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Consumers' Attitudes towards Country of Origin Labeling for Sugar

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Selected Paper prepared for presentation at the Agricultural & Applied Economics Association's 2013 AAEA & CAES Joint Annual Meeting, Washington, DC, August 4-6, 2013.

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Abstract

Given the ongoing debate regarding country of origin labeling (COOL) for certain agricultural products, it is very important to understand *why* certain consumers prefer COOL. Utilizing a consumer survey, 566 participants' preferences for COOL for sugar and for sugar in soft drinks was analyzed. Using a bivariate ordered probit model, it was discovered that high levels of consumer ethnocentrism and consumer patriotism positively impacted consumers' preference that sugar and sugar in soft drinks should be labeled with country of origin information.

JEL Code: M31, Q13

Keywords: sugar, soft drinks, COOL, ingredient labeling, ethnocentrism, patriotism, bivariate ordered probit model

Introduction

Country of origin labeling (COOL) remains a heavily studied topic in both marketing and economics research. Recently, several authors have examined COOL in the context of agricultural commodities (e.g. Saak 2011; Krissoff et al. 2004; Carter, Krissoff, Zwane 2006; Loureiro and Umberger 2005; Loureiro and Umberger 2007) because the Farm Security Act of 2002 and the Rural Investment Act of 2008 made it a mandatory law that several commodities must be labeled with country of origin information (Federal Register 2009). Mandatory COOL laws require country of origin labeling for muscle cut and ground meats; wild and farm-raised fish and shellfish; fresh and frozen fruits and vegetables; peanuts, pecans, and macadamia nuts; and ginseng (USDA 2012a). Mandatory COOL laws have received much attention lately because Mexico and Canada recently challenged the legality of the U.S.'s mandatory COOL on beef products claiming that mandatory COOL violates free trade agreements. The allegations brought forth by Mexico and Canada are now being heard by the World Trade Organization (Congressional Research Service 2013). In response to this legal battle, both U.S. producers and U.S. consumer groups have voiced their support for mandatory COOL (Drovers 2013). Most research has focused on understanding why U.S. producers support mandatory COOL and whether mandatory COOL actually will create a monetary benefit for U.S. producers (e.g. Carter, Krissoff, Zwane 2006; Loureiro and Umberger 2005; Loureiro and Umberger 2007). However, very few articles have focused on *why* U.S. consumers prefer mandatory COOL for agricultural products. According to Lusk et al. (2006), most agricultural economics literature has focused on “quantifying the costs and benefits of COOL and on assessing welfare effects of the policy... <however> comparatively little work has been done to investigate *why* consumers might want COOL.” Thus, the goal of this research is to expand existing literature on COOL research by

determining whether consumers' patriotism and ethnocentrism as well as their socio-demographics are predictive of their attitudes towards COOL on food products. Data for this research was collected using an online Qualtrics consumer survey which was answered by 566 participants. In particular, participants of the online consumer survey were asked about their preferences for sugar labeled with country of origin information. The remainder of the paper is as follows. First an overview on the U.S. sugar market will be provided. This is followed by a theoretical model and a literature review. Afterwards, the econometric model and design of the study is described, before the empirical results are discussed.

U.S. Sugar Market

Sugar was chosen for the product to be investigated in this study for several reasons. First of all, sugar is not one of the commodities which is mandatory COOL enforced; thus, the participants of the online survey were not biased by being asked questions about an already existing mandatory COOL product. Also, to the authors' knowledge, no other research has before investigated COOL for sugar. Another reason for investigating sugar is that the U.S. sugar market contains sugar produced from several different countries. In fact, the U.S. is the world's largest importer of sugar, and in 2011, about 29% of the sugar in the U.S. originated in foreign countries. (American Sugar Alliance 2012; USDA 2012d). Imports of sugar are regulated by tariff-rate quotas which are currently issued to forty-one countries and free trade agreements (USDA 2012b). As illustrated by Table 1, in 2011, the top six importers of sugar into the U.S. were Mexico, the Dominican Republic, Brazil, the Philippines, Australia and Guatemala. Together they represented about 72% of the raw sugar that was imported into the

U.S. in 2011 (USDA 2012c). Mexico alone was responsible for about 46% of the raw sugar that was imported into the United States in 2011.

Table 1. Sugar Imports into the U.S. in 2011

Country	Raw Sugar (metric tons)
<i>Raw Sugar TRQ</i>	
Mexico	1,549,045
Brazil	250,589
Philippines	221,808
Dominican Republic	205,099
Australia	143,441
Guatemala	82,954

Finally, sugar is a noteworthy product because of the uniqueness of the sugar market in comparison to many other commodity markets when dealing with foreign imports. Even though almost a third of the sugar in the U.S. originates from foreign countries, when foreign sugar enters into the U.S. it is in its raw form and is shipped to U.S. sugar refineries located on the coastal regions of the U.S. Once the foreign raw sugar arrives in the U.S. it is then refined and blended with U.S. sugar at the U.S. sugar refineries. Therefore, even though the sugar originates from foreign countries, it is essentially indistinguishable from U.S. originated sugar by the time it is packaged and sold to the American consumer. Therefore, by examining consumers' preferences for COOL of sugar, this analysis is essentially able to hold consumers' concerns about sugar quality and safety constant. This analysis is, therefore, able to exclusively focus on determining which consumer attitudes and socio-demographics are predictive of consumers' preference for COOL for sugar.

Theoretical Model and Literature Review

COOL

A stream of literature has investigated why consumers are interested in the origin of food products. Several reasons have emerged. Many articles have analyzed how country of origin labeling may help to signal or suggest a specific degree of safety and/or quality regarding particular products (e.g. Becker et al. 2000; Verlegh and Steenkamp 1999; Loureiro and Umberger 2005; Loureiro and Umberger 2007). Becker et al. (2000) discovered that consumers infer meat safety mainly from origin. Verlegh and Steenkamp (1999) found that country of origin has a larger effect on perceived quality than on attitude towards the purchase intention or product. Loureiro and Umberger (2005) established that consumers' view U.S. meat as the safest; however, consumers' willingness to pay for Certified U.S. products was relatively small. Loureiro and Umberger (2007) concluded that indication of origin may only work as a signal of superior quality if the country of origin is also associated with having a higher food safety or quality.

In addition to understanding how country of origin labeling can signal superior quality and safety of products, other studies have focused on understanding the emotional impact of country of origin labeling on consumers. Consumers may be willing to pay more for a product if it carries a country of origin label because they associate the product with higher quality and safety; however, consumers may also pay more for a product labeled with country of origin information if they prefer the product for emotional reasons. Ultimately, Verlegh and Steenkamp (1999) explain that there are three main mechanisms for country-of-origin effects and they are: cognitive, affective and normative. According to Verlegh and Steenkamp (1999), *cognitive* effects of country of origin labeling may be used by consumers as a signal for overall

product quality. Meanwhile, *affective* country of origin effects have an emotional value to consumers such as enhancing social status (e.g. Batra et al. 2000). Finally, according to Verlegh and Steenkamp (1999), the *normative* mechanism by which country of origin labeling works involves consumers' social and personal norms relating to country of origin. For example, purchasing domestic products may be regarded as proper conduct because it supports one's own country (e.g. Shimp and Sharma 1987). Meanwhile, consumers' may refrain from purchasing products from foreign countries which they hold animosity towards (e.g. Klein et al. 1998).

Similar to Verlegh and Steenkamp's (1999) affective and normative mechanism of country of origin labeling, Lusk et al. (2007) discusses consumer ethnocentrism and consumer patriotism as a main force behind consumers who would likely prefer COOL on products. Given the importance of the affective and normative mechanisms of how country of origin labeling functions, this research will proceed by more exclusively investigating how consumers' degree of ethnocentrism and patriotism affects consumers' preferences for country of origin labeling.

Consumer ethnocentrism and patriotism

Consumer ethnocentrism is a concept introduced over 100 years ago by Sumner (1906). Ethnocentrism was originally a sociological concept used to distinguish between ingroups and outgroups where ingroups are defined as groups with which an individual identifies while an outgroup is defined as those regarded as opposing to the ingroup (Shimp and Sharma 1987). According to Levine and Campbell (1972), the symbols and values of one's national or ethnic group become objects of attachment and pride while symbols of other groups may become objects of contempt. Shimp and Sharma (1987) define "consumer ethnocentrism" as the beliefs held by American consumers about the appropriateness, and morality, of purchasing foreign produced products. Very similarly related to ethnocentrism is the term patriotism (Lusk et al.

2006). According to Lusk et al. (2006), patriotism is the most commonly used term to express national pride and devotion. This research will use concepts of both ethnocentrism and patriotism to better understand why consumers' prefer COOL. By understanding how ethnocentrism and patriotism influence consumer's preference for COOL, we are also expanding knowledge of how Verlegh and Steenkamp (1999)'s normative and affective mechanisms of COOL operate.

Methodology

Consumer Ethnocentrism Tendency Scale

In order to quantify survey participants' consumer ethnocentrism, the Shimp and Sharma (1987) Consumer Ethnocentrism Tendency Scale (CETSCALE) was applied. CETSCALE is a validated scale which has been widely used in marketing literature to estimate the degree of ethnocentrism of particular consumers. The CETSCALE is found in appendix A. To complete the CETSCALE, survey participants are asked on a one to seven scale how much they agree or disagree with seventeen different statements. Strongly disagree is coded as one and strongly agree is coded as seven. Examples of statements are, "American people should always buy American-made products instead of imports." To analyze results of this scale, consumer responses for all seventeen questions are aggregated to arrive at a composite CETSCALE for each participant of the survey.

Measuring patriotism

According to Lusk et al. (2007), patriotism towards one's country is one of the most common terms associated with ethnocentrism. Therefore, participants of the online survey were

also asked on a scale from one to seven, “How patriotic do you consider yourself? (1=not at all, 7=very much).” Additionally, participants were also asked their political affiliation to determine if a certain political party had any association with consumers’ preferences for COOL.

Econometric Model

For this research, the main question of interest is determining in how far consumers' ethnocentrism and socio-demographics predict their attitudes towards COOL. Thus, the dependent variable in this analysis was obtained by asking consumers whether or not they thought that sugar should be labeled with its country of origin information. Participants were asked to indicate on a one to five scale (strongly disagree=1 and strongly agree=5) how much they agreed or disagreed with the following statements, “All sugar should be labeled with its country of origin information.” In addition to determining how consumers’ attitudes towards COOL for uniform products (e.g. sugar), this research also investigated how much consumers preferred ingredients which comprise a product to be labeled with its country of origin information. Consumers were also asked on a one to five scale how much they agreed or disagreed with the following question, “All soft drinks should be labeled with the country of origin of the sugar used in the soft drink.”

To analyze the results of consumers’ attitudes towards COOL, consumers’ responses to how much they agreed or disagreed with the above COOL statements were measured as an ordinal variable with four categories. If consumers “strongly disagreed” or “disagreed” with the statements, their response was coded as one. If consumers “neither agreed nor disagreed” about COOL, their response was coded as two. If consumers “agreed” about COOL their response was coded as three; and finally, if consumers “strongly agreed” about COOL their response was

coded as four. Using a bivariate ordered probit model, this research compares consumers' preference for COOL for sugar simultaneously with consumers' preference for COOL for sugar in soft drinks (Kim 1995; Green and Hensher 2010; Grebitus et al. 2012). The bivariate ordered probit model accounts for the fact that the dependent variables (e.g. sugar COOL, sugar COOL for soft drinks) are ordinal variables instead of continuous or non-ordered categorical variables, and has more than two outcomes (Grebitus et al. 2012). Furthermore, a bivariate ordered probit model is appropriate for this situation because consumers' preference for COOL for sugar and COOL for sugar in soft drinks is likely not independent of each other.

When using a bivariate ordered probit model, an examination of the estimated correlation coefficient (ρ) will provide a measure to evaluate whether a bivariate ordered probit model is appropriate or whether two independent univariate ordered probit models would be a more appropriate fit for the data. If ρ is statistically significant, then the bivariate ordered probit model is preferred. Otherwise, two independent univariate ordered probit models are preferred.

The bivariate ordered probit model is an extension of a univariate ordered probit model. In a univariate ordered probit model, the unobserved preference for COOL for either sugar or sugar in soft drinks is the following:

$$(1) \quad y_i^* = \beta x_i + \varepsilon_i$$

where y_i^* is the unobserved latent and continuous preference for COOL for sugar or COOL for sugar in soft drinks, β is a vector of parameters to be estimated, x_i is the vector of explanatory variables, and ε_i is a random error term that follows a standard normal distribution. The preference is "latent" in the sense that we observe an indicator of how much consumers agree or disagree with whether COOL for sugar or COOL for sugar in soft drinks should exist. In our

study, consumers' preference for COOL for sugar or COOL for sugar in soft drinks are observed discrete categories, which are denoted as y_i :

$$(2) \quad y_i = \begin{cases} 1, & y_i^* \leq u_1 \\ 2, & u_1 < y_i^* \leq u_2 \\ & \vdots \\ \mathcal{F}, & y_i^* > u_{\mathcal{F}} \end{cases}$$

where u_i 's are unknown cut-off values of the latent preference to be estimated and \mathcal{F} is the number of discrete categories. As previously mentioned, this analysis has four categories (1=strongly disagree and disagree, 2=neither agree or disagree, 3=disagree, 4=strongly disagree). Therefore $\mathcal{F}=4$. By assuming the error term follows a standard normal distribution, we have the following probabilities:

$$(3) \quad \Pr(y_i = 1) = \int_{-\infty}^{-\beta x_i} \phi(\varepsilon_i) d\varepsilon_i = \Phi(-\beta x_i)$$

$$\Pr(y_i = 2) = \int_{-\beta x_i}^{u_1 - \beta x_i} \phi(\varepsilon_i) d\varepsilon_i = \Phi(u_1 - \beta x_i) - \Phi(-\beta x_i)$$

$$\Pr(y_i = 3) = \int_{u_1 - \beta x_i}^{u_2 - \beta x_i} \phi(\varepsilon_i) d\varepsilon_i = \Phi(u_2 - \beta x_i) - \Phi(u_1 - \beta x_i)$$

$$\Pr(y_i = 4) = \int_{u_3 - \beta x_i}^{\infty} \phi(\varepsilon_i) d\varepsilon_i = 1 - \Phi(u_3 - \beta x_i)$$

where ϕ and Φ are the standard normal probability density and cumulative distribution functions, respectively, β are unknown parameters to be estimated and ε_i are random error terms.

As an extension of the univariate ordered probit model, the bivariate ordered probit model considers the preference categories for the two COOL scenarios under investigation (COOL for sugar and COOL for sugar in soft drinks) y_{1i} and y_{2i} and assumes that the two random error terms ε_{1i} and ε_{2i} come from a bivariate correlated normal distribution. The bivariate ordered probit probability is the following:

$$\begin{aligned}
(4) \quad \Pr(y_{1i} = j, y_{2i} = k) &= \int_{u_{2(k-1)} - \beta_2 x_{2i}}^{u_{2k} - \beta_2 x_{2i}} \int_{u_{1(j-1)} - \beta_1 x_{1i}}^{u_{1j} - \beta_1 x_{1i}} \phi(\varepsilon_{1i}, \varepsilon_{2i}, \rho) d\varepsilon_{1i} d\varepsilon_{2i} \\
&= \Phi_2(u_{1j} - \beta_1 x_{1i}, u_{2k} - \beta_2 x_{2i}, \rho) - \Phi_2(u_{1(j-1)} \\
&\quad - \beta_1 x_{1i}, u_{2k} - \beta_2 x_{2i}, \rho) \\
&\quad - \Phi_2(u_{1j} - \beta_1 x_{1i}, u_{2(k-1)} - \beta_2 x_{2i}, \rho) - \Phi_2(u_{1(j-1)} \\
&\quad - \beta_1 x_{1i}, u_{2(k-1)} - \beta_2 x_{2i}, \rho)
\end{aligned}$$

where y_{1i} is the observed preference for COOL for sugar ($j=1, \dots, 4$) and y_{2i} is the observed preference for COOL for sugar in soft drinks ($k=1, \dots, 4$), Φ_2 are the standard bivariate normal probability density and cumulative distribution functions and ρ is an unknown correlation between ε_{1i} and ε_{2i} to be estimated. Maximum likelihood estimation was used to estimate the parameters (u_i , β , ρ , ε_{1i} and ε_{2i}) in the model.

Empirical Results

An online Qualtrics survey was answered by 566 participants. Participants were asked how much they disagreed or agreed with COOL for sugar and COOL for sugar in soft drinks. Participants also answered the CETSCALE, a patriotic question, political affiliation, questions regarding sugar and soft drink consumption and several socio-demographic questions. The data were collected in April of 2013 from throughout the U.S. All respondents were older than eighteen years of age. About 50% of the survey participants were female. The average age of interviewees was fifty-four years old. The household size counts two on average with 44% of all respondent holding at least a bachelors degree. The mean of the annual household income is

about \$61,000. Table 2 illustrates the structure of the participants of the survey and includes variable descriptions. Compared to the U.S. population the sample is slightly older, more educated with a higher income than the average U.S. citizen.

Table 2. Description of sample characteristics

Characteristics	Sample		U.S. Population
	Mean	S.D.	
Gender (male %)	49.50%	0.5	49.20% ¹
Age (years)	53.5	15.38	37.2 ²
Household Size	2.4	1.31	2.6 ¹
Education (% bachelors degree and above)	44%	0.5	28.20% ¹
Annual Household Income	\$60,584.07	\$39,173.81	\$52,762.00 ¹
Households where children under 12 are present in household (%)	19.29%	0.39	
Race (% white)	86.00%	0.35	78.1% ¹
Republican (%)	26.50%	0.44	28.00% ³
Democrat (%)	33.04%	0.47	35.00% ³
Independent (%)	29.68%	0.46	33.00% ³
Tea Party (%)	1.94%	0.14	
Libertarian (%)	1.94%	0.14	
Student (% student)	6.20%	0.24	

Number of observations (n)=566

¹U.S. Census Bureau 2011

²CIA Factsheet 2013

³Pew Research Group 2012

Descriptive results

Attitudes towards COOL for sugar and sugar in soft drinks

Table 3 depicts consumers' attitudes towards COOL labeling for sugar and sugar in soft drinks. Approximately 27.74% of survey participants "strongly agreed" and 41.52% "agreed" that sugar should be labeled with its country of origin. About 20.49% of survey participants "neither agreed or disagreed" that sugar should be labeled with its country of origin information. Meanwhile, 5.30% "disagreed" and 4.95% "strongly disagreed" that sugar should be labeled

with its country of origin. Results were similar for consumers' preference for country of origin labeling for sugar in soft drinks. Approximately 29.15% of survey participants "strongly agreed" and 35.16% "agreed" that sugar in soft drinks should be labeled with its country of origin. Almost one quarter of survey participants "neither agreed or disagreed" that sugar in soft drinks should be labeled with its country of origin. Finally, 6.52% of survey participants "disagreed" and 4.42% "strongly disagreed" that sugar in soft drinks should be labeled with its country of origin information.

Examining a cross tabulation of consumers' attitudes towards COOL for sugar and COOL for sugar in soft drinks, it becomes apparent that consumers who prefer COOL for sugar also prefer COOL for sugar in soft drinks. The significant χ^2 test statistic proves that the attitude towards COOL for a raw product (sugar) and the same raw product as an ingredient (sugar in soft drinks) is not independent from one another.

Table 3. Cross-tabulation of COOL sugar and sugar COOL for soft drinks

<i>Sugar</i>	<i>Sugar in Soft Drinks</i>					Total
	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree	
Strongly Disagree	4.06%	0.35%	0.53%	0.00%	0.00%	4.95%
Disagree	0.00%	3.36%	1.41%	0.53%	0.00%	5.30%
Neither Agree or Disagree	0.18%	1.06%	18.20%	0.71%	0.35%	20.49%
Agree	0.18%	1.77%	3.89%	33.22%	2.47%	41.52%
Strongly Agree	0.00%	0.00%	0.71%	0.71%	26.33%	27.74%
Total	4.42%	6.54%	24.73%	35.16%	29.15%	100 %

Pearson $\chi^2(16)=1,400.00$, $p=0.000$, $n=566$

Consumer Ethnocentrism Predictive of Attitudes towards COOL

Table 4 depicts consumers' ethnocentric tendencies as summarized by survey participant responses on the CETSCALE. From Table 4 it is apparent that survey participants most strongly

agreed with statement three which states the following, “Buy American-made products. Keep America working.” This question had the highest mean (5.40). Meanwhile, survey participants least agreed with CETSCALE question number fourteen, “Foreigners should not be allowed to put their products on our market.” The mean of question fourteen was the lowest (3.07).

Table 4. CETSCALE Summery Statistics

	Mean	S.D.
1. American people should always buy American-made products instead of imports.	4.56	1.61
2. Only those products that are unavailable in the U.S. should be imported.	4.41	1.63
3. Buy American-made products. Keep America working.	5.40	1.44
4. American products, first, last, and foremost.	4.72	1.68
5. Purchasing foreign-made products is un-American.	3.53	1.68
6. It is not right to purchase foreign products, because it puts Americans out of jobs.	3.87	1.70
7. A real American should always buy American-made products.	3.91	1.76
8. We should purchase products manufactured in America instead of letting other countries get rich off us.	4.61	1.74
9. It is always best to purchase American products.	4.64	1.70
10. There should be very little trading or purchasing of goods from other countries unless out of necessity.	3.92	1.76
11. Americans should not buy foreign products, because this hurts American business and causes unemployment.	3.98	1.69
12. Curbs should be put on all imports.	4.00	1.73
13. It may cost me in the long-run but I prefer to support American products.	4.79	1.52
14. Foreigners should not be allowed to put their products on our market.	3.07	1.66
15. Foreign products should be taxed heavily to reduce their entry into the U.S.	3.93	1.70
16. We should buy from foreign countries only those products that we cannot obtain within our own country.	4.23	1.72
17. American consumers who purchase products made in other countries are responsible for putting their fellow Americans out of work.	3.55	1.80

Table 5 illustrates the consumer characteristics and attitudes which are included in the econometric model of consumers’ attitudes for COOL for sugar and COOL for sugar in soft drinks. From Table 5 it is apparent that participants of the survey show rather high ethnocentric

tendencies with a mean of 71. Compared to the original study involving the CETSCALE, the sample indeed had high ethnocentric tendencies. The original CETSCALE study conducted by Shimp and Sharma (1987) sampled 322, 323, 315 and 575 respondents from Detroit, Denver, Los Angeles and the Carolinas respectively. They discovered the following CETSCALE scores for the four studied areas: Detroit Mean=68.58; Standard Deviation=25.96; Carolinas Mean=61.28, Standard Deviation=24.41; Denver Mean=57.84, Standard Deviation=26.10; and Los Angeles Mean=56.62, Standard Deviation=26.37. One possible reason for the difference in this study's CETSCORE is that consumers in the U.S. may be becoming increasingly more ethnocentric. Lusk et al. (2007) hypothesized that consumers may have become more ethnocentric in recent years due to events like September 11.

In addition to consumers' ethnocentric tendencies as measured by the CETSCALE, participants' level of the patriotism and whether or not they are Republicans is hypothesized to influence consumers' preference for COOL. Republicans are typically in favor of a smaller government and may prefer less government mandated labeling for products. Thus, being a Republican is hypothesized to decrease the probability that consumers' prefer COOL for sugar and for sugar in soft drinks. Meanwhile, it is hypothesized that a higher ethnocentrism score on the CETSCALE and a higher patriotic score would increase the probability that consumers' prefer COOL for sugar and for sugar in soft drinks.

Table 4. Consumer Characteristics and Attitudes

Characteristics	Sample		Variable Description
	Mean	S.D.	
CETSCALE (out of a maximum 119 points)	71.12	23.6	Continuous variable
Patriotic Scale (out of a maximum 7 points)	5.60	1.44	Continuous variable
Republican	27.5%	0.44	Binary variable equal to one if respondent is a republican

Another determinant of consumer attitudes towards COOL could be the frequency of consumers' consumption of sugar and soft drinks. Table 6 displays participants' consumption of sugar and soft drinks. Approximately 31.63% of survey participants stated that they consume sugar on a daily basis. Meanwhile 21.20% of the survey participants claimed they only consume sugar less than once a month. Incredibly 22.97% of survey participants consume soft drinks daily while 27.92% of survey participants stated they consumed soft drinks less than once a month.

Table 6. Sugar and Soft Drink Consumption

Consumption (level)	Sugar		Soft Drinks	
	Frequency	Percent	Frequency	Percent
Daily	179	31.63%	130	22.97%
2-3 times a week	115	20.32%	103	18.20%
Once a week	61	10.78%	61	10.78%
2-3 times a month	54	9.54%	70	12.37%
Once a month	37	6.54%	44	7.77%
Less than once a month	120	21.20%	158	27.92%
Total	566	100%	566	100%

Econometric results

The estimated bivariate ordered probit model incorporates socio-demographic information (Table 3), consumer ethnocentrism, political affiliation and patriotism (Table 4) and sugar and soft drink consumption information (Table 5) as independent variables. The model was used to understand what consumer characteristics are predictive of consumers' attitudes towards COOL for sugar and towards COOL for sugar in soft drinks. The dependent variables in this analysis are how much consumers agree or disagree with whether or not sugar should be labeled with country of origin information and whether consumers agree or disagree with whether or not sugar in soft drinks should be labeled with country of origin information (Table 2).

Table 7 presents the estimated coefficients for the model. The table rows are separated into three categories of variables: consumer characteristics, consumption frequency and socio-demographics. Estimated coefficients of the model, standard errors and the associated p-values are reported for consumers' preference for COOL for sugar and consumers' preferences for COOL for sugar in soft drinks. Importantly, the estimated ρ coefficient in Table 6 is 1.613 and highly significant ($p < 0.01$). Therefore, estimating the model as a bivariate probit instead of a univariate probit model is appropriate. Consumers' attitudes towards COOL for sugar and COOL for sugar in soft drinks are, in fact, not independent.

Table 7 also illustrates that consumer ethnocentrism is a very important factor influencing consumers' attitudes towards COOL for sugar and COOL for sugar in soft drinks. Both the CETSCALE ($p < 0.01$) and patriotic scale ($p < 0.06$) were found statistically significant in both models and with positive coefficients. Thus, the higher consumers scored on the CETSCALE and the patriotic scale, the more likely they were to agree that COOL should exist for sugar and sugar in soft drinks.

Table 7. Model Results

Independent Variables ^c	COOL Preference					
	Sugar ^{a,b}			Sugar in Soft Drinks ^{a,b}		
	Coef.	Std. Error	p-value	Coef.	Std. Error	p-value
Characteristics/Attitudes						
CETSCALE	0.008	0.002	0.001	0.011	0.002	0.000
Patriotic Scale	0.094	0.038	0.013	0.069	0.037	0.062
Republican	-0.066	0.102	0.515	-0.209	0.102	0.039
Consumption Frequency						
Sugar	0.038	0.027	0.163	0.023	0.027	0.405
Soft Drinks	-0.046	0.026	0.074	-0.036	0.026	0.164
Socio-demographics						
Gender	-0.192	0.099	0.053	-0.249	0.100	0.013
Age	0.016	0.004	0.000	0.015	0.004	0.000
Race	-0.208	0.143	0.145	-0.237	0.149	0.112
Student	0.347	0.242	0.152	0.614	0.241	0.011
Athrho constant (ρ)	1.613	0.091	0.000			
u_{11}	0.345	0.308				
u_{13}	1.074	0.317				
u_{13}	2.255	0.331				
u_{21}	0.294	0.297				
u_{22}	1.131	0.307				
u_{23}	2.124	0.319				

^aWald $\chi^2(9)=57.75$ ($p=0.000$), Log pseudo likelihood=-1041.17, $n=566$.

^bWald test of independent equations: $\chi^2(1)=314.95$ ($p=0.000$).

^cNot all socio-demographics were included in this model. Independent variables were chosen based on likelihood ratio tests.

Results from Table 7 also illustrate that consumers who are Republicans are statistically ($p<0.10$) less likely to prefer COOL for sugar in soft drinks. The consumption frequency of sugar and soft drinks was only statistically significant in one case. As consumers' consumption of soft drinks increased, consumers were less likely to prefer COOL for sugar in soft drinks ($p<0.10$). If consumers were students, they were more likely to prefer COOL for sugar in soft drinks. Age was statistically significant ($p<0.01$) for both COOL for sugar and for sugar in soft drinks. The positive coefficient on age suggests that as consumers age, they are more likely to prefer COOL for sugar and for sugar in soft drinks. If consumers were male, they were more likely to disagree

with COOL for sugar ($p < 0.10$) and more likely to disagree with COOL for sugar in soft drinks ($p < 0.05$). Race was slightly significant ($p = .112$) in COOL for sugar in soft drinks. Thus, if consumers were white, they were more likely to disagree with COOL for sugar in soft drinks.

Conclusion

The results of this research are insightful for several reasons. Following Verlegh and Steenkamp (1999), the three main mechanisms which explain country of origin effects are cognitive, affective and normative. By examining the sugar market, this research was able to focus on the consumer characteristics and attitudes (affective and normative mechanisms) that are predictive of consumers' preferences towards COOL while holding the cognitive effects constant (foreign sugar is refined in the U.S. and thus quality and safety is essentially identical to U.S. originated sugar). In general, it was very apparent that consumers who have a high level of ethnocentrism and patriotism towards the U.S. are very likely to prefer COOL. Additionally, as people become older they are more likely to prefer COOL labeling. Meanwhile, men and Republicans are less likely to prefer COOL for products.

Another intriguing discovery of this research involves the use of the CETSCALE. The surveyed participants in our research had relatively high CETSCALE scores compared to the original findings of Shimp and Sharma (1987). If consumers in the U.S. are indeed becoming more ethnocentric in their tendencies, this would clearly help explain *why* consumers are increasingly demanding mandatory COOL. If consumer ethnocentrism is on the rise in the U.S., then this concept needs to be further understood so educational strides to inform consumers about foreign imports can be made. This is especially true in the case of commodities such as

sugar, where the quality and safety of sugar which originates in foreign countries is essentially identical to U.S. originated sugar because it is refined in the U.S.

Answering the question of *why* consumers prefer COOL is very crucial as the mandatory COOL debate moves forward. Perhaps instead of having government mandated labeling practices, simple consumer education can help alleviate consumers' (mis)perceptions about foreign products which enter into the U.S.

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APPENDIX A
Shimp and Sharma (1987): Ethnocentrism Tendency Scale

	Strongly Disagree					Strongly Agree	
	1	2	3	4	5	6	7
1. American people should always buy American-made products instead of imports.							
2. Only those products that are unavailable in the U.S. should be imported.							
3. Buy American-made products. Keep America working.							
4. American products, first, last, and foremost.							
5. Purchasing foreign-made products is un-American.							
6. It is not right to purchase foreign products, because it puts Americans out of jobs.							
7. A real American should always buy American-made products.							
8. We should purchase products manufactured in America instead of letting other countries get rich off us.							
9. It is always best to purchase American products.							
10. There should be very little trading or purchasing of goods from other countries unless out of necessity.							
11. Americans should not buy foreign products, because this hurts American business and causes unemployment.							
12. Curbs should be put on all imports.							
13. It may cost me in the long-run but I prefer to support American products.							
14. Foreigners should not be allowed to put their products on our market.							
15. Foreign products should be taxed heavily to reduce their entry into the U.S.							
16. We should buy from foreign countries only those products that we cannot obtain within our own country.							
17. American consumers who purchase products made in other countries are responsible for putting their fellow Americans out of work.							