Green Consumption and the Theory of Planned Behavior in the Context of Post-Megaquake Behaviors in Japan

Shuji Ohira, Chiba University of Commerce, Japan
Sumire Stanislawski, Waseda University, Japan
Yasushi Sonobe, Takachiho University, Japan

This study clarifies decision-making processes of Japanese green consumers after the Great East Japan Earthquake through quantitative analysis. Japanese consumers were segmented based on past behavior to assess the differences in each group’s decision-making processes to purchase environmentally friendly products using the theory of planned behavior.

[to cite]:

[url]:
http://www.acrwebsite.org/volumes/1014812/volumes/v41/NA-41

[copyright notice]:
This work is copyrighted by The Association for Consumer Research. For permission to copy or use this work in whole or in part, please contact the Copyright Clearance Center at http://www.copyright.com/.
Green Consumption and the Theory of Planned Behavior in the Context of Post-Megaquake Behaviors in Japan
Sumire Stanislawski, Waseda University, Japan
Yasushi Sonobe, Takachiho University, Japan
Shuji Ohira, Chiba University of Commerce, Japan

ABSTRACT

The purpose of this study is to analyze Japanese consumers’ decision-making processes for environmentally friendly products. Using consumers’ market and non-market behavior after the Great East Japan Earthquake to group them, intersegment differences in decision-making are analyzed using the theory of planned behavior (TPB). The Great East Japan Earthquake, tsunami, and nuclear accident on March 11, 2011 (hereinafter referred to as “3.11”) shocked the nation. In the weeks following, energy saving and alternative energy became immediate and pressing social issues. In a wider context, environmental consciousness and a sense of social responsibility were also heightened, resulting in shifts in consumption and normally uncommon charitable behavior. Though Japanese typically do not donate or volunteer as much as in the West (Japan Fundraising Association 2012), post-3.11 saw a groundswell of such behavior, with an unprecedented number donating and volunteering for disaster-hit areas. In addition, many firms undertook cause-related marketing (CRM) where a portion of revenues were donated to reconstruction efforts. 3.11 acted as a catalyst for Japanese consumers to gain insight into how consumption choices could contribute toward social issues.

Before 3.11, the idea that social issues could be addressed through consumption was not widespread. For example, low consciousness of solving social issues through consumption was described by the Cabinet Office in Japan (2008). Though many consumers purchased some environmentally friendly products, these decisions were driven primarily by economic incentives (i.e., energy and cost-saving in the long-term). Also, the availability of environmentally friendly, organic, CRM, and other such products with social and environmental implications was limited. After 3.11, products to aid reconstruction efforts became widely available. This phenomenon was expressed as _ozen_ (aid) consumption by the media, and included supporting businesses in affected areas. Also, rolling blackouts and the ongoing threat of nuclear meltdown heightened awareness of energy-saving devices, organic food, and other environmentally friendly products. By purchasing these products after 3.11, Japanese consumers experienced and gained understanding of consumption in the context of addressing social issues.

CONCEPTUAL FRAMEWORK

Previous research on green consumers can be divided into their characteristics and decision-making. Studies analyzing their characteristics employed market segmentation methods using demographic and psychographic variables (e.g., Kinneal et al. 1974; Roberts 1996; Diamantopoulos et al. 2003). Some studies further observed hierarchies of consumers using cluster, factor, and discriminant analysis based on these characteristics (e.g., Roberts 1995). These studies found three to five clusters and assessed intersegment differences. Though few studies address the characteristics and percentage of green consumers in Japan, around 60% of Japanese are reported to be environmentally conscious (e.g., Yamamura et al. 2010, 2011). However, such studies focus on environmentally friendly behavior overall, and purchase behaviors were shown to be lower than other related behavior (e.g., recycling). Therefore, actual green consumers are likely to be a lower percentage than previous research suggests.

Many studies on decision-making processes of green consumers utilize the theory of reasoned action (TRA) (Ajzen and Fishbein 1980) and the theory of planned behavior (TPB) (Ajzen 1991; Ajzen and Madden 1986). TPB assumes that attitude toward behavior, subjective norm, and perceived behavioral control influence intention, which then influences behavior. Attitude toward behavior is composed of beliefs and evaluation of these beliefs. Subjective norm addresses the influence of others and is based on beliefs about what others think. Perceived behavioral control is related to a person’s “confidence in their ability to perform [the behavior]” (Ajzen 1991, 184). Some studies have added original variables including: self-identity, perceived consumer effectiveness, knowledge, sense of responsibility, past behavior, and habit (e.g., Berger and Corbin 1992; Kaiser et al. 1999; Knussen et al. 2004; Sparks and Shepherd 1992). However, the majority of research do not address differences in decision-making among segments, leaving practitioners with little insight into how to target environmentally friendly products to various segments. (There are some notable exceptions: Bamberg 2003; Li 2009; Knussen et al. 2004.)

Though there are many studies on green behavior in Japan, only a few clarify decision-making processes of green consumers (e.g., Ohtomo and Hirose 2007). These studies used TRA/TPB while adding additional constructs including: perceived consumer effectiveness, cost-benefit evaluations, ecological involvement (Nishio 2005), social responsibility, and man-nature orientation (Li 2009). In this paper, we first consider the standard TPB model while dividing perceived behavioral control into internal factors related to self-efficacy (perceived consumer effectiveness) and external factors related to potential barriers (perceived availability) in line with Sparks et al. (1997) and Vermeir and Verbeke (2007).

Hypothesis 1:  
Attitude toward behavior, subjective norm, perceived consumer effectiveness, and perceived availability positively impacts intention to purchase environmentally friendly products.

Ajzen (1991) noted past behavior as a predictor of future behavior. Sparks and Shepherd (1992), Cheung et al. (1999), Biswas et al. (2000), and Knussen et al. (2004) have verified the use of past behavior as an addition to the TPB model. Thøgersen (2002) interprets past behavior as direct experiences of consumers, and consumer culture theory notes the importance of purchase experiences in influencing consumer consciousness (Holbrook and Hirschman 1982). We propose that consumers who undertook socially beneficial consumption after 3.11 also gained understanding of the meaning behind these products (Hirschman 1980; Richins 1994), and that these experiences influence their current decision-making.

In addition to past consumption, this study also considers non-market charitable behaviors (i.e., donating and volunteering), because consumers are also citizens in society who undertake actions to solve social issues outside of the marketplace (Harrison 2005). As such, those who wish to solve social issues may undertake both market and non-market behaviors toward this end. In the aftermath of 3.11, many Japanese people gained deeper understanding of how market and non-market behaviors can help solve social issues. Con-
consumers who engaged in post-3.11 aiding behaviors are likely to have higher intention to continue to do so as these behaviors have become more salient since the disaster. In fact, our previous analysis of data provided by a Japanese firm found that post-3.11 green consumption was highly correlated with other post-3.11 market (CRM and ouen consumption) and non-market (donations and volunteering) aiding behaviors (Ohira et al. 2013). Furthermore, the same research found that clustering based on post-3.11 aiding behavior resulted in statistically significant differences between demographic and psychographic variables in line with previous findings on hierarchies of green consumers. Thus, it is proposed that clustering based on post-3.11 behavior is likely to result in intersegment differences in decision-making.

Hypothesis 2: Differences in past aiding behavior will influence the structural paths of the TPB model, resulting in distinct decision-making by segments clustered by these behaviors.

METHOD

An online survey was administered in August 2012. Of 2589 invites sent to an online panel, 1073 surveys were collected with sex and age evenly distributed. From this, 757 useable responses were obtained (29.2% useable response rate), with 51.1% male, 64.3% married, 56.1% with children, 69.6% with post-high school education, and a mean age of 44.23 (range 20–60). Items to measure the TPB constructs were based on past research (attitude and subjective norm: Taylor and Todd 1995; perceived consumer effectiveness: Ellen et al. 1991; perceived availability: Vermeir and Verbeka 2007; intention: Ajzen and Madden 1986; and past behavior: Knusser et al. 2004) with adjustments made for the Japanese context. Responses were made on a 7-point scale labeled from “strongly agree” to “strongly disagree” on items of the TPB constructs.


Perceived consumer effectiveness. [1] If I buy environmentally friendly products, it will lead to resolution of environmental issues (M = 3.80, SD = 1.19) [2] An individual’s consumption cannot solve environmental issues [reverse-scored] (M = 3.52, SD = 1.33).

Perceived availability. [1] I have many opportunities to buy environmentally friendly products (M = 3.71, SD = 1.05) [2] It is easy to buy environmentally friendly products (M = 4.10, SD = 1.00).

Intention. [1] I do not plan to buy environmentally friendly products [reverse-scored] (M = 3.78, SD = 1.29) [2] I would spare no effort to buy environmentally friendly products (M = 3.69, SD = 1.10) [3] I intend to buy environmentally friendly products (M = 4.10, SD = 1.00).

Past behavior (post-3.11 aiding behavior). After 3.11, how many times did you: [1] make donations (including those unrelated to 3.11) (M = 2.29, SD = 1.91), [2] volunteer (including those unrelated to 3.11) (M = 0.48, SD = 1.36), [3] buy environmentally friendly products (M = 1.89, SD = 2.19), [4] buy CRM products (including those unrelated to 3.11) (M = 1.32, SD = 1.92), [5] do ouen consumption (M = 2.20, SD = 2.37)? Responses were made on a 5-point scale labeled from zero to more than 6 times.

RESULTS

Factor analysis (principal factor method with pro-max rotation) was conducted. Subjective norm [2] (friends and acquaintances) had factor loading over 1. As this item and subjective norm [1] (family) had high correlation (.871), they were made into the composite variable “People I know” to resolve this issue. Also, post-3.11 volunteering was removed due to low communality (.10). All remaining items loaded above .40 with an absence of cross-loadings. Cronbach’s alpha values were: past behavior .783, attitude .892, subjective norm .795, perceived consumer effectiveness .594, perceived availability .664, and intention .782.

Figure 1: Theory of Planned Behavior Model of Environmentally Friendly Products (Overall Sample)

The theoretically assumed model of the structural relationships between TPB constructs was tested in Amos with all paths significant at p < .005. Attitude toward behavior, subjective norm, perceived consumer effectiveness, and perceived availability positively impacts intention to purchase environmentally friendly products, supporting hypothesis 1. The model had good fit statistics (\( \chi^2 = 216.655, p = .000, RMR = .057, GFI = .960, AGFI = .934, CFI = .974, RMSEA = .056 \)).

To further analyze intersegment differences in decision-making, past behavior was used to cluster the overall sample. Three clusters were created using post-3.11 market (green, CRM, and ouen consumption) and non-market (donations) behaviors as dependent variables, where the number of clusters was determined by two-step, and final clusters were obtained by k-means clustering. (Volunteering was excluded here also.) The three clusters were labeled as: 1. Greens (20.3%); 2. Yellow Greens (34.6%); and 3. Browns (45%).
These clusters were tested for differences in demographic variables (chi-squared tests) with statistically significant differences for sex ($p = .000$), age ($p = .000$), marital status ($p = .006$), children ($p = .004$), and education ($p = .009$) among segments. Greens tend to be female (61.0%), older ($M = 48.56$), married (71.4%), have children (66.9%), and have post-high school education (72.7%). They have the most experience across all behaviors. Yellow Greens also tend to be female (53.1%), older ($M = 46.88$), married (67.9%), have children (56.5%), and have post-high school education (72.6%), though to a lesser extent than Greens. Their experience is mainly with donations and own consumption (both were behaviors stimulated by 3.11). Browns tend to be male (59.8%), comparatively younger ($M = 40.24$), less likely to be married (58.4%) or have children (51.0%), and have less post-high school education (66.1%). They tend to have little to no experience across all behaviors. This is in line with our past research (Ohira et al. 2013) and also shows similarities between the Greens and the Japanese LOHAS segment, which consists of approximately 25% of the Japanese market (Nishio 2010).

Mean structure analysis was used to compare the intention construct across clusters (Kano and Miura 2003; Sörbom 1978). The mean and variance of Greens’ intention constructs were fixed to 0 and 1. Comparing against this, Yellow Greens’ mean and variance is -0.64 and 0.71, and Browns’ mean and variance is -1.17 and 0.96. Going from Greens to Browns, intention to purchase environmentally friendly products decreases.

Next, multiple group analysis was carried out to analyze differences in structural paths between the three clusters with good fit statistics ($\chi^2 = 384.153, p = .000$, RMR = .072, GFI = .933, AGFI = .892, CFI = .965, RMSEA = .035). Results are summarized in table 1 and show support for hypothesis 2. Greens had two statistically significant paths to intention: attitude ($p = .000$), and perceived availability ($p = .003$). All paths to intention were significant for Yellow Greens: attitude ($p = .000$), subjective norm ($p = .022$), perceived consumer effectiveness ($p = .011$), and perceived availability ($p = .020$). Perceived availability to intention was not significant for Browns, but the remaining paths were: attitude ($p = .000$), subjective norm ($p = .003$), and perceived consumer effectiveness ($p = .028$).

Table 1: Multiple Group Analysis Results

<table>
<thead>
<tr>
<th></th>
<th>SN: Subjective Norm, PCE: Perceived Consumer Effectiveness, PA: Perceived Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proposed Model</strong></td>
<td><strong>Final Model</strong></td>
</tr>
<tr>
<td><strong>Group</strong></td>
<td><strong>Path</strong></td>
</tr>
<tr>
<td>Greens (N=154)</td>
<td>Attitude $\rightarrow$ Intention $\rightarrow$ SN $\rightarrow$ PCE $\rightarrow$ PA $\rightarrow$ Intention</td>
</tr>
<tr>
<td></td>
<td>Attitude $\rightarrow$ Intention $\rightarrow$ SN $\rightarrow$ PCE $\rightarrow$ PA $\rightarrow$ Intention</td>
</tr>
<tr>
<td></td>
<td>Attitude $\rightarrow$ Intention $\rightarrow$ SN $\rightarrow$ PCE $\rightarrow$ PA $\rightarrow$ Intention</td>
</tr>
<tr>
<td></td>
<td>Attitude $\rightarrow$ Intention $\rightarrow$ SN $\rightarrow$ PCE $\rightarrow$ PA $\rightarrow$ Intention</td>
</tr>
<tr>
<td>Yellow Greens (N=262)</td>
<td>Attitude $\rightarrow$ Intention $\rightarrow$ SN $\rightarrow$ PCE $\rightarrow$ PA $\rightarrow$ Intention</td>
</tr>
<tr>
<td></td>
<td>Attitude $\rightarrow$ Intention $\rightarrow$ SN $\rightarrow$ PCE $\rightarrow$ PA $\rightarrow$ Intention</td>
</tr>
<tr>
<td></td>
<td>Attitude $\rightarrow$ Intention $\rightarrow$ SN $\rightarrow$ PCE $\rightarrow$ PA $\rightarrow$ Intention</td>
</tr>
<tr>
<td></td>
<td>Attitude $\rightarrow$ Intention $\rightarrow$ SN $\rightarrow$ PCE $\rightarrow$ PA $\rightarrow$ Intention</td>
</tr>
<tr>
<td>Browns (N=341)</td>
<td>Attitude $\rightarrow$ Intention $\rightarrow$ SN $\rightarrow$ PCE $\rightarrow$ PA $\rightarrow$ Intention</td>
</tr>
<tr>
<td></td>
<td>Attitude $\rightarrow$ Intention $\rightarrow$ SN $\rightarrow$ PCE $\rightarrow$ PA $\rightarrow$ Intention</td>
</tr>
<tr>
<td></td>
<td>Attitude $\rightarrow$ Intention $\rightarrow$ SN $\rightarrow$ PCE $\rightarrow$ PA $\rightarrow$ Intention</td>
</tr>
<tr>
<td></td>
<td>Attitude $\rightarrow$ Intention $\rightarrow$ SN $\rightarrow$ PCE $\rightarrow$ PA $\rightarrow$ Intention</td>
</tr>
</tbody>
</table>

**DISCUSSION**

Since 3.11, consumption to help solve social issues has become more notable in Japan. In order to encourage this movement, decision-making processes behind this phenomenon must be understood. Toward this end, we grouped consumers based on post-3.11 behavior to gain insight into each segment’s decision-making to purchase environmentally friendly products. Past behavior was shown as a useful indicator for marketers to analyze markets for these products. Analysis of the overall sample showed that the TPB model had an explanatory ability of $R^2 = 0.65$ for Japanese consumers’ intention to purchase environmentally friendly products. An unexpected finding was that subjective norm did not have much influence on purchase intention, even though Japan is a collectivist society. This may be due to the fact that the survey did not specify a product category (a limitation of this study), and respondents may have imagined privately consumed products, such as energy-saving household devices, when answering.

Across all groups, an individual’s attitude had the strongest influence on intention. This was most notable for the Greens, whose decisions were influenced by their attitudes, followed by perceived availability. This indicates that their positive attitudes may be translated into action as long as the behavior is accessible. This simplified decision-making is ripe for further research, which could consider the effects of high involvement or habits (Knussen et al. 2004; Chan...
et al. 2008). In addition, the strong impact of attitude may be assessed in the context of attitude formation. The elaboration likelihood model (ELM) of persuasion (Petty and Cacioppo 1981) theorizes on how attitudes are formed and changed through central and peripheral routes depending on motivation and ability of consumers. Petty et al. (1981, 1983) showed that the level of consumer involvement influences attitude formation and change. Greens are likely to have higher involvement and knowledge—potentially indicating formation of attitude through central routes. Yellow Greens and Browns may have low involvement and knowledge, thus forming attitude through peripheral routes. Differences in attitude formation processes may explain why fewer variables influence Greens’ purchases. It can be construed that their attitudes are already firmly formed, resulting in heuristics-based decision-making. Further understanding of Greens may be obtained by clarifying their attitude-formation process. For example, past research into consumers who are highly concerned with ethical issues have focused on values, self-identity, and ethical obligation (e.g., Shaw and Clarke 1999; Shaw and Shiu 2003).

The influence of perceived availability was highest for Greens, diminished for Yellow Greens, and not significant for Browns. This may be due to the fact that Browns have little experience with green consumption, resulting in a lack of understanding of the actual availability of these products in the marketplace. The influence of perceived consumer effectiveness was highest for Browns, diminished for Yellow Greens, and not significant for Greens. The lower groups may have skepticism about how these products are related to solving social issues, resulting in lower evaluation of perceived consumer effectiveness and lower intention. The influence of subjective norm was also highest for Browns, diminished for Yellow Greens, and not significant for Greens. This is likely because Greens are the “influencers” in this marketplace (rather than being influenced) as they lead the way in consumption of environmentally friendly products. To better understand these possibilities, we are currently undertaking research into skepticism and word-of-mouth in the marketplace for environmentally friendly products in Japan.

The three-cluster solution offers insight into segments that are of interest to marketers wishing to expand the reach of environmentally friendly products. Compared to the indifferent Browns, Yellow Greens are more likely to respond to marketing activities to persuade green consumption. Attitude has the highest impact on Yellow Greens, followed in order by perceived consumer effectiveness, perceived availability, and subjective norm. While marketing strategies to build and reinforce positive attitudes would be effective for all segments, Yellow Greens will particularly benefit from marketing strategies that boost perceived consumer effectiveness and perceived availability (i.e., perceived behavioral control). Browns are also influenced by their lower attitude and perceived consumer effectiveness. As such, increasing perceived consumer effectiveness may be vital to increasing green consumption among those who are currently less likely to purchase environmentally friendly products. Research to understand barriers to the formation of positive attitudes and perceived consumer effectiveness (e.g., lack of information regarding actual environmental impact resulting from product choices) would help improve the appeal of these products. If these lower groups can be persuaded, then environmentally friendly products will have more distribution in the marketplace, improving perceived availability, which could then stimulate consumption across segments.

Past research observed the existence of various segments of green consumers, but differences in decision making among them have seldom been addressed. Our research shows intersegment differences do exist, with these differences having implications for marketing strategies. Though this study used both market and non-market past behavior to segment consumers, non-market behaviors (volunteering and donating) were shown to have less impact. In Japan, 1995 (the year of the Great Hanshin-Awaji Earthquake) is often considered the first year that volunteerism took off, and very little time has passed since it has gained wide social recognition. Similarly, it is noted that donating had not taken root in Japanese culture prior to 3.11 (Japan Fundraising Association 2012). The results of this study were affected by such cultural constraints, but in societies where charitable behaviors are common (e.g., the United States), non-market behaviors may be shown to help predict purchase intentions for environmentally friendly products. Replicating this study with consumers in other cultures could help refine the framework used here.

One underlying meaning of environmentally friendly products is to help solve environmental issues through consumption of these products. Green consumers, who are motivated and able to interpret such underlying meaning in their consumption experiences, exist among consumers who purchase these products. In that sense, experience can be considered an important factor in green consumers’ decision-making. This suggests the need to capture decision-making processes more dynamically by integrating rational decision-making theories, such as TPB, with an understanding of the meaning of consumption, as found in consumer culture theory, to obtain deeper understanding of green consumers. To this end, focus groups and in-depth interviews are currently under way by the authors to obtain such insights. Future research into the meanings of green and other socially beneficial consumption among consumers across various cultures is likely to provide fertile ground for international comparative research.

REFERENCES


