

# **The Impact of Country of Origin Label on Consumers' Willingness-to-Pay for Organic Food**

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***Poster prepared for presentation at the Agricultural & Applied Economics Association's  
2011 AAEA & NAREA Joint Annual Meeting, Pittsburgh, Pennsylvania, July 24-26, 2011***

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# The Impact of Country-of-Origin Label on Consumers' Willingness-to-Pay for Organic Food

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## Motivation from Recent News

In 2008, some frozen organic vegetables sold in the *Whole Foods Market* (WFM) stores were imported from China with a small country-of-origin label (COOL) on the back besides USDA Organic label. The public began to concern about the quality of the certificate organic food, and criticized that the environmental benefits of the organic produces were taking away from the United States. Till 2010 summer, WFM is no longer sourcing any food products from China except for frozen edamame.

<http://blog.wholefoodsmarket.com/whole-foods-market-responds-to-wjla/>

## Introduction

Motives for WTP on Organic Label	Motives for WTP on COOL
Environment friendliness	Country's image
Health consciousness, safety concerns	Animosity*
Nutritional value, taste, freshness	Ethnocentrism*
Representing high quality life	

\*Animosity is an anger related to previous or ongoing political, economic or diplomatic events.  
\*Ethnocentrism is a belief which thinks it is inappropriate, or even immoral, to purchase foreign products because to do so is damaging to the domestic economy, costs domestic jobs, and is unpatriotic.

### Why There Are Interactions Between These Two Attributes?

- Misunderstanding or distrust on USDA organic standards.**  
**True:** the products carrying USDA organic label have to meet the same standards no matter in which country it is produced.  
**Misunderstood:** USDA organic food produced in foreign countries follow less stringent standards.  
**Or:** even if consumer is clear about the USDA organic standards, may not trust it, and believe there is standard distortion aboard.
- Conflicts in social benefits.**  
Social benefits of organic food (environmental friendliness and support for local/small farmers) for domestic consumers drops when COOL shows the products is imported.

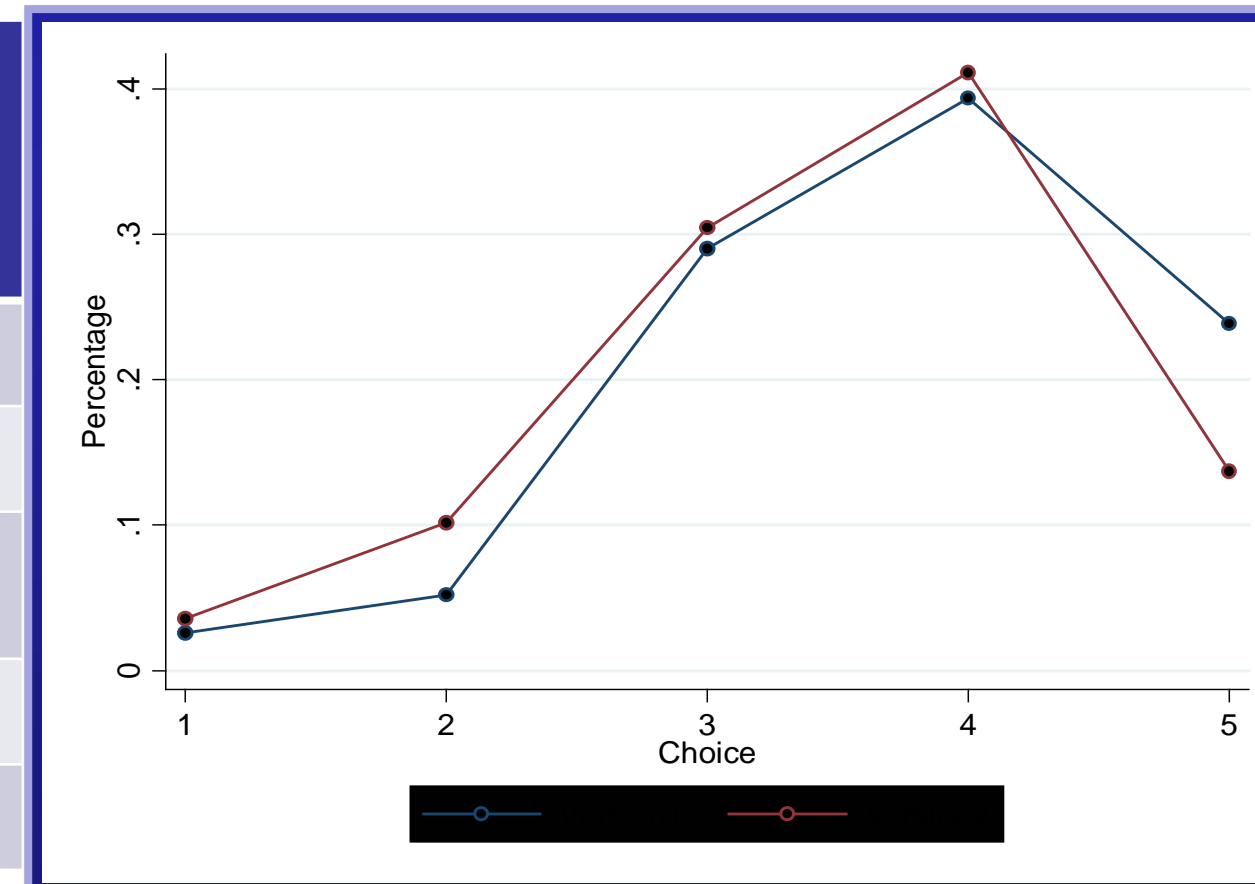
## Survey and Data

We use conjoint analysis (CA) to analyze the interaction effects between Organic label and COOL. The data were obtained through an online survey conducted in November of 2010 by Toluna, including 390 completes from southeast and northeast of the U.S., who are all age over 18, primary grocery shopper for their household, and purchased fresh produce last month. We have **2 versions** of the survey. The only difference between these two is one provides information of what USDA organic label requirements as following, but the other one doesn't:  
**USDA Organic:** .....No matter where a product is produced, the same rules and procedures apply. To make sure that products labeled "organic" do meet the USDA requirements, ..... certifying agencies that the USDA has accredited must verify that all of the products and procedures used in production, processing, packaging and transportation comply with the USDA requirements and that the inspection revealed no exceptions.

Comparing the results of these two surveys:

Question: How important the factor "in which country it is produced" do you think when you consider purchasing organic food?

- Not at all Important
- Very Unimportant
- Neither Important nor Unimportant
- Very Important
- Extremely Important



Question: Please indicate how strongly you agree with the following statement: Everything else being the same, I prefer organic food produced in the United States to organic food produced in foreign countries.

- Agree
- Neither agree or disagree
- Disagree

	Version 1		Version 2	
	Frequency	Percent	Frequency	Percent
Agree	140	72.54	140	71.07
Neither agree or disagree	45	23.32	41	20.81
Disagree	8	4.15	16	8.12
Total	193	100	197	100

## Model and Methods

**Mixed logit model:** this model can captures the heterogeneities in coefficients caused by unobservable attitudinal characteristics crossing individuals.

Assume utility function of individuals is:

$$U_{ni} = -\beta_0 p_{ni} + \beta_1 O_{ni} + \beta_2 O_{ni} \times D_{ni} + \beta_3 \times D_{ni} + \beta_4 X_{ni} + \varepsilon_{ni}$$

$p_{ni}$ : price,  $O_{ni}$ : dummy variable of USDA Organic

$D_{ni}$ : dummy vector of COOL,  $X_{ni}$ : demographic variables,  $\varepsilon_{ni}$ : error term

the probability of respondent's sequence of choices would be given by:

$$\text{Prob}(y_{ni}|\beta) = \int \frac{-\beta_0 p_{ni} + \beta_1 O_{ni} + \beta_2 O_{ni} \times D_{ni} + \beta_3 \times D_{ni} + \beta_4 X_{ni}}{\sum_{j=1}^J \exp(-\beta_0 p_{nj} + \beta_1 O_{nj} + \beta_2 O_{nj} \times D_{nj} + \beta_3 \times D_{nj} + \beta_4 X_{nj})} f(\beta) d\beta$$

Vector  $\beta$  is estimated using maximum simulated likelihood.

## Empirical Results



Choice experiment target: **Fresh broccoli**  
Country of Origin: **Canada, China, Mexico, and the United States**

The empirical results are showing in table 1 (right hand side). We found several interesting results which is consistent with our hypotheses:

- Heterogeneities in coefficients exist. As shown in table 1, all the standard deviations of random parameters are statistically significant.
- Due to different attitudes towards foreign countries, WTP for imported organic food significantly varies among production countries.
- The organic and country of origin labels affect each other. All of the coefficients of interaction terms are statistically significant.

Table 1: Mixed Logit Model Using Products of USA as Base:

	Mean of Parameter Distributions	Standard Deviations of Parameter Distributions
Constant	-7.964*** (0.743)	
Price	-3.325*** (0.406)	
Organic	2.197*** (0.760)	3.727*** (0.921)
Canada	0.318 (0.786)	13.033*** (2.248)
China	-8.366*** (1.184)	7.840*** (0.930)
Mexico	-7.687*** (1.964)	21.539*** (4.887)
Organic*Canada	-2.445* (1.418)	6.334*** (2.381)
Organic*China	2.793** (1.227)	16.076*** (3.107)
Organic*Mexico	3.544* (1.987)	22.455*** (4.868)
Number of Observations	13815	Adjust R Square 0.12507

Note:  
1. \*\*\*, \*\*, \* represent significance at 1%, 5%, 10% level;  
2. Products produced in the United States is the base in this model;  
3. We assume the random parameters are all normally distributed.

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