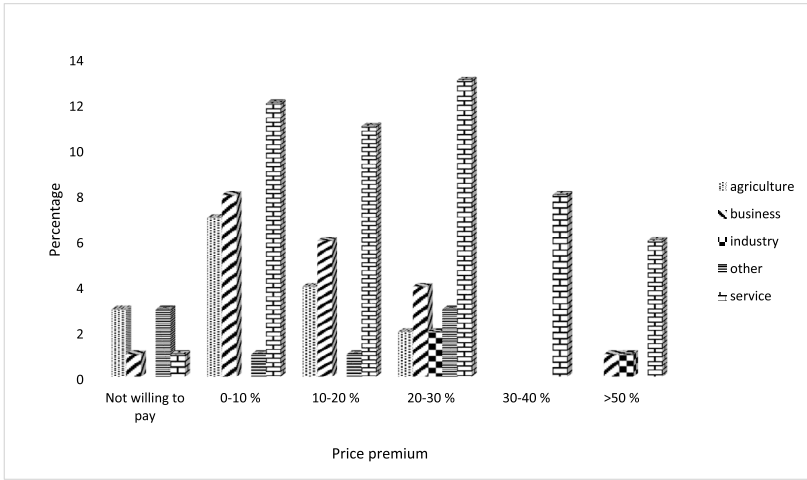


Figure 11. Relationship between Primary occupation and WTP

### Price Difference in Vegetables between Organic Farm and Organic Market

Figure 12 shows that the average price of organic vegetables in the organic market was greater than that of organic farms. The price difference between organic farms and the organic market was significant at a 5% level of significance.

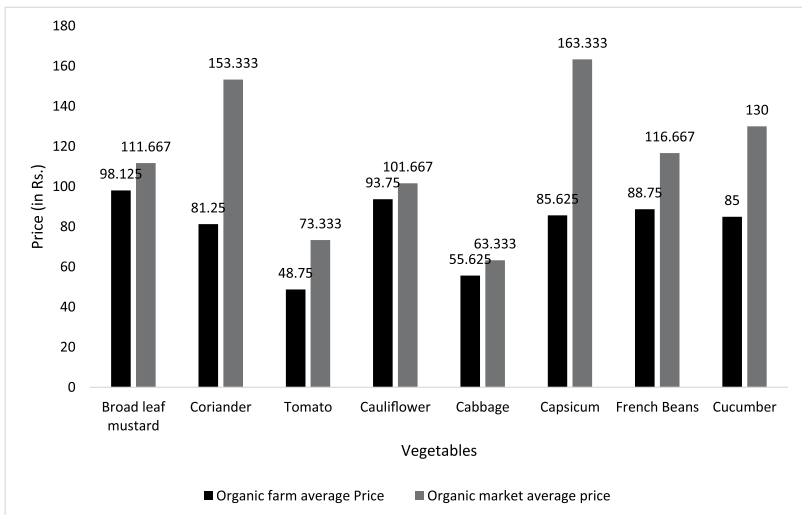


Figure 12. Price Difference between Organic Farm and Organic Market

### Price Difference in Vegetables between Organic Market and Inorganic Market

Figure 13 shows that the average price of the same vegetables in the organic market was slightly greater than that of the inorganic market. The price difference of the same vegetables between organic and inorganic markets was non-significant at a 5% level of significance.

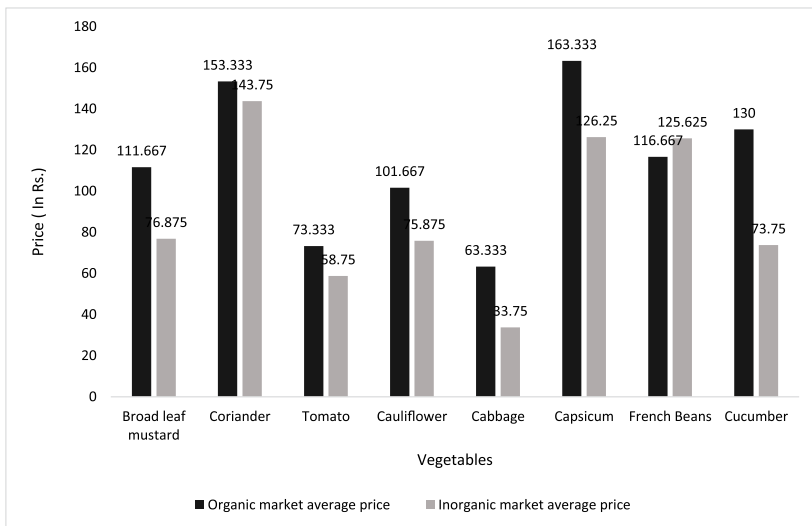


Figure 13. Price Difference between Organic Market and Inorganic Market

This research studied different factors that affect consumers’ willingness to pay for organic vegetables in the budhanilkantha of Kathmandu valley. Several variables such as health/nutritional property, freshness, taste/palatability, environmental consciousness, low trust, consumers’ perceived expensiveness, low availability, and lack of information were considered, and a series of socio-demographic factors were also considered, which included the age, gender, highest education level in the family, primary occupation, economically active population and level of awareness. To better understand the factors influencing consumers’ willingness to pay for organic vegetables, a descriptive analysis was done.

From the study, it was found that the majority of the respondents were males (54%), and 45.5% of the total members of the surveyed families were economically active. Most of the respondents in the study area belong to the age group 35-44, and their major source of income was service (52%), whereas 16%



were involved in agriculture. The literacy rate was found to be satisfactory in the study area, where the majority of the highest level of education in the family was a Bachelor's degree (37%). Most of the surveyed consumers had a medium level of awareness about organic vegetables. The result showed that 55% had a medium level of awareness, and only 22% of respondents consumed organic vegetables regularly. The knowledge and awareness levels among the surveyed consumers were good but not adequate.

The result showed that 92% of consumers were willing to pay a premium price for organic vegetables in the case of product availability. The consumer survey revealed that 28% of the consumers were willing to pay 0-10% price premium compared with inorganic vegetables. Most surveyed consumers were willing to pay 0-10% price premium, followed by 20-30%. Quality characteristics greatly affect consumers' preferences for organic products, with the most important Health/ Nutritional property followed by freshness, taste, environmental care, and good appearance. Consumers' willingness to purchase is hindered by low availability, low trust, lack of information, and higher product price. It was found that radio/ television was the major source of information on organic vegetables.

## CONCLUSION

This paper sought to estimate the consumers' willingness to pay a premium price for organic vegetables and studied the factors that influence such purchasing behavior in Budhanilkantha, Kathmandu valley, where WTP has not been addressed far in the previous research. The study can contribute to understanding the demand and supply side of organic products since the study is conducted from the consumers' perspective. Results validate that most people are concerned about their health and prefer healthy and functional foods, but there is a limited price level they are willing to pay for organic products. Product attributes such as health, taste, freshness, nutrition, knowledge, and awareness about organic products influence the organic consumers purchasing decisions. Some barriers to purchasing organic products include low availability, low trust, and high price.

Moreover, in the case of availability, almost all consumers are willing to pay a premium price to buy organic products, which can be viewed as a cost of investment in human health. The preference level for organic products was found to be medium, indicating that people are willing to buy in case of availability. A significant relationship was found between the education status of the household head, primary occupation, and level of awareness of WTP. The study concluded that consumers' awareness of their health and food safety is increasing, and there is a huge future potential for organic markets in the study area.

## TRANSLATIONAL RESEARCH

The finding of the research can be forwarded to the organic production monitoring agencies and other related organizations to maintain the price of the product. Similarly, the government can also take references to encourage people to organic production, which will solve the problems of availability.

## ACKNOWLEDGEMENT

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