Human Values and Consumer Preferences for Extrinsic Credence Attributes in the German and Italian Markets for New Potatoes

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Abstract

In this research, we explore the relationship between observable socio-demographic consumer characteristics, consumers' unobservable human values as measured by Schwartz' Portrait Values Questionnaire, and consumers' preferences for extrinsic credence attributes on their purchases of new potatoes in two countries, Italy and Germany. Parallel marketing studies were conducted in each of the two markets, with the intention of comparing the impact of human values on purchases of new potatoes with several attributes (price, country of origin, carbon footprint certification, ethical certification, method of production, and packaging). Motivation for the study comes from the declining market share of the domestic early potato due to international competition. Applied methods include Principal Component Analysis and Latent Class Analysis.

1. Introduction

Consumer decision making is impacted by both the attributes of product choices, and consumer preferences. Firms frequently analyze consumer demographic characteristics as a proxy for consumer preferences to develop marketing strategies; nations seeking to promote an export market also look to consumer demographics in their market research. Product attributes were traditionally framed as intrinsic or physical attributes, such as color, firmness, taste or texture, and extrinsic attributes such as price or brand; increasingly, new extrinsic credence attributes, such as regional origin, method of production, or perceived impact of production have been used by both producers and consumers to differentiate the value of products (Olson, 1972; Grunert, 1996; Verbeke & Ward, 2006;Zeithaml, 1988; Grunert, 2006; Ennekinga et al., 2007; Banović et. al, 2012).

In order for the economic value of these extrinsic attributes to be recognized, producers must provide reliable information regarding the products' extrinsic attributes, usually via labelling, and consumers must be inclined to prefer the perceived products over those products with otherwise comparable attributes. Unfortunately, market research based solely on consumer

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demographics is a blunt instrument when used to identify consumer inclinations to purchase products with these extrinsic credence attributes. Information regarding gender, income, profession, family characteristics and so on can only go so far in identifying a potential consumer's perception of the additional value that extrinsic attributes contribute to a product. Instead, researchers have begun to explore how consumers' human values might provide insight into the economic valuation they place on extrinsic product attributes.

This paper seeks to compare how the human values of consumers in Italy and Germany impact a decision to purchase new potatoes that are differentiated by extrinsic credence attributes. Parallel marketing studies in these two countries asked consumers about their human values, their preferences for new potatoes, and basic demographic information. Results from this paper can inform the marketing strategies of firms and governments seeking to promote the sales of new potatoes differentiated by their extrinsic credence attributes. Results will inform suppliers about what product characteristics would be most valuable to consumers and provide them with practical recommendations on how to better market their product. In addition, this study will inform the debate on the relationship between consumers' lifestyles and food choices, and will enrich the discussion among agribusiness specialists and agro-food marketing researchers.

The paper is organized as follows: Section 2 describes the data collection methodology; Section 3 reviews the literature on the relationship between human values and consumer decision-making; Section 4 describes the model applied to uncover the effect of human values on consumer decision making in the two new potato markets; Section 5 presents the results of our analysis, and Section 6 concludes.

2. Data

The survey instrument was designed by a team of Italian researchers, and administered in both Italy and Germany by the research firm GfK Eurisko during the late summer of 2011. The survey period overlapped with the end of the new potato season, which allowed surveyors to identify both occasional and regular consumers of new potatoes.

The survey questionnaire briefly introduced the characteristics of the new potato. Respondents were then offered a series of hypothetical new potato product labels with a combination of six different extrinsic attributes, and were asked to choose the product that they preferred from the

series. Each extrinsic attribute was varied between two or three "levels" of attribute-specific options. For example, one of the five extrinsic attributes was "Country of Origin," and the product label specified one of the three following levels: 1) that the product was an "Italian/ German product"; 2) that the product was not of Italian/ German origin, but was identified as being a product of another country; or 3) there was no information provided about the product's country of origin. The remaining four extrinsic credence attributes studied in this research are Production Method, Carbon Footprint certification, Ethical Certification, and Packaging. The final extrinsic attribute is price. Attributes and Levels included in the randomized questionnaire design are shown in Table 1.

Table 1. Attributes and Levels included in the randomized questionnaire design

Attributes	**Description†**	**Levels**
Price (€/kg)		Base price: -25%; +25%; +75%
Country of Origin	The country where early potato was produced, if it appears on the label	a) Italian/German product b) The product is not Italian/German, but the origin appears on the label c) No info on the country of origin
Production Method	Modality of production for early potato. *Organic* implies the **substitution** of chemicals (pesticides, weed killers) with natural methods, while *Env- friendly* implies a **reduction** in the use of chemicals. If no labeling info, then early potato is to be considered neither organic nor environmentally friendly	a) Organic product b) Product from environmentally friendly agriculture c) No information
Carbon Footprint Certification	Product with known emissions of carbon dioxide	a) Carbon footprint logo b) No Carbon footprint logo

Attributes	Description†	Levels
Ethical Certification (EC)[2]	The EC logo on the label indicates that this early potato has been produced with safety in the workplace and fair reward of labor	a) EC logo b) No EC logo
Packaging	The type of packaging, if any	a) Packed in plastic b) Biodegradable Packaging c) Bulk

†Description of each attribute as it was presented to respondents before starting the choice experiment.

The labels offered were a result of randomized choice-based conjoint (CBC) advanced design with complete enumeration (Sawtooth Software, Inc.). Randomized CBC designs ensure that each attribute is as equally likely to occur as another; complete enumeration ensures that labels or profiles offered to respondents are as orthogonal to one another as is possible, and that there is balance in the frequency of offered product attributes. Within the choice set offered to each respondent, product attributes overlapped as few times as possible. Each respondent was offered a set of five choices within each choice set: four different potato product labels, and the option to purchase none of the above. Respondents were offered such a choice set five times. As there were two versions of the survey, there were ten possible choice sets offered in total. The order of choice sets offered was varied between respondents in order to avoid order bias. Examples of the Choice sets are shown in Figure 1 below.

[2] For the experimental design we used the expression "Ethical Certification", which referred to the SA8000 already adopted by one Italian grocery retailer. We did not use the term SA8000 directly, because we were unsure of the popularity of this certification at the time of the study.

Figure 1. Example of a choice set presented in the questionnaire

Level	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
_1	Italian/ German Origin	Non-Domestic product (Origin Known)		Italian/ German Origin	None of these products
_2					
_3	Environ-mentally Friendly	Environ-mentally Friendly		Organic Product	
_4		Carbon Footprint			
_5					
	€/kg 1.40	**€/kg 1.00**	**€/kg 0.60**	**€/kg 1.00**	

The next set of survey questions use the 21-question Portrait Values Questionnaire (PVQ) developed by Schwartz to measure respondents' ten individual human values (Schwartz et al., 2001). As mentioned in the introduction, socio-demographic characteristic are inadequate as stand-alone predictors of consumers' preferences for the extrinsic credence product attributes measured in this study. Researchers have suggested that consumers' preferences for these attributes are linked to individual consumers' worldviews. Schwartz has developed a widely tested taxonomy of culturally-independent human values that characterize human worldviews, and a series of survey instruments that can be used to classify consumers within this taxonomy. This study employs a short version of the Schwartz survey – the PVQ. Section 3 will further address the relevance and application of this tool for the purposes of this study.

Each of the 21 questions in the PVQ address one of the following ten human values: self-direction; stimulation; hedonism; achievement; power; security; conformity; tradition;

universalism; and benevolence. The survey provides respondents with statements that describe an unknown person's attitude, and asks respondents to rank the extent to which they identify with this person, using a Likert scale of one to seven, where one indicates a low level of identification and 7 ranks a high level of identification.

The final set of questions gathered socio-demographic information about the respondents and their households. Descriptive Statistics are shown in Table 2 below.

Table 2. Socio-demographic characteristics by Country, variable name and type

	Var. Name	Var. Type	Germany	Italy
Gender (%)				
Male			46	13
Female			54	87
Age(years)**:** mean (st.dev)	*Age*	*Continuous*	42 (13.14)	52 (14.37)
Children <10 years old (%)	*Kids*	*Dichotomous*		
Yes			79	81
No			21	19
Household (HH) Income (%)				
<1500 Euro/month	*Low Income*	*Dichotomous*	38	26
1500-3050 Euro/month			39	37
>3050 Euro/month	*High Income*	*Dichotomous*	23	37
Education (%)				
<High School			12	37
High School			54	41
Univ. Incomplete			3	7
Univ. Graduated			31	15
Geographical Region (%)				
North	*North*	*Dichotomous*	49	50
Center			26	19

	Var. Name	Var. Type	Germany	Italy
South	*South*	*Dichotomous*	25	31
HH early potato purchases in the current year (%)				
>Once/week			2	1
Once/week			12	8
2-3 times/month			16	15
Once/month			17	19
<Once/month			53	57
Sample Size			1009	1004

Survey respondents were interviewed (where and how, and how selected?). The Italian sample contains 1004 respondents, and the German sample contains 1009 respondents.

3. Human values and consumer choices

The analytical structure used by economists to study market segmentation and consumer studies has lately been criticized as an inadequate framework within which to study consumer choices for extrinsic credence attributes (Carraciolo, et al., 2013; Cembalo, et al., 2011). Market segmentation approaches use basic demographic profiles to identify consumer behavior, but for decades research has suggested that consumers within demographic classes have widely varying consumer preferences (Hustad & Presser, 1972). In addition, the marketplace has, in the last four decades, begun to reflect consumers' increasing willingness to pay for product attributes that do not strictly maximize direct consumer utility – as evidenced by the proliferation of products that claim to provide value to the consumer beyond the utility given by consumption of the product. Product attributes that reflect reduced environmental impact, ethical treatment of animals, equitable and safe working conditions for workers manufacturing the product, and a preference for supporting one's own regional or national economic production are examples of extrinsic credence attributes of products that garner purchasing preference. Therefore, standard methods of product market research may fall short on two fronts: both in providing a clear

picture of consumers' motivations, and in defining a set of product attributes relevant to consumers' increasingly sophisticated tastes.

Market research, then, needs to evolve. This paper, along with a number of other recent papers, suggests that market research must identify both the new dimensions of product information that address extrinsic credence attributes, and a more refined method of analyzing consumer purchase motivations with regards to these attributes. Consumers' food shopping is determined by the need to satisfy nutritional requirements, but food choices are driven by health and environmental concerns. These concerns are related to current and future generations, and depend on consumers' lifestyles and values. Worsley and Lea (2008) suggest that personal values are stronger predictors of consumers' concerns about food and health than demographic characteristics. While much work has been conducted to predict consumers' choices based on food attributes and observable consumers' characteristics (discrete choice-models), less research is available on the influence of personal values on consumer's purchasing attitude, though values and beliefs are likely pivotal predictors of food consumption. An example of how values and beliefs dramatically affect consumers' food choices is the practice of vegetarian diet (Allen and Baines, 2002; Worsley et al., 2010), but also the search of nutrition information, the commitment in buying organic produce, as well as the preference towards domestic products due to ethnocentric reasons.

The objective of this study is to relate consumers' preference towards food attributes like country of origin, production method (i.e., organic, environmentally friendly, conventional), carbon footprint label, fair-trade, and packaging, to their human values, and use the latter as predictors for product choice. This analysis will be conducted by explicitly considering consumers' values and attitudes, using Schwartz Portrait Values (Schwartz et al., 2001): self-direction, stimulation, hedonism, achievement, power, security, conformity, tradition, universalism and benevolence. These values are unveiled throughout *ad-hoc* questionnaire, and then tested for statistical robustness. They will be ultimately used as instruments to predict consumer's behavior. This method allows converting unobservable characteristics into observable market segments.

This research compares cross country differences in preferences and consumer values in two European countries, Italy and Germany. Cross country comparisons are of paramount relevance to obtain effective product design, and to establish different pricing strategies when export is

involved. We use two unique sets of cross-sectional data, collected in the two countries in 2011, which comprise thousands of observations from representative samples of the Italian and German population.

We ask how psychographic characteristics and marketing claims relate to product purchases. This analysis is focused on a specific product, the early potato[3]. In Italy, early potato cultivation is concentrated mainly in the southern regions, especially in small areas of the South, which have become almost territorial districts that bind their agricultural economy to this crop. Likewise, in Germany, early potatoes have been traditionally grown in distinctive areas, with Lower Saxony, Pfalz and Rhineland being the most important. A crucial motivation for this study is that consumption of domestic early potatoes has lately decreased due to competition with similar products from Middle East and Northern African countries[4].

The opportunity for Italian and German early potato producers to regain important market shares in their respective markets depends on their ability to differentiate their product from early potatoes supplied by other countries. In this context, the quality and the commercial identity of the domestic product need to be well established. Improved characteristics of the product can be signaled to consumers through labeling, which has acquired the broader role of influencing product design, advertising, consumer confidence in food quality and consumer education on health and environmental protection.

We would expect our model to generally show that consumers whose human values closely correspond with humanistic tendencies, such as benevolence, security, universalism and perhaps tradition would demonstrate preferences for ethical and carbon footprint certification and packaging. Consumers who align with self-regarding values such as stimulation and hedonism

[3] The UNECE defines "early potatoes" as potatoes harvested before they are completely mature, marketed immediately after harvest and whose skin can be easily removed without peeling. Early potatoes from the EU and non-EU Mediterranean area (Spain, Italy, Cyprus, Greece, Malta, Portugal, Morocco, Israel and Egypt) are harvested and then commercialized in the first half of the calendar year. Within this group of countries, Israel and Egypt are the main suppliers of early potatoes to the EU while, within Northern Europe, Germany is the main producer. The season of early potatoes obtained in the Continental and Northern part of Europe starts in late May-June and has its peak in July-August.

[4] http://www.fao.org/publications/sofa/en/

might prefer products with potential benefits to the consumer, such as those accruing to products with "safer" production methods, for example.

4. Methodology and Model

Our methodology follows that of Brunso et al. (2004), Cembalo et al. (2013), Kikulwe et al. (2007), Hu, et al. (2004) and Schwartz (2001). We first evaluate the reliability of the Schwartz Portrait Value results. Upon satisfactory reliability, we conduct a Principal Components Analysis (PCA) with varimax rotation to reduce the number of variables and identify human values factor loadings for both German and Italian respondents. We then use the factor loadings along with standard demographic characteristics and extrinsic product attributes in a Latent Class Analysis (LCA) to determine the comparative effects of these three aspects of consumer decision making on new potato products.

4.1 Reliability

Cronbach's alpha scores were computed for each of the 10 Schwartz Values to determine reliability. For nine out of the ten Schwartz Values, each Value's reliability was a function of responses to two of the PVQ questions; for the Schwartz Value "Universalism," the reliability was calculated as a function of the responses to three questions (Brunso et a., 2004; Schwatz, 2001).

4.2 Principal Component Analysis

To reduce the number of variables and obtain factor loadings to be used in our LCA, we then conducted a PCA of the Schwartz Values, using varimax rotation. The orthogonality conditions of the varimax rotation are critical in this analysis because of the oppositional tension inherent in the Schwartz value design (Cembalo et al., 2013). Kaiser-Meyer-Olkin tests (KMO) were performed to verify the validity of the initial data applied to the model. Our analysis identified four components, a significant reduction from the original 21 questions. These four components represent the relative weight of each observation on the composition of factors.

4.3 Latent Class Analysis

The factor loadings for these four components were then included in our Latent Class Analysis as consumer attributes, and are modeled below as human values segments. The Latent Class Model (LCM) identifies the utility that a consumer *i*, who belongs to a particular segment *s*, derives from choosing a new potato with the extrinsic attributes $j \in C$ in the *t*th occasion discussed above. Utitlity can be written as:

$$U_{ijt/s} = \beta_s X_{ijt} + \varepsilon_{ijt/s}$$

X_{ij} is a vector of new potato attributes *j* for consumer *i*, β_s is the segment-specific vector of human values parameters. Heterogeneity in extrinsic attributes is captured by differences across β_s vectors. We assume that the error terms are identically and independently distributed (iid) and follow a Type I Gumbel distribution (Kikulwe, et al., 2007; Hu et al., 2004). The probability of consumer *i* in segment *s* choosing alternative *j* is given by :

$$P_{ijt/s} = \frac{\exp(\beta_s X_{ij} t)}{\sum_{h=1}^{C} \exp(\beta_s X_{iht})}$$

The choice probability $P_{ijt/s}$ is conditional on class probabilities. The LCM uses information derived from individuals' choices to estimate preferences, instead of relying solely on standard demographic variables (Hu, et al., 2004).

We imposed segmentation of 5 categories – one for each of the four classes identified in the PCA and the outside option.

5. Results

5.1 Reliability

Cronbach's alpha was calculated for each of the 10 Schwartz Values. Alpha scores are reported below in Table 3. According to the literature, alpha scores of above 5 are generally considered to indicate reliability for alpha values when using the Schwartz model. All of the Values except "tradition" meet this standard. The "tradition" value is generally found to have a low alpha score. We retain this value, however, as suggested by the literature.

Reliability of the 2/3 item Portrait Values Questionnaire scores (Cronbach's alpha)

	German data	Italian Data
	α	α
Power	0.6428	0.6282
Achievement	0.7636	0.8133
Hedonism	0.6575	0.6143
Stimulation	0.5671	0.7074
Self-Direction	0.5587	0.5560
Universalism	0.5883	0.6804
Benevolence	0.7192	0.6215
Tradition	0.5000	0.3470
Conformity	0.5914	0.5402
Security	0.7195	0.5734

5.2 Principal Component Analysis

Principal Component Analysis was conducted; each Factor Analysis identified four components, with KMO tests results above .850. The analysis reduced the number of human values categories from 21 to four, significantly simplifying the LCM below. The factor loadings from this analysis were used in the LCM below to categorize individuals with similar identification with human values.

5.3 Latent Class Model

Statistics for the LCM are reported in Table 4 below. Recall that segmentation into 5 classes was determined by theory, which was supported by the results from the PCA above.

Latent Class Model Statistics

	Number of segments	Number of parameters	Log likelihood at convergence	$\bar{\rho}^2$	AIC	AIC3	BIC
Germany	5	88	-6828.254	0.1582	2.74	2.75	2.86
Italy	5	80	-5722.23	0.2855	2.33	2.33	2.43

The "Base Case" in this model represented a consumer whose human values left them outside of the classifications noted above (i.e. – the outside option) – or, someone who did not account for

their human values as depicted in the Schwartz model when making consumer choices. The human value Factor Loadings for this individual are all equal to zero. The demographic characteristics of this individual depict an individual living in the respective Southern region of their country, a person with less than a high school education, and a person categorized as low income. LCM results reported in Table 5 below may be compared with the product attributes depicted in Figure 1 above. The utility function parameters for new potato attributes depict the relative ranking of product attributes for consumers who fall within a segment. So, for consumers who fall within the first segment, the Country of Origin label for their respective countries has a relatively high ranking relative to Production method, Carbon Footprint certification, Ethical certification and packaging.

	Italy				**Germany**			
Variable	Coeff.	Stnd Err	b/St.Er.	P[|Z|>z]	Coeff.	Stnd Err	b/St.Er.	P[|Z|>z]
Utility parameters in latent class -->> 1								
ATT2_1|1|	7.2198	0.595126	12.13	0	8.61779	0.90801	9.491	0
ATT2_2|1|	1.6952	0.383153	4.424	0	2.18906	0.66189	3.307	0.0009
ATT3_1|1|	-0.696	0.196742	-3.537	0.0004	-0.7432	0.31063	-2.392	0.0167
ATT3_2|1|	-1.354	0.310853	-4.355	0	-1.4308	0.49739	-2.877	0.004
ATT4_1|1|	0.9636	0.162038	5.947	0	1.30612	0.28136	4.642	0
ATT5_1|1|	0.3325	0.196572	1.691	0.0907	0.46791	0.35646	1.313	0.1893
ATT6_|1	0.441	0.211813	2.082	0.0373	-3.6471	0.67605	-5.395	0
ATT6_1|1|	-2.808	0.409319	-6.859	0	0.81951	0.34119	2.402	0.0163
Utility parameters in latent class -->> 2								
ATT2_1|2|	3.3412	1.292007	2.586	0.0097	0.56007	0.0546	10.258	0
ATT2_2|2|	-0.934	31.04301	-0.03	0.976	0.46443	0.04744	9.789	0
ATT3_1|2|	-4.31	19.328	-0.223	0.8235	0.36402	0.05785	6.293	0
ATT3_2|2|	-10.86	66.78646	-0.163	0.8708	0.46901	0.05593	8.386	0
ATT4_1|2|	-0.31	1.264363	-0.246	0.8061	-0.0935	0.04021	-2.326	0.02
ATT5_1|2|	-0.139	30.98579	-0.004	0.9964	0.10686	0.04312	2.478	0.0132
ATT6_|2	-10.38	2816.532	-0.004	0.9971	0.13599	0.05001	2.719	0.0065
ATT6_1|2|	2.5011	30.99217	0.081	0.9357	0.32419	0.04961	6.535	0
Utility parameters in latent class -->> 3								
ATT2_1|3|	-1.004	3.693132	-0.272	0.7858	7.64454	0.88694	8.619	0
ATT2_2|3|	-2.254	3.386349	-0.666	0.5056	2.68977	0.75294	3.572	0.0004
ATT3_1|3|	-0.867	2.782575	-0.311	0.7555	-1.9592	0.82084	-2.387	0.017
ATT3_2|3|	-2.681	3.092154	-0.867	0.386	-3.4959	0.50304	-6.95	0
ATT4_1|3|	-2.678	2.837267	-0.944	0.3452	-1.4336	0.3055	-4.693	0

ATT5_1|3|	-3.684	2.116393	-1.741	0.0817	1.21386	0.71968	1.687	0.0917
ATT6_|3	1.3256	5.680543	0.233	0.8155	-0.652	0.5528	-1.179	0.2382
ATT6_1|3|	-1.272	3.135419	-0.406	0.685	-5.4502	0.85467	-6.377	0
Utility parameters in latent class -->> 4								
ATT2_1|4|	-0.386	0.722144	-0.535	0.5925	0.69135	0.24105	2.868	0.0041
ATT2_2|4|	0.1538	0.744351	0.207	0.8363	0.12994	0.29016	0.448	0.6543
ATT3_1|4|	-1.55	0.758647	-2.043	0.0411	3.16574	0.52806	5.995	0
ATT3_2|4|	-0.267	0.800393	-0.334	0.7382	2.40365	0.4655	5.164	0
ATT4_1|4|	1.1999	0.724554	1.656	0.0977	1.95193	0.62789	3.109	0.0019
ATT5_1|4|	0.3541	0.547246	0.647	0.5176	-3.7306	0.69358	-5.379	0
ATT6_|4	-2.351	0.908078	-2.59	0.0096	0.33378	0.39871	0.837	0.4025
ATT6_1|4|	-1.185	0.48665	-2.436	0.0149	0.71757	0.3612	1.987	0.047
Utility parameters in latent class -->> 5								
ATT2_1|5|	1.3601	0.054955	24.75	0	-2.0157	1.19282	-1.69	0.0911
ATT2_2|5|	0.8802	0.051461	17.1	0	-0.8828	1.02581	-0.861	0.3895
ATT3_1|5|	0.4161	0.057393	7.251	0	-1.2415	0.92348	-1.344	0.1788
ATT3_2|5|	0.2606	0.054113	4.816	0	-0.087	0.50903	-0.171	0.8643
ATT4_1|5|	0.3007	0.042086	7.146	0	-2.6179	1.24027	-2.111	0.0348
ATT5_1|5|	0.3852	0.04061	9.486	0	-2.0628	0.86444	-2.386	0.017
ATT6_|5	0.2203	0.052677	4.183	0	-1.4649	1.46075	-1.003	0.3159
ATT6_1|5|	-0.167	0.052979	-3.159	0.0016	-0.7589	1.22524	-0.619	0.5357
Utility is THETA(1) in class probability model								
Constant|	-0.811	0.186903	-4.34	0	1.76104	0.7486	2.352	0.0187
_FAC_1|1|	-0.286	0.080101	-3.565	0.0004	0.23188	0.36293	0.639	0.5229
_FAC_2|1|	0.0479	0.084553	0.567	0.5708	-0.0416	0.23271	-0.179	0.858
_FAC_3|1|	0.3592	0.089466	4.015	0.0001	-0.0707	0.35928	-0.197	0.844
_FAC_4|1|	-0.012	0.079454	-0.148	0.882	-0.0438	0.23895	-0.183	0.8545
_GEO_C|1|	0.2237	0.221183	1.011	0.3118	0.02822	0.64827	0.044	0.9653
_GEO_N|1|	-0.019	0.182217	-0.105	0.9166	0.75013	0.64665	1.16	0.246
HIGH|1|	0.1075	0.179803	0.598	0.5497	-0.234	0.82987	-0.282	0.778
UNIV|1|	0.7	0.321327	2.178	0.0294	-24.745	.143396D+13	0	1
UNIV|1|	0.6859	0.237518	2.888	0.0039	-0.0681	0.96814	-0.07	0.9439
					-0.7006	0.73262	-0.956	0.3389
					-0.3627	0.59825	-0.606	0.5443
Utility is THETA(2) in class probability model								
Constant|	-2.832	0.941517	-3.008	0.0026	3.26556	0.69404	4.705	0
_FAC_1|2|	-0.144	0.577975	-0.25	0.8026	0.18016	0.35706	0.505	0.6139
_FAC_2|2|	-0.449	0.459927	-0.976	0.3292	-0.0999	0.22087	-0.453	0.6509
_FAC_3|2|	-0.147	0.384987	-0.382	0.7022	-0.1973	0.35134	-0.562	0.5744
_FAC_4|2|	-0.114	0.349386	-0.326	0.7443	0.1129	0.22628	0.499	0.6178

_GEO_C|2|	-1.969	1.985608	-0.991	0.3215	0.06126	0.61638	0.099	0.9208
_GEO_N|2|	-1.012	0.678483	-1.492	0.1357	0.44608	0.61592	0.724	0.4689
HIGH|2|	-0.256	0.952188	-0.269	0.788	-0.4174	0.7892	-0.529	0.5969
UNIV|2|	-7.179	6819.681	-0.001	0.9992	8.14117	5346.22	0.002	0.9988
UNIV|2|	-0.23	1.097096	-0.21	0.834	-0.1219	0.92878	-0.131	0.8956
					-0.365	0.6981	-0.523	0.6011
					-0.364	0.57423	-0.634	0.5262
Utility is THETA(3) in class probability model								
Constant|	-3.067	0.594149	-5.162	0	0.4602	0.88258	0.521	0.6021
_FAC_1|3|	0.1675	0.364921	0.459	0.6462	0.08567	0.37892	0.226	0.8211
_FAC_2|3|	-0.372	0.287192	-1.295	0.1955	-0.0077	0.26321	-0.029	0.9768
_FAC_3|3|	-0.24	0.315835	-0.761	0.4466	-0.396	0.37895	-1.045	0.2961
_FAC_4|3|	0.046	0.326679	0.141	0.888	0.01493	0.27553	0.054	0.9568
_GEO_C|3|	-1.275	5.449815	-0.234	0.815	0.45689	0.72782	0.628	0.5302
_GEO_N|3|	-0.233	0.469091	-0.497	0.6195	0.98563	0.69728	1.414	0.1575
HIGH|3|	-0.029	0.661049	-0.045	0.9645	0.21948	0.92033	0.238	0.8115
UNIV|3|	-0.383	1.263348	-0.303	0.7618	8.46882	5346.15	0.002	0.9987
UNIV|3|	0.9976	0.73226	1.362	0.1731	0.2222	1.07186	0.207	0.8358
					-0.4184	0.76972	-0.544	0.5868
					-0.261	0.63601	-0.41	0.6815
Utility is THETA(4) in class probability model								
Constant|	-3.991	1.138175	-3.506	0.0005	1.46098	0.79818	1.83	0.0672
_FAC_1|4|	1.642	0.862413	1.904	0.0569	0.15881	0.37839	0.42	0.6747
_FAC_2|4|	-0.653	0.707864	-0.922	0.3563	0.23751	0.26916	0.882	0.3775
_FAC_3|4|	-0.235	0.549664	-0.427	0.6691	-0.1942	0.37081	-0.524	0.6005
_FAC_4|4|	-0.48	0.626062	-0.766	0.4436	0.26647	0.27501	0.969	0.3326
_GEO_C|4|	0.7106	1.001527	0.709	0.478	0.00243	0.74619	0.003	0.9974
_GEO_N|4|	-1.298	1.21302	-1.07	0.2845	0.62589	0.72005	0.869	0.3847
HIGH|4|	-0.194	0.880446	-0.22	0.8258	-0.9733	0.88287	-1.102	0.2703
UNIV|4|	-8.307	4344.727	-0.002	0.9985	7.30785	5346.18	0.001	0.9989
UNIV|4|	-9.278	4086.747	-0.002	0.9982	-0.3029	1.01758	-0.298	0.766
					-0.5933	0.81265	-0.73	0.4654
					-0.3168	0.64968	-0.488	0.6258
Utility is THETA(5) in class probability model								
Constant|	0	.....(Fixed	Parameter).....		0	.....(Fixed	Parameter).....	
_FAC_1|5|	0	.....(Fixed	Parameter).....		0	.....(Fixed	Parameter).....	
_FAC_2|5|	0	.....(Fixed	Parameter).....		0	.....(Fixed	Parameter).....	
_FAC_3|5|	0	.....(Fixed	Parameter).....		0	.....(Fixed	Parameter).....	
_FAC_4|5|	0	.....(Fixed	Parameter).....		0	.....(Fixed	Parameter).....	
_GEO_C|5|	0	.....(Fixed	Parameter).....		0	.....(Fixed	Parameter).....	

_GEO_N|5|	0	.....(Fixed	Parameter).....	0	.....(Fixed	Parameter).....
HIGH|5|	0	.....(Fixed	Parameter).....	0	.....(Fixed	Parameter).....
UNIV|5|	0	.....(Fixed	Parameter).....	0	.....(Fixed	Parameter).....
UNIV|5|	0	.....(Fixed	Parameter).....	0	.....(Fixed	Parameter).....
				0	.....(Fixed	Parameter).....
				0	.....(Fixed	Parameter).....

6. Conclusion

At this stage, we are confident that our methodology reveals interesting information about the relationship between human values and marketing for extrinsic credence attributes. The signs and magnitudes of our relative coefficients seem to conform with expectations. However, the results as reported need to be refined in several ways. A more thorough consideration of the classification consumers according to the PCA needs to be undertaken. We will likely need to upgrade the statistical software that we are using to conduct the LCA so that we can include additional information, including price information (which was omitted in error from the results reported) and additional demographic information that exceeded our computing capacity, such as age, gender, household characteristics, household professions, and distance to shopping areas. Additionally, we intend to improve our model to address any statistical differences between Italian and German consumers of new potatoes.

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