

Country of Origin Labelling: A Consumer Preference Analysis for Ethnic Greens and Herbs in the East Coast USA

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Abstract

The objective of the study was to predict the willingness to buy (WTB) Country of Origin Labelling (COOL) ethnic greens and herbs in the east-coast region of U.S. The estimated logit model results indicate that, the sample respondents are more likely to buy COOL if they consider food safety, and products sold in packages instead of loose. Sample respondents who consume ethnic greens and herbs for health motives have a higher probability of buying COOL ethnic produce. Reading food label and frequency of purchase have a significant positive effect to buy COOL ethnic greens and herbs. Moreover, the distance to closest ethnic store and price have a negative effect on consumers' WTB ethnic greens and herbs with COOL. Income still plays an important role to buy COOL ethnic greens and herbs. Compared with other respondents, those who earn annual household income from \$40,000 to \$59,999 are less likely to buy COOL ethnic greens and herbs. Respondents aged 21 to 50 have a higher likelihood of buying COOL ethnic greens and herbs compared with a cohort older than 65. Based on the results in this study, producers can have a pricing strategy to set an appropriate price. Although there are important variables which may be beneficial in targeting ethnic consumers and executing marketing strategies, further research is needed to explore why these variables have varying effects on influencing ethnic consumers' attitudes towards WTB ethnic greens and herbs.

Keywords: Country of Origin Labelling (COOL), Asians, Hispanic/Latinos, Willingness to buy (WTB), ethnic greens and herbs, East-coast region of US

Economic opportunities have risen in the last few decade for specialty crop agriculture targeted to diverse ethnic patrons (Tubene, 2001; Sciarappa, 2001&2003; Mendonca *et al.*, 2006; Govindasamy *et al.*, 2006; Govindasamy *et al.*, 2010 & 2015) US Census data shows that, in general average population increase of 9.5% from 2000 to 2012, with an increase of 32% for Asians and 34% for Hispanic/Latinos (U.S. Census Bureau. 2011). The projected data also shows that the states of Maryland and New York, each with 40% of the projected population being marginal groups, are among the next set of province to become "majority-minority" provinces (Bernstein, 2005). However, the population in the east coast regions have been increasing, leading to land developments thus affecting the commercial producers in the area to operate on a moderately small land with relatively

higher costs of production. In response to these new tasks and to continue profit, a lot of growers in the region have been changing production and adopting strategies to grow cash crops and specialty crops (i.e. non-commodity crops which grasp a premium), exclusively greens and herb growers in the region, to get benefit of their close proximity to densely populated region (Tubene, 2001; Govindasamy *et al.*, 2010; Govindasamy *et al.*, 2015).

In general, patrons are gradually anxious with their food safety, quality and production aspects (Caswell, 1998; Klaus, 2005; Ines *et al.*, 2012), Production aspects that may be considered by patrons, such as locally produced, environmental friendly and COOL are considered to be acceptance attributes (Peter & Olson, 2010; Chern & Chang, 2012; Amanda *et al.*, 2013; Govindasamy *et al.*, 2014). Labeling credibility

allows the consumer to critic the product before purchasing (Caswell, 1998; Govindasamy *et al.*, 2014; Emma *et al.*, 2016). The country of origin of a food product has become an important marketing tool in the last decades. After studying different characteristics of importance from a food product, researchers started to notice that the COOL product and the image that consumers have about countries, may influence their preferences (Ehmke *et al.*, 2008; Schnettler *et al.*, 2009; Pouta *et al.*, 2010; Yeh, 2010; Awada & Yiannaka, 2012; Pouliot & Sumner, 2014). Therefore the availability of information pertaining to the country of origin would be a useful tool for consumers to distinguish between production standards and to be able to make well-informed purchasing decisions. Many studies recognized that consumers use information about the country of origin to evaluate products (Papadopoulos & Heslop, 2002; Dinnie, 2003; Loureiro & Umberger, 2007; Berry *et al.*, 2015). The importance of origin as a quality signal has also been overruled and questioned in previous literature (Bilkey & Nes, 1982; Liefeld, 2004; Joseph *et al.*, 2014). However, in the food sector, consumers frequently state the importance of country of origin (Skaggs *et al.*, 1996; Hoffman, 2000; Chern & Chang, 2012; Lagerkvist *et al.*, 2013).

Moreover, the consumers' preferences towards COOL are different across individuals. Ethnocentric patrons tend to have a low education and low income (Watson & Wright, 2000). While, age has been significantly and positively related to attitudes towards products (Good & Huddleston, 1995), which means older people with lower education and lower household income tend to have higher ethnocentric consumer tendencies. While Govindasamy *et al.* (2009) indicated that the respondents, who hold higher educational level, aged between 35-65 years old, with a high income level as well as married consumers showed more desire for COOL. Meanwhile, sample respondents who living in an urban area are likely consumers would like markets to provide country of origin for fresh produce. However, Mangnale (2011) showed no significant relationship was found between ethnocentrism, age, income, and educational levels, although he found women are more ethnocentric than men. Hence, understanding the consumers' perception about COOL is central for ethnic greens

and herbs marketing strategies. In regards to this concern, the present study attempts to predict profiles of patrons who think that country of origin is a dynamic element while purchasing fresh ethnic greens and herbs.

Data Collection

A telephone interview of patrons residing in 16 provinces in the East Coast Region (Delaware, Connecticut, Georgia, Florida, Maryland, Maine, New Hampshire, Massachusetts, North Carolina, New Jersey, New York, Pennsylvania, Vermont, Rhode Island, Virginia, South Carolina, and Washington D.C.) of the United States were conducted by Marketing Research, Inc. In 2010, the survey was conducted to collect information that can be used to support small and medium scale farmers to realize patron views and preferences for COOL ethnic greens and herbs between Chinese, Asian Indian, Puerto Rican, and Mexican consumers. The survey questionnaire was pre-tested on a subgroup of the potential consumer population. A bilingual phone survey questionnaire was prepared which designed based on the group panel survey. Finally, a total of 1244 responses were received from all four ethnic consumers, of which 1,117 respondents were in the buyers groups (Chinese-276, Asian Indian-277, Puerto Ricans-284 and Mexicans-280,) and 127 respondents from non-buyers groups of ethnic greens and herbs (Chinese-21, Asian Indian-45, Puerto Ricans-37 and Mexicans-24,).

Econometric model

The sample respondents were interviewed and faces choice between the COOL while buying ethnic greens and herbs (explained variable). In the logit model framework, the explained variable is defined as '1' if the sample respondent is WTB COOL ethnic greens and herbs and '0' otherwise. The model assumes that the probability of observing the explained variable P_i is contingent upon the vector of Explanatory variable X_{ij} associated with visitor (i) and variable (j). The relationship between WTB COOL ethnic greens and herbs, socioeconomic and demographic attribute, respondent's behaviors and products attributes were explored as follows:

$$P_i = F(\beta_j X_{ij} + \epsilon) \quad (1)$$

$= \beta_0 + \beta_1$ socio-economic and attribute $+ \beta_2$ Respondents purchasing behaviors $+ \beta_3$ Ethnicity attributes $+ \beta_3$ Demographic attributes $+ \varepsilon$.

Where:

P_i is the probability of WTB COOL ethnic greens and herbs,

$\beta_j \chi_{ij}$ is the linear combination of explanatory variable.

β is the parameters to be estimated ε is a disturbance or error term.

Logistic distributional assumption for the random term, the probability P_i can be expressed as:

$$P_i = F\left(\beta_0 + \sum_{j=1}^J \beta_j \chi_{ij}\right) = F(\beta \chi_i) = 1/[1 + \exp(-\beta \chi_i)] \quad (2)$$

The estimated coefficients in Equation 2 do not directly represent the marginal effects of the explanatory variable on the probability P_i .

If the explained variable is continuous, the marginal effect of χ_i on P_i is given as:

$$\partial P_i / \partial \chi_{ij} = [\beta_j \exp(-\beta \chi_i)] / [1 + \exp(-\beta \chi_i)]^2 \quad (3)$$

In the case of a binary explanatory variable χ_{ij} which take values of 1 and 0, and the marginal effect is determined as:

$$\partial P_i / \partial \chi_{ij} = [P(\chi_{ij} = 1) - P(\chi_{ij} = 0)] / [1 - 0] \quad (4)$$

This model is identified to capture the connection between patrons WTB on ethnic greens and herbs with country of origin and ethnic greens and herbs' attributes, consumers' purchase behavior, ethnicity related characteristics and socio-demographic characteristics. The description of the variables are given in Table 1.

The model is formulated as:

$$\begin{aligned} WTB_{COOL} = & \beta_0 + \beta_1 \text{ Familiarity} + \beta_2 \text{ Availability} + \beta_3 \text{ Affordability} + \beta_4 \text{ Food safety} + \beta_5 \text{ Quality} + \\ & \beta_6 \text{ AD}_{PPA} + \beta_7 \text{ Convenience} + \beta_8 \text{ Homegrow} + \beta_9 \text{ Nosub} + \beta_{10} \text{ Mtime} + \beta_{11} \text{ Incbuy} + \beta_{12} \text{ Label} \\ & \text{Read} + \beta_{13} \text{ Estore} + \beta_{14} \text{ Distance} + \beta_{15} \text{ Health} \\ & \text{use} + \beta_{16} \text{ Alternative Use} + \beta_{17} \text{ Language} + \beta_{18} \text{ Live year} + \beta_{19} \text{ Usborn} + \beta_{20} \text{ Puerto Rican} \\ & + \beta_{21} \text{ Indian} + \beta_{22} \text{ Mexican} + \beta_{23} \text{ Suburban} + \beta_{24} \text{ Urban} + \beta_{25} \text{ Age}_{Less20} + \beta_{26} \text{ Age}_{21to35} + \beta_{27} \text{ Age}_{36to50} \\ & + \beta_{28} \text{ Age}_{51to60} + \beta_{29} \text{ Edu} + \beta_{30} \text{ Income}_{less} \\ & + \beta_{31} \text{ Income}_{20} + \beta_{32} \text{ Income}_{21to40} + \beta_{33} \text{ Income}_{41to60} + \beta_{34} \text{ Married} + \beta_{35} \text{ Self-emp.} + \beta_{36} \end{aligned}$$

$$\text{Kidnumber} + \beta_{37} \text{ Household} + \beta_{38} \text{ Gender} + \beta_{39} \text{ Emp} + \beta_{40} \text{ Veg} + \varepsilon.$$

Table 1: Description of Explanatory Variables

No.	Variable	Description	Mean/Percentage
	DV (WTB)_Cool_	1 if the participant willing to buy ethnic greens and herbs with COOL; 0 otherwise.	65.64%
Attributes			
1	Familiarity_	1 if the participant familiar with buying ethnic greens and herbs; 0 otherwise.	44.94%
	Availability_	1 if the participant easily access and broader variety to ethnic greens and herbs; 0 otherwise.	71.44%
2	Affordability_	1 if the participant get/ access lower price for ethnic greens and herbs; 0 otherwise.	80.39%
3	Food_safety	1 if the participant anxious about food safety with respect to ethnic greens and herbs; 0 otherwise.	54.25%
4	Quality_	1 if the participant is influenced by quality and fresher of ethnic greens and herbs; 0 otherwise.	78.78%
5	AD_PPA	1 if advertisements, promotion, price tag or produce identification and labels are an effective way to influence consumers buying decision; 0 otherwise.	46.20%
6	Convenience_	1 if the participant like to buy ethnic greens and herbs are sold in packages rather than sold loose; 0 otherwise.	36.79%
Purchase Behaviors			
8	Home_grow	1 if the participant grow ethnic greens and herbs at their home garden; 0 otherwise.	42.88%
9	No_sub	1 if the participant feel that ethnic greens and herbs are not available at the nearest shop or market; 0 otherwise.	41.99%

	M_time	On average times a month the participants typically purchase ethnic greens and herbs.	3.35		Ageg_ 36to50	1 if the age between is 36 to 50; 0 otherwise.	39.29%
					Ageg_ 51to65	1 if the age between is 51 to 60; 0 otherwise.	21.15%
10	Inc_buy	1 if the participants increase quantity of purchase ethnic greens and herbs throughout the year; 0 otherwise.	41.18%		Edu	1 if the respondent education is higher than 12 th grade; 0 otherwise.	73.68%
11	Label_read	1 if the participant tread the labels; 0 otherwise.	80.13%	25	Income_ less20	1 if household earnings is less than \$20,000;0 otherwise.	33.26%
12	E_store	1 if the participants tend to buy ethnic greens and herbs in ethnic grocery stores; 0 otherwise.	88.27%	26	Income_ 21to40	1 if household earnings between \$20,000 to \$39,999; 0 otherwise.	19.62%
13	Distance_	The distance between participants home to the closest ethnic grocery shop.	8.11	27	Income_ 41to60	1 if household earnings between \$40,000 to \$59,999; 0 otherwise.	12.90%
14	Health_use	1 if the participant use traditional ethnic greens and herbs for health motives; 0 otherwise.	30.26%	28	Income_ 60to80	1 if household earnings between \$60,000 to \$79,999; 0 otherwise.	8.21%
15	Alternate_use	1 if the participant use traditional ethnic greens and herbs for natural remedies instead of health motives; 0 otherwise.	24.26%	29	Marriage	1 if the respondent marital status are married;0 otherwise.	67.09%
		Ethnicity Related		30	Self_emp	1 if the participant are self-employed; 0 if not	7.81%
17	Language_	1 if the participant speak ethnic language	94.51%	31	Kid_ number	Number of people in household are age 17 or younger	1.2
	Live_year	The years of participant living in the US	13	32	Household_	Number of people live in the household	3.7
18	Us_born	1 if the participant born in US; 0 otherwise.	18.45%	33	Gender_	1 means female; 0 means male.	66.07%
19	Puertric_	1 if the participant belongs to Puerto Rico race; 0 otherwise.	25.43%	34	Emp_	1 if the participant is employed by someone else; 0 otherwise.	50.78%
20	Indian_	1 if the participant belongs to Indian race; 0 otherwise.	24.80%	35	Veg_	1 if the participant is a vegetarian; 0 otherwise.	23.19%
21	Mexican_	1 if the participant belongs to Mexican race; 0 otherwise.	25.07%				
		Demographic					
23	Sub_urban	1 if the participant live in suburban; 0 otherwise	41%				
	Urban_	1 if the participant live in urban; 0 otherwise	47.24%				
24	Ageg_ less20	1 if the age is less than 20; 0 otherwise.	3.11%				
	Ageg_ 31to35	1 if the age between is 21 to 35; 0 otherwise.	26.37%				

Results and Discussion

The majority of consumers from each ethnic group were female. Table 2 shows that, a majority of Hispanic sub groups were living in urban areas, whereas, the greater part of Asian subgroups were living in suburban areas. The age of the head of the household is an important determinant of the COOL ethnic greens and herbs. In the east-coast region of USA, the predominant age group was 36 to 50 years for the Asian group and 21 to 35 years for the Hispanic group.

On average, 27% of participants in these four groups did not complete high school. However Asian Indian and Chinese participants only occupied 0%

and 4% of this education level. In detail, 33% of the Asian Indian and 29% of Chinese participants hold a 4 year college degree; however, only less than 2% of the Mexican and 8% of Puerto Rican respondents completed a 4 year college study. On average, each family consisted of 3 members among all ethnicities. Among Asian Indians, 42% of the participants had

one to three family members and 56% had four to six members, while in Chinese group, 49% of families have one to three members and 51% had four to six members. A predominant household size was one to six members in Hispanic ethnicity. 19% of Mexican respondents and 68% of Puerto Rican respondents have one to three family members,

Table 2: Summary Statistics of Sample Respondents

The Location of Neighborhood 'Urban, Suburban, or Rural'					
Distribution of Gender	Asian Indian	Chinese	Mexican	Puerto Rican	All
Male	42.6%	37.1%	24.9%	28.4%	33.2%
Female	57.4%	62.9%	75.1%	71.6%	66.8%
The Location of Neighborhood 'Urban, Suburban, or Rural'					
Urban	33.5%	35.2%	49.5%	68.7%	46.7%
Suburban	60.1%	60.8%	27.2%	19.2%	41.8%
Rural	6.4%	4.0%	23.4%	12.1%	11.4%
Ranges of Age					
< 20	1.2%	1.8%	5.4%	2.7%	2.8%
21 to 35	22.7%	12.9%	48.9%	18.1%	25.7%
36 to 50	45.3%	47.6%	39.7%	29.7%	40.6%
51 to 65	23.8%	28.2%	5.4%	29.1%	21.7%
Over 65	7.0%	9.4%	0.5%	20.3%	9.3%
Education					
<12th grade	0.0%	3.5%	63.6%	42.5%	27.4%
High school graduate	9.2%	18.6%	28.3%	28.5%	21.1%
2 year college degree	8.6%	5.8%	6.0%	17.9%	9.6%
4 year college degree	30.5%	26.7%	2.2%	8.4%	16.9%
Post graduate or advanced degrees	51.7%	45.3%	0.0%	2.8%	25.0%
The Number of Family Members in Household					
1-3	41.9%	48.8%	18.5%	68.1%	44.3%
4-6	55.8%	50.6%	68.5%	27.5%	50.6%
7-9	2.3%	0.6%	11.4%	3.8%	4.5%
10+	0.0%	0.0%	1.6%	0.5%	0.5%
Income of Household before Tax / Annum					
< \$20,000	6.1%	7.9%	60.5%	56.0%	32.6%
\$20,000 to \$39,999	5.3%	9.5%	30.2%	19.9%	16.2%
\$40,000 to \$59,999	13.6%	12.7%	7.6%	15.1%	12.2%
\$60,000 to \$79,999	14.4%	15.9%	0.6%	4.8%	8.9%
\$80,000 to \$99,999	9.8%	15.1%	1.2%	1.2%	6.8%
\$100,000 to \$124,999	17.4%	19.0%	0.0%	1.8%	9.6%
\$125,000 to \$149,999	6.8%	7.1%	0.0%	1.2%	3.8%
\$150,000 to \$199,999	10.6%	7.1%	0.0%	0.0%	4.4%
\$200,000 or more	15.9%	5.6%	0.0%	0.0%	5.4%

while 69% of Mexican and 28% of Puerto Rican respondents have four and six family members. These ethnic facts seem to correspond with the respective national average household size.

Only around 6% of Asian Indian and 8% Chinese respondents fell into the annual income categories with less than \$20,000 while 61% of Mexican and 56% of Puerto Rican falling into this categories. 27% of Asian Indians and 13% of Chinese made more than \$150,000 every year while no Mexican and Puerto Rican respondents fell in this category. The relatively low percentage of sample respondents

in the low income category was offset by a higher percentage of respondents in annual an income bracket of \$60,000 to \$79,999. This is apparently correlated and perhaps due to a higher education level among Asians relative to Hispanics surveyed.

Ethnicity Related Consumers' Demographic Characteristics

The respondents were asked to provide information about their purchasing behavior regarding ethnic greens and herbs. As shown in Table 3, the mainstream respondents purchase ethnic greens and

Table 3: Patrons Preference of Ethnic Greens and Herbs

Particulars	Asian Indian	Chinese	Mexican	Puerto Rican	All
Purchase Frequency of Ethnic Greens and Herbs / month					
1-5	86.2%	87.5%	89.7%	91.1%	88.6%
6-10	12.3%	7.4%	5.9%	5.7%	7.8%
11-15	0.0%	2.8%	1.6%	2.5%	1.7%
16+	1.5%	2.3%	2.7%	0.6%	1.8%
Expenditure on Ethnic Greens and Herbs/month					
\$1-\$39.99	0.0%	12.4%	10.9%	7.8%	7.8%
\$40-\$79.99	30.4%	31.7%	30.5%	41.4%	33.5%
\$80-\$119.99	19.6%	29.7%	34.4%	31.0%	28.7%
\$120-\$159.99	19.6%	11.7%	19.5%	16.4%	16.8%
\$160+	30.4%	14.5%	4.7%	3.4%	13.3%
Expenditure on Ethnic Greens and Herbs per Visit					
1-25	37.0%	60.0%	66.4%	61.2%	56.1%
26-50	58.7%	38.6%	29.7%	36.2%	40.8%
50+	4.3%	1.4%	3.9%	2.6%	3.1%
Visits / Month (Number)	3.95	4.43	4.40	3.89	4.17
Ethnic Greens/Herbs Expenditure / visit	\$20.74	\$25.42	\$13.77	\$17.19	\$19.28
Types of Stores					
Usual American Grocery	23.6%	21.7%	30.8%	31.1%	26.8%
Ethnic grocery	40.6%	51.0%	32.2%	30.6%	38.6%
Community farmers market	20.7%	11.9%	14.6%	16.0%	15.8%
On-farm or road side stands	6.6%	4.5%	11.3%	9.6%	8.0%
Pick own farms	3.6%	3.6%	5.5%	4.6%	4.3%
Others	4.9%	7.4%	5.7%	8.1%	6.5%
Proximity to the Nearest Ethnic Grocery Store	11.6	10.5	3.5	4.2	7.44
COOL					
Yes	63.5%	64.5%	66.1%	64.4%	64.6%
No	22.4%	25.7%	24.6%	28.2%	25.3%
Unsure	14.1%	9.8%	9.3%	7.4%	10.1%

herbs one to five times a month (89%) with highest percentage consisting of Puerto Ricans (91%), followed by Mexicans (90%) and Chinese (88%), and the lowest percentage consisting Asian Indians (86%). Forty greens and herbs (10 per each ethnicity) were selected for the ethnic consumer survey. On average, more than 34% of all the ethnicities spent 40 to 79.99 dollars on ten ethnic greens and herbs.

In general, 30% of the Asian Indian, 32% of the Chinese, 31% of the Mexican and 41% of the Puerto Rican respondents spent 40 to 79.99 dollars on ten Ethnic greens and herbs. 60% of respondents indicated that they spent more than 80 dollars per month on the ten ethnic greens and herbs. On average, more than 50% of the respondents spent 25 dollars or less on the ethnic greens and herbs, and around 30% to 59% for each sub-group spent about 26 dollars to 50 dollars per visit. However, more than 4% for each sub-group spent more than 51 dollars per visit. The frequency of purchase was 4.17 times per month, but this varied by ethnic group; Asian Indian shopped 3.95 times 4.43 times for Chinese, 4.40 times for Mexican, and 3.89 times for Puerto Rican. The expenditure for ethnic greens and herbs was summarized by each ethnic group with expenditure per visit; \$20.74 for Asian Indian, \$25.42 for Chinese, \$13.77 for Mexican and \$ 17.19 for Puerto Rican.

The survey respondents were asked to provide what types of stores that they visit and from where they buying ethnic greens and herbs. Approximately 31% of Mexicans, 31% of Puerto Ricans, 24% of Asian Indians, and 22% of Chinese purchased ethnic greens and herbs from a typical American grocery store. About the 51% of Chinese about 40% Asian Indians, 32% of Mexicans, and 31% of Puerto Ricans purchased ethnic greens and herbs from ethnic outlets. In terms of community farmers markets, 21% of Asian Indians, 16% of Puerto Ricans, 15% of Mexicans, and 12% of Chinese respondents sourced their ethnic greens and herbs. Across the categories, ethnic grocery stores and typical American grocery stores were the most frequented sources for the purchase of ethnic greens and herbs for all four ethnic groups. 65% of these four ethnicities said they were willing to buy ethnic greens and herbs labeled with the country of origin, while 25% gave a negative answer and 10% felt uncertain towards this question.

Empirical Logit Model Results of COOL ethnic greens and herbs

The variables descriptive statistics are shown in Table 1. The explanatory variable, MTIME, DISTANCE, KIDNUMBER, LIVEYEAR and HOUSEHOLD were discrete and continuous variables, whereas rest of them were binary dummies. The discrete and continuous variables were explained as average units; for example, on average, the sample respondents normally purchase ethnic greens and herbs was 3.35 times. On the other hand binary dummies were explained in term of percentage; for example, 88% of the sample respondents were willing to buy ethnic greens and herbs from the ethnic grocery store.

The success of prediction are shown in Table 4. With a fifty-fifty classification nearly 69.3% of the sample were appropriately classified as those who place a high value of importance to buy COOL ethnic produce.

Table 4: Logit Model Predictive Accuracy

Actual Value	Predicted Value		Corrected Total
	0	1	
0	124 (11.10%)	271 (24.26%)	395 (35.36%)
1	72 (6.45%)	650 (58.19%)	722 (64.64%)
Total	196 (17.55%)	921 (82.45%)	1,117 (100.00%)

Number of correct predictions (124+650) = 774

Percentage of correct predictions= 69.29%

As indicated in table 5, out of forty explanatory variable, twelve variables are statistically significant at least at the 10% level. The marginal effects indicates that the magnitude and direction of the impact of each explanatory variable on the WTB COOL ethnic greens and herbs. Ceteris Paribus, ethnicity has a significant influence on the WTB COOL ethnic greens and herbs. The chi-square statistics exceeded its critical value and, thus, rejected the null hypothesis that none of the explanatory variables was statistically significant.

The respondents are less likely to buy COOL ethnic greens and herbs if they consider price as an important factor in their purchase decision. More specifically, the probability of willing to buy COOL ethnic greens and herbs decreases by 10% if price is a concern. Also 9% of the respondents are

more likely to buy COOL if they consider sold in packages instead of sold in loose, a similar results was observed in COOL lentils (Govindasamy *et al.*, 2014). Furthermore, 7% of the respondents are more likely to buy COOL ethnic greens and herbs if a food safety issue is a reason for their decision to purchase COOL greens and herbs, a similar results also reported by loureiro *et al.* (2001) and Emma *et al.* (2016). Reading food label has a statistically significant positive marginal effect on WTB COOL ethnic greens and herbs, which suggest that those who read food labels, are more likely to buy COOL ethnic greens and herbs compared with their other counterparts. Those who consume ethnic greens and herbs because of health reasons are more likely to have a higher probability of approximately eleven percent point of buying COOL ethnic produce. Moreover, an additional mile to the distance between the respondents home and the nearest ethnic grocery store, decrease the likelihood of the respondents willing to buy ethnic greens and herbs with COOL by 17%.

Those who grow ethnic greens and herbs for consumption at home are more likely to buy ethnic greens and herbs with COOL. Furthermore, 8% of the respondents more willing to buy ethnic greens and herbs with COOL if they purchase ethnic greens and herbs more often. Income still plays an important role in the WTB COOL ethnic greens and herbs. Compared with those respondents with an annual household income of at least \$80,000, the WTB COOL ethnic greens and herbs is 8% points less for those with income ranged from \$40,000 to \$59,999. The effect of age on WTB COOL ethnic greens and herbs appears to be statistically significant. Respondents aged 21 to 50 have a higher likelihood of buying COOL ethnic greens and herbs compared with the older cohort older than 65.

Table 5: The Estimation Results of Logit Model

Variables	Coef._ COOL	SD	MF_Cool	MF_ SD
Familiarity_	-0.153	-0.176	-0.035	0.040
Availability_	0.130	-0.216	0.030	0.050
Affordability_	-0.467***	-0.221	-0.102	0.045
Food_safety_	0.303*	-0.16	0.069	0.037
Quality_	0.065	-0.233	0.015	0.054
Ad_ppa_	-0.028	-0.197	-0.006	0.045

Convience_	0.398***	0.163	0.092	0.038
Home_grow	0.387**	-0.193	0.086	0.042
No_sub_	0.164	0.300	0.038	0.070
M_time_	0.361**	-0.152	0.082	0.034
Inc_buy_	0.101	-0.167	0.023	0.038
Label_read_	0.012**	0.006	0.003	0.001
E_store_	-0.402	-0.282	-0.095	0.069
Distance_	-0.718***	-0.268	-0.171	0.065
Health_use_	0.485***	-0.194	0.115	0.047
Alternate_use_	-0.107	-0.16	-0.024	0.036
Language_	0.021	-0.081	0.005	0.018
Live_year_	-0.050	-0.36	-0.011	0.081
Us_born	-0.273	-0.221	-0.061	0.048
Puertric_	0.099	-0.261	0.023	0.060
Indian_	-0.123	-0.306	-0.028	0.072
Mexican_	0.052	-0.27	0.012	0.061
Sub_urban	0.052	-0.27	0.012	0.061
Urban_	0.099	-0.261	0.023	0.060
Ageg_less20_	-0.021	-0.509	-0.005	0.117
Ageg_21to35_	0.658*	-0.356	0.143	0.072
Ageg_36to50_	0.994***	-0.328	0.217	0.067
Ageg_51to65_	0.669***	-0.304	0.142	0.059
Edu_	-0.050	-0.36	-0.011	0.081
Income_less20_	-0.130	-0.192	-0.030	0.044
Income_21to40_	-0.286	-0.302	-0.067	0.073
Income_41to60_	-0.341*	-0.192	-0.077	0.042
Income_60to80_	0.102	-0.168	0.023	0.039
Married_	0.047	-0.284	0.011	0.064
Self_emp	-0.006	-0.249	-0.001	0.057
Kid_number	-0.037	-0.188	-0.009	0.043
Household_	0.018	-0.063	0.004	0.014
Gender_	0.311	-0.319	0.069	0.070
Emp_	0.005	-0.225	0.001	0.051
Veg_	-0.067	-0.167	-0.015	0.038

Successful
Predication Rates

Pseudo R²

Overall Model

Significance

69.29%

0.086

0.000

*P<0.10 **P<0.05 ***P<0.01

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Conclusion

The observed results indicates that the majority of principal shoppers from each ethnic group were female. A majority of Asian Indians and Chinese were living in suburban areas whereas Puerto Ricans and Mexicans were living in urban areas. The predominant age group was 36 to 50 years of age for the Asian groups while, for the Hispanic ethnicity it was 21 to 35 years. More than half of the Hispanic respondents only have an education level less than 12th grade. However, in the case of Asian respondents half of them have post graduate or advanced degree. A significant portion of the Asian ethnicity earns more than a \$150,000 every year while no Mexican or Puerto Rican respondents fell in this category. A majority of the respondents purchase ethnic greens and herbs one to five times a month. On an average, majority (39%) of all ethnic groups spent 40 to 79.99 dollars monthly on ten ethnic greens and herbs. More than 50% of the respondents spent 25 dollars or less on the ethnic greens and herbs per visit. The primary source of all ethnic greens and herbs were an ethnic grocery store. More than 65% of these four ethnicities said they were willing to buy the ethnic greens and herbs labeled with the country of origin.

The empirical model results indicate that, ethnicity has a significant influence on the WTB COOL ethnic greens and herbs. The respondents are less likely to buy COOL ethnic greens and herbs if they consider price. The respondents more likely to buy COOL if they consider sold in packages rather than sold in loose. Reading the food label has a statistically significant positive marginal effect on WTB COOL ethnic greens and herbs, which suggest those who read food labels, are more likely to buy COOL ethnic greens and herbs compared with their other counterparts. Those who consume ethnic greens and herbs because of health reasons are more likely to have a higher probability, of approximately eleven percent point of buying COOL ethnic produce. Moreover, distance between home and the nearest ethnic grocery store has a statistically significant negative effect on respondents' WTB ethnic greens and herbs with COOL. Those who grow ethnic greens and herbs for consumption at home are more likely to buy ethnic greens and herbs with COOL. Compared with those respondents with an annual household income of at least \$80,000, the WTB

COOL ethnic greens and herbs is less for those with income ranged from \$40,000 to \$59,999. The effect of age on WTB COOL ethnic greens and herbs appears to be statistically significant. The respondents aged 21 to 50 have a higher likelihood to buy COOL ethnic greens and herbs compared with a cohort older than 65. Based on the results in this study, producers should have a pricing strategy to set a right price. Although there are significant variables which may be useful in targeting ethnic consumer and implementing marketing strategies, further research are needed to explore why these variables influence ethnic consumers' attitudes towards WTB ethnic greens and herbs differently.

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