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## Antecedents of Green Consumption Attitudes and Consequences for Intentions and Buying Behavior of Non-Pesticide Vegetable and Fruit Products

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#### Abstract:

Research on the sustainability of consumption or consumption of green products has become the focus of academics and practitioners. The focus of the study is on the consumption of green products, especially agricultural products such as non-pesticide vegetables and fruits in Yogyakarta. To test the hypothesis using SEM (Structural Equation Modelling) Analysis bases on PLS (Partial Least Square) Technique. The data collection technique was carried out by distributing questionnaires to members of the green community or non-pesticide vegetables and fruit consumers in the many modern markets, and the sample size is 244 green consumers. The test results produce empirical evidence that the three antecedents of green consumption attitudes are proven to have a positive and significant effect, but the effectiveness of green consumption variable is the most dominant factor. The consequences of a better green consumption attitude have also been shown to have a significant effect on the buying intentions or behavior of green products. The practical implication of the results of this study is to provide input for research partners namely the Women Farmers Group (KWT) that is aiming at green product segments as an appropriate step in marketing their agricultural products. Effective marketing communication efforts need to be built through advertising and product packaging programs that are able to increase green trust.

*Keywords*: green consumption; environmental concern; environmental knowledge; perception of the effectiveness of green consumption; non-pecticide vegetables and fruits.

JEL Classification: Q56; D18.

## Introduction

Unsustainable consumption practice is a challenge for companies to be able to foster sustainability (Peattie 2010). The 21st century of the economic landscape has become evidence that consumers and stakeholders have an awareness of better ecological issues, such as pollution, waste removal and global warming. Currently, enterprising continues to be able to create sustainability by not ignoring the welfare of future generations (Wei, Chiang, Kou and Lee 2017). The growing consumption issue known as the term green product consumption has in recent decades been the focus point of researchers, academics, practitioners and policymakers on the practice of business sustainability through green production and marketing practices (Lai and Cheng 2016).

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The study aim to analyze the consumer's attitude on green consumption has been one strategic topic, and the approach of marketing concepts has shifted from the conventional concept of marketing to the green marketing strategy. The concept of green marketing strategy is rated as a new concept for the creation process of profit based on the movement of green competitiveness (Mostafa 2006). The concept of green marketing propels the existence of green business, and business in the agricultural industry is no exception. The green economy (known as GE) concept is viewed as a single program driven to promote the export value of agriculture. GE is economic growth based on the sustainability of natural resources, and farmers continue to be encouraged to pursue sustainable environmental practices. According to Susanti (2019) the concept of green economy is the best solution to responding to today's market situation where consumers need a healthy food product and is produced without using chemicals that could harm health and environment.

According to some of the earlier studies of attitudes and predictive behaviour models produced by some researchers use a conceptual relationship developed by Azjen and Fishbein's (1980) about a theory of planned behavior (TPB). According to Fielding *et al.* (2008) TPB is believed to be one dominant model of social psychologism used by researchers to predict buy behavior. The results of the study on green eating behavior in developed and developing countries have not yet been inclusive and research into the relationship of green behavior in the context of developing countries still need to be reconsidered (Wei *et al.* 2017).

Some researchers reveal that the components of green consumption include components of environmental concern, environmental knowledge and effectiveness of the environmental extraction program can identify consumer buying and consumer phenomena (Uddin and Khan 2016; Mostafa 2006; Fielding *et al.* 2008). While Peattie (2010) also observes that cognitive factors such as environmental concerns, environmental knowledge, perceptions of the effectiveness of ecological programs will shape consumers' positive attitudes on green products and can encourage green consumption behavior and be directly linked to green lifestyles. Straughan and Roberts (1999) reveal that consumer perceptions of their effectiveness are one of the most important environmental behavior factors followed by knowledge and concern in the economic industry.

From the above exposure, these research problems can be formulated as follows (1) whether cognitive components such as environmental concern, environmental knowledge and effectiveness of ecological programs will affect consumers' positive attitude toward green products particularly non pesticide and vegetable and fruit products; (2) will the green-consumer attitude affect the intent to buy and consumer behavior over the green products and non-pesticides.

### 1. Literature Review

### Ecolabel Issue

In the manufacturing industry sector, green mark ecolabel is intended to distinguish producers who implement the green process (Lin *et al.* 2015). The green mark printed on a product label helps consumers recognize that companies are implementing green manufacturing processes. Green mark's certification is determined to be based on the environmentally friendly principles of the International Organization for Standardization (ISO) 14024.

According to the government's environmental regulations, environmental or ecolabel programmes are widely practiced in developing countries including Indonesia (Hanafi 2011). The logo "ecolabel" is a pro-

environmental program created by the Indonesian government, targeted by companies to legalize their products by ecolabel to support environmental awareness (Razif 2016).

## Theory of Pro- Environment Planned Behavior Model (PEPB)

TPB (theory of planned behavior) is one that is widely used to investigate consumer behavior in buying green products. TPB can be used to explain human behavior and psychological determining (Rahab *et al.* 2016). TPB is the development of a theory of merit theory. TPB or TRA, is a behavioral development model that has been supported by many empirical studies (Kim and Hunter 1993). TRA was originally developed by Ajzen and Fishbein (1980) and had been used to investigate human behavior. TRA has a weakness because it assumes that behavior is described as the whole total control of will. Although the individual has the intent to engage in certain behaviors, but not necessarily those behaviors because of the limitations of time, limited resources and inadequate opportunities (Ajzen 1985). TRA only applies to behavior of her own free will (Zint 2002).

Some researchers have applied TPB a lot to predict intent context for individual behavior (Ajzen 1985). TPB has been used to describe a certain individual's behavior under certain circumstances, such as at restaurants (Pakpour *et al.* 2014) or when individuals face decisions about purchases of goods such as transgenetic food (O'fallon, Gursoy and Swanger 2007). Several studies have shown the strength of prediction from TPB. Paul *et al.* (2015), it's important to develop TPB to highlight his contribution. There are several instances of TPB development efforts to include other potentially relevant behavioral factors, which increase our predictive capability.

This study using TPB developed or called PEPB (Theory of Pro Environmental Planned Behavior Model). PEPB is a continuation of the TPB model. TPB only considers the individual's perception of contextual factors, as is relatively stated in perceived behavioral control. Meanwhile, PEPB adds two factors: perceived authority support (PAS) and perceived environmental concern (PEC). This model is proposed by Persada (Persada 2016) to predict an analysis process on environmental impact. By adding these two factors to TPB, it emerged as a new theory called pepb. Using PEPB models, this study tests factors that influence citizens' behavioral intent on using ecolabel products.

## **Environmental Concern**

Consumer awareness of environmental issues and their willingness to tackle environmental issues that demonstrate their strong stance to protect the environment (Wei *et al.* 2017). Some studies have found that an immediate environmental concern relationship with an attitude toward green products will predict even more green product purchase decisions (Yadav and Pathak 2016).

H1: The positive effect of environmental concern is significantly on towards green product.

### Perceived Environmental Knowledge

The phenomenon of environmental knowledge can be understood as individuals with a comprehensive understanding of ecological issues such as pollution, recycling, energy use and efficiency, renewable energy, and other green technologies (Yadav and Pathak 2016). The literature shows ward knowledge is primarily classified into two large categories: first, public environmental knowledge that refers to one's general awareness of its natural environment and its main ecosystem and related problems (Fryxell and Lo 2003). Another is behavioral or concrete knowledge based on consumer ability to identify symbols, concepts and actions linked to sustainability associated with problems (Lee 2011). Thus, the high level of consumer behavior knowledge can lead to the creation of an attitude over positive green products and their purchasing behavior for them in the direction of sustainable consumption (Paul *et al.* 2016).

H2: The positive effect of perceived environmental knowledge is significantly on attitude towards green products.

### Perceived Consumer Effectiveness

The effectiveness that consumers feel has been greatly emphasized by some researchers in the green consumer psychological arena after environmental concerns and environmental knowledge, and most of them have observed that consumer effectiveness is one of the most significant measures of environmentally aware consumer behavior (Tan 2011). The effectiveness felt by consumers refers to individual belief or perceptions of oneself toward one's actions can have an effective contribution to protect the environment (Kinnear *et al.* 1974). Furthermore, the measure of effectiveness that consumers experience is conceptually perceived as self-appraisal in an environment-related state. Some experts report that consumer effectiveness is more effective than other

cognitive factors like care, attitude knowledge, and so on to predict ecological behavior (Tan 2011), particularly in capturing the desired results of green purchase products (Kang *et al.* 2013).

Straughan and Roberts (1999) found that consumer effectiveness is one of the most effective components of individual subjective assessment that has immediate impact on environmental problems. For example, a growing number of consumers believe that their efforts can be made to protect the environment, the more they feel the ecological and social impact of their purchasing decisions for environmentally sound products. In other words, consumers have the level of effectiveness felt by higher consumers to articulate their positive attitude toward green products that results in their purchasing behavior for those products (Kang *et al.* 2013).

H3: The positive effect of perceived consumer effectiveness is significantly on attitude towards green product.

### Attitude towards Green Products

The attitude measure of green products is conceptually as the consumer belief or feeling toward green products and their impact on the environment in terms of favorable and unfavorable trends. In the green consumer psychology literature, the cognitive size above is largely treated as a specific environmental attitude (Kaiser and Gutscher 2003). The idea is that the attitude of green products is more effective than the general environment in understanding the consumer's soul for purchasing environmentally friendly products. Regarding the attitude of the relationship over green products with intent to buy green products, some scholars validate that attitude is a stronger predictor of intent in the study of environmental behavior, and they find that attitude over consumer green positive products will lead to higher consumer intent (Yadav and Pathak 2016).

H4: The positive effect of attitude towards intention is significantly on green purchase intention.

#### Green Purchase Intention and Green Buying Behavior

In the green consumer psychology literature, researchers have just unanimously found that intention is a fundamental predictor of purchasing behavior (Wei *et al.* 2017). Lai and Cheng (2016) observed that willingness states for sustainable products is more effective than other cognitive measures in understanding consumer purchase decisions for their products. Consumer green purchase decisions are reflected in their ward commitments, parallel to their purchase decision for green products (Akehurst *et al.* 2012). The idea is that consumers are not only aware of the price and quality of the product, but they're also considering the ecological effect of their green consumption.

H5: The positive effect of green purchase intention is significantly on green purchase behavior.

## 2. Methodology

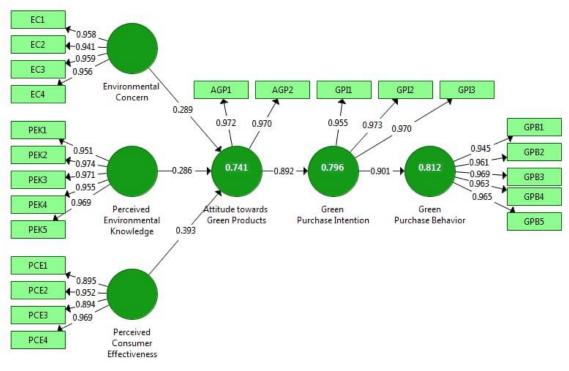
The spread of questionnaires aimed directly at consumers who are consuming organic produce in the city of Yogyakarta, Indonesia. The drawing techniques are selected because they don't give the same opportunity or opportunity to any element or member of the population to be selected as sample of the respondent. The criteria for respondents in this study are individuals (age > 22) who are involved in the decision-making process. They are environmental community members in the city of Yogyakarta. The members of this ward community are individuals who have a high regard for the ward. Individual criteria that have a love for the environment also have a tendency to preserve environmental sustainability behavior like classifying garbage by their kinds, reducing plastic use, consuming a safe product for the environment and so on.

The partial least square that is used in this research. According to Sekaran and Bougie (2016) the PLS is one of the simultaneous modeling (SEM) techniques capable of analyzing latent variables, indicator and measurement errors in real time. PLS can be used with a small amount of samples and can be applied to all data scales.

#### 3. Result

### SEM - PLS Analysis

Hypothesis testing is performed using SEM-PLS analysis version 3.2.8. The SEM-PLS full model can be seen in Figure 1. Hypothesis test results can be seen in Table 1.



#### Figure 1. Pro-Environmental Behavior Model

Tabel 1. Hypothesis Test Result (Direct Effects)

.Hypothesis	Original	Sample	Standard Deviation	T Statistics		
	Sample (O)	Mean (M)	(STDEV)	( O/STDEV )	P-Values	Supported
$EC \rightarrow AGP$	0.289	0.290	0.101	2.861	0.004	Yes
$PEK \to AGP$	0.286	0.283	0.076	3.763	0.000	Yes
$PCE \to AGP$	0.393	0.394	0.111	3.533	0.000	Yes
$AGP \rightarrow GPI$	0.892	0.891	0.034	26.197	0.000	Yes
$\text{GPI} \rightarrow \text{GPB}$	0.901	0.900	0.034	26.830	0.000	Yes
**0: =0/						

\*\*Sig < 5%

### **T-test Results (significance)**

This test is used to prove the effect of each independent variable on the dependent variable. T value calculated from the results of the research is greater than the value of t-table (1.96) and has a significance value  $\leq 0.05$ . Based on all the paths observed, all paths are significant, so that all hypotheses are supported.

### The Outer Model Test Results

The outer model focuses on testing the validity and reliability of each indicator on its latent variable. The Outer Model (Measurement Model) is done by testing Convergent Validity, Discriminant Validity, AVE, and Composite Reliability.

### **Convergent Validity Test Results**

The recommended loading factor value is > 0.7. Tabel 2 illustration of the results of the initial validity testing show that all indicators have a loading factor value of more than 0.7, so no excluded from the model.

Measurement Item	nt Item Latent Variable					
	Concern	Knowledge	Effectiveness	Attitude	Intention	Behavior
EC <sub>1</sub>	0.958	0.525	0.706	0.684	0.599	0.689
EC <sub>2</sub>	0.941	0.537	0.718	0.682	0.596	0.696
EC <sub>3</sub>	0.959	0.577	0.761	0.762	0.700	0.799

Tabel 2. Convergent Validity and Discriminant Validity

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Measurement Item	Latent Variable						
	Concern	Knowledge	Effectiveness	Attitude	Intention	Behavior	
EC <sub>4</sub>	0.956	0.604	0.778	0.775	0.717	0.806	
PEK <sub>1</sub>	0.603	0.951	0.652	0.714	0.702	0.690	
PEK <sub>2</sub>	0.551	0.974	0.637	0.681	0.714	0.678	
PEK₃	0.571	0.971	0.652	0.694	0.747	0.691	
PEK <sub>4</sub>	0.551	0.955	0.596	0.659	0.704	0.648	
PEK₅	0.565	0.969	0.618	0.689	0.706	0.660	
PCE1	0.689	0.543	0.895	0.717	0.665	0.674	
PCE <sub>2</sub>	0.726	0.603	0.952	0.768	0.737	0.759	
PCE <sub>3</sub>	0.706	0.623	0.894	0.718	0.690	0.714	
PCE <sub>4</sub>	0.766	0.659	0.969	0.783	0.743	0.780	
AGP1	0.754	0.723	0.791	0.972	0.874	0.891	
AGP <sub>2</sub>	0.729	0.662	0.772	0.970	0.859	0.862	
GPI₁	0.670	0.955	0.752	0.866	0.955	0.872	
GPI <sub>2</sub>	0.663	0.973	0.726	0.854	0.973	0.878	
GPI₃	0.660	0.970	0.738	0.865	0.970	0.861	
GPB <sub>1</sub>	0.729	0.868	0.743	0.855	0.868	0.945	
GPB <sub>2</sub>	0.748	0.863	0.725	0.858	0.863	0.961	
GPB₃	0.749	0.853	0.749	0.863	0.853	0.969	
GPB <sub>4</sub>	0.789	0.871	0.794	0.883	0.871	0.963	
GPB₅	0.764	0.872	0.782	0.877	0.872	0.965	

### **Reliability Test Results**

Expected AVE value > 0.5 and good Composite Reliability if it has a value  $\ge$  0.70. Based on Table 3 all latent variables have the value AVE > 0.5 and Composite Reliability  $\ge$  0.70. So all latent variables are said to be reliable.

Latent Variable	Measurement Item	Outer Loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Environmental Concern (EC)	EC1 EC2 EC3 EC4	0.958 0.941 0.959 0.956	0.967	0.976	0.910
Perceived Environmental Knowlegde (PEK)	PEK1 PEK2 PEK3 PEK4 PEK5	0.951 0.974 0.971 0.955 0.969	0.981	0.985	0.929
Perceived Consumer Effectiveness (PCE)	PCE1 PCE2 PCE3 PCE4	0.895 0.952 0.894 0.969	0.946	0.961	0.861
Attitude of Green Product (AGP)	AGP1 AGP2	0.972 0.970	0.940	0.971	0.943
Green Product Intention (GPI)	GPI₁ GPI₂ GPI₃	0.955 0.973 0.970	0.964	0.977	0.933
Green Purchase Behavior (GPB)	GPB1 GPB2 GPB3 GPB4 GPB5	0.945 0.961 0.969 0.963 0.965	0.979	0.984	0.923

Tabel 3. Cronbach's alpha and Average Variance Extracted

### The Results of Testing the Inner Model

Inner Model (Structural Model) or also called the influence test or hypothesis test. The result's outer model shows that all instruments analyzed are valid and reliable so that they can proceed with inner model testing. The testing of inner models includes the coefficient of determination (R2), Q2 predictive relevance, and Goodness of Fit (GoF). The value of Coefficient of Determination (R-square) are 0,741 for attitude ( $R_{12}$ ); 0,796 for attention ( $R_{22}$ ) and 0,812 for Behavior ( $R_{32}$ ) and it's mean good. Q2 predictive relevance calculated with Q2 = 1- ((1-R12) (1-R22) (1- $R_{32}$ )) = 0.821, it means that the values observed have been reconstructed well with predictive relevance the goodness of Fit (GoF).

### 4. Discussion

The results of testing the three components of ecological concern (EC), perceived environmental knowledge (PEK), perceived consumer effectiveness (PCE) have a direct and significant influence on attitude towards green products (AGP). That means that the PCE has the highest value compared to EC and the winner of the original sample of 0.393. This shows that PCE has a huge influence on the AGP, which is why PCE is arguably the most dominant variable in affecting the AGP. Meaning that this study is consistent with research done by Kang *et al.* (2010) and Tan (2011).

The results of this study can be understood that to what extent the consumers of organic produce become so technologically driven that they decide to consume green products. In promoting green products, marketing can use environmental advertising in the Yogyakarta city market. Marketing should put more emphasis on using green bags in order to avoid using plastic bags (Akehurst *et al.* 2012). The city of Yogyakarta is a country with more advanced economic conditions. In a sense, Yogyakarta city as a student city has a rather high population of young people than other cities in this country, where the majority of the population are educated, self-motivated young adults. Therefore, a green marketing campaign will be useful to create the demand for consuming green products from a perspective of marketing strategies and policymakers in the pursuit of sustainable consumption in the environment.

While based on the original value of the sample shown by Table 1. This is a 0.892 value showing that the AGP has a significant effect on the green product intention (GPI), and the GPI additionally affected a significant occurrence of the green purchase behavior (GPB) by 0.901. The AGP-GPI-GPB is also directly and significantly influenced by EC (0.289), PEK (0.286) and PCE (0.393). This study validates that the AGP has significant connections to the GPI, which in turn the GPI predictor fundamental GPB that is consistent with earlier research in developing countries (Wei et al. 2017). The second high score after PCE is the original sample value of the EC's variable value of 0.289. Similarly with research done by Paul et al. (2016) and Yadav and Pathak (2016), this study consistently demonstrates links of environmental concern that affect the attitude toward green products in predicting its purchase decisions. And the variable that has the least impact of the three variables (EC, PEK and PCE) is the PEK, which is equal to an original sample of 0.286. The study shows that consumer environmental knowledge significantly affects green consumption behavior. In the study, however, environmental concerns that have the lowest original vials, suggest that people's awareness of the green life-styles by consuming green products is relatively low. Environmental advertising about green products and ecolabel-related symbols thus become a better green marketing approach to promoting a green ecological lifestyle in the city of Yoqyakarta. Furthermore, online advertising could play a crucial role in increased consumer awareness of the environment, friendly products and promoting the green lifestyle of today's digitization (Jaiswal and Singh 2017).

### **Conclusions and Policy Suggestions**

Sustainability of consumption cannot be achieved without balancing demand and supply as two sides of the business cycle to be balanced. In the age of modern business competition, the phenomenon of business sustainability cannot be disassociated with concern for environmental sustainability (Kotler *et al.* 2009). However, most companies fail to achieve competition for failure in the practice of promoting consumer sustainability because it has the ability to deliver what green consumers are deliberating (Ottman *et al.* 2006). This means that companies need to understand the consumer's characteristics or soul of purchase behavior of green products to determine better segments and market targets from a perspective of marketing strategies. In the agricultural industry, there are still a lot of organic vegetables and fruit products that are not properly packaged yet, so they are not yet able to build the green trust in the consumer. Consumers will have confidence in green products when packaging is able to describe producers' concern for environmental sustainability through sustainable environmental packaging.

While on the demand side of business practices, consumers must adopt practices of sustainable consumption in them to achieve a green lifestyle in order to promote green consumerism, along with a strong desire and will to buy green products. In this way, it will encourage companies to keep up with sustainable business practices. In addition, in accordance with the study, consumers must also have a high sense of environmental concern, environmental knowledge and effectiveness. When consumers have a high sense of these three variables, it will be useful in forming an attitude over green products and ultimately providing the basis for continuous consumption behavior.

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