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Willingness to Pay for Private Labels, National Brands, and Local Designations at the Retail Level

by

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Abstract

A shopper survey was conducted to determine willingness to pay for ice cream with different labels. A statistical analysis was conducted using stated choices by respondents. The randomized choices were 1) a local brand with or without an indication it had a Utah's Own designation, 2) a local brand with and without a locally-produced designation, 3) a private label product, and 4) a national brand product. The results suggested that brands affect willingness to pay for ice cream. However, shoppers were willing to pay a significant positive amount more for ice cream with the local designations.

Keywords:

Key Words: choice experiments, state-sponsored food designations, ice cream

JEL Classifications: Q1, Q13

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Introduction

State-sponsored designations (SSDs) are a common approach to promoting agricultural food products produced within state boundaries, and at some point every U. S. state has had a promotional program for its agricultural products (Darby et al. 2008; Onken and Bernard 2010). The majority of state promotional programs encourage food retailers to provide shelf space for locally-produced foods. Food retailers recognize the importance of carrying locally-produced products and the availability of local food products is a common theme across the spectrum of different types of food retailers (Clifford 2010; Kroger 2012; Whole Foods 2012; Wild Oats Market 2012; Martinez et al. 2010).¹

Although SSDs have been common since the 1980s, the “buy-local” movement has increased interest in the use of SSDs to address this important emerging market segment. As a consequence, state-based promotional programs have seen a rapid proliferation since 2001 (Onken and Bernard). While the buy-local food movement has been embraced by many food retailers, it is unclear how SSDs on food products will fit into overall retail strategy as compared to simply offering “locally-produced” food items. Further, offering local food items places these products in competition with the retailer’s private labels (PL) and with national brands (NB) the retailer carries.²

¹ A recent national survey of retail food shoppers indicated that 86% of respondents believed that it was either very important or somewhat important for retail food stores to carry local produce and other locally-produced packaged foods (National Grocers Association 2012).

² NB manufacturers typically provide their own product promotion and advertising and many consumers enter retail food stores expecting to see these brands. As a result, these products (SSDs, locally-produced, PL, and NB) often compete in the same product space at the retail level.

If shoppers consider local food products as close substitutes or even prefer locally-produced food items to PL and NB items, questions arise about appropriate retail pricing strategies for these different products. These strategies have important implications for state-sponsored programs in terms of whether or not SSDs add value to products beyond just a locally-produced designation. It also determines how successfully retailers can be persuaded to carry products with SSDs.

This study examined consumer willingness-to-pay (WTP) for a food product based on whether it had a SSD, in this case Utah's Own,³ a "locally-produced" label, or was a PL or NB. The product selected for the analysis was ice cream. Both the Utah's Own labeled product and the locally-produced product used in the analysis have a degree of brand recognition with local consumers. So, the analysis is not only about the value of a SSD relative to a locally-produced, PL, or NB item, but also to its own brand.

A statistical analysis was conducted using stated choices Utah shoppers made during an in-store survey. These choices were based on randomized prices and whether or not the product was 1) a well-known local brand that was randomly indicated as having a Utah's Own designation, 2) a local brand that was randomly indicated to the shoppers as having been locally-produced or without such a designation, 3) a PL product, and 4) a well-known NB product. The results suggested that brands were important in terms of shoppers' WTP for ice cream, and both local brands appeared to be able to compete well with the PL and NB in terms of WTP. However, shoppers were willing to pay even more for the local ice creams when they had either a SSD or a locally-produced designation. The following sections describe the past work, methods, data, and results which arrived at these conclusions.

³ The Utah's Own program (designation) was launched in 2001 and is similar to many other SSDs (see Onken and Bernard for a comprehensive listing of SSDs). Currently, over 700 Utah farmers and companies are designated as being "Utah's Own" (Utah's Own 2012).

Varying Expectations Regarding “Localness”

Food retailers and other food purveyors tend to have a broader view of what “local” means than consumers (Schmit 2008).⁴ Retailer definitions of local vary from food items produced 1) within 100 miles or a few hundred miles of the point of sale, 2) within a day’s drive of point of sale, 3) in the same state, or 4) within the state of sale or from adjoining states (Schmit; Whole Foods; Wild Oats Market). However, the Hartman Group (2008) reported that a survey of consumers found that 50% of them understood a local product to have been produced within 100 miles of the point of purchase while 37% believed the product had been produced in the same state.

The economic incentives for retailers to extend boundaries for local products beyond those perceived by most consumers become clearer when one considers that many farmers selling locally-produced food items are small, seasonal operations (Martinez et al.).⁵ Extending boundaries for local products provides a larger area from which to draw products and can facilitate larger volumes and appropriate timing of purchases by retailers compared to smaller, more localized areas.

The disconnection between consumer and food seller definitions of “local” presents both opportunities and challenges for farmers, food purveyors, and consumers. The loose definition of the local area extends the geographic boundaries in which food products may be marketed as

⁴ An official definition of locally or regionally-produced food products was provided by the U. S. Congress in the 2008 Food, Conservation, and Energy Act as food products transported under 400 miles or within the state where the product is sold (Martinez et al.).

⁵ This was based on farmers who were selling directly to consumers, at local food markets, but is likely more generalizable.

being local, but also has the potential for reducing the value of local designations as consumer expectations are unmet. SSDs may provide a clearer definition of “local” for all parties.

Previous Work

Lancaster (1966) argued that consumers make consumption decisions based on a product’s attributes rather than the product itself. Consequently, a common research approach to understanding the demand for food products is to decompose the attributes of these products and then to examine the marginal addition to total value each of the attributes contributes.

A significant amount of interest in food product attributes related to the geographic location of product production has emerged in the literature. Differentiating food products by geographic location of production has been an especially important strategy in Europe⁶ and the European Union has granted legal protection to these products through the European Union Protected Geographical Indication or simply PGI. Research has found that PGIs are recognized by consumers and are capable of adding value to food products (McCluskey and Loureiro 2003; Loureiro and McCluskey 2000).⁷

The reputation and promotion of PGIs are built principally on consumers’ perceived quality of these products. In the past PGI designations have aimed primarily at building a general market rather than a geographically-defined market close to the location where these products were produced. This is in contrast to the recent intense interest in buying locally-produced food that has emerged in the U. S. and Europe. While State and local marketing programs have likely contributed at some level to the surge in interest in local products in the U.

⁶ Examples include such products as Champagne and Bordeaux for wine and Parma Ham and Galician Veal for meat (McCluskey and Loureiro). Examples of geographic designations similar to PGI also exist in the U. S. and include Washington Apples, Idaho Potatoes, and Florida Citrus (McCluskey and Loureiro).

⁷ While country-of-origin labeling (CoOL) is not discussed here, it is also another method of differentiating food products by location of production. Research has suggested that at least some consumers will take into account CoOL in the food purchasing decisions (Umberger et al. 2002).

S., other factors such as environmental concerns and the related organic movement together with some level of public resistance to corporate control of food markets have also contributed to demand for local food products (Darby et al.; Voss 2000).

While the buy-local food market, as with the organic food market, has ties to the environmental movement, buying local food appears to have a broader base of support with consumers than just their desire to reduce their carbon “footprint.” For example, research indicates that consumers perceive intrinsic benefits connected with locally-produced food as contributing not only to a healthier environment, but also as supporting local farmers and the local economy (Onozaka, Nurse, and Thilmany McFadden 2010; Martinez et al.; Darby et al.). Consumers may also perceive local products as fresher, safer, and better tasting than other products (Curtis and Cowee 2011; Whole Foods; Wild Oats Market).

Evidence for growth in the locally-produced food market usually cites the rapid growth in farmers’ markets,⁸ which typically emphasize locally-grown produce (e.g., Darby et al.; Onken, Bernard, and Pesek, Jr. 2011). However, food retailers have also seen growth in the demand for locally-produced food products and some, such as Whole Foods, the largest natural foods retailer in the U. S., have a stated commitment to offer local food products to their customers.⁹

State versus Locally-Produced Designations

Even with the proliferation of SSDs, questions remain about the effectiveness of state marketing programs in terms of the value they communicate to local consumers. One early analysis of the effectiveness of SSDs was undertaken by Patterson et al. (1999). They found that

⁸ The number of farmers markets in the U. S. grew from 1,755 in 1994 to 7,175 in 2011 – an increase of over 400%. The increase in farmers markets between 2010 and 2011 alone was 17% (USDA, AMS 2011).

⁹ Wild Oats Market also expresses a similar commitment to offering locally-produced food to its customers as well as similar claims about the health and local economic benefits associated with buying local food products. Some of these retailers also promote that these products as lessening the environmental impact of food production and transportation, supporting local farmers and communities, and being of high quality and flavor.

the *Arizona Grown* labeling program had a minimal impact on increasing prices for Arizona products. However, a study using conjoint analysis published in 2011 did find significant WTP for carrots and spinach labeled as *Arizona Grown* (Nganje, Hughner, and Lee 2011). These fundamentally different results could be a function of several different effects including the different methodologies used in the two studies and a difference in the market (i.e., growth in the buy-local market) in 2011 compared to 1999.

Are state boundaries the relevant demarcation for locally-produced food items in the minds of consumers? Darby et al. found that a random sample of Ohio consumers had definite preferences for locally-produced food products and appeared to treat food labeled as “Grown in Ohio” in a similar manner as food indicated as having been “Grown Nearby.” This suggests that many consumers do not delineate between state boundaries and the nearby area when making food purchasing decisions.

Onken and Bernard suggested that SSDs might serve constituencies more effectively if better quality controls were placed on participants in these programs. This was supported by Jekanowski, Williams, and Schiek (2000) who found that, while Indiana consumers had a strong willingness to purchase local-produced food products, that the perceived quality of local products was an important factor in the decision to purchase. If this is the case, then state programs attempting to build consumer confidence in their SSDs should consider product quality when recruiting participants.

These factors (desire by consumers to purchase locally-produced food products, evidence of WTP for locally-produced food products, the relevant market for “local,” and quality issues) suggest that significant complexities must be managed to make state food promotional programs

successful and sustainable. Understanding what adds value to a SSD and what does not should be an important part of a state's overall management plan for these programs.

Locally-Produces, State Promotional Programs, Private Labels, and National Brands

PL food products have become an important component of total sales for U. S. food retailers. While the precise market share for PL products is not publicly available, the number of U. S. consumers purchasing PL products increased from 18% in 2000 to 27% in 2011 (NPD Group 2012; Volpe 2011). PL sales typically have higher margins for food retailers than NB products and one would expect retailers to expand PL sales if possible (Seeking Alpha 2012). Average price differences between PL and NB have also decreased over time (Volpe) and is expected to lead to increasing interest on the part of NB manufacturers to attempt to recapture market share (Steenkamp, Heerde, and Geyskens 2010).¹⁰

If one superimposes the buy-local market on the competitive PL and NB food products markets, a number of questions arise. First, can locally-produced food products compete well against PL and NB food products in a retail setting? The market ground swell for locally-produced food items suggests that they can if their quality is sufficiently high (Jekanowski, Williams, and Schiek). Second, how do locally-produced food items best communicate their “localness” in a retail setting? Local food producers could do this in a number of ways including establishing and promoting a brand to local consumers to inform them of the product's attributes including being local, simply labeling the product as being locally-produced, or using a SSD for the product. Finally, what are the best strategies for retailers in their promotional and pricing activities relative to SSDs, local, PL, and NB products?

¹⁰ Some also believe that with improvement in the U. S. economy, the demand for NB will strengthen in the coming months (NPD Group).

Most research about WTP for state designations focuses on farmers markets, but food retailing conditions are different than at farmers markets including a somewhat different population of shoppers,¹¹ a larger set of food purchase choices, and the ability to easily do in-store price comparisons. Consequently, retail level research is needed to address the value of SSDs in a retail setting.

The current study examined consumer stated WTP at retail food markets for a commonly-used product, ice cream, that is or could be marketed as a NB, a PL, a locally-produced product, or using SSDs. The study was conducted examining choices between local, PL, and NB products without locally-produced or SSDs, as well as comparisons for local branded products that were designated in the choices as having either a SSD (Utah's Own) or a locally-produced designation. To our knowledge, this is the first research at the retail level using choice experiments considering all of these combinations with a non-produce product.

Methodology

This study was undertaken in cooperation with the Utah Department of Agriculture and Food (UDAF) (management entity for the Utah's Own program) and a food retailer. The study was implemented by developing a survey administered to shoppers on an intercept basis at a cross-section of five retail food stores located in northern Utah between Logan, Utah and Salt Lake City, Utah during the month of June 2012. The participating stores and number of interviews that were completed at each of the stores is presented in Table 1. The intercept¹² interviews were conducted to complete the choice sets and to determine the proportion of

¹¹ Shoppers at retail grocery stores tend toward lower incomes than shoppers at say, farmers markets (National Grocers Association 2012).

¹² There was a relatively high refusal rate. Consequently, when the interviewers were not busy with people filling out the survey, most people passing the survey location were politely asked to participate. Consequently, while the intercepts were not random in the classical sense, individuals were not systematically excluded from the survey.

shoppers who have purchased Utah's Own food products and, if so, why they chose to purchase Utah's Own products over other products.¹³

Selection of Ice Cream for the Analysis

Ice cream was used as the target product for the survey and analysis. Reasons for this were that ice cream is a well-known and understood product and there was availability of ice cream brands that fit each of the four categories being considered (Utah's Own, locally-produced, PL, and NB). Another reason for selecting ice cream for the analysis was, as pointed out by the retailer, that shoppers have entrenched ideas about pricing points for some of the other products that could have been considered for the analysis such as milk and eggs. Ice cream prices fluctuate considerably and prices for different brands of ice cream fluctuate relatively independently of the other brands as a result of promotional activity that tends to affect a single brand at a time. Two relatively well-known local brands of ice cream were used in the analysis. One of these ice cream brands (Local Brand #1 (LB1)) has a Utah's Own designation while the other (Local Brand #2 (LB2)) does not. The other two ice cream brands used for the analysis included a well-known PL and also a well-known NB. All four brands of ice cream were sold in each of the five stores in the sample.¹⁴

Shopper Survey and Sensory Evaluation

The first part of the survey consisted of respondents participating in a sensory evaluation of the four different brands of vanilla ice cream included in choice sets described later. The sensory evaluation was undertaken to measure the perceived quality of the different ice cream products as indicated by respondents. Past research has suggested that high product quality is necessary for a state food product promotional program to be successful (Jekanowski, Williams,

¹³ If the respondents completed the survey, they received a coupon for a free half gallon of ice cream.

¹⁴ While pseudonyms are used in this manuscript, the actual brand names were used in the survey.

and Schiek). A high quality Utah's Own product would likely have repeated purchases by consumers and would also help to build the reputation of the Utah's Own designation.

The samples for the sensory evaluation consisted of about 0.5 ounces of each ice cream in four separate plastic cups that were marked only as "A," "B," "C," or "D." The ice cream samples were presented to the participating shoppers four at a time with the respondent choosing the order in which they tasted the different samples. The respondents silently rated each ice cream on a seven-point scale for flavor, texture, body, and overall acceptability.

Following the sensory evaluation, the survey respondents silently completed the remainder of the survey. The first six questions of the survey following the sensory evaluation provided the choice sets which were the foundation of the WTP analysis. The other survey questions ascertained the level of familiarity the respondent had with the Utah's Own Program, if they had purchased Utah's Own food products and, if so, what Utah's Own products they could recall purchasing. The respondents were also asked to provide basic demographic information such as gender, age, ethnicity, educational level, household characteristics, and income level. Finally, the respondent expressed his/her perceptions of Utah's Own products by selecting from a number of possibilities (e.g., relative quality, price, environmental considerations (carbon footprint), or supporting local farmers.

Choice Set Price and Attribute Randomization

Each choice set consisted of three alternatives: two different brands of ice cream, at stated prices, and a "neither" alternative.¹⁵ By showing six choice sets, each respondent was offered choices between each possible combination of the brands in the study: (PL vs. NB, PL vs. LB1, PL vs. LB2, NB vs. LB1, NB vs. LB2, and LB1 vs. LB2). The order in which these choices were presented to respondents, and the order of brand placement left to right was

¹⁵ A copy of the survey is available on request from the authors.

randomized and also randomly distributed across respondents. One half of the surveys were randomly assigned the “Utah’s Own” designation (LB1 designated as being Utah’s Own) and one half were randomly assigned the “Locally-Produced” designation (LB2 designated as being Locally-Produced). Among completed surveys, 26% used the “Utah’s Own” designation only, 25% used the “Locally Produced” designation only, 26% used both designations and the remainder used neither designation (see Table 2).

Prices were also randomized across choices. The distribution of prices was chosen to be as realistic as possible. Consultation with the retailer regarding pricing ranges across brands indicated that prices for a half-gallon of ice cream typically fluctuate between about \$3 and \$7, but that the PL brand was typically cheaper than the other brands. We accordingly randomly drew prices uniformly distributed from \$3 to \$7 for the NB, LB1, and LB2 and distributed from \$2 to \$6 for the PL brand. Given that typical grocery store prices end in “9”, we rounded our randomized prices down to the nearest price ending in “9”. The resulting distribution of prices is shown in Table 2.

Conceptual Model to Analyze Choice Experiments

The choices indicated were assumed to provide the highest level of utility to the respondent among the alternatives. For example, a respondent may have been asked to choose between two half-gallons of ice cream, one indicated as LB1 (Utah’s Own) at a price of \$4.59, the other a NB at a price of \$5.09, or a “neither” alternative. If the respondent made the decision to select the LB1 ice cream, then one could assume that that choice would have provided the shopper with the most utility when faced with that particular choice. As a simple starting point, the model designated the unobserved or latent utility to respondent i of alternative j as a function of the attributes of the alternatives and an unobserved random component of utility:

$$(1) \quad u_{ij}^* = \beta \text{ Price}_j + \delta X_j + \varepsilon_{ij}$$

The latent utility of respondent i for alternative j was denoted u_{ij}^* . The coefficient β represented the marginal utility associated with paying for alternative j . (Note that β was expected to be negative). β can also be thought of as the negative of the marginal utility of income.¹⁶ The quantity X_j represented a vector of attributes describing alternative j and δ represents the vector of associated marginal increments to utility associated with each attribute. In this model, each alternative was described completely by a price and set of indicators for brand and designation.¹⁷ Note that both Price_j and the vector X_j are equal to zero for the “neither” alternative.

Random utility models such as the one described above can be estimated via maximum likelihood by assuming a distribution for the unobserved component of utility. We assumed a logistic distribution and estimated the models with McFadden’s conditional logit model.

As a simple example, suppose there were two brands (PL and LB1) and one designation (*Utah’s Own*) that varied the designation on LB1. The vector X_j would then consist of three variables: a constant for the omitted category (PL in this case), a dummy variable for LB1 and a dummy variable for the interaction between LB1 and the *Utah’s Own* designation.

Representative utility would then be modeled as:

$$(2) \quad u_{ij}^* = \beta \text{ Price}_j + \delta_0 + \delta_1 \text{LB1}_j + \delta_2 \text{Utah's Own}_j * \text{LB1}_j + \varepsilon_{ij}$$

A test of the statistical significance of the parameter δ_2 indicated any meaningful difference to utility and choice probability when the *Utah’s Own* designation was shown compared to simply

¹⁶ In the statistical analysis presented later, this coefficient (β) is interpreted this way rather than just as “*PRICE*.”

¹⁷ See Table 2 for the definitions of brands and designations.

being offered “LB1” with no designation. As an important generalization, one may allow the parameters of the utility function to vary with respondent characteristics through the use of interaction terms.

Willingness to Pay

WTP for a particular alternative j was estimated by solving for the price that would make the individual with the indicated utility function indifferent between paying for alternative j at the stated price or not. Let this price be denoted Price_j^* and set utility equal to zero:

$$(3) \quad u_{ij}^* = \beta \text{Price}_j^* + \delta X_j = 0$$

Solving for Price_j^* yields:

$$(4) \quad \text{WTP for alternative } j = \text{Price}_j^* = \frac{\delta X_j}{-\beta}$$

For example, total WTP for the omitted category (PL) in the example above would have been:

$$(5) \quad \text{Price}_j^* = \frac{\delta_0}{-\beta}$$

While WTP for LB1 (with the *Utah's Own* designation) would be:

$$(6) \quad \begin{aligned} \text{Price}_j^* &= \frac{\delta_0 + \delta_1 \text{LB1}_j + \delta_2 \text{Utah's Own}_j * \text{LB1}_j}{-\beta} \\ &= \frac{\delta_0 + \delta_1 + \delta_2}{-\beta} \end{aligned}$$

Note that marginal WTP was calculated by taking the derivative of Price_j^* with respect to a given characteristic. For example, marginal WTP for LB1, relative to PL was:

$$(7) \quad \text{Marginal WTP for LB1} = \frac{\delta_1}{-\beta}$$

if the *Utah's Own* designation was zero (LB1 presented in the choice without the Utah's Own designation) and

$$(8) \quad \text{Marginal WTP for LB1} = \frac{\delta_1 + \delta_2}{-\beta}$$

if the Utah's Own designation was one. Similarly, marginal WTP for LB1 with the *Utah's Own* designation, relative to LB1 without the designation, was:

$$(9) \quad \text{Marginal WTP for Utah's Own label} = \frac{\delta_2}{-\beta}$$

Finally, confidence intervals for WTP and marginal WTP were calculated via the parametric bootstrap method described by Krinsky and Robb (1986 and 1990) by taking a large number of draws from the estimated variance-covariance matrix of the parameter estimates. The means of this distribution were given by the parameter estimates and the covariance was given by the variance-covariance matrix of the parameter estimates. See Hole (2007) for a detailed discussion of how to construct confidence intervals for WTP estimates and Bosworth et al. (2009) for an applied example.

Results

The results of the ice cream sensory evaluation are presented first followed by a description of the demographic information from the survey, a discussion of awareness and perceptions of Utah's Own food products, and, finally, the WTP analysis.

Ice Cream Sensory Evaluation

The respondents knew only the letter marked on each ice cream.¹⁸ The summary frequencies for the ice cream sensory evaluation are presented in Table 3. Each of the four ice creams was rated as "Slightly Acceptable" to "Highly Acceptable" by at least 80% of the

¹⁸ However, "A" was LB1, "B" was LB2, "C" was PL, and "D" was NB.

respondents for overall acceptability and in all cases less than 10% of respondents indicated that any of the products was not acceptable.¹⁹ This suggested that, in general, all four products were perceived as being of good quality. However, if one adds the percentages for respondents' ratings of either "Acceptable" or "Highly Acceptable" in each category for each ice cream, some interesting patterns emerge. The four ice creams appear to be grouped for acceptability into two groups with PL and NB in one group that tended to be rated slightly lower in all categories than LB1 and LB2. However, LB1 appears to have been perceived as having superior flavor and texture compared to the other three ice creams.²⁰ This suggested that shoppers would probably have a good experience with each of the products, but would have a better and perhaps superior experience with LB1. From the perspective of the Utah's Own Program, an excellent product such as LB1 with the Utah's Own designation will help improve the reputation of the Utah's Own program in general.

About half of the respondents (49%) buy ice cream at least once per month suggesting that, on the average, the respondents were very familiar with ice cream as a product and buy it often. Based on the information in Table 4, the most popular of the four brands in terms of the frequency purchased by the survey respondents was PL followed by NB. LB2 was the least familiar brand.

Demographic Information about Respondents

Table 5 presents some summary information about the survey respondents compared to the 2010 Federal Census for Utah. This comparison suggests the survey respondents were more likely to be Caucasian and more highly educated than the general Utah population. If one

¹⁹ Based on adding responses indicating "Highly Acceptable" + "Acceptable" + "Slightly Acceptable" and "Slightly Unacceptable" + "Unacceptable" + "Highly Unacceptable."

²⁰ This is based on adding the responses for each ice cream for each category that were marked as "Highly Acceptable" and "Acceptable."

considers the sample in terms of Caucasians compared to non-Caucasians to the Census, the sample appears to be more representative of the State as a whole. A potential concern with the sample is that Hispanics are underrepresented. However, most Latinos/Latinas refused to participate in the survey even though one of the surveyors spoke fluent Spanish. Consequently, the results are qualified in terms that the sample was more Caucasian and more educated than existed in the general population.

As is typical for most studies conducting interviews in retail food stores, the majority of survey respondents were women and most of those interviewed were the primary food buyer for their household (Goodman 2012). Our sample was older than the general state population yet the proportion of children in the household was slightly higher than the proportion of children in the state population as a whole (Table 5). This indicated that respondents with children at home tended to have larger families than for the State in general. The reasons for this may be that older people tended to have more time and willingness to take the survey and/or that the clientele in retail stores may have larger families than the state average. However, when one compares average household income for Utah to the estimated household income for our sample; they are basically equal (Table 5). While the sample is not completely representative of Utah's population as a whole, it has enough similarities that the results are valid for a large segment of the State's population. Over 80% of the respondents had lived in Utah for at least 10 years.

Awareness of and Attitudes Regarding the Utah's Own Products and Preference for Locally-Produced Products

The results indicated that almost 80% of the survey respondents were at least somewhat familiar with the Utah's Own Program and approximately half of the respondents indicated they

had purchased a Utah's Own food product (Table 6).²¹ However, significant confusion appeared to exist when respondents were asked to name some of the Utah's Own food products they had purchased; only about 60% could do so accurately.²² Consequently, as with Darby et al., many respondents seemed to confuse locally-produced with being produced in the state of sale.

Over 70% of the respondents indicated they believe the Utah's Own Program helps to support local farmers and also the local economy (Table 6). This suggested the Utah's Own Program was seen in a positive light in terms of adding value to the state's economy. Relatively few of the survey respondents indicated that Utah's Own was associated with reducing the carbon footprint of their food consumption (environmental connection to buying local (Table 6)). This suggested that while a segment of the population may buy locally-grown food because of environmental concerns, over 80% of this sample associated the Utah's Own with qualities other than environmental issues.

The respondents also indicated whether they preferred PL, NB, or locally produced products (see Table 7). PL (store brands) were preferred by about one-third of the respondents while 15.1% preferred NB, and about 25.5% locally-made brands.

Choice Experiment Results

Basic results for the random-utility model, estimated via McFadden's conditional logit model, are shown in Table 8. These results include coefficient estimates and total or marginal WTP estimates with bootstrapped 90% confidence intervals. These models used 4,653 alternative observations (three alternatives per choice and six choices per person, less missing observations). The first specification in Table 8, labeled "Brand Effects," modeled consumer

²¹ The level of awareness of Utah's Own was similar to Onken and Bernard who found awareness rates of SSD for five other states to be New Jersey (84.1%), Virginia (65.6%), Maryland (52.1%), Delaware (50.3%) and Pennsylvania (48.8%).

²² "Accurately" is defined in this respect as being able to name a specific product brand that was participating in the Utah's Own program.

choice as a function of the most basic attributes of the alternatives: the brand and price of the offered ice creams. The negative coefficient on the price variable indicated, unsurprisingly, that higher-priced items were less likely to be chosen than lower-priced items. The omitted category, represented by the constant, was PL. The coefficient on the constant was positive and statistically significant in the “Brand Effects” model, indicating that consumers placed a positive value for the PL ice cream (relative to no ice cream). In the “Brand Effects” model there were positive coefficients on the indicator variables for NB, LB1, and LB2. Because these coefficients were interpreted relative to the omitted category, they indicated that consumers have higher utility levels associated with these brands of ice cream than for PL. The “Brand Effects” column in Table 8 indicates that respondents were indifferent between paying \$4.55 for a half-gallon of PL and purchasing no ice cream (i.e. choosing the “neither” alternative). The same column indicated respondents were willing to pay about \$0.79 more for the NB than for PL, about \$0.78 more for LB1 than for PL, and about \$0.43 more for LB2 than for PL.

However, the results indicated by the “Designation Effects” model suggested that the values consumers attached to LB1 and LB2 were heavily influenced by whether or not the “Utah’s Own” or “Locally Produced” designations, respectively, were shown. The “Designation Effects” model allowed the coefficient on LB1 (LB2) to vary according to whether or not the Utah’s Own (Locally Produced) designation was shown in the choice set. Interestingly, the coefficient on the interaction term between LB1 and the Utah’s Own designation was strongly and significantly positive, suggesting that average respondent utility from LB1 was lower in the absence of the Utah’s Own designation. One also observes that the base coefficient on LB2 was not statistically different from zero in the absence of the locally-produced designation, but was statistically different from zero when the designation was shown. These results suggest that, on

the average, respondents were not willing to pay a premium for LB2 (over PL) when the locally produced designation was not shown, but were willing to pay a premium for LB2 when the designation was shown. The associated WTP results indicate that WTP for LB1 over PL was only about \$0.34 when the Utah's Own designation was not shown. However, this premium increases by about \$0.85 when the Utah's Own designation was added. WTP for LB2 was estimated to be \$0.65 higher when the locally produced designation was shown.

While the results from the “Brand Effects” and “Designation Effects” models provided a useful summary of average consumer preferences, an important extension of the models was to allow preference to vary according to the attributes of the survey respondents. Summary statistics for the variables used to investigate variation in preferences are shown in Table 9. These richer models allowed preferences for brands to vary systematically with respondent attributes. In Tables 10, 11, and 12, selected results from this full specification are given which detail how respondents' preferences over ice cream brands varied according to their individual attributes.²³

Recognizing PL as the baseline for comparison, Table 10 shows how relative preferences (and WTP) for the NB brand varied with consumer attributes. As noted in Table 8, consumers were, on the average, willing to pay about \$0.79 more for NB than PL. However, Table 10 shows that there was substantial heterogeneity in relative preferences for this brand. In particular, it was observed that NB was strongly preferred to PL by high-income individuals without children in the household (WTP: +\$1.17), but that the “high-income” effect was much weaker for high-income individuals with children in the household (WTP: +\$1.17-\$0.89=\$0.28). The results also indicated that senior males (over 65) had lower relative WTP for NB than other consumers (WTP: -\$1.65).

²³ Complete results of the full specifications available from the authors upon request.

Table 8 indicates that, on the average, respondents were willing to pay a premium for LB1 over PL and that this premium was even larger when the “Utah’s Own” designation was shown. Table 11 reveals that there was variation in preferences for LB1 relative to PL and, moreover, variation in the premium individuals were willing to pay when the Utah’s Own designation was shown. High-income individuals (WTP: \$0.83), seniors (WTP: \$0.89), and college-educated individuals (WTP: \$0.54) strongly preferred LB1 relative to PL. Importantly, the premium associated with the Utah’s Own designation varied across respondent type. Although the baseline WTP for the Utah’s Own designation was estimated at \$1.17 in this model, this premium was lower for seniors and respondents with children. Strikingly, the preference seniors displayed for LB1 was completely absent when the Utah’s Own designation was shown ($\text{WTP: } \$0.89 + \$1.17 - \$2.13 = \0.07). This means that, *ceteris paribus*, seniors preferred LB1 to PL when the Utah’s Own Designation was *not* shown, but do not, on net, prefer LB1 to PL when the Utah’s Own designation was shown.

Table 12 presents the utility parameters and WTP estimates for LB2 relative to PL. Although the table shows no statistically significant variation in relative preferences for LB2 when the locally produced designation was not shown, significant variation in responses was found when the LB2 was described as “Locally-Produced.” The WTP for LB2 increased another \$1.15 for high-income respondents without children. However, senior males did not react positively to the locally-produced designation, nor did high-income respondents with children.

These results indicated that, in general (see Table 8), brands were important signals to the respondents when buying ice cream. However, when a Utah’s Own or Locally-Produced designation was indicated to survey respondents for LB1 and LB2, respectively, WTP was increased substantially for both products. Importantly, both LB1 and LB2 became more

competitive with NB in terms of WTP when the local designations were provided (see and compare Brand and Designation effects in Table 8).

While the results indicated that both geographic designations (Utah's Own and Locally-Produced) add value to these products on the average, there was substantial heterogeneity in consumer reactions to the designations. For example, high income respondents without children had substantially increased estimated WTP for the locally-produced designation on LB2, but high income respondents with children did not. Senior respondents actually had a net negative WTP reaction to the Utah's Own designation on LB1 and Senior males also reacted negatively to the locally-produced designation on LB2. These findings suggested that locally-produced promotions are probably best aimed at more affluent consumers and also reinforce the idea that quality counts because higher WTP appears to also be a function of products, such as LB1, that are perceived to be of high quality.

Finally, one could ask whether WTP were higher for Utah's Own than for the Locally-Produced designation. An examination of the WTP estimates suggested a higher mean WTP for the Utah's Own than for the Locally-Produced designation. However, a significant overlap exists in the bootstrapped distributions for WTP for the two designations indicating that the WTP for both was statistically the same.

Conclusions and Recommendations

This analysis provided an examination at the retail level of WTP for a branded, non-produce product, ice cream, that was PL, NB or had a local designation (either locally-produced or Utah's Own). These results suggested that local food designations such as the Utah's Own designation have real value in terms of WTP by consumers for ice cream if products are of high quality. This was an important finding because it indicated the ability of a high quality, local

product to compete well against store brands and even national brands was enhanced when a local designation (SSD or locally-produced) is placed on the product.

While communicating localness to consumers has value in terms of shopper WTP, no strong statistical evidence was found to indicate that the Utah's Own designation has more (or less) value than labeling the product as being locally-produced. This study provided evidence that marketing food items as being Utah's Own or locally-produced was beneficial when marketed to targeted segments of the population which tended to be more affluent consumers with few or no children at home. Conversely, PL ice cream appealed primarily to price-sensitive consumers.

The results also indicated that while most of the respondents know about the Utah's Own Program and see it as supporting local farmers and the local economy, a clearer definition of "localness" and how the Utah's Own brand fits into this concept needs to be provided. In short, the Utah's Own Program adds value to the products that use it, but many consumers are unsure of what the designation actually means. The Program itself may also wish to consider how additional quality control can be achieved for the products participating in the Program as a means to achieve more brand equity.

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Table 1. Location of Retail Food Stores Participating in the Utah Shoppers' In-Store Surveys Together with Number of Participants Surveyed During June, 2012.

Location Conducted	Number of Participants Surveyed	Dates and Times Interviews
Store 1 (Small City)	53	9 a.m. – 1 p.m., June 6 th 2 p.m. – 6:00 p.m., June 7 th
Store 2 (Rural)	52	2 p.m. – 6 p.m., June 6 th 9 a.m. – 1 p.m., June 7 th
Store 3 (Large City)	51	9 a.m. – 1 p.m., June 11 th 2 p.m. – 6 p.m. June 12 th
Store 4 (Large City)	52	2 p.m. – 6 p.m., June 11 th 9 a.m. – 1 p.m., June 12 th
Store 5 (Suburban)	51	9 a.m. – 6 p.m., June 28 th
Total	259	

Table 2. Distribution of Randomized Variables Among Completed Surveys.

Variables	Mean	Standard Deviation	Min	Max
Brand Variables:				
PL	\$4.03	\$1.15	\$1.99	\$5.99
NB	\$5.01	\$1.17	\$2.99	\$6.99
LB1	\$5.01	\$1.17	\$2.99	\$6.99
LB2	\$5.00	\$1.13	\$2.99	\$6.99
Designation Variables: ^a				
Both Designations	26%	44%	0	1
Neither Designation	23%	50%	0	1
Utah's Own Designation Only	26%	44%	0	1
Locally Produced Designation Only	25%	43%	0	1

^a “Both Designations” means that LB1 was indicated in the choices presented to the respondents as being Utah’s Own and that LB2 was indicated as being Locally-Produced. “Neither Designation” means that in the choices presented to the respondents that LB1 was not indicated as being Utah’s Own and LB2 was not indicated as being Locally-Produced. The “Utah’s Own Designation Only” means that in the choices presented to the respondents that LB1 was indicated to be a Utah’s Own product but LB2 was not indicated as being Locally-Produced. The “Locally Produced Designation Only” means that in the choices presented to the respondent that LB1 was not indicated as being Utah’s Own but LB2 was indicated as being Locally-Produced.

Table 3. Results of Sensory Evaluation for Four Ice Creams.

Ice Cream	Characteristic	Ratings By Characteristic						
LB1	(% response)	Highly acceptable	Acceptable	Slightly acceptable	Unsure	Slightly unacceptable	Unacceptable	Highly unacceptable
	Flavor	41.31%	42.08%	8.11%	1.54%	5.02%	1.16%	0.77%
	Texture	28.96%	43.63%	17.76%	3.09%	4.25%	1.54%	0.77%
	Body	24.71%	44.79%	17.37%	5.02%	5.41%	2.32%	0.39%
	Overall acceptability	32.05%	48.26%	11.20%	1.54%	3.86%	2.70%	0.39%
LB2	(% response)	Highly acceptable	Acceptable	Slightly acceptable	Unsure	Slightly unacceptable	Unacceptable	Highly unacceptable
	Flavor	25.87%	42.47%	19.69%	3.47%	5.41%	2.32%	0.77%
	Texture	25.87%	40.54%	17.37%	4.63%	7.72%	2.70%	1.16%
	Body	23.17%	39.38%	20.85%	7.34%	6.56%	1.93%	0.77%
	Overall acceptability	20.08%	45.56%	18.53%	6.56%	5.79%	2.70%	0.77%

Table 3 Continued. Results of Sensory Evaluation for Four Ice Creams.

Ice Cream	Characteristic	Ratings By Characteristic						
PL	(% response)	Highly acceptable	Acceptable	Slightly acceptable	Unsure	Slightly unacceptable	Unacceptable	Highly unacceptable
	Flavor	22.78%	33.59%	24.71%	8.88%	5.79%	3.47%	0.77%
	Texture	24.32%	34.75%	23.55%	4.63%	6.18%	6.18%	0.39%
	Body	20.08%	37.07%	23.94%	6.56%	6.56%	5.41%	0.39%
	Overall acceptability	19.69%	40.15%	22.01%	5.41%	5.79%	6.56%	0.39%
NB	(% response)	Highly acceptable	Acceptable	Slightly acceptable	Unsure	Slightly unacceptable	Unacceptable	Highly unacceptable
	Flavor	30.50%	32.43%	18.92%	5.79%	7.72%	3.47%	1.16%
	Texture	27.03%	39.00%	19.31%	6.18%	5.41%	1.54%	1.54%
	Body	22.78%	36.29%	24.71%	5.79%	6.95%	1.54%	1.93%
	Overall acceptability	23.17%	38.61%	19.69%	7.72%	5.79%	2.70%	2.32%

Table 4. Survey Respondents' Familiarity with Ice Cream Brands Used in the Analysis.

Level of Familiarity	LB1	LB2	PL	NB
Never Heard of this Brand Before	8.5%	10.9%	2.7%	2.7%
Know About the Brand but Never Purchased Before	13.1%	24.7%	8.9%	10.0%
Brought the Brand Maybe One Time	23.6%	25.9%	16.2%	25.5%
Bought the Brand Several Times	40.2%	25.1%	39.0%	40.9%
Buy This Brand Frequently	14.7%	5.4%	33.2%	20.8%

Table 5. Comparisons of U. S. Census Demographics and In-Store Survey Participants.

Category	2010 U. S. Census For Utah	In-Store Survey
Gender:		
Female	49.8%	66.0%
Male	50.2%	34.0%
Principal Food Purchaser for The Household:		78.0% Yes
Race:		
African-American	1.3%	0.4%
American Indian	1.5%	0.4%
Asian	2.2%	1.2%
Caucasian	80.1%	86.9%
Hawaiian/Pacific Islander	1.0%	0.4%
Hispanic	13.2%	6.2%
Not on list		2.7%
Prefer not to answer		1.9%
Education:^a		
High School Graduate	90.6%	99.2%
Bachelor's degree or higher	29.4%	42.1%
Age:^b		
Persons Aged 65 or Above	9.2%	25.4%
Percent of Household Under Age 18	31.2%	35.9% ^c
Household Characteristics:		
Number in Household	3.04	3.54
Children in Household		1.27
Estimated Household Income	\$56,330	\$57,104 ^d

Source for U. S. Census Information at <http://quickfacts.census.gov/qfd/states/49000.html>.

^a From the in-store survey: Less than high school = 1%; high school graduate=21%; Some college=25%; 2-year college associate degree=11%; 4-year college degree=27%; Post-graduate degree=15%.

^b From the in-store survey: 18-25=11%; 26-35=18%; 36-45=18%; 46-55=15%; 56-65=13%; 66-75=10%; Over 75=15%.

^c Estimated by dividing respondents' indication of number of children in the household by their indication of total persons in the household (1.27/3.54).

^d Estimated as a weighted average of mid-points in the income price ranges in the survey.

Table 6. Attributes Identified by Survey Respondents as Being Associated with Utah’s Own Food Products.

Attribute	Percentage of Respondents Indicating The Attribute was Associated with Utah’s Own Food Products^a
Higher Quality than Other Products	32.1%
Same Quality as Other Products	22.8%
Lower quality then Other Products	1.5%
Locally-produced	63.3%
Produced in Utah	77.2%
Expensive	10.0%
Inexpensive	14.7%
Fresher than Other Products	47.9%
Environmentally friendly (reduces carbon footprint)	18.1%
Supports the Local Farmers	71.0%
Supports the Local Economy	71.0%

^a The percentages add to more than 100% because respondents marked all responses they believed applied.

Table 7. Percentage of Participants in the Utah Shoppers' In-Store Survey by Brand Preference Category.

Category	Percentage of Participants In that Category
No Preference. They Are All Pretty Much the Same to Me	15.4%
I Prefer National Brands	15.1%
I Prefer Store Brands	32.8%
I Prefer Locally-Made Brands	25.5%
I Am Uncertain	11.2%

Table 8. Coefficients and WTP Estimates for Basic Model for Brands and Designations.^a

Variables	Brand Effects	WTP			Designation Effects	WTP		
		Median	Lower 5%	Upper 95%		Median	Lower 5%	Upper 95%
Price	-0.6687*** (-17.585)				-0.6750*** (-17.663)			
Constant	3.0431*** (17.783)	\$4.55	\$4.31	\$4.77	3.0686*** (17.857)	\$4.55	\$4.32	\$4.77
NB	0.5265*** (4.748)	\$0.79	\$0.53	\$1.04	0.5290*** (4.765)	\$0.78	\$0.53	\$1.03
LB1	0.5249*** (4.748)	\$0.78	\$0.52	\$1.04	0.2312* (1.650)	\$0.34	\$0.00	\$0.68
...*Utah's Own	--				0.5719*** (3.556)	\$0.85	\$0.45	\$1.27
LB2	0.2870** (2.573)	\$0.43	\$0.16	\$0.69	0.0643 (0.450)	\$0.10	-\$0.26	\$0.43
...*Locally Produced	--				0.4396*** (2.607)	\$0.65	\$0.26	\$1.11
Observations	4,653				4,653			
Log-likelihood	-1504				-1494			

^a Standard errors are in parentheses.

*** Indicates statistically different than zero at the 1% level.

** Indicates statistically different than zero at the 5% level.

* Indicates statistically different than zero at the 10% level.

Table 9. Summary Statistics for Respondent Attributes.

Variable	Mean	Standard Deviation	Min	Max	Description
Low Income	0.18	0.39	0	1	=1 if respondent income < \$25,000
High Income	0.25	0.43	0	1	=1 if respondent income > \$75,000
Male	0.34	0.47	0	1	=1 if respondent was male
Senior	0.24	0.43	0	1	=1 if respondent age > 65
College Degree	0.42	0.49	0	1	=1 if respondent had 4-year college degree
Frequent Buyer	0.49	0.50	0	1	=1 if respondent purchased Ice cream at least monthly
Kids	0.51	0.51	0	1	=1 if respondent household had at least one member < 18 years of age

Table 10. Selected Coefficients and WTP from Full Model: NB Brand Preference Heterogeneity (Relative to PL).^a

Variables	Full	Summary	Median WTP	Lower 5%	Upper 95%
NB	0.3995 (1.360)	0.5626*** (4.338)	\$0.81	\$0.53	\$1.12
...*Low Income ^b	0.3383 (1.190)	--			
...*High Income	0.8765** (2.195)	0.8070*** (2.673)	\$1.17	\$0.43	\$1.86
...*Male	0.0286 (0.104)	--			
...*Senior	-0.1381 (-0.359)	--			
...*Senior*Male	-1.1569** (-2.166)	-1.1383*** (-3.714)	-\$1.65	-\$2.36	-\$0.91
...*College Degree	0.1279 (0.523)	--			
...*Frequent Buyer	0.0547 (0.250)	--			
...*Kids	0.0935 (0.330)	--			
...*High Income*Kids	-0.7189 (-1.400)	-0.6166* (-1.804)	-\$0.89	-\$1.72	-\$0.08
Observations	4,653	4,653			
Log-likelihood	-1436	-1447			

^a Standard errors are in parentheses.

*** Indicates statistically different than zero at the 1% level.

** Indicates statistically different than zero at the 5% level.

* Indicates statistically different than zero at the 10% level.

^b Shows interaction term with the Brand. In this case, NB*Low Income.

Table 11. Selected Coefficients and WTP from Full Model: LB1 Brand Preference Heterogeneity (Relative to PL).

Variables	Full	Summary	Median WTP	Lower 5%	Upper 95%
LB1	-0.7121* (-1.651)	-0.2306 (-1.244)	-\$0.33	-\$0.79	\$0.11
...*Low Income	0.0105 (0.026)	--			
...*High Income	1.1924** (2.126)	0.5757** (2.264)	\$0.83	\$0.25	\$1.46
...*Male	0.1342 (0.365)	--			
...*Senior	1.0267* (1.853)	0.6170** (2.070)	\$0.89	\$0.25	\$1.67
...*Senior*Male	-0.5709 (-0.831)	--			
...*College Degree	0.3619 (1.071)	0.3726* (1.909)	\$0.54	\$0.04	\$1.00
...*Frequent Buyer	0.3569 (1.224)	--			
...*Kids	0.3669 (0.866)	--			
...*High Income*Kids	-0.8743 (-1.275)	--			
Utah's Own*LB1	1.7566*** (3.559)	1.1786*** (4.747)	\$1.71	\$1.10	\$2.34
...*Low Income	0.2392 (0.500)	--			
...*High Income	-0.9900 (-1.564)	--			
...*Male	-0.3611 (-0.807)	--			
...*Senior	-2.0816*** (-3.263)	-1.4723*** (-3.713)	-\$2.13	-\$3.12	-\$1.21
...*Senior*Male	0.7806 (0.973)	--			

Table 11 Continued. Selected Coefficients and WTP from Full Model: LB1 Brand Preference Heterogeneity (Relative to PL).^a

Variables	Full	Summary	Median WTP	Lower 5%	Upper 95%
	(0.973)				
...*College Degree	0.0325	--			
	(0.084)				
...*Frequent Buyer	-0.1611	--			
	(-0.470)				
...*Kids	-1.0094**	-0.3842	-\$0.56	-\$1.19	\$0.03
	(-2.060)	(-1.510)			
...*High Income*Kids	1.5304*	--			
	(1.903)				
Observations	4,653	4,653			
Log-likelihood	-1436	-1447			

^a Standard errors are in parentheses.

*** Indicates statistically different than zero at the 1% level.

** Indicates statistically different than zero at the 5% level.

* Indicates statistically different than zero at the 10% level.

Table 12. Selected Coefficients and WTP from Full Model: LB2 Brand Preference Heterogeneity (Relative to PL).

Variables	Full	Summary	Median WTP	Lower 5%	Upper 95%
LB2	0.2211 (0.581)	0.0065 (0.042)	\$0.01	-\$0.38	\$0.39
... *Low Income	0.2976 (0.717)	--			
... *High Income	-0.1559 (-0.299)	--			
... *Male	-0.4061 (-1.079)	--			
... *Senior	-0.2602 (-0.489)	--			
... *Senior*Male	-0.0297 (-0.042)	--			
... *College Degree	-0.0710 (-0.219)	--			
... *Frequent Buyer	0.4844 (1.626)	--			
... *Kids	-0.5354 (-1.402)	--			
... *High Income*Kids	0.8409 (1.252)	0.5815 (1.595)	\$0.84	-\$0.04	\$1.73
Locally Produced*LB2	-0.0230 (-0.050)	0.5777*** (2.956)	\$0.84	\$0.38	\$1.32
... *Low Income	-0.3201 (-0.672)	--			
... *High Income	0.8855 (1.391)	0.7948* (1.927)	\$1.15	\$0.17	\$2.15
... *Male	0.6025 (1.319)	--			
... *Senior	0.6650 (1.097)	--			
... *Senior*Male	-1.7966** (-2.069)	-1.2424*** (-2.780)	-\$1.80	-\$2.94	-\$0.65

Table 12 Continued. Selected Coefficients and WTP from Full Model: LB2 Brand Preference Heterogeneity (Relative to PL).^a

Variables	Full	Summary	Median WTP	Lower 5%	Upper 95%
... *College Degree	0.3563 (0.906)	--			
... *Frequent Buyer	-0.2178 (-0.611)	--			
... *Kids	0.7183 (1.577)	--			
... *High Income*Kids	-2.1853*** (-2.596)	-1.8486*** (-2.851)	-\$2.68	-\$4.24	-\$1.16
Observations	4,653	4,653			
Log-likelihood	-1436	-1447			

^a Standard errors are in parentheses.

*** Indicates statistically different than zero at the 1% level.

** Indicates statistically different than zero at the 5% level.

* Indicates statistically different than zero at the 10% level.