

Tilikidou, I. and Delistavrou, A. (2004). The Influence of the Materialistic Values on Consumers' Pro-Environmental Post-Purchase Behavior. In: Cron, W.L. and Low, G.S. (Eds.) *Marketing Theory and Applications, Proceedings of the 2004 American Marketing Association Winter Educators' Conference*, vol. 15, Chicago IL., A.M.A., pp. 42-49.

THE INFLUENCE OF THE MATERIALISTIC VALUES ON CONSUMERS' PRO-ENVIRONMENTAL POST-PURCHASE BEHAVIOR

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ABSTRACT

This paper presents the examination of Pro-environmental Post-purchase Behaviors such as recycling, petrol conservation, product reuse, second-hand sale, donation and maintenance. It was found that consumers who hold higher level of positive recycling attitudes and most notably lower level of materialistic values are those who enhance Pro-environmental Post-purchase Behavior.

INTRODUCTION

Environmental protection needs multi-disciplinary cooperation. Among other socio-economic sciences marketing can offer its own contribution to the sustainable economic development by investigating Ecologically Conscious Consumer Behavior (Roberts 1996; Tiliidou et al. 2002). In an integrated perspective, Ecologically Conscious Consumer Behavior incorporates Pro-environmental Purchase Behavior, Pro-environmental Post-purchase Behavior and Pro-environmental Activities (Tiliidou et al. 2002). This study was designed to focus on Pro-environmental Post-purchase Behavior (PPB), namely those types of behavior that follow purchase and use of products. Until recently recycling has been the main, if not the only, type, among these behaviors, that drew academic interest.

The key-issue to the success of any recycling program is the participation of consumers (McCarty and Shrum 2001). It is important therefore to understand what motivates consumers to get involved in the recycling process as well as to adopt other, pro-environmental post-purchase behaviors. Review papers (i.e. Shrum et al., 1994; Tiliidou and Zotos 1999), concerned with the recycling behavior, indicated so far that: a) there is a certain link between behavior and specific recycling attitudes, b) demographics can provide useful information, although there is no worldwide accepted demographic profile of the recyclers and c) the psychographic profile of recyclers is still a grey area. Ebreo and Vinning (2001), among others, claimed that although individual-based variables have not received much attention recently, the possibility exists that such variables might influence behavior. McCarty and Shrum (2001) suggested that very fundamental beliefs e.g. value orientations influence people's both pro-environmental attitudes and behaviors. Values, being enduring beliefs, abstract in nature and not object or situation specific (Rokeach 1973, p. 5) differ from attitudes and may impact behavior incrementally beyond the influence accounted for by specific attitudes.

Adopting the above -in brief presented- theoretical direction, in this study we chose to focus on materialistic values for certain reasons. People who share materialistic values feel happiness when they possess things so they buy more and more to maintain and increase feelings of happiness. Thus, they are constantly motivated to over-consume. Over-consumption is given as one of the reasons for the environmental degradation (Peatie 1995, p.24). So, materialism is by nature exactly

opposite to the sustainable development. Ecologically Conscious Consumers are expected to buy less, to consume less, to choose environmentally less harmful products, to produce less waste, to participate in recycling etc. In theory these people cannot be 'materialists'.

This research study examined a set of consumers' pro-environmental post-purchase behaviors, including recycling, and the influence that selected demographic variables, specific recycling attitudes and materialistic values have on these behaviors.

RELATED LITERATURE

There has been limited research that examines, besides recycling, other types of pro-environmental post-purchase behaviors. For example, Ebreo and Vining (2001) examined the reuse of products in their 'waste-reduction' concept. With regard to recycling, *demographic* characteristics were found rather poor predictive factors of behavior. Previous research findings are rather ambiguous or even contradictory (Shrum et al. 1994; Schultz et al. 1995). The impact of *attitudes* on behavior is probably the most investigated issue within recycling related research. Positive relationships have been identified in some cases (McGuinness et al. 1977; Kallgren and Wood 1986; McCarty and Shrum 2001; Tilikidou, ---), while there is an agreement in the literature that specific recycling attitudes are better predictive factors than general social attitudes or general pro-environmental attitudes (Shrum et al. 1994; Martin and Simintiras 1995; Schlegelmilch et al. 1996; Tilikidou, ---). With regard to *psychographics*, positive relationships have been identified between recycling behavior and *altruism* by Gibbons and Wicklund (1982) and by Hopper and Nielsen (1991), *self-actualization* and *aesthetics* by Dunlap et al. (1983), *altruistic feelings about the environment* by Ebreo et al. (1999) and *locus of control* by McCarty and Shrum (2001).

McCarty and Shrum (2001) followed the 'values-attitudes-behavior' approach to gain a deeper understanding of recycling behavior. They were the first to introduce to the recycling behavior research the constructs of *Individualism* and *Collectivism*. Using path analysis they concluded that recycling is indirectly (through attitudes) associated with these constructs, positively with Collectivism and negatively with Individualism. There is one study (Tilikidou and Delistavrou 2001) in which, beyond Individualism, Collectivism and Attitudes, *Materialism* was also employed. Materialism was found to be the best, among all the above, discriminative and predictive factor of Recycling Behavior. Other aspects of materialism have been investigated in a few similar studies (i.e. Goken et al. 2002; Moisander and Pesonen 2002). However, their main directions were quite distinct from the one followed in this study.

Two conceptualizations of Materialism were chosen to assist the theoretical framework of this study, those of Richins (1987, p. 352) and Belk (1995). Both emphasize on the satisfaction in life and happiness derived by the possession of material goods. Applying the core of the relevant definitions, it can be assumed that consumers' beliefs towards material goods and pleasures, relate to their PPB, since this behavior aims at environmental protection. Environmental protection, as noted earlier, is associated with sustainable development, which requires drastic decreases in over-consumption and consequently is affected by consumers' bond to material goods and pleasures (Moisander and Pesonen 2002). Consumers, who obtain satisfaction and happiness by material possessions are more likely to be self-centered and are less likely to obtain satisfaction by engaging in pro-environmental activities. These activities benefit society in general and future generations but do not offer any direct pleasure to the individual performing the behavior (McCarty and Shrum 2001).

RESEARCH OBJECTIVES

The above review determined the direction of research for this study. The following research objectives were set: a) To examine to what extent Greek consumers adopt a set of pro-environmental post-purchase behaviors and the impact of demographics on these behaviors. b) To build upon previous research results, indicating that Recycling Attitudes affect positively Recycling Behavior, by investigating the potential influence of Recycling Attitudes to the whole set of PPBs. c) To examine the assumed negative relationship of a broader construct of Materialism with the set of PPBs and to focus on the scrutiny of the anti-materialistic values of consumers who more frequently engage in these behaviors.

METHODOLOGY

A survey was conducted among 470 households in the Thessaloniki urban area. The sampling method used was a two-stage area sampling in combination with the systematic method (Tull and Hawkins 1993, p. 544; Zikmund 1991, p.471). The sampling frame was a map of the Thessaloniki urban area. In the first stage, 30 city blocks were randomly selected. In the second stage, the investigated households in each block were selected through the systematic method (e.g. 1 every 10 apartments). One member of the household above 18 years of age served as interviewee. Detailed instructions to the interviewers secured the probability sampling in all steps. The survey instrument was a structured questionnaire containing 56 variables in total, administered through personal interviews by trained senior marketing students.

Questionnaire content

Pro-environmental Post-purchase Behavior was examined using 4 items for recycling and following Peattie (1995, p. 89) 5 items for other post-purchase behaviors (see Table 1). All items were measured on a 7-point frequency scale. *Recycling Attitudes* were investigated through 15 items (see Appendix), measured on a 7-point Likert scale. This measure has been previously used and provided evidence of exemplary reliability and validity (see Tilikidou et al. 2002). In this study it was adopted with slight changes and resulted in a Cronbach's alpha of 0.7854. *Materialism* comprised of 27 items in total, 6 adopted from Richins (1987) and 21 adopted from Belk (1995) all measured on a 7-point Likert scale. The decision to merge the two scales was taken for the following reasons: a) Richins scale was used in the previously mentioned study but it yield for improvement in terms of internal consistency, b) Belk's scale has been tested in other countries besides the USA, by Ger and Belk (1996) and provided evidence of well-accepted validation, c) both scales capture the core of materialism (e.g. possession of things) and d) each one involves items slightly but importantly different from the other (Churchill, 1979) that complementally provide a more integrated construct. As the merged construct was tested for the first time in Greece, item analysis was considered to be necessary. Using the criterions of 'item-to-total correlation' and 'alpha if item deleted' 6 items were eliminated and the refined scale of 21 items resulted in a Cronbach's alpha of 0.8252. Pilot techniques indicated that the refined measure correlated better with attitudes and behavior than each one of the merged scales separately. Selected demographic variables were also utilized. These were *sex*, *age* (divided into 3 categories), *education* (3 categories), annual *income* (4 categories) and *occupation* (3 categories).

RESULTS

Sample Descriptives

The demographics of the sample were compared to the relevant variables of the Greek population through χ^2 analysis and no significant differences were found.

The continuous variable of PPB takes theoretical values from 9 to 63. It provided a Mean of 28.2130 and a St. Dev. of 7.7739. In Table 1 the item Means (from 1 to 7) indicate that consumers seem to be engaged 'most of the times' in donating, 'many times' in care and maintenance and reuse of products. They seem to be 'rarely' engaged in driving at less speed and selling second-hand. It is also indicated that consumers return glass bottles and recycle paper more frequently than aluminum and plastic.

(Take in Table 1)

The scale of Recycling Attitudes takes theoretical values from 15 to 105. It provided a Mean of 87.5792 and a St. Dev. of 10.2870 indicating a considerably high level of positive attitudes. The Materialism scale takes theoretical values from 21 to 147. It provided a Mean of 68.0917 and a St. Dev. of 16.8899 indicating a rather low level of self-reported materialistic values among Greek consumers.

Analysis

One-way Analysis of Variance was employed but did not provide evidence of statistically significant differences in the PPB scale across each one of the demographics.

Pearson's correlation indicated that there is a statistically significant, positive, moderate relationship ($r=0.415$, $p<0.01$) between PPB and Recycling Attitudes, while there is a negative, weak relationship ($r=-0.255$, $p<0.01$) between PPB and Materialism. Multiple regression analysis (stepwise method) revealed that the interaction between both the independent variables can explain the 17.1% (Adjusted R square) of the variance in PPB. The resulted equation is:

$$\text{PPB} = 6.589 + 0.366 \text{ Recycling Attitudes} - 0.101 \text{ Materialism}$$

Clustering Pro-environmental Post-purchase Behavior

In an effort to gain a deeper understanding of the influence of the materialistic values upon the consumers' PPB, cluster analysis was employed. K-Means cluster analysis was firstly utilized as it classifies cases into relatively homogeneous groups, indicating distinct for each group degree of involvement in the behavior under examination (Malhotra 1999, p. 610).

A three clusters' solution was found appropriate for interpretation (Table 1). Cluster 1 contains 207 cases (44.04%) grouping consumers who scored lower than their counterparts in all behavioral items. Cluster 2 contains 160 cases (34.04%) grouping consumers who obtained scores higher than those in the first cluster but considerably lower than those in the next cluster. Cluster 3 contains 103 cases (21.92%) grouping consumers who obtained the highest scores in all cases. There is only one exception in the case of the item P05, the Mean of which appears slightly higher in the second cluster (Table 1). The three clusters indicate *lower*, *average* and *higher* degree of involvement in PPB.

Correlation analysis was applied separately in each cluster between PPB and each one of the independent variables i.e. Recycling Attitudes and Materialism. The correlation coefficients (Table 2) indicate that PPB is affected positively by Recycling Attitudes and negatively by Materialism in all three clusters. A closer look though, indicates that the strength of the relationships is increasing (in absolute values) from Cluster 1 to Cluster 3. In the second and the third cluster it is observed that the relevant magnitude of Materialism is stronger than the one of the Recycling Attitudes. In all three clusters it is apparent that the lower the level of respondents' Materialism, the higher their engagement in PPBs.

(Take in Table 2)

Multiple regression analysis was then employed and applied separately to each cluster. It is observed that the relevant adjusted R squares (Table 3) in the first two clusters are extremely low (0.038 and 0.082 respectively). As to Cluster 3, the regression model explains a considerably higher, although still not very high, amount (18.4%) of the variance in consumers' PPB. The only variable entered in the model is Materialism and indicates that the relatively higher level of involvement in PPB can be predicted only by the consumers' level of Materialism (Table 3). **(Take in Table 3)**

In addition, hierarchical clustering was employed in an effort to gain a deeper understanding of the association among all items of PPB and all items of the measure of Materialism. Hierarchical cluster analysis groups variables, not cases (Sudman and Blair 1998, p. 558) in relatively homogeneous groups (Malhotra 1999, p. 610). The analysis was applied in Cluster 3 (higher involvement in PPB) and resulted in two clusters (Figure 1). In the first cluster, it is observed that consumers who are more frequently involved in recycling aluminum, paper, and glass (R02, R01 and R04) as well as consumers who reuse products, maintain products and donate to charity (P02, P05 and P04) are people who do not care very much for their possessions as items G10, G12, G11, G08 and G13 indicate (Appendix), also people who do not get upset if they cannot afford to buy many things as items M03, M04 and M02 indicate. In the second cluster it is observed that consumers who are engaged in the recycling of plastic (R03) and who drive at a reduced speed in their car and sell products second-hand (P01 and P03) are more generous people. They like to share, to donate, to lend or to buy things for others (G02, G03, G04, G16). They do not get upset when other people do better than themselves or have more things than themselves (G05, G07, G17, G18). They do not think that material goods and money bring happiness (M05, M06) and they are willing to help others by donating or having people staying in their houses or by giving lifts to those who do not have cars (G01, G06 and G09). **(Take in Figure 1)**

DISCUSSION

Findings concerning recycling supported previous research in the same geographical area (e.g. Tiliakidou and Delistavrou 2001). It seems that consumers are more engaged in the recycling of paper than in the recycling of the other materials. This is because the paper-recycling program is more widely available. The recycling of glass, that was also reported to be at a moderate level, incorporates the traditional return of glass bottles, an action that involves monetary motives. It can not therefore be interpreted as a conscious pro-environmental action. The same observation is made with regard to some of the other post-purchase behaviors. One can not be sure if some of these behaviors are adopted by environmentally conscious consumers or by people who are traditionally used to undertaking such activities for the sake of charity and saving money. However, all these behaviors eventually contribute to environmental protection and should not be underestimated.

The results also indicated that although specific attitudes are capable of affecting behavior, values can provide further and stronger evidence of influence on behavior. It can be argued that the statistically significant findings of this research are unimpressive as the multiple regression indicated that less than 20% of the variance of the behaviors can be explained by Materialism. However, regression results are never very high in consumer research compared with the results in the hard sciences. Moreover, the additional information - gained by hierarchical clustering - illustrated the subtle associations between each one of the behaviors and each one of the materialistic values. It can not be argued by any means, that a clear picture of the fundamental beliefs - that guide consumers to act pro-environmentally - is revealed. There is evidence though

that value orientation is indeed a noteworthy path to follow in an effort to understand better what is behind pro-environmental behaviors, besides attitudes and demographics.

CONCLUSIONS

This research examined a set of post-purchase behaviors that contribute to the environmental protection. Besides recycling, a type of pro-environmental post-purchase behavior that has been previously examined, other types were also investigated. It was found that Greek consumers are mostly used to recycling paper and returning glass bottles, while they also donate to charity, maintain and reuse products.

This study also developed previous research results indicating that Recycling Attitudes are positively related to Recycling Behavior by establishing that Recycling Attitudes can positively affect and predict the whole set of Pro-environmental Post-purchase Behaviors.

In an effort to focus on the potential influence of the construct of Materialism on the behaviors under examination, cluster analysis was utilized. K-means cluster analysis indicated three groups of consumers in terms of the degree of their engagement in PPBs. In Cluster 3, where consumers more frequently perform these behaviors, it was revealed that Materialism has a stronger (negative) influence on behavior than the attitudes do. So, it was concluded that consumers who hold higher levels of positive attitudes towards recycling and mainly hold lower levels of materialistic values are those who are more likely to enhance PPBs. In more detail, it seems that people who are not bound up with material goods are people who take the trouble and inconvenience to recycle, and do not throw away too much waste as they prefer to donate, maintain and reuse products. On the other hand, people who are more conservative; who drive at a reduced speed in their cars and sell their goods for second-hand use, instead of throwing them away are people who are generous and do not feel jealous of others.

People who do not feel that material goods play a central role in their lives are more likely to act in favor of the environmental protection, at least by engaging in post-purchase pro-environmental activities. Future research might consider examining the potential effect of the materialistic values on pro-environmental *purchase* behavior, that is to understand whether and how consumers' level of materialism influences their choices for ecologically friendly products. It is also well established that these consumers are in the minority in Greek society, which like every other Western European community is characterized by the tendency to over-consume. However, along with its other counterparts in the EU, Greece has to seriously consider and acknowledge the need to reduce over-consumption and waste reduction in order to truly contribute to the environmental protection. Governmental, non-profit and non-governmental organizations should incorporate in their strategies creative campaigns aiming at increasing not only consumers' attitudes but their non-materialistic and anti-materialistic values too.

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APPENDIX

Materialism scale items: **M01****=It is important for me to have really nice things. **M02**=I would like to be rich enough to buy anything I want. **M03**=I'd be happier if I could afford to buy more things. **M04**=It sometimes bothers me quite a bit that I can't afford to buy all the things I want. **M05***=People place too much emphasis on material things. **M06**=It's really true that money can buy happiness. **G01***=I enjoy donating things for charity. **G02***=I enjoy sharing what I have. **G03**=I do not enjoy donating things to the needy. **G04** =I don't like to lend things, even to good friends. **G05***=When friends do better than me in competition it usually makes me feel happy for them. **G06***=I enjoy having people I like stay in my home. **G07**=When friends have things I cannot afford it bothers me. **G08**=I worry about people taking my possessions. **G09***=I don't mind giving rides to those who don't have a car. **G10**=I get very upset if something is stolen from me, even if it has little monetary value. **G11**=I don't like to have anyone in my home when I'm not there. **G12***=I don't get particularly upset when I lose things. **G13***=I am less likely than most people to lock things up. **G14****=I don't seem to get what is coming to me. **G15****=People who are very wealthy often feel they are too good to talk to average people. **G16**=If I have to choose between buying something for myself versus for someone I love, I would prefer buying for myself. **G17**=I am bothered when I see people who buy anything they want. **G18**=There are certain people I would like to trade places with. **G19****=I like to collect things. **G20****=I have a lot of souvenirs. **G21****=I tend to hang on to things I should probably throw out.

Recycling Attitudes scale items: **Q01**= Each consumer can contribute to the solution of the litter problem in his/her district. **Q02**=Recycling is important. **Q03***=Participating in recycling demands too much time and effort. **Q04**=Recycling helps to natural resources conservation. **Q05**=Government should issue regulations about the use of recycled and recyclable materials in products packaging. **Q06**=Consumers should force the producers to use recyclable materials in their products packages. **Q07***=It is rather inconvenient to sort out and transport the recycling materials. **Q08**=It is my personal responsibility to help recycling efforts. **Q09**=Recycling is a great help to environmental protection. **Q10***=It is useless to recycle as long as not many other people do the same. **Q11***=Recycling is more fuss than benefit. **Q12**=Recycling reduces litter going to the landfill sites. **Q13**=Recycling contributes to energy conservation. **Q14**=I get satisfaction by taking part into recycling. **Q15***=I doubt whether recycling benefits return back to the society

* Reverse coded items, ** Eliminated items

Table 1
Pro-environmental Post-purchase Behavior Item Means

| Items | | Whole sample | | Cluster 1 207 cases (44.04 %) | | Cluster 2 160 cases (34.04 %) | | Cluster 3 103 cases (21.92 %) | |
|-------|--|--------------|----------|-------------------------------------|----------|-------------------------------------|----------|-------------------------------------|----------|
| | | Mean | St. Dev. | Mean | St. Dev. | Mean | St. Dev. | Mean | St. Dev. |
| R01 | Recycle paper | 3.99 | 2.32 | 1.72 | 1.02 | 5.76 | 1.23 | 5.80 | 1.30 |
| R02 | Recycle aluminium cans | 2.19 | 1.82 | 1.28 | 0.72 | 1.49 | 0.81 | 5.17 | 1.40 |
| R03 | Recycle plastic | 1.59 | 1.34 | 1.15 | 0.54 | 1.24 | 0.84 | 3.05 | 1.99 |
| R04 | Recycle glass | 3.79 | 2.41 | 3.32 | 2.32 | 4.06 | 2.49 | 4.35 | 2.29 |
| P01 | Drive at less speed to reduce the petrol consumption and the emissions of the car | 2.19 | 1.56 | 1.72 | 1.24 | 2.17 | 1.56 | 3.14 | 1.69 |
| P02 | Reuse part of a product or waste packaging for other needs instead of throwing them in the garbage (i.e. tubs of butter or yogurt, plastic bags, rapping paper, etc.) | 3.71 | 1.69 | 3.16 | 1.59 | 3.98 | 1.70 | 4.37 | 1.53 |
| P03 | Sell second-hand products, no more needed, instead of throwing them away (i.e. books, clothes, etc.) | 1.49 | 0.96 | 1.38 | 0.86 | 1.50 | 1.01 | 1.69 | 1.04 |
| P04 | Donate to charity old clothes and shoes | 4.83 | 1.70 | 4.29 | 1.76 | 5.19 | 1.51 | 5.36 | 1.56 |
| P05 | Care and maintenance of consumer durables in an attempt to increase their lifespan and delay the need for replacement (i.e. clothes, furniture, electric machinery, linen) | 4.40 | 1.50 | 4.07 | 1.46 | 4.71 | 1.42 | 4.57 | 1.61 |

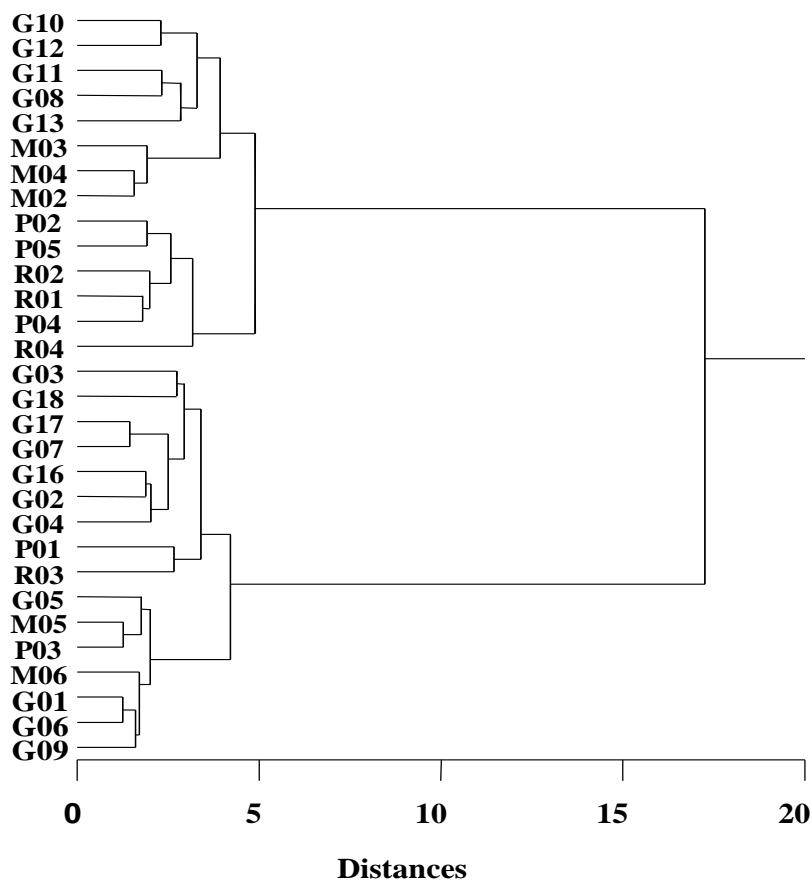
Table 2
Correlation coefficients for each cluster of Pro-environmental Post-purchase Behavior with Recycling Attitudes and Materialism

| | | <i>Pro-environmental Post-purchase Behavior</i> | | |
|----------------------------|---|---|------------------|------------------|
| | | Cluster 1 | Cluster 2 | Cluster 3 |
| <i>Recycling Attitudes</i> | r | 0.221 | 0.251 | 0.311 |
| | p | 0.002 | 0.002 | 0.002 |
| <i>Materialism</i> | r | -0.152 | -0.304 | -0.442 |
| | p | 0.034 | 0.000 | 0.000 |

Table 3
Multiple regression analysis for each cluster of Pro-environmental Post-purchase Behavior versus Recycling Attitudes and Materialism

| | B | Beta | t | p |
|--------------------------------------|----------|-------------|----------|----------|
| Cluster 1 $R^2_{(adj)}=0.038$ | | | | |
| <i>Recycling Attitudes</i> | 0.100 | 0.208 | 2.941 | 0.004 |
| Cluster 2 $R^2_{(adj)}=0.082$ | | | | |
| <i>Materialism</i> | -0.072 | -0.296 | -3.827 | 0.000 |
| Cluster 3 $R^2_{(adj)}=0.184$ | | | | |
| <i>Materialism</i> | -0.155 | -0.438 | -4.805 | 0.000 |

Figure 1
Hierarchical Cluster Dendrogram



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