

FACTORS INFLUENCING ENVIRONMENTAL FRIENDLY PRODUCT CONSUMPTION CONSCIOUSNESS IN KARAWANG

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ABSTRACT

In order to protect the environment from the adverse impact of a business and irresponsible consumption, more and more local leading and multinational companies in Indonesia come up with a so called environmental friendly product. However, the market share of an environmental friendly product is normally that below the market shares of conventional products due to various factors. This research was aimed to analyze factors influencing consumption consciousness of environmental friendly product in Karawang, one of the most polluted cities (regencies) according to some sources. Several identified factors were Environmental Knowledge, Religiosity, Economic Factors, and Government Role that were hypothesized to influence Environmental Friendly Product Consumption Consciousness. The researchers collected 250 respondents as samples using both online and offline questionnaires. Structural Equation Modelling was utilized in this research to test the hypotheses. The findings suggested that Environmental Knowledge and Economic Factors were significantly influencing Environmental Friendly Product Consumption Consciousness.

Keywords: *environmental knowledge, religiosity, economic factors, government role, environmental friendly product consumption consciousness, structural equation modelling.*

INTRODUCTION

According to Badan Pusat Statistik (BPS) - Karawang (2014), Karawang is regency located in West Java with population of 2,250,120 people. The number of population in Karawang is increasing every year due to some factors such as its growing businesses and industries. BPS – Karawang (2016) stated that there were 10,252 businesses including 438 manufacturing industries in Karawang. Unfortunately, according to Radar Karawang (2015), Karawang was categorized as a polluted city of which 15% was caused by industries. Moreover, 70% of Karawang citizens breathed dirty air and as many as 9,638 people being hospitalized

due to lung disease in 2014. According to Badan Pengelolaan Lingkungan Hidup Karawang (2016), a city was categorized as polluted if the air contained Carbon Monoxide (CO), Sulfur Dioxide (SO₂), Nitrogen Dioxide (NO₂), Ozone (O₃), and Particulate (PM₁₀). Air Pollution Index is as follows: it is considered Dangerous Pollution if it is somewhere between 300 and 500, Very Unhealthy Pollution if it is somewhere between 200 and 299, Unhealthy Pollution if it is somewhere between 101 and 199, Moderate Pollution if it is somewhere between 51-100, and Good (Unpolluted Air) if it is somewhere between 0 and 50. Meanwhile, according to Karawang Today (2015), the level of pollution in Karawang was considered dangerous.

The need for environmental friendly products becomes imminent in polluted regencies, such as Karawang. According to Paco & Raposo (2008) environmental friendly products were products that were more energy-efficient, less polluting, environmental friendly, recycled, reusable, or any products whose packaging causes less harm to the environment. Unfortunately, Top Brand Index (2016) suggested that environmental friendly product was never the first option (rank) among Indonesian consumers. For instance, Ades mineral water that came up with a recycled packaging had a low market share (3.4%) compare to conventional mineral waters, such as Aqua (73.4%). In the tissue category, Tessa which identified itself as environmental friendly tissue was in the second rank (27.7%) below the conventional tissue, Paseo (49.3%). In the soft drink category, Ultra Teh Kotak which came up with environmental friendly packaging was in the 4th rank (8.1%), far from conventional soft drinks, such as Teh Botol Sosro (33.8%). Other product categories in the TBI suggested similar consistency in which environmental friendly products never the first option among Indonesian consumers.

According to Hofmeister-Toth, Kelemen and Piskoti (2011), consumption consciousness was a condition where people were aware that their consumption of a certain product or service served a certain purpose. For instance, people who decided on environmentally friendly products, basically they wanted to protect their environment from pollution in the air, water, and soil.

According to Numratakul, Ngarmyarn, and Panichpathom (2016), there were some factors which were influencing environmental friendly product consumption consciousness such as economic factors and government role. Meanwhile, according to Taufique et al. (2015), the factor which was influencing environmentally friendly product consumption consciousness was environmental knowledge. Moreover, Islam and Chandrasekawan (2015) suggested that the factor which was

influencing environmentally friendly product consumption consciousness was religiosity. Therefore, the researchers were interested to do the following research: Factors Influencing Environmental Friendly Product Consumption Consciousness in Karawang.

LITERATURE REVIEW

According to Paco & Raposo (2008), environmentally friendly buying behaviour was a propensity of consumers in buying more energy-efficient, less polluting, environmental friendly, recycled, reusable, or any products whose packaging caused less harm to the environment. Islam & Chandrasekaran (2015) argued that the consumption of environmental friendly products required a high level of readiness to risk taking, innovation, sacrifice in adopting environmental friendly products which were more expensive and might not be as good as products that were not environmental friendly, and sacrifice in switching their habitual behaviour. According to Sarumathi (2014), environmental consumerism was a tendency of buying and using products that were harmless to the environment and was a manifestation of environmentally conscious behaviour. In other words, consumers who put their high concerns on the environment and decided to purchase green products as best as they could whenever they saw an opportunity to do so were the environmental conscious consumers (Gandhi & Sen, 2013).

Environmental knowledge was interpreted as the condition of learning, ideas and perspectives on the part of the earth in human life, the effect of man on the earth, the degree of ecological debasement and exhaustion of regular assets, existing and potential dangers, and security of nature including the condition of information about the ways and instruments for controlling the utilization of natural assets (Niezgoda, 2011). Environmental knowledge can also be defined as the learning on what individuals think about the earth, key connections prompting ecological

effects, a valuation for the “whole systems”, and aggregate duties important for manageable improvement (Aman, Harun, & Hussein, 2012). According to Taufique, et al. (2016) Environmental knowledge was the understanding and the awareness to the problem of environment and the solution of the problem itself in order to protect the environment by consuming products that are environmentally friendly or increasing their consciousness about environmentally friendly product consumption in their daily life.

According to Hernandez (2011), religiosity was defined as one’s convictions and practices identified with a religious association or to God. Religiosity could be characterized as the level of association in a few or all features of religion (Zuckerman, Silberman, & Hall, 2013). Moreover, religiosity the level of responsibility towards religious practices and standards (Islam & Chandrasekaran, 2015). Since the respondents were all Muslims, Religiosity factor focused on Islam.

According to Rahimi, et al. (2014), economic factors referred to the arrangement of variables and efficiency issues that exist in the general public and affect the demand of consuming a certain product/service. Carr, Lawson, & Schultz in their book entitled “Mastering Real Estate Appraisal” (2013) defined economic factors or economic influence as the customers’ capacity of buying or buying power to

purchase product/services. Moreover, according to Numraktrakul, Ngarmyarn, and Panichpathom (2016), economic factor was the desire of spending extra money to buy ecological product or agree to pay higher tax to protect the environment

According to Numraktakul, Ngarmyarn, and Panichpathom (2016), rules & regulations, taxing & interest, subsidies, and research & development were several role of government in getting involved in an environmental friendly products or services consumption. According to Akenji (2012), government role means that government should take a whole control in conveying transformational policy, to get involved in the system of producing-consuming in order to fulfil people needs and to dissociate the prosperity out of social and ecological problems.

RESEARCH METHOD

Research Objectives

1. The research objective is to measure the influence of Environmental Knowledge, Religiosity, Economic Factors, and Government Role towards Environmental Friendly Product Consumption Consciousness.
2. To identify the variable with the most influence towards Ethical Consumption.

Theoretical Framework

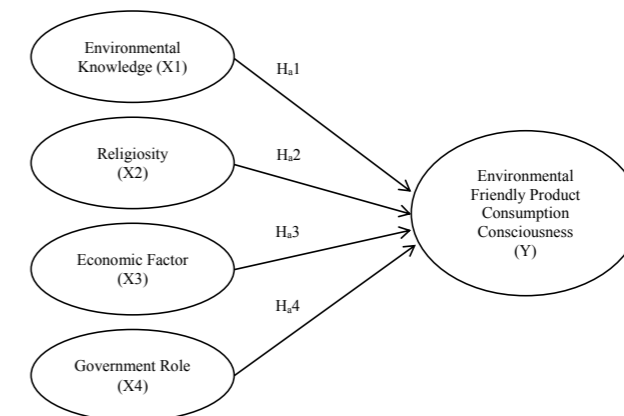


Figure 1: Theoretical Framework
Source: Constructed by Researchers (2016)

Hypothesis

- H01: Environmental Knowledge has no significant influence on Environmental Friendly Product Consumption Consciousness.
- Ha1: Environmental Knowledge has significant influence on Environmental Friendly Product Consumption Consciousness.
- H02: Religiosity has no significant influence on Environmental Friendly Product Consumption Consciousness.
- Ha2: Religiosity has significant influence on Environmental Friendly Product Consumption Consciousness.
- H03: Economic Factor has no significant influence on Environmental Friendly Product Consumption Consciousness.
- Ha3: Economic Factor has significant influence on Environmental Friendly Product Consumption Consciousness.
- H04: Government Role has no significant influence on Environmental Friendly Product Consumption Consciousness.

Ha4: Government Role has significant influence on Environmental Friendly Product Consumption Consciousness.

Structural Equation Modelling (SEM)

To test the Hypothesis, the researchers employed Structural Equation Modelling Analysis (SEM Analysis). In SEM analysis, interest usually focuses on latent constructs - abstract psychological variables like "intelligence" or "attitude toward the brand", rather than on the manifest variables used to measure these constructs. Measurement is recognized as difficult and error-prone. By explicitly modelling measurement error, SEM users seek to derive unbiased estimates for the relations between latent constructs. To this end, SEM allows multiple measures to be associated with a single latent construct. Before processing the data to SEM, researchers had to test the validity and reliability of the data. In order to know the validity of the data, researchers used KMO (Kaiser-Meyer-Olkin), Bartlett's test, Communalities, and Rotated Component Matrix as parameters:

Table 1: Accepted Values of Validity on Factor Analysis

	Accepted Values
Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO-MSA)	> 0.60
Bartlett's Tests of Sphericity	< 0.50
Communalities	> 0.50
Rotated Component Matrix	Different factor for each group of variables

Source: Saragih (2016)

After the validity test, the researchers proceeded to the reliability test. According to Saragih (2016), to be reliable the value of Cronbach's alpha should be more than 0.70.

After researcher sure that the data was valid and reliable, researcher continued to the SEM Analysis. Table 2 is the tools for measuring model fit:

Table 2: Model Fit Measurement

No.	Measurement Degree of Compatibility	Description	Acceptable Level Match
1.	Chi Square Normed Chi Square (x2/df)	Testing whether the model fits the data (the estimated population covariance is equal to the sample covariance). The ratio between the value of Chi Square and degree of freedom.	P < 0.05
2.	The minimum sample discrepancy divided by degree of freedom (CMIN/DF)	Statistic Chi Square divided by degree of freedom	0.05 < CMIN/DF < 5
3.	Root Mean Square Error of Approximation (RMSEA)	The average delta in degree of freedom which is expected to occur in population (not the sample).	0.05 ≤ RMSEA ≤ 0.08
4.	Comparative Fit Index (CFI)	Feasibility test of the proposed model with the basic model. The indicator of highest level of fit is if the CFI value is closer to 1.	0.5 < CFI ≤ 0.9
5.	Tucker Lewis Index (TLI)	Tested model against the baseline model comparison. The size measuring the combination of parsimony and comparative index between the proposed and null model.	0.5 < TLI ≤ 0.9
6.	Incremental Fit Index (IFI)	In order to check if the hypothesis model is correct by subtracting the hypothesis models in the denominator.	0.5 < IFI ≤ 0.9

Source: Saragih (2016)

Questionnaire Design

In this research, primary data was used and questionnaires of 39 items with 5-point likert scale (Strongly Disagree to Strongly Agree) were distributed to 250 respondents who lived in Karawang.

Table 3. Questionnaire Design

Variable	Questions
Environmental Knowledge (X1)	I keep abreast with "global warming" issues. I keep abreast with the latest development of "organic product" issues. I keep abreast with "climate change" issues. I keep abreast with "greenhouse gas" issues.
Religiosity (X2)	My whole approach to life is based on Islam. Islam answers many questions about meaningful life. I live my life according to Islam. I strongly sense Allah's presence. I enjoy reading various literatures about Islam. I belief in Islam, but there are other things which are more important in life for me. I pray because I have been taught to pray. I go to mosque to enjoy seeing people I know. I go to mosque to spend time with friends. I go to mosque to help me make friends. I dress in accordance with Moslem. My physical appearance (hair style, make up, etc.) is in accordance with Islam. I avoid watching inappropriate movies even when I am alone. I choose my words in order not to be impious (bad).

Economic Factors (X3)	I am willing to pay more for products with less contamination to the environment. I am willing to pay more products with environmental friendly production process. I am willing to pay more tax which will be used to protect the environment. I am willing to pay a premium for the green housing.
Government Role (X4)	I think that the government should help and support research and development on ecological product. I think the government should have financial incentives on ecological product either in the form of tax reduction or interest subsidizing. I think the government should support data on ecological product. I think the government should set a law or regulations on ecological product.
Environmental Friendly Product Consumption Consciousness (Y)	I always choose product that contributes to least pollution. I tried very hard to reduce amount of electricity I use. I understand potential damage to environment some product cause, and do not purchase these products. I have switched products for ecological reasons. I buy environmental friendly products even if the price is higher. I have convinced my family or friends to not buy products that harmful to environment. I have purchased products because they cause less pollution. I buy products that packed in reusable containers. I conscious my effort to buy products that low in pollutants. Between two products, I always buy the one that less harmful to the environment. I do not buy household products that harm the environment. I would buy environmental friendly product even if the price is higher than non-green substitutes. I look for and buy products that labelled made from recycled paper.

Source: Taufique, Siwar, Chamhuri, and Sarah (2016), Islam and Chandrasekaran (2015), Joshi and Rahman (2015), Numraktrakul, Ngarmyarn and Panichpathom (2016),

Population and sample

The population for this research was unknown. The researchers employed the non-probability sampling by judgment sampling and selected 250 Muslims who lived in Karawang as the respondents of this research. The respondents had to be consumers of eco-friendly products be eligible for this research.

Based on gender, 160 respondents were female and 90 respondents were male.

Based on age, 2 respondents were between 14-15 years old, 237 respondents were between 16-25 years old, 5 respondents were between 26-35 years old, and 6 respondents were above 35 years old.

Based on education, 104 respondents were Senior High School students, 15 respondents were Diploma (D3) students, 129 respondents were Undergraduate (S1) students, and 2 respondents were Graduate (S2) students.

Based on occupation, 222 respondents were students, 1 respondent was civil servant, 16 respondents were private employees, 3 respondents were professionals, and 8 respondents were entrepreneur.

Based on income, 173 respondents had no income, 39 respondents had income

RESULT AND DISCUSSION

Respondent Profile

All of the respondents who filed the questionnaires were environmentally friendly product users/buyers or former users/buyers, Moslems, and live in Karawang. The demographic profiles of 250 respondents were based on gender, age, level of education, occupation, and income per month.

between Rp. 1.500.000 – Rp. 3.000.000, 15 respondents had income between Rp. 3.000.001 – Rp. 5.000.000, 16 respondents had income between Rp. 5.000.001 – Rp. 10.000.000, and 7 respondents had income above Rp. 10.000.000.

Validity and Reliability Testing

The KMO-MSA value was 0.850. It means that Environmental Friendly Product Consumption Consciousness passed the requirement. The Bartlett's Test of Sphericity value which was 0.000 also passed the

requirement which should be below 0.05.

Validity testing was done by seeing the communalities of each variable in each factor. The extraction values of variables that were less than 0.5 were suppressed or eliminated and only variables with extraction values greater than 0.55 were to be considered for convergent validity or rotated component matrix. After valid variables were identified, the researchers sought for Cronbach's Alpha of each factor to determine its reliability.

Table 4. Validity and Reliability Testing

Factor	Variables	Rotated Component Matrix (Convergent Validity)	Cronbach's Alpha (Reliability)
Environmental Knowledge (X1)	ENK1	.863	.862
	ENK2	.755	
	ENK3	.809	
	ENK4	.785	
Religiosity (X2)	RLG8	.798	.740
	RLG10	.801	
	RLG12	.830	
Economic Factor (X3)	ECF1	.842	.908
	ECF2	.843	
	ECF3	.828	
	ECF4	.827	
Government Role (X4)	GVR1	.850	.872
	GVR2	.860	
	GVR3	.885	
	GVR4	.737	
Environmental Friendly Product Consumption Consciousness (Y)	EFP2	.645	.779
	EFP4	.694	
	EFP6	.803	
	EFP7	.742	
	EFP8	.735	
	EFP9	.702	
	EFP10	.770	

From Table 4, Environmental Knowledge factor managed to retain all its variables (ENK1, ENK2, ENK3, and ENK4). Religiosity factor only managed to retain some of its variables (RLG8, RLG10, and RLG12). Economic Factor managed to retain all its variables (ECF1, ECF2, ECF3, and ECF4). Government Role factor managed to retain all its variables (GVR1, GVR2, GVR3, and GVR4). Lastly, Environmental Friendly

Product Consumption Consciousness only managed to retain some of its variables (EFP2, EFP4, EFP6, EFP7, EFP8, EFP9, and EFP10).

After researcher checked the validity each variable, researcher also checked the reliability of each factor. Table 4 shows that the value of Cronbach's Alpha of every factor was more than 0.7; therefore all factors were considered reliable.

Structural Equation Modelling (SEM) Analysis

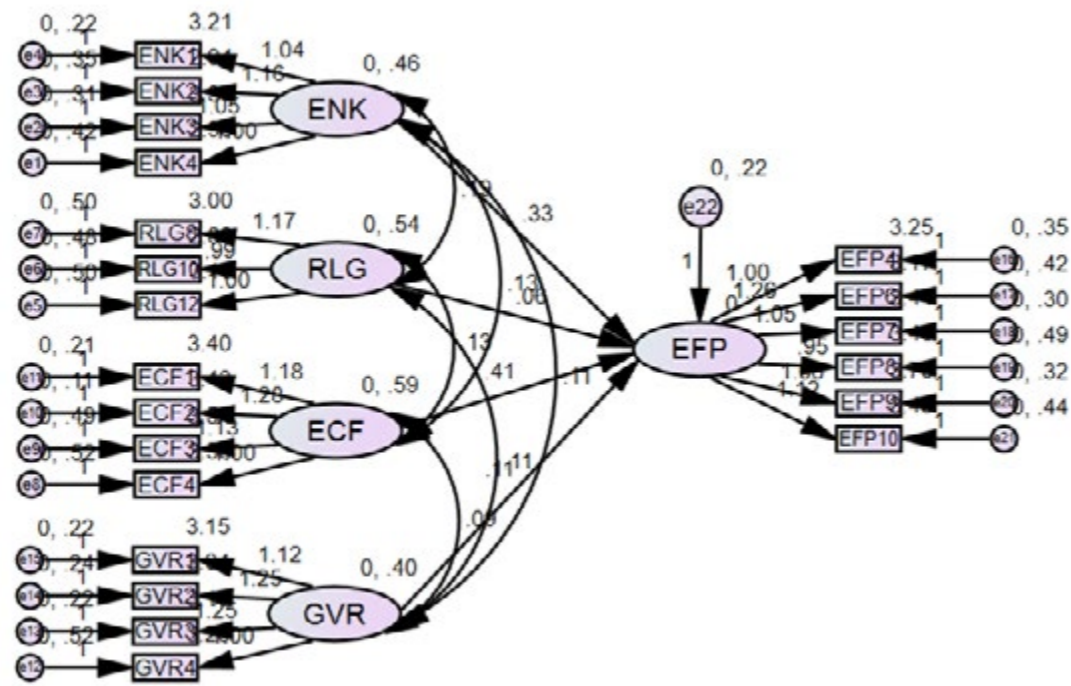


Figure 2: SEM
Source: Constructed using AMOS

Assessing the Goodness-of-Fit

Goodness-of-Fit Index	Good Fit Value	Value	Interpretation
X2 – Chi Square	$P < 0.05$	0.000	Significant
CMIN/DF	$1.0 < CMIN/DF < 3$	2.557	Good Fit
RMSEA	$RMSEA \leq 0.08$	0.079	Good Fit
TLI	$0.0 < TLI < 0.9$.881	Good Fit
IFI	$IFI < 0.9$.909	Mediocre Fit
CFI	$0.8 < CFI < 0.9$.908	Mediocre Fit

Source: AMOS

Table 5 suggested that that the model was acceptable in population and it also had mediocre fit to reach reasonable level in real life application.

Modification and Interpretation of Model Estimates

	Estimate	S.E.	C.R.	P	Label
EFP <--- ENK	.326	.069	4.737	***	par_17
EFP <--- RLG	.063	.061	1.037	.300	par_18
EFP <--- ECF	.412	.060	6.860	***	par_19
EFP <--- GVR	.110	.063	1.746	.081	par_20

Note: *** is $P < 0.05$

Figure 3: Regression Weight

Source: Constructed using AMOS

Figure 3 suggested that Environmental Knowledge and Economic Factor had significant influences towards Environmental Friendly Product Consumption Consciousness indicated by having significance less than 0.05; meanwhile, Religiosity and Government Role had no significant influence towards Environmentally Friendly Product Consumption Consciousness indicated by having significance more than 0.05. The biggest influencing factor was Economic Factor with the highest Estimate of .412.

Squared Multiple Correlations (R2)

Table 6. Squared Multiple Correlations (R2)

	Estimate
EFP	.504

Source: Constructed using AMOS

The square multiple correlation (R2) table suggests the ability of the predictors to explain the dependent variable. The result on Table 6 suggested that the predictors of Environmental Friendly Product Consumption Consciousness could explain 50.4% of its variance. In other words, there were still 49.6% more variances that were explained by factors not included in the model.

CONCLUSION

Environmental Knowledge and Economic Factor had significant influences towards Environmental Friendly Product Consumption Consciousness; therefore, null hypothesis 1 and 3 were rejected and alternate hypothesis 1 and 3 were accepted. Meanwhile, Religiosity and Government Role had no significant influence towards Environmentally Friendly Product Consumption Consciousness; therefore, null hypothesis 2 and 4 were accepted and the alternate hypothesis 2 and 4 were rejected. The biggest influencing factor was Economic Factor.

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