

Why Do Consumers Go Green? The Influences of Perceived Environmental Responsibilities on Green Purchasing Intentions

In the last few decades, various environmental issues have surfaced, including climate change, resource depletion, and environmental pollution (Leondou and Leondou 2010; Mazar and Zhong 2010). In the 2007 New York Times/CBS News poll, approximately 52 percent of the respondents reported that environment issues should take precedence over the economy. Washington Post (2007) reported that critical environmental issues include the greenhouse effect, air pollution, and climate change and Americans are increasingly aware of these environmental problems.

In response to these phenomena, public concerns about environmental protection and sustainable development have gradually received attention (Minton and Rose 1997; Chitra 2007; Mazar and Zhong 2010). In this regard, people have sought ways to protect the environment by means of not only self-normative behaviors but also those of other social agents such as companies and governments (Stern et al. 1999; Kates 2001; Pedersen and Neergaard 2006). Such public concerns and perceived responsibility for environment have led to the growth of green product market. The heart of this trend is referred to as *environmental consumerism* (Mazar and Zhong 2010).

Which types of consumers and what characteristics of those people are involved with green purchase behaviors? The literature has suggested that demographics (Arcury 1990; Granzin and Olsen 1991), psychographics such as perceived consumer efficacy (Fransson and Garling 1999), environmental concern (Abdul-Muhmin 2007; Kates 2001; Laroche, Bergeron, and Barbaro-Forleo 2001), and environmental knowledge (Barber 2012; Mostafa 2007) are critical factors.

However, these studies have focused exclusively on individual-level factors to determine who purchases green products. In addition, in light of corporate social responsibility, researchers have examined whether the perceived social responsibility has an impact on consumer behavior (e.g., Collins, Steg, and Martine 2007; Choi and Ng 2011). However, to the best of our knowledge, no previous research has noted the importance of consumers' perception of governmental responsibility for the environment, although the perception about governmental role in terms of environmental concerns may affect consumers' buying behaviors as well (Rahbar and Abdul Wahid 2010).

In addition, a number of previous studies have used such a purchase intention measure as "willingness to pay for green products" to assess pro-environmental purchase intention (Cleveland 2012), treating "willingness to pay" and "willingness to pay more" as the same concepts (Cleveland 2012). It is worth noting, however, that the two measures may be conceptually distinct in that the latter is a stronger indicator of interest in green products (Laroche, Bergeron, and Barbaro-Forleo 2001; Griskevicius, Tybur and Van den Bergh 2010). More specifically, the latter represents consumers' stronger desire to save the environment, thereby indicating consumers' willingness to buy green products despite more expensive prices (Laroche, Bergeron, and Barbaro-Forleo 2001; Mazar and Zhong 2010). Thus, the current study attempts to fill the void in the green purchasing literature by investigating the difference between the two different concepts according to the suggestion by some scholars (e.g., Laroche, Bergeron, and Barbaro-Forleo 2001; Griskevicius, Tybur, and Van den Bergh 2010).

To do so, the purpose of the current study is to: (a) examine the effects of perceived personal responsibility and two other social agents' responsibilities on consumers' green

purchase intention and (b) investigate how the influences of these factors vary depending on which measure is used (likely to purchase vs. willingness to pay more). By demonstrating the relationship between consumers' perception of important social agents' responsibilities regarding green issues and their green purchasing, this study will shed light on our understanding of how pro-environmental judgments may affect consumer-buying behaviors. The theoretical and practical implications of this study will be addressed, in terms of effective corporate reputation management and the role of government with regard to pro-environmental issues.

THEORETICAL BACKGROUND

Environmental Consumerism and Green Purchasing

Environmental consumerism is referred to as consumers' purchasing behaviors in favor of the environment (Dagher and Itan 2012). Environmental consumerism closely relates to personal values and beliefs that are shaped by individual socialization (Moisander 2007; Pedersen and Neergaard 2006). People realize that the environment should be protected for the next generation, and therefore they are responsible for contributing to the environment. In this regard, the socially developed personal values and norms regarding the environment are supposed to affect the likelihood of consumers' green purchasing.

Environmental purchasing has been measured by green purchase intention such as "likely to purchase a product (or willingness to pay)" and "willingness to pay MORE for green products (WPM)" (Cleveland 2012). Most prior studies have employed the two measurements without distinction. However, the literature suggests that these two measures may represent different notions. Specifically, compared with willingness to pay, WPM is able to assess consumers' stronger desire to contribute to the environment by their purchasing behaviors even though the price is more expensive.

Why does "paying more" indicate a stronger desire for the environment? The literature supports this premise theoretically by the price-quality inference (Alba and Hutchinson 1987; Kardes, Posavac, and Cronley 2004). According to the price-quality inference literature, consumers assume that in general products with higher price have high quality (Alba and Hutchinson 1987; Kardes, Posavac, and Cronley 2004). In this situation, consumers are not required to search for more information about the products because the price may represent better quality of the product. Applying the price-quality inference to the green purchasing context, consumers are supposed to think that a product's higher performance to protect environment is subject to the higher price of it. In line with this reasoning, consumers may be more likely to buy green products despite high costs. Given that eco-centric consumers are more concerned about environment protection and sustainable development, they may be more open to high price that is associated with high green performance (Laroche, Bergeron, and Barbaro-Forleo 2001; Mazar and Zhong, 2010). Taken together, it may be informative to examine the difference between "likely to purchase" and "willingness to pay more." Thus, the current study will explore their differences. In the following sections, consumers' perceptions of three major social agents' environmental responsibilities will be addressed as important aspects of green consumerism along with their impacts on environmental purchasing, while proposing research hypotheses.

Perceived Personal Environmental Responsibility (PPER)

The concept of *perceived personal environmental responsibility* (PPER) refers to the extent to which consumers recognize their obligation to improve the environment and to behave rightness for the environment (Granzin and Olsen, 1991; Fransson and Garling, 1999). In a buying

situation, PPER may serve as a personal norm, defined as personal expectation of whether people's behavior is desirable, guiding consumers to behave pro-environmentally. In this regard, PPER will lead consumers to feel guilty where their behaviors are harmful to the environment and society (Stern et al. 1999), when they do not act pro-environmentally. Thus, research has shown that PPER may affect consumers' green buying behaviors.

A theoretical perspective supports pro-environmental purchasing behaviors. Norm activation theory provides an explanation of why people behave in favor of the environment (Stern et al. 1999). According to this theory, the moral obligation leads to pro-social intention and behavior (De Groot and Steg 2009), and then the moral obligation determines whether people should perform or avoid specific behaviors. Extending the logic of the norm activation theory to the green consumerism context, PPER can be reasonably conceptualized as a form of personal moral obligation.

In a similar vein, the positive association between PPER and the pro-environmental behaviors has been demonstrated by empirical studies (e.g., Granzin and Olsen 1991; Pickett, Kangun, and Grove 1993). For instance, Chan, Wong, and Leung (2008), Franson and Garling (1999), and Leondou and Leondou (2010) have shown that deontology and personal norm lead consumers to pro-environmental behavior. Based on the literature, consumers with high PPER are more likely to pay for green products. Likewise, consumers may be willing to pay more to contribute to the environment. Thus, the following research hypotheses can be posited:

Hypothesis 1: PPER is positively associated with likelihood of purchasing.

Hypothesis 2: PPER is positively associated with willingness to pay more.

Perceived Corporate Environmental Responsibility (PCER)

Perceived corporate environmental responsibility (PCER) is defined as "natural environment concerns in an organization's process and product orientations (Sandhu, Ozanne, Smallman, and Cullen, 2010, p. 357)." Environmental process orientation is an attempt to prevent environmental pollution in the manufacturing process, while environmental product orientation indicates an attempt to produce environment-friendly products. In other words, PCER can be conceptualized as consumers' recognition of companies' efforts to operate their business environmentally friendly. In line with this, a company's pro-environmental management and production will be favorably evaluated by consumers, thereby leading to consumers' positive attitudes toward the company and its products (Collins, Steg, and Martine 2007; Choi and Ng 2011).

There exist empirical findings regarding the above reasoning. In the literature, corporate pro-environmental management is associated with consumers' purchasing behaviors (Collins, Steg, and Martine 2007; Choi and Ng 2011). Collin et al. (2007) showed that consumers' beliefs in pro-environmental management of supermarkets are positively related to purchasing of green products such as organic vegetables, organic fruits, and environment-friendly cleaning agents. The study also found that consumers who have stronger beliefs in pro-environmental management buy green products more often. In addition, Choi and Ng (2011) found that a company's pro-environmental management leads to consumers' positive attitudes toward companies' and purchase intention for their products. For instance, consumers evaluate companies more positively when the companies try to use recycled material and conserve energy than when the companies reduce the unit cost of production and price. This line of study implies that that pro-environmental management affects consumers' green purchasing positively (Collins, Steg and Martine 2007). Based on the literature, green purchasing will result from consumers' perception of a corporation's pro-environmental orientation (Ismail 2008; Choi and Ng 2011).

Hence, the following hypotheses are proposed.

Hypothesis 3: PCER is positively associated with likelihood of purchasing.

Hypothesis 4: PCER is positively associated with willingness to pay more

Perceived Government Environmental Responsibility (PGER)

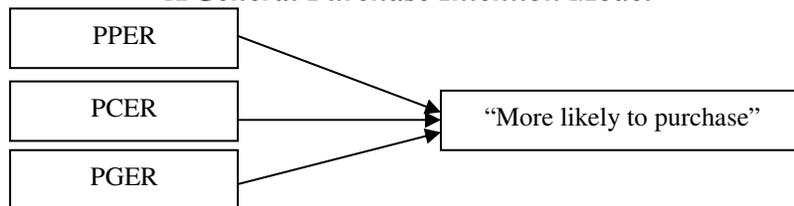
Perceived government environmental responsibility (PGER) refers to consumers’ consideration for the government’s roles in environment protection. The government’s roles in environment protection has increased in its importance (Bardon, Smith, and Kemp 1997; Muldoon 2006). Specifically, such roles include providing education program for consumers, enacting regulations (e.g., eco-labeling), guiding corporate management, and contributing to solving macro-environmental problems (e.g., climate change). Consumers with high PGER believe that a government should intervene for environment protection, thereby stimulating people’s pro-environmental behaviors. In line with this, it is speculated that high PGER consumers may be more likely to participate in the spirit of the governments’ pro-environmental activities by purchasing eco-friendly products, recycling, and conserving energy.

Rahbar and Wahid (2010) suggested how Malaysian consumers’ perception of the role of individuals, governments and industries in environment protection affect green purchasing. In this regard, when consumers believe that a government has a strong responsibility for environment protection, they are more prone to purchasing green products (Rahbar and Wahid 2010). In addition, Berger and Corbin (1992) argued that governments can increase consumers’ environmental concern, enhance their citizenship, and therefore promote their pro-environmental behaviors by performing environment-friendly governmental activities such as encouraging recycling. Hence, when consumers positively evaluate governments’ pro-environment activities, they are more likely to purchase green products (Muldoon 2006; Moisander and Markkula, 2010). Based on the above literatre, the following hypothesis can be developed (see Figure 1):

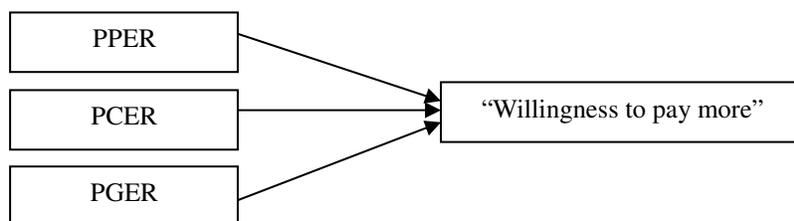
Hypothesis 5: PGER is positively associated with likelihood of purchasing.

Hypothesis 6: PGER is positively associated with willingness to pay more

Figure 1. The Research Framework
A General Purchase Intention Model



A “Willingness to Pay More” Model



METHOD

Experian Simmons National Consumer Study

We conducted a secondary analysis of the electronic version of the 2009 Experian Simmons National Consumer Study (ESNCS). Despite its primary uses by professional industry researchers, the Experian Simmons data have also been employed in a few scholarly studies (e.g., Harmon 2001; Hoy and Childers 2012; King, Siegel, Celebucki and Connolly 1998; Park and Hoy 2012). The database provides a sample of approximately 25,000 adults in the U.S. Due to the use of the selected five factors from the database, missing values were found, resulting in the reduced sample size of this study to 21,665. The study utilizes a two-step data collection approach, with Step 1 consisting of either a telephone interview or mail-based recruitment questionnaire to attain the household's participation in the survey and Step 2 involving the mailing of self-administered survey booklets to eligible household members who agree to participate (Experian Simmons 2012). The booklets cover a wide range of measures such as consumers' lifestyles, media usage, demographics, and psychographics (Experian Simmons, 2012; Park and Hoy 2012).

Importantly, because the platform used to search the Experian Simmons Data (Simmons One View) provides aggregate level data, the data were deconstructed by means of a filtering procedure suggested by Park and Hoy (2012), allowing individual-level analyses. The deconstructed data enable researchers to conduct not only basic descriptive statistics analyses (e.g., frequencies, percentages) but also simple forms of inferential statistics analyses (e.g., t-tests, analysis of variance, and Pearson's correlation). Because each variable was measured by five point Likert-type scales, the use of all five variables resulted in a total of 3125 filters (5^5), with each filter representing a unique combination of responses to the five variables. Given that Simmons One View allows researchers to run filtering analyses with aggregate level data, one can run individual level analyses by breaking down the aggregate data into individual level combinations. Each filter indicates the individuals' response to a variable or a combination of several variables (see Park and Hoy 2012).

Measures and Descriptive Statistics

The section "Lifestyle Statements: Attitudes/Opinions-About the Environment" in the ESNCS booklet includes measures for the five variables in the current study. Respondents checked a five-point scale (1 = disagree a lot, 5 = agree a lot) to indicate their agreement with five statements regarding their environmental opinions. The statements included (a) "Each of us has a personal obligation to do what we can to be environmentally responsible," measuring perceived personal environmental responsibility ($M = 4.30$, $SD = .88$); (b) "Companies should help consumers become more environmentally responsible," measuring perceived corporate environmental responsibility ($M = 4.00$, $SD = .97$); (c) "All products that pollute the environment should be banned," measuring perceived government environmental responsibility ($M = 3.27$, $SD = 1.21$); (d) "I am more likely to purchase a product or service from a company that is environmentally friendly," measuring likelihood of purchasing ($M = 3.8$, $SD = 1.02$); and (e) "I would be prepared to pay more for environmentally-friendly products," measuring willingness to pay more ($M = 3.14$, $SD = 1.14$). Table 1 presents the results of descriptive analysis of a correlation matrix for all variables used in the study. The highest correlation was between PPER and PCER ($r = .68$, $p < .01$). With the sample size of approximately 22,000 and moderate to low correlations across the independent variables, we concluded collinearity would not threaten the coefficient estimates.

RESULTS

Model Testing

To test the hypothesized relationships and compare the different patterns of the two proposed models on different dependent variables, a series of multiple regressions were performed using Statistical Package for the Social Sciences (SPSS) 20. Multiple regression is considered an appropriate statistical method for predicting the influences of multiple independent variables on the outcome variable (Moore 2007; Ott and Longnecker 2010). We conducted two multiple regression analyses using two different dependent variables that represent the extent to which consumers intend to purchase or pay for green products. The results of the analyses are summarized in Table 2.

TABLE 1
Descriptive Statistics and Correlation Matrix (N = 21,655)

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. PPER	4.30	.88	–	.68**	.30**	.57**	.31**
2. PCER	4.00	.97		–	.38**	.65**	.39**
3. PGER	3.27	1.21			–	.35**	.42**
4. Purchase Intention	3.80	1.02				–	.44**
5. Willingness to Pay More	3.14	1.14					–

Note. ** $P < .01$

The significance of regression coefficients was examined to test the six hypotheses. All hypothesized coefficients were significant ($ps < .001$), suggesting the hypotheses would be supported. In support of H1, the coefficient was positive and statistically significant ($\beta = .22, p < .001$). The positive association suggested that as perceived personal environmental norm increases, consumers were more likely to purchase green products. In support of H2, the extent of perceived personal environmental responsibility was positively associated with their willingness to pay more ($\beta = .07, p < .001$), implying that higher level of PPER may predict not only general purchase intention but also a stronger willingness to pay for green products despite a cost barrier in a decision making situation. In support of H3 and H4, respondents with high PCER were more likely to report that they would purchase green products ($\beta = .46, p < .001$), while those with high PCER were also more likely to pay more to purchase green products ($\beta = .23, p < .001$). These results indicate that the more consumers are concerned about corporate environmental responsibility, the more likely they are to buy green products, implying that companies should consider eco-friendly business management and production to enhance their sales and thereby improve profits. In support of H5 and H6, the more respondents perceived that government' regulations on products that pollute the environment are important, they were more likely to purchase green products ($\beta = .12, p < .001$) as well as willing to pay more for green products ($\beta = .31, p < .001$). These results imply that consumers are concerned about not only their own roles in environment protection and corporate social responsibility for the green environment but also the government's role in regulating and banning products that pollute the environment in purchasing decision making. To test multicollinearity, which occurs when the

model contains redundant predictors and there is a high level of correlation between at least two of the independent variables, variance inflation factors were obtained. The tests show that the two models have no multicollinearity problem.

Furthermore, the results showed significantly different patterns of the two models. In the general purchase intention model, perceived corporate environmental responsibility was the strongest predictor of purchase intention, whereas in the “willingness to pay more” model perceived need for governmental regulation on green issues was the strongest predictor of the likelihood that consumers would pay more for green products regardless of higher prices of them. These results may imply that marketers need to regard different factors as more important considerations depending on the marketing campaign goals. Intriguingly, perceived personal norm about environmental issues was the least strong predictor in the “willingness to pay more” model, whereas it was the second strongest predictor in the general purchase intention model. This may imply that when it comes to the intention to pay more for green products, consumers may be more likely to be concerned about corporate and regulatory aspects than personal aspect. In other words, consumers may want to secure corporate and governmental initiatives to enhance the environment before they pay more money to green products. Thus, it may be suggested from these results that to improve the environment, all relevant social agents should cooperate with one another. These implications will be addressed in more detail in the following section.

TABLE 2

Summary of Multiple Regression Analyses for Variables Predicting General Purchase Intention and Willingness to Pay More (N = 21,655)

Variable	General Purchase Intention			Willingness to Pay More		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
1. PPER	.27	.01	.22***	.08	.01	.07***
2. PCER	.48	.01	.46***	.27	.10	.23***
3. PGER	.10	.00	.12***	.30	.00	.31***

Note. *** $p < .001$ $R = .681, R^2 = .464$ $R = .491, R^2 = .241$

DISCUSSION

The purpose of this study was to examine the relationships between consumers’ perceptions of social agents’ responsibilities for environment (e.g., PPER, PPCR, and PPGR) and their pro-environmental purchasing intentions. The effects of consumers’ perceptions on the pro-environmental purchasing varied depending on the type of purchase intention measures. This study employed secondary data (e.g., Simmons) to examine the effects of three consumers’ perceptions on green purchasing. The findings showed that: 1) PPER, PCER, and PGER were positively associated with likelihood of purchasing and willingness to pay more; and 2) PCER was the most influential on likelihood of purchasing, whereas PGER was the most on influential on “willingness to pay more”

Theoretical Implications

These results have several theoretical implications. First, the study revealed the significant effects of PPER, PCER, and PGER on consumers’ pro-environmental behaviors and thus

provided further support for prior studies focusing on the positive role of PPER and PCER on consumers' buying behaviors (Granzine and Olsen 1991; Pickett, Kangun, and Grove 1993; Collins, Steg, and Martine 2007; Choi and Ng 2011). In addition, the positive relationship between PGER and green purchasing was supported by showing that governments' pro-environmental activities lead to consumers' involvement in pro-environmental behaviors (Berger and Corbin 1992; Rahbar and Abdul Wahid 2010).

Second implication is that this study suggested which factor contributed most to likelihood of purchasing and willingness to pay more. Specifically, PCER was the most influential determinant of likelihood of purchasing. Research showed that environmental corporate management leads consumers to form positive attitudes toward the company, and then increases the company's sales (Collins, Steg, and Martine 2007; Choi and Ng 2011). In addition, buyers want to share the symbolic meaning of the company's pro-environmental image by using its products (Choi and Ng 2011). Consumers' positive attitudes toward companies and desire to share pro-environmental image might lead to increased likelihood of purchasing. Given the literature consistent with the current study's findings, it is not surprising that PCER was the most influential factor in affecting likelihood of purchasing. This finding implies that marketers should pay attention to this type of consumers when segmenting markets, because tailored targeting may increase the prospects of a company's success in its green marketing campaigns.

On the other hand, this study revealed that PGER was the strongest determinant of "willingness to pay more." Although there is little research on the role of PGER, a small number of studies show that governments' pro-environmental activities trigger consumers' attention to pro-environmental behaviors (Berger and Corbin 1992; Rahbar and Abdul Wahid 2010). In addition, consumers think that the more governments engage in environment protection, the more they need to participate in pro-environmental behaviors, thereby leading to green purchasing. An intriguing finding was that high PGER consumers showed higher intention to pay more for green products. This finding was consistent with the premise suggested by the price-quality inference literature (Alba and Hutchinson 1987; Kardes, Posavac, and Cronley 2004). That is, the high PGER consumers are more likely to involve in environment protection by their purchasing behaviors. Put another way, consumers may be less reluctant to pay more to buy green products even though the products are more expensive than non- or anti-green products, because they may infer that expensive green products will contribute to protecting the environment more than their counterparts.

Managerial and Regulatory Implications

Marketing practitioners may benefit from the findings of this study for the following reasons. First, a company should implement a marketing communication that informs consumers about their pro-environmental activities because environmentally friendly consumers were found to be more willing to pay for green products of the company. Specifically, a company needs to expose consumers to green product advertising campaigns sponsored by the company and exert a line of public relations efforts to enhance the green-friendly image of the company, along with a variety of other green promotions. For instance, one potential way to enhance consumers' positive perception of a company's green marketing campaign is packaging products associated with green-friendly brand images. In a similar vein, a company can present a certified third-party seal for green friendly image such as "USDA Certified Organic" or "Certified Energy Efficient." Moreover, green sponsorship may be beneficial to marketers. A pro-environmental sponsorship of a company may enhance the company's green image as well. The social corporate responsibility literature suggests that a company's activities associated with a good will such as

pro-environmental campaigns may increase not only positive corporate reputation but also sales.

The second implication is that the government needs to educate consumers about the seriousness of environmental problems and ways to improve the environment. Moreover, the government efforts to solve the environment problems (e.g., establishing regulations for environment) need to be announced through various mass media channels in a form of public service announcements (PSA). Given the influences of mass media on consumers' perception and judgment, government' activities can affect consumers' awareness of the environmental problems, and therefore induce consumers' pro-environmental behaviors. In doing so, consumers are more likely to contribute to the environment and society.

Limitations and Future Research Suggestions

As with other studies, the current study also has a number of limitations. First, the current study employed single items to measure major constructs. However, analyses using single items have a limitation in terms of measurement validity & reliability. As the study utilized a secondary data (Experian Simmons) that collected public opinion based on a large size of sample, it was impossible to use multiple items. Nevertheless, the study provides useful insight into theoretical relationship between relevant constructs with regard to environmental purchasing behaviors such as consumers' perception of social agents' environmental responsibility and green purchasing. Future research should examine the effects of such factors that were examined in this study by employing multiple items to ensure the rigor of measurement reliability. By doing so, the relationships between constructs will be clearly explained with confidence.

Second, although the study suggested that consumers' perception of social agents' responsibilities for the environment positively influence green purchasing, it was difficult to show the effects of pro-environmental marketing communications on green purchasing. Future research should examine the effects of message and creative strategies in green advertising on green purchasing depending on the level of perceived social agents' responsibility. In doing so, the research initiative will have implications for appropriate advertising strategies considering the characteristics of target audiences.

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