

# **Consumer and Handler Reactions to Potential Country-of-Origin Labeling of Fresh or Frozen Beef**

**Alvin Schupp and Jeffrey Gillespie**



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**Alvin Schupp and Jeffrey Gillespie<sup>1</sup>**

## **Introduction**

Consumers are given a wide range of information on product labels, the amount of information ranging from almost none to extensive. In some cases, the amount of information available is extremely small, and the conditions described by the term *caveat empter* (“let the buyer beware”) exist. Products auctioned off at a fire sale are good examples. In other cases, the seller provides potential buyers as much information as possible and stands behind (warrants) the product for a specified period of time. New automobiles fall into this category. The markets for most other products, including most food products, fall somewhere between these two extremes.

Products that could harm the buyer when handled or consumed are examples of products for which prepurchase information should be as complete as possible, and all misrepresentation, whether by accident or deliberate intent, should be avoided. Food items fall into this category. Consumers, in making their purchase decisions, should have available information on the quality, wholesomeness, and other characteristics or attributes that distinguish each food product’s value, safety, and edibility. While the seller, such as a grocery store, meat market, or some form of food service outlet, provides some assurances based on reputation and/or firm warranty, this security is at best indirect and always “after the fact.”

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Meats offer particular problems, as their quality, wholesomeness, and edibility characteristics cannot be fully ascertained visually by the food consumer. Beef produced and processed in the U.S. offers the consumer the assurances of production under rules and regulations established by federal and state agencies, slaughter and processing under state or federal inspection, availability of USDA quality and/or yield grading services, and trademark assurances offered by the processor and/or retailer of the product.

Imported fresh or frozen beef, along with other food products, is identified by country-of-origin as it enters the U.S. in bulk containers (Committee on Agriculture, 1999). However, U.S. regulations do not require that this label be retained once the import container has been opened and the product repackaged. After repackaging, imported fresh beef essentially becomes indistinguishable from U.S.-produced beef.

Why is information on country-of-origin of fresh or frozen beef valuable to buyers and particularly to consumers (Committee on Agriculture, 1999)?

- a. Beef produced in other countries and sold in the U.S. in intact form can differ in quality from domestic beef marketed in U.S. grocery stores and restaurants.
- b. Concern among U.S. consumers that less stringent government controls on the use of chemicals in livestock production in countries licensed to export beef to the U. S. could result in undesirable residues remaining in their beef exports.
- c. Despite USDA assurances, concern remains that the sanitation and inspection procedures used in slaughter/processing plants legally qualified to export beef to the U.S. are less stringent than those imposed on domestic plants.
- d. Some consumers prefer to purchase and consume domestically produced products to support their community, state, or nation.

These statements provide some justification for mandatory country-of-origin labeling of fresh or frozen beef at the retail level in the U. S.

What are the primary objections to a country-of-origin labeling law for fresh meats? Becker (1999) discusses several of these

objections: (1) Some have argued that this legislation would be interpreted by exporting nations as being a U.S. non-tariff trade barrier and, hence, designed to protect U.S. production. Since 32 countries, including Canada and Mexico, have country-of-origin labeling laws at the retail level for perishable agricultural products, this does not seem very likely. (2) These laws are often based on imported meats being deficient in either quality or safety. The USDA argues that imported beef is as safe as U.S.-produced beef and that its quality competes with much of the beef produced domestically. (3) Compliance costs would be high for firms handling both U.S.-produced and imported beef. The “paper work trail” required of firms is argued to be large, and government costs for oversight are also argued as being very high. However, Florida has had a country-of-origin labeling law for fresh produce for approximately 20 years, and its backers indicate oversight costs have been insignificant (Committee on Agriculture, 1999).

Currently, U.S. consumers have no information on the source of fresh or frozen beef sold in food stores or served in food service outlets. Since the origin of the beef purchases at either a grocery store or a restaurant has not been identified, consumers cannot assume the beef has been produced domestically.

As with most other products, U.S. consumers have likely developed some perceptions of the quality (value) and wholesomeness of imported beef relative to U.S. beef based on information gathered from the media, members of the beef industry, market personnel, the USDA, and/or other sources. Widely publicized accounts of safety infractions and disease outbreaks involving beef in other countries (an example is *bovine spongiform encephalopathy* or “mad cow” disease) likely impact many consumer perceptions of imported beef. Since consumers are not informed of the identity of the source of beef in stores or restaurants, most beef is likely associated with these concerns, perhaps detrimentally to the overall demand for beef in the U.S.

The total U.S. fresh and frozen beef supply in 1998 consisted of approximately 87 percent U.S.-produced beef and 13 percent imported beef (Committee on Agriculture, 1999). A portion of the latter was imported from Canada as live animals or carcasses and eligible for USDA quality and/or yield grading prior to movement into the meat distribution channel. However, approximately

51 percent of the beef imported into the U.S. arrives in large chilled or frozen containers already minimally processed, not in live or carcass form (Brester and Smith, 2000).

What encourages the importation of fresh or frozen beef into the U.S.? The primary factor is higher beef prices in the U.S. relative to other markets. Imports of beef from other than Canada and Mexico (exempted from control by NAFTA) are regulated by a contra-cyclical beef import quota law that essentially allows more beef to enter the U.S. when beef production declines domestically and less beef when beef production increases domestically.

With the exceptions of beef from Canada and Mexico, much of the imported beef is frozen, consisting largely of lean beef, which can be mixed with high fat trimmings from U.S. beef production and converted by the handler into ground beef (hamburger). Hence, much of the imported beef is marketed as ground beef and does not compete with U.S. high quality fed beef cuts; a notable exception is a small supply of boneless primal cuts being imported from Central and South America for use in making value-added, processed beef products. In 1998, slightly more than 10 percent of the total U.S. beef supply consisted of imported intact muscle cuts, primarily derived from carcasses and boxed beef trucked in from Canada (Brester and Smith, 2000).

What U.S. groups are most likely to favor the country-of-origin labeling of fresh or frozen beef? Both the National Cattlemen's Beef Association and the Louisiana Cattlemen's Association have passed resolutions at their annual meetings requesting that the U.S. Congress and/or the Louisiana Legislature enact such legislation. Processors exclusively handling U.S.-produced beef are likely to favor the requirement as it could lead to their marketing a product with more value.

The Louisiana Legislature enacted an import labeling law in 1981 covering beef sold in grocery stores but exempting food service sales (LA Sec of State, 1981). This law never went into effect as questions raised by the USDA led to a hearing in mid-1982 where their representatives testified against the law. The law was criticized because it covered only beef, excluding competitive meats.

The U.S. Congress considered a country-of-origin labeling bill for fresh or frozen meats during its 1998 session as part of larger

agricultural legislation; however, the U.S. Senate-approved labeling amendment to the bill was stripped from the legislation by House-Senate conferees prior to its passage (Committee on Agriculture, 1999). This was, to the authors' knowledge, the first time that a country-of-origin bill covering fresh meats actually reached the floor of the U.S. Congress. Country-of-origin bills were also introduced into the 1999 session of the U.S. Congress, but these bills did not reach the floor.

In 1999, the Louisiana Legislature passed an Import Labeling Law, which calls for the labeling of all fresh meats, not just beef, sold in grocery stores and meat markets as either "American," "Imported," or "Blended," the latter a mix of domestic and imported. This law, which was slated to go into effect January 1, 2000, covers only beef sold in Louisiana and exempts the food service industry (Louisiana State Senate, 1999). The Wyoming Legislature enacted a country-of-origin retail labeling law for meat in 1998 and is considering various means to enforce compliance (GAO, 2000).

## **Previous Research and Current Situation**

Included among the 32 countries requiring country-of-origin labels for beef sold at the retail level are Canada, Germany, Israel, Italy, Mexico, South Africa, Sweden, and the United Kingdom (Committee on Agriculture, 1999). Since such a large number of nations currently require the label, it is unlikely that U.S. legislation requiring these labels would be termed an antitrade measure.

Canadian consumers prefer Canadian fresh beef relative to U.S. fresh beef (Quagraine et al., 1998). Western Canadians consider beef produced in Alberta to be superior to beef produced elsewhere in Canada (Unterschultz et al., 1997). They found that a 15 percent reduction in the price of non-Alberta beef was required for it to sell competitively with comparable Alberta beef, a substantial price premium for a localized product. Thus, a label denoting beef produced in Alberta would appear to be a useful marketing ploy for the sellers of Alberta beef.

Almonte et al.(1995) surveyed higher income Mexican consumers and reported that they preferred chili salsa produced in Mexico and potato chips produced in the U.S. to comparable products produced in the respective two countries. These results

indicate that the survey group tended to favor products for which each country had developed a reputation.

The latest state to introduce a program to encourage its citizens to buy local food and fiber products is Texas (Committee on Agriculture, 1999). Its “Buy Texas” program is a statewide effort designed to inform consumers of Texas food and fiber products and persuade them to support their fellow Texans at the marketplace.

A 1998 survey of 1,000 U.S. households conducted by Wirthlin Worldwide indicated that 76 percent of households approved of mandatory country-of-origin labeling of fresh or frozen beef in food stores and food service outlets (Committee on Agriculture, 1999). A follow-up 1999 survey found that when offered a choice between beef with labels that read “Product of the United States” or “Imported Product,” 91 percent of consumers chose the U.S. product. Nearly 70 percent of the latter chose the U.S. product because they “prefer U.S. products, are loyal to American producers, or wish to support U.S. farmers.”

Beef producers are not alone among commodity producers in wanting their product to be distinguished from the products of other countries in retail outlets. Tomato producers in Florida have pushed for federally mandated country-of-origin labels as protection from large increases in tomatoes imported from Mexico (Hawkins, 1998). U.S. frozen produce producers have also lobbied for country-of-origin labels on their product to provide consumers with information on the origin of frozen produce being sold in the U.S.

Florida and Maine have requirements for country-of-origin information to be displayed for loose produce at point of sale in the respective states (Becker, 1999). While the Florida Department of Agriculture does limited checking to assess compliance, the primary impetus for outlets to provide the source information comes from individual citizens calling the department when the law is not being followed by a particular seller. Since the Maine law does not have this same provision, checking for compliance involves more extensive involvement of government officials (Maine Revised Statutes, 2000).



Several researchers (Almonte et al., 1995; Skaggs et al., 1996) have reviewed the literature on country-of-origin labeling of food products. Skaggs et al. (1996) discussed product-country images (stereotypes), which help to explain buyer behavior with respect to imported products. Four theories were discussed that help to explain how buyers rate imported products relative to domestic products. One theory, the halo model, states that country images influence a buyer's beliefs about product quality when the buyer is unfamiliar with specific products from the country. If the buyer has a positive attitude toward that country, the buyer is also likely to have a positive attitude toward the unfamiliar product from the country. A second theory is the summary construct model, which implies that buyers infer product information directly from country image instead of indirectly through product attribute ratings. For example, if a buyer is favorably impressed with a specific type of wine from France, he (she) is likely to initially like all kinds of wines from France and, finally, he (she) will like all food products from France. A third theory (ethnocentrism) states that consumers believe that their own group is superior to other groups (i.e., prefer domestic products). A fourth theory is consumer nationalism, which assumes that a buyer's sense of nationalism (patriotic emotions) has significant effect on attitude and purchase decisions. The latter is particularly useful in explaining the value of state or local commodity group promotion programs.

## **Objectives**

The overall objective of this study is to appraise beef handler and beef consumer reactions to potential mandatory country-of-origin labeling of fresh or frozen beef marketed in Louisiana grocery stores and restaurants. The specific sub-objectives include:

- a. to estimate beef handler (processors, wholesalers, specialized meat markets, grocery stores, and restaurants) reactions to mandatory country-of-origin labeling of fresh or frozen beef and the issues related to this labeling;
- b. to establish the influence of selected handler characteristics (firm employment, age, location, and organization) on firm approval of mandatory country-of-origin labeling of fresh or frozen beef;
- c. to estimate consumer reactions to potential mandatory

- country-of-origin labeling of fresh or frozen beef in Louisiana food stores and restaurants; and,
- d. to estimate the influence of selected consumer socioeconomic characteristics (such as income, education, race, sex, family status, age, and employment) on consumer approval of mandatory country-of-origin labeling of fresh or frozen beef in grocery stores and restaurants.

## **Data and Procedures**

Two questionnaires were developed to ascertain the reactions of beef handling firms and consumers to potential mandatory country-of-origin labeling of fresh or frozen beef at all stages of the processing/distribution channel for beef in Louisiana (appendices A and B). The questionnaire for the handlers was designed to be used in telephone interviews with firm spokesmen, while the consumer questionnaire was to be mailed to a random sample of Louisiana households. The questionnaires for the handling firms and households were developed by the authors after consultation with representatives of the industry and a small panel of consumers maintained by a scientist in Human Ecology, respectively. Preliminary versions of the two questionnaires were revised based on feedback and the recommendations given in Dillman (1978). The questionnaire developed for restaurants differed slightly from that used for the remaining handlers. The cover letter for the household survey is given in Appendix B.

Names, addresses, and telephone numbers of beef handling firms (processors, wholesalers, specialized meat markets, grocery stores, and restaurants) were obtained from several sources. The *Louisiana Meat Inspection Service* provided a list of all slaughter/process firms licensed by the state or the U.S. government. The custom slaughter/process plants were excluded because they do not purchase or sell meat. A list of Louisiana meat wholesalers, grocery stores, and meat markets was obtained from *American Business Information, Inc.* Prior to telephone surveying, based on the names of the firms, all firms not expected to be handling beef products were deleted from the grocery lists. Two lists of restaurants were obtained. Restaurants with annual sales of more than one million dollars were provided by *The Food Service Database Company*, and all other restaurants were received from *American Business Information, Inc.* Fast food restaurants were excluded

because of their almost exclusive use of ground beef and expected control of beef purchases centralized at out-of-state locations.

A randomized list of 2,000 Louisiana households in eight Louisiana parishes (four urban and four rural) was obtained from the Louisiana Department of Public Safety - Vehicle Registration Division. This list is considered to be very representative of the state's households as 86 percent of Louisiana households have at least one registered motor vehicle.

The spokesmen for handling firms (preferably the firm's beef buyer) were interviewed by telephone during January - April 1999 by the authors or an undergraduate student supervised by the authors. Cooperation by the firms was very good once the responsible person in the firm was reached and had the six minutes needed to complete the interview. On average, about 27 percent of the firms in each of the categories were contacted with three percent being out of business, not handling beef, too busy to cooperate, or unable to cooperate for other reasons. A total of 48 restaurants, 66 grocery retailers, and 18 other handlers responded to the handler questionnaire.

Using procedures outlined in Dillman (1978), a questionnaire, cover letter, and return postage-paid envelope were mailed in mid-1999 to 2,000 Louisiana households. Two weeks later, a second questionnaire, cover letter, and return postage paid envelope were sent to households that had not responded to the previous mail out. As a result of the two mailings, approximately 18 percent of the households responded. A number of the responses received were incomplete or were from homes where beef was not eaten regularly and thus were deleted from the analysis.

Analytical methods used were logit and tabular analyses. Following Judge et al. (1988), binary choice models can be used to model the choice behavior of individuals (consumers or firm managers) when two alternatives are available and one must be chosen. Since the marginal effect on the dependent variable of a one-unit change in the explanatory variables is not constant over the entire range of the explanatory variable, the maximum likelihood estimation technique is used (Crowne, 1998). Use of the latter technique assures the large sample properties of consistency and asymptotic normality of the parameter estimates (Capps and

Kramer, 1985). The specification of the logit model follows in (1):

$$(1) E(Y_i) = \frac{1}{1 + e^{-\alpha - \beta x_i}} = \frac{e^{\alpha + \beta x_i}}{1 + e^{\alpha + \beta x_i}}$$

where  $E(Y_i)$  is the probability that  $Y_i = 1$ ,  $x_i$  are the independent variables, and  $\alpha$  and  $\beta$  are the parameters to be estimated.

The maximum likelihood coefficients estimated through logit analysis have no direct interpretation, other than indicating a direction of influence on probability. The calculated changes in probabilities indicate the magnitude of the marginal effects (Maddala, 1988). Changes in probability refer to the partial derivatives of the nonlinear probability function evaluated at the zero and one values of the explanatory variables (Pindyck and Rubinfeld, 1991). The marginal effects are estimated as (2):

$$(2) \frac{\partial P_i}{\partial x_{ij}} = \frac{\beta_j e^{-\alpha - \beta x_i}}{1 + e^{-\alpha - \beta x_i}}$$

where  $x_{ij}$  is the  $j$ th element of  $x_i$ .

In everyday terms, a logit analysis allows the researcher to estimate the relationship between a series of qualitative independent variables (such as the socioeconomic characteristics of households) and a qualitative dependent variable (such as a yes - no response to a question). A logit analysis provides the probability, for example, that a household in a rural area will respond yes or no to a specific issue, such as approval or disapproval of country-of-origin labeling of fresh beef in grocery stores. Policymakers can use the magnitude of these probabilities to identify specific target populations that approve or disapprove of the label.

***Handling Firms.*** The dependent variable chosen to analyze the handler reaction was “My firm favors mandatory country-of-origin labeling of fresh or frozen beef at all stages of the marketing channel.” Definitions of the independent variables used in the logit analysis of the handling firm data are provided in Table 1 along with their expected signs relative to the dependent variable.

Food retailers were expected to be less favorable toward labeling as it would require them to maintain records on sources

**Table 1. Definitions and Expected Signs of Independent Variables Used in the Logit Analysis of Handling Firms, Country-of-Origin Labeling, Louisiana, 1999**

Independent Variable	Exp Sign Definitions	
Firm is a Retail Outlet	Neg	1 if firm is a retailer; 0 otherwise
Firm is a Restaurant	Neg	1 if firm is a restaurant; 0 otherwise
Firm Is or Has Handled Imported Beef in Past	Neg	1 if firm is handling or has handled imported beef; 0 otherwise
Buyers Want Country-of-Origin Knowledge	Pos	1 if customers want knowledge of whether beef is imported; 0 otherwise
Firm Believes Country-of-Origin Knowledge is Valuable	Pos	1 if firm believes labeling would be of value to customers; 0 otherwise
Label Requirement Only Represents Govt. Interference	Neg	1 if firm believes that label would only represent an interference in commerce; 0 otherwise
Label Hints at Problem with Imported Beef	Pos	1 if firm believes that label would represent a potential problem with imported beef; 0 otherwise
Firm Size (# Full Time Employees)	Pos	Continuous
Firm Age (Years)	Neg	Continuous
Part of Chain or Franchise	Neg	1 if firm is not independently owned; 0 otherwise
Non-Urban Location	Pos	1 if firm is located in non urban area; 0 otherwise

The dependent variable is "My firm favors mandatory country-of-origin labeling of fresh and frozen beef at all stages of the marketing channel."

of beef and possibly eliminate the option, based on price differences, of substituting freely between imported and domestic beef. Restaurants were expected to resist labeling if their use of imported beef causes customers to stay away. Thus, dummy variables for restaurants and food retailers were included in the model.<sup>2</sup>

<sup>2</sup>Dummy variables are frequently used in regression analysis to represent variables that have values of zero or one (gender, race, etc.), whereas continuous variables take on actual values ranging from some minimum to some maximum, such as income or age.

Firms having experience with handling imported beef were expected to be negative toward labeling because it would likely result in their shifting from imported to domestic beef. Thus, a dummy variable was included for use of imported beef.

If the customers of a given firm are expected to desire knowledge of the source of beef, the firm is likely to favor the country-of-origin labeling of beef. A label would likely increase the demand for the preferred domestic product. Therefore, a dummy variable was used to represent firm attitude toward the value of the label to buyers.

If buyers are likely to interpret the sudden appearance of labels as representing a problem with imported beef, the firm is likely to be a critic of the labeling requirement as it could reduce their sales. A dummy variable was included showing whether firms feel the presence of country-of-origin labels would be interpreted as a problem for imported beef. Likewise, firms believing that the labeling requirement would merely represent more interference of government in the marketplace would not favor the label. These firms could believe that any new regulation would just raise their costs and further infringe on their entrepreneurial freedom. A dummy variable showing this relationship was included in the model.

Economies of scale are likely to lead to firm size being positively correlated with approval of labeling for country-of-origin of fresh or frozen beef. Larger firms can provide a greater variety of products, therefore increasing the buyer's utility. A continuous variable for size was included in the logit model.

Older, well established firms are expected to be less supportive of labeling. These firms are expected to have developed reputations for marketing specific types and qualities of beef. Hence, they are likely to believe that they can provide the assurances the customer needs, with no need for new labels. Thus, a continuous variable measuring firm age was included in the model.

Label resistance was expected to be higher among firms that are associated with chains or franchises because of their purchases of beef from a large number of sources. Labeling could increase their costs relative to independents who handle only U.S. or

imported beef. The individual firm is also not likely to have any control over the beef purchases of the consolidated firm. A dummy variable for chain or franchise membership was included in the model.

Firms located in rural areas were expected to favor the label to help support local business (including cattle producers). A dummy variable was included in the model for firm location.

***Households.*** The two dependent variables selected for the logit analysis of the household responses were: (1) “Do you favor compulsory country-of-origin labeling of fresh or frozen beef in food stores?” and (2) “Do you favor restaurants being required to label on the menu the country-of-origin of fresh or frozen meats used in their meals?” Positive responses to these two questions indicate that country-of-origin labeling would assist consumers with their purchase decisions for beef in food stores and restaurants, respectively.

Definitions of the 15 independent variables used in the logit analysis of the household data are presented in Table 2 along with their expected signs relative to the dependent variables. Respondents were asked whether they would normally buy domestic durable products rather than imported durable products, if both were of the same quality. Those who responded positively were expected to favor a country-of-origin label for fresh or frozen beef since preferences for durable products were expected to carry over to perishable beef. A dummy variable was used to measure this variable in the logit model.

Consumers who regularly read nutrition labels on food packages were expected to favor labeling as it would provide them additional information for the purchase decision. Respondents rating domestic beef better than imported beef were expected to favor the labeling of fresh or frozen beef for country-of-origin. The label would enable these consumers to obtain their preferred product. Dummy variables were used in the model to account for these two questions.

Male respondents were expected to be less favorable toward country-of-origin labeling than female respondents because of their lower level of experience with foods and food labels (Schupp, et al., 1995). Interest in a country-of-origin label for fresh

**Table 2. Definitions and Expected Signs of Independent Variables Used in the Logit Analyses of Louisiana Households, Country-of-Origin Beef Labeling, 1999**

Independent Variable	Exp Sign	Definition
Choose Domestic Products	Pos	1 if buy domestic durable products at same or higher price than imported; 0 otherwise
Domestic Beef Better	Pos	1 if rate domestic beef better than imported beef; 0 otherwise
Read Nutrition Labels	Pos	1 if regularly read nutrition labels; 0 otherwise
Male	Neg	1 if male; 0 otherwise
Age	Pos/Neg	Continuous variable
Age Squared	Pos/Neg	Continuous variable
Household Head Single	Pos/Neg	1 if household head is single; 0 otherwise
Children in Household	Pos/Neg	1 if household contains children; 0 otherwise
College Graduate	Pos	1 if hh head has a college degree; 0 otherwise
Homemaker	Pos	1 if adult female is homemaker; 0 otherwise
White	Pos/Neg	1 if household is white; 0 otherwise
Rural or Small Town	Pos	1 if household is in rural or small town area; 0 otherwise
Large City	Neg	1 if household is in a large city; 0 otherwise
Income >\$45,000	Pos	1 if hh income is more than \$45,000; 0 otherwise
No Farm Relationship	Pos/Neg	1 if hh has no relationship to farming; 0 otherwise

The two dependent variables used were: *Do you favor compulsory country-of-origin labeling of fresh or frozen beef in food stores*, and *Do you favor restaurants being required to label on the menu the country-of-origin of fresh or frozen beef used in their meals*.

beef could decline with respondent age as consumers are likely to become more rigid in their diets with advancing age. However, health consciousness is likely to increase elderly consumers interest in labels. Thus, the age and age squared terms were expected to be indeterminate in sign.

Single households could be less favorable toward labeling because of their expected greater use of convenience foods and



greater tendency to eat outside the home. However, these households are also more likely to have time to examine labels since they have fewer family responsibilities. The expected sign of the single household variable, therefore, was indeterminate. The presence of children in the household could have both positive and negative effects on the respondent's attitude toward labels: (1) parents are expected to want safe and quality food products for their children, encouraging label readership, and (2) the presence of children in the family tends to reduce the time food shoppers have in the grocery store, reducing interest in more label information. The sign of the household with children variable was, therefore, considered indeterminate.

The college education variable was expected to be positively related to labeling. Individuals with higher levels of education are expected to be more interested in the quality and safety of beef products.<sup>3</sup> Hence, the more educated consumer was expected to have more interest in labeling than those with less education.

Respondents in rural areas were expected to favor the label requirement for both grocery stores and restaurants because of their economic ties with the agricultural community. Small local producers of meat products are also likely to sell to stores and restaurants that are located in the more sparsely populated areas. Consumers in large cities, however, were expected to be less favorable to the label because of less overall knowledge of food production and how it impacts products in the grocery store or restaurant.

Households with incomes greater than \$45,000 were hypothesized to have a positive attitude toward country-of-origin labeling of fresh or frozen beef based on a desire for a larger variety of beef products in the marketplace. Households with responding homemakers were expected to favor the label requirement for grocery stores as it would provide the homemaker more information for meal preparation.

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<sup>3</sup>An explanation of meat inspection and quality may be useful at this point. At some point in the marketing channel, all beef must be inspected for wholesomeness and cleanliness by either a state or federal agency. Some beef handlers may also choose to provide consumers evidence of quality, a proxy for edibility characteristics, of the beef they handle. The packer employs a USDA grader to provide this service.

Prior research or economic theory offers little guidance on the influence of race on the acceptance of country-of-origin labels for fresh beef. Therefore, the sign of the race variable was considered indeterminate. The sign of the “no farm relationship” variable could be positive or negative. As meat consumers, this group of purchasers would be interested in information on the meat available in grocery stores and restaurants (positive). However, this group, with no knowledge of agricultural production, could consider beef to be just a commodity at the farm level and think that no differences in beef would arise from the source (negative). The sign of the no relationship to farming variable was, therefore, considered indeterminate.

## **Results**

***Handling Firms.*** Means and standard deviations of the variables used in the logit analysis are given in Table 3. Approximately 82 percent of the firms indicated that they would approve of the mandatory country-of-origin labeling of all fresh or frozen beef. Half of the responding firms were retailers, 36 percent were restaurants, and the remaining 14 percent were processors and/or wholesalers. Only eight percent of the firms were currently handling or had previously handled imported beef. On average, the spokespersons indicated that 42 percent of their customers wanted country-of-origin information given on the potential product. Not surprisingly, 30 percent of the respondents believed that the label would be just another example of unneeded and undesirable interference by government in free trade and commerce. Nearly 70 percent of the firms believed that the label would imply some problem with imported beef relative to domestic beef. The average firm employed approximately 14 employees and had been in existence for 20 years. Forty-five percent of firms were in rural areas, and 14 percent of firms were members of chains or franchises.

The handlers were asked four questions that were not included as variables in the final logit model (Table 4). Sixty-eight percent of the firms indicated that their suppliers would voluntarily identify, if asked, the source of fresh or frozen beef they purchased. When asked if they agreed, disagreed, or were uncertain with respect to the statement, “In my opinion, there is no signifi-

**Table 3. Means and Standard Deviations of Variables Used in the Logit Analysis of Handling Firms, Country-of-Origin Labeling, Louisiana, 1999**

Variable	Mean	Standard Deviation
Firm Supports C-O-O Labeling (The Dependent Variable)	0.8182	0.3872
Retail Outlet	0.5000	0.5000
Restaurant	0.3636	0.4810
Experience Handling	0.0758	0.2655
Buyer Wants C-O-O	0.4167	0.4935
C-O-O Valuable	0.7652	0.5425
Govt. Interference	0.3030	0.4596
Problem w/ Imported	0.6970	0.4562
Firm Size (# of employees)	13.8400	20.1690
Firm Age (years)	19.9200	14.9847
Chain or Franchise	0.1364	0.3443
Non Urban Location	0.4545	0.4975

See Table 1 for a definition of variables.

cant difference between imported and domestic beef in the same type of product,” 25 percent agreed, 38 percent disagreed, and 37 percent were undecided.

Firms by type were asked if they would purchase imported beef if priced at a 15 percent to 20 percent discount to domestic beef. While, on average, 70.5 percent of firms would not purchase imported beef even at this large discount, processor/wholesalers were more willing to purchase than the remaining types of firms. The same firms were asked if they believed they could pass the costs of complying with the label requirement on to customers. On average, 53 percent replied positively, 29 percent replied negatively, and the remaining 18 percent were uncertain. Grocery stores were more likely to reply “yes” and process/wholesalers “no.”

**Table 4. Firm Responses to Selected Queries by Type of Louisiana Beef Handling Firm, 1999**

Query and Reply	Total %	Process/ Wholesale %	Restaurants %	Grocery Stores %
Seller Voluntarily Identifies Source? <sup>a</sup>				
Yes	31.8	27.8	24.2	43.8
No	68.2	72.2	75.8	56.2
Is Imported Beef as Good as Domestic? <sup>b</sup>				
Agree	25.0	22.2	30.3	18.7
Uncertain	37.1	33.3	34.8	41.7
Disagree	37.9	44.4	34.9	39.6
Would You Buy Imported at 15-20% Discount? <sup>c</sup>				
Yes	29.5	44.4	29.2	25.7
No	70.5	55.6	70.8	74.3
Could You Recover Labeling Costs From Buyers? <sup>d</sup>				
Yes	53.0	38.9	60.4	51.5
Uncertain	18.2	27.8	14.6	18.2
No	28.8	33.3	35.0	30.3

<sup>a</sup> Would your suppliers of fresh or frozen beef voluntarily indicate whether any of your beef purchases contained imported beef?

<sup>b</sup> In my opinion, there is no significant difference between imported and domestic beef in the same type of product.

<sup>c</sup> Would you purchase fresh or frozen imported beef if priced 15-20 percent less than domestic beef of the same type?

<sup>d</sup> Could you recover the added costs that the firm would incur in complying with a mandatory country-of-origin labeling law by increasing the price of beef to customers?

Results of the logit analysis of the dependent variable “My firm favors mandatory country-of-origin labeling of fresh or frozen beef at all stages of the marketing channel” are presented in Table 5. The overall model was highly significant, based on the chi-squared test with 11 degrees of freedom. The model correctly predicted the dependent variable 90 percent of the time. Tests for multicollinearity and heteroskedasticity were run with no problems found.<sup>4</sup>

<sup>4</sup>These are two of the potential data problems with regression analysis. Multicollinearity occurs when two or more of the independent variables are highly correlated, such as income and level of savings. Heteroskedasticity means the variances of the error terms for the independent variables differ at various levels of the independent variables, such as different variances in savings rates at different income levels.

**Table 5. Coefficients, Standard Errors and Probabilities, and Marginal Effects of Factors Influencing Handling Firm Acceptance of Mandatory Country-of-Origin Labeling, Logit Analysis, Louisiana, 1999**

Variable	Coefficient	Std Error	Probability	Marginal Effect
Constant	4.1174**	1.5414	0.0076	0.2932
Retail Outlet	-1.7288	1.3185	0.1898	-0.1231
Restaurant	-2.8952**	1.4314	0.0431	-0.2062
Experience Handling	-2.0385*	1.1250	0.0700	-0.1452
Buyer Wants C-O-O	0.6180	0.7348	0.4004	0.0440
C-O-O Valuable	1.5425**	0.6800	0.0233	0.1098
Govt. Interference	-2.4078**	0.7042	0.0006	-0.1715
Problem w/ Imported	0.7148	0.5898	0.2256	0.0509
Firm Size	0.0126	0.0188	0.5023	0.0009
Firm Age	-0.0237	0.0229	0.2996	-0.0017
Chain or Franchise	-2.3720**	0.9112	0.0092	-0.1689
Non-Urban Location	-0.3273	0.6477	0.6134	-0.0233

See Table 1 for a definition of variables. \* indicates significance at <0.10 and \*\* indicates significance at <0.05 levels.

Chi-Square = 44.97; 11 df ; 0.0000 significance level.

Maddala R-Square = 0.2887; Cragg-Uhler R-Square = 0.4713; and McFadden R-Square = 0.3593

Five of the independent variables were significant at the 10 percent level, and each had the expected sign. Restaurants were significantly less favorable toward labeling than the base processors/wholesalers. The marginal effects coefficient indicates that restaurants were 21 percent less likely to favor country-of-origin labeling of fresh or frozen beef than the base processors/wholesalers. Firms that had handled or were currently handling im-

ported beef were significantly less favorable toward country-of-origin labeling of fresh or frozen beef than firms that had not handled imported beef. The marginal effects indicated that firms that have handled or were handling imported beef were 15 percent less likely to favor labeling than those which had not handled imported beef. Firm respondents believing that their customers would gain valuable knowledge from the country-of-origin labels were significantly more favorable toward the labeling requirement. These firms were 11 percent more likely to favor labeling than those who did not believe that the labels would add to the consumer's knowledge of beef.

Firm respondents who classified the proposed legislation as being simply an unnecessary government interference in commerce or business were, as expected, less favorable toward the labeling requirement than firms with a less critical view of the role of government in the marketing of beef. Marginal analysis indicated that the critical firms were 17 percent less likely to favor country-of-origin labeling than the less critical-of-government firms. Respondents of firms that were parts of chains or franchises were significantly less favorable toward the labels than were spokesmen of independent firms. The former were estimated to be 17 percent less likely to favor the label than the latter.

**Households.** The total number of completed questionnaires returned by Louisiana households was 367, approximately 18.3 percent of the 2,000 sampled. A number (44) of the households reported that they did not regularly consume beef (see Table 6 for

**Table 6. Reasons for Louisiana Households to not Consume Beef at Least Once Weekly, Country-of-Origin Household Sample, 1999**

Reason	Percentage of Total
Eat beef but less than once weekly	55
Don't eat beef for dietary reasons	16
Don't eat beef because of higher cost	2
Don't eat beef because of concern for safety	5
Don't eat beef because of dislike of beef taste	11
Don't eat beef because I do not eat meat	9
Don't eat beef for other reasons	2

their reasons for not consuming beef on a regular basis), reducing the number of surveys to 323 for the logit analysis. The percentage responses of the consumer sample to selected questions on the survey are presented in Table 7. Readers familiar with the average family income, head's educational level, racial mix, and head's age of the typical Louisiana household will recognize that the mail sample is somewhat biased toward higher income, higher educated, white, or older households, which is characteristic of mail surveys, especially when bulk mailing is used.

**Table 7. Responses of the Household Sample, Country-of-Origin Labeling of Fresh or Frozen Beef, Grocery Stores and Restaurants, Louisiana, 1999**

Category	Percent (%)	Category	Percent (%)
<b>Sex</b>		<b>Race</b>	
Male .....	43.0	African-American .....	10.2
Female .....	57.0	Asian .....	0.0
<b>Education</b>		Hispanic .....	0.9
<High School Education .....	4.3	White .....	85.8
High School Education .....	29.7	Other .....	3.1
Trade School Education .....	7.1	<b>Employment Status</b>	
Some College Education .....	26.3	Employed .....	53.9
College Education .....	18.6	Unemployed .....	2.5
Post-Graduate Education .....	13.9	Student .....	11.5
<b>Residence</b>		Homemaker .....	29.7
Rural .....	22.9	Retired .....	2.5
Town (500-2,500) .....	14.9	<b>Age</b>	
Large Town (2,501-25,000) .....	9.9	Mean (Years) .....	52.5
Small City (25,001-100,000) .....	10.8	<b>Relationship with Agriculture</b>	
Med City (100,000-500,000) .....	31.9	Farmer .....	5.3
Large City (>500,000) .....	9.6	Parents are Farmers .....	20.4
<b>Household Status</b>		Close Relative is Farmer .....	15.2
Single Adult .....	18.3	Friends/Business w/ Farmers .....	10.5
Single Parent w/ Children .....	4.3	No Relationship with Farmers .....	48.6
Couple w/o Children .....	40.6	<b>Purchase Durables</b>	
Couple w/ Children .....	35.9	No Distinction between Dom & Imp .....	24.8
Other .....	0.9	Purchase U.S. Product .....	46.4
<b>Income</b>		Pay More for U.S. Product .....	28.8
<\$15,000 .....	11.8	<b>Domestic vs Imported Beef</b>	
\$15,000-\$29,999 .....	15.8	Domestic Beef Better .....	86.1
\$30,000-\$44,999 .....	19.5	No Difference .....	13.9
\$45,000-\$59,000 .....	20.1	<b>Approve of Country-of-Origin Label</b>	
\$60,000-\$74,999 .....	12.4	Grocery Stores .....	92.6
\$75,000-\$89,999 .....	9.6	Restaurants .....	87.9
\$90,000-\$105,000 .....	6.5		
>\$105,000 .....	4.3		

As expected, a larger percentage of the respondents supported mandatory country-of-origin labeling of fresh or frozen beef in grocery stores (92.6%) than in restaurants (87.9%). The reasons given by the respondents for their choice of whether or not to require restaurants to label are presented in Table 8. The reader will recall that the Louisiana Legislature exempted food service outlets from its import labeling laws of 1981 and 1999. Those choosing to require restaurant labeling indicated that labeling would result in their eating only U.S. beef at the restaurant (54%), choosing to not patronize restaurants handling imported beef (31%), choosing to patronize restaurants serving imported beef (5%), or another reason (10%). Respondents choosing to exempt restaurants from labeling indicated that they: (1) trusted the restaurant to serve only the best beef available (31%), (2) trusted the U.S. government to ensure the wholesomeness and cleanliness of both domestic and imported beef (31%), (3) trusted the restaurant to only serve safe quality beef (26%), (4) had no interest in the origin of the beef (10%), and (5) had other reasons (2%).

**Table 8. Reasons for Consumers Rating U.S. Beef Either Superior or Equal to Imported Beef and Reasons For or Against Restaurants Having to Label, Louisiana, 1999**

Reason	Percentage
U.S. Beef Rated Superior to Imported Beef .....	86.0
Concern with purity of imported beef .....	18.5
Concern with safety of imported beef .....	21.3
Concern with imported beef carrying disease .....	19.1
U.S. beef of higher quality .....	41.1
U.S. Beef Rated Equal to Imported Beef .....	14.0
U.S. and imported beef often mixed so must be equal .....	23.9
Both U.S. and imported beef of equal quality .....	13.0
U.S. government assures wholesomeness and cleanliness of both .....	63.1
Restaurant Beef Should be Labeled by Country-of-Origin .....	87.9
Won't patronize restaurants handling imported beef .....	31.0
Will eat only U.S. beef on the menu .....	54.2
Would patronize restaurants handling imported beef .....	5.3
Other .....	9.5
Restaurant Beef Should Not be Labeled by Country-of-Origin .....	12.1
Origin of beef is of no interest to me .....	10.2
Trust restaurant to only serve safe quality beef .....	25.6
Expect restaurant to serve only best beef available .....	30.8
Trust U.S. government to ensure wholesomeness and cleanliness of both .....	30.8
Other .....	2.6



The responding households were asked to rate U.S. beef relative to imported beef (Table 8). Since many respondents had not consumed beef that was labeled as imported, their assessment of beef from the two sources represent perceptions, based on personal experience, knowledge derived from printed or oral sources, and/or simply hearsay. Approximately 86 percent rated U.S. beef superior to imported beef, primarily because they perceived U.S. beef to be of higher quality than imported beef. The remaining 14 percent rated beef from the two sources as being equal primarily because the U.S. government assures the wholesomeness and cleanliness of both.

Logit results from the analyses of the grocery store data are given in Table 9. The overall model was significant, based on a chi-squared test with 15 degrees of freedom. Tests for multicollinearity and heteroskedasticity were run with no problems found. The logit model, which uses 15 independent variables to “explain” the dependent variable, correctly predicted the household’s decision (to support or not support country-of-origin labeling of fresh or frozen beef in grocery stores) approximately 94 percent of the time. Eight of the independent variables were significant at the 10 percent level (choose domestic durable products, rate domestic beef better than imported beef, male, age, single household head, children in household, rural location, and no relationship with farming). Each of these significant variables had the hypothesized sign. The variables with the highest marginal effects were rate U.S. beef better than imported beef, choose domestic over imported durable products, and rural or small town location.

The insignificant variables were: read nutrition labels, college degree, respondent is homemaker, age squared, white, large city location, and high income. These variables are apparently not important in explaining the household’s attitude toward the desirability of labeling fresh or frozen beef by country-of-origin in grocery stores.

The logit results for the restaurant model are given in Table 10. The overall model was significant, based on a chi-squared test with 15 degrees of freedom. The model correctly predicted the dependent variable approximately 88 percent of the time. A far fewer number of variables were significant for restaurants than grocery stores. The following were the three significant variables:

**Table 9. Coefficients, Standard Errors, and T-Ratios of Factors Influencing Household Acceptance of Mandatory Country-of-Origin Labeling of Fresh or Frozen Beef in Grocery Stores, Logit Analysis, Louisiana, 1999**

Variable	Coefficient	Std Error	Probability	Marginal Effect
Constant	3.3008*	1.2917	0.0106	0.2507
Choose Domestic Durable Products	0.8074*	0.2758	0.0034	0.0613
Domestic Beef Better Than Imported Beef	0.9352*	0.3126	0.0028	0.0710
Read Nutrition Labels	0.1813	0.2591	0.4842	0.0138
Male	-0.5896*	0.2783	0.0341	-0.0448
Age	-0.0944*	0.0517	0.0680	-0.0072
Age Squared	0.0007	0.0005	0.1230	0.0000
Household Head Single	-0.5317*	0.3059	0.0821	-0.0404
Children in Household	-0.6989*	0.3149	0.0265	-0.0531
College Education	0.1996	0.2982	0.5033	0.0152
Homemaker in Household	-0.0057	0.4644	0.9901	-0.0004
White	-0.3111	0.3354	0.3537	-0.0236
Rural and Small Town	0.7062*	0.3286	0.0316	0.0536
Large City	-0.2099	0.3974	0.5973	-0.0159
Family Income>\$45,000	-0.0978	0.3022	0.7862	-0.0074
No Farm Relationship	0.6010*	0.2772	0.0302	0.0456

\* Significant at five percent level or better. Chi-Square = 38.4767 15df; 0.0007 significance level.

Maddala R-Square = 0.1360; Cragg-Uhler R-Square = 0.3309; and McFadden R-Square = 0.2762.

The dependent variable used was: *Do you favor compulsory country-of-origin labeling of fresh or frozen beef in food stores.* See Table 1.

choose domestically produced durable products, rate domestic beef superior to imported beef, and male. Again, each of these variables had the hypothesized signs. On the other hand, age, age squared, presence of children, single household head, rural location, and no relationship with farming were not significant for restaurants but were for grocery stores. The remaining nonsignificant variables were: college education, respondent is a homemaker, large city location, and high income. The socioeconomic variables used in the restaurant model were not as important in explaining the respondents attitude toward country-of-origin labeling of fresh or frozen beef as these variables were in the grocery store model.

**Table 10. Coefficients, Standard Errors, and T-Ratios of Factors Influencing Household Acceptance of Mandatory Country-of-Origin Labeling of Fresh or Frozen Beef in Restaurants, Logit Analysis, Louisiana, 1999**

Variable	Coefficient	Std Error	Probability	Marginal Effect
Constant	-0.6712	0.9177	0.4645	-0.1045
Choose Domestic Durable Products	0.4901*	0.2254	0.0297	0.0763
Domestic Beef Better Than Imported Beef	0.9279*	0.2549	0.0003	0.1445
Read Nutrition Labels	0.3290	0.2207	0.1359	0.0513
Male	-0.4475*	0.2313	0.0530	-0.0697
Age <sup>0.0456</sup>	0.0350	0.1923	0.0071	
Age Squared	-0.0005	0.0003	0.1266	-0.0001
Household Head Single	-0.1557	0.2685	0.5620	-0.0242
Children in Household	-0.1586	0.2595	0.5411	-0.0247
College Education	-0.3301	0.2412	0.1713	-0.0514
Homemaker in Household	-0.2326	0.3520	0.5087	-0.0362
White	0.2074	0.2793	0.4578	-0.0323
Rural and Small Town	0.1198	0.2529	0.6357	0.0187
Large City	-0.2590	0.3503	0.4610	-0.0403
Family Income > \$45,000	0.1061	0.2530	0.6750	0.0165
No Farm Relationship	0.0354	0.2186	0.8712	0.0055

\* Significant at five percent level or better. Chi-Square = 45.29; 15 df; 0.0001 Significance Level  
Maddala R-Square = 0.1370; Cragg-Uhler R-Square = 0.2627; and, McFadden R-Square = 0.9999

The dependent variable used was: *Do you favor restaurants being required to label the country-of-origin of fresh or frozen beef used in their meals.* See Table 1.

The impacts of identity of country-of-origin, type of beef cut and type of restaurant on the respondents choice to consume a meal containing beef in a restaurant are presented in Table 11. Of these three factors, country-of-origin had the greatest influence as 63 percent of the respondents indicated that the identity of the source country would impact their decision to consume imported beef in restaurants. The type of restaurant would impact the decisions of half of the respondents to consume imported beef in restaurants. The least influential of the three factors on decision to consume imported beef in restaurants was the type of beef cut (20%).

**Table 11. Would Your Decision to Select a Meal Containing Imported Beef in a Restaurant Differ by the Country from Which the Beef Comes, the Cut of Beef, or the Type of Restaurant Involved, Country--of-Origin Household Sample, Louisiana, 1999**

Factor	Percentage of Households Impacted
Country-of-origin of beef?	63
Type of beef cut?	29
Type of restaurant?	50

## **Summary, Implications, and Limitations**

**Summary.** Interest in mandating compulsory country-of-origin labeling of fresh or frozen beef has increased. Despite reassurances by the USDA that imported beef is handled similarly to domestic beef, concern remains among some consumers that this may not be totally correct. U.S. consumers are confronted by information on problems of the beef industry in both the U.S. and abroad, which causes them to question the safety of the U.S. beef supply. The quality of intact beef cuts produced in the U.S. and imported also may differ. Prior to January 1, 2000, no requirement existed in the U.S. that retail packages of fresh or frozen beef be labeled as to source or that restaurants indicate the source of beef they used. A country-of-origin label would provide potential buyers at all levels of the beef marketing channel useful information for the decision process.

Research was initiated to assess the support for compulsory country-of-origin labeling of fresh or frozen beef among Louisiana beef-handling firms and households. Questionnaires for phone surveys of handling firms and a mail survey of households were developed.

Lists of firms handling beef were secured from a Louisiana agency and from two commercial listing firms. A random sample of firms to be interviewed by telephone was obtained from these lists. A randomized list of 2,000 households was obtained from the Louisiana Department of Public Safety - Motor Vehicle Registration Division. The handler interviews were conducted in late

1998 and early 1999, while the mailouts to households were sent in summer, 1999.

Tabular analysis and logit analyses were used to analyze the data. The latter was used to ascertain the influence of selected firm characteristics or attitudes on their decision to support the label requirement and for estimating the influence of selected household characteristics on household support for the label in either grocery stores or restaurants. A total of 48 restaurants, 66 grocery retailers, and 18 other handling firms were interviewed. Approximately 18 percent of the 2,000 households returned useful surveys.

Approximately 82 percent of the handling firms supported the country-of-origin labeling of fresh or frozen beef in the beef marketing channel. Five of the 10 independent variables were significant (restaurant, experience handling imported beef, consider country-of-origin label valuable for buyers, label law just another example of government interference, and member of chain or franchise), and each had the expected sign.

Ninety-three percent of the households supported country-of-origin labeling of fresh or frozen beef in grocery stores. Eight of the independent variables in the logit model were significant (choose domestic durable products, rate domestic beef superior to imported beef, male, age, household head single, children in household, rural resident, and no relationship with farming), each with the expected sign.

Eighty-eight percent of the restaurants supported the label. The logit model for restaurants indicated that three of the independent variables were significant (choose domestic durable products, rate domestic beef superior to imported beef, and male), each with the hypothesized sign.

***Implications.*** The two surveys found substantial interest in the requirement for a country-of-origin label for fresh or frozen beef as it moves through the beef marketing channel. In general, both Louisiana beef handlers and consumers indicated that a state or federal labeling law would likely be helpful to beef buyers at all levels. The relatively high level of approval of the label among handling firms indicates that the country-of-origin label would likely be complied with by most firms, thus reducing compliance

costs. If consumers were encouraged to call an 800 number when a particular store was not labeling beef properly, government compliance costs would be greatly reduced. A sign that stated the store (restaurant) only handled U.S.-produced beef unless clearly labeled on the package (menu) would also reduce labeling costs.

Handling firms less favorably inclined to the label could consist of restaurants, firms that are part of chains or franchises, firms that tend to desire low government involvement in business, or firms that have experience in handling imported beef. These firms would likely either lobby against legislation that would require the label or would be neutral toward these bills.

Firms believing that their customers would benefit from the label's presence are more likely to comply with the law. They would find ways to make the label work to their advantage with potential buyers.

Consumer support for restaurants labeling beef is somewhat lower than for grocery stores. Whether this reflects an actual lower concern among consumers for beef consumed outside the home or the recognition that restaurant meals represent a dining experience, which is more dependent on atmosphere and service than the product being consumed, is unknown. Grocery stores, even in the absence of labeling requirements, often indicate the supplier of their beef; restaurants seldom reveal their source.

The characteristics of households giving the strongest support for the country-of-origin labeling of fresh or frozen beef differed for grocery stores and restaurants. Whereas eight variables were significant for grocery stores, only three were significant for restaurants. Among the traditional socioeconomic characteristics, only sex of the respondent was significant for restaurants. The common family cycle effects were not as important in explaining the desire for label use in restaurants as in grocery stores. Income and education were found to be unimportant for both grocery store and restaurant use of country-of-origin labels.

The costs of assessing and enforcing compliance with a country-of-origin labeling law are often listed as major costs involved in labeling. The handling firm survey indicated that a large proportion of the firms believed that the costs they encounter could be passed to the buyer or that these costs would be minimal

and absorbable. Hence, the primary costs of the labeling requirement would appear to accrue to the government in their regulation of the program.

An individual state labeling law, such as the new Louisiana law, has definite limitations when compared to a law with the same requirements enacted by the U.S. Congress. Louisiana firms purchasing beef from firms located in another state cannot expect to obtain information on the source of these meats. Conceivably, this beef could have been purchased from an importer by the non-Louisiana buyer; however, the latter would not have a requirement to maintain the identity of the product. In this case, the buying firm, say a Louisiana grocery store, is likely to label the product as U.S.-produced. Firms choosing to sell imported beef in Louisiana could use this loophole to avoid the import label.

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## **Appendix A**

### **Beef Handling Firm Questionnaire**

**Meat Processors, Wholesalers and Retailers**  
Telephone Survey Spring 1999

Firm \_\_\_\_\_

Address \_\_\_\_\_

Telephone Number \_\_\_\_\_

Ring the firm's telephone number. When a firm spokesman answers, say:

Good Morning (Afternoon)! My name is \_\_\_\_\_ and I'm calling from the LSU Department of Agricultural Economics and Agribusiness at Baton Rouge. May I speak to the manager or the individual in the firm who is responsible for purchasing inputs and/or selling output for the firm?

Record this individual's name and position \_\_\_\_\_

When this individual comes on the line, say:

Hello! My name is \_\_\_\_\_ and I'm calling from the LSU Department of Agricultural Economics and Agribusiness in Baton Rouge. I would like to speak with you regarding an item that was considered by the US Congress last term. May I?

Several times during the past decade, bills have been introduced into the US Congress that would have required country-of-origin labeling of all imported fresh and frozen meat as it moved from the port-of-entry to the ultimate consumer. Prior to the current term, these bills have not been brought to the floor for a vote in either the House or Senate. In 1981, the Louisiana Legislature passed legislation requiring retail meat sellers to label all imported fresh or frozen meats as imported; however, the food service sector was exempted. Six months later, a hearing conducted by the USDA resulted in this specific legislation being voided.

Today, we are surveying handlers of fresh or frozen beef to ascertain their reaction to potential country-of-origin legislation. May I ask you a few questions regarding the potential impact of mandatory country-of-origin labeling of fresh or frozen beef on your firm?

1. Is your firm currently purchasing and handling fresh or frozen beef that you have been informed has been imported?

YES  NO      If answered no, proceed to Question # 5.

2. [*If Question # 1 was answered YES*] Approximately what percentage of the fresh or frozen beef that you handle is imported? \_\_\_\_\_%

3. [*If Question #1 was answered YES*] Have you encountered safety problems with fresh or frozen imported beef at a greater frequency or severity than similar US fresh beef?

YES  NO

4. [*If Question # 3 was answered YES*] What is the food safety problem that you encountered with imported beef?

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5.. [*If Question # 1 was answered NO*] Has your firm ever purchased and handled fresh or frozen beef that you were informed had been imported?

YES  NO

6. [If Questions #1 and #5 were answered NO] Would you purchase imported fresh or frozen beef if priced 15-20 percent less than domestic fresh or frozen beef of the same type?

YES  NO

7. Would your source of fresh or frozen beef voluntarily indicate whether any of your beef purchases contain imported beef?

YES  NO

8. Have any of your customers requested knowledge of the country-of-origin of the fresh or frozen beef you handle?

YES  NO

9. [*If Question # 8 was answered YES*] How frequently is this request made by customers?

DAILY       LESS FREQUENTLY THAN DAILY

10. Do you foresee a strong positive buyer response should a country-of-origin label on fresh or frozen beef become mandatory?

YES  NO  UNCERTAIN

11. Would your firm approve of mandatory country-of-origin labeling of fresh or frozen beef at all stages of the marketing channel?

YES  NO

12. Country-of-origin labeling of fresh or frozen beef would provide information of significant value to customers in their purchase decisions. (Circle one)

Agree Slightly Agree Undecided Slightly Disagree Disagree

13. Country-of-origin labeling of fresh or frozen beef is likely to be perceived by my customers as evidence of potential problems with imported beef. (Circle one)

Agree Slightly Agree Undecided Slightly Disagree Disagree

14. Country-of-origin labeling of fresh or frozen beef would merely represent unneeded interference by government in free trade and commerce. (Circle one)

Agree Slightly Agree Undecided Slightly Disagree Disagree

15. In my opinion, there is no significant difference between imported and domestic beef of the same type of product. (Circle one)

Agree Slightly Agree Undecided Slightly Disagree Disagree

16. Do you feel that you could recover the added costs that the firm would incur in complying with a mandatory country-of-origin labeling law by increasing the price of beef?

YES  NO  UNCERTAIN

17. How many full time employees does the firm have? \_\_\_\_\_

18. When did the firm begin operation? \_\_\_\_\_

19. What specific operations does your firm perform?

Imports beef

Processes beef

Packages beef for retail sale

Retail (wholesales) beef through store or food service

20. Is this firm part of a chain or franchise?

Yes  No

THANK YOU!

## **Appendix B**

**Cover Letter -- First Mailout**  
**Cover Letter – Second Mailout**  
**Household Questionnaire**

June 17, 1999

Dear Louisiana Householder,

Americans are concerned about the safety and quality of the foods they eat. Knowledge of the origin of food and the conditions under which it is handled and processed are often useful in assuring food safety and quality.

Today, our fresh or frozen beef comes from either U.S. sources or imports. Unlike packaged, processed meat, no law dictates that fresh or frozen beef be labeled as to country-of-origin. Imported fresh beef consists of frozen or chilled beef, which is usually ground prior to retail sale. The U.S. Congress has considered bills that would require the country-of-origin labeling of all fresh meat sold in U.S. food stores and restaurants. A bill is pending in the Louisiana Legislature that requires all imported fresh meats to be retail labeled as imported. Research funded by the Louisiana Agricultural Experiment Station is seeking your reaction to required country-of-origin labeling of all fresh or frozen beef sold in Louisiana food stores and restaurants.

You are invited to respond to a survey on your reaction to the mandatory country-of-origin labeling of fresh or frozen beef. *Since the sample size for this mailing is small, we need your help to obtain a good consumer response on this important issue.* Most of the questions ask you only to circle a printed reply that best matches your opinion on the question. The LSU Agricultural Center requires that we keep all individual responses private.

Your response to this survey will be helpful in assessing the importance of country-of-origin labeling to the consumer and to members of the US Congress as they vote on country-of-origin bills. A postage-paid envelope is attached for you to return the questionnaire.

If you have any questions regarding this research, I can be reached by mail [see my address above]; phone [(225) 388-2722]; fax [(225) 388-2716] or email [[aschupp@agctr.lsu.edu](mailto:aschupp@agctr.lsu.edu)]. Thank you for your help with this research.

Sincerely,

Alvin Schupp  
Professor

Enclosures - Survey Form, Business Reply Envelope

July 7, 1999

Dear Louisiana Householder,

Three weeks ago, I sent you a questionnaire seeking your reaction to a potential requirement for the country-of-origin labeling of all fresh beef sold in Louisiana food stores and restaurants. As this letter is being written, I have not received your completed questionnaire. If your response is in the mail, I sincerely thank you.

In my cover letter to the first mailing of the questionnaire, I noted that our fresh or frozen beef comes from either U.S. sources or imports. Today, there is no state or federal law requiring that fresh or frozen beef be labeled as to its country-of-origin. The U.S. Congress is considering a bill that would require country-of-origin labeling of all fresh meat sold in U.S. food stores and restaurants. An import labeling bill, covering food stores only, has just been passed by the Louisiana Legislature and signed by the Governor. This current research, which is funded by the Louisiana Agricultural Experiment Station, seeks your reaction to potential legislation which would require the country-of-origin labeling of all fresh or frozen beef, an extension of the Louisiana Law.

*Your household is one of a small number in which people are being asked to give their opinion on this important issue. In order that the results will truly represent the thinking of the people of Louisiana, it is important that each questionnaire be completed and returned.* Most of the questions ask you only to circle a printed reply that best matches your opinion on the question. All individual responses are kept private. A postage-paid envelope is attached for you to return the questionnaire.

Please contact me by mail [see my address above]; phone [(225) 388-2722]; fax [(225) 388-2716] or email [[aschupp@agctr.lsu.edu](mailto:aschupp@agctr.lsu.edu)] if you have any questions. Thank you for your help with this research.

Sincerely,

Alvin Schupp  
*Martin D. Woodin* Professor of Agricultural Business

Enclosures  
Survey Form  
Business Reply Envelope



**Country-of-Origin Labeling of Fresh Beef  
Consumer Preference Survey  
Summer 1999**

---- Confidential---- Confidential---- Confidential---- Confidential----

1. Is fresh beef eaten in your home at least once per week?
  - A. Yes**    **If Question #1 is answered NO, please answer Question #2 and return this form in the postage paid envelope. Thank You!**
  - B. No**
  
2. If Question # 1 was answered NO, why do you not eat fresh beef in your home on a regular basis?  
(Circle one)
  - A. I eat fresh beef, but less often than once per week.**
  - B. I do not eat fresh beef for dietary reasons.**
  - C. I do not eat fresh beef because of its higher cost.**
  - D. I do not eat fresh beef because of concern for its safety.**
  - E. I do not eat fresh beef because I do not like its taste.**
  - F. I do not eat fresh beef because I do not eat meat.**
  - G. OTHER** (please list) \_\_\_\_\_
  
3. In buying durable goods, such as an automobile, how do you decide between imported versus domestic products? (Circle one)
  - A. If quality and price are equal, I make no distinction between imported and domestic products in my buying decision.**
  - B. I will buy the US product if its quality and price are the same as the imported product.**
  - C. I will pay more for the US product if its quality is equal to the imported product.**
  
4. Have you ever eaten fresh or frozen beef in your home that you knew had been imported into the US?
  - A. Yes B. No**
  
5. Would information on the country-of-origin of fresh or frozen beef assist you in your retail buying decision?
  - A. Yes B. No**
  
6. How would you rate U.S. fresh beef relative to imported fresh beef?  
(Circle one)
  - A. Better (If this is your choice, go to question #7)**
  - B. Same (If this is your choice, skip to question #9)**
  - C. Worse (If this is your choice, skip to question #8)**

7. If you rated U.S. produced fresh beef better than imported fresh beef, why? (Circle all that apply)

- A. I am more concerned with the product purity of imported fresh beef.**
- B. I am more concerned with the product safety of imported fresh beef (microorganisms, pesticides and/or hormones).**
- C. I am more concerned with getting a disease from imported fresh beef (such as mad cow disease).**
- D. I believe that the quality of U.S. beef is better than imported beef.**
- E. OTHER** (please list) \_\_\_\_\_

8. If you rated U.S. fresh beef worse than imported fresh or frozen beef, why? (Circle all that apply)

- A. I am more concerned with the product impurity of U.S. produced fresh beef.**
- B. I am more concerned with the product safety of U.S. produced fresh beef (microorganisms, pesticides and/or hormones).**
- C. I am more concerned with getting a disease from U.S. produced fresh beef.**
- D. I believe that the quality of imported fresh beef is higher than U.S. produced fresh beef.**
- E. OTHER** (please list) \_\_\_\_\_

9. If you rated U.S. produced fresh beef the same as imported fresh beef, why? (Circle all that apply)

- A. Beef is mixed so much during handling that domestic and imported beef are the same.**
- B. I believe that the quality of imported and U.S. beef are equal.**
- C. I trust the U.S. government to ensure that imported fresh or frozen beef meets the same wholesomeness and cleanliness standards as US beef.**
- D. OTHER** (please list) \_\_\_\_\_

10. Do you read descriptive nutrition labels on foods in the grocery store? (Circle one)

- A. Yes, because I want to know all I can about the product before purchasing it.**
- B. I occasionally read these labels.**
- C. I do not read these labels.**

11. Do you favor compulsory country-of-origin labeling of fresh or frozen beef in food stores?

- A. Yes**
- B. No**

12. How would you want country-of-origin information to be given in the food store? (Circle one)

- A. On a separate package label, such as *PRODUCT IMPORTED FROM "XXXXX."***
- B. On a well-placed sign over the meat display case.**
- C. OTHER** (please list) \_\_\_\_\_

Please answer the next two questions knowing that fresh or frozen ground beef sold in the U.S. today can consist of 0 to 100% U.S. produced beef with the rest being beef imported from any country that can legally export fresh or frozen beef to the U.S. Hence, now all beef is considered U.S. produced beef.

13. Would you buy ground beef labeled as produced in a country other than the U.S. if 100% U.S. produced ground beef was also in the same meat case?

- A. Yes**
- B. No**

14. If Question # 13 was answered YES, how much would you pay for ground beef made from 100% imported beef if 100% U.S. produced ground beef is priced at \$1.00 per pound? (Circle one)

- |                            |                  |                            |
|----------------------------|------------------|----------------------------|
| <b>A. More than \$1.10</b> | <b>F. \$1.02</b> | <b>K. \$0.92</b>           |
| <b>B. \$1.10</b>           | <b>G. \$1.00</b> | <b>L. \$0.90</b>           |
| <b>C. \$1.08</b>           | <b>H. \$0.98</b> | <b>M. Less than \$0.90</b> |
| <b>D. \$1.06</b>           | <b>I. \$0.96</b> | <b>N. Other</b> _____      |
| <b>E. \$1.04</b>           | <b>j. \$0.94</b> |                            |

15. Do you favor restaurants being required to label on the menu the country-of-origin of fresh or frozen beef used in their meals?

- A. YES**
- B. NO**

16. If Question # 15 was answered YES, why answered yes? (Circle one)

- A. This information would likely cause me to not eat at a restaurant serving imported beef.**
- B. I would eat at the restaurant but would not buy entrees containing imported beef.**
- C. This information would likely cause me to eat at the restaurant and choose entrees with imported beef.**
- D. OTHER** (please list) \_\_\_\_\_

17. If Question # 15 was answered NO, why this answer? (Circle one)
- A. I am not interested in the origin of fresh beef as I assume all beef is the same.**
  - B. I trust the restaurant to serve only wholesome and safe fresh beef whether it is imported or produced in the US.**
  - C. I expect the restaurant to secure fresh beef from the best source available.**
  - D. I trust the U.S. government to ensure that imported fresh or frozen beef meets the same wholesomeness and cleanliness standards as US beef.**
  - E. Country-of-origin labeling would just add to an already excess amount of information on beef.**
  - F. OTHER** (please list) \_\_\_\_\_

18. Would your decision to buy and eat a meal containing imported beef at a restaurant depend on the:

- 1. country from which the beef was imported?    **A. Yes    B. No**
- 2. cut of beef involved?    **A. Yes    B. No**
- 3. type of restaurant involved?    **A. Yes    B. No**

19. In what manner would you like the restaurant to tell you of the country-of-origin of fresh beef served to their consumers? (Circle one)

- A. On a small label beside the meal (entree) description.**
- B. On an easy to see and read sign inside the door to the restaurant.**
- C. OTHER** \_\_\_\_\_

Please answer the following question knowing that fresh or frozen beef sold in U.S. restaurants today can consist of 0 to 100% U.S. produced beef with the rest being beef imported from any country that can legally export fresh or frozen beef to the U.S. Currently, all fresh or frozen beef sold in restaurants is considered 100% U.S. beef.

20. Would you be willing to pay a slightly higher menu price (i.e. up to three percent higher) for beef entrees if the beef was labeled as produced in the United States?

- A. Yes    B. No**

*The following questions assist us in understanding your responses.*

21. What is your sex? (Circle one)

- A. Female    B. Male**

22. What is your current age? (Write in)

\_\_\_\_\_ **years**

23. How would you best describe your household? (Circle one)
- A. Single Adult.**
  - B. Single Parent with Children living in the home.**
  - C. Couple with no Children living in the home.**
  - D. Couple with Children living in the home.**
  - E. OTHER** \_\_\_\_\_
24. Which one of the following best describes your highest level of education? (Circle one)
- A. Less than High School**
  - B. High School**
  - C. Trade School**
  - D. Some College**
  - E. College Degree**
  - F. Post Graduate Work**
25. Which of the following best describes your primary status? (Circle one)
- A. Employed**
  - B. Unemployed**
  - C. Homemaker**
  - D. Retired**
  - E. Student**
26. What is your racial background? (Circle one)
- A. Asian**
  - B. Black (African-American)**
  - C. Hispanic**
  - D. White**
  - E. Other**
27. Which of the following best describes the area in which you live? (Circle one)
- A. Rural**
  - B. Town (Population of 500 - 2,500)**
  - C. Larger Town (Population of 2,501 - 25,000)**
  - D. Small Size City (Population of 25,001- 100,000)**
  - E. Medium Size City (Population of 100,001 - 500,000)**
  - F. Large Size City (Population greater than 500,000)**
28. Which one of these categories describes your gross household income in 1998? (Circle one)
- A. Less than \$15,000**
  - B. \$15,000 - 29,999**
  - C. \$30,000 - 44,999**
  - D. \$45,000 - 59,999**
  - E. \$60,000 - 74,999**
  - F. \$75,000 - 89,999**
  - G. \$90,000 - 105,000**
  - H. More than \$105,000**

29. Which of the following best describes your relationship to farming or ranching? (Circle one)

- A. I am or my spouse is a farmer or rancher.**
- B. My parents are/were farmers or ranchers.**
- C. Another close relative is/was a farmer or rancher.**
- D. I have close friends who are farmers (ranchers) or deal with them in my business.**
- E. I have no close friends or business associates who are farmers or ranchers.**

**THANK YOU VERY MUCH !!**

Please return in the enclosed, postage-paid envelope.  
*Please sign if you want a summary of the results of the survey*





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