RETHINKING DEMAND FOR A VARIED DIET: THE ROLE OF CONVENIENCE FOODS IN DIVERSITY INDICES

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ABSTRACT

The objective of this study is to develop a group based food diversity index that classifies convenience foods based on the basic food items they contain. This group based food diversity index is then applied to examine the relationship between the demand for food diversity, food expenditures and household characteristics. Further, findings using the new group based food diversity measure are compared to those obtained using a product code based food diversity index. Results are forthcoming.

I. INTRODUCTION

In addition to meeting one's daily minimum caloric intake requirements, many individuals seek to consume a varied diet. According to the *2015 US Dietary Guidelines for Americans (DGA)*, food variety is a key component of maintaining a healthy diet. In the *DGA,* variety across food groups and food subgroups is encouraged, as different foods contain different types and levels of essential vitamins and minerals (US 2015). Murphy et al. (2006) and Foote et al's (2004) findings support this notion that diet diversity is positively associated with nutritional adequacy. Further, food diversity is cited as helping maintain a healthy body weight and reducing the risk of numerous diseases, including heart disease, stroke, cancer and diabetes (British 2007).

This link between food diversity and health, has served as motivation for several economic studies on the demand for food diversity (Thiele & Weiss 2003, Jekanowski & Binkley 2000, Lee & Brown 1989 Shonkwiler et al. 1987, Lee 1987). In these studies, food diversity is measured using a count or distributional measure (i.e. entropy index, Simpson index, etc.) of consumers' purchases in different food categories. These food categories are designated based on food product codes. This approach to measuring food diversity conflicts with the *DGA*'s definition of food diversity, in which diversity refers to variety across food groups as opposed to product codes (US 2015).

Central to the distinction between product code and food group classification schemes are convenience foods. Convenience foods refer to foods with preparation or processing added by a manufacturer for the express purpose of providing time-savings to consumers (Lee & Lin 2013). Under a product code scheme, convenience foods are classified based on their processed form, whereas a food group scheme classifies them based on the basic food items they contain (Murphy et al. 2006). For example, a product code scheme classifies canned, frozen and fresh green beans as separate food categories. Under a food group scheme, each of these products are included in a single category for green beans.

In a 2006 study, Murphy et al. find evidence that food diversity indices calculated using product codes to designate food categories understate the link between nutritional adequacy and food diversity. Given that nutritional adequacy is not affected by the processed form of foods, but by the nutrients contained in the base food items, it is imperative that studies estimating the demand for food diversity classify convenience foods based on the basic food items they contain. Properly classifying convenience foods in food diversity indices is of particular importance given their growing presence in the American diet. Totaling $362 million in 2015, sales of convenience foods in the US increased nearly 12% from 2010-2015 (Euromonitor 2015).

The objective of this study is to develop a group based food diversity index that classifies convenience foods based on the basic food items they contain. This group based food diversity index is then applied to examine the relationship between the demand for food diversity, food expenditures and household characteristics. Further, findings using the new group based food diversity measure will be compared to those obtained using a product code based food diversity index. The remainder of this paper is organized into six sections. Sections 2 and 3 provide an overview of the economic literature on the demand for food diversity and the theoretical background. In Section 4, a group based food diversity index is developed. Section 5 describes the data and empirical model, while Sections 6 and 7 detail the results and implications.

II. LITERATURE REVIEW

Consumer demand for diversity in food consumption has been widely examined in the economic literature. Foundational studies by Theil & Finke (1983) and Jackson (1984) examine whether the demand for diversity in consumption varies with income. Both studies consider the consumption of broad commodity groups, including food. Jackson (1984) develops a hierarchical demand system in which the consumption set of goods purchased changes with income, while Theil & Finke (1983) measure consumption diversity using the Herfindahl-Hirschman (HHI) and entropy indices. Both studies find evidence that the demand for diversity in consumption increases with income.

Focusing specifically on food diversity, Lee (1987) and Shonkwiler et al. (1987) sought to better understand the relationship between the demand for food diversity, expenditures on food and household characteristics. Both studies employ a count approach, which measures the number of different food items consumed at home. Mathematically, the count measure of food diversity is given by the following:

$$C = \sum_{i=1}^{n} c_i \;\; for\; i = 1, \dots, n, \tag{1}$$

where c_i is a dummy variable indicating whether an item from food category i was purchased. Lee (1987) employ this measure of food diversity in a negative binomial model, while Shonkwiler et al. (1987) develop a systems approach to modeling the demand for food diversity based on Household Production Theory. Both studies conclude that increased food expenditures are associated with increased demand for food diversity. Lee (1987) further finds a positive relationship between households size and food diversity, while Shonkwiler et al. (1987) find evidence of complementarity in the demand for diversity among food categories.

Moving away from the count measures used in prior studies, Lee & Brown (1989), Jekanowski & Binkley (2000) and Thiele & Weiss (2003) measured food diversity based on the distribution of expenditure shares across food categories. Three types of distributional measures of food diversity were utilized in these studies: (1) the Simpson index (2) the entropy index and (3) a cumulative share measure (CR75). The Simpson (or Berry) index is defined as follows:

$$S = 1 - \sum_{i=1}^{n} w_i^2, \tag{2}$$

where w_i represents the budget share for good I in the consumption bundle. The range of possible values for the Simpson index is given by $\left[0,1-\frac{1}{n}\right]$, thus the maximum level of food diversity is attained when budget shares are equal across all food groups (Theil & Finke 1983). An alternative distributional measure of food diversity, the entropy index, has greater sensitivity to the number of minor commodities in the consumption basket (Thiele & Weiss 2003). Mathematically, the entropy index is defined as follows:

$$E = -\sum_{i=1}^{n} w_i log w_i, \tag{3}$$

where w_i again represents the budget share for good i in the consumption bundle. The entropy index is a direct measure of food diversity, with values ranging from $[0, \log(n)]$. A third distributional measure of food variety, the CR75, is utilized by Jekanowski & Binkley (2000). The CR75 is a cumulative share measure which sums the top 75 food group expenditure shares.

All three studies confirm prior studies' findings that food expenditures and income are positively related to the demand for a diverse diet. Lee and Brown (1989) further find that the demand for a diverse diet is positively related to receiving food stamps, as well as the number of household members from different age and sex groups. Jekanowski & Binkley (2000) find evidence of a positive relationship between racial diversity and food diversity, while Thiele and Weiss (2003) find that the demand for food diversity is greater among single male households and households with children.

III. THEORETICAL BACKGROUND

In this study, the demand for food diversity is modeled following Lee & Brown (1989). Grounded in consumer demand theory, Lee & Brown's (1989) approach begins with the traditional consumer utility maximization problem:

$$\begin{aligned} &\max_{\boldsymbol{q}} U(\boldsymbol{q}, \boldsymbol{z}) \\ &s.t. \;\; \boldsymbol{p} \cdot \boldsymbol{q} \leq m \\ &\qquad \boldsymbol{q} \geq 0, \end{aligned} \tag{4}$$

where $\boldsymbol{q}$ is a vector of the quantity demanded of n commodity categories, $\boldsymbol{p}$ is a vector of prices for the n commodities, m represents total expenditures on all commodities and $\boldsymbol{z}$ is a vector of demographic variables. Solving this optimization problem yields the following set of commodity demand equations:

$$q_i = g_i(\boldsymbol{p}, m, \boldsymbol{z}). \tag{5}$$

Assuming weak separability, the quantity demanded for food can be considered separately from that of other commodity categories. Mathematically, the demand for food category i is given by:

$$q_{Fi} = g_{Fi}(\boldsymbol{p_F}, m_F, \boldsymbol{z}) \tag{6}$$

where q_{Fi} denotes the quantity demanded of food from category i, $\boldsymbol{p_F}$ is a vector of prices for the food categories and m_F represents total expenditures on food. Expenditure shares for each food category, W_{Fi}, can then be calculated as follows:

$$W_{Fi} = \frac{p_{Fi} \cdot q_{Fi}}{m_F} = h_{Fi}(\boldsymbol{p_F}, m_F, \boldsymbol{z}). \tag{7}$$

Thus, a distributional measure of food diversity can be defined as follows:

$$D = d(W_{Fi}) = d\big(h_{Fi}(\boldsymbol{p_F}, m_F, \boldsymbol{z})\big) = f(\boldsymbol{p_F}, m_F, \boldsymbol{z}), \tag{8}$$

where D is a measure for food diversity, typically the entropy or Simpson indices (Lee & Brown 1989, Jekanowski & Binkley 2000, and Thiele & Weiss 2003).

IV. AN ALTERNATIVE GROUP BASED FOOD DIVERSITY INDEX

In calculating the diversity measure defined in Equation 8, all past studies on the demand for food diversity have used product codes to designate the *i* food categories. Product codes refer to classification systems created by food retailers, surveys and governmental agencies. Examples of product codes used by past studies on food diversity are shown in Table 1 and include the National Food Consumption Survey 15-digit code system, the Bureau of Labor Statistics 6-digit code system and Sales Area Marketing Inc.'s food product category codes.

An alternative way to designate the *i* food categories is to use a group based approach. Under this approach, the food categories are designated based on the USDA's five food groups (vegetables, fruit, grains, dairy and protein) and their respective subgroups (Murphy et al 2006). Thus, under the group based approach, basic foods with similar vitamin and mineral contents are assigned to the same categories (Murphy et al. 2006).

The key distinction between the two approaches to designating the *i* food categories lies in the types of foods that comprise each food category. With a group based approach, each category represents a basic food item (i.e. fresh fruit, vegetables, meat, etc.). In contrast, a product code based approach classifies basic food items in different processed forms as different food categories. For example, a product code approach classifies canned, frozen and fresh green beans as separate food categories, whereas a food group approach has a single category for green beans.

Convenience foods are central to this distinction between product code and group based

Table 1. Overview of Product Code Based Food Diversity Indices used in the Literature

Study	Diversity Index	Product Code Type	# of Food Categories	Convenience Food Category Examples
J. Lee (1987)	Count	National Food Consumption Survey (NFCS) 15-digit Code System (Used first 5 digits)	153	Food categories were not provided in the manuscript
J.S. Shonkwiler, J. Lee, & T.G. Taylor (1987)	Count	No explanation given as to how food items are assigned to food categories	3	Food groups include starches, meat and produce. No discussion on how convenience foods are classified is given
J. Lee & M. Brown (1989)	Entropy, Simpson	Bureau of Labor Statistics 6-Digit Code System (Used first 3 digits)	19	Processed fruits, processed vegetables and misc. foods(which includes soup, frozen meals, frozen foods and prepared foods)
M. Jekanowski & J. Binkley (2000)	Entropy, Simpson, CR75	Food Product Category Codes designated by Sales Area Marketing, Inc. (SAMI)	338	Dry packaged dinners, poultry dishes-frozen, meat dishes-frozen, fish dishes-frozen, Italian dishes-frozen and Mexican dishes-frozen
S. Thiele & R. Finke (2003)	Entropy, Simpson	Food Product Category Codes designated in GFK (German Panel Data Set)	38	Vegetable cans, frozen foods, complete dishes, ready cooked dishes

approaches to designating food subcategories. Lee & Lin (2013) define convenience foods as those with preparation or processing added by a manufacturer for the express purpose of providing time-savings to consumers. In the literature, convenience foods are often broken down into three categories: (1) complex ingredients, (2) ready-to-cook and (3) ready-to-eat (Okrent & Kumcu 2014). Complex ingredients refer to processed foods used in producing a meal or snack (ex: vegetables, frozen meat), ready-to-cook refers to meals and snacks that require minimal preparation beyond heating or adding hot water (ex: frozen entrees, soup) and ready-to-eat refers to meals and snacks to be consumed as is (ex: refrigerated entrees, canned fruit). Examples of convenience food categories designated using a product codes in past studies are shown in Table 1.

Because convenience foods are a composition of basic foods in different processed forms, use of a product code approach leads to a diversity measure that not only captures diversity among basic food categories, but also diversity among the processed form of basic foods. As form does not significantly affect nutritional composition, it is preferable to have a measure that represents diversity in basic food items, regardless of form when analyzing the demand for food diversity. Thus, the authors of this study seek to develop a group based food diversity index that classifies convenience foods based on the basic foods they contain.

To create a food diversity index based on the diversity of basic foods, we must first distinguish between basic foods and convenience foods. We denote basic foods using superscript B, with q_{Fi}^{B} representing the quantity demanded of basic food category i and

Table 2: Basic Food Categories used in Group Based Food Diversity Index (N=140)

Dairy	Fruit	Grains	Protein	Vegetables
Flavored Fluid Milk	Apples	Amaranth	Black Beans	Bok Choy
Unflavored Fluid Milk	Apricots	Whole-Grain Bread	Black-Eyed Peas	Broccoli
Lactose-Reduced Milk	Bananas	Brown Rice	Chickpeas	Collard Greens
Lactose-Free Milk	Cherries	Buckwheat	Lentils	Dark-Green Lettuce
Soymilk	Grapefruit	Bulgur	Red Beans	Kale
Cheddar Cheese	Grapes	Millet	Soy Beans	Romaine Lettuce
Mozzarella Chese	Kiwi Fruit	Muesli	Split Peas	Spinach
American Cheese	Mangoes	Oatmeal	White Beans	Butternut Squash
Cottage Cheese	Oranges	Popcorn	Anchovies	Carrots
Yogurts	Papaya	Quinoa	Catfish	Red/Orange Bell Peppers
Puddings	Peaches	Rolled Oats	Clams	Pumpkin
Ice Cream	Pears	Whole-Grain Barley	Cod	Sweet Potatoes
Frozen Yogurt	Pineapple	Whole Rye	Crab	Tomatoes
Ice Milks	Plums	Whole-Wheat Crackers	Crawfish	Corn
Other Dairy	Raisins	Whole-Wheat Pasta	Flounder	Green Peas
	Blackberries	Whole-Wheat Tortilla	Lobster	Plantains
	Blueberries	Wild Rice	Oysters	Potatoes
	Raspberries	Refined Grain Bread	Salmon	Taro
	Strawberries	Cornbread	Sardines	Asparagus
	Cantaloupe	Corn Tortillas	Shrimp	Avocado
	Honeydew	Couscous	Squid	Beets
	Watermelon	Flour Tortillas	Tilapia	Cauliflower
	Other Fruit	Grits	Tuna	Celery
		Noodles	Almongs	Cucumber
		Pastas	Peanuts	Eggplant
		Pretzels	Pumpkin Seeds	Green Beans
		Breakfast Cereals	Sunflower Seeds	Iceberg Lettuce
		White Rice	Walnuts	Mushrooms
		Other Grains	Tofu	Radicchio
			Tempeh	Sugar Snap Peas
			Veggie Burgers	Yellow Bell Pepper
			Chicken	Zucchini
			Duck	Other Vegetables
			Turkey	
			Eggs	
			Beef	
			Ham	
			Pork	
			Veal	
			Other Protein	

Source: US Department of Agriculture. The Five Food Group MyPlate Curriculum Training. Washington DC: US Department of Agriculture, (2016).

p^B_{FI} representing the price of basic food category i. Using a group based approach, we designate the $i = 1, \dots, n$ food categories based on a list of basic foods in each of the USDA's five food groups compiled for use in the MyPlate curriculum (US 2016). Detailed in Table 2, this group based approach yields 140 basic food categories.

We denote convenience foods using superscript C. There are J total convenience food items, with q^C_{Fj} representing the quantity demand of convenience food item j and p^C_{Fj} representing the price of convenience food item j. Note that each convenience food category is comprised of at least one basic food category i =1,..,n. For example, canned green beans contain green beans, while a macaroni and cheese frozen dinner contains pasta, cheddar cheese and milk. We alter expenditure share Equation 7 to account for this relationship as follows:

$$W_{FI} = \frac{p_{FI}^{B} q_{FI}^{B} + \sum_{j=1}^{J}((\frac{1}{r}(p_{Fj}^{C} q_{Fj}^{C}))d_{ij})}{m_F} \quad (9)$$

where r refers to the number of ingredients a convenience food item contains and d_{ij} is a dummy indicator variable representing whether a convenience food item *j* contains basic food category i. Intuitively, Equation 9 says that the budget share for a basic food category *i* is a function of the expenditures on that basic food category *i* and the expenditures on convenience foods containing the basic food category i, weighted by the number of distinct food categories comprising the convenience food item[1]. This new budget share can then be used to calculate the entropy index for food diversity as follows:

$$E = -\sum_{i=1}^{n}\left(\frac{p_{FI}^{B} q_{FI}^{B} + \sum_{j=1}^{J}((\frac{1}{r}(p_{Fj}^{C} q_{Fj}^{C}))d_{ij})}{m_F}\right)\log\left(\frac{p_{FI}^{B} q_{FI}^{B} + \sum_{j=1}^{J}((\frac{1}{r}(p_{Fj}^{C} q_{Fj}^{C}))d_{ij})}{m_F}\right) \quad (10)$$

Unlike product code based measures, this new group based food diversity index provides a measure of diversity across basic food categories, regardless of the basic foods processed form.

V. DATA AND EMPIRICAL MODEL

Data

Data on the household food expenditures, prices and demographics required to analyze the demand for food diversity are obtained from the 2012 IRI Consumer Network dataset. The dataset contains weekly, self-reported food at home purchases for 100,000 unique households in the US. For each food purchase, the dataset provides a product description, price of the item, quantity purchased, upc code and a corresponding IRI product category. Ingredients in each food item purchased are obtained from an external ingredient database and linked with the IRI Consumer Network data based on upc codes.

In addition to food purchases, the dataset also contains several demographic variables for each participating household in the panel. Demographic variables of particular interest to this study include: (1) household size, (2) number of children in the household, (3) age of the household head, (4) education level, (5) race and (6) region the household is located in. Given past studies' findings of economies of scale in the consumption of a varied diet, household size and household size squared are predicted to have positive and inverse relationships with food diversity respectively (Lee, 1987, Lee & Brown 1989, Thiele & Weiss 2003). Previous studies have also found a positive relationship between the number of children in a household and food diversity demand (Lee 1987, Lee & Brown

[1] Ideally, the expenditures on each convenience food item would be weighted based on the proportion of the convenience food item comprised by basic food group *i*. However, this level of detail is not available in any known data set.

Table 3. Descriptive Statistics

Variables	Mean	SE
Food Diversity Indices		
Entropy Index - FG[a]		
Entropy Index - IRI[b]		
Independent Variables		
Food Expenditures		
Household Size		
Number of children		
College Degree[c]		
Age of Household Head		
White[d]		
African American		
Asian		
Northeast[e]		
Midwest		
South		

[a]FG: food group based [b] IRI: IRI product code based [c]reference: no degree [d]reference: other race [e]reference: west

1989, Thiele & Weiss 2003). Increasingly, households are preparing several different dishes at mealtime to meet the varied tastes of household members, primarily children (Ryan et al. 2014). Thiele & Weiss (2003) further find evidence linking educational attainment to the demand for food diversity. Moon et al. (2002) suggest that the educated have greater knowledge of the nutritional benefits of consuming a varied diet. Unlike household size, children and education, a household head's age is expected to have an inverse effect on a household's demand for food diversity. In their respective studies, Lee (1987), Lee & Brown (1989), Jekanowski & Binkley (2000) and Thiele & Weiss (2003) find evidence that older households tend to have lower demand for food diversity. In this study we also consider whether households' of differing race (White, African-American, Asian) and region (Northeast, Midwest, South) have different preferences for food diversity. A discussion of the descriptive statistics, shown in Table 3, for each of these variables will be included in the final version of this manuscript.

Empirical Model

Following Lee & Brown (1989), the general equation for food diversity shown in Equation 8 is specified as linear in demographic variables and logarithmic in food at home expenditures, i.e.

$$D_k = \alpha_0 + \alpha_1 HZ_k + \alpha_2 HZ_k^2 + \alpha_3 KID_k + \alpha_4 CG_k + \alpha_5 AGE_k + \alpha_7 WH_k + \alpha_8 AA_k + \alpha_9 AS_k + \alpha_{10} NR_k + \alpha_{11} MW_k + \alpha_{12} SO_k + \alpha_{13} \log(EXP_k) + \varepsilon_k \quad (11)$$

where *D* is food diversity, *HZ* is household size, *KID* is the number of children in a household, *CG* is a dummy indicating whether the household head has a college degree,

Table 4. Parameter Estimates of OLS Regression on Food Diversity Indices

Variable	Entropy Index - FG		Entropy Index - IRI	
	Coeff.	SE	Coeff.	SE
log(Food Expenditures)				
Household Size				
Number of children				
College Degree				
Age of Household Head				
White				
African American				
Asian				
Northeast				
Midwest				
South				

FG: food group based IRI: IRI product code based

AGE is the age of the household head, *WH* is a dummy indicating whether the household head is white, *AA* is a dummy indicating whether the household head is African-American, *AS* is a dummy indicating whether the household head is Asian, *NR* is a dummy indicating whether a household lives in the Northeast, *MW* is a dummy indicating whether a household lives in the Midwest, *SO* is a dummy indicating whether the household lives in the South, *EXP* is a household's total expenditures on food at home and $k=1,\dots,K$ is the set of all households.

Two different specifications of food diversity, D_k, are considered in this study. The first specification is the group based entropy index developed in this study i.e. Equation 10. In order to compare the estimates of Equation 12 using the group based index created in this study, we also calculate the product code based entropy index shown in Equation 3. To do so, we designate 200 food categories based on the product code categories given in the IRI Consumer Network dataset. These categories are detailed in Table 5 of the Appendix.

Using Ordinary Least Square regression techniques, Equation 12 is estimated separately for each of the food diversity measures: (1) group based entropy index, and (2) product code based entropy index. Breusch-Pagan-Godfrey tests and variance inflation factors are used to detect the presence of heteroscedasticity and multicollinearity respectively.

VI. RESULTS

[Results are forthcoming – See table 4 for an overview of the estimates that will be provided in the final manuscript]. Expected relationships between the demand for food diversity, food at home expenditures and demographic variables are expected to be similar to those found in previous studies. However, estimates resulting from the group based food diversity index developed in this study are expected to significantly differ from those obtained using the product code based food diversity index. Key variables whose coefficient estimates are expected to vary include: total food at home expenditures, household size and age.

As found in all past studies, food expenditures are expected to have a significant, positive effect on the demand for food diversity. However, the estimated magnitude of this effect is expected to be smaller using the new group based food diversity index developed in this study. As income increases, past studies have found that households substitute convenience foods for basic food items due to their increasing opportunity cost of time (Okrent & Kumcu 2014, Harris & Shiptsova 2007, Park & Capps 1997, Capps et al. 1985). In many cases, households are consuming the same basic foods, but in a processed form that provides them with time-savings. Convenience foods tend to be more expensive than basic ingredients and are thus associated with higher expenditures (Harris & Shiptsova 2007). The group based measure developed in this study removes the effect of processed form, leaving only the effect of increased expenditures on the variety of basic foods purchased. Thus, while still positive, the relationship between food at home expenditures and the demand for food diversity derived using the group based food diversity index is expected to be smaller in magnitude.

Similarly, estimates are expected to confirm past studies' finding that household size has a significant, negative relationship with the demand for food diversity. However, the estimated magnitude of this effect is expected to be smaller using the new group based food diversity index developed in this study. Richardson et al. (1985) explain that convenience foods, commonly sold in single-serving sized packages, provide smaller households with a way to increase the diversity of the basic foods they consume. Despite the convenience food items they consume containing a variety of basic foods, a product code based food diversity index would show that smaller households have lower levels of food diversity due to low purchases of basic foods. Overcoming this issue, the new group based food diversity index decomposes households' expenditures on convenience foods into expenditures on the basic ingredients they contain. Thus, while still negative, the relationship between household size and the demand for food diversity derived using the group based food diversity index is expected to be smaller in magnitude.

Estimates of the relationship between age and food diversity using the group based food diversity index developed in this study are expected to be negative, significant and smaller in magnitude than those obtained using a product code based index. It is well established in the convenience food literature that older households have lower expenditures on convenience foods than younger households (Okrent & Kumcu 2014, Harris & Shiptsova 2007, Nayga 1998). Under a product code based index, households must consume both basic foods and convenience foods in order to have high food diversity scores. Thus, even if a wide variety of basic foods are consumed, many food diversity scores for older households will be lower than those of their convenience food consuming, younger counterparts. Using a group based food diversity index, the effect of processed form is removed, leaving only the relationship between age and food diversity. Thus, while still negative, the relationship between age and the demand for food diversity derived using the group based food diversity index is expected to be smaller in magnitude.

VII. IMPLICATIONS

[Implications are forthcoming]

VIII. REFERENCES

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IX. APPENDIX

Table 5. Food Categories Used in IRI Product Category Codes (N=200)

Basic Foods			
Aloe Vera Juice	Energy Drinks	Fresh Onions	Milk
Aseptic Juices	Evaoprated/Condensed Milk	Fresh Oranges	Natural Cheese
Baking Needs	Fish/Herring/Seafood - RFG	Fresh Other Fruit	Non-Carbonated Water
Baking Nuts	Flour/Meal	Fresh Other Vegetables	Non-Fruit Drinks - SS
Baking Syrup/Molasses	Frankfurters	Fresh Peas	Peanut Butter
Bottle Juices - SS	Fresh Apples	Fresh Peppers	Popcorn/Popcorn Oil
Bottled Water	Fresh Beans	Fresh Potato	Processed Cheese
Breakfast Meats	Fresh Broccoli	Fresh Radish	Rice
Butter	Fresh Cabbage	Fresh Spinach	Seafood - RFG
Canned Juices - SS	Fresh Carrots	Fresh Sprouts	Shortening & Oil
Canned/Prepared Tea - SS	Fresh Cauliflower	Fresh Tomato	Sour Cream
Carbonated Beverages	Fresh Celery	Fresh Yams	Spice/Seasoning - No S&P
Coffee	Fresh Cucumber	Fruit Drink All Flavors - RFG	Spices/Seasonings
Coffee Creamer - SS	Fresh Eggs	Ham - RFG	Sports Drinks
Cottage Cheese	Fresh Eggs - RFG	Juices/Drinks - RFG	Sugar
Cream Cheese/ Spread	Fresh Grapefruit	Margarine/Spreads	Sugar Substitutes
Creams/Creamers	Fresh Lettuce	Mayonnaise	Syrup
Dinner Sausage	Fresh Mixed Vegetables	Meat - RFG	Tea - Bags/Loose
Dry Beans/Vegetables	Fresh Mushroom	Meat - SS	Uncooked Meats - RFG
Convenience Foods			
Appetizers/Snack Rolls - FZ	Dry Dinner Mix-Add Meat	Meat - FZ	Poultry - FZ/RFG
Asian Food	Dry Fruit Snacks	Mexican Foods	Powdered Milk
Bake Beans/Canned Bread	Dry Packaged Dinner Mixes	Mexican Sauce	Prepared Deli - RFG
Baked Goods - RFG	English Muffins	Microwave Dinner/Entrée	Prepared Vegetables - FZ
Bakery Snacks	Entrees- RFG	Milk Flavoring/Cocoa Mixes	Processed Poultry - FZ/RFG
Baking Mixes	Fish/ Seafood - FZ	Mustard & Ketchup	Rice/Popcorn Cakes
Barbeque Sauce	Flavored Milk/Egg Nog	Non-Chocolate Candy	Salad Dressing - RFG
Bread/Dough - FZ	Fresh Bread & Rolls	Novelties - FZ	Salad Dressing - SS
Breadcrumbs/Batters	Frosting	Other Breakfast Food - SS	Salad Toppings
Breakfast Food - FZ	Frozen Meat - No Poultry	Other Condiments - RFG	Salad/Coleslaw - RFG
Cake - SS	Frozen Regular Entrees	Other Foods - FZ	Salty Snacks
Canned/Bottled Fruit	Frt & Veg Preservatives	Other Salted Snacks	Seafood - FZ
Cheesecakes - RFG	Fruit - FZ	Other Sauces	Seafood - SS
Chocolate Candy	Gelatin/Pudding Mixes	Other Snacks - FZ	Side Dishes - RFG
Coffee Cappucino Drinks - SS	Glazed Fruit	Pancake Mixes	Snack Bars/Granola Bars
Cold Cereal	Grated Cheese - SS	Non-Chocolate Candy	Snack Nuts/Seeds/Corn Nuts
Cookies	Gravy/Sauce Mixes	Novelties - FZ	Soup
Corn on the Cob - FZ	Gum	Other Breakfast Food - SS	Soups/Sides/Other - FZ
Crackers	Hot Cereal	Other Condiments - RFG	Spaghetti/Italian Sauce
Dessert Toppings - SS	Ice Cream Cones/Mixes	Peppers/Pimentos - SS	Specialty Nut Butter
Desserts - RFG	Ice Cream/Sherbet	Pickles/Relish - RFG	Spreads - RFG
Desserts/Toppings - FZ	Instant Potatoes	Pickles/Relish/Olives	Steak - Worcestershire
Dinners - SS	Jellies/Jams/Honey	Pies & Cakes	Stuffing Mixes
Dinners/Entrees - FZ	Juice/Drink Concentrate - SS	Pies - FZ	Tea - Instant Tea Mixes
Dip/Dip Mixes - SS	Juices - FZ	Pizza - FZ	Tea/Coffee - Ready-to-Drink
Dips - RFG	Lunch Meats - SS	Pizza - RFG	Tea/Coffee - RFG
Dough/Biscuits Dough - RFG	Luncheon Meats	Pizza Products	Toaster Pastries/Tarts
Dried Fruit	Lunches - RFG	Plain Vegetables - FZ	Tomato Products
Dried Meat Snacks	Marshmallows	Potatoes/Onions - FZ	Tortilla/Eggroll/Wonton - RFG
Drink Mixes	Matzoh Food	Poultry Substitutes - FZ	