

## GOVERNMENT EFFORTS IN MANAGING PLASTIC BAGS USAGE

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### **Zulganef, Zulganef**

Doctor in Management, Business and Management  
Department, Widyatama University.  
Address: 204A Jl.Cikutra, 40125 Bandung, Indonesia.  
Orcid ID: 0000-0001-7142-8360,  
Corresponding author, e-mail: zulganef@widyatama.ac.id

### **Wijaya, Aida**

Master of Science in Economics, Economics  
Department, Widyatama University.  
Address: 204A Jl.Cikutra, 40125 Bandung, Indonesia.  
Orcid ID: 0000-0002-3208-1648

### **Sri Astuti Pratminingsih**

Ph.D in Management, Business and Management  
Department, Widyatama University.  
Address: 204A Jl.Cikutra, 40125 Bandung, Indonesia.  
Orcid ID: 000-0002-7919-7656

### **Abstract**

Despite awareness of the importance of sustaining the environment plus regulations to deter the use of plastic bags when shopping, ceasing to use plastic bags is a behavior that does not come easily to Indonesian consumers. Our survey shows that government regulations alone do not have a direct effect in lessening the use of plastic bags. However, it turns out that guidance through the presence of eco-friendly awareness could be used by the government as a basis to manage consumer behavior in the market. Given this, the Indonesian government would be able to make better policies related to the use of plastic bags in Indonesia, for example, to create a policy where a percentage of goods sold have to be in the form of green products. Indonesian customers tend to reduce their plastic bag usage or purchase green products as a reaction to eco-friendly awareness. This study comes up with a law-like generalization model with regarding to the relationship among variables: government regulations, eco-friendly awareness, the intention to continue using plastic bags, and the intention to purchase green products. This study reveals that the government managing consumer behavior solely through campaigning on eco-friendly matters is not sufficient. They should emphasize more on providing good quality green products in addition to raising community awareness of environmental sustainability, since this research has found that green products are an alternative to using plastic bags.

**Keywords:** government management; waste management; eco awareness; intention to use plastic bag; intention to use green product; green marketing.

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## Introduction

Indonesia is estimated to be the second largest contributor out of 129 countries in the world regarding ocean plastic pollution (Jambeck et al., 2015). One type of waste is plastic bags used while shopping at supermarkets or mini markets in Indonesia. Selke and Culter (2016) revealed that most products packaging is also made from plastics materials. Those researches have indicated that retail customers in Indonesia have a high potential or polluting the ocean with plastic trash. Plastic pollutant in the ocean can cause damage to the sea biota. The plastic nanoparticles can cause brain damage and behavioral disorders if digested by sea creatures (Mattsson, Johnson, Malmendal & Linse, 2017). Since people eat seafood, the nanoparticles can also be harmful; people who eat the seafood can also get a brain damage, although this would only happen over a long period. Nevertheless, Indonesian people have a bad habit, which is throwing plastic waste into the river, which then ends up in the ocean. The government and environmental community need to be alert regarding this matter.

Jambeck et al. (2015) also state that 80% of pollutants in the ocean are caused by waste mismanagement from the land into the ocean. The potential danger of plastic bags to the environment is also reflected in the statement from the Minister of Environment and Forestry Republic of Indonesia that plastic bag waste from 100 outlets of the members of the Indonesia Retail Association in one year could reach 10.95 million. This is the same as 67.5 ha of plastic bags, or approximately 60 football fields. Moreover, the Solid Waste Association of Indonesia as quoted by Antara (Indonesia News Agency) stated that plastic waste production in Indonesia could reach 5.4 tons per year. To reduce this, especially the plastic waste, the Minister of Environment and Forestry Republic of Indonesia, through the Director General of Management of Garbage, Waste and Hazardous and Toxic Materials published Circular Letter No.S.1230 / PSLB3-PS / 2016 regarding the use of plastic bags for shopping at supermarkets. In principle, the regulation required supermarkets to sell plastic bags – which were usually given free of charge – to their customers. This regulation was terminated in June 2016.

The regulation regarding plastic bags seems to be quite effective in managing consumer behavior in the market. The Minister of Environment and Forestry Republic of Indonesia, Nurbaya, stated that the regulation had reduced the consumption of plastic significantly from February to June 2016, even though the decreases vary from one region to another. The decreases would reach up to 30% in one location and slightly more or less in others. The Minister's statement showed that Indonesian consumers have started to realize the role of plastic bags on pollution

in Indonesia, or at least, it seems that it is possible to manage Indonesian consumers to respect the environment through regulations. The improved conditions are in line with finding from the Nielsen Survey Institution. The survey found that Indonesian consumers were willing to pay more for products and services provided by companies that produce goods committed to the environment and having a social impact. The behavior increased from 64% in 2014 to 78% in 2015. The increase shows that Indonesian consumers have positive attitudes toward environmentally friendly products, or what we know as green products.

However, Nurbaya's statement and Nielsen's survey are different from the observations of the Foundation of Indonesian Consumer Institutions (Yayasan Lembaga Konsumen Indonesia/YLKI) in 2016. YLKI conducted observations on the implementation of the regulation through observing 10 minute transactions of supermarket and minimarket cashiers. The highest transaction number was 21, with 10 of these involving consumers who still used plastic bags. This is in contrast to Nurbaya's statement and Nielsen's survey. It motivates this research, to verify whether Indonesian consumers do have environmental awareness. Furthermore, this research could suggest whether the implementation of the regulation should proceed or not. The impact of the discontinuance of the paid plastic bags regulation and the continuance of free plastic bags by retail businesses toward Indonesian retail consumers in the future will lead them to: 1) continue using plastic bags, or 2) terminate the use of plastic bags and buy green products (T. B. Chen & Chai, 2010).

This research could provide a basic description as references for the Ministry of Environment and Forestry Republic of Indonesia and retail businesses such as supermarkets and mini markets, to decide whether to continue or terminate the paid plastic bag policy. The basic idea is because those two entities have a responsibility to reduce pollution and contamination and preserve the environment, and more so because of the fact that shows Indonesia – among 129 countries – is the second biggest contributor to ocean contamination (Jambeck et al., 2015).

One expression of society towards the paid plastic bag regulation is displayed in the attitudes and behavior of retail consumers regarding the use of plastic bags, green products and environmental awareness. Based on that logic, in this research, Government efforts plus the conditions of Indonesian consumers' related to the use of plastic bags are described in the research model. The research model provides an overview of consumers' considerations regarding the use of plastic bags. Therefore, based on the investigated model, the Indonesian government would be able to analyze the behavior of supermarket consumers more effectively and more easily make strategies or policies to reduce the use of plastic bags in Indonesia.

## Literature Review

A green product is an ecological product or environmentally friendly product (T. B. Chen & Chai, 2010). Based on the understanding of green product as stated by T. B. Chen and Chai (ibid.), in Indonesia there are several green products that companies offer to attract consumers, to an alternative to using plastic bags, and also related to reducing food waste in order to be environmentally friendly.

Which means the green product variable is also important in relation to the use of plastic bags. Examples of companies which have launched products committed to the environment are Starbucks with its coffee glass and Coca Cola with its environmentally friendly bottle. Based on research by the Union of Concerned Scientist (UCS), only 15 out of 40 companies investigated were committed to the environment. This commitment was shown by them using environmentally-friendly palm oil in their products. Those companies were: Dunkin Donut (fast food); Safeway (a shop); Nestle, DANONE, Kellog, Food Conagra, Unilever, PepsiCo, general manufacture (package products); Colgate Palmolive, Henkel, P & G, L'Oreal, Reckit Benckiser (Personal Care) (ecowatch.com, April 8<sup>th</sup>, April 2015). This shows that environmentally-friendly products or green products do not have enough support from business management or business owners in leading industries in the world. It also shows how important research regarding green products is. This research could enlighten the minds of those business managers regarding the importance of green products.

The green marketing concept from Jain and Kaur (Chen, Y.S. & Chang, 2012) stated that it is all of the activities developed to trigger and preserve attitudes and behavior towards the environment. Some of the countries which have gone through green marketing programs, such as reducing plastic bag waste, are Turkey (Arısal & Atalar, 2016), Canada, Denmark, Ireland, China, South Africa, Botswana, Victoria Australia, Washington DC, Wales, Montgomery County USA, England/Scotland (Rivers, Shenstone-harris & Young, 2017) and Sweden (J. Singh & Cooper, 2017). Maintaining the Integrity of the Specifications, (Rivers et al., 2017) found that the plastic bag retribution policy in Scotland increased consumer use of reusable bags. However, the effect of reusable bags only happened in rich families or high-social class, it did not effect on middle and lower class households.

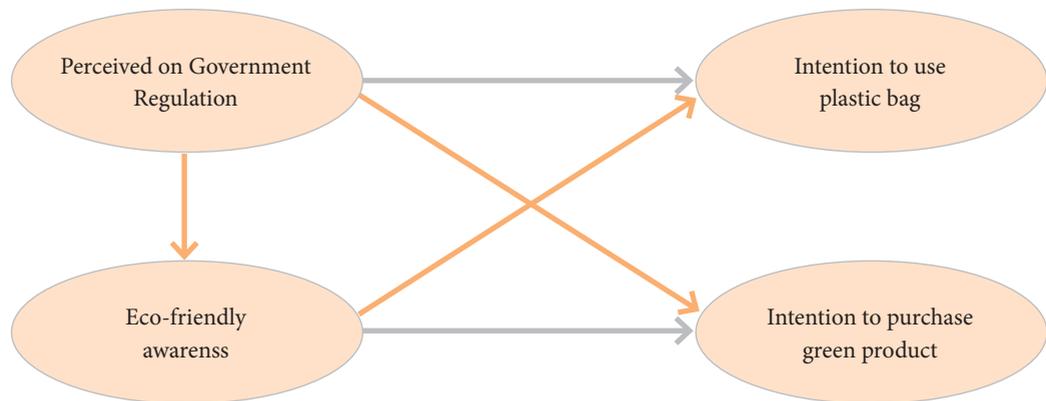
J. Singh & Cooper, (2017) researched a plastic bag waste management program in Sweden through a consumer behavior model. They found that there are four important aspects to implementing a plastic bag reduction program. One is consumer' awareness of the environment. They also found that the system they proposed, which was to implement a take-back system where consumers returned the paid plastic bag to retailer, could reduce the use of plastic bags by up to 70%.

The Indonesian consumers' attitude and behavior model regarding the use of plastic bags and regarding government policy was developed by previous researchers, such as T. B. Chen and Chai (2010), Skippon and Garwood (2011), Barbarossa, Beckmann, Pelsmacker and Moons (2015), as shown in Figure 1. As for the theory used to describe the model, it is the emotion and rationale routes decision making process theory. This theory (Keller, 2009) is also used regarding the brand resonance pyramid, which is two routes in decision making leading to brand loyalty. The first route is the rationale and the second is emotion. The relation between environmental awareness and the intention to use plastic bags could be stated as the rationale route, whereas the relation between perception toward green product quality and the intention to buy green products is the emotion route (reflex). Based on those logics, the model for this research is as shown in Figure 1.

Shelby D. Hunt (1991) revealed that one way to develop knowledge is through the invention of a relation structure between variables, including a causal relation.

Based on Hunt's argument (Hunt, 1991) this research hypothesis is then developed to strengthen the pattern/structure of relations between variables from other previous research. The hypothesis in this research is developed by the association pattern between the awareness of eco-friendliness, the intention to use plastic bags, perceived government regulations, and the intention to purchase green products which have been investigated by previous researchers, such as (Skippon & Garwood, 2011), (Barbarossa et al., 2015), (Asmuni, Hussin, Khalili & Zain, 2015), (Abid & Latif, 2015), (Arisal & Atalar, 2016), (Rivers et al., 2017), (J. Singh & Cooper, 2017), (Guyader, Ottosson & Witell, 2017), (Prakash & Pathak, 2017), (Martinho, Balaia & Pires, 2017), and (Ajzen & Fishbein, 1980).

**Figure 1: Research Model**



## Perceived Indonesian Government Efforts to restrict the use of plastic bags

Industry's impact on the environment has been an ongoing discussion for a long time. It has been discussed for decades, which showed the high concern of society towards the environment. We can see this in the form of various studies regarding climate change and global warming, which started in the 60s.<sup>1</sup>

Formal studies on a global scale started in 1988 when the United Nation created a group of scientists known as the Intergovernmental Panel on Climate Change (IPCC). The institution reviewed climate change and the damage to the environment from a scientific point of view at a global level (Oreskes, 2005). The importance of environmental problems is also shown in the form of numerous research regarding impact of industry on the environment. It is obvious that the environment issue is still relevant in research discussions, such as that by Xanthos and Walker (2017), Steensgaard et al. (2017), Martinho, Balaia and Pires (2017), Boz (2016), Asmuni et al. (2015), Berghoef and Dodds (2013), Williams and Wikström (2011).

Xanthos and Walker (2017) stated that even though some countries had policies regarding restrictions or reduction in the use of plastics, pollution caused

<sup>1</sup> [https://en.wikipedia.org/wiki/History\\_of\\_climate\\_change\\_science](https://en.wikipedia.org/wiki/History_of_climate_change_science)

by plastic bags is still increasing. In the last eleven years, the use of plastic bags had increased twice, especially related to food packaging, which turned out to be the largest type of plastic waste. The condition describes that government intervention through policy did not have a significant impact on consumer behavior regarding the use of or the littering with plastic garbage. On the other hand, studies by Martinho et al (2017), Boz (2016), Asmuni et al (2015), and Berghoef & Dodds (2013) revealed that government programs are effective in reducing the use of plastic bags for shopping in retail stores. Some of those researches described that retail consumers have relatively high awareness regarding the importance of sustaining the environment or environment friendly behavior.

In Portugal, Martinho et al. (2017) found that implementing tax on plastic bag effectively reduced plastic bag consumption. They also found that hypermarkets and supermarkets played an important role in changing consumer behavior around using plastic bags while shopping. In Turkey, there is a program called Sustainable Environment Land Protection (EFALP), the goal of which is to protect the quality of water, soil, and indigenous vegetation, and to prevent land erosion caused by wind. The farmers' incomes indicate that the program is succeeding (Boz, 2016).

The program 'No Plastic Bag Day' (NPBD) in Malaysia that was initiated by Malaysian Government seemed effective in reducing the use of plastic bags while shopping at the supermarket or other outlets. Also in the program, the retail shops do not give plastic bags to customers for free. The results showed that consumers avoided using plastic bags while they bought things at retail shops (Asmuni et al., 2015).

In Ontario, Canada, Berghoef and Dodds (2013) found some factors, which motivated the wine industry to participate in the eco-certification and eco-labeling program. It is a credible, monitored program related to labeling and marketing to drive a sustainable increase in attention towards the environment. With the support of LCBO and collaborating with EPP, the program pushed for wider participation by wine refineries.

Williams and Wikström (2011), in studying food packaging, found that the packaging, and the process systems in packaging did have impacts on the environment. Other researchers, e.g. Steensgaard et al. (2017), studied the influence of EU rules relevant to plastic bag life-cycles. In the study, they found some crucial things, among which is that poor waste management is the main problem in terms of plastic waste which causes pollution in the sea, and that this is an important matter that should be considered by the EU countries.

Studies by Martinho et al. (2017) and Steensgaard et al. (2017) analysed the process of managing the environment, mainly regarding the impact of government regulations towards behavior or the environment. The difference between those studies and this one is the subject matter. This studied the consumers' mental process, i.e. their considerations or attitude that drives their behavior to manage waste or to pay attention to products that harm the environment. Today, there are ongoing studies on consumer potential and perceptions towards the environment and green-products in Indonesia.

DeCosta et al. (2017) studied experimental research and found that environmental variables, in this case the control variable of parents and the variable of social facilitator, could change children's behavior regarding eating pattern. Those

variables could be applied to adults. An addition to the hypothesis consideration in this research is the research by Stranieri et al. (2017) which found that consumers tends to choose organic vegetables over less eco-friendly ones.

Based on the studies by Stranieri et al. (2017), Martinho et al., (2017), Boz (2016), Asmuni et al. (2015) – and Berghoef and Dodds (2013), therefore, -the first and second hypotheses of this research are:

H1: Perception of government regulation negatively and significantly influences intentions to use plastic bags

H2: Perception of Government regulation positively and significantly influences intentions to buy green products

Perception of Government Regulations and Eco-friendly Awareness

Several authors (Barbarossa et al., 2015; Arisal & Atalar, 2016; T.B. Chen & Chai, 2010) revealed the meaning of eco-friendly as an attitude or perception related to someone's consideration before making a decision. Especially regarding the decision not to buy products that create pollution, or in the form of one's concern for products that have an impact on ecology, or attitudes related to environmental protection.

According to some researchers on consumer behavior, such as Schiffman and Kanuk (2000), Zaltman and Wallendorf (1979), perception is described as a process where someone makes a choice, organizes, and interprets the world as they see. Further, Peter and Olson (1999). Zaltman and Wallendorf (1979), revealed that in the cognitive process system or the process of information processing, the stimulant from the environment would be interpreted and stored in the consumer's memory, then it would be a pre-known knowledge, before it goes through a further process and became the basis of someone's attitude and behavior.

Some of the opinions of these writers are seen in how government regulation is perceived by cigarette consumers, in that it then becomes information that is stored in the memory as a knowledge. Furthermore, the knowledge would become a basis for the attitude or intention of the cigarette consumer. Because government regulation tends to shape a restriction or to reduce the leeway of someone to smoke, therefore, according to the perception theory, government regulation would create a knowledge regarding the dangers of smoking to a smoker. Based on this logic, the third hypothesis of this study is as follows:

H3: Perception of government regulations influencing eco-friendly awareness.

## Eco-friendly Awareness and Intention to Purchase

Ajzen and Fishbein (1980) define the intention to behave as the subjective possibility of an individual to do one particular act. They also explain that intention is connected to four different elements: the target of the behavior, the object of the behavior, the situation where the behavior is conducted, and the time when the behavior arises. Maholtra and McCort (2001) describe intention as a person's conscious plan- to try as hard as possible to do a specific action. Moreover, Ajzen and Fishbein (1980) as well as Ajzen (1971; 1988) in explaining the theory of reasoned action and the theory of planned behavior stated that intention to behave is a variable which is connected to behavior attitude and a person's actual behavior.

In those theories Ajzen and Fishbein (1980) and Ajzen (1988) describe the position of intention between two variables, being the behavior variable as the cause or consequences of intention, and the attitude variable as the antecedent or factor that causes the rising in intention.

The intention concept is used in a lot of research related to green products or sustainable environment. Among, these is the research conducted by Paul et al. (2016) and T.B. Chen and Chai, (2010). Paul et al. (2016) predicted the intention to buy green products through the expansion of the TPB model, i.e. by adding environmental concerns to the model. T.B. Chen and Chai (2010) describe behavior intention as customer conative loyalty.

The naming is related to the concept showing that loyalty is divided into two kinds, attitudinal loyalty and behavioral loyalty (Dick & Basu, 1994); (Pritchard, Pritchard, Havitz & Howard, 2015). C. Chen and Chen (2010) assume that the loyalty level of a tourist destination is often reflected in the tourists' intentions to revisit their tourist destination and they want to recommend it to others, therefore operationalizing the intention variables through the approach on loyalty.

Another research which investigates purchase intention is from Chen Y.S. and Chang (2012). They use the definition of intention from Netmeyer and Morrison, that intention is the possibility of the consumer purchasing a product caused by the need of his environment. Their research showed that both green perceived value and green trust have a positive relation to the green purchase intention. Besides, (Paul et al., 2016), through an extended TPB Model showed a significant and positive relation between environmental concern and purchase intention.

Guyader et al. (2017), in their experimental research, found that retail consumers who see or are aware of the existence of eco-friendly products are willing to pay a higher price than usual for green products; besides, prime consumers who have the intention to buy eco-friendly products would raise their visual focus on green products. Based on the research conducted by Guyader et al. (op.cit.) and also by Paul et al. (2016) who successfully revealed the relationship between eco-friendly and environmental concern on the purchase intention, the fifth and sixth hypotheses of this research are therefore:

H4: the higher the consumer awareness toward environment, the greater the intention to purchase green products.

H5: the higher the consumer awareness toward environment, the smaller the intention to use plastic bags when shopping

The relation between eco-friendly and the intention to use plastic bags naturally would be negative, with the assumption that the higher consumer awareness toward the environment would lessen the possibility that he should use plastic bags when shopping at the market.

## Methods

This research used survey methods for collecting data. The type of services under this study were retail businesses, based on the consideration of convenience in conducting the research. The survey method used was based on the consideration that the data analyzed is ex-post-facto. The analytical method

used was structural equation modeling. J.F. Hair, R.E. Anderson and R.L. Tatham (1998) revealed that the number of samples used to perform analysis through a statistical model or multivariate is 15 respondents for 1 parameter, or between 200 to 400 respondents (p. 23). The sample taken in this research was 283 respondents. The sample size is not statistically determined because the sampling method used in this study is not a random sampling method and the population is infinite, since the number of populations cannot be estimated (Singh, 1986).

The measurement of variables in this research is derived and adapted from previous studies, such as Junior, da Silva, Gabriel and Braga (2015), Zhao, Gao, Wu, Wang and Zhu (2014), Prakash and Pathak (2017). Intention to use a plastic bag and intention to buy green products is operationalized through seven items for each variable and is formed based on (Prakash & Pathak, 2017) and (Junior et al., 2015). Since we defined eco-friendly awareness as an awareness of consumers pertaining to products that could create damage to the environment (*see literature review section*), then we operationalized this variable into ten items adapted from (Zhao et al., 2014), and perception on government regulations into ten items based on the operational definition concept adopted from (Sekaran, 2013).

All variables were measured using Likert scales, which are used based on convenience considerations in reliability testing since the Likert scale is a multiple choice with a single response bases for the variable analyzed (Cooper & Donald R., 2003). The instruments of this research were adopted from previous research, e.g. (Barbarossa et al., 2015); (Chahal, Dangwal & Raina, 2014); (Prakash & Pathak, 2017); (Stranieri, Ricci & Banterle, 2017); (Boz, 2016); (Asmuni et al., 2015) and (Berghoef & Dodds, 2013). In addition, the questionnaire also asked the respondents' opinions about "environmental maintenance programs that have been carried out by the government". The question asked is to see the respondent's opinion in general regarding the implementation of government regulations.

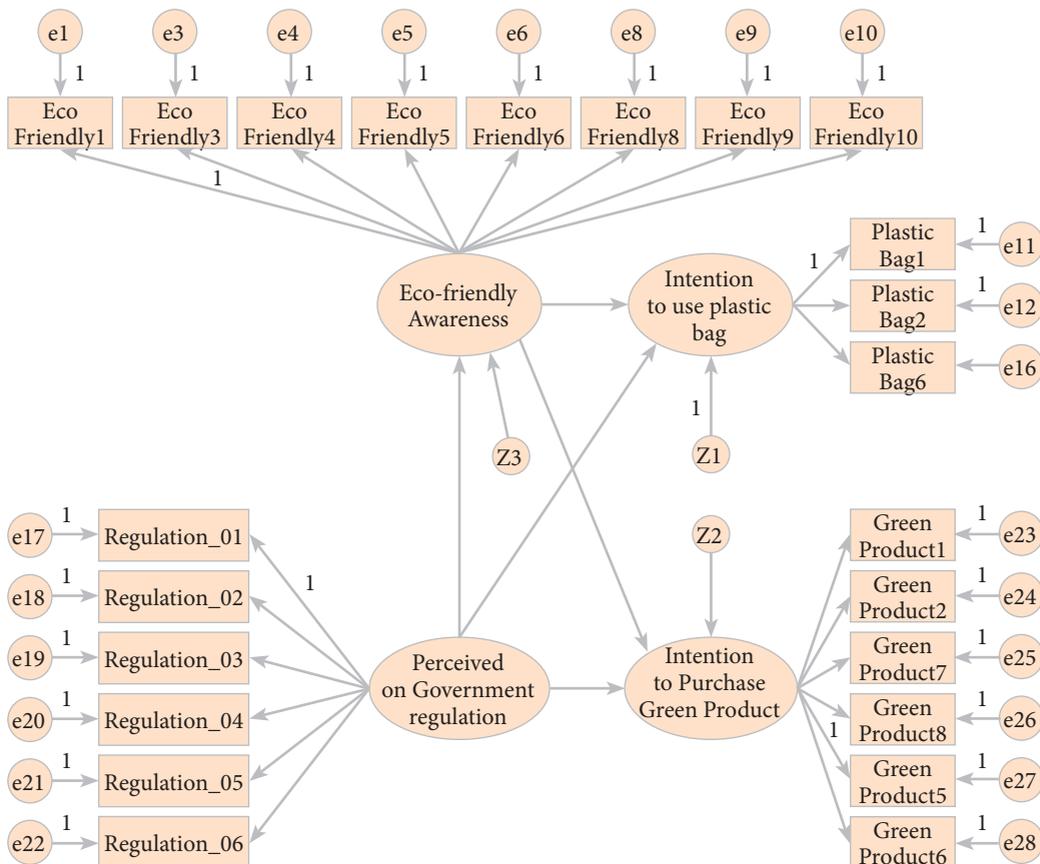
A reliability test was conducted using Cronbach's alpha, while a validity test is conducted using construct validity, which consists of convergent validity and discriminant validity, and a reliability test is conducted using Cronbach's alpha. Discriminant validity is calculated by comparing the average value of the square of correlation and the extracted variance of each variables. The extracted variance is the weight indicator average value of the square of standardized regression, extracted from each of the latent variables (Hair et al, 2003; Chau, 1997). Discriminant validity is calculated by comparing the variants value extracted and the average value of the variables correlation. If the average value of the extracted variants is greater than the average value of the correlation square, it means the validity discriminant is accepted (Hair, et al, 2003; Chau, 1997).

By eliminating the unexpected items, the final component matrix shows that all of the items of variables are confirmed. Then, analyze the reliability of each variable. The tables show that all variables are reliable. Since the alpha values exceed 0.7, it means that all of the items of variables are valid and reliable to be analyzed further.

The Cronbach alpha for each variables are: government regulation 0.7; eco-friendly awareness 0.747 (going through the elimination of 2 questions, which are the EF2 and EF7); intention to buy plastic bags 0.736 (going through the elimination of 4 questions); intention to buy green products 0.807 (going through 2 questions). Therefore, the data is calculated using only the existing variables. Construct validity and discriminant validity are created using the congeneric model (Anderson and Gerbing, 1988; Hair et al, 2003).

The values of the extracted variance for each of the variables are: 0.56 for the intention to buy plastic bags; 0.39 for perception of government regulations; 0.35 on eco-friendly awareness; and 0.52 for the intention to buy green products. The average value of correlation for each of the variables are: 0.02 for the intention to buy plastic bags; 0.09 for the perception of government regulations; 0.29 for eco-friendly awareness; and 0.27 for the intention to buy green products. All the extracted variance values of each variable are greater than the value of the average correlation, therefore all the analyzed variables have an accepted construct validity value and could be analyzed further using Structural Equation Modeling (SEM). Moreover, the value of KMO-Bartlet test data is 0.835 which indicated that the processed data have a marvelous level according to the sampling adequacy measurement.

Figure 2. Research Model



## Respondent Profile

Questionnaires were distributed to 252 respondents. The profile of respondents is as follows:

1. From the 252 respondents, 157 respondents (62.3%) are females and 83 respondents (36.9%) are males.
2. From the total respondents, 60.7% (153 respondents) are 15–25 years old. This profile shows that most of the respondents are teenagers who still have pristine thoughts and have great potency to be altered in behavior.
3. From the total respondents, 153 respondents (60.7%) are under 26 years old, 37 respondents (14.7%) 26–40 years old, 31 respondents (15.4%) 41–50 years old, 24 respondents (9.5%) 51–60 years old, and 6 respondents (2.4%) 60 years old, while 1 respondent did not fill in the age information. Most of the respondents (75.4%) are below 41 years old. This shows that the respondents are from the productive level of society.
4. Based on income levels, the respondents had the following composition: 45.6% earned less than IDR 2,800,000 (minimum regional province wages); 7.2% earned between IDR 2,900,000 – and 5,000,000; 31% earned above IDR 5,000,000, and 13.5% earned above IDR 10,000,000.
5. Based on their education, the respondents had the following composition: 38 respondents (15.1%) had Doctoral degree; 41 respondents (16.3%) had a Master's degree; 66 respondents (26.2%) had Bachelor's Degree; and 106 respondents were no answered.

Out of all the respondents, 99.2% understand the term eco-friendly, and 90.3% recognize green products.

It means that almost all of the respondents have an awareness of green products and eco-friendly terms.

The above profile shows that generally respondents with environmental awareness, are in the range of 20–30 years old and teenagers who are still active in college; generally in Indonesia, the age of college students is between 20 and 27 years old. In addition, the above data also indicates that most of the respondents understand the terms eco-friendly and green products, thus, this research is feasible to be analyzed.

## Results and Discussion

The fit measurement index between the model and the data showed good values. For example, the value of  $C_{min}/DF$  is less than 5, (1.558); the  $GF1$  value = 0.855, and  $AGFI$  = 0.821, both have adequate values, that is equal above 0.8; the  $RMSEA$  value is under 0.08, (0.052), and the Parsimoni value is 0.881. All the values show that the research model is good and has a high level of conformity with the data (Mueller (1996, p. 82), Hair, et al. (2003, p. 682), Bone, Sharma, and Shimp (1989) and Joreskog and Sorbom (1988).

The influence between variables as the analysis basis for the hypothesis test is calculated using the regression weights values, which are the indicators of the research model structure, as shown in Table 1, as follows:

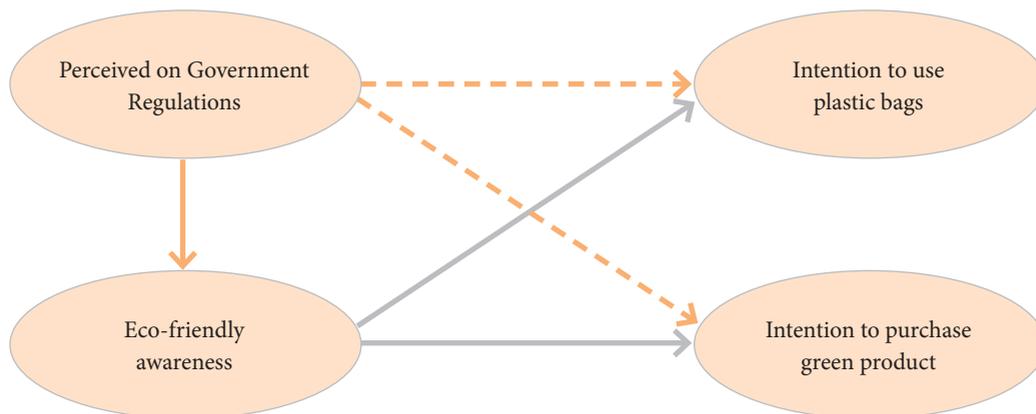
Table 1

## Regression Weights of Research Model

			Estimate	C.R	P	
H1	Intention to_use plastic bags	← Government Regulation	0,427	2,532	0,011	Not-supported
H2	Purchase_Green Products	← Government Regulation	0,072	1,004	0,315	Not-supported
H3	Eco-friendly_Awareness	← Government Regulation	0,255	3,202	0,001	supported
H4	Purchase_Green Products	← Eco-friendly_Awareness	0,871	4,715	***	supported
H5	Intention to_use plastic bags	← Eco-friendly_Awareness	-0,719	-3,114	0,002	supported

Table 1 shows that three out of the five hypotheses have a supported value. The unsupported values are H1 and H2, which are the influence of perception on government regulations on the intention to use plastic bags, and the influence of perception on government regulations on the intention to purchase green products. The first hypothesis is not supported because the value is positive, while the second hypothesis is not supported because its probability value is over 0.05. The explanation is shown in Figure 3 as follows:

Figure 3: Research Results



noted : : supported ; : not supported

Referring to the goals and results of this research, some points should be discussed, as follows:

1. The first hypothesis of this research is not supported; the result shows that the more aware supermarket consumers are for the Government regulations, the more effectively they will use plastic bags. This is not in line with the hypothesis, since the hypothesis said that perception of government regulations will

negatively influence intention to use plastic bags. Thus, it is also not in line with Steensgaard et al. (2017) and Martinho et al. (2017), who suggested that government regulations have influence, especially regarding tax programs (Martinho, 2017) and regulations on the plastic waste management (Steensgaard et al, 2017).

This shows that for Indonesian supermarket customers, government regulation does not have a direct role in raising awareness and determining a reduction in plastic bag use by customers. This is probably because of a more negative perception towards the government, which means that the consumers probably ignore the government regulations regarding reducing plastic bag use. Even worse, there is a tendency to oppose the regulation, i.e., “the more government regulation regarding the reduction of plastic bag use, the more consumer intention is to use plastic bags”. This study finds that the positive and significant relation between the perception of government regulations and the intention to use plastic bags is a form of protest by supermarket consumers against government regulations.

This condition is probably caused by the imperfect regulation. The government issues the regulation, however, it never applies the regulations, plus there are no punishments for people who do not abide by the regulations. Society assumes that the government only issue the regulations but never punish the law-breakers. Therefore, the government regulation did not act as a driver for the consumer to reduce their intention to use plastic bags. In the questionnaire, there are open-ended questions to get the respondents’ opinions regarding the environment government program issued. Most respondents (more than 80%) stated that government program is already good, however it is not good at implementation.

2. The second hypothesis of this research is not supported, but the third, fourth, and fifth hypotheses are supported. This means that the influence of government regulations on the intention to buy green products and on the intention to use plastic bags is mediated by environmental awareness. The relation of those three variables is obvious, where the government regulations indirectly create the intention to buy green products and to reduce the use of plastic bags. This means that the government regulations drive environment awareness in society, therefore, the consumer would tend to buy green products and reduce the use of plastic bags.

This finding shows that the issued government regulations do not directly drive supermarket consumers to buy green products or hinder them from using plastic bags. However, if the regulation creates environmental awareness, it would influence supermarket consumers to buy green products and reduce the use of plastic bags.

3. The fourth and fifth hypotheses of this research are supported, since both of the correlations between eco-friendly awareness and intention to use plastic bags and with intention to buy green products are significant. This means that the more aware consumers are towards ecology, the more likely it is that they will not use plastic bags, and the more possible it is that they will buy green products. Based on these associations, we argue that eco-friendly

awareness can be used to predict both intention to buy a green product and intention to use a plastic bag. This indicates that the use of plastic bags and the purchase of green products when shopping in supermarkets or minimarkets are influenced by eco-friendly awareness.

4. Based on the results of the indirect influence (Point 2 and 3), there is the possibility of a positive relation between perception on government regulations and the intention to using plastic bags. This is because the supermarket consumers have to use a plastic bag, because they forget as they are not used to bringing bags from home, or because they did not have any plan to shop while going out in the first place, or they bought many green products, and therefore they have to use plastic bags. Moreover, the price of the plastic bag is relatively cheap. In the supermarket, the cost of a plastic bag is only a supplement to the shopping. They do not care about the regulations, because the regulations do not carry any punishments. They also do not want to lose customers simply because they sell plastic bags at a high price or because they do not provide any at all.
5. The influence of eco-friendly awareness toward the intention to use plastic bags is negative, however, its influence toward the intention to buy green products is positive. It describes that when eco-friendly awareness emerges in the mind of a consumer, the buying of green products is the alternative option to the use of plastic bags, because the influence on the intention to use plastic bags is negative while the influence on the intention to buy green products is positive.
6. Based on the second and third points, we argue that the Indonesian government should strengthen public awareness of eco-friendliness through government regulations, and consequently, consumers will reduce the use of plastic bags and buy green products, thereby reducing the possibility of pollution caused by plastic bags in the river. Thus, regulations on paid plastic bags are better to be replaced by government regulations that require supermarkets to sell higher priced plastic bags, or by increasing the tax on plastic bags.

## Conclusion

The main objective of this research is to analyze government management in preventing Indonesian consumers from engaging in environmental destruction, especially regarding the use of plastic bags while shopping as Indonesian consumers usually throw used plastic bags into rivers, which pollutes the environment, especially the oceans. The prevention efforts are conducted through analyzing the relationships among government regulations, eco-friendly awareness, the intention to use plastic bags, and the intention to buy green products, as seen in this research model.

We argue that both the intention to use the plastic bags and the intention to buy green products can be predicted through government regulations and eco-friendly awareness. The predictions are: 1) Indonesia's consumers in the future will tend to continue using plastic bags, or 2) They will stop using plastic bags and buy eco-friendly products (green products).

The significant paths of the result model show that:

Both the use of plastic bags and the purchase of green products could be predicted both directly and indirectly by government regulations; the path shows that indirect predictions can be made through eco-friendly awareness variables. This means that Indonesia's consumers would like to ignore plastic bags if the government regulations made consumers aware about being eco-friendly first. Therefore, we conclude that eco-friendly awareness is an important point for the government in order to manage consumer behavior in Indonesia with regards to reducing plastic bag usage while shopping.

The relationship between eco-friendly awareness and the intention to use plastic bags is negative and significant. It means that the intention to use plastic bags is a consequence of eco-friendly awareness. If the government regulations cannot increase eco-friendly awareness, then no matter how high Indonesian customers perceive the importance of the government regulation, it will not override their intention to reduce their use of plastic bags when shopping at the supermarket. This study shows that the efforts of the Indonesian Government in managing consumer's behavior cannot merely rely on regulations to restrict the use of plastic bags, or raising taxes, or raising the price of paid plastic bags. Instead, the government should focus on how to raise eco-friendly awareness in the minds of supermarket consumers. Consequently, the government should also make intensive environment programs or provide green products as a tool to support consumers' intention to reduce the use of plastic bags. The significant relation in this research model, is the relation between government regulations, eco-friendly awareness, and plastic bag reduction.

The association between government regulation and the intention to use plastic bags is positive and significant; this relationship reinforces the conclusion in Point 2 of the sub-section above. The relationship is positive and significant, indicating that the more government issue regulations, the more people use plastic bags when shopping in supermarket, because the regulations do not carry any legal consequences. Also, since Indonesian consumers are not used to bringing a bag of their-own when shopping, the government regulations regarding the restriction on using plastic bags do not influence the reduction of plastic bag use; on the contrary, it triggers the use of more plastic bags.

The significant path shows that eco-friendly awareness is a mediating variable between government regulation and intention, both the intention to use plastic bags and the intention to buy green products. Related to that, there are four conditions that could be the basis for the government to manage consumer' behavior in Indonesia. These are: (a) Indonesian consumers who are aware of eco-friendly issues would not use plastic bags, but are likely to buy green products. Then Indonesian Consumers in the future will tend to continue using plastic bags; (b) The higher the consumers' perception of eco-friendly issues, the higher they will perceive green products as an alternative. This means that the higher the perception of eco-friendliness, the higher the perception of the importance of green products. Indonesian consumers will not stop using plastic bags, but they will buy eco-friendly products as a manifestation of eco-friendly awareness; (c) The three hypotheses can be improved into **a law like generaliza-**

**tion**, that is “A recurring pattern or regularity in different conditions or situations and can only be explained through mathematical, graphical or symbolic methods. The pattern is repetitive but does not have to be universal in all situations” (Hunt, 1991; Sheth & Sisodia, 1999). The three hypotheses are: correlations between government regulations and eco-friendly awareness; eco-friendly awareness and intention to use plastic bags; and eco-friendly awareness and intention to buy green products; (d) One hypothesis that cannot be improved into law like generalization is the correlation between government regulations and the intention to buy green products.

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