Regional Differences in Consumer Potato-purchasing Decision in the Eastern United States

Hsiang-tai Cheng², Stephanie Peavey², and Alan S. Kezis³

¹Maine Agricultural and Forest Experiment Station Publication No. 2400.
²Department of Resource Economics and Policy, University of Maine, Winslow Hall, Orono, ME 04469-5782.
³College of Natural Sciences, Forestry and Agriculture, University of Maine, Winslow Hall, Orono, ME 04469-5782.
*Corresponding author: Tel: 207-581-3155; Fax: 207-581-4278; E-mail: cheng@maine.edu.

ABSTRACT

This study investigates and compares factors that influence the potato-purchasing decision among consumers in two different regions of the eastern United States. Previous studies have focused on identifying only the physical attributes and culinary characteristics of potatoes that consumers prefer. This study was done to gain a detailed understanding of consumers' potato-purchasing decision based on visual presentation of the type of potato along with the message attributes presented on the bag label. These attributes include product origin, brand labeling, product guarantee, and price.

In-person surveys were conducted in two eastern U.S. market areas separately in 1997 and 1998. The results indicate that potato choices and the factors that affect those choices differ significantly between consumers in different regions. In particular, potato origin plays a key role in consumer purchase decisions and varies from one region to another. Differences in the effect of price on potato purchase also vary between regions.

INTRODUCTION

The U.S. fresh potato market has become highly competitive as per capita consumption steadily declined from 35.5 kg (retail weight) in 1960 to about 21 kg in 1997 (Economic Research Services 1999, 1997). In particular, round-white potatoes have exhibited the sharpest drop in tablestock demand, as russet potatoes comprise an increasing percentage of the tablestock market in the U.S. (Economic Research Service 1996).

The Maine potato industry produces primarily round-white potatoes and has experienced a gradual decline in market shares over the past 20 years, even in traditionally strong markets for round-whites, such as Boston. To reverse the trend, the industry has been seeking ways to strengthen its market position through development of improved potato grades as well as through research that can provide insights into the consumers' potato-purchasing decisions. The intent of this study was to broaden the understanding of why consumers select one bag of potatoes over another.

Previous studies have documented that consumers generally look for "quality" potatoes which they define as clean, evenly sized, unblemished, and packed in plastic bags that allow visual inspection (Vance Publishing 1997, 1996; Cheng et al. 1991, 1990; McCracken and Marotz 1989). Most suppliers are well aware of these basic preferences and, as a rule, strive to meet these quality standards. But assuming that a certain percentage of potato packs sold in most supermarkets meets these basic standards and are evaluated by consumers as potential purchase choices, secondary factors then come into play in determining which pack will be selected among the options. These factors may include type of potato, product origin, satisfaction guarantee, and brand name.

The objective of the present study is twofold: (1) to examine the significance of potato origin, brand, satisfaction guarantee, price, and potato type on the purchasing decision, and (2) to compare consumer responses to these factors based on differences in regional residence and socio-demographic characteristics such as education, income, and age.

MATERIALS AND METHODS

The intent of this study was to understand the consumers' potato-purchasing decision at the point of purchase...
based primarily on the message conveyed on the bag label. To replicate the actual shopping situation, the survey was designed so that respondents were asked to evaluate six hypothetical bags of potatoes and assume that the potatoes were equal in terms of appearance, sizing, and package type. The differences among bags centered on the labeling, which distinguished the potatoes by type, product origin, branding, and price.

The two types of potatoes selected for testing were round-whites and russets, since together, these types make up the largest portion of tablestock potatoes. To investigate the importance of product origin, the labels identified the product origin as either “Maine” or “Idaho.” Consequently, one label listed the product as “Maine round-white potatoes,” another as “Idaho russet potatoes.”

The impact of commercial product branding was also considered. One label of the round-white packs and one for the russets identified the product as a national brand that consumers would recognize due to the brand’s prominence in the frozen/canned vegetable arena. Two other labels simply read “round-white potatoes” and “russet potatoes” with no origin or brand.

For clarity, the survey was formatted so that three labels for the round-whites were lined up in one column, and labels for russets were in the second column. Within each column, the ordering of the labels was randomized to reduce the risk of bias.

Price levels were also included. Discussion with potato dealers and produce managers in selected New England store chains yielded typical price ranges for a 5-lb bag of round-whites and russets. From this range, three test price levels were designed for each type. For round-whites, the representative prices were $1.59, $1.79, and $1.99. Prices of russets were set at $2.29, $2.49, and $2.69. Various combinations of potato prices were generated and presented in the label.

The final attribute under consideration was a satisfaction guarantee. To investigate the possible influence of this feature on the purchasing decision, some labels included the statement: “money back guarantee if not completely satisfied.” To keep the number of label evaluations at a reasonable level, the guarantee was only specified on a portion of labels for the Maine round-white potatoes.

**Consumer Surveys**

In-person surveys were conducted in a shopping mall in Springfield, Massachusetts, in June 1997. One year later, the same in-person surveys were done in Hillsborough, North Carolina, during a major county fair. Springfield was chosen to represent the New England region, a traditionally strong market for round-white potatoes. Hillsborough was selected to investigate the potato-purchasing decision in another market in eastern U.S. in which little was known about consumer response to round-white or russet potatoes.

Respondents were recruited and invited to participate in the study if they did at least 50% of the food shopping for their household. For the survey protocol, interviewers first presented a display of round-white potatoes and russet potatoes to ensure that each respondent clearly understood the different types that were listed on the labels. Next, the interviewer asked respondents to assume that the six labels represented six different bags of potatoes they could choose from and also to assume that the bag contained potatoes that looked just like those in the display. Respondents were instructed to evaluate the information on the labels, list all the packs they would consider purchasing, and from that list select one bag they would most likely purchase. Additional survey questions gathered information about the respondents’ potato-buying habits, social, economic, and other demographic characteristics.

**Analytical Approach**

A discrete choice model (also known as McFadden’s conditional logit model [see Maddala 1983]) was used to assess the effects of product origin, branding, price and money-back guarantee on the consumers’ purchasing decision. The model for the observed consumer choice is based on the following:

$$U_{ji} = x_{ji} \beta + \xi_{ji}, \quad j = 1, 2, ..., 6 \text{ (labels).}$$

Where, $$U_{ji}$$ is defined as a latent (unobservable) dependent variable denoting the level of indirect utility associated with the $$j$$th choice; $$x_{ji}$$ represents a vector of attribute variables that affect $$U_{ji}$$; denotes the set of corresponding coefficients to be estimated, and $$\xi_{ji}$$ denotes the random, individual specific error terms, and ($$\xi_{1i}, \xi_{2i}, ..., \xi_{6i}$$) are assumed to be independently distributed, each with an extreme value (Gumbel) distribution.

The observed dependent variables representing individual $$i$$ choice of potato pack $$j$$ are defined as

$$Y_{i} = 1 \quad \text{if} \quad U_{i} = \text{Max} \quad (U_{1i}, U_{2i}, ..., U_{6i});$$

$$Y_{i} = 0 \quad \text{otherwise}$$