

## **FACTORS AFFECTING CONSUMPTION OF RTE (READY-TO-EAT) INTERNATIONAL FOOD IN THE UNITED STATES**

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### **Abstract**

*There is a growing demand for international food in America, but our knowledge is limited on what drives the demand for such food which are ready-to-eat (RTE) or pre-cooked. We examine consumers' choice of international foods by focusing on primary grocery shoppers in New Jersey, a highly ethnically diverse state in the United States. Although we rely on earlier studies as guidance, unlike most existing studies that focus on purchasing intentions, we focus on American consumers' current purchasing behavior because consumers' purchase and consumption behaviors often are repetitive which leads consumers to develop habits (Ji and Wood, 2007). We use both descriptive statistics and discrete choice modeling to fulfill our study objectives. We identified several RTE international food that our respondents purchased at grocery stores. We find that the following factors significantly impacted consumers' purchasing behavior of RTE international food: authenticity, consumers' age, education, and gender.*

**Keywords:** ready-to-eat (RTE), international food, ethnic food, consumer behavior, food-at-home (FAH)

**JEL Code:** D12

### **1. Introduction**

The American food basket reflects a growing share of international food, tropical products, spices, and imported, consumer-ready processed food products (Brooks, Regmi & Jerardo, 2009). The Food Marketing Institute (FMI) reported that consumers in the USA, regardless of their ethnicity, favor international food and shop at international or ethnic food stores regularly (FMI, 2013). The FMI also reported that in 2012 (compared to 2011) there was a 7 percent rise in consumers shopping at an ethnic food store. Although the population of the United States has become more racially diverse over time, particularly in certain regions of the country, almost 73% of the total population in the USA is white (U.S. Census Bureau, 2019). The increased demand for international food by American consumers, thus, cannot be alone explained by increased diversity as the only driving force. According to the FMI, one of the factors affecting consumers' choice of food store selection, ethnic or otherwise, is a "good selection of ethnic food" (FMI, 2013). For such reasons, the category of ready-to-eat (RTE) meals and snacks is "on trend and delivers the consumer attributes for a fast-paced consumer lifestyle" (Baggs, 2017, p.1).<sup>1</sup>

The existing research on international food in the USA is mostly focused on the production and marketing of fresh ethnic vegetables, including greens and herbs, the health and nutrition

aspects of ethnic food, the cultural aspects of ethnic food, and behavioral changes of Asian immigrants in terms of their time use and activities related to eating and drinking (e.g., Govindasamy, et al, 2010; Hingley & Lindgreen, 2009; Yang, et al, 2015). A large gap exists in the relevant literature on pre-cooked international food despite the growing importance of international food in the United States because the existing body of literature does not address this growing trend in pre-cooked international food. One of the aims of this study is then, to address this gap in the literature by providing research-based information on American consumers' choice of pre-cooked international food and the factors that are driving such food choices, including the importance of non-price factors, such as taste, flavor, etc. Thus, the objectives of this study are: (i) to identify the most common pre-cooked international foods purchased by American consumers, and (ii) to identify the factors that are influencing the choice of various pre-cooked international food by American consumers. We also aim to provide practical marketing strategies that are likely to impact consumer demand for such food products.

We fulfill our research objectives using New Jersey, a state in the United States, as our study area because the state is one of the most ethnically diverse states in the country. According to the most recent Census, the total population in New Jersey has grown by 2% while Asian and Hispanic populations have grown by 15%, while the white population has seen a 4% decrease (Census Bureau, 2019). Using a self-administered questionnaire-based survey method, we sampled New Jersey residents and asked the sampled residents (i.e., respondents) about their choices for pre-cooked international food, their shopping behavior for such food, and their demographic and lifestyle characteristics. In addition to statistically measuring relationships among various consumer behavior constructs, such demand, satisfaction, demographics, etcetera, we used discrete choice modeling to assess a consumer behavior model. Our study identifies factors that impact consumers' current behavior and help us better understand their long-term behavior. Our model also allows specification of selected international food, for example, in terms of brand identification and flavor choices. Such results are very useful for the commercial sector interested in international food both in the USA and abroad (from an export perspective).

## **2. Previous Research**

The U.S. Census Bureau reported that out of an estimated 323.13 million people in the country in 2016, people of Hispanic or Latino race and Asians made up about 24% of the population, a rise of 2.5% from 2010 (<https://www.census.gov/quickfacts/>). The Census Bureau predicts that both Asian and Hispanic populations in the USA will at least double by 2050. In response to such a growing demand for international food, the traditional supermarkets in the U.S. responded by providing various international food selections, and the ethnic food stores<sup>2</sup> vastly expanded the food items they carry. The IBIS World report on ethnic supermarkets shows that the growth of this industry is driven by growth in the Asian and Hispanic population in the U.S. (IBIS World, 2013).

Cultural resonance and familiarity invariably play a role in consumer behavior regarding purchasing international food. The amount of cultural exposure and/or cultural loyalty a consumer has is shown to affect their willingness to buy. In fact, according to data on Korean food (grocery or Food at Home or FAH), consumers of a non-Korean background were shown to have increased their purchasing of ethnic products following exposure to Korean pop-culture (Jang & Kim, 2015). However, it is important to note that the decision-making process is not unidimensional for the consumer and more cultural familiarity does not mean a higher willingness to purchase, rather a more complex and multifaceted decision-making process overall (Barrena, Garcia, & Sanchez, 2015). Some consumers may shop at ethnic grocery stores due to the social environment they offer while others may prefer to base their willingness

to purchase more heavily on cultural ties; Wang and Lo (200&) have observed such ties among Chinese immigrants.

Examples of RTE international food meals and snacks in the USA include such Asian favorites as *matar paneer* (peas and cheese curry), *vegetable pulao*, *chicken tikka masala*, *samosas*, *pakoras* (fritters), chicken *pad Thai*, spring roll, and teriyaki pork and rice, Mexican favorites include carnitas and rice, and chili verde. Currently, our craving for authentic “home cooked” foods that reflect our cultural and ethnic identity is being increasingly satisfied by food retailers - restaurants and ethnic grocery stores. These retailers of ethnic food appeal to consumers by offering familiarity and authenticity in foods they sell, and for those who do not share the ethnicity of a dining or grocery establishment, the experience “allows them to explore the novelty of a different and maybe even unfamiliar culinary adventure” (Almerico, 2014, p.4). Mintel (2014) reported that among consumers who prepared ethnic food at home, almost half of them prepared it from a packaged product or meal kit bought from a store. Mintel (2014) also reported that 92% of the consumers surveyed had eaten some form of ethnic food. Such interest and demand for non-restaurant or food at home (FAH) ethnic food shows tremendous potential for producers of RTE ethnic foods.

Baggs (2017) commented that modern technology, such as vacuum-sealed packaging (VSP), High-Pressure Pasteurization (HPP), vacuum-sealed refrigerated packaging, etc., have replaced the days of microwavable TV dinners. With consumers demanding more convenience, but still nutritious, flavorful solutions that are easy to clean up, Baggs expects to see better quality products through technology. He predicts that the emphasis on authenticity, locally produced, full flavor, healthy food will inspire RTE product developers in the years to come. Processors of RTE ethnic or international food are taking advantage of the improved food processing technology and bringing authentic and flavorful RTE ethnic foods to the final consumer.

According to the literature, consumers' behavior toward pre-cooked foods differed between segments and such segmentation is based on food-related lifestyles (Bae, Joo, Chae, 2010). Food-related lifestyle as defined refers to groups of consumers based on their attitudes toward the purchase, preparation, consumption, and quality aspects like nutritional facts and taste (Scholderer, et. al., 2004). Inglis, Ball, & Crawford (2008) have shown that there is a direct relationship between income and quality of food purchased, i.e., as income goes up, consumers prefer better quality food or become more quality conscious. Our research expands on these segments and analyzes even further into a product's other important factors such as flavors and brands. We also evaluate factors such as product availability, perceived healthiness, authenticity, food safety, country of origin, and demographic factors, including income and education, to determine whether there is a connection between these factors and a consumer's likelihood to buy pre-cooked international food. Our effort here is reflects work by Paul and Rana (2010) who examined consumer willingness to buy organic food. We also inquire if there is a relationship between consumers' current purchasing behavior and factors like taste, quality, flavor, authenticity, nutritional content, etc.

Accessibility to ethnic grocery stores is an important issue for consumers because that has potential impact on shopper's frequency of purchase as well as their willingness to purchase. Wang and Lo (2007) have found that the less accessible a store is, the less likely consumers are willing to go there and make a purchase. In this study, therefore, we examine this accessibility issue in terms of distance consumers need to travel to go to their primary grocer.

Earlier studies have shown that in addition to their knowledge, attitude, and current behavior, consumers' intention to purchase food is impacted by their demographic factors and the availability of such food (Paul and Rana, 2012). Focusing on preferences for regional food by Malaysian consumers, Ting, Tan, and John (2017) found that consumers' intention to purchase food was impacted by convenience (easy availability), sensory appeal, ingredients (natural vs. artificial), price, and familiarity with such food. The research model of this study,

therefore, also focuses on similar factors that may influence American consumers' consumption behavior toward international food. Unlike most existing studies that focus on purchasing intentions, we focus on American consumers' current purchasing behavior of international food because consumers' purchase and consumption behaviors often are repetitive which leads consumers to develop habits (Ji & Wood, 2007).

The FAH retail market for pre-cooked RTE ethnic or international food in the U.S. was over \$10.8 billion in 2012 (Mintel 2014) and has been gradually growing since. Although some well-known global food companies are leading this sector in terms of market share, over 50% of this market is controlled by smaller or less known companies (Marketline, 2015). Considering the rising demand for RTE international foods in the USA and a lack of dominant players in the market, there is significant market potential for entrepreneurs to operate in that market. Mintel (2014) predicted that shifting US demographics, including growing numbers of non-White and Hispanic consumers, and expanded consumer interest in flavor variety would continue to benefit the RTE international food category in the years to come.

### **3. Data and Methods**

#### **3.1 Survey Data Collection**

A consumer survey was designed with the primary goal of obtaining the information necessary to fulfill the research objectives. We targeted the primary food shopper of a household (filter question was: "Are you the primary shopper of food in your household?"; the survey was terminated if the answer was "no."). In addition to obtaining information on the usual demographic variables, the survey solicited information from respondents on their lifestyle, their current pre-cooked ethnic or international food purchasing behavior, their preferences for flavor, taste, brand familiarity, authenticity, prices, country of origin, and willingness to pay a brand premium, as well as distance travelled to purchase pre-cooked international food. The draft survey was pre-tested in selected Asian and Latino grocery stores in and around New Brunswick, New Jersey, and necessary adjustments were made to improve the flow of the survey as well as to remove ambiguity in questions.

The sample of consumers came from New Jersey, one of the most ethnically diverse states in the U.S. A data collection agency, Qualtrics (<https://www.qualtrics.com>), which is an online market research sample aggregator (as well as provider of Qualtrics, an online survey technology platform), was hired to collect the primary data using the self-administered questionnaire-based survey method. Survey data was collected electronically by Qualtrics. According to Qualtrics, their samples came from actively managed market research panels. Qualtrics maintains the "highest quality of sample and to exclude duplications and ensure validity, Qualtrics checks every IP address and uses a sophisticated digital fingerprinting technology" (p3, Qualtrics, 2019). Qualtrics have respondents randomly selected for surveys where respondents are highly likely to qualify; for example, for our survey, a respondent was qualified if he/she was the primary shopper for his/her household. Qualtrics sends "potential respondents an email invitation informing them that the survey is for research purposes only, how long the survey is expected to take, and what incentives are available." (p.5, Qualtrics). To avoid self-selection bias, Qualtrics does not provide specific details about the content of the survey (p.5, Qualtrics).

Online data collection by Qualtrics was carried out over the months of April and May 2018, and a sample of 262 primary shoppers (N=262) was obtained; the sampling error was  $\pm 6.05\%$ .<sup>3</sup> According to Qualtrics, the average response rate was 20%. Hiring data collection agencies, such as Qualtrics, is expensive and cost was a limiting factor regarding how many samples we were able to collect.

### 3.2 Respondent Characteristics

We asked the respondents about their age, their race/ethnicity, their education level, their marital status, their employment status, their household size, their household annual income, and their gender. Based on the responses from the 262 individuals that responded to our survey, we are able to provide the following description of our sample: the mean age category of the respondents was between 35-54 years; they were mostly white (60.3%; including both Hispanic and non-Hispanic); slightly over 51% of the respondents had at least a bachelors' degree; slightly over 44% were married; slightly over 41% had a full-time job; most households had between 2-3 persons; the average, as well as the median annual household income of the respondents, were between \$50,000-\$74,999; and most of the respondents (over 71%) were female. According to the U.S. Census Bureau (2019) and the Census Reporter (2019), the median age of New Jersey residents was 40 years, majority of the population was white (72%; including both Hispanic and non-Hispanic), 41% had a bachelor's degree, 52% were married, slightly over 65% of the civilian population were in the labor force, persons per household was 2.74, percentage of female in the population was slightly over 51%, and the median household income was \$76,475. Comparing our sample characteristics data to those of the U.S. Census data for New Jersey, we conclude that we have a representative sample for New Jersey.

### 3.3 Conceptual Model and Statistical Analysis

As discussed earlier, the demand for pre-cooked ethnic or international food is rapidly growing in America because of the growth in the ethnic population in the country as well as more and more non-ethnic consumers trying out ethnic food. Increased knowledge and information about such food is probably aiding the rise in the demand among the non-ethnic population. One of the goals of this study is to examine the choices of pre-cooked international foods by American consumers; to accomplish that we use survey respondents' knowledge about pre-cooked international food and their preferences for such food and create a consumer profile. We use descriptive statistics to examine individual as well as group behavior of consumers with similar characteristics.

Another objective of this study is to determine the factors that are driving American consumers' choice of various types of pre-cooked international food. The aim here is to understand the scope of the market for such food by examining factors that drive demand for such food. We propose the following hypothesis:

**Hypothesis:** *The purchase of pre-cooked international food is influenced by consumers' preferences for taste, quality, flavor, authenticity, brand preference, and price; the distance consumers drive to purchase such food and their demographic characteristics.*

This hypothesis gives us an opportunity to examine the impact of several factors on consumer demand for pre-cooked international food. Given we have information on consumers' current purchasing behavior, we hypothesize that food-centric factors, such as taste, quality, flavors, authenticity, price, etc., do influence consumers' decision to buy pre-cooked international food but we are unsure whether these factors have a positive impact or not. While we are unsure of how these non-price factors impact consumers' current shopping behavior, we expect the price of pre-cooked international food to have a negative impact on consumers' purchasing behavior. Traveling distance negatively impact consumers' purchasing behavior because it adds cost (transaction cost) to the exchange. Therefore, we hypothesize that the longer the distance consumers of pre-cooked international food need to travel in order to purchase such food, the less likely they are going to purchase such food.

Past studies on consumer behavior toward food have shown that in addition to consumers' knowledge about food and their current food purchasing behavior, their demographic factors and the availability of such food impact consumers' intention to purchase (Paul and Rana, 2012). Here we expect to reject the null that consumers' demographic factors have no impact on their pre-cooked international food purchasing behavior.

Our model builds on the foundations of past studies and enhances our knowledge about consumer behavior toward pre-cooked international food. The empirical model we propose to estimate is as follows:  $Y = a + b_i X_i$ ,  $i = 1, 2, \dots, 15$ , where  $Y$  = purchase of pre-cooked international food by consumers and  $X_i$  are factors hypothesized to impact consumers' purchase of RTE international food. The alternate hypothesis is that none of these factors, either individually (local null,  $\beta=0$ ) or in aggregate (global null,  $\beta=0$ ), influence consumers' decision to purchase processed or pre-cooked international food. The factors hypothesized to impact  $Y$  are as follows: importance of price to consumers ( $X_1 = \text{PRICE}$ ), distance consumers travel to purchase pre-cooked international food ( $X_2 = \text{DISTANCE}$ ), and the importance of following non-price factors to consumers: quality ( $=X_3$  or  $\text{QUALITY}$ ), taste ( $=X_4$  or  $\text{TASTE}$ ), flavor ( $=X_5$  or  $\text{FLAVOR}$ ), food safety ( $=X_6$  or  $\text{FOODSAFETY}$ ), authenticity ( $=X_7$  or  $\text{AUTHENTICITY}$ ), and brand familiarity ( $=X_8$  or  $\text{BRAND}$ ). In addition, we expect that consumers' demographic characteristics, such as age ( $=X_9$ ,  $\text{AGE}$ ), ethnicity ( $=X_{10}$ ,  $\text{ETHNICITY}$ ), education ( $=X_{11}$ ,  $\text{EDUCATION}$ ), employment ( $=X_{12}$ ,  $\text{EMPLOYMENT}$ ), household size ( $=X_{13}$ ,  $\text{HHSIZE}$ ), income ( $=X_{14}$ ,  $\text{INCOME}$ ), and gender ( $=X_{15}$ ,  $\text{GENDER}$ ) will impact their decision to purchase pre-cooked international food at the grocery store.

We propose a binary logistic model where the probability of an event (respondents purchased at least one pre-cooked international food in the past 60 days, then  $\text{PURCHASE}=1$ ; otherwise= $0$ ) by fitting data to a logit function. The proposed discrete choice (logit) model takes the following form:

$$\text{logit}(p_i) = \log\left(\frac{p_i}{1-p_i}\right) = \beta_0 + \beta' X, \quad (1)$$

where  $p$  is the probability of an event occurring ( $\text{PURCHASE}=1$ ) in the population,  $\beta_0$  is the intercept parameter,  $\beta$  ( $\beta_1 \dots \dots \beta_k$ )' is the vector of  $k$  slope parameters, and  $\mathbf{X}$  is a vector of explanatory variables presented earlier in the structural model.

The estimated model takes the following form:

$$\text{Logit}(\text{PURCHASE}) = \beta_0 + \beta_1 \text{PRICE} + \beta_2 \text{DISTANCE} + \beta_3 \text{QUALITY} + \beta_4 \text{TASTE} + \beta_5 \text{FLAVOR} + \beta_6 \text{FOODSAFETY} + \beta_7 \text{AUTHENTICITY} + \beta_8 \text{BRAND} + \beta_9 \text{AGE} + \beta_{10} \text{ETHNICITY} + \beta_{11} \text{EDU} + \beta_{12} \text{EMPLOYMENT} + \beta_{13} \text{HHSIZE} + \beta_{14} \text{INCOME} + \beta_{15} \text{GENDER} + \varepsilon, \quad (2)$$

where the dependent variable,  $\text{PURCHASE} = 1$  or YES, if consumers bought RTE international food and 0 (or NO) if otherwise. Descriptive statistics (Figure 1) show that the most preferred pre-cooked international cuisine was either Mexican or Chinese; we, therefore, assigned  $\text{PURCHASE}=1$  if the respondent bought either Mexican or Chinese RTE food from grocery stores and 0 (or NO) otherwise.

As mentioned above, we expect both  $\text{PRICE}$  and  $\text{DISTANCE}$  to have a negative and statistically significant impact on  $\text{PURCHASE}$ ; we are, however, unsure of the direction of the impact of the non-price factors, such as  $\text{BRAND}$ ,  $\text{TASTE}$ , etc. as well as those of the demographic factors, such as  $\text{AGE}$ ,  $\text{INCOME}$ , etc. We use SAS 9.4 to estimate equation (2) as a binary logit model. Table 1 shows the variable definitions and descriptions.

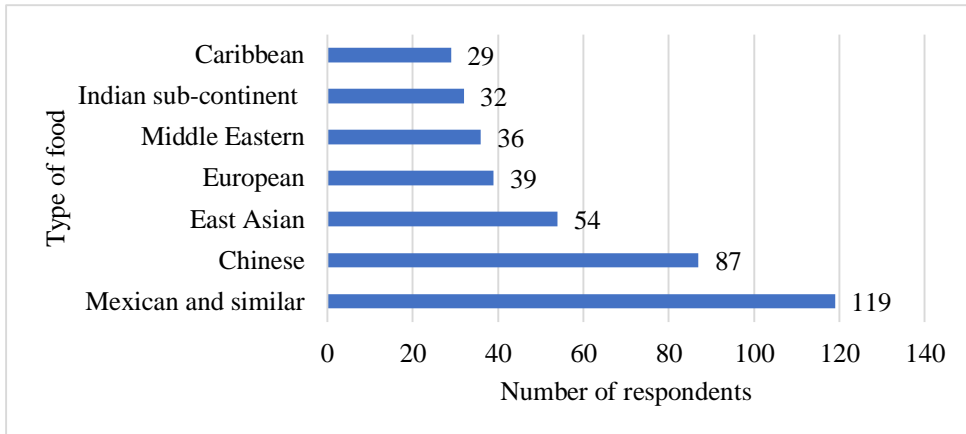
**Table1. Variables Definitions and Descriptions**

Category	Variable	Variable definition	Unit of measurement
Dependent variable	<i>PURCHASE</i>	Consumer's purchase of either Mexican type or Chinese type RTE food from grocery stores	YES=1; NO=0
Price factors	<i>PRICE</i>	Importance of price to the consumer	Not important at all (=1) to very important (=5)
	<i>DISTANCE</i>	The distance consumers travel to purchase pre-cooked international food	Miles
Non-price factors	<i>QUALITY</i>	Importance of quality to the consumer	Not important at all (=1) to very important (=5)
	<i>TASTE</i>	Importance of taste to the consumer	Not important at all (=1) to very important (=5)
	<i>FLAVOR</i>	Importance of flavor to the consumer	Not important at all (=1) to very important (=5)
	<i>FOODSAFETY</i>	Importance of food safety to the consumer	Not important at all (=1) to very important (=5)
	<i>AUTHENTICITY</i>	Importance of ethnic authenticity to the consumer	Not important at all (=1) to very important (=5)
	<i>BRAND</i>	Importance of brand to the consumer	Not important at all (=1) to very important (=5)
Demographic factors	<i>AGE</i>	Age of the respondent	Years
	<i>ETHNICITY</i>	Ethnicity of the respondent	White (non-Hispanic), White (Hispanic), African-American, Asian (South Asian), Asian (Chinese), Asian (rest).
	<i>EDUCATION</i>	Highest level of education attained by the respondent	High school or equivalent, Some college but no degree, Assoc. degree, College degree, Some grad school but no degree, Grad school degree
	<i>EMPLOYMENT</i>	Employment status of the respondent	Full-time, Part-time, Self-employed, Unemployed, Retired and/or unable to work
	<i>HHSIZE</i>	Number of people living in the respondents' household	Count
	<i>INCOME</i>	Respondents' annual household income	<\$25k, \$25-\$49.9k, \$50-\$74.99k, \$75-\$99.9k, \$100-\$149.9k, >\$150k
	<i>GENDER</i>	Respondents' gender	1=male; 0=female

## 4. Results

### 4.1 What Pre-Cooked International Food Consumers Typically Purchase?

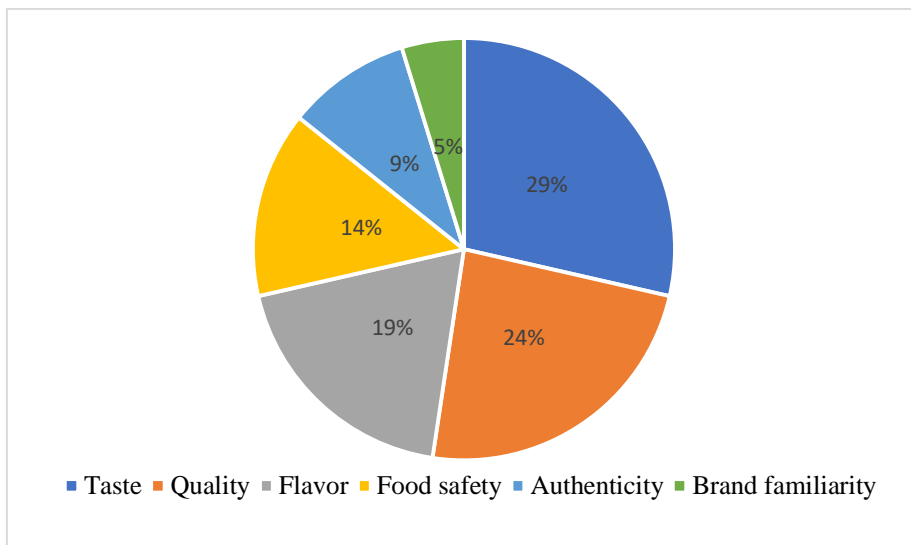
The respondents were asked to identify what are different types of pre-cooked international food they typically purchase from the grocery store and the results show (Figure 1) that the most popular pre-cooked international food was Mexican or similar type of food (that is, food from Central and South America). Respondents in our sample spent between \$200-\$300 per month on groceries, including pre-cooked international food; about \$50 of which was spent on pre-cooked international food.



**Figure 1. Pre-cooked International Foods by Popularity**

When it came to the selection of grocery stores (either ethnic or traditional), the most important selection criteria for the respondents in our sample were quality of products that a store carried (as identified by 110 out of 262 or almost 42%) followed a distant second by price (18.7%). In terms of miles driven to their primary grocery stores (ethnic or traditional), 45.41% of the respondents drove less than 5 miles, which shows that store accessibility was not a problem for the respondents.

Regarding the non-price factors that were important to the respondents when purchasing pre-cooked international food, they ranked taste as number one factor when purchasing a pre-cooked international food (Figure 2). The mean rating for ‘taste’ was 4.66 out of 5, followed by food safety (4.65/5), quality (4.61/5), flavor (4.57/5), authenticity (4.10/5), and brand familiarity as the least important factor (3.68/5). Thus, regardless of the type of cuisine, the following non-price factors were important for all consumers in descending order: taste (most important), quality, flavor, food safety, authenticity, and brand familiarity (least important).

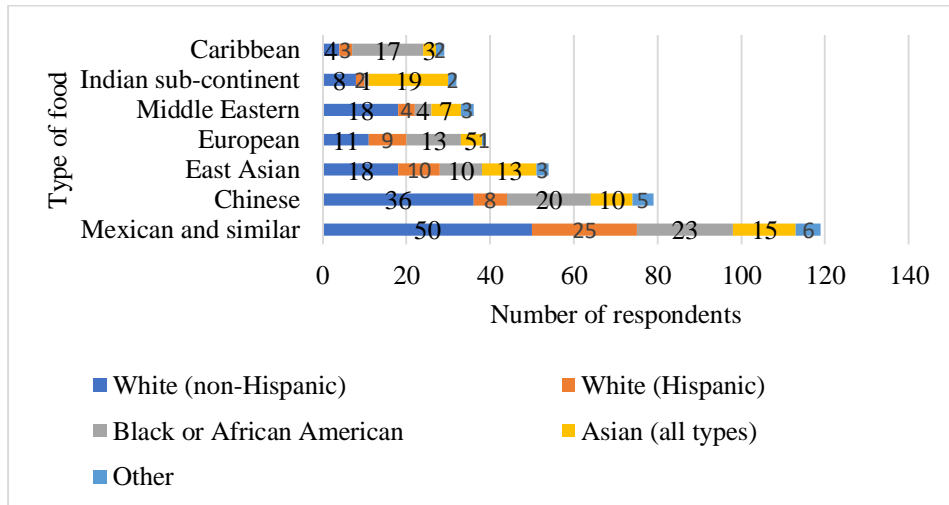


**Figure 2. Key Non-Price Factors Important to Consumers**



When asked what flavors they seek out when they purchase pre-cooked international food, our respondents expressed that they preferred savory as the most sought after flavor (97 out of 262 or 37% respondents selected that their number one choice), followed by spicy hot (30.5%), meaty (23.7%), herbal (22.9%), sweet and sour blend (19.5%), sweet and spicy hot blend (19.5%), sweet (18.3%), smoked (15.6%), and lastly fruity (11.5%); other flavors like sour, bitter, and superhot (super spicy) were not preferred by the respondents.

As we discussed earlier, the demand for ethnic or international food in America cuts across cultures and ethnicity. With that fact in mind, we wanted to know demand for pre-cooked international food by ethnicity in our sample. Figure 3 shows that preferences existed for certain types of food by various ethnic groups.



**Figure 3. Demand for Pre-Cooked International Food by Race/Ethnicity**

Figure 3 also shows that those consumers who identified themselves as “white” (both Hispanic and non-Hispanic) preferred more Mexican style food compared to other ethnic groups. Similarly, more Asian (self-identified) consumers bought Indian type food compared to other ethnic groups, and more Black or African American (self-identified) consumers bought Caribbean style food compared to other ethnic groups.

#### 4.2 Regression Analysis

The focus of this section is on identifying the determinants of American consumers’ decision to purchase the top two international RTE food choices, i.e., Mexican type or Chinese type of RTE food at grocery stores. Given the dependent variable took the values of either 1 (YES, or if consumers purchased either Mexican type or Chinese type pre-cooked international food) or 0 (NO, otherwise), we used a binary logit model to implement the proposed model (Equation 2) to further analyze the relationship between consumers’ decision to purchase either of these two types of pre-cooked food and various price, non-price, and demographic factors. The results of the econometric estimation of the model parameters are presented in Table 2.

**Table 2. Estimated Logit Model Explaining the Purchase of RTE International Food by Consumers (N=254)**

Variables	Estimated coefficient	Std. Error.	p-value	Marginal effect (absolute value at mean)
Intercept	1.7941	1.3541	0.1852	
<b>Price Factors:</b>				
Price	-0.1068	0.1530	0.4852	0.0214
Distance	-0.0990	0.1813	0.5850	0.0195
<b>Non-price Factors:</b>				
Quality	0.0192	0.2536	0.9396	0.0020
Taste	0.4954	0.3655	0.1753	0.1027
Flavor	0.1436	0.3170	0.6505	0.0274
Food safety	0.0154	0.2863	0.9572	0.0049
Authenticity	-0.4896**	0.1930	0.0112	0.0965
Brand familiarity	0.0137	0.1426	0.9236	0.0031
<b>Demographic Factors:</b>				
Age	-0.4352***	0.1127	0.0001	0.0369
Ethnicity	0.0385	0.1222	0.7528	0.0001
Education	-0.1833*	0.0972	0.0594	0.0358
Employment	-0.1058	0.1156	0.3600	0.0147
HH size	0.0289	0.1296	0.8233	0.0074
Income	0.0713	0.1218	0.5583	0.0125
Gender	0.8869**	0.3484	0.0109	0.1751
<b>Model performance measures:</b>				
<b>Likelihood Ratio:</b> 44.4348 (p-value <0.0001)				
<b>Percent concordant:</b> 73.8%				

**Note:** (i) Dependent variable, PURCHASE = 1, if consumers bought either Mexican or Chinese RTE food from grocery stores, 0 otherwise; (ii) \*\*\*=99% level of significance, \*\*=95% level of significance, and \*=90% level of significance.

The total number of observations used in the analysis was 254 out of which 152 were YES (=1) and 102 were NO (=0). While the likelihood statistics rejects the hypothesis that the intercept only model is better than the model with regressors (explanatory variables), the concordance value (=73.8%) shows that the ability of the proposed model (Equation 2) to correctly explain consumers' purchasing behavior is moderate.

Among all the price, non-price, and demographic factors, only the following factors had a statistically significant impact on consumers' decision to purchase either Mexican or Chinese RTE food from grocery stores: authenticity of the international RTE food, consumers' age, education, and gender. To our surprise, none of the price factors and most non-price factors were statistically significant. The coefficient of the authenticity variable is negative showing that as consumers' put more importance on authenticity of the RTE international food they buy, their purchase of RTE international food from grocery stores declines. For example, for every unit increase in the importance of authenticity, say from "not important at all (=1)" to "somewhat important (=2)," consumers' willingness to purchase RTE Mexican or Chinese food goes down by almost 10%. This implies that when looking for authentic Mexican or Chinese pre-cooked food, consumers are typically not relying on grocery stores to supply such food, they are probably heading to restaurants that serve such food.

Consumers' age significantly but negatively impacted their decision to purchase RTE Mexican or Chinese food at the grocery store. Our results show that as consumers' age increase, they purchase less and less of RTE Mexican or Chinese food. Results in Table 2 show

that as consumers' move from one age category (say 25-34 yrs.) to the next higher age category (35-44 yrs.), then their likelihood of purchasing RTE Mexican or Chinese food decreases by about 4%. Typically, both Mexican and Chinese type of food are spicy, at least by American standards, so when consumers get older, they try to avoid eating such spicy food as such food may give consumers indigestion and heart burn, among other ailments. We posit that our results reflect such a change in food consumption behavior among consumers.

We noticed a very similar outcome with respect to education of the respondents. We find that as consumers' education level increases, their likelihood of purchasing either Mexican or Chinese RTE food goes down by 3.58%. Consumers are aware of the health implications of processed food with higher level of sodium or other preservatives, particularly when such food is RTE food and imported from countries like Mexico and China (or India). Therefore, it is not surprising that consumers with higher levels of education are more likely to avoid purchasing RTE Mexican or Chinese food from the grocery store.

Commonly it is the female head of a household who shops for groceries for her family. While both male and female shoppers purchase RTE Mexican or Chinese food from grocery stores, the likelihood of such food getting purchased declines by 17.51% if the shopper is female. We can presume that when female in the household goes for grocery shopping, she tries to provide a balanced meal to her family and tries to avoid such pre-cooked international foods which typically contain high sodium and other preservatives.

Besides these four factors discussed above, no other price, non-price, or demographic factors were found to be (statistically) significantly impacting consumers' decision to purchase either Mexican or Chinese type RTE food. For example, product price was not a statistically significant factor, but the sign of coefficient shows that as consumers are less likely to purchase RTE international food as prices of such food rises. In addition, some of the typical demographic factors that we expect to influence consumers' food purchasing behavior, such as income, employment, or household size were not statistically significant.

## **5. Conclusions**

There is a growing demand for international food in the United States. Both traditional supermarkets and specialty food stores are increasingly providing various international food selections. Our aim here was to examine American consumers' purchasing behavior of ready-to-eat (RTE) pre-cooked international food at grocery stores (i.e., food at home or FAH). More specifically, we wanted to identify the most commonly bought RTE international food by American consumers. In addition, we wanted to find out what factors, both price and non-price factors as well as consumers' demographic characteristics, influenced consumers' decision to purchase RTE international food. Using an online survey (implemented by a professional data collection firm), consumer data was collected from 262 individuals who were primary food shoppers for their households in New Jersey, a state well-known for its ethnic diversity in the northeast United States.

Based on information collected from the survey respondents, we identified several major food types by their popularity. The most popular or most commonly bought pre-cooked international food was Mexican and similar type of food (includes South American) followed by Chinese food, then East Asian food (Japanese, Korean, Thai, etc.), then European food (Greek, Spanish, France, etc.), then Middle Eastern food, then Indian food, and lastly Caribbean food. We found that regarding purchasing of pre-cooked international food in grocery stores, the most important non-price factors for consumers were the taste of such food, followed by such food being safe, then their quality, and then flavor of such food. Food processors and retailers, thus, should give priority to these four non-price factors in their respective value propositions to attract and retain customers.

We found that those consumers who identified themselves as white (non-Hispanic and Hispanic) purchased various types of RTE international food identified in this study; however, there were some differences in their purchasing choices. For example, when purchasing Indian food, it was evident that such food was typically bought by Asians; similarly, Caribbean food was typically bought by Black/African-Americans. Thus, to increase the demand for various types of pre-cooked international food, ethnic food marketers (processors and retailers) may need to target ethnic groups beyond their normal target consumers, e.g., retailers of RTE Indian food could expand their market by promoting their stores among non-Asian Americans, or retailers of Caribbean food need to promote their stores among non-Blacks/African-Americans, and so on. Reaching out to such non-traditional customers may expand the consumer base of the retailers of various types of RTE international food identified here.

The discrete choice (logit) model used to explain consumers' decision to purchase of one of the top two RTE international food choices (either Mexican or Chinese) shows that authenticity of such significantly impacted consumers' purchasing behavior. Therefore, producers of such food need to adhere to the authentic nature of such food to satisfy consumer demand. We also find that those consumers who are older or who have higher levels of education or who are female tend to purchase such food less. Considering young Americans (20-35 yrs.) are known for their willingness to try out international food more than their parental generations, food marketers may want to target these young Americans, particularly the young males.

A drawback of the study was its small sample size which may have led to a lack of statistical significance in most of the explanatory variables in the logit model. This study was limited to only one state (New Jersey) and may not be representative of other states in the country which do not have similar population characteristics. Thus, increasing both the study areas and sample size would be beneficial for such studies in future.

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<sup>1</sup> (i) RTE meals and snacks (aka prepared meals) are intended to be consumed as is and require no preparation. These products are often sold as hot, ready-to-eat dishes; as room temperature, shelf-stable products; or as refrigerated or frozen food products (may require heat before consuming); (ii) following existing literature, we use the words “category,” “sector,” “market” interchangeably.

<sup>2</sup> Such small, specialized ethnic grocery stores or supermarkets (as some of them call themselves) typically gear their offerings to a certain ethnic community in their locale (e.g., South Asian, Chinese, Latino).

<sup>3</sup> Sample error was calculated using the following formula (Hair, et al, 2017):  $e = Z \sqrt{(pq/n)}$ , where e= sample error, Z=1.96 or 95% Confidence Interval (CI), n=262, and p=50%, q=1-p=50% (maximum variability assumed).