US Consumers' Willingness to Pay for Wool Product Attributes

Hikaru Hanawa Peterson[*]

Gwendolyn Hustvedt[^]

Yun-Ju Chen[*]

[*]Kansas State University, [^]Texas State University at San Marco

Contact author: Hikaru Hanawa Peterson,
318 Waters Hall, Kansas State University, Manhattan KS 66506-4011
Phone: 785-532-1509
hhp@ksu.edu

Selected paper prepared for presentation at the Southern Agricultural Economics Association Annual Meeting, Dallas, TX, February 6-10, 2008

US Consumers' Willingness to Pay for Wool Product Attributes

The wool market in the United States has been undergoing a rapid contraction in recent years, with total use in 2006 equaling about a third of its level in the early 1990s (US Department of Agriculture, 2007). The real price of wool has been on a declining trend since its recent peak in 1988, and domestic wool production equaling less than half of its level in the early 1990s. In 2006, the US imported 32% of its total use, primarily from New Zealand and Australia. Australia, the world's leading producer of wool, supplied 75% of imported raw wool sufficiently fine for apparel production. With their acclaimed merino herds, the Australian sheep industry can produce wool in a higher quality category than wool from the US, and Australian wool of comparable quality often receives a higher price in the market than US wool.

Of late, the Australian wool industry has made gains in marketing their product to consumers interested in "lifestyles of health and sustainability," coined the LOHAS consumer. Australian organic wool products are reported to have received a 10 to 15 percent premium (Australian Broadcasting Corporation, 2005), taking advantage of the growth in the organic market, particularly for food. In the non-food market, production of organic cotton more than doubled from the 2005/06 to 2006/07 growing seasons, leading its market to exceed 1 billion dollars in 2006 (Organic Exchange, 2007). Consumer interest in other organic fibers such as linen and wool is reportedly growing (Organic Exchange, 2007) but has not led to a notable expansion in the production of organic wool in the US. The USDA organic ban of exposing certified animals to synthetic chemicals beginning in the last third of their gestation poses difficulty because sheep are especially vulnerable to parasitic infections during pregnancy. The USDA standards require sick animals to be treated and removed from the organic herd, since not treating infected animals breaches animal welfare. The cost of entering the organic market will

remain prohibitively high for wool producers in many regions of the world without an effective organic means of treating parasites.

The Australian wool industry has also faced some setbacks. A campaign against their wool was initiated by People for the Ethical Treatment of Animals to protest practices such as mulesing (removing a large area of skin around the posterior to discourage fly infestation) and live export (shipping sheep long distance across open water prior to slaughter) (PETA, 2007). Despite Australian efforts to address these animal welfare concerns, such damage to the reputation of Australian wool in terms of animal welfare may present marketing opportunities for producers in other regions, such as the US, where these practices are not common.

Studies of food consumers have found that food consumers place value on credence attributes besides organic, such as origin and other production or processing features, as they relate to health, environment, and other social issues. The evidence is less certain on whether such behavior applies to consumption of fiber products. For apparel, the Federal Trade Commission mandates labeling of the country where the item was manufactured, but not the origin of fiber. Further, animal welfare is an attribute unique to animal-based products, and the context of animal fiber production is distinct from meat production. Assessing consumer demand for organic alternative production attributes such as animal welfare or lower environmental impact will help wool producers interested in marketing to the LOHAS niche evaluate the feasibility of certifying for these attributes. Similarly, an assessment of demand for US-originated fiber could help the dwindling, domestic wool industry to better position their products in the market.

The objectives of the paper are threefold: (1) to analyze the demand for various attributes of wool products, (2) to identify socioeconomic and psychographic characteristics of individuals

that define the amounts of willingness-to-pay (WTP) for these attributes, and (3) to examine the effect of providing additional information about specific attributes on their demand. To meet these ends, a survey was designed with and without information regarding wool product attributes to collect choice experiment responses from US consumers. The responses were used to estimate conditional logit models to obtain the WTPs for the attributes by individuals' characteristics and by the amount of information presented.

In the following section, the existing literature on demands for production attributes of wool and related products are briefly reviewed. Following a discussion on the conceptual foundation of the choice experiment approach, the details on the survey instrument are presented. The results section first discusses the data characteristics and then, the regression equations and results are presented. In conclusion, we discuss implications of our results, particularly pertaining to the US and Australian wool industries.

Related Literature

Studies of apparel consumers related to country of origin have concerned mainly on the Federal Trade Commission's (FTC) mandate for labeling the country in which the garment was manufactured, and its impact on economic opportunity and worker welfare in apparel production. Several studies, for example, have examined consumer response to the "Made in the USA" marketing campaigns of the 1980s, designed to protect the jobs of US garment workers. Studies such as Abraham-Murali and Littrell (1995) and Eckman, Damhorst, and Kadolph (1990) found that country-of-origin of apparel was far less important to apparel consumers than price, style, and quality attributes. Labeling for the origin of the fiber used in the apparel product is a different proposition. The FTC regulation allows for but does not require the modification of the fiber content information to include fiber origin (e.g., 60% Egyptian cotton). One study of

consumer WTP for fiber origin labeling (Hustvedt and Bernard, 2007) found that some consumers (male Texans) were willing to pay roughly 10% more for cotton socks labeled as "made with Texas cotton" than a generic pair, but no significant premium associated with labeling for "made with US cotton".

With increased concerns for food safety as larger volumes of goods are transported across borders, many studies have been conducted on consumer WTP for country-of-origin labeling on food products. Indeed, country-of-origin labeling for food products is mandatory in many countries. Livestock diseases such as bovine spongiform encephalopathy (BSE) raise direct human health concerns, prompting WTP studies for meats of various origins in the US and elsewhere (Umberger et al., 2002; Alfnes and Rickertsen, 2003; Tonsor et al., 2005). Also, studies have examined consumer responses to different agricultural production processes such as the use of growth hormones or genetically modified seeds, which have stirred trade disputes despite lack of scientific evidence supporting food safety concerns (e.g., Carlsson, Frykblom, and Lagerkvist, 2007). In general, studies have found that consumers prefer products of their own country. A meta-analysis of country-of-origin labeling found that while its value depends on the location of the consumer, it does not depend on the type of food (Emhke, 2006). This meta-analysis also found that labeling for additional credence attributes positively impacted the value of country-of-origin labeling.

In addition to country of origin, consumers may be interested in purchasing wool products labeled with environmental sustainability attributes. Given the growth of the organic apparel market, consumers are most likely willing to pay for products made with organically produced wool. Yet, few studies have been conducted on consumers' WTP for organic or environmental friendly attributes of apparel products. A 2005 mail survey of health and natural

foods consumers in the United States found that the organic fiber content attribute of the t-shirts was salient to a sizeable segment (53%) of consumers (Hustvedt, 2006). This study, which used conjoint analysis, did not estimate WTP for organic fiber content.

The concerns over animal welfare practices raised over Australian wool suggest that some consumers may also be interested in labeling related to this issue as well. Yet, we are not aware of any studies on consumer demand for animal welfare labeling on apparel products. A study that examined consumer interest in labeling alternative to organic labeling, found that consumers were most interested in purchasing products that met standards for humane treatment of animals, followed by local origin (Howard and Allen, 2006).

Modeling Approach

The choice experiment (CE) was selected as our valuation method, given our primary focus to assess demand for attributes of wool products. The CE is conceptually founded on the value theory (Lancaster, 1966), which purports to decompose utilities for goods into utilities derived from respective attributes, and random utility theory (Thurstone, 1927), which explains how choices are made from pairs of offering. The utility of individual *i* obtained from consuming alternative *j* is modeled as:

$$U_{ij} = V_{ij}\left(\mathbf{w}_{ij}\right) + \varepsilon_{ij} \tag{1}$$

where V_{ij} is the systematic complement of the utility, $\mathbf{w}_{ij} = \left[\mathbf{x}_{ij}, \mathbf{z}_i\right]$ consists of $\mathbf{x}_{ij}$, the attributes of the *j*th alternative which could be individual-specific, and $\mathbf{z}_i$, the individual *i*'s characteristics that are constant across the alternatives, and ε_{ij} is the random term.

In a CE, respondents are asked to choose from a set of alternatives with varying combinations of attributes. From collected data, conditional logit models can be estimated relating the probability of an alternative being chosen to its utility. Specifically, the probability

of the *j*th alternative being chosen by the *i*th individual from her choice set C_i is modeled as (McFadden, 1973):

$$\Pr(y_i = j) = \frac{e^{V_{ij}}}{\sum_j e^{V_{ij}}}, \quad j \in C_i \tag{2}$$

where y_i represents the choice made by individual *i*. A basic conditional logit model that relates only the attributes to utility can be specified assuming V_{ij} to be linear in its arguments as:

$$V_{ij} = \boldsymbol{\beta}' \mathbf{x}_{ij} \tag{3}$$

with $\boldsymbol{\beta}$ as a parameter vector.

To account explicitly for the relationship between the choices and the individual's characteristics, the characteristics can be incorporated into a conditional logit model through interaction terms with the attributes, which implies the utility function to be specified as:

$$V_{ij} = \boldsymbol{\beta}' \mathbf{x}_{ij} + \boldsymbol{\gamma}' \left(\mathbf{x}_{ij} \circ \mathbf{z}_i \right) \tag{4}$$

where $\boldsymbol{\gamma}$ is a vector of parameters on the interaction terms. This approach will allow us to examine how demand for each attribute varies by individual characteristics (Kallas, Gómez-Limón, and Arriaza, 2007).

Once the parameters have been estimated, willingness to pay (WTP) or part worth can be computed for each attribute. Accounting for the interaction terms, the *i*th individual's WTP for the *j*th attribute is

$$WTP_{ij} = -\left(\frac{\beta_j + \boldsymbol{\gamma}'_j \mathbf{z}_i}{\beta_{price} + \boldsymbol{\gamma}'_{price} \mathbf{z}_i} \right), \tag{5}$$

where the subscript *price* implies parameters associated with the price variable. The standard errors of these WTP estimates can be computed using the delta method.

Survey Design

The survey method allows for access to consumers nationwide and for a systematic collection of information about variables that are not easily observed, such as attitudes and intentions. While surveys can be vulnerable to some sources of bias, such as non-response or socially desirable responses, surveys are an accepted and popular method of obtaining descriptive data, and careful design of the survey instrument sought to reduce these sources of bias (Dillman, 2000).

The choice task in the survey asked respondents to select a pair of wool or acrylic gloves for purchase, assuming that the gloves were available in their favorite color and design. The wool product attributes were chosen for this study to explore production attributes that may be of concern to consumers, such as those in the growing LOHAS segment. The first related to country of origin, distinguishing whether wool came from sheep that were raised and shorn in US or Australia. The second was environment-focused and included two possible levels: organic and pro-environment. The third attribute was animal-focused and was labeled pro-animal or predator-friendly. The pro-animal claim implied "wool that was shorn with care from sheep that were treated humanely, with respect for their physical and mental wellness," and the predator-friendly label suggested that wool came "from sheep raised by producers who do not kill native predators on their land." Lastly, price was an attribute included for all products, and three levels were specified ($7.50, $8.25, and $8.50) to allow for the use price as a signal of quality while offering price-conscious consumers an option to select either the cheapest wool or acrylic gloves.

The design of the choice tasks accounted for orthogonality and balance. Orthogonality allows to discern the effects of one attribute from those another, and balance in attribute levels is desirable (Louviere, Hensher, and Swait, 2000). The OPTEX procedure in SAS was used to

generate six choice scenarios, each consisting of three wool gloves. The D-efficiency value was 96.79. Each choice scenario was presented to the respondent with an option to choose an acrylic product (see example in table 1).

To examine the impact of information on attribute demands, two versions of the survey were prepared with differing amounts of information provided about the attributes. Version 1 did not provide any narrative regarding the attributes of the wool gloves that appeared in the choice task. In version 2, a list of product attributes with briefly stated definitions preceded the choice task. Further, the subject was asked to scroll through two pages of web screens with additional information about the attributes. The informational content appears in the Appendix.

Given that specialized apparel including organic is more widely sold on the Internet than in retail stores, the population of consumers who have and use Internet were considered as the plausible buyers of wool products labeled for various credence attributes. An online panel of US consumers was purchased from a company that specializes in providing market research. Because the intended population was Internet-users as a whole, no limitations were placed on the psychographics or demographics of the sample, and the sample was randomly split in half with respondents directed to one of the two versions of the survey. Once the respondents completed the survey, they were redirected to the panel provider's website where they received an incentive for completing the survey.

The instrument was presented to respondents on 8 and 12 pages in versions 1 and 2, respectively. The first section of the instrument explored shopping habits and asked respondents to rank the importance or unimportance of various apparel attributes. The second section of the instrument included several five-point Likert-type items intended to measure psychographics such as belief in animal rights, concerns over the environmental impact of apparel production,

and familiarity with organic products. Then, the choice tasks were introduced by a short discussion of the comfort and convenience attributes of super-fine wool to mitigate any negative stereotype held towards wool products. The additional information included in version 2 appeared here. The demographic items were included in the final section of the survey.

Results

The online survey, conducted during the first few weeks of October 2007, had 585 respondents with 514 successfully completing the demographics page at the end of the survey (88% completion rate). The completions were split 258 and 256 between versions 1 and 2, respectively.

Respondent Characteristics

The respondents who completed the survey were more likely to be female (70%), better educated (27% with a bachelor's degree), and wealthier than the average American (see table 2). The sample was less ethnically diverse than the US as a whole, with 87% of the sample identifying as white, compared to 75% of Americans according to the 2000 Census. This sample was, however, more like the typical organic food consumer: "wealthy, well-educated Caucasians" (Dettmann and Dimitri, 2007). The sample was geographically more concentrated in the Northeast and Midwest United States with 4% and 8% more respondents than would be expected from those regions, respectively, and 6% fewer respondents from each of the Southern and Western regions. The vast majority of the sample (73%) of respondents reported having some type of pet (44% dogs and 41% cats). Finally, 50% of respondents had or lived with a person with some type of allergy, with only 5% were allergic to fibers.

Three psychographic variables were selectively constructed from the survey responses and are described in table 3, along with the socioeconomic variables used in the analysis. The

development of these variables is detailed in Hustvedt, Peterson, and Chen (2007). The first related to the belief on animal rights, where the respondents were asked to express degrees of their beliefs that animals are capable of suffering and have an interest in leading their own lives, using a 5-point scale. The average response of 3.66 (table 3) suggests that most respondents believed in animal rights to some degree. The second reflected the respondents' knowledge on environmental damage caused by fiber and apparel production processes, such as growing cotton, raising sheep, manufacturing polyester, and dyeing. Higher values of the variable corresponded to less confidence in their knowledge about the environmental impacts of these processes. Lastly, the respondents were asked to express their degrees of familiarity with organic foods using a 4-point scale. The average response was 2.86.

Value of Wool Product Attributes

A basic conditional logit model that specifies the probabilities of chosen alternatives as functions of the attributes of the alternatives (equation (3)) was specified from the survey data. The two countries of origin were represented by two dummy variables, *US* and *AU*. The two environment-focused attributes, pro-environment and organic, were respectively specified as binary variables. Then, the difference between the two attribute levels was specified as a variable *ENV_ORG*. Similarly, the two animal-focused attributes, pro-animal and predator-friendly, were specified as a single variable *ANIM_PRED* that equaled one for pro-animal and minus one for predator-friendly. Thus, together with price, *P*, the basic model included 5 attribute variables:

$$V_{ij} = \beta_{price} P + \beta_{US} US + \beta_{AU} AU + \beta_{EO} ENV\_ORG + \beta_{AP} ANIM\_PRED \,. \tag{6}$$

Table 4 presents the results. The likelihood ratio test and McFadden (1974)'s likelihood ratio index are reported to assess the overall performance of the model. The likelihood ratio test

suggested the overall model was highly significant. The likelihood ratio index, while bound between 0 and 1, has little intuitive interpretation of goodness-of-fit (Greene, 2003). The value was comparable to those reported in similar studies (e.g., Mtimet and Albisu, 2006; Kallas, Gómez-Limón, and Arriaza, 2007).

All coefficients and the WTP values were statistically different from zero at the 1% level. Thus, the consumers recognized and valued all attributes distinctly. The average respondent in our sample was willing to pay $1.20 more for a pair of US wool gloves relative to a pair of acrylic gloves. The average WTP for a pair of Australian wool gloves was $0.25. Thus, the respondents clearly expressed their preferences for domestic products over foreign products, despite their reputation of superior quality in this situation, which they might not have heard. It is good news for the wool industry that the average WTP for wool over acrylic was positive.

The results also suggest that on average, the pro-environment label was valued more than the organic label by the respondents by 14 cents. The finding counters the growth in the organic industry but could be explained by lower recognition of organic apparel goods compared to food items. The average respondent favored the pro-animal label over the predator-friendly label by 8 cents more than the amount she favored the pro-environment label over the organic. The difference in WTP for the animal-focused attributes was nearly the magnitude of the average WTP for Australian wool over acrylic.

Information Effect

To explore the impact of provided information on the elicited values of wool product attributes, a dummy variable *VERS* was created equaling one for version 2 with additional information and zero for version 1 without additional information. Equation (2) was estimated with the following utility function:

$$
\begin{aligned}
V_{ij} = {} & \beta_{price} P + \beta_{US} US + \beta_{AU} AU + \beta_{EO} ENV\_ORG + \beta_{AP} ANIM\_PRED \\
& + \gamma_{p\times V} P \times VERS + \gamma_{US\times V} US \times VERS + \gamma_{AU\times V} AU \times VERS \\
& + \gamma_{EO\times V} ENV\_ORG \times VERS + \gamma_{AP\times V} ANIM\_PRED \times VERS.
\end{aligned} \tag{7}
$$

The results are reported in table 5. The values of the country-of-origin attributes were the most affected by the additional information. The coefficients on the interaction terms involving the price, the US wool, and the Australian wool were statistically significant at the 1%, 5%, and 10%, respectively. The information did not affect the differences in values of the environment-focused and animal-focused attributes, which suggests that the information was provided in an even-handed manner across the competing attributes.

The WTP values computed for with and without the additional information shows that the WTP for US wool gloves were largely unaffected with the *P* and *US* coefficients cancelling out in equation (5). But, the WTP for Australian wool gloves plummeted to statistically equivalent to zero. The respondents on average clearly responded to the narrative regarding the negative aspects of transportation cost and the museling practices (see Appendix).

Analysis of variance was used to determine if the respondents to each version differed significantly in terms of the selected demographic and psychographic variables. There were no significant differences between the versions based on age, education or income at the 10% level (results are available from the authors). The means for each version were also not significantly different for Animal Rights, Environmental Impact Knowledge, and Familiarity with Organic Food. Thus, the estimated coefficients on the terms involving *VERS* could be interpreted as the direct impact of provided information rather than the differences in socioeconomic and psychographic characteristics of the respondents in the two sub-samples.

Values across Individual Characteristics

Lastly, to examine the demand for the attributes across individual characteristics and the information effect on heterogeneous individuals, the conditional logit model was augmented with interaction terms with the selected socioeconomic and psychographic variables listed in table 3. The binary variable for the information effect was also interacted with the characteristic variables. A model was specified for each variable in table 3. To illustrate, the utility function with the age variable was:

$$
\begin{aligned}
V_{ij} = {} & \beta_{price} P + \beta_{US} US + \beta_{AU} AU + \beta_{EO} ENV\_ORG + \beta_{AP} ANIM\_PRED \\
& + \gamma_{p\times V} P \times VERS + \gamma_{US\times V} US \times VERS + \gamma_{AU\times V} AU \times VERS \\
& + \gamma_{EO\times V} ENV\_ORG \times VERS + \gamma_{AP\times V} ANIM\_PRED \times VERS \\
& + \gamma_{p\times A} P \times AGE + \gamma_{US\times A} US \times AGE + \gamma_{AU\times A} AU \times AGE \\
& + \gamma_{EO\times A} ENV\_ORG \times AGE + \gamma_{AP\times A} ANIM\_PRED \times AGE \\
& + \gamma_{p\times V\times A} P \times VERS \times AGE + \gamma_{US\times V\times A} US \times VERS \times AGE + \gamma_{AU\times V\times A} AU \times VERS \times AGE \\
& + \gamma_{EO\times V\times A} ENV\_ORG \times VERS \times AGE + \gamma_{AP\times V\times A} ANIM\_PRED \times VERS \times AGE.
\end{aligned} \tag{8}
$$

In the interest of space, only the estimated WTPs are reported, which are presented by attribute in tables 6-9. The WTPs were evaluated at various values corresponding to different characteristics. For the population density, the WTPs were evaluated at the sample mean of 978 people per square mile, 200 people per square mile, representing a more rural area, and 10,000 people per square mile, representing an urban area.

Table 6 presents the WTP estimates for US wool gloves over acrylic gloves. Two things are clear. First, how people value domestic wool product varies, particularly by demographic characteristics such as gender, age, educational attainment, income, and urbanicity, as well as by certain psychographics such as beliefs in animal rights. Second, people reacted differently to the provided information. Specifically, the information, which was expected to increase WTPs for US products relative to Australian product, positively affected the absolute value of WTP for US

wool gloves for male, lower educated, lower earning, more rural individuals, as well as those with stronger beliefs in animal rights, more environmentally aware, and more familiar with organic foods.

Table 7 shows the WTPs for Australian wool gloves over acrylic gloves. Similar to the US results, these values support the heterogeneity in preferences towards a product of foreign origin. Given the informational content, the general effect of dampening the WTPs for Australian wool was not surprising. Average WTPs for many segments became statistically insignificant. Several groups of respondents appeared to react more drastically to the addition of information than others. For example, female, higher earning, urban individuals had relatively high opinions of the Australian wool product, likely due to their familiarity with the quality reputation of Australian wool. However, their WTPs plummeted in response to the information provided, along with those with stronger beliefs in animal rights, the less educated or less confident about the environmental impacts of apparel production, and the less familiar with organic foods.

Tables 8 and 9 include relative WTP values for the two environment-focused and animal-focused attributes, respectively. The results support the heterogeneity in preferences, but the magnitudes of differences across individual characteristics were smaller simply because these values were relative to other wool products with a different attribute rather than to an acrylic product. In table 8 in particular, the information effect is clear: additional information helps individuals discern the attributes. Without additional information, the average WTPs for many segments were statistically not different from zero. With additional information, many of these averages become statistically significant. Once the individuals were educated about the attributes, their values towards the differences in attributes differed further. Exceptions were the

individuals characterized by income, perceived knowledge on environmental impact, and familiarity with organic food. Their average WTPs for pro-environment wool over organic wool converged to about $0.20.

The information effect is not as clear for the animal-focused attributes (table 9). Indeed, the two attributes were more distinguishable for most individuals than the two environment-focused attributes without additional information. Older individuals (over 45) and those who believed in animal rights seemingly reacted to the provided information, increasing their assessment of the pro-animal label over the predator-friendly label.

Concluding Remarks

The significance of these results for the marketing of wool products is apparent. First, the respondents clearly valued the wool products over the acrylic alternatives. The fact that consumers had preferences for various production attributes of their wool products identified an opportunity for wool producers to work towards differentiating their wool products based on the available production attributes. These results, along with the fact that both the Australian and New Zealand wool industries have already begun marketing products with attributes such as organic or environmentally friendly should encourage other wool sectors in the world to take additional steps to convey these attributes to consumers. Moreover, these production attributes can never be claimed by acrylic.

Interestingly, individual preferences towards these wool product attributes varied by socioeconomic and psychographic characteristics, which suggests that the labeling of production attributes should be shaped based on the target market. For example, the returns to the US label on wool products will be the highest towards younger generation (under 45). The addition of information about the production attributes, which clearly influenced consumer WTP, also had

varying effects depending on consumer characteristics. For example, the return to the US label can be enhanced if additional information was supplied towards lower earning people residing in rural areas. But, the additional information will be counter-effective towards higher earning people residing in urban areas. Overall, this suggests an economic potential for using labeling for or marketing production attributes to increase returns for wool products, but that some thought need to be given to the intended market. Further research needs to be done to explain the social psychology behind these variations.

Finally, the results of this study clearly spell out opportunities for the US wool industry and cautions for the Australian wool industry. These results indicate that consumers react to negative information about animal welfare practices by lowering their WTP. Australian efforts to improve their animal welfare perception need to be swift and specific to prevent a more permanent damage to their brand image. Now is a favorable moment for the US wool industry without many of the same issues with animal welfare, to market their wool as animal friendly. The US wool producer also has the opportunity to highlight their environmentally sustainable production practices, which need not be certified organic. In fact, this study indicates that the pro-environment label was more valuable to the majority of consumers than the organic label. Collectively, our findings suggest that consumer demand exists to support efforts to depart from treating US fiber products as generic commodities through establishing traceability for production attributes such as animal welfare or environmental impact, not to mention country of origin.

References

Abraham-Murali, L., and M.A. Littrell "Consumers' conceptualization of apparel attributes." *Clothing and Textiles Research Journal* 13 (1995):65-74.

Alfnes, F., and K. Rickertsen "European Consumers' Willingness to pay for U.S. Beef in Experimental Auction Markets." *American Journal of Agricultural Economics* 85 (2003):396,396-405.

Australian Broadcasting Corporation. *Qld growers tap into organic wool market.* 2005. Available at http://www.abc.net.au/landline/content/2005/s1376463.htm. Accessed on January 7, 2008.

Carlsson, F., P. Frykblom, and C.J. Lagerkvist. "Consumer Benefits of Labels and Bans on GM Foods--Choice Experiments with Swedish Consumers." *American Journal of Agricultural Economics* 89 (2007):152-161.

Dettmann, R. L., and C. Dimitri. “Organic consumers: A demographic portrayal of organic vegetable consumption within the United States.” Proceedings of the 105th Seminar of the European Association of Agricultural Economists, March 8-10, 2007, Bologna, Italy, 453-465.

Dillman, D.A. *Mail and internet surveys: The tailored design method, 2nd ed*. New York: Wiley, 2000.

Eckman, M.E., M.L. Damhorst, and S.J. Kadolph "Toward a model of the in-store purchase decision process: Consumer use of criteria for evaluating women's apparel." *Clothing and Textiles Research Journal* 8 (1990):13-220.

Ehmke, M. T. “International differences in consumer preferences for food country-of-origin: A meta-analysis.” Selected paper at the Annual Meeting of the American Agricultural Economics Association, Long Beach, California, July 23-26, 2006. Available at http://ageconsearch.umn.edu/bitstream/123456789/14638/1/sp06eh01.pdf

Greene, W.H. *Econometric Analysis, 5th Edition*. Upper Saddle River: Prentice Hall, 2003.

Howard, P.H., and P. Allen "Beyond organic: consumer interest in new labelling schemes in the Central Coast of California." *International Journal of Consumer Studies* 30 (2006):439-51.

Hustvedt, G., and J.C. Bernard "Consumer Willingness to Pay for Sustainable Apparel: The Influence of Labeling for Fiber Origin and Production Methods." Under review at *International Journal of Consumer Studies*, 2007.

Hustvedt, G., Peterson, H.H., and Chen, Y.K. " Labeling Wool Products for Animal Welfare and Environmental Impact." Under review at *International Journal of Consumer Studies*, 2007.

Hustvedt, G. "Consumer Preferences in Blended Organic Cotton Apparel." PhD dissertation, Kansas State University, 2006.

Kallas, Z., J. Gómez-Limón, and M. Arriaza. “Are citizens willing to pay for agricultural multifunctionality? *Agricultural Economics* 36(2007): 405-419.

Lancaster, K.J. “A New Approach to Consumer Theory.” *Journal of Political Economy* 74 (1966): 132-157.

Louviere, J., D. Hensher, and J. Swait. *Stated Choice Methods: Analysis and Applications*. Cambridge: Cambridge University Press, 2000.

McFadden, D. “Conditional Logit Analysis of Qualitative Choice Behavior.” In P. Zarembka, ed., *Frontiers in Econometrics*, New York: Academic Press, 1973.

McFadden, D. “The Measurement of Urban Travel Demand.” *Journal of Public Economics* 3(1974): 303-328.

Mtimet, N., and L.M. Albisu. “Spanish Wine Consumer Behavior: A Choice Experiment Approach.” *Agribusiness* 22 (2006): 343-362.

Organic Exchange, 2007.. 2007 Organic Cotton Market Report Highlights. Available at http://www.organicexchange.org/Documents/market_high_fall07.pdf. Accessed on November 12, 2007.

(PETA) People for the Ethical Treatment of Animals. *Save the sheep.* 2007. Available at http://www.savethesheep.com. Accessed on December 7, 2007.

Umberger, W.J., D.M. Feuz, C.R. Calkins, and K. Killinger-Mann. "U.S. Consumer Preference and Willingness to pay for Domestic Corn-Fed Beef Versus International Grass-Fed Beef Measured Through an Experimental Auction." *Agribusiness* 18 (2002):491-504.

U.S. Department of Agriculture. Economic Research Service. *Cotton and Wool Yearbook*. 2007.

Thurstone, L.L. “A law of comparative judgment.” *Psychological Review* 34(July 1927):273-286.

Tonsor, G.T., T.C. Schroeder, J.A. Fox, and A. Biere. “European Preferences for Beef Steak Attributes.” *Journal of Agricultural and Resource Economics* 30 (August 2005): 367-80.

Appendix: Additional Information Provided in Version 2

List of Definitions:

US Wool: Super-fine wool from sheep that were raised and shorn in U.S.

AU Wool: Super-fine wool from sheep that were raised and shorn in Australia.

Organic: Wool that was produced and processed into yarn according to the National Organic Standards regulated by the US Department of Agriculture.

Predator Friendly: Wool that comes from sheep raised by producers who do not kill native predators on their land.

Pro-Animal: Wool that was shorn with care from sheep that were treated humanely, with respect for their physical and mental wellness.

Pro-Environment: Wool that was produced and processed using methods with minimum impact on the environment, which may be more or less stringent than the organic standards.

Additional Narrative:

These labels may imply a few things such as the following:

Organic farming and manufacturing practices limit the use of synthetic substances to those approved by the National Organic Standards. Besides the organic standards, there are other ways to produce wool that can be considered pro-environment. Producers who find it challenging to adhere to the organic standards can adopt less stringent production practices and still claim that their products are pro-environment.

When people who raise sheep organically treat the sheep for worms using anti-parasite drugs, the wool from the sheep is no longer considered organic under current standards. Since worms are common, this makes it difficult to produce organic wool. Some people believe that failing to give the sheep the most effective treatment for worms is cruel to the sheep. (Page break)

These labels may also imply the following:

Country-of-origin tells us where the fiber production is taking place. If an organic or pro-environment production process is being used, the country-of-origin tells us which environment is directly benefiting from such production practices. Moreover, some people are concerned about the environmental impact of transporting products over long distances.

Producers who make a commitment not to kill the native predators, such as wolves or bears that might threaten their livestock can label their products as certified Predator Friendly. Predator Friendly growers reduce the risks of livestock losses by using guard animals such as llamas, dogs, and burros, and by using pasture management strategies to minimize confrontations between their animals and predators.

Mulesing is an important part of sheep husbandry in Australia, where the skin around the backside is surgically removed to prevent fly strike caused by Australian blowfly. The process of mulesing has been reported to mutilate many sheep by trussing the animals upside-down and carving large pieces of flesh from their rumps without any pain relief medication.

Table 1 An example choice scenario

Product A	Product B	Product C	Product D
US wool	AU wool	AU wool	
Organic	Pro-Environment	Pro-Environment	Acrylic
Pro-Animal	Predator Friendly	Pro-Animal	
$8.70	$7.50	$8.25	$7.50

Australia is abbreviated AU.

Table 2 Demographic characteristics of the sample

	US Population	Survey Respondents	
Characteristic	% Frequency	n	% Frequency
Gender			
Male	49.1 %	153	29.8 %
Female	50.9	361	70.2
Age			
Under 25 years	35.3 %	121	23.5 %
25 to 44 years	30.2	214	41.6
45 to 59 years	18.2	108	21.0
60 to 84 years	14.7	66	12.8
85 and Over	1.5	5	1.0
Education			
Less than 9th grade	7.5 %	6	1.2 %
9th to 12th grade, no diploma	12.1		
High school graduate or equivalent	28.6	213	41.4
Some college no degree	21		
Associate degree	6.3	121	23.5
Bachelor's degree	15.5	138	26.8
Graduate or professional degree	8.9	36	7.0
Household Income			
Less than $14,999	15.8 %	85	16.5 %
$15,000 to $24,999	12.8	123	23.9
$25,000 to $34,999	12.8	79	15.4
$35,000 to $74,999	36.0	164	31.9
$75,000 to $99,999	10.2	26	5.1
$100,000 to $149,999	7.7	25	4.9
$150,000 and over	4.6	11	2.1

From U.S. Census Bureau. 2004

Table 3 Definition and summary statistics of socioeconomic and psychographic variables

Variables	Notation	Variable description	Mean	(Std Dev)
Age	*AGE*	Ordinal scale: 1. Under 25, 2. 25-44, 3. 45-59, 4. 60-84, 5. 85 and older	2.26	(0.99)
Allergies	*ALG*	Binary variable: 1 if individual has allergies; 0 otherwise.	0.50	(0.50)
Animal rights	*ANIMR*	Likert-type scale to express individual belief in animal rights, that animals are capable of suffering and have an interest in leading their own lives: 1. Not at all, 2. Slightly, 3. Partly, 4. Mostly, 5. Definitely.	3.66	(1.30)
Education	*EDUC*	Ordinal scale: 1. Elementary school, 2. High school or equivalent, 3. Two-year college, 4. Four-year college, 5. Graduate school	2.97	(1.01)
Environmental Impact Knowledge	*ENVK*	Ordinal scale to express number of times individual answered "Don't know" on environmental impact of fiber and apparel production items: 0. No times, 1. Once, 2. Twice, 3. Three times, 4. Four times, 5. Five times, 6.	2.21	(2.67)
Familiarity with organic food	*FORG*	Likert-type scale to indicate individual familiarity with organic food products: 1. Never heard about it, 2. Heard about it, but don't know what it is, 3. Moderately familiar with its attributes, 4. Very familiar with its	2.86	(0.83)
Gender	*FEM*	Binary variable: 1 if individual is female; 0 otherwise	0.70	(0.46)
Household income	*INC*	Ordinal scale: Annual Income ($) 1. <14,999, 2. 15,000-24,999, 3. 25,000-34,000, 4. 35,000-74,999, 5. 75,000-99,999, 6. 100,000-149,999, 7. >150,000.	3.08	(1.48)
Pets	*PET*	Binary variable: 1 if individual has pets; 0 otherwise.	0.73	(0.44)
Population density	*POPD*	Continuous variable: population in zip code area raised to the power of one fourth.	5.59	(2.60)

Table 4 Results of the basic conditional logit model

Variables	Coefficient	WTP
P	-0.997	
	(0.045)	
US	1.192	$1.196
	(0.055)	(0.056)
AU	0.247	$0.248
	(0.055)	(0.054)
ENV_ORG	0.144	$0.144
	(0.022)	(0.023)
ANIM_PRED	0.224	$0.225
	(0.023)	(0.024)
No. of observations		3,084
Log-likelihood ratio		921.59
McFadden's (1974) log-likelihood ratio index		0.1078

Table 5 Results of the conditional logit model with the information effect

		Willingness-to-Pay	
Variables	Coefficient	Without Additional Information	With Additional Information
P	-1.108		
	(0.063)		
US	1.296	$1.170	$1.232
	(0.078)	(0.072)	(0.089)
AU	0.415	$0.374	$0.082
	(0.078)	(0.070)	(0.088)
ENV_ORG	0.112	$0.101	$0.200
	(0.031)	(0.028)	(0.038)
ANIM_PRED	0.227	$0.205	$0.250
	(0.033)	(0.030)	(0.039)
P x VERS	0.228		
	(0.090)		
US x VERS	-0.212		
	(0.110)		
AU x VERS	-0.343		
	(0.111)		
ENV_ORG x VERS	0.065		
	(0.044)		
ANIM_PRED x VERS	-0.007		
	(0.047)		
No. of observations		3,084	
Log-likelihood ratio		937.54	
McFadden's (1974) log-likelihood ratio index		0.1096	

Table 6 Willingness to pay for US wool gloves over acrylic gloves

	-----Without Additional Information-----							-----With Additional Information-----						
FEM	Female	Male						Female	Male					
	$1.30 ***	$0.90 ***						$1.21 ***	$1.29 ***					
	(0.092)	(0.119)						(0.100)	(0.188)					
AGE	Under 24	25-44	45-59	60-84	Over 85			Under 24	25-44	45-59	60-84	Over 85		
	$1.64 ***	$1.33 ***	$0.98 ***	$0.58 ***	$0.13			$1.61 ***	$1.37 ***	$0.99 ***	$0.31	-$1.30		
	(0.149)	(0.085)	(0.082)	(0.133)	(0.233)			(0.136)	(0.098)	(0.117)	(0.255)	(1.382)		
EDUC	Elem.Sch.	High Sch.	2Yr College	4Yr College	Grad Sch.			Elem.Sch.	High Sch.	2Yr College	4Yr College	Grad Sch.		
	$0.85 ***	$1.02 ***	$1.18 ***	$1.34 ***	$1.50 ***			$1.16 ***	$1.22 ***	$1.25 ***	$1.27 ***	$1.29 ***		
	(0.144)	(0.094)	(0.073)	(0.114)	(0.192)			(0.309)	(0.145)	(0.089)	(0.116)	(0.156)		
INC	<$15K	$15-25K	$25-35K	$35-75K	$75-100K	$100-150K	>$150K	<$15K	$15-25K	$25-35K	$35-75K	$75-100K	$100-150K	>$150K
	$0.91 ***	$1.03 ***	$1.16 ***	$1.30 ***	$1.45 ***	$1.61 ***	$1.79 ***	$1.31 ***	$1.27 ***	$1.23 ***	$1.18 ***	$1.14 ***	$1.09 ***	$1.04 ***
	(0.104)	(0.080)	(0.072)	(0.096)	(0.148)	(0.222)	(0.320)	(0.140)	(0.104)	(0.088)	(0.104)	(0.142)	(0.189)	(0.242)
ALG	With	Without						With	Without					
	$1.15 ***	$1.19 ***						$1.00 ***	$1.58 ***					
	(0.100)	(0.093)						(0.093)	(0.180)					
PET	With	Without						With	Without					
	$1.20 ***	$1.11 ***						$1.46 ***	$0.84 ***					
	(0.088)	(0.128)						(0.139)	(0.085)					
POPD	200/mi^2	978/mi^2	10,000/mi^2					200/mi^2	978/mi^2	10,000/mi^2				
	$1.05 ***	$1.19 ***	$1.65 ***					$1.35 ***	$1.25 ***	$0.98 ***				
	(0.078)	(0.074)	(0.259)					(0.111)	(0.092)	(0.147)				
ANIMR	Not at all	Slightly	Partly	Mostly	Definitely			Not at all	Slightly	Partly	Mostly	Definitely		
	$0.76 ***	$0.90 ***	$1.06 ***	$1.26 ***	$1.49 ***			$0.49 ***	$0.66 ***	$0.91 ***	$1.33 ***	$2.21 ***		
	(0.109)	(0.087)	(0.071)	(0.081)	(0.136)			(0.095)	(0.083)	(0.076)	(0.104)	(0.326)		
ENVK	Most	←					Least	Most	←					Least
	$1.19 ***	$1.18 ***	$1.17 ***	$1.16 ***	$1.15 ***	$1.14 ***	$1.13 ***	$1.55 ***	$1.42 ***	$1.30 ***	$1.17 ***	$1.05 ***	$0.93 ***	$0.81 ***
	(0.096)	(0.081)	(0.073)	(0.074)	(0.084)	(0.099)	(0.118)	(0.142)	(0.112)	(0.094)	(0.088)	(0.093)	(0.105)	(0.122)
FORG	Least	Some	Moderate	High				Least	Some	Moderate	High			
	$1.04 ***	$1.14 ***	$1.19 ***	$1.21 ***				$0.44 **	$0.89 ***	$1.29 ***	$1.65 ***			
	(0.358)	(0.126)	(0.073)	(0.097)				(0.202)	(0.116)	(0.092)	(0.176)			

The numbers in parentheses are standard errors.

***, **, and * denote significance at the 1%, 5%, and 10%, respectively.

Table 7 Willingness to pay for Australian wool gloves over acrylic gloves

	-----Without Additional Information-----							-----With Additional Information-----						
FEM	Female	Male						Female	Male					
	$0.44 ***	$0.24 **						-$0.05	$0.43 **					
	(0.086)	(0.122)						(0.104)	(0.173)					
AGE	Under 24	25-44	45-59	60-84	Over 85			Under 24	25-44	45-59	60-84	Over 85		
	$0.97 ***	$0.56 ***	$0.09	-$0.43 **	-$1.03 ***			$0.74 ***	$0.25 ***	-$0.53 ***	-$1.93 ***	-$5.23		
	(0.139)	(0.080)	(0.088)	(0.181)	(0.370)			(0.121)	(0.091)	(0.174)	(0.695)	(3.719)		
EDUC	Elem.Sch.	High Sch.	2Yr College	4Yr College	Grad Sch.			Elem.Sch.	High Sch.	2Yr College	4Yr College	Grad Sch.		
	-$0.02	$0.18 *	$0.38 ***	$0.58 ***	$0.78 ***			-$1.19 **	-$0.38 **	$0.11	$0.42 ***	$0.65 ***		
	(0.156)	(0.096)	(0.071)	(0.107)	(0.177)			(0.518)	(0.174)	(0.090)	(0.110)	(0.153)		
INC	<$15K	$15-25K	$25-35K	$35-75K	$75-100K	$100-150K	>$150K	<$15K	$15-25K	$25-35K	$35-75K	$75-100K	$100-150K	>$150K
	-$0.15	$0.08	$0.33 ***	$0.60 ***	$0.89 ***	$1.21 ***	$1.56 ***	-$0.04	$0.03	$0.10	$0.17 *	$0.25 *	$0.32 *	$0.41
	(0.119)	(0.084)	(0.070)	(0.090)	(0.139)	(0.218)	(0.332)	(0.143)	(0.105)	(0.087)	(0.102)	(0.143)	(0.197)	(0.257)
ALG	With	Without						With	Without					
	$0.35 ***	$0.39 ***						-$0.17	$0.46 ***					
	(0.098)	(0.090)						(0.108)	(0.152)					
PET	With	Without						With	Without					
	$0.42 ***	$0.28 **						$0.04	$0.09					
	(0.084)	(0.126)						(0.117)	(0.071)					
POPD	200/mi^2	978/mi^2	10,000/mi^2					200/mi^2	978/mi^2	10,000/mi^2				
	$0.08	$0.40 ***	$1.39 ***					$0.21 **	$0.10	-$0.20				
	(0.082)	(0.071)	(0.264)					(0.104)	(0.091)	(0.179)				
ANIMR	Not at all	Slightly	Partly	Mostly	Definitely			Not at all	Slightly	Partly	Mostly	Definitely		
	$0.00	$0.13	$0.28 ***	$0.45 ***	$0.67 ***			$0.24 **	$0.20 **	$0.15 *	$0.05	-$0.15		
	(0.121)	(0.091)	(0.071)	(0.077)	(0.123)			(0.102)	(0.087)	(0.076)	(0.102)	(0.232)		
ENVK	Most	←				→	Least	Most	←				→	Least
	$0.54 ***	$0.46 ***	$0.38 ***	$0.30 ***	$0.22 ***	$0.14	$0.06	$0.48 ***	$0.32 ***	$0.15 *	-$0.01	-$0.17	-$0.33 **	-$0.49 ***
	(0.092)	(0.077)	(0.070)	(0.073)	(0.084)	(0.101)	(0.122)	(0.123)	(0.101)	(0.090)	(0.092)	(0.108)	(0.136)	(0.173)
FORG	Least	Some	Moderate	High				Least	Some	Moderate	High			
	-$0.90	$0.03	$0.41 ***	$0.62 ***				-$0.35	-$0.10	$0.13	$0.34 **			
	(0.552)	(0.133)	(0.071)	(0.096)				(0.267)	(0.135)	(0.089)	(0.145)			

The numbers in parentheses are standard errors.

***, **, and * denote significance at the 1%, 5%, and 10%, respectively.

Table 8 Willingness to pay for "Pro-Environment" wool gloves over "Organic" wool gloves

	-----Without Additional Information-----							-----With Additional Information-----						
FEM	Female	Male						Female	Male					
	$0.11 ***	$0.09						$0.22 ***	$0.16 **					
	(0.033)	(0.054)						(0.044)	(0.072)					
AGE	Under 24	25-44	45-59	60-84	Over 85			Under 24	25-44	45-59	60-84	Over 85		
	$0.07	$0.10 ***	$0.12 ***	$0.16 **	$0.19 *			$0.17 ***	$0.20 ***	$0.23 ***	$0.30 *	$0.45		
	(0.044)	(0.029)	(0.039)	(0.070)	(0.112)			(0.045)	(0.037)	(0.065)	(0.153)	(0.426)		
EDUC	Elem.Sch.	High Sch.	2Yr College	4Yr College	Grad Sch.			Elem.Sch.	High Sch.	2Yr College	4Yr College	Grad Sch.		
	$0.03	$0.07 *	$0.10 ***	$0.13 ***	$0.17 ***			$0.48 ***	$0.30 ***	$0.20 ***	$0.13 ***	$0.08		
	(0.063)	(0.040)	(0.028)	(0.039)	(0.063)			(0.177)	(0.070)	(0.037)	(0.043)	(0.057)		
INC	<$15K	$15-25K	$25-35K	$35-75K	$75-100K	$100-150K	>$150K	<$15K	$15-25K	$25-35K	$35-75K	$75-100K	$100-150K	>$150K
	$0.14 ***	$0.12 ***	$0.10 ***	$0.08 **	$0.06	$0.03	$0.00	$0.21 ***	$0.20 ***	$0.20 ***	$0.20 ***	$0.20 ***	$0.19 ***	$0.19 ***
	(0.048)	(0.036)	(0.028)	(0.033)	(0.047)	(0.067)	(0.091)	(0.037)	(0.037)	(0.037)	(0.038)	(0.040)	(0.043)	(0.047)
ALG	With	Without						With	Without					
	$0.09 ***	$0.11 ***						$0.21 ***	$0.19 ***					
	(0.031)	(0.028)						(0.045)	(0.062)					
PET	With	Without						With	Without					
	$0.11 ***	$0.07						$0.27 ***	$0.09 **					
	(0.034)	(0.052)						(0.054)	(0.039)					
POPD	200/mi^2	978/mi^2	10,000/mi^2					200/mi^2	978/mi^2	10,000/mi^2				
	$0.10 ***	$0.10 ***	$0.09					$0.22 ***	$0.20 ***	$0.14 *				
	(0.035)	(0.029)	(0.080)					(0.045)	(0.041)	(0.077)				
ANIMR	Not at all	Slightly	Partly	Mostly	Definitely			Not at all	Slightly	Partly	Mostly	Definitely		
	$0.04	$0.06	$0.08 ***	$0.11 ***	$0.14 ***			$0.11 **	$0.13 ***	$0.16 ***	$0.22 ***	$0.33 ***		
	(0.052)	(0.040)	(0.030)	(0.030)	(0.046)			(0.048)	(0.042)	(0.035)	(0.041)	(0.095)		
ENVK	Most	←					→ Least	Most	←					→ Least
	$0.08 **	$0.09 ***	$0.10 ***	$0.11 ***	$0.12 ***	$0.13 ***	$0.14 ***	$0.21 ***	$0.20 ***	$0.20 ***	$0.20 ***	$0.19 ***	$0.19 ***	$0.18 ***
	(0.036)	(0.031)	(0.028)	(0.030)	(0.035)	(0.042)	(0.051)	(0.049)	(0.041)	(0.037)	(0.039)	(0.045)	(0.053)	(0.064)
FORG	Least	Some	Moderate	High				Least	Some	Moderate	High			
	$0.57 **	$0.23 ***	$0.09 ***	$0.01				$0.20 *	$0.20 ***	$0.20 ***	$0.20 ***			
	(0.238)	(0.059)	(0.028)	(0.036)				(0.107)	(0.059)	(0.037)	(0.059)			

The numbers in parentheses are standard errors.

***, **, and * denote significance at the 1%, 5%, and 10%, respectively.

Table 9 Willingness to pay for "Pro-Animal" wool gloves over "Predator-Friendly" wool gloves

	-----Without Additional Information-----							-----With Additional Information-----						
FEM	Female	Male						Female	Male					
	$0.23 ***	$0.14 **						$0.29 ***	$0.13 *					
	(0.035)	(0.055)						(0.046)	(0.072)					
AGE	Under 24	25-44	45-59	60-84	Over 85			Under 24	25-44	45-59	60-84	Over 85		
	$0.26 ***	$0.22 ***	$0.17 ***	$0.11 *	$0.05			$0.09 **	$0.23 ***	$0.45 ***	$0.84 ***	$1.77		
	(0.048)	(0.031)	(0.040)	(0.070)	(0.109)			(0.045)	(0.038)	(0.075)	(0.246)	(1.138)		
EDUC	Elem.Sch.	High Sch.	2Yr College	4Yr College	Grad Sch.			Elem.Sch.	High Sch.	2Yr College	4Yr College	Grad Sch.		
	$0.02	$0.11 ***	$0.20 ***	$0.29 ***	$0.39 ***			$0.46 ***	$0.33 ***	$0.25 ***	$0.19 ***	$0.15 **		
	(0.066)	(0.042)	(0.030)	(0.043)	(0.073)			(0.166)	(0.070)	(0.040)	(0.046)	(0.061)		
INC	<$15K	$15-25K	$25-35K	$35-75K	$75-100K	$100-150K	>$150K	<$15K	$15-25K	$25-35K	$35-75K	$75-100K	$100-150K	>$150K
	$0.15 ***	$0.17 ***	$0.19 ***	$0.22 ***	$0.25 ***	$0.29 ***	$0.32 ***	$0.27 ***	$0.26 ***	$0.25 ***	$0.24 ***	$0.22 ***	$0.21 ***	$0.20 ***
	(0.049)	(0.037)	(0.030)	(0.035)	(0.051)	(0.074)	(0.103)	(0.044)	(0.039)	(0.036)	(0.038)	(0.045)	(0.055)	(0.069)
ALG	With	Without						With	Without					
	$0.22 ***	$0.20 ***						$0.26 ***	$0.24 ***					
	(0.034)	(0.030)						(0.047)	(0.063)					
PET	With	Without						With	Without					
	$0.23 ***	$0.15 ***						$0.37 ***	$0.07					
	(0.036)	(0.054)						(0.060)	(0.043)					
POPD	200/mi^2	978/mi^2	10,000/mi^2					200/mi^2	978/mi^2	10,000/mi^2				
	$0.17 ***	$0.20 ***	$0.30 ***					$0.29 ***	$0.25 ***	$0.14 *				
	(0.036)	(0.030)	(0.087)					(0.047)	(0.041)	(0.075)				
ANIMR	Not at all	Slightly	Partly	Mostly	Definitely			Not at all	Slightly	Partly	Mostly	Definitely		
	$0.05	$0.10 **	$0.16 ***	$0.23 ***	$0.31 ***			-$0.04	$0.03	$0.13 ***	$0.29 ***	$0.64 ***		
	(0.054)	(0.041)	(0.031)	(0.032)	(0.051)			(0.049)	(0.041)	(0.035)	(0.042)	(0.122)		
ENVK	Most	←					Least	Most	←					Least
	$0.20 ***	$0.20 ***	$0.20 ***	$0.21 ***	$0.21 ***	$0.21 ***	$0.21 ***	$0.18 ***	$0.21 ***	$0.25 ***	$0.28 ***	$0.31 ***	$0.34 ***	$0.37 ***
	(0.038)	(0.032)	(0.030)	(0.032)	(0.037)	(0.044)	(0.053)	(0.049)	(0.042)	(0.038)	(0.041)	(0.048)	(0.058)	(0.071)
FORG	Least	Some	Moderate	High				Least	Some	Moderate	High			
	-$0.03	$0.14 **	$0.21 ***	$0.25 ***				$0.12	$0.19 ***	$0.26 ***	$0.31 ***			
	(0.167)	(0.056)	(0.029)	(0.038)				(0.104)	(0.059)	(0.040)	(0.065)			

The numbers in parentheses are standard errors.

***, **, and * denote significance at the 1%, 5%, and 10%, respectively.