Consumer Willingness to Purchase Imported versus U.S.-Produced Durable Goods

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ABSTRACT

The relationships between the socioeconomic characteristics of consumers and their preferences between domestic and imported durable goods were estimated. Louisiana consumers indicated whether they were indifferent between domestic and imported durable goods of equal quality and price, preferred domestic over imported durable goods of equal quality and price, or were willing to pay a higher price for domestic durable goods over imported durable goods of equal quality. Multinomial logit analysis revealed that respondent age, race and retirement status were positively associated with a preference for domestic over imported durables; while age squared was negatively associated. Rural or male respondents were more willing to pay a higher price for the domestic good, hence, more likely to exhibit ethnocentrism. Income, education and presence of children were insignificant independent variables.

INTRODUCTION

Consumers in the United States (U.S.) have available in the marketplace domestically produced products and, for many kinds of products, imports from one or more countries. The availability of imported products provides consumers additional choices, with potential differences in price, quality, or other characteristics between the two sources. U. S. tariff laws require that imported, retail-ready, durable products be labeled with the country-of-origin. The country-of-origin label (source) provides information that potential purchasers can use in selecting among competing products in the marketplace.

Over time, countries develop reputations for producing durable products that are consistent in quality and other characteristics (20). For example, Germany is recognized for producing high quality automobiles, cameras and various other types of electronic products. Italy is noted for producing high quality shoes, clothing and cosmetics. Other countries have gained reputations for producing lesser quality durable products. New products exported by a specific country initially benefit or are handicapped in the marketplace by the kind of reputation the country has gained for product quality and innovation (the so-called "Halo" effect)(7). This theory states that consumers evaluate new imported products from a country based on their experience, good or bad, with other products from that country. The "Animosity model" (12) is related to the "Halo model" in that consumers display negative (positive) attitudes toward products produced by countries for which they have a strong negative (positive) feeling.

Another useful theory in explaining consumer reaction to imported goods is ethnocentrism. It hypothesizes that consumers want to support the country (group) to which they belong . Ethnocentrism, discussed in (18), questions the rightness and morality of consuming imported products; such products are said to harm the domestic economy, cause loss of jobs, and their use is considered unpatriotic. A

related theory is based on the nationalistic beliefs of consumers. Han (6) describes consumer nationalism as reflecting the consumers patriotic willingness to purchase a domestic product. These two theories are often used to explain why consumers tend to purchase locally-produced, non-durable (food) products. The loyalty consumers tend to display toward local products is often the basis for state promotional programs or the use of state logos to differentiate local food products from competitive products from other states.

A consumer purchases a product based on its expected utility or ability to satisfy his or her wants and needs. These wants and desires are often associated with the socioeconomic characteristics of consumers. The current study was designed to estimate the impact of these socioeconomic factors on the consumer's choice between domestic and imported durable goods.

A mail survey of a random sample of Louisiana households was used to appraise the impact of household socioeconomic characteristics on the respondent's preference between imported and domestic durable goods and, indirectly, the impact of ethnocentrism or consumer nationalism on consumer decisions between domestic and imported durable goods. For this study, the consumer's choice between U.S. and imported durable goods was determined using a series of three statements: *In buying durable goods, such as an automobile, how do you decide between imported versus domestic products?*

1. *If quality and price are equal, I make no distinction between imported and domestic durable products in my purchase decision.*

2. *I will buy the U.S. durable product if its quality and price are equal to that of the imported durable product.*

3. *I will pay a higher price for the U.S. durable product if its quality is equal to that of the imported durable product.*

The respondent chose one of the three statements. As the consumer's preferences moved toward purchasing domestic products, the individual would shift from supporting statement one to either statement two or three. While movements from statement to statement are categorical rather than interval based, the change in preferences, as noted in the three statements, implies a smooth transition from a zero preference to a relatively strong preference for the domestic product.

PREVIOUS RESEARCH AND CURRENT CONDITIONS

A number of researchers have attempted to measure the attitudes of consumers toward imported versus domestic durable goods. Consumers in some less developed countries tend to feel that all of or most imported goods are superior to domestic goods. For example, consumers in Jordan have a preference for foreign products relative to products produced in Jordan (9). Nigerian consumers tend to view durable products (cars, spare parts and electronics) from technologically advanced countries more favorably than the same products from technologically less advanced countries (1).

While somewhat dated now, Nagashima (16) reported on surveys of the attitudes of groups of businessmen in the U. S. and Japan in 1965 and 1967 toward

products from the U. S., Japan, Germany, England and France. Japanese businessmen considered U.S. products as high cost, technically advanced, innovative and highly recognized. U.S. businessmen considered Japanese products as inexpensive, technically advanced, mass produced and distributed worldwide. German products were considered reliable, prestigious and high performing. English products were perceived as expensive, prestigious and well known. French products were considered exclusive, handmade, luxurious and unreasonably priced.

Consumers in New Zealand were surveyed regarding their attitudes toward automobiles produced in Japan, Germany, Italy and France (13). They found strong evidence of country-of-origin stereotyping among New Zealand car buyers with "Made in Germany" emerging as the most favorite origin.

A more recent (1997) study (19) examined the attitudes of Chinese consumers in Hong Kong toward three product categories - clothing, food and electronics - produced in China, Japan, The United Kingdom and the U.S. Hong Kong consumers perceived U.S. products as being prestigious, Japanese products as innovative and Chinese products as cheap. The consumers considered products from The United Kingdom as somewhere in the middle in the evaluation criteria. Product use and purchase experience strongly impacted the selection of products by source.

Two hundred male customers in Shanghai participated in a study in which they evaluated the perceived quality and perceived price of three identical men's dress shirts, each with a fictitious country-of-origin label (8). The foreign-labeled shirts were rated more favorably than the Chinese-labeled shirts on the basis of perceived quality, perceived price and for willingness to purchase.

Several researchers have examined the influence of degree of ethnocentrism on the typical consumers acceptance of imported goods. Brodowsky (2) surveyed a number of automobile owners relative to their evaluations and attitudes toward buying cars carrying country-of-design and country-of-assembly information. Splitting the respondents into low, moderate and high ethnocentric groups revealed systematic country-based biases in product evaluation and attitudes toward purchase. The low ethnocentric group was more likely to use the country information as indicator of product quality than the other groups. Kaynak et al. (11) examined the influence of ethnocentrism on the beliefs, attitudes and intentions of Turkish consumers toward imported products. Consumers with very low ethnocentric feelings were much more favorable toward imported products than consumers with higher ethnocentric leanings. Their work supports the use of ethnocentrism as a key to understanding the value of country-of-origin identification on products at the retail level.

DATA AND METHODS

The questionnaire, including the series of statements stated previously regarding purchase of domestic versus imported durable goods, was developed, reviewed and revised using Dillman (5) procedures. The survey form also included questions on selected socioeconomic characteristics of the household, including income, education, race, sex, age, family status, employment status and household location.

A randomly selected list of names and addresses of Louisiana households was obtained from the Louisiana Department of Public Safety - Motor Vehicle Registration. The 2,000 households were located in eight randomly selected parishes,

four rural and four urban. Given that a large proportion of Louisiana households have one or more vehicles, this source was considered representative of the state.

An initial questionnaire, cover letter and postage return envelope were mailed during Summer, 1998, followed by a second questionnaire, cover letter and postage return envelope to those households not returning the original questionnaire within two weeks. In total, approximately 18 percent of the households returned usable surveys, about par for unsolicited surveys using bulk mail postage.

Given the data and the desired interpretation, an appropriate framework for analyzing the effect of independent variables on choice, when there are a finite number of choices greater than two, is multinomial logit estimation. Multinomial logit estimation has been used by a number of scientists (3, 15, 17, and 21). In the current study, the respondent chose one of the three statements listed previously (indifferent between domestic and imported, choose domestic over imported at equal prices, and willing to pay a premium price for domestic over imported). This choice constituted the dependent variable for the multinomial logit analysis.

In a multinomial logit model, the probability of the ith individual's choice of the jth response relative to purchase of durable goods is assumed to follow a logistic distribution as in equation (1):

$$\text{where X is } \frac{\partial Pj}{\partial Xi} = Pj\left(\beta j - \sum_{i=1}^{m} Pi\beta i\right), j = 1,2,\ldots,m. \quad \text{the} \tag{1}$$

set of socioeconomic characteristics associated with the individual household,. is the set of estimated parameters describing the influence of X on the probability of the respondent choosing statement j, and m is the number of statements. Maddala (14) provides a rigorous exposition of the multinomial logit model.

Marginal probabilities of choice (that is, the marginal effects) were calculated from the multinomial logit results employing the following formulation (2):

$$Pij = \frac{e^{x_i\beta_j}}{1 + \sum_{k-1}^{m-1} e^{x_i\beta_j}}, j = 1,2,\ldots,m \tag{2}$$

The marginal effects are partial derivatives of probabilities with respect to the vector of characteristics and are needed since parameter estimates. do not allow for direct determination of the marginal effects in multinomial logit models.

The socioeconomic variables tested for possible explanations of degree of preference for U.S. durable products relative to imported durable products are given, along with their expected signs and definitions, in Table 1. The authors have not identified extensive published research that demonstrates the relationships between consumer choice of imported versus domestic durable products and socioeconomic characteristics. Dardis and Soberon-Ferrer (4) examined the relationship between household characteristics and U.S. consumer preferences for Japanese cars, based on selected automobile attributes. They used a two stage probit model on data from U.S.

households that purchased new cars in 1986. They found older, rural residents tended to prefer U.S. autos over imported while more highly educated respondents preferred Japanese-built automobiles. Their analysis included the independent variables sex, race and income, but these characteristics were not significantly related to consumer preferences for domestic versus Japanese autos. Since their work did not include the variables children in household, retired head status and engaged in farming, the signs of these variables, along with sex, race and income, were considered indeterminate for this analysis.

RESULTS

The mean values of the eleven independent variables used in the multinomial logit analysis are given in Table 2. The marginal effects are given by independent variable in Table 3. The sample was somewhat biased toward the more educated, higher income, white or older segments of the Louisiana population. Bias in these socioeconomic characteristics can be expected as the individual recipient of the questionnaire is free to choose to complete and return the questionnaire or to ignore it completely. The complexity, length and language of the questionnaire affect each recipient's decision to complete or to ignore the questionnaire, a decision that can differ by socioeconomic characteristics of the recipient.

Nearly 25 percent of the respondents were indifferent as to whether they would purchase domestic or imported durable goods at equal prices and qualities. Slightly over 46 percent would purchase the domestic durable good if both it and imported goods were of equal price and quality. The remaining 29 percent of the respondents expressed a willingness to pay a higher price to obtain a domestic durable good over an equal quality imported durable good. The multinomial logit model was significant at the five percent level, based on a chi squared test with 22 df. The model correctly predicted 52 percent of the respondent's decisions. Examination of collinearity diagnostics did not reveal evidence of multicollinearity.

Significant variables in explaining the consumer's decision to purchase a domestic durable good (at equal price and quality to an imported durable good) as opposed to being indifferent between the two sources were age, age squared, retired head status and white (Table 2). Older, white or retired respondents were more likely to purchase the domestic durable good. The age squared variable was negative, indicating that the age effect diminished with age.

The single most important factor in explaining the respondent's decision to pay a premium price for a domestic product over an imported product was location (Table 2). Respondents from rural areas were willing to pay a higher price for a domestic durable good than for an equal quality imported product. Males were more willing to pay a higher price for the domestic product rather than simply preferring domestic to imported durable goods at equal prices.

IMPLICATIONS

The statements presented to the respondents did not identify specific durable products, other than to list automobiles as an example of a durable product, or the countries exporting durable products to the U.S. Therefore, the Halo effect could not be examined in this study. However, ethnocentrism and consumer nationalism, which are based primarily on the preference structure of the consumer, were possible

candidates, along with the household socioeconomic characteristics, to explain the choices made by the respondents.

These results indicate that age, being white or retired are positively associated with the choice of a domestic durable product over an imported durable product of equal price and quality. The decisions of these three subgroups of the sample appear to be more associated with ethnocentrism and/or consumer nationalism than the other subgroups. The explanations and social implications of these findings need to be addressed.

Willingness to purchase a domestic product at a price premium over an equal quality imported product would appear to be a strong sign of ethnocentrism or consumer nationalism in the individual. The two significant socioeconomic groups for this relationship were males and respondents in rural areas. Whether this is indicative of a strong sense of ethnocentrism or some other cause is unknown at this point. Marketers of domestic durable goods may find this relationship useful in planning their advertising and marketing programs. Overall, results of this study tend to support the results reported by Dardis and Soberon-Ferrer (4), who found positive relationships between age and rural residence with preference for U.S. automobiles.

These results indicate that rural residents continue to favor their local merchants, which tend to handle and promote U.S.-built products, especially automobiles. This relationship holds even after recent improvements in rural roads, spread of chain retailers into rural areas, improved means of communication, and migration of people both into and out of rural areas.

LIMITATION

In this study, we assumed a clear distinction between domestic and imported durable products. In actuality,
durable products can be designed in one country, engineered and tested in another country and production can occur in a third country, using inputs from even additional countries. The buyer may have difficulty in estimating the technology and construction quality under these conditions as the product may not reveal all the countries involved (i.e., country-of-design, country-of-assembly, country-of-packaging, etc.). Some recent research (10) indicates that consumer perceptions of products differ when more than one country is involved in the products' history.

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Table 1
Definitions and Expected Signs of Independent Variables Used in the Multinomial Logit Analyses, Louisiana Durables Survey, 1999.

Independent Variable	Expected Sign	Definition
Male	Neg/Pos	1 if male; 0 otherwise
Age	Pos	Continuous variable
Age Squared	Neg/Pos	Continuous variable
Children in Household	Neg/Pos	1 if household contains children; 0 otherwise
High Education	Neg	1 if HH head has college degree or more; 0 otherwise
Retired Head	Neg/Pos	1 if HH head is retired; 0 otherwise
White	Neg/Pos	1 if household is white; 0 otherwise
Rural Residence	Pos	1 if household is in rural area; 0 otherwise
Low Income	Neg/Pos	1 if HH income is less than $15,000; 0 otherwise
Higher Income	Neg/Pos	1 if HH income is more than $45,000; 0 otherwise
Farming	Neg/Pos	1 if engaged in farming: 0 otherwise

Table 2
Estimates of the Multinomial Logit Model, Household Attitudes Toward Purchasing Domestic and Imported Durable Products, Louisiana, 1999

Variable	Mean ([a])	Buy US vs No Distinction		Pay Higher Price Vs No Distinction		Pay Higher Price vs Buy US	
		Coeff	Prob	Coeff	Prob	Coeff	Prob
Constant	---	-2.6083*	0.0721	-3.8863*	0.0272	-1.2779	0.4250
Male	43.0	-0.0845	0.7762	0.4781	0.1517	0.5624*	0.0447
Age	52.5	0.1031*	0.0692	0.1041	0.1105	0.0001	0.9859
Age Squared	3030.0	-0.0009*	0.0971	-0.0007	0.2534	0.0002	0.6422
Children in HH	40.3	-0.4152	0.2250	-0.6294	0.1173	-0.2141	0.5459
High Education	32.5	0.1053	0.7560	-0.1811	0.6471	-0.2864	0.4090
Retired Head	29.7	1.0555*	0.0601	0.6651	0.2584	-0.3905	0.3510
White	85.8	0.8791*	0.0366	0.2834	0.5417	-0.5957	0.1708
Rural Residence	37.8	-0.0076	0.9815	0.6734*	0.0650	0.6811*	0.0241
Low Income	11.8	0.5780	0.3436	0.7572	0.2442	0.1792	0.6988
Higher Income	52.9	-0.0708	0.8404	0.3216	0.4301	0.3924	0.2651
Farming	5.3	-0.0257	0.9697	0.1007	0.8890	0.1264	0.8367

[a] Age and Age Squared are expressed in years; the remaining are in percentages.

Table 3
Partial Derivatives of Probabilities with Respect to the Vector of Characteristics, Louisiana, 1999

Variable	No Difference	Buy U.S. Goods	Pay Premium for U.S.
Male	-0.0207	-0.0869	0.1076
Age	-0.0181	0.0114	0.0067
Age Squared	0.0002	-0.0001	-0.0000
Children in HH	0.0864	-0.0172	-0.0692
High Education	-0.0004	0.0512	-0.0508
Retired Head	-0.1606	0.1723	-0.0117
White	-0.1167	0.1807	-0.0641
Rural Residence	-0.0417	-0.0946	0.1363
Low Income	-0.1128	0.4028	0.0725
Higher Income	-0.0124	-0.0619	0.0743
Farming	-0.0035	-0.0203	0.0238