Purchasing Organic Food in U.S. Food Systems: A Study of Attitudes and Practice

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Abstract:

Consumers' preference for organic foods in the context of food aspects considered important in a consumption decision and socioeconomic variables has been examined in this study. The results indicate that food aspects related to naturalness, vegetarian-vegan and production location were critical enhancing regularity of organic food purchases. While the familiarity food aspect was viewed as a 'no' issue as far as organic food purchases are concerned. Results further indicate that females and young people buy organics on a regular basis. In terms of political affiliation and church attendance, the liberals and those who at least visit places worship once a month will also regularly buy organics.

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The organic food industry has been growing rapidly and now accounts for about two per cent of the world's retail food market. The organic industry (food and non-food) reached $10.8 billion in consumer sales in 2003 expanding by 20% in 2004 to reach $10.4 billion (Scheel, 2004; Organic Trade Association, 2004). Increase in sales of organics have ranged between 17% and 21% each year since 1997, compared with total U.S. food sales, which grow at an average rate of 2% to 4% a year (Scheel, 2004; OTA, 2004).

Consumer magazines claim that consumers buy organic foods for health-related reasons (FMI, 2003; Shopping For Health, 2003). Fueling the growth of the U.S organic food market are the consumers' concerns about food safety, in particular the well-documented risks associated with pesticide use in conventional agriculture (CDC, 2005; Lu et al., 2005). Recent scares associated with e-coli, salmonella, and BSE incidences have further hyped consumers' substantial interests in organic foods. In comparison to the genetically modified foods market, the development of the organic market is growing with relatively little controversy, especially since the 2002 establishment of national organic standards.

The growth of organic agriculture is seen as part of an emerging trend in consumer demand to know what benefits a food may deliver before the consumer will make a purchasing decision (Caswell and Mojduska, 1996). Relatedly, Conner, (2004) finds a connection between the high prices paid for organics and consumers' belief in the superiority of organic foods and their ability to deliver health benefits. More generally, the organic purchasing decision may be seen as supportive of the view that organic farming is good for the environment and farm economies, and responsive to the farm

worker conditions – even though these opinions are sometimes not based in fact (Brasher, 2005; Lindsay, 2005; Shreck et al., 2005; Martin, 2005). Focusing on the organic industry's long-term sustainability, profitability, and success, Conner, (2004); Conner and Christy, (2004), emphasize the importance of labeling and compliance to unified standards as necessary conditions for growth (Conner, 2004; Conner and Christy, 2004). On the global scene, Lohr, 2003, indicates that organics have pemiated the entire marketing chain, but remain a niche market given the relatively small number of consumers. The study concludes that the success of the organics market will be determined by price premiums, price quality tradeoffs, country of origin, GE content and other social concerns.

Previous literature:

A number of previous studies on the organic food market provide analyzes purchases based on socio-economic variables with some linking purchasing motives solely on product attributes such as taste, freshness, quality, safety etc. A common finding running through most of the studies is that organic food purchasers are likely to be those with high incomes, highly educated (college and above) and young (Govindasamy and Italia 1990).

Some significant effort also has been expended on the willingness to pay (WTP) type of studies using experimental and focus group methodologies (Krystallis and Chryssohoidis, 2004; Batte et al., 2004). For example, Krystallis and Chryssohoidis (2004), In a Greek urban setting found that factors such as food quality and security, trust in the certification, and in some cases, the brand name correlated much more strongly with WTP than did price or socio-demographic variables. Magnusson, 2004 evaluated

similarities and differences in factors driving WTP for different food products that included organics, conventional and GMOs. The findings suggest that a majority of the consumers have positive attitudes towards purchasing organic foods but few purchase organic foods regularly.

Lacking from most studies of the studies is the explicit link between organic food demand and vested public interests such as civic engagement (cf. civic agriculture Lyson 2004) or the public's participation in the food system (Hinrichs and Lyson 2006, forthcoming). This paucity of analysis makes it difficult to understand, for example, why Woodbury County, Iowa developed an economic development and administrative purchasing policy that: a) encourages local farmers to grow organic crops and livestock; and b) requires the County and its food service contractor to buy organic, local grown food that is grown and processed within a 100-mile radius of the County Courthouse in Sioux City (Hytrek, 2006).

Although many studies provide valuable information on who purchases organics, we analyze the recent trends wherein purchasing factors of organic, local, and socially responsible (e.g. fair trade) foods intersect. Weir, Anderson, and Millock, 2003) studied the effect of both public and private factors influences on consumers' demand for organics. Their results show that private benefits i.e., user values such as taste, freshness and health product benefits influence purchases more than public (non-user) values such as environmental and animal welfare. Our study expands on their research by examining U.S. public attitudes toward organic purchasing in the context of their perceptions about the U.S. food systems. The specific objectives of the study are to: (i) identify and

estimate the importance of the various factors driving consumer perception and acceptance of organic food products; and (ii) profile likely consumers of organic foods.

The study contributes to the emerging literature on consumer perceptions about the food systems. The findings generated will inform policy makers on general food debate and will be useful to the marketers in positioning organic foods in competition with other foods.

Survey Methodology and Empirical Model

A survey instrument developed by the Food Policy Institute at Rutgers University was used to collect data for this study. The survey collected information on core questions related to Americans' awareness and knowledge of transgenic techniques, willingness to purchase labeled foods (organic and GM) and views on food aspects considered important in consumption decisions. Also collected, was data on consumer's attitudes towards personal health and safety as well as environmental concerns relating to foods and agricultural production systems. Additional respondents' information on socio-economic characteristics, political, moral, and religious views was also collected.

The Food Policy Institute contracted the opinion polling firm, Shulman, Ronca, and Bucuvalas, Inc. to conduct 1201 telephone interviews using computer-assisted telephone interview (CATI) technology. Interviewers were consistently monitored throughout the field period. The interviews were conducted between February 27, 2003, and April 1, 2003[1]. To limit the length of the survey and minimize fatigue on the part of respondents, two versions of the survey were created and given to two identically drawn split samples. While the majority of the questions were administered to the entire

[1] Interviewing was not conducted on March 21 and 22 due to the start of "Operation Iraqi Freedom" and the coverage it was receiving on television.

sample, certain questions within each of the two versions were unique and only posed to half the sample. Version A had had 600 respondents and an average interview length of 24.8 minutes, while Version B had 601 respondents averaged 26.4 minutes.

All interviews were conducted in English. Potential respondents were selected using national random digit dialing across the entire United States. U.S. Census Bureau population estimates determined the distribution necessary for proportionate geographic coverage. Appropriate weighing on age, gender, and race was done to correct for disproportionate representation. The CATI program guided a random but balanced selection process to ensure that representative number of males and females were interviewed. The sampling design accounts for the possibility that people who answer the telephone immediately are different from those who are rarely at home. To maximize generalizability, a 12-call design was employed with attempts to contact an elusive individual made at different times and days throughout the week. Interviewers left a voice mail message on the second, fifth and ninth attempt, explaining the study and the purpose for calling. The CATI software maintained callback appointments and prompted the interviewers to leave an answering-machine message when necessary.

Many of the telephone numbers originally selected as part of the sampling frame were excluded as non-residential or non-working numbers. Only 38% of the phone numbers selected at random yielded completed interviews. However, calls to 56% of the working residential numbers resulted in completed interviews. Moreover, 65% of those who were available and eligible to participate agreed to complete the study. These response rates did not significantly differ between the two versions of the questionnaire.

The 1,201 completed interviews yield a sampling error rate of ±3%, with the split-ballot format yielding a sampling error rate of ±4%.

During the telephone interview, survey participants were asked to reveal their purchasing decisions for organic foods by responding to the following statement: *How often do you buy food products labeled specifically as "Organic?" Would you say*: The possible responses were: "*never*"; "*rarely*"; "*sometimes*"; "*frequently*"; "*always*"; "*don't know*" and the option of refusing to answer. Using consumers' responses to the above statement, the binary dependent variable *BUYORG* was defined by assigning a value of 1 if the respondent chose "*sometimes*"; "*frequently*"; or "*always*" and 0 if the response was either "*never*" or "*rarely*". Respondent socioeconomic characteristics and their views on importance of specific food aspects considered important in consumption decisions were used as the explanatory variables of the empirical model.

Conceptual Framework

The objective of this study is to identify and estimate the influence of consumers' views specific food aspects (attributes) and personal attributes on demand for organic foods. The Lancaster (1966a,b) model provides the natural setting within which consumers' food choices can be analyzed in terms of the product attributes. In this model, consumers derive utility (U) from the characteristics or attributes (z), which are embodied in the product they buy.

$$U = U(z_1, z_2, \cdots, z_m) \tag{1}$$

Although Lancaster envisioned utility to depend on product attributes only, this framework can be viewed as one where utility depends on product attributes as well as on consumers'

personal attributes. In the context of this study, it is assumed it is the presence/absence of such product attributes that are relevant in a consumers' food choice.

We analyze consumers' willingness to buy organic foods by integrating the above model within the random utility discrete choice model. Following the random utility framework, it is assumed that a consumer faces a choice between buying either the organic food or its alternative. Utilities derived from an alternative and the organic product varieties are given by U_T and U_{ORG}, respectively. However, these utility levels are not directly observable. The observable variables are the product attributes a (*a = T, ORG*) and a vector of consumer characteristics (*x*). The random utility model assumes that the utility derived by consumer i from the product with attribute a (a = *T, ORG*) can be expressed as:

$$U_{ai} = V_{ai} + \varepsilon_{ai} \tag{2}$$

where U_{ai} is the latent utility level attained by the i^{th} consumer by choosing the product attribute a (*a = T, ORG*), V_{ai} is the explainable part of the latent utility that depends on the product attribute and the consumer characteristics, and ε_{ai} is the 'unexplainable' random component in U_{ai}.

The utility maximizing consumer will choose to buy the organic variety of a product if and only if $V_{ORGi} + \varepsilon_{ORGi} > V_{Ti} + \varepsilon_{Ti}$ or equivalently if $\varepsilon_i = \varepsilon_{Ti} - \varepsilon_{ORGi} < V_{ORGi} - V_{Ti}$. Since ε is unobservable and stochastic in nature, the consumer's choice is not deterministic and cannot be predicted exactly. Instead, the probability of any particular outcome can be derived. The probability that consumer i will buy the organic variety of the product is given by:

$$P_i = \text{Prob}(\varepsilon_{Ti} - \varepsilon_{ORGi} < V_{ORGi} - V_{Ti}) = \text{Prob}(\varepsilon < V_{ORGi} - V_{Ti}) \tag{3}$$

Describing the density function of ε by $f(\varepsilon)$, the above probability is given by:

$$P_i = \int_{\varepsilon} Z_i(\varepsilon_i < V_{Gi} - V_{Ti})\, f(\varepsilon_i) d\varepsilon_i \quad (4)$$

where Z_i is an indicator variable that equals 1 when the term inside parenthesis is true and 0 otherwise. In other words, the indicator variable Z_i is a binary variable that equals 1 when the utility from the organic product exceeds that from the alternative.

In order to empirically implement the above conceptual framework, it is assumed that ε_{ai} is identically and independently distributed as type I extreme value in which case $\varepsilon_i = \varepsilon_{Ti} - \varepsilon_{Gi}$ follows the logistic distribution (Train, 2002). Under this distributional property of ε_i, the probability that consumer i chooses the organic food product is given by the standard logit model of discrete choice (McFadden 1974, 1984).

The relation between a consumer's willingness to buy the organic food variety and his/her views on a specific food aspects and socioeconomic characteristics is explored by modeling the indicator variable Z_i for the i^{th} consumer as a function of his/her rating of the food aspect and the socioeconomic characteristics as follows:

$$Z_i = \boldsymbol{\beta}\mathbf{X}_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \ldots + \beta_k x_{ik} + \nu_i, \quad i = 1, 2, \ldots, n \quad (5)$$

where x_{ij} denotes the j^{th} attribute of the i^{th} respondent, $\boldsymbol{\beta} = (\beta_0, \beta_1, \ldots, \beta_k)$ is the parameter vector to be estimated and ν_i is the random error or disturbance term associated with the i^{th} consumer. Under the logistic distributional assumption for the random term, the probability P_i (that the i^{th} consumer will choose the organic food variety) can now be expressed as (Green, 2002):

$$P_i = F(Z_i) = F(\beta_0 + \sum_{j=1}^{k} \beta_j x_{ij}) = F(\boldsymbol{\beta}\mathbf{X}_i) = \frac{1}{1 + \exp(-\boldsymbol{\beta}\mathbf{X}_i)} \quad (6)$$

The estimated β-coefficients of equation (6) do not directly represent the marginal effects of the independent variables on the probability P_i that the GM variety will be

chosen. In the case of a continuous explanatory variable, the marginal effect of x_j on the probability P_i is given by:

$$\partial P_i / \partial x_{ij} = \left[\beta_j \exp(-\boldsymbol{\beta}\mathbf{X}_i) \right] / \left[1 + \exp(-\boldsymbol{\beta}\mathbf{X}_i) \right]^2 \quad (7)$$

However, if the explanatory variable is qualitative or discrete in nature $\partial P_i / \partial x_{ij}$ does not exist. In such a case, the marginal effect is obtained by evaluating P_i at alternative values of x_{ij}. For example, in the case of a binary explanatory variable x_{ij} that takes values of 1 and 0, the marginal effect is determined as:

$$\partial P_i / \partial x_{ij} = P(x_{ij} = 1) - P(x_{ij} = 0) \quad (8)$$

The model explanatory variables capture the potential influence the respondent's socioeconomic characteristics and views on importance of specific food aspects about organic foods. The following empirical model is specified to model organic or GM food purchases and consumer views on a food attribute in an eating decision:

$$\begin{aligned} ORGBUY_i = {} & \beta_0 + \beta_1 FEMALE + \beta_2 YOUNG + \beta_3 MATAGE + \beta_4 HISCOOL\_B + \\ & \beta_5 COLG\_DA + \beta_6 LOW\_INC + \beta_7 HIGH\_INC + \beta_8 WHITE + \beta_9 LIBERAL + \\ & \beta_{10} CONSERV + \beta_{11} M\_RELIG + \beta_{12} V\_RELIG + \beta_{13} FAM\_SI + \beta_{14} FAM\_VEI \\ & + \beta_{15} DULT\_SI + \beta_{16} DULT\_VEI + \beta_{17} VEGT\_SI + \beta_{18} VEGT\_VEI + \beta_{19} USPA\_IVI \\ & + \beta_{20} USPA\_EI + \beta_{21} ALGY\_I + \beta_{22} ALGY\_VEI + \beta_{23} EASF\_I + \beta_{24} EASF\_VEI + \varepsilon \end{aligned} \quad (9)$$

where the variables are defined and listed in Table 1.

The logistic model was estimated to explain and predict consumer purchases of organic foods. The maximum likelihood (ML) estimation procedure was used to obtain the model parameters. The model summary statistics, β-coefficients (along with their t-

ratios) and the marginal effects were obtained by using the software package LIMDEP (Econometric Software, 2002).

Empirical Results

The maximum likelihood estimates of the model coefficients, the marginal effects on the dependent variable and the associated t-ratios are reported in Table 2. Also reported in this table are the log-likelihood functions of the unrestricted and the restricted (i.e., all slope coefficients are zero) model and the model prediction success. The reported values of the McFadden's R^2 are measures of goodness of model fit. Among the 1185 respondents included in this study, 521(44 percent) respondents were categorized as regular buyers (buying organics sometimes, frequently or always), while 664(56 percent) were the irregular buyers (never or rarely buy organics).

Among the socio economic variables, the coefficient of *FEMALE, YOUNG, COLLG_DA, LIBERAL* and *MED_RELIG* had a positive impact on organic purchases and were significant at 5 percent level. The results suggest that female, young consumers, and those with a college education or more are more likely to purchase organic food products relative to the male, mid-aged people (33-51 years of age) and those with some college education (two year college). Respondents, who identified themselves as liberal, and those who attended houses of worship at least once a month compared to those identifying themselves as centrists and those who never attended places of worship, were also more likely to buy organic foods.

The coefficients of *DULT_SI*, *DULT_VEI*, *VEGT_SI*, *VEGT_VEI* and *USPA_IVI* associated with views responded hold on specific food aspects impacted regularity of organic food purchases positively and were significant at 5 percent level. The estimates

suggest that respondents' views on food naturalness aspect, vegetarian and veganism (no meat or meat by products) and local food production (produced in U.S.A) importance compared to those placing no importance on food naturalness, vegetarian-veganism, and local production in their eating decisions are more likely to buy organic products. However, the coefficients of *FAM_VEI* and *USPA_EI* contributed to irregularity of organic food purchases and were statistically significant at 5 percent level. The results suggest that respondents who place importance on food familiarly (i.e., familiar brands or foods you had eaten before) compared those who view this aspect as not important, and also those respondents who view importance of local food production as extremely important compared to those who do not are less likely to buy organic foods. The results imply that the naturalness food aspect, vegetarian vegan considerations and local food production will contribute to increasing the regularity of organic food purchases.

The estimated marginal effects of the independent variables (presented in Table 2) show that respondent's views on specific food aspects such as naturalness; vegetarian-vegan foods and local production considerations are critical to the organic food purchases. Likewise, female respondents, those in the young age category (<32 years of age), those with a college degree or more, liberals and regular church goers are likely to be regular buyers of organics. Probabilistically speaking, females compared to their male counterparts were 8 percent more likely to buy organics. Young people, those with a college degree or more, compared to the mid-aged and those with a two-year college education were 6 and 7 percent more likely to buy organics regularly. Respondents identifying themselves, as liberals compared to the centrists were 12 percent more likely to buy organics. Similarly, the irregular churchgoers were 5 percent more likely to be

regular purchasers organics. By contrast, the regular churchgoers were 5 percent less likely to buy organics.

In terms of food aspects, those respondents who view food naturalness to be either important or extremely important in deciding what foods to eat are 13 and 35 percent more likely to buy organic foods regularly compared to those who do not consider this aspect important, respectively. Just as in the case of food naturalness aspect, respondents who view vegetarian-vegan foods to be either important or extremely important were 8 and 20 percent more likely to buy organic foods, respectively. Though small in magnitude were views of those respondents considering U.S. (locally) produced food in their eating decisions compared those who did not. Results show that such respondents were 4 percent more likely to buy organic foods regularly. When contrasting this results with those respondents who considered local food production to be extremely important compared to those who do not think so, the prediction shows a-four (4) percent decrease in organic purchases. Further still, in terms of negative impact on organic purchases was the respondent's views on food familiarity aspect, with those considering important to extremely important being 5 percent less likely to buy organics compared to those who did not deem familiarity to be important.

Overall, these results suggest regularity of organic food purchases are affected by presence or absence of particular food aspects deemed important in a consumption decision and socio-economic factors. Such food aspects included; naturalness; vegetarian-vegan considerations; familiarity and food production location. Model summary statistics presented, in the lower panels of Table 2, indicate that the model has significant explanatory power. The model has McFadden's R^2 estimate of .11, which is

reasonable for a cross-section data. The estimated model successfully predicted between 67 percent of the responses relating to the organic food purchases.

Conclusions

Consumers' preference for organic foods in the context of food aspects considered important in a consumption decision and socioeconomic variables has been examined in this study. The results indicate that food aspects related to naturalness, vegetarian-vegan and production location were critical enhancing regularity of organic food purchases. While the familiarity food aspect was viewed as a 'no' issue as far as organic food purchases are concerned. Results further indicate that females and young people buy organics on a regular basis. In terms of political affiliation and church attendance, the liberals and those who at least visit places worship once a month will also regularly buy organics.

This study has contributed to the emerging literature by broadening the list of organic foods purchasing drivers beyond socio-economics factors to include public opinions on what food aspects are important in a consumption decision. Additionally, the information generated will inform policy makers on organic farming debate juxtaposed with food systems and will be useful to the food marketers.

However, given the scope of the survey data, not all aspects about food, or farming systems are included in this study, we suggest that future studies incorporate people 's opinions on a larger spectrum of farming characteristics, and specific product attributes to allow comparisons between foods and farming systems.

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Table 1. Descriptive Statistics of Explanatory Variables Used in the Analysis

Variable	Description of Variable	Mean	Std. Dev
FEMALE	1 = respondent is female; 0 = otherwise	0.59	0.49
YOUNG	1= age less than 32 years; 0 = otherwise	0.21	0.41
MID_AGE*	1 = age is between 33 and 51 years; 0 = otherwise	0.42	0.49
MATAGE	1 = age 52 years or higher; 0 = otherwise	0.37	0.48
HISCOOL_B	1 = education is high school graduate and below; 0 = otherwise	0.38	0.48
SOM_COLG*	1 = some college but less than 4-year college degree; 0 otherwise	0.27	0.44
COLGDGR_A	1 = 4-year college degree and above; 0 = otherwise	0.36	0.48
LOW_INC	1 = (annual) income less than $35,000; 0 = otherwise	0.35	0.48
MID_INC*	1 = (annual) income between $35,000 and $74,000; 0 = otherwise	0.39	0.49
HIGH_INC	1 = (annual) income greater than $75,000; 0 = otherwise	0.15	0.36
WHITE	1 = respondent is white (Caucasian); 0 = otherwise	0.83	0.37
LIBERAL	1 = identifies himself/herself as liberal; 0 = otherwise	0.17	0.38
CONSERV	1 = identifies himself/herself as conservative; 0 = otherwise	0.26	0.44
CENTRIST*	1 = identifies him/herself in between; 0 = otherwise	0.55	0.50
N_RELIG*	1 = never attends church (or other house of worship); 0 = otherwise	0.26	0.44
M_RELIG	1 = attends church (or other house of worship) less than once a month to at least once a month; 0 = otherwise	0.38	0.49
V_RELIG	1 = attends church (or other house of worship) at least once a week to several times a month; 0 = otherwise	0.35	0.48
FAM_NI*	1 = if familiarity of the food is not important ;0 otherwise	0.17	0.38
FAM_SI	1 = if familiarity of the food is somewhat important to Important ;0 otherwise	0.37	0.48
FAM_VEI	1 = if familiarity of the food is very important to extremely important ;0 otherwise	0.46	0.50
DULT_NI*	1 = if Non-adulteration in food is not important ;0 otherwise	0.18	0.39
DULT_SI	1 = if Non-adulteration in food is somewhat important to Important ;0 otherwise	0.41	0.49
DULT_VEI	1 = if Non-adulteration in food is very important to extremely important ;0 otherwise	0.41	0.49
VEGT_NI*	1 = if vegetarian or vegan food is not important ;0 otherwise	0.32	0.47
VEGT_SI	1 = if vegetarian or vegan food is somewhat important to Important ;0 otherwise	0.30	0.46
VEGT_VEI	1 = if vegetarian or vegan food is very important to extremely important ;0 otherwise	0.38	0.49
USPA_NI*	1 = if food is U.S produced is not important ;0 otherwise	0.22	0.41
USPA_IVI	1 = if food is U.S produced is important to very Important ;0 otherwise	0.49	0.50

USPA_EI	1 = if food is U.S produced is extremely important ;0 otherwise	0.29	0.45
ALGY_NI*	1 = if food allergy causing ingredients in food is not important; 0 = otherwise	0.16	0.36
ALGY_SI	1 = if food allergy causing ingredients in food is somewhat important to Important ;0 otherwise	0.09	0.29
ALGY_VEI	1 = if food allergy causing ingredients in food is very important to extremely important ;0 otherwise	0.75	0.43
EASF_NI*	1 = Food availability is not important; 0 = otherwise	0.09	0.29
EASF_SI	1 = Food availability is somewhat important to important; 0 = otherwise	0.24	0.43
EASY_VEI	1 = Food availability is very important to extremely important; 0 = otherwise	0.67	0.47

*Asterisk implies that the variable was dropped during model estimation to avoid dummy variable trap.

Table 2. Maximum Likelihood Estimates of Model Coefficients and Marginal Effects

	Model Coefficients on Organic Foods Purchasing Regularity			Marginal Effects of Independent Variables on Purchasing Regularity		
	Coefficient	t-ratio	p-value	M.Effect	t-ratio	p-value
Constant	-1.5087	-6.27	0.00	-	-	-
FEMALE	0.3263	2.46	0.01	0.08	2.48	0.01
YOUNG	0.3044	3.36	0.00	0.07	3.36	0.00
MATAGE	-0.3037	-3.35	0.00	-0.07	-3.36	0.00
HISCHOOL_B	-0.2396	-2.90	0.00	-0.06	-2.90	0.00
COLLG_DA	0.2407	2.91	0.00	0.06	2.91	0.00
LOW_INC	-0.0002	-0.67	0.51	0.00	-0.67	0.51
HIGH_INC	0.0001	0.42	0.67	0.00	0.42	0.67
WHITE	0.0004	0.97	0.33	0.00	0.97	0.33
LIBERAL	0.4773	2.70	0.01	0.12	2.70	0.01
CONSERV	-0.1444	-0.94	0.35	-0.04	-0.94	0.35
V_RELIG	-0.2094	-2.73	0.01	0.05	2.72	0.01
M_RELIG	0.2083	2.72	0.01	-0.05	-2.73	0.01
FAM_SI	-0.2234	-1.16	0.25	-0.05	-1.17	0.24
FAM_VEI	-0.4151	-2.06	0.04	-0.10	-2.08	0.04
DULT_SI	0.5166	2.58	0.01	0.13	2.60	0.01
DULT_VEI	1.4901	6.96	0.00	0.35	7.56	0.00
VEGT_SI	0.3385	2.00	0.05	0.08	1.99	0.05
VEGT_VEI	0.8064	4.58	0.00	0.20	4.66	0.00
USPA_IVI	0.1672	2.11	0.03	0.04	2.11	0.03
USPA_EI	-0.1675	-2.12	0.03	-0.04	-2.12	0.03
ALGY_I	-0.0822	-0.79	0.43	-0.02	-0.79	0.43
ALGY_VEI	0.0821	0.79	0.43	0.02	0.79	0.43
EASF_I	-0.0237	-0.30	0.76	-0.01	-0.30	0.76
EASF_VEI	0.0241	0.31	0.76	0.01	0.31	0.76

LL	-727.17
Restricted LL	-812.73
Chi-Square	171.13
DF	24
McFadden's R^2	0.11
% Correct prediction	67%

		Predicted		
	Actual	**0**	**1**	**Total**
	0	509	155	664
	1	238	283	521
	Total	**747**	**438**	**1185**