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Effect of Ecolabel on Environmental Quality

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Abstract. The aim of this survey study is to find out the effect of ecolabel on environmental quality. Data were collected from 375 students at Universitas Negeri Jakarta in East Jakarta in the province of DKI Jakarta. Data were analysed by implementing the structural equation model (SEM). Result of this study confirmed a positive relationship between ecolabel and environmental quality was supported. Findings also stated that environmentally informative instrument, environmentally friendly label, and environmental protection were significantly positively correlated with ecolabel. Ecological domain, meteorological domain, and socio-economic domain were significantly related to environmental quality. The positive effect of ecolabel on environmental quality was supported in this study. The contribution of this study is to improve high level of conservation and sustainability development.

INTRODUCTION

Environmental conservation means using the environment wisely so that environmental balance is maintained. There are many ways that can be done to preserve the environment including through applying ecolabels. Information of environmentally-friendly product through ecolabel is still ineffective [1]. Ecolabel should be a priority for individuals to promote sustainable development. In this case, they have to be informed well about benefits of ecolabel so that it can be part of their daily habits in assisting to improve ecolabels' visibility. Ecolabels play relevant role to stimulate individuals' awareness level about sustainability [2]. Ecolabel indicates that the product's life cycle has a smaller negative impact on the environment compared to similar products without an ecolabel. Through ecolabeling, individuals can clearly know whether the product chosen is environmentally friendly or not. Environmental regulation influences environmental quality [3]. Mechanism of prevention and control during coronavirus disease 2019 (COVID-19) improves environmental quality including air quality. It can be confirmed that the more confirmation about COVID-19 cases in one location, the bigger enhancement in the quality of air. There is an effect of the use of technologies on environmental quality [4-6]. Non-clean technology can raise the level of environmental quality by supporting efficiency of the energy and benefits of the environment. Despite many studies investigating about ecolabel and environmental quality, much fewer have examined an effect of ecolabel on environmental quality explained by indicators and sub-indicators promoting those variables. The summary of relationships hypothesized is described in a model shown in Fig. 1.

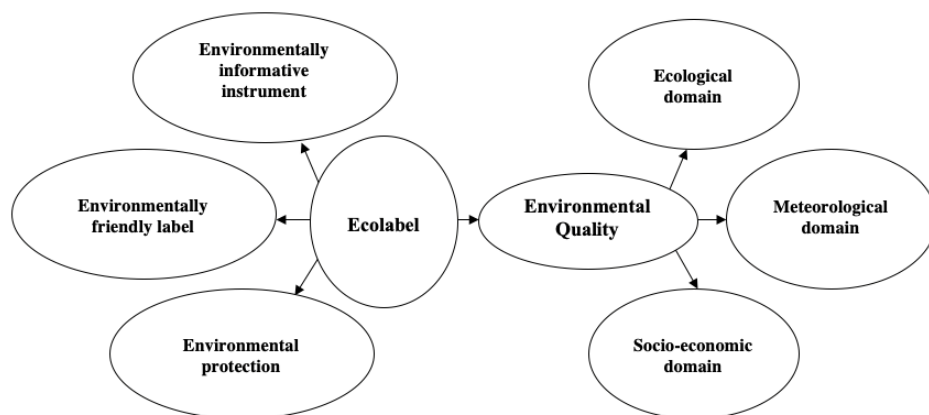


FIGURE 1. Theoretical framework of the study

METHODS

This research conducted the survey method to 375 students at Universitas Negeri Jakarta in East Jakarta in the province of DKI Jakarta. Data collected in this study were associated with ecolabel and environmental quality. Content analysis was provided to the literature of ecolabel consisting of Environmentally Informative instrument, environmentally friendly label, and environmental protection, whereas environmental quality involving ecological domain, meteorological domain, and socio-economic domain [1-6]. These dimensions were derived into the questionnaire distributed to 375 students at Universitas Negeri Jakarta in East Jakarta in the province of DKI Jakarta in Indonesia.

The three dimensions predict environmentally informative instrument are providing accessible message to consumer about the environmental attributes of the product, giving the consumer knowledge about the production standards of the product, and transmitting green product messages. The indicators of environmentally friendly label consist of indicating the products coming from environmentally friendly substances, communicating a sense of environmental consideration on the part of the manufacturer to consumer, and arousing consumer interest to purchase environmentally friendly products. The three aspects of environmental protection are assisting to diminish the volume and toxicity of pollutants, encouraging consumer awareness development about product impact on the environment, and driving ecologically conscious consumer behavior.

The three indicators of ecological domain involve waste management, use intensity of water resources, and food production. Air pollutant, water pollution, and earth temperature are predictors of meteorological domain. Water shortages, human health problems, and community environmental awareness are predictors of socio-economic domain.

In this study, data were analyzed using Structural Equation Modeling (SEM) with IBM SPSS Statistics 24 and SPSS AMOS 24 with 2017 Edition [7-26]. SEM was applied to predict the association of ecolabel with environmental quality. Data were collected from 317 students at Universitas Negeri Jakarta in East Jakarta in the province of DKI Jakarta inputted in excel using responses with “strongly agree” scored 5, “agree” scored 4, “neutral” scored 3, “disagree” scored 2, “strongly disagree” scored 1 for positive questions, and “strongly agree” scored 1, “agree” scored 2, “neutral” scored 3, “disagree” scored 4, “strongly disagree” scored 5 for negative questions.

RESULTS AND DISCUSSION

The goodness of fit statistical analysis results shows that Normed Fit Index (NFI) value attained 0.753 pointing out that the model proposed is good fit. Root Mean Square Residual (RMR) value reached 0.058 meaning that the model offered is good fit. The value of Comparative Fit Index (CFI) reached 0.846 showing that the model suggested is good fit. Incremental Fit Index (IFI) value reached 0.848 indicating that the model is good fit. Relative Fit Index (RFI) value gained 0.749 showing that the model is good fit. Goodness of Fit Index (GFI) value reached 0.895

indicating that the model is good fit. Adjusted Goodness of Fit Index (AGFI) value attained 0.860 pointing out the model hypothesized is good fit. Based on SEM measurement, the model proposed in this study is a fit model.

Table 1 and 2 showing measurement model test of observed variables describe that ecolabel is significantly positively related to environmental quality of 0.594. Environmentally Informative instrument, environmentally friendly label, and environmental protection have significant association with ecolabel of 0.980, 1.059, and 0.765, respectively. Providing accessible message to consumer about the environmental attributes of the product, giving the consumer knowledge about the production standards of the product, and transmitting green product messages are significantly positively correlated with environmentally informative instrument of 0.347, 0.685, and 0.811, respectively. Indicating the products coming from environmentally friendly substances, communicating a sense of environmental consideration on the part of the manufacturer to consumer, and arousing consumer interest to purchase environmentally friendly products are significantly positively associated with environmentally friendly label of 0.743, 0.462, and 0.591, respectively. Assisting to diminish the volume and toxicity of pollutants, encouraging consumer awareness development about product impact on the environment, and driving ecologically conscious consumer behavior are significantly positively associated with environmental protection of 0.364, 0.512, 0.523, respectively. Ecological domain, meteorological domain, and socio-economic domain have significantly positive association with environmental quality of 1.125, 0.618, and 0.605, respectively. Waste management, use intensity of water resources, and food production are correlated with ecological domain of 0.657, 0.736, and 0.532 respectively. Air pollutant, water pollution, and earth temperature are significantly positively related to meteorological domain of 0.596, 0.432, and 0.408, respectively. Water shortages, human health problems, and community environmental awareness are significantly positively associated with socio-economic domain of 0.390, 0.681, and 0.750. These findings were also supported by the study examining about ecolabel and environmental quality [1-4]. The structural model is shown in Fig. 2.

TABLE 1. Measurement model test (Regression weights: Group number 1 – Default model)

			Estimate	S.E.	C.R.	P	Label
EVQT	<---	EBEL	,405	,097	4,162	***	
EII	<---	EBEL	2,074	,277	7,496	***	
EFL	<---	EBEL	1,562	,230	6,781	***	
EVP	<---	EBEL	1,000				
ECD	<---	EVQT	2,925	,589	4,964	***	
MLD	<---	EVQT	1,412	,306	4,613	***	
SED	<---	EVQT	1,000				
EC3	<---	EII	1,000				
EC2	<---	EII	,955	,071	13,407	***	
EC1	<---	EII	,451	,071	6,385	***	
EC6	<---	EFL	1,000				
EC5	<---	EFL	,972	,114	8,502	***	
EC4	<---	EFL	1,437	,128	11,195	***	
EC9	<---	EVP	1,000				
EC8	<---	EVP	1,122	,184	6,094	***	
EC7	<---	EVP	,749	,153	4,904	***	
EQ1	<---	ECD	1,000				
EQ2	<---	ECD	1,211	,111	10,902	***	
EQ3	<---	ECD	,850	,099	8,552	***	
EQ4	<---	MLD	1,000				
EQ5	<---	MLD	,841	,164	5,116	***	
EQ6	<---	MLD	,724	,146	4,946	***	
EQ7	<---	SED	1,000				
EQ8	<---	SED	1,724	,282	6,102	***	
EQ9	<---	SED	1,927	,315	6,121	***	

Source: AMOS Results 2019

TABLE 2. Measurement model test (Standardized regression weights: Group number 1 – Default model)

			Estimate
EVQT	<---	EBEL	,594
EII	<---	EBEL	,980
EFL	<---	EBEL	1,059
EVP	<---	EBEL	,765
ECD	<---	EVQT	1,125
MLD	<---	EVQT	,618
SED	<---	EVQT	,605
EC3	<---	EII	,811
EC2	<---	EII	,685
EC1	<---	EII	,347
EC6	<---	EFL	,585
EC5	<---	EFL	,522
EC4	<---	EFL	,771
EC9	<---	EVP	,523
EC8	<---	EVP	,512
EC7	<---	EVP	,364
EQ1	<---	ECD	,657
EQ2	<---	ECD	,736
EQ3	<---	ECD	,532
EQ4	<---	MLD	,596
EQ5	<---	MLD	,432
EQ6	<---	MLD	,408
EQ7	<---	SED	,390
EQ8	<---	SED	,681
EQ9	<---	SED	,750

Source: AMOS Results 2019

Notes:

EBEL = Ecolabel

EVQT = Environmental quality

EII = Environmentally Informative instrument

EFL = Environmentally friendly label

EVP = Environmental protection

ECD = Ecological domain

MLD = Meteorological domain

SED = Socio-economic domain

EC1 = Providing accessible message to consumer about the environmental attributes of the product

EC2 = Giving the consumer knowledge about the production standards of the product

EC3 = Transmitting green product messages

EC4 = Indicating the products coming from environmentally friendly substances

EC5 = Communicating a sense of environmental consideration on the part of the manufacturer to consumer

EC6 = Arousing consumer interest to purchase environmentally friendly products

EC7 = Assisting to diminish the volume and toxicity of pollutants

EC8 = Encouraging consumer awareness development about product impact on the environment

EC9 = Driving ecologically conscious consumer behavior

EQ1 = Waste management

EQ2 = Use intensity of water resources

EQ3 = Food production

EQ4 = Air pollutant

EQ5 = Water pollution

EQ6 = Earth temperature

EQ7 = Water shortages

EQ8 = Human health problems
 EQ9 = Community environmental awareness

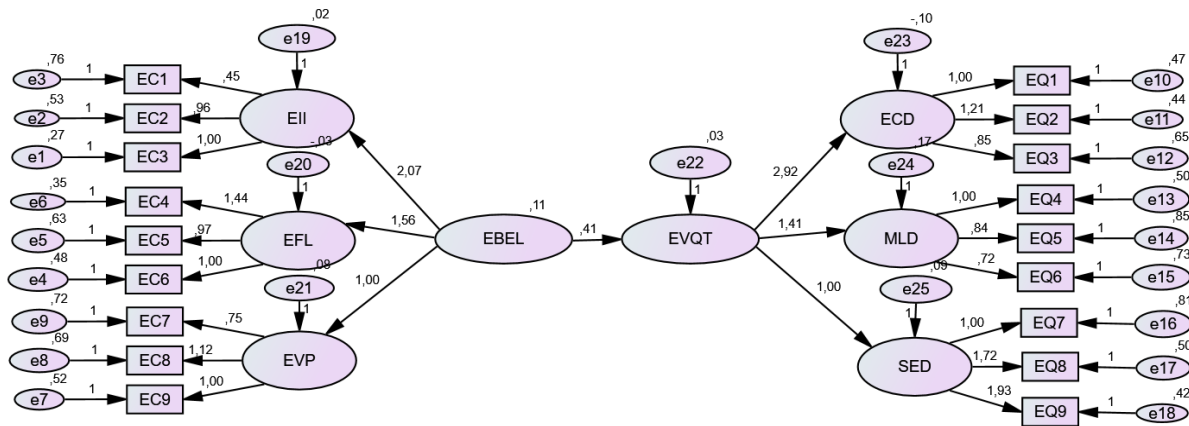


FIGURE 2. The structural model

CONCLUSION

Model of ecolabel in the context of ecolabel is presented by this study. Environmentally Informative instrument, environmentally friendly label, and environmental protection predict ecolabel. Ecological domain, meteorological domain, and socio-economic domain influence environmental quality. The limitation of this study is that this study only covers the students at Universitas Negeri Jakarta. It is suggested that further research can cover all college students located in Jakarta.

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