International Differences in Consumer Preferences for Food Country-of-origin: A Meta-Analysis

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Abstract

Over the last ten years, a large number of country-of-origin studies have been conducted as a result of new country-of-origin legislation in the United States and European Union. Many literature reviews in recent studies make observation and predictions based on this literature. This meta-analysis uses 13 country-of-origin studies with 27 consumer willingness-to-pay estimates to determine significant trends in the country-of-origin literature. Findings indicate consumers' value of country-of-origin depends on the number of other credence attributes included in product descriptions and the location of the consumer.

Key Words: country-of-origin, genetic modification, organic, conjoint, onion, information, food policy

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1. Introduction

Consumers cannot easily observe food origin on the retail shelf. That is to say food origin is an unobservable credence attribute, which creates an asymmetric information problem for the consumer and can result in market failure (e.g., Akerlof 1970). This problem can be solved by providing the consumer with more complete and symmetric product information via country-of-origin labels (COOL). Much of the research to date shows that consumers in the United States and abroad are willing to pay for own country-of-origin (COO) information (e.g., Umberger et al. 2002, Loureiro and Umberger 2003, Alfnes and Rickertsen 2003). However, this preference is not continuously consistent across space (Tonsor et al. 2005, Bonnet and Simioni 2001, and Dransfield et al. 2005).

Food country-of-origin labeling has recently attracted attention in the international policy arena. At the international level, the World Trade Organization's TRIPS intellectual property agreement provides for intellectual property protection based on a product's origin labeling (e.g., a wine label which says the wine is French Bordeaux can only come from the Bordeaux region of France). TRIPS, however, does not offer intellectual property protection to products in which the geographic origin has become a generic name for the products (World Trade Organization 1995). This provision has created international schisms between governments, especially over the cases of Roquefort and Parmesan cheeses (BBC News 2001, Nadeau and Barlow 2003).

This research compares consumer valuation of country-of-origin across international locations through a preliminary meta-analysis of existing country-of-origin studies. The first primary finding is consistent with individual studies which find there are significant differences in the value of country-of-origin across locations. This study also finds that there are significant differences based on the number of other credence attributes included in studies. The percent increase in consumer willingness-to-pay (WTP) for country-of-origin is not significantly related to the type of food product or the type of value elicitation method. The following includes a review of the country-of-origin literature, description of the meta-analysis research methods, and presentation of results and conclusions.

2. Background

2.1. Country-of-origin Labeling of Agricultural Products

Previous studies have identified country-of-origin as both a credence and extrinsic attribute. The latter is an attribute that is not integrated into the physical product in the same way as an intrinsic attributes (e.g., color and fat content). The majority of recent studies in the agricultural context focus on the United States and Western Europe. The primary product considered in these studies is beef. This has stemmed, in part, from concern in the 1990s over Bovine Spongiform Encephalopath (BSE). In general, these studies show consumers prefer own country-of-origin in meat products (e.g., Schupp and Gillespie 2001, Glitsch 2000). Those studies that measure consumer willingness-to-pay (WTP) for own country-of-origin also report most consumers have a positive willingness-

to-pay for own country of origin meat products (e.g., Hoffman 2000, Umberger et al. 2002, Loureriro and Umberger 2003, and Umberger et al. 2003).

2.2. Relative Importance of Credence Attributes

Some studies have requested participants to rank country-of-origin in importance relative to other product attributes. Often, country-of-origin is compared to intrinsic meat product attributes including meat color, tenderness and leanness. In general, past findings imply that the importance of origin and the value of country-of-origin labels may depend on the other product attributes the consumer considers, the timing of the study, and the location of the customer. Hoffman (2000) finds that Swedish customers have a high regard for own country-of-origin meat. This reflects certain animal welfare restrictions Sweden enforces which other European countries do not. Following the BSE out-break in Scotland in the 1990s, Davidson et al. (2003) found that 77 percent of Scottish consumers considered origin the most important product attribute. In Umberger et al. (2003), consumers ranked origin well behind freshness and food safety in importance. In Loureiro and Umberger (2003) country-of-origin was very important along with food safety.

2.3. Other Literature on Country-of-origin

The variability in the importance of country-of-origin relative to other food attributes reflects similar findings in the business literature. Verlegh and Steenkamp (1999) find that the value of country-of-origin information tends to decrease as information is provided about other product attributes. In addition, the business marketing literature has gone further in investigating why consumers value own country-of-origin over a variety of products. In their meta-analysis of country-of-origin studies,

Verlaugh and Steenkamp also find that in addition to cognitive, quality related information, COOLS also provide affective and normative information. Affective information has symbolic and emotional value to consumers. This information is important for consumers with emotional and patriotic connections to their country. Normative information provides information to consumers relating to their social norms and personal beliefs. Further, Shimp and Sharma (1987) identify several social and psychological factors influencing country-of-origin preferences which are largely ignored in food industry studies. Country-of-origin orientation is influenced by consumers' ethnocentric tendencies, price-value perceptions, self-interest concerns, reciprocity norms, rationalization-of-choice, restrictions-mentality, and freedom-of-choice views (Shimp & Sharma 1987).

Shimp and Sharma (1987) recognize the affective and normative elements of country-of-origin information in their development of consumer ethnocentrism. Consumer ethnocentrism is fed in part by one's concept of self. If one's national identity is closely tied to his or her concept of self, then he or she is likely to be a more ethnocentric consumer. The importance of national identity in self varies across individuals. Their empirical investigation reveals product country-of-origin is most important to individuals whose economic livelihood is "threatened" by foreign competition. Upper-lower and working class consumers in certain geographic and industrial areas, such as the automobile sector in Detroit, are more likely to have own country-of-origin preferences. Consumer ethnocentrism is also driven by individuals' desires to purchase own country goods as a means to achieve group belonging.

3. Methodology

This study employs a meta-analysis approach to understand what significant trends are evident in the literature. The data for this study is collected from 13 original studies measuring consumers' WTP for country-of-origin information (typically in the form of a label). Many of these studies just produced one observation (e.g., the authors were measuring the value of origin for one type of food in one location). Some of these studies did produce more than one observation because the authors either considered more than one type of food (e.g., Patterson and Martinez include tomatoes, cantaloupe, cilantro, and grapes) or the study takes place in more than one location (e.g., Tonsor *et al.*'s study measures consumer demand for own origin in Britain, France, and Germany). This results in a total number of 27 observations of consumer WTP to be included in this meta-analysis. A summary of the observations from the different studies is presented in Table 1.

One may note that there are many more consumer country-of-origin studies related to food and agriculture in the literature. In fact, a number of such studies are cited in this paper's literature review, but not included in the data. This discrepancy is due to the primary focus on studies that measure consumers WTP for own origin information. While the author reviewed over 25 country-of-origin studies in preparation for this paper, only 13 met the above criteria.

The dependent variable of interest for this study is consumers' WTP for own country-of-origin as a percent of a base product price, typically the product with other or no country-of-origin information. A number of authors presented consumer's WTP in this

manner. In cases where they did not, the data and results presented in this study were used to calculate the percentage. The percentage premium the consumer was WTP for own country-of-origin was calculated as {[(value own country-of-origin)-(value other country-of-origin)]/(value other country-of-origin)}*100. In the case where country of origin was not compared with other country of origin or was just represented as generic country-of-origin information (e.g., Loureiro and Umberger 2004), the percentage premium for own country-of-origin was calculated as {[(value own country-of-origin)-(value base produce without origin information)]/(value base produce without origin information)}*100. The percentage premiums for own country-of-origin range from a minimum of -55.4% for beef in Germany (Tonsor et al. 2005) to 153% for onions in Niger (Ehmke 2005). The average percentage premium for own country-of-origin information is 28.6%.

The independent variables were chosen based on their presence in existing studies and probable influence on country of origin. Specifically, the following null hypotheses were tested:

$1H_0$: The number of other credence attributes in the study does not influence consumer's value of own country-of-origin information.

$2H_0$: Including intrinsic attribution information does not significantly affect consumer's value of own country-of-origin.

$3H_0$: Consumer's value of own country-of-origin is independent of the study's location.

$4H_0$: Consumer's valuation of own country-of-origin will be significantly lower in real (rather than hypothetical) surveys or experiments.

Summary of valuation characteristics are presented in Table 2. Several of the credence attributes considered in previous observations relate to meat production. This is due to the fact that nearly one-half of the observations were done on country-of-origin labeling in beef. The credence attributes most often considered in addition to country-of-origin labeling include organic production, genetic modification, and traceability. Other intrinsic (non-credence) attributes that were considered in previous observations relate to food color, palatability, tenderness, and taste. At least one of the attributes was often considered in addition to country-of-origin.

The remaining independent variable information relates to the type of valuation method, type of food considered, and location of the observation. The majority of studies used a hypothetical, often survey, method of value elicitation. Approximately half of the observations were focused on beef. A number of non-beef observations considered other types of meat, mainly pork. The greatest proportion of observations is from Northern Europe and the United States.

4. Results

The null hypotheses are tested using an ordinary least squares (OLS) regression. The dependent variable is the percentage premium consumers are WTP for own country-of-origin in each observation. The first and fourth null hypotheses may be rejected according to the OLS results. There is a positive relationship between the number of credence attributes considered in a study and the percentage premium for own country-of-origin information. This is a rather surprising result. One might conjecture that own country-of-origin information will decrease in value as consumers have more information

about other attributes country-of-origin may proxy for, such as traceability. On the other hand, the presence of additional credence attributes may cause consumers to think more carefully about other attributes, such as country-of-origin.

There is a significant difference between valuations in the United States and Northern Europe and those obtained outside of either the United States or Western Europe. Own country-of-origin information has significantly less importance here than it does the non-European and American locations.

The second and third null hypotheses are not rejected in this meta-analysis. The type of value elicitation method and food considered do not have a significant effect on the percentage premium for own country-of-origin. There is not a significant difference in consumer valuations from hypothetical and real elicitation methods. This is similar to the basic OLS results in Lusk et al. (2005). The type of food considered in the study was not significant. This may be expected considering most of the studies were across commodity products (e.g., fresh vegetables, beef, and pork). Camembert cheese was the most differentiated product. The significance of food type may be different if more differentiate products such as wine were included or if the beef cuts were more specified.

5. Conclusions

Over the last ten years, a large number of country-of-origin studies have been conducted as a result of BSE in Europe and new country-of-origin legislation in the United States and European Union. Many literature reviews in recent studies make observation and predictions based on this literature. Yet, we don’t know what the definite trends are and how far some of the current knowledge can be extended (e.g., if American

consumers value own country-of-origin in beef products, are they likely to do the some for other commodities). Findings from this meta-analysis do give us a sense of such boundaries and definite trends in the literature. The number of other credence attributes (e.g., genetic modification, organic production, and traceability) considered in a study, do have a significant, positive effect on the value of own country-of-origin. Not surprisingly, location matters. Consumers in different areas of the world tend to have significantly different own country-of-origin values.

This is a preliminary analysis. More significant findings may be achieved through more econometric analysis. For example, Lusk et al. (2005) perform a similar meta-analysis of studies of consumer WTP for non-genetically modified products. They show drastic differences in the number of significant variables when they used weighted least squares regression excluding outlying observations.

A greater understanding of international trends in country-of-origin labeling will be helpful for government policy and industry decisions. These preliminary findings indicate country-of-origin becomes more important as the number of other credence attributes increase. This may indicate that origin matters more to people with broader food attribute concerns and that it becomes more important as products become more differentiated by all of their credence attributes. In addition, as companies and countries look to market abroad, it is important to know where they will face the largest hurdles due to their foreign status because consumers in certain country of origin locations value own origin more than others.

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Table 1. Summary of Country-of-Origin Valuation Studies Included in Analysis

Study Number	Authors	Year	Valuation Tool	Type of Food	Location	Percent Price Premium for WTP
1	Alfnes and Rickertsen	2003	Experiment	Beef	Norway	16.8%
2	Bonnet and Simioni	2001	Scanner Data	Camembert Cheese	France	-6.4%
3	Burchard, Schroeder, and Thiele	2005	Survey and Experiment	Milk	Germany	60.0%
4	Dransfield et al.	2005	Survey	Pork	Britain	4.0%
	Dransfield et al.	2005	Survey	Pork	France	4.8%
	Dransfield et al.	2005	Survey	Pork	Denmark	-2.9%
	Dransfield et al.	2005	Survey	Pork	Sweden	5.8%
5	Ehmke	2005	Survey	Onions	Kansas	82.0%
	Ehmke	2005	Survey	Onions	Indiana	58.0%
	Ehmke	2005	Survey	Onions	China	51.0%
	Ehmke	2005	Survey	Onions	France	66.7%
	Ehmke	2005	Survey	Onions	Niger	153.0%
6	Latvala and Kola	2002	Survey	Beef	Finland	7.7%
7	Loureiro and McCluskey	2000	Survey	Beef (Veal)	Spain	2.7%
8	Loureiro and Umberger	2004	Survey	Beef	United States	14.1%
9	Loureiro and Umberger	2003	Survey	Beef	Colorado	58.3%
10	Patterson and Martinez	2004	Survey	Canteloupe	Phoenix	2.20%
	Patterson and Martinez	2004	Survey	Cilantro	Phoenix	7.50%
	Patterson and Martinez	2004	Survey	Grapes	Phoenix	5.46%
	Patterson and Martinez	2004	Survey	Tomatoes	Phoenix	13.16%

Table 1. Summary of Country-of-Origin Valuation Studies Included in Analysis, Continued…

Study Number	Authors	Year	Valuation Tool	Type of Food	Location	Percent Price Premium for WTP
11	Tonsor, Schroeder, and Fox	2005	Experiment	Beef	England	30.7%
	Tonsor, Schroeder, and Fox	2005	Experiment	Beef	Germany	-55.4%
	Tonsor, Schroeder, and Fox	2005	Experiment	Beef	France	88.3%
12	Umberger et al.	2002	Experiment	Beef	Chicago	44.6%
	Umberger et al.	2002	Experiment	Beef	San Francisco	26.1%
13	Umberger et al.	2003	Experiment	Beef (Hamburger)	Denver and Chicago	24.0%
	Umberger et al.	2003	Experiment	Beef (Steak)	Denver and Chicago	11.0%
					Maximum	153%
					Minimum	-55.4%
					Average	28.6%

Table 2. Data summary and variable definition

Independent Variable	Definition	Mean
Welfare	1 if animal welfare was considered; 0 otherwise	0.148
		(0.362)
Hormone	1 if animal hormone use was considered; 0 otherwise	0.148
		(0.148)
Organic	1 if organic production was considered; 0 otherwise	0.370
		(0.370)
GM	1 if genetic modification was considered; 0 otherwise	0.296
		(0.296)
Total Credence	Total number of credence attributes considered in the study	1.370
		(0.967)
Food Safety	1 if food safety is considered; 0 otherwise	0.111
		(0.320)
Trace	1 if traceability is considered; 0 otherwise	0.296
		(0.460)
OI	1 of other intrinsic attributes are considered; 0 otherwise	0.520
		(0.510)
Elicit	1 of a real or non-hypothetical valuation method is used; 0 otherwise	0.370
		(0.492)
Food	1 of study uses a non-beef product; 0 otherwise	0.556
		(0.506)
US	1 of study is in the United States; 0 otherwise	0.440
		(0.510)
NE	1 if the study is in Northern Europe; 0 otherwise	0.296
		(0.465)
SE	1 if the study is in Southern Europe; 0 otherwise	0.185
		(0.185)
Abroad	1 if the study is outside of the United States and Western Europe; 0 otherwise	0.074
		(0.267)

Note: Numbers in parentheses are the standard deviations.

Table 3. Effects of other credence attributes, location, elicitation method, and type of food product on own country-of-origin valuations using ordinary least squares regression

Variable	Coefficient	Standard Error	t-statistic	p-value
Intercept	45.580	39.946	1.141	0.268
Total Credence	17.919*	8.851	2.024	0.057
OI	0.205	14.887	0.014	0.989
Elicit	5.580	16.624	0.336	0.741
Food	20.582	19.093	1.078	0.295
US	-49.875*	29.241	-1.706	0.104
NE	-79.573**	29.564	-2.692	0.014
SE	-50.568	31.240	-1.619	0.122
R-Square	0.470			
Adjusted R-Square	0.275			
F-Statistic	2.406			

*denotes statistical significance at the 0.10 level
** denotes statistical significance at the 0.05 level
*** denotes statistical significance at the 0.01 level