

# Consumers' Intention to Purchase Organic Vegetable Product in Semarang City Central Java

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**Abstract:** The purpose of this study was to determine the consumers' intention to purchase organic vegetable products in Semarang City, Central Java Province. Primary data were collected using the list structured questionnaire from 150 consumers as respondents. Determination of respondents' samples is done by accidental sampling method. Data collection was carried out from July to September 2018. In order to analyze the consumer intention to purchase, a survey with 150 respondents was conducted in Semarang City. Firstly, the factor analysis is used to identify the possible variables that influence the consumers' intention to purchase organic vegetable production. Furthermore, logistic regression is employed to examine the significant relationship between the influence factors on the consumers' intention to buy. The result showed that there were 4 main factors that will influence the acceptance of consumer toward organic vegetable product which were consumer awareness, the motive to consume, consumer knowledge and consumer perception. Then, the factor score for these four identified factors was applied to the binary logistic regression and to examine the significant factors that influence the probability of consumer's intention to purchase the organic vegetable products. The binary logistic regression showed that consumers' negative awareness, positive motive to buy and age have significantly significant a 5% significance level.

**Keywords:** awareness; consumer; intention; organic; vegetables

## 1 Introduction

A new era of agriculture has begun since the mechanization of agriculture. Agriculture with a moving relocation system that uses traditional tools has begun to be moved. Modern agricultural machinery and equipment, as well as the use of fertilizers and pesticides, created the beginning of the birth of modern farming systems. Agriculture officially began to turn into commercial agriculture. Agricultural commercialization makes the direction of cultivation better. Production and productivity have changed dramatically from the compilation of farmers using traditional tools. However, high yields are not directly proportional to the quality of the crop. The use of fertilizers, the use of inorganic pesticides is not controlled, causing severe problems about health problems (USDA NASS, 2007). This causes consumers to be increasingly worried about the decision to buy crops and food for consumption (Yin et al., 2010).

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The preference of consumers who initially like to buy agricultural products with cheap price characteristics but ignore cleanliness, nutritional content, and health has changed. People become consumers who are more concerned with quality and nutritional content than low prices. Foods that are considered capable of meeting their needs and are safe for health are organic products (Magnusson et al., 2003). In response, the farmers changed the way they cultivated into an organic cultivation system. Quality crops that are free from exposure to pesticides are the main prerequisites for agricultural products in the present era.

Organic agricultural products do promise high nutritional quality and are healthier. However, there is a price that must be paid because it has a premium price (Rödiger & Hamm, 2015). Organic products always have rich connotations. This is because there are still few farmers who are aware of the importance of organic products, thus causing a lack of product availability in the market (Barbarossa & Pastore, 2015), while demand is very high. The growing demand for organic products occurs because consumers prioritize food safety that is environmentally friendly and is considered safe to protect their health (STEPTOE et al., 1995).

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In its development, organic products are increasingly popular in developed and developing countries. The retail market in the United States for organic products is valued at USD 39.1 billion in 2015 and will continue to grow in the future due to rising consumer demand (United States Department of Agriculture, 2015). Because of the large potential of the market, even resulting in the opening of organic land in several countries. For example, in Australia, there are 50.9 million hectares of agricultural land are organic (including conversion areas). Australia even has the largest organic agricultural land in the world, which is around 22.69 million ha in 2015 (H. Willer, 2017). In the same year, Tanzania was also estimated to have 268,729 ha of agricultural land (Kledal et al., 2009). It can be seen that there are new trends in the world, this trend can contribute to the growth of organic food sales because organic food is generally believed to have a higher nutrient content (Lea & Worsley, 2005).

In purchasing organic products themselves, according to Kotler & Armstrong (2008) consumers are influenced by several factors: a) social factors where there are groups, family influences, roles and status, b) personal factors where there are economic situations, lifestyles, personal and self-concepts, age, and life cycle stages, and work, c) psychological factors which include motivation, perception, learning, and beliefs and attitudes, and d) cultural factors where there are subcultures and social classes. Daily consumption practices are still strongly driven by comfort, habits, money values, personal health problems, hedonism, and individual responses to social and institutional norms (Vermeir & Verbeke, 2004). Further, according to Engelmann (2010), the factors that influence purchasing decisions are purchase intention, brand, and product class. In carrying out purchase intentions (Kotler & Keller, 2008) also explains that consumers can make several sub-decisions between the choice of brand or type, the decision of the place of purchase, time of purchase and others depending on the size of the purchase request facing.

All of these factors are then used as a reference in making an environmentally friendly marketing activity that pays attention to environmental conditions but can still meet human needs (Polonsky & Rosenberger, 2001). From here it is hoped that a sustainable consumption pattern will be created. A decision-making process that takes into account consumer social responsibility in addition to individual needs and desires (Meulenbergh, 2003). These various reasons then set the background for this research to find out consumers' intentions in buying organic vegetable products in Semarang City, Central Java Province.

## 2 Methods

In this study, we aim to investigate the consumer's intention to purchase organic vegetable products. This research was conducted from July to September 2018. The location of this study was purposively selected in Semarang City as the provincial capital, where there were many organic vegetable retailers.

Based on the literature reviews, the theory of Planned Behavior (TPB) proposed by (Fishbein & Ajzen, 1980) is a usual method applied in the previous studies to examine the consumer intention and consumer behavior on food consumption (Rezai, 2012). Therefore, the conceptual framework for the consumer intention to buy organic vegetable products is developed based on the TPB and show in Figure 1.

Theory planned behavior was used as a basis of the conceptual framework for the study to give a better understanding of the human behavior that will predict deliberate behavior because behavior can be deliberate planned (Ajzen, 1991). The model argues that human action-reflection is affected by three beliefs that is a behavioral belief, normative belief, and control belief. Behavioral belief is an individual's belief about the result of the behavior and creates the individual attitude toward it. Normative belief is referring to the individual's perception of how others will judge a particular behavior and produces subjective norms. Control belief refers to how an individual perception controls her or her over the behavior. This is connected to perceived behavioral control. Theory Planned Behavior also shows that behavioral intention that predicts if an individual will perform a behavior, and it can be predicted by the attitudes, subjective norm, and perceived behavior control (Ajzen, 1991).

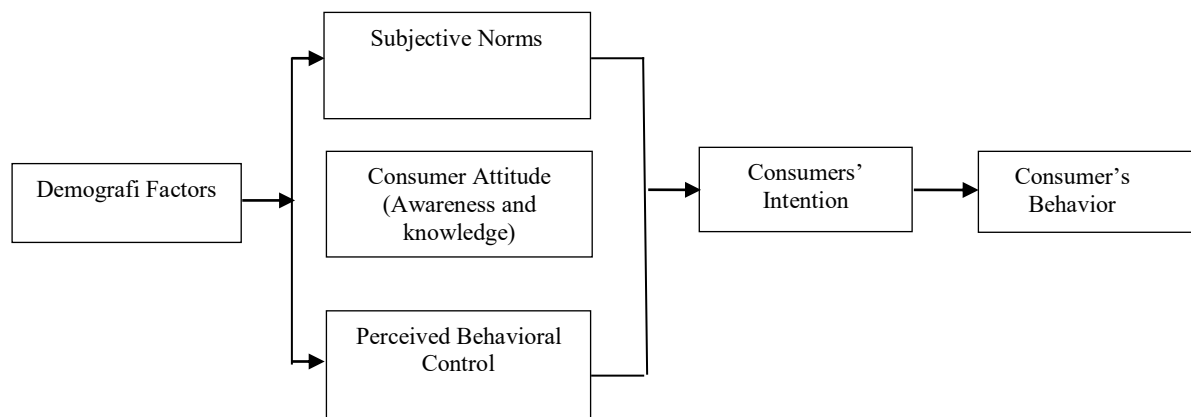


Figure 1. Conceptual Framework of the TPB Applied to the organic vegetable consumption in Semarang City  
(Source: Modified from Fishbein & Ajzen, 1980)

This study used data collected from a survey. A total of 150 respondents is collected through accidental sampling and face to face interview at ten supermarket as organic vegetable retail. The market chosen were five super into, two Gelael, one Transmart Mall, and two Ada Mall.

### 2.1. Factor Analysis

Factor analysis is a statistical method that can be used to analyze the pattern of correlation within the set of observed variables by identifying latent variable factors. A large number of variables will be grouped into a group of variables with common factors or characteristics.

Factor analysis involves three steps in the correlation matrix and used to generate all variables. A correlation matrix is a rectangular array of the correlation coefficient of the variable. Next, it extracts a set of initial factors from a correlation matrix that produces from the first step. Each of the variable will produce one component and is extracted from principal component analysis. Even though the analysis yields many factors, the small factor loading that is less than 0,5 will be dropped. There, a set of factors will produce more variance in the data as a whole. Variable reduction purposes come from the basic form of model:

$$Y = b_1X_1 + b_2X_2 + \dots + b_nX_n$$

Where Y is a linear combination of the principal component of principal factor,  $b_1, b_2, \dots, b_n$  are coefficient and  $X_1, X_2, \dots, X_n$  is a variable that is highly correlated with each other. Lastly, is to rotate the retained factors. The initial factors are hard to interpret. Thus, varimax rotation is used to rotate the initial factors to produce a solution that is more meaningful and easier to be interpreted.

### 2.2 Logistic regression

In this study, the dependent variable in the consumer intention to buy organic vegetables is measure by a binary value. If the respondent intends to purchase the organic vegetable = 1 and 0 if the respondent is not intended to buy. Based on the theoretical framework justified at the previous section, the consumer intention to buy the organic vegetable is determined by five independent variables, i.e., consumer awareness (X1), the motive to buy the organic vegetable (X2), perceive value on the organic vegetable (X3), subjective norms (X4), and the demographic variables (Age X5, Educational X6, income X7, and family size X8). Hence, the logistic regression is re-write as (Yilmaz & Belbag, 2016) :

$$\text{Logit COV} = \ln \frac{1}{1 + e^{-\pi}} = \beta_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \varepsilon$$

Where logit COV is an opportunity for consumers to make decisions to buy organic vegetables if known,  $X_i$  is natural log (odds), estimated coefficients for independent variables, and stochastic term.

## 3 Result and Discussion

### 3.1 Characteristic of the respondent

Table 1: Characteristic of the respondents

Description	SEMARANG
	Total (person)
Age (Year)	
< 25	3
>25 – 35	15
>35 – 45	44
>45 – 55	68
> 55	20
Educational (Year)	
Junior High School	5
Senior High School	32
D3 (undergraduate)	44
S1 (Bachelor)	58
S2/S3 (Postgraduate)	11
Income (million rupiah)	
<2.5	10
>2.5-3	26
>3.0-3.5	35

Description	SEMARANG
	Total (person)
>3.5-4.0	22
>4.0-4.5	21
>4.5-5.0	16
>5.0	20

In this study, the respondent has to answer 18 questions, which were on a 5-point Likert scale from strongly disagree to agree strongly. Table 2 is the result of the Keiser-Meyer- Olkin (KMO) test of sampling adequacy and Bartlett's test of Sphericity for the data collected from the market survey. These two tests were first formed on all the statements to confirm the appropriateness of conduction factor analysis (Williams et al., 2010). In this study, the result of the KMO test showed a value of 0.613, indicating that the district and decisive factors are produced in this collected sampling. Besides, Bartlett's Test showed that the estimated data is adequacy (p-value less than 0.05) and this Bartlett's test also confirm that the collected data sampling has patterned relationship amongst the variable.

Table 2: Keiser-Meyer- Olkin (KMO) and Bartlett's Test of Sphericity

Keiser-Meyer- Olkin Measure of Sampling Adequacy		0.613
Bartlett's Test of Sphericity	Approx. Chi-square	233.874
	Df	55
	Sig.	0.000

Table 3: Summary of the Factor Analysis Results

Items	Factor Loading			
	F1	F2	F3	F4
<b>Consumer Awareness</b>				
Environmental Awareness	0.874			
produced without using synthetic fertilizers	0.874			
Variance (%explained)	20.337			
<b>Motive of Purchase</b>				
buy organic vegetables to maintain health		0.779		
buy organic vegetables for family needs		0.760		
organic vegetables are healthier		0.632		
Variance (%explained)		15.538		
<b>Consumer perceive value on the organic vegetable</b>				
Purchase location is easily accessible			0.664	
neat sales location			0.745	
The sales location provides many variations of organic vegetables			0.561	
believe the products sold are organic vegetables			0.501	
Variance (%explained)			12.886	
<b>Consumer Knowledge</b>				
organic vegetables are better quality than non-organic vegetable				0.604
I know the difference between organic and non-organic vegetables				0.704
I know organic vegetables are more expensive than non-organic				0.571
Variance (%explained)				11.816
<b>Total % of variance</b>				<b>60.577</b>

After the varimax rotation of the consumer's response of the 12 statements relating to their awareness, knowledge, perceive the place to access, the motif of purchase of organic vegetables, the factor loading from principal component factor analysis was obtained. From the result of the rotated matrix, the only item with a factor loading of at least 0.5 and above are considered important items.

Table 3 shows the summarized result from factor analysis. The results show that four latent factors that influence the consumers' acceptance toward organic vegetables were identified. The factors were named base on the sub-variables that were found in each factors. Consumer's awareness (F1), Motif of Purchase (F2), Perception

value (F3) and Consumer Knowledge (F4) which accounted for 60.58 % of the total variance. The factor loading loadings for four factors is from 0.501 to 0.874.

### 3.2 Factors influence the intention to purchase organic vegetable

In this study, the binary logistic model was used to examine factors with the consumer's intention to purchase organic vegetable products. The estimated result for the binary regression is summarized in the Table 4. The dependent variable is the consumer intention on acceptance the organic vegetable products, and it is recorded as ordinary data. The consumer intention to purchase is proxy by a dummy variable which is referred to who answer "yes" and intending to accept organic vegetable and 0 for otherwise. The binary logistic results show that there three independent variables (consumer perception, consumer knowledge, and income) were statistically significant to determine the consumer's acceptance level on the organic vegetable.

Table 4: Estimated Logistic Models for Intention Organic Vegetables Purchase

Variables	Estimated Coefficient	SE	Wald	Significant level	Exp(b)
Awareness ( $X_1$ )	-1.616	.269	2.660	.103	1.551
Motive ( $X_2$ )	2.652	.225	1.238	.266	1.284
Perception ( $X_3$ )	-0.474**	.500	10.423	.001	.199
Knowledge ( $X_4$ )	.146**	.583	20.673	.000	14.182
Age ( $X_5$ )	-0.012	.445	1.133	.287	.623
Education ( $X_6$ )	.204	.368	.157	.692	1.157
Income ( $X_7$ )	.250*	.017	.455	.050	.988
Family size ( $X_8$ )	.439	.217	.886	.346	1.226
Constant	4.019**	1.149	12.229	.000	.018
-2log likelihood	145.891 <sup>a</sup>				
Cox & Snell R Square	.192				
Negelkerke R Square	.277				
Hosmer and Lemeshow test	.803				

Notes: \*\* and \* denotes as statistically significant at 1% significant level and 5% significant level, respectively, are present a maximum likelihood estimation.

The estimated logistic result shows that the knowledge of consumers is an essential decisive factor in determining the consumer intention to buy organic vegetable production. The estimated coefficient shows a positive value of 0.146 and significant at 1% significant level. Besides that, the estimated exponent coefficient for the knowledge is 14.182, which indicates that the respondent who has a high level of education will more intent to buy an organic vegetable product with 14.182 times more intent to buy an organic vegetable product than the consumers' who do not accept the organic vegetable production.

Consumer perceives value toward organic vegetable product also an important factor that influences the intention of consumers to purchase organic vegetable products. The estimated consumer perception coefficient negative value in 0.474 and statistically significant at 1% significant level. This illustrated that we have conclude that the consumer who has not the excellent perception of the organic vegetable product will have not higher intention to accept organic vegetable production. The estimated exponent coefficient for the consumer perceives value is 0.199, indicating that the consumers who have negative perceived value on organic vegetable products will show 0.199 times no more intent to buy organic vegetable products than the consumers' who have positive perceives value on organic vegetable products.

Furthermore, the third important factor in determining consumers' intention to buy organic vegetable products is consumer income. Consumer income plays a vital role in determining consumer intentions for organic vegetable products. In this logistic regression, consumer income is a proxy with a dummy variable. If the respondent has a low-income category, the scale of 1 to 5 represents the highest income. In Table 4 the estimated coefficient for consumers' income is 0.250, and it is statistically significant at 5% significant level. It means that the higher level of consumer income is more willing to accept organic vegetable products. Besides that, the result also shows that consumers who have a higher income will give 0.988 times more intent to purchase organic vegetable products.

Based on Table 4, the other determinant variables are not statistically significant to determine the consumer intention to buy organic vegetable products, namely awareness, purchase motive, age, education level, and family size. Since the p-value for these five variables is greater than 0.1 or 10% significance level. Hence, we have enough statistical evidence to support that these variables are important to buy organic vegetable products.

## 4. Conclusion

Based on the factor analysis, three main factors will influence the acceptance of consumers toward organic vegetable products which are consumer perceives value, knowledge, and consumer income. The factor score for these three variables are applied to the binary logistic regression and to examine that the significant factors

influence the probability of consumer's intent to purchase the organic vegetable production. The result shows that consumer perceives value, knowledge and income have statistically significant at 5% significant level. This indicates that there is enough statistical evidence to support that the three important factors can influence the consumers' intention to purchase the organic vegetable product.

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