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DIFFERENT SHADES OF GREEN:

ENVIRONMENTAL ATTITUDES AND PURCHASING INTENTIONS OF MEXICAN CONSUMERS

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ABSTRACT

This paper explores how environmental attitudes of consumers influence the willingness to pay (WTP) a premium for environmentally-certified products. We review existing literature, which has validated that stronger pro-environment attitudes lead to higher WTP. On the other hand, such overall attitudes have rarely been disaggregated by finer-grained distinctions. We develop theories about how WTP should be influenced by three distinct types of environmental attitudes, based on the framework advanced by Gladwin, Kennelly, and Krause (1995): technocentrism, sustaincentrism, and ecocentrism. We test our hypotheses with an analysis of WTP based on in-person surveys of 306 consumers in Mexico. Using a conjoint analysis to determine WTP and established environmental attitude scales to measure levels of the Gladwin, Kennelly, and Krause (1995) variables, we find support for several hypotheses. We conclude our paper by discussing implications for theory and practice that focuses on segments of green consumers.

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INTRODUCTION

The presence of environmentally sensitive, or green, consumers, has been acknowledged for some time. It is an article of faith (or perhaps one of definition) that such consumers are more likely than the general population to take environmentalism into account when purchasing goods. The presence of such consumers has been assumed to bring profits to companies with good environmental records (Russo and Fouts, 1997). Such a "reputational advantage" is held to have cascading benefits, especially for competitive strategies surrounding differentiation (Miles and Covin, 2000).

Most research has found that consumers willing to pay a price premium share attitudes that are favorable to the environment (Laroche, Bergeron, and Barbaro-Forleo, 2001; Schegelmilch, Bohlen, and Diamantopoulos, 1996; Straughan and Roberts, 1999; Engel and Potschke, 1998; Guagnano, Dietz, and Stern, 1994). Yet not all environmental attitudes are the same. There is considerable variation in the nature of environmental attitudes (Gladwin, Kennelly, and Krause, 1995; Purser, Park, and Montuori, 1995). Unfortunately, the impact of differing environmental attitudes on the willingness to pay a price premium has not been explored in the literature.

That is, researchers have yet to "unpack" the notion of the green consumer. It is reasonable to expect that like any kind of consumer (sport enthusiast, collector, etc.) within the broader category there are sub-categories that may be of great interest to research. For example, considering green consumers in the aggregate may mask important distinctions within the group. Unfortunately there is little work that explores segmentation within the consuming populace on this dimension.

Though not the work of academics, there are some writings that discriminate between types of green customers. The best known of these are the surveys conducted by the market research firm Roper Corporation (later Roper Starch and now part of GfK NOP). These surveys, conducted annually since 1900, represent a longitudinal assessment of consumer attitudes (Makower, 2005). The survey asks a number of questions of consumers regarding their behaviors toward energy use, recycling, purchasing patterns, and other pertinent areas and adds demographic data. The five clusters that have been established for American customers are as follows, with the percentages of consumers that fall into each category in parentheses:[1]

True Blue Greens (11%)	Act and speak out on environmental issues
Greenback Greens (8%)	Consistently pay more for environmentally benign products
Sprouts (33%)	Are environmentally concerned when the economy is doing well
Grousers (14%)	Feel guilty about the environment but blame others
Apathetics (35%)	Uncaring about environment and have other concerns

This is the only study of which we are aware that uses statistical analysis to create segments among green consumers—the first two categories are certainly green, with the third a

[1] Due to rounding the percentages of consumers in each category does not sum to 100%.

possibility. The report goes into greater depth about each of the segments, but it is clear that if one was selling green products communicating with Greenback Greens should be a priority.

Ottman (1998) advanced a framework that envisioned segmenting green consumers by their motives. She posited three groups:

Planet Passionates	Conserve energy, recycle bottles and cans, reduce materials use
Health Fanatics	Buy organic foods, use sunscreens and unbleached coffee paper
Animal Lovers	Boycott ivory, boycott Exxon, buy cruelty-free cosmetics

The segments are not based on statistical analysis, but do appear to identify important distinctions among consumers. And they would appear to have some tie to purchasing behavior.

Although strategy and marketing researchers have not been attracted to the question of segmentation within green consumers, another, quite distinct domain has given rise to studies that do shed some light on this topic. Within the psychology field, and some subsidiary areas (e.g. consumer behavior), there has been significant development on the topic of determining segments of environmental concern. Central to this field is an instrument known as the "New Environmental Paradigm (NEP)" scale, developed by Dunlap and van Liere (1978). According to Cordano, Welcomer, and Scherer (2003), "the impact of the original NEP is difficult to overestimate." The NEP scale, revised over time, has questions pertaining to environmental dimensions that have produced five factors: Balance of Nature, Eco-Crisis, Antiexceptionalism, Limits to Growth, and Antianthropocentrism (Human Domination), Some scales found fewer factors than these five upon analysis. Shetzer, Stackman, and Moore's (1991) scale, for example, excluded Eco-Crisis and Antiexceptionalism. LaTrobe and Acott (2000) modified the NEP to create four related dimensions: Human Interference with Nature, Equity and Development Issues, Humans and Economy over Nature, and Duties to Nonhumans

Other scales not originating with the NEP have also been developed for the purpose of dimensionalizing environmental concern. For example, Zimmer, Stafford, and Stafford (1994) found seven factors: Concern for Waste, Concern for Wildlife, Concern for Biosphere, Concern for Popular Issues, Concern for Health, Energy Awareness, and Concern for Environmental Technology. All scales are created with a number of questions posed.

There have been some attempts by authors in this field to tie environmental attitudes to behavior, although typically not purchasing behavior. Kaiser, Wolfing, and Fuhrer (1999) tied environmental knowledge and values to items such as support for higher parking fees, additional fuel taxes, and desire for smaller automobile. As expected, both environmental knowledge and pro-environmental values positively influenced pro-environment behavior. Cordano, Welcomer, and Scherer (2003) tied pro-environment behavior to NEP factors. For them, pro-environmental behavior include items like the intention to sign petitions, participate in protests, and distribute information about environmental issues. They found that NEP factors had explanatory value, along with additional variables to pick up the effect of feelings about regulations.

This brief and incomplete summarizing of previous research suggests that there has been some scale development to determine factors underlying environmental concern. These factors do appear to be tied to behavior, but the behavior that has been explored has not included marketplace actions. To summarize, while we have some evidence about the extent to which environmental concern connects willingness to pay a premium for green products, we do not have systematic evidence of how *differences* in the type of environmental concerns might influence variation in the willingness to pay.

This paper tries to fill this important gap in our knowledge, based on a survey of more than 300 Mexican consumers and the use of a conjoint analysis. This conjoint analysis, though it

does not represent actual buying behavior, represents a significant enhancement to the study of willingness to pay beyond simply asking customers what they might be willing to pay for a particular product. We begin by developing theory—what types of customer attitudes toward the environment might be linked to payment of price premia for green products?

THEORY

The Price Premium

Considerable work has posited that some social and environmental attributes of products may serve as a differentiation strategy for the firm (McWilliams and Siegel, 2001; Reinhardt, 1999). This type of strategy implies that the firm is able to charge a price premium in comparison to competitors. This price premium has been defined as "a percentage over the willingness to pay for the base commodity" (Sedjo and Swallow, 1999: 7). Thus, in the case of certification, if certified wood commands a price premium, then some consumers are willing to pay some percentage over and above what they are willing to pay for the base commodity without certification. The willingness to pay a price premium usually has been explained by both psychological variables as well as demographic variables. Our focus here is on developing theory with respect to the variables regarding psychological attitudes toward the environment.[2]

[2] Aside from environmental attitudes, the willingness to pay a price premium has been tied to demographic characteristics of the consumers. Of special importance are age, gender, education, and social class. Common knowledge has led researchers to hypothesize that younger, female, more highly educated, and wealthier consumers are more likely to pay a price premium for products with environmentally friendly attributes (Straughan and Roberts, 1999; Laroche, Bergeron, and Barbaro-Forleo, 2001). Yet attempts to develop profiles of green consumers based on demographic characteristics have been increasingly unsuccessful and interest has shifted towards issues related to attitudes (Staughan and Roberts, 1999; Schlegelmilch, Bohlen, and Diamantopoulos, 1996; Engel and Potschke, 1998) or to the relationship of demographic variables like gender to value priorities (Dietz, Kalof, and Stern, 2002). Thus, we shall include these demographic variables as control variables in our analysis. However, given the very mixed results and increasingly reduced power of demographic characteristics to explain variance in the willingness to pay a price premium for products with environmentally friendly attributes, we shall not attempt to develop any formal hypotheses that include them.

Environmental Attitudes and the Price Premium

The price premium is related to consumer preferences. From a psychological point of view, the price premium that consumers are willing to pay for public goods is a behavioral intention (Ajzen and Driver, 1992). However, little research has actually tried to investigate the nature of environmental attitudes and the price premium that an environmentally friendly product is able to command.

There are a number of psychological theories that explain behavioral intentions. Of special importance are the theory of reasoned action (Fishbein and Ajzen, 1975) and the theory of planned behavior (Ajzen, 1985, 1987, 1991). In both theories, behavioral intentions depend upon attitudes and subjective social norms. The theory of planned behavior adds the element of perceived behavioral control.

Fishbein and Ajzen (1975: 6) define an attitude as a "learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object." Attitudes are evaluative in nature and are usually represented on a bipolar affective dimension. Fishbein and Ajzen (1975) place attitudes as an intermediate step between beliefs or information about some object and the behavioral intention with respect to that object. These intentions, rather than attitudes, then lead to specific behaviors. But attitude is an important determinant of the intention to perform a particular behavior. Generally, a person's attitudes are based on his or her beliefs with respect to an object.

Quite broadly, the literature distinguishes anthropocentric and ecocentric forms of environmental attitudes (Purser, Park, and Montuori, 1995). Anthropocentric approaches to the natural environment place human beings at the center of the model. Environmental management models are typically anthropocentric in nature. These models assume that humans are in some

sense above nature (Purser, Park, and Montuori, 1995). Environmental quality is an instrumental value that serves the terminal value of human thriving and well-being (Rokeach, 1973).

The anthropocentric environmental paradigm is centered on human thriving and welfare. However, there are still significant differences among approaches that foster human well-being. Gladwin, Kennelly, and Krause (1995) make a distinction between technocentrism and sustaincentrism. Both are anthropocentric or "homocentric" in their terminology. However, humanity is superior to nature in technocentrism. In a sustaincentric view, "the earth is humanity's home, to be kept clean, healthy, and properly managed for the sake of human survival and welfare" (Gladwin, Kennelly, and Krause, 1995: 890). Humans are thus not another part of the environment, but rather environmental care is seen as vital to human thriving.

Ecocentric approaches place the natural environment at the center of the model. Here humans are important as a part of nature, but are in no sense "above" or "over" nature. Here environmental quality is valued in itself as a desirable state of existence, rather than as a means for achieving other objectives.

Each of these approaches to the environment is accompanied by a series of attitudes or learned predispositions to react to the environment in a certain way. With respect to a willingness to pay a price premium for an environmental attribute like certified wood, these predispositions deal with the kinds of trade-offs that people are willing to make.

Consumers with technocentric environmental attitudes are probably the least likely to be willing to pay a price premium for products with environmental attributes. Generally speaking, the technocentric environmental paradigm is optimistic with respect to the ability of technology to overcome environmental problems, thus eliminating the limits to economic growth. The efficient allocation of resources is the main objective of the economic system (Gladwin,

Kennelly, and Krause, 1995). The payment of a price premium would be an unnecessary waste of resources given the ability of technology to overcome environmental problems as market forces respond to such problems. Therefore, we hypothesize:

Hypothesis 1: The greater the technocentric attitudes of consumers, the less likely they will be willing to pay a price premium for the positive environmental attributes of products.

Consumers with sustaincentric attitudes believe that the quality of the environment is vital to human well-being. The economy exists to serve the quality of human life (Gladwin, Kennelly, and Krause, 1995). Humans are thus viewed as stewards, rather than dominators of the environment. Economic growth must occur sustainably in a way that does not undermine the ability of future generations to meet their needs (World Commission, 1987). In this sense, environmental attributes of products will be seen as an investment that ultimately serves human needs. Therefore, we propose:

Hypothesis 2: The greater the sustaincentric attitudes of consumers, the more likely they will be willing to pay a price premium for the positive environmental attributes of products.

Ecocentric attitudes are antagonistic to economic systems. The main objective of the economy should be to serve the health of ecosystems (Gladwin, Kennelly, and Krause, 1995; Purser, Park, and Montuori, 1995). Economic growth is seen as bad and should be eliminated in favor of steady state systems. Consumers with this orientation oppose materialistic lifestyles. Thus, consumers with this orientation are probably less likely to pay a price premium for products with environmental attributes, not because they are not willing to pay for a clean environment, but because they would be opposed to the consumerist mentality embodied in acquisition of the product itself. Thus we hypothesize:

Hypothesis 3: The greater the ecocentric attitudes of consumers, the less likely that they would be willing to pay a price premium for products with environmentally friendly attributes.

RESEARCH METHODOLOGY

The hypotheses were tested through the application of a survey instrument. The study examined whether consumers systematically respond differently to a brand profile when it features a positive environmental attribute. The research questions were addressed by the design and implementation of a two-stage analysis: the conjoint exercise and the environmental attitudes measurements.

Sample

To test our ideas about environmental attitudes and consumption behavior, in October, 2005 we administered a survey instrument to 306 furniture buyers in two cities in Mexico, Mexico City (151) and Monterrey (155). Due to missing data for a few respondents, our final sample size was 299. We positioned paid interviewers who were allowed (by store managers) to apply the instrument to regular customers in six furniture stores in these two cities. Participants were invited to answer the survey for a new product (dining room set), which took roughly 15 minutes to complete. No compensation was offered for this participation.

There was a higher number of female respondents (67.3%) than male respondents (32.7%) and 63.6 % of respondents were between 30 and 50 years old. In terms of marital status, the majority of the respondents were married (65%), followed by never married (22.5%). One third of the respondents have at least 2 children (32%), 1 child (20.9%) and no children (20.2%). Additionally, 37.5% of the respondents indicated having a bachelor's degree, 33.5% had finished high school and 20% secondary education level. In terms of ownership status of the respondents,

76% are home owners. Finally, the majority of the respondents had between 2 and 3 rooms in their home (74.1%).

The Conjoint Analysis

Conjoint analysis (Green and Srinivasan, 1990; Wittink and Cattin, 1989) is a multivariate technique used specifically to understand how respondents develop preferences for products or services. Conjoint uses estimates (part-worth) of purchaser or customer judgments to predict "preferences or utilities associated with each attribute … used to define a product" (Hair et al. 1992: 382). It is based on the simple premise that consumers assess the value of a product by combining the separate amounts of value provided by each attribute. Utility, which is the conceptual basis for measuring value in conjoint analysis, is a subjective judgment of preference unique to each individual. It encompasses all product or service features, both tangible and intangible, and as such is a measure of overall preference. For example, it is possible to sum the utility values associated with each feature of a product or service, to assess an overall utility. It would then be assumed that products or services with higher utility values are more preferred, and have a better chance of choice (Hair et al., 1998).

Conjoint analysis is unique among multivariate methods in that the researcher first constructs a set of real or hypothetical products or services by combining selected levels of each attribute. This technique presents test subjects with a set of alternatives (stimuli). Each stimulus consists of particular levels of various dimensions or attributes. The subject is asked to rank the stimuli according to his own preferences. Conjoint analysis assumes that the individual's ranking of each stimulus can be broken down into the sum of contributions from the multiple dimensions. For each dimension, the contribution is the "part-worth" multiplied by the level of that dimension. Thus, the respondents are performing a realistic task – choosing from among a set of

products. In this way, this technique avoids the social desirability bias of past studies, since it displays a more realistic trade-off between the product attributes, reflecting what actually happens in real choice decisions.

The value of conjoint analysis can be seen by comparing it with studies of willingness to pay. Willingness to pay is frequently tabulated from questions posed directly to consumers, such as "what extra price would you pay for an organic detergent?" Aside from the issue of whether such questions track with actual buying behavior (a pitfall shared with conjoint analysis), the question suffers from the fact that all of the attributes of the product cannot be separated from one another. For example, the organic detergent may also have a different scent, different usage patterns, and different effectiveness than convention products. A conjoint analysis offers a method for considering whole packages of attributes in a product. In this way, regression analysis can be used to elicit what is known as "part-worths" of particular attributes—their marginal value (in currency terms) vis-à-vis other attributes.

To keep the conjoint task to a manageable size, Green and Srinivasan (1990) recommend that the number of attributes be limited to six or fewer. In this case, five attributes and pictures of dining sets were selected from three focus groups. These attributes are found in most commercially-sold dining furniture sets: type of wood, price, style and number of chairs. Certified wood was added as the fifth attribute. Two levels were created for each attribute. The rest of the brand profiles were similar, but factors and levels were modified accordingly. Table 1 details the product attributes and levels that were used.

Based on these five dimensions and their levels, there were 2 x 2 x 2 x 2 x 2 = 32 possible conjoint stimuli per condition. Fractional factorial design, as an alternative to factorial design, uses only a subset of the possible stimuli needed to estimate the results, based on the assumed

composition rule. Its primary task is to reduce the number of evaluations collected while still maintaining orthogonality among the levels and subsequent part-worth estimates. To avoid asking subjects to rank too many alternatives, a fractional factorial analysis was implemented using eight stimuli based on an optimal orthogonal design. Orthogonality refers to the ability to measure the effect of changing each attribute level, and to separate it from the effects of changing other attribute levels, and from experimental error (Addelman, 1962). In this study the SPSS Conjoint Module estimated the orthogonal design creating the minimum number of cards (8) (Pearson´s R = .994, Significance= .0000; Kendall´s tau= .929, Significance= .0006).

Procedure

Respondents first participated in the conjoint exercise where they ranked different profiles of single dining furniture set, with the profiles varying in terms of the attributes mentioned. They were presented with 8 different profiles of dining furniture sets, and were told to rank them in order of preference, starting with the one they liked the best, and followed by their second favorite, third favorite, and so on. The stimuli cards were presented to the participants in different order. Through this trade-off exercise, participants "experienced" choice behavior and determine their utility of individual attribute levels. Figure 1 presents one stimuli example.

In addition to asking consumers to rank order the possibilities, we obtained demographic information on the following variables for gender, age, marital status, number of children at home, education, residential ownership status, and rooms in the house. The operationalizations for these variables are shown in Table 2. The last item can be used to proxy for socioeconomic class, and is much less sensitive information than directly asking household income in Mexico. The question also is likely to be answered because it has a bearing on furniture purchases.

Environmental Attitudes

Following the rank-ordering of furniture options and collection of demographic data, consumers were given a questionnaire designed to determine their environmental attitudes. The questions were not given to the consumers until after they had completed the first two segments. For the questionnaire, we used the modified New Environmental Paradigm / Dominant Environmental Paradigm (NEP/DSP) scale developed by LaTrobe and Acott (2000). The questions, a copy of which appears in the Appendix A, were translated into Spanish for the study. Participants were asked to read 21 statements and specify on a seven-point Likert scale whether they agree or disagreed with each one. The scale creates four factors, as follows:

Human Interference with Nature

Equity and Development Issues

Humans and Economy over Nature

Duties to Nonhumans

Based on the questionnaires and our review of the literature, we made the following assignments of these factors to our three types of environmental attitudes:

Anthropocentric – Technocentric	Humans and Economy over Nature
Anthropocentric – Sustaincentric	Equity and Development Issues
Ecocentric	Human Intereference with Nature Duties to Nonhumans

Since there was no factor that aligned itself readily with the sustaincentric attitude, we ran a factor analysis on the items for human interference with nature and equity and development issues. We found that items 1, 2, 6, 11, and 12 loaded on a single factor, explaining 45% of the

variance. These items captured the essence of the sustaincentric attitude. Cronbach's alpha was 0.67 for this variable.

Results of Conjoint Analysis

Basic Results on Attributes. We obtained the results of the Conjoint Analysis using the SPSS Conjoint Module. and these were included in Appendix B. As expected, the respondents preferred a lower price level. In the price attribute, the amount of $10,000 pesos is the most preferred (higher utility) compared to the amount of $ 12,000 pesos.[3] The respondents preferred oak to pine, possibly due to the perception that the quality of oak is greater than pine. In terms of design or style for a dining furniture set, the respondents preferred modern. This might be a response to present fashion trends, which favor the modern look. It is also true that 60% of the respondents were between 20 and 40 years old, a group that may be more attuned to styles. The preferred number of chairs by the participants was 8 chairs, although 73% of the respondents have two or less children. Two possible explanations would be the perception of more value for the money and the cultural element of the family concept and extended family in a Mexican context.

The positive perception from the respondents of acquiring a dinning furniture set (and the possibility of translating to any furniture) of certified wood versus non-certified wood is a favorable result for the present study. This result creates the possibility that if the consumer prefers certified wood over another, there is a good chance that he or she may pay a price premium for the certified product.

[3] The rate of Mexican pesos per United States dollar fluctuated from about 10.50 to 11.00 during the study period and at present.

Relative Importance. The certification attribute obtained the highest relative importance with 36.09%, followed by the price attribute with 22.26%. The rest of the attributes in the order of preference were: number of chairs, type of wood and style. An interesting result was obtained by the relative importance of each factor where it can be observed that the certified wood attribute is the one that contributes the most to the total utility of the consumer preferences. Even though this result is consistent with our expectations, it is important to mention that it could had been influenced by information and beliefs of the respondents. An alternate respond is that the consumers had underestimated the $2,000 pesos which represented 20% increase. Another factor is the social desirability bias which could not be completely excluded. However, a favorable factor to reinforce the result was the absence of exposure of any social information before the surveys were applied.

Contribution to Regression Analysis. The conjoint analysis was used to provide a dependent variable that would track differences in willingness to pay of consumers. In the regression analysis that now follow, we used the part-worth of certification as a measure of willingness to pay, and regressed it on our environmental attitude scores and demographic control variables. This analysis allows us to test our hypotheses.

RESULTS

Table 3 provides descriptive statistics on our variables and Table 4 reports correlations. Correlations among the control variables are generally low, although we do see that older respondents had more children, and that renters have smaller homes in terms of rooms. The most interesting result concerns the three environmental attitude variables. The results show marked differences between technocentrism and both ecocentrism and sustaincentrism, with which it has

a significant, negative relationship. Thus, it is clear that there is not a monolithic green consumer, but rather individuals with views that not only might differ, but might contradict each other altogether. As one might expect, however, there is a positive relationship between ecocentrism and sustaincentrism, based on what might be considered their proximity in terms of definition.

Regression results are displayed in Table 5. We begin with our variables of interest in Model (A). Confirming Hypothesis 1, the greater the technocentric views of consumers, the lower their willingness to pay for certification. Thus, consumers with attitudes that resonate with a more dominant place for technology may well also view economics as a tool for achieving sustainability. It may be that in their world, paying a premium for certification relieves the pressure for technological solutions that they favor. We did get the expected coefficient sign for sustaincentric views, but the coefficient falls just short of conventional significance levels ($p<0.11$, two-tailed test). It may be that there is enough noise in our measure of sustaincentrism to prevent it from achieving higher significance levels. Finally, Hypothesis 3 did not receive support either, although its coefficient has the expected sign.

In Model (B), we add control variables to ascertain if their effect is meaningful. In short, they contribute little explanatory value to our model. In our study, at least, variables such as gender or level of schooling do not influence willingness to pay, though they might in some other studies. It may be that our sampling frame, which includes likely consumers of furniture, might screen out individuals whose characteristics would lead to these variables acting in an expected way. But we cannot confirm that.

CONCLUSION

We began our paper by reviewing the literature on green consumption, pointing out that there was an important, unexplored area that tied different environmental attitudes with the willingness to pay a premium for environmentally superior products. Our results confirm that there are clear differences in the environmental perspectives of consumers. Far from a single, coherent group, there are important segments within their belief systems that translate into different buying behaviors.

If further analysis yields support for the sustaincentric-WTP link, this of course would be important. The idea that there is some attitudinal area where stewardship and consumption cross is important. It is these consumers that offer the best prospects for price premia for products, and to the extent that payments of such premia are an important part of using markets to promote environmental quality, they need to be engaged.

Of some interest is the idea that some environmental attitudes actually militate against price premia, as our results for the technocentric variable indicate. In a sense this result sends a warning to sellers of green products, who may confuse the lack of interest in higher-priced products as an overall lack of willingness to pay. That is, these sellers may have chosen products to sell, places to sell them, or means of promotion that attract those with technocentric views, and thus not been successful. Marketing's 4 P's must instead be targeted to sustaincentric individuals to maximize prospects for a price premia.

Our results for the ecocentric consumer may be biased by the fact that the survey instrument was administered in a location where consumption that is somewhat discretionary takes place. It might have been better to connect with such individuals at a grocery store, for example. But our results do remind us that one area that has rarely been studied is the behavior

of the "non-consumer." The voluntary simplicity movement (Dominques, 1992) and even ideas about deep ecology (Naess, 1973) argue for reductions in consumption. What is the role of the "non-consumer" in markets? Is this a contradiction in terms or do such "non-consumers" eventually create a "sustainability-pull" of products that attracts other types of consumers?

Finally, we have spent little time in this paper on the international element of our study and results. One lingering misconception that we hope to dispel is that the populace in developing countries is somehow less interested in a cleaner environment. On this score, Mexican consumers are surprisingly pro-environment (Economist, 2000), as are the consumers of a number of other developing countries. How the three categories of technocentric, sustaincentic, and ecocentric attitudes relate to the stage of development is a compelling question. A cross-cultural study on such a topic would be of particular value.

Our results, should they generalize, have significant implications for academics in strategic management, marketing, and psychology. There is much to learn about how purchasing behavior impacts the natural environment, and it seems demonstrably true that cross-disciplinary research has great potential in this regard. We have identified only a few extensions here, but there are many avenues for future research suggested by our work. These research questions await study.

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APPENDIX A
Environmental Attitude Scales

Human Interference with Nature

1. Present levels of industrial activity are severely upsetting the natural environment
2. Present levels of industrial activity are excessive and need to be reduced.
3. Humans should adapt to nature rather than modify it to suit us.
4. A change in basic attitudes is necessary in order to solve environmental problems.
5. Humans should live in harmony with the rest of nature.
6. Human interference with nature often results in disastrous consequences.
7. Humans are presently interfering too much with the natural environment.
8. People should have compassion and respect for the rest of nature.

Equity and Development Issues

9. There are limits to industrial growth.
10. Natural resources should be used primarily to provide for basic needs rather than material wealth.
11. Humans have moral duties and obligations to other humans.
12. Present generations of humans have moral duties and obligations to future and human generations.
13. Satisfaction and a high quality of life are more important than money or material wealth.

Humans and Economy over Nature

14. Humans have the right to alter nature to satisfy wants and desires.
15. Maintaining economic growth is more important than protecting the natural environment.
16. Humans have the right to reduce the number of species on Earth in order to promote economic development.
17. Humans have the right to subdue and control the rest of nature.

Duties to Nonhumans

18. The natural environment has value within itself regardless of any value that humans may place on it.
19. Humans have moral duties and obligations to other animal species.
20. Humans have moral duties and obligations to plants and tress.
21. Humans have moral duties and obligations to the non-living components of nature (e.g. rocks).

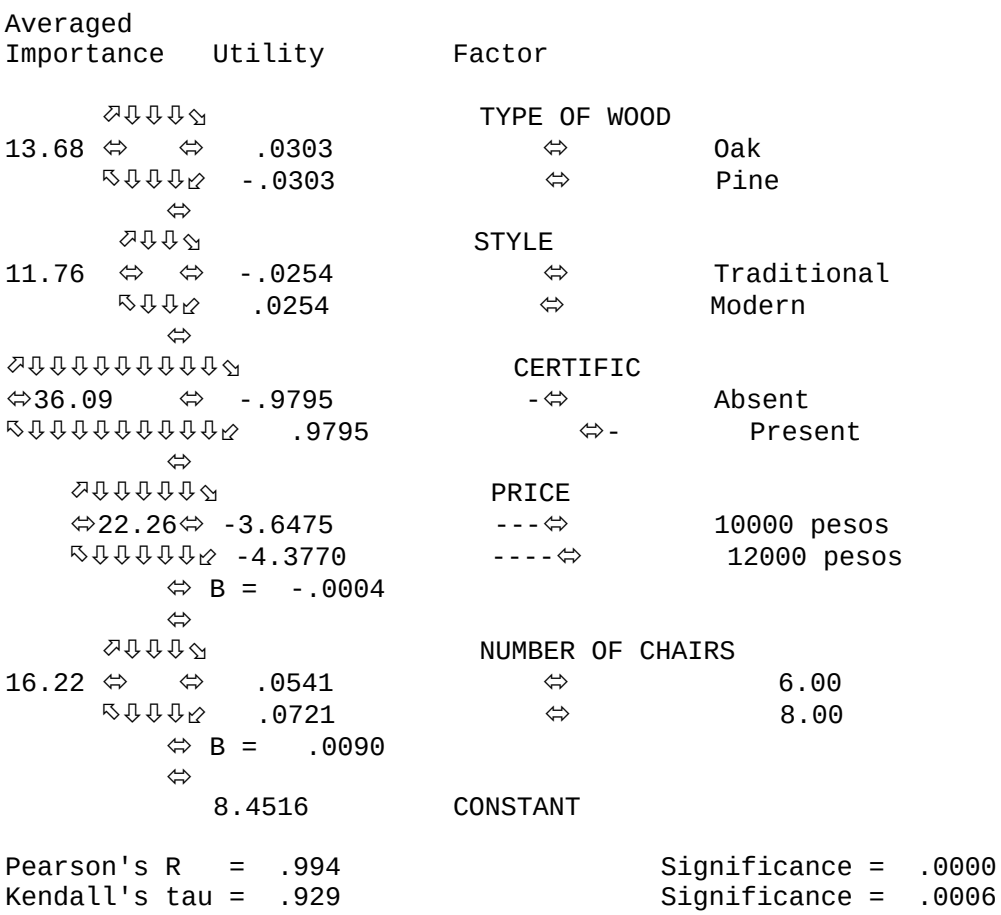
APPENDIX B
Conjoint Analysis Results

Card Designs

Factor	Model	Levels	Label
PRICE	l<	2	
TYPE OF WOOD	d>	2	
STYLE	d>	2	
NUMBER OF CHAIRS	l>	2	
ENVIROMENTAL CERTIFICATION	d>	2	

(Models: d=discrete, l=linear, i=ideal, ai=antiideal, <=less, >=more)
(All the factors are orthogonal)

Analysis Results



Pearson's R = .994 Significance = .0000
Kendall's tau = .929 Significance = .0006

TABLE 1
Product Attributes and Levels

Attributes	Levels
Price	1: 10,000 pesos 2: 12,000 pesos
Style	1: Traditional 2: Modern
Type of Wood	1: Oak 2: Pine
Environmental Certification	1: Present 2: Absent
Number of Chairs	1: 6 2: 8

TABLE 2
Operationalization of Demographic Variables

Variable	**Operationalization**
Gender	Male or Female
Age	From age 20, in 10 year increments
Marital Status	Single, Married, Divorced, Partnered
Number of Children at Home	0, 1, 2, 3, 4, 5 or more
Level of Education	Secondary, Preparatory, Undergrad, Postgrad, Technical
Residential Ownership Status	Home Owner or Renter
Number of Rooms in the Home	1, 2, 3, 4, 5 or more

TABLE 3
Descriptive Statistics

VARIABLE	N	MEAN	S.D.	MIN	MAX
Willingness to Pay for Certification	305	0.98	1.09	-2.00	2.00
Gender (1=Female)	306	0.67	0.47	0.00	1.00
Age Range (1= 20-30, 2=30-40, etc)	306	2.21	0.95	1.00	4.00
Number of Children (up to max. of 5)	306	1.95	0.73	0.00	5.00
Level of Schooling (see Table 2)	304	2.41	1.05	1.00	6.00
Rent or Own? (1 = Rent)	305	0.24	0.43	0.00	1.00
Number of Rooms in Home	304	2.91	0.97	1.00	5.00
Technocentrism	306	0.00	1.00	-0.98	3.50
Sustaincentrism	305	0.00	1.00	-4.21	0.99
Ecocentrism	304	0.00	1.00	-4.01	0.82

TABLE 4
Correlations of Variables Used in Analysis [a]

		1	2	3	4	5	6	7	8	9	10
1.	Willingness to Pay for Certification	1.00									
2.	Gender (1=Female)	-0.01	1.00								
3.	Age Range	0.04	0.10	1.00							
4.	Number of Children	-0.04	0.18*	0.56*	1.00						
5.	Level of Schooling	0.07	0.04	0.01	-0.11	1.00					
6.	Rent or Own? (1 = Rent)	0.05	-0.10	0.12*	-0.12*	-0.13*	1.00				
7.	Number of Rooms in Home	-0.03	0.03	0.13*	0.20*	0.23*	-0.34*	1.00			
8.	Technocentrism	-0.25*	-0.03	-0.04	0.06	-0.18*	-0.03	0.05	1.00		
9.	Sustaincentrism	0.15*	0.09	0.04	0.05	0.11	0.16*	-0.11	-0.39*	.00	
10.	Ecocentrism	0.07	0.21*	0.09	0.11*	0.13*	-0.15*	-0.05	-0.31*	0.68*	1.00

[a] Note: N = 299. Correlations with an absolute value greater than 0.12 are significant at 5 % level.

TABLE 5
Regression Results
Dependent Variable: Willingness to Pay for Certification[a]

	(A)	(B)
Gender (1 = Female)		-0.018
		(0.137)
Age Range		0.066
		(0.080)
Number of Children		-0.023
		(0.060)
Level of Schooling		0.020
		(0.063)
Rent or Own? (1 = Rent)		0.097
		(0.157)
Number of Rooms in Home		0.003
		(0.071)
Technocentric	-0.235	-0.230
	(0.066)**	(0.063)**
Sustaincentric	0.124	0.121
	(0.085)	(0.087)
Ecocentric	-0.070	-0.074
	(0.083)	(0.086)
Observations	299	299
R-squared	0.065	0.069
Incremental F-test (Reference Model: A)	6.863**	2.379*

[a] Standard errors in parentheses.

+ Significant at 10%;* significant at 5%; ** significant at 1%.

FIGURE 1
Sample of Stimuli

Precio de $10,000 pesos
Elaborado con madera de pino
Comedor estilo modernista
Con 8 sillas
Fabricado con madera certificada (con un programa de corte responsable y reforestación de árboles)

Orden Seleccionado 1 2 3 4 5 6 7 8
(no empates)