Theoretical and Empirical Considerations

According to Ernst Engel, a pioneer in analyzing family budgets, "the poorer a family is, the greater is the proportion of the total outgo (total expenditure) which much be used for food." Engel's most important finding, known as Engel's law of consumption, states the following: "As income increases, the expenditure on different items in the budget has changing proportions, and the proportions devoted to urgent needs (such as food) decrease, while those devoted to luxuries or semiluxuries increase."

Many analyses of family budgets conclude that the proportions of income devoted to various groups of commodities not only change with increasing income, as stated in Engel's law, but also vary systematically. Analysts consequently postulate that the expenditure on a given commodity varies with income in accordance with some underlying mathematical law. This observation leads analysts to estimate Engel functions by employing a variety of functional forms to express the underlying relationship between income and expenditures on a given commodity.

Surveys of individual households generally provide the information necessary to study the relationships between commodities, expressed in terms of quantities or expenditures. The framework used to analyze such surveys is based on the classical theory of consumer demand. The theory of the individual is broadened to encompass the vast heterogeneity in households and the differing environments in which they live. Cross-sectional surveys provide information on households of varying sizes, incomes, and consumer-oriented preferences. These households often exist in different economic, social, and regional environments that influence food purchase decisions. To capture these variable factors and to control for them requires an expanded analytic framework.

A number of household socioeconomic characteristics other than income have been shown to influence expenditures, including household size, age distribution of household members, and region of residence (Blisard and Blaylock). Contemporary statistical representations of Engel curves usually include these and other characteristics, such as the seasons of the year, as explanatory variables.

Because household survey data are collected within a span of several days or weeks, researchers generally assume that prices will fluctuate little in such a short period. Observed price differences are usually assumed to reflect variation in product content and quality rather than variation in relative prices for the same product. The influence of item prices on purchase behavior is, consequently, modeled differently in household survey data than in aggregate time series data.

This assumption about prices simplifies the process involved in estimating Engel relationships. Demand equations are functions of income and relevant household characteristics only. Food expenditures and budgeting patterns observed in cross-sectional survey data are snapshots of a wide variety of households in different circumstances. Analysts usually assume that the different circumstances reflect what would occur if the circumstances changed for any particular household. If this assumption is valid, one can then use statistical models to measure the implied behavioral response parameters. Hence, the fact that one does not usually observe a particular household under changing circumstances does not prevent the measurement of these response parameters.

Household food surveys measure consumption in terms of quantity (physical weight) or money value. The quantity measure is related to the physical satisfaction of demand and the need to fulfill certain nutritional requirements (Wold and Jureen). The money value is a measure of consumer satisfaction and economic well-being obtained through the marketplace, in the sense that the prices consumers pay reflect the unit value of the goods. The money value of a purchased product group, such as red meats, is a price or value-weighted sum of the physical quantities used. Viewing expenditures as a value-weighted quantity provides a link between household budget analysis and the traditional theory of consumer demand. Using prices as weight to aggregate items into groups has been shown to be consistent with economic theory when relative item prices are constant (Green). The use of expenditures, or money value, provides a consistent method for aggregating many detailed and heterogeneous items into a manageable number of product groups when using cross-sectional data.

Construction of statistical models requires that one account for those household features that contribute substantially to differences in consumption among households. Income, diet-health knowledge, and household composition are the survey response features that

account for the primary differences in food spending among households in any one period. Other determinants of demand, such as geographic region of household residence and season of the year, are included in the model to improve the measurement and statistical properties of the equations but are of less economic concern. Regional and seasonal variables may also represent price variation. Hence, they are not exact measures of regional taste differences. The omission of a relevant explanatory variable that is correlated with an included variable will bias the estimated parameter of the corresponding included variable. Therefore, to the extent feasible, all relevant determinants of household consumption must be included in the analysis.

Demand Considerations With Observed Zero Expenditures and Model Considerations

Household size, the frequency and mix of product use, and the amount of product consumed per eating occasion influence total household expenditures for various food items. Most expenditure surveys include a large number of households that report detailed information on food spending over 1 or 2 weeks, which is not long enough to represent the average expenditure pattern for any particular household. However, by examining a group of similar households, one can infer how a typical household within the group would behave over a longer period. Inferences can be drawn regarding the average expenditure, the probability of purchasing an item, and the amount spent per household during a given period.

Many households do not purchase or use certain food items during the survey period. Thus, zero values are common in household surveys, and the economic interpretation one should give to these observed values is not always clear. Survey information is usually insufficient to determine whether a zero value represents a household that never consumes the item, does not consume the item given the current values of the household's demand determinants (such as prices and income), or consumes the item infrequently (Maddala).

Assigning a nonconsuming household to one of the above categories has implications for demand analysis. How often and whether or not a particular household uses a given product is not usually reported and, consequently, must be inferred by examining the reported purchases or nonpurchases by many similar households. By assuming that all households will eventually use the product and that no infrequency-of-purchase or nonuse problems exist, we can study consumer behavior in a large sample of households and determine the probability of consumption and relate this probability to a household's characteristics.

If the probability of use or nonuse is determined by the same household characteristics that determine the level of use, and if one discards observations on households not purchasing an item during the survey, then traditional regression procedures will yield biased estimates of behavioral relationships. Thus, valuable information on the probability of use will have been ignored. The statistical model used in this study (Tobit model) assumes that the probability of consumption is related to household income and other selected socioeconomic and demographic features. This estimated probability is based on the assumption that all households will eventually purchase all items under consideration. This is a strong assumption, but the available data do not allow us to determine if zero purchases are due to infrequent purchases, nonuse, or economic circumstances, such as prices or income. Furthermore, we employ a traditional application of the Tobit model without attempting to correct for any statistical abnormalities that might be present. Most variations of this model attempt to correct for a nonnormality in the error term. However, it can be shown that both the error term and the parameters are simultaneously estimated in this model for all observations that have zero expenditures. Hence, any misspecification of the error term will cause the estimated coefficients to be inconsistent estimators of the true parameters (Deaton). Given this outcome, one can choose to use the model we employ, attempt to correct the abnormality of the error term but risk inconsistent parameter estimates, use another variation of the Tobit model, or use a completely different statistical model, such as a median regression. We have chosen to use the traditional Tobit model.

Data Used in the Analysis

The Consumer Expenditure Survey (CES) of the Bureau of Labor Statistics (BLS) for calendar years 1997 and 1998 is the source of data used in this analysis. The CES contains the most recent and comprehensive data available on food spending in U.S. households at the time of this study.

The CES comprises two components, each with its own questionnaire and sample: (1) an interview panel survey in which each of approximately 5,000 households is surveyed every 3 months over a 1-year period and (2) a diary survey of approximately the same sample size in which households keep an expenditure diary for two consecutive 1-week periods.

The diary survey obtains data on small, frequently purchased items that are normally difficult to recall, including foods and beverages, tobacco, housekeeping supplies, nonprescription drugs, personal care products, services, and fuels. The diary survey excludes expenditures incurred while away from home for 1 night or longer. The diary survey is the source of data for this report.

The data used in this report are a subset of the 1997-98 CES. Criteria for inclusion are completeness of reporting and consistency across the 2 survey years. Households that did not report complete income or participate in both weeks of the diary survey were excluded from the analysis. After eliminating these households, the analysis sample consisted of 7,709 households over the 2-year period.

Characteristics of American Households and Their Food Expenditures

Between 1988-89 and 1997-98, American households decreased their budget share of food away from home by 2.3 percentage points (table 1). This decline reversed a trend toward a larger budget share of food expenditures away from home that began in the early 1970s. One theory behind this decrease is that households bought more miscellaneous prepared foods, although expenditures in this category were up just 0.8 percentage points over the decade.

Other at-home food groups that increased in share of U.S. food expenditures include cereals and bakery products (up 0.5 percentage points), sugars and sweeteners (up 0.6 percentage points), and fats and oils (up 1.1 percentage points). In contrast, budget shares of both dairy and nonalcoholic beverages fell 0.4 percentage points. Likewise, the meats, poultry, fish, and eggs group as a whole declined 0.3 percentage points over the decade, mostly as a result of a 0.6 percentage point decline in beef expenditures. Among other foods in this group, the budget share increased for pork (0.2 percentage points) and poultry (0.5 percentage points). Over the same time span, the budget share for fish was unchanged. U.S. households also allocated slightly more of their at-home food budget to both fruits and vegetables. The budget share for fruit increased 0.1 percentage points while the share for vegetables increased 0.2 percentage points.

The inflation-adjusted price of food away from home fell 3.8 percent from 1989 to 1998, while the real price of food at home fell 1.4 percent (table 2). Although a decline in price normally increases consumption, all other variables constant, expenditures increased only for at-home foods over the period. Spending on food away from home declined. Consumers may have cut back on the number of times they dined out, or perhaps the rising number of restaurants over the 1990s put downward pressure on prices. At-home foods with the largest price declines were nonalcoholic beverages (down 9.1 percent), fats and oils (down 7.8 percent), and meat, poultry, fish, and eggs, (down 7.6 percent). In this last category, the price for beef was down 13 percent, poultry was down 9.9 percent, and fish declined 3.7 percent. In contrast, the inflation-adjusted price of fruits and vegetables increased 9.3 percent, while cereals and bakery products increased 4 percent.

A great diversity in household income and household size was found across selected characteristics among sample households (table 3). For example, households in the West had the highest income and the largest household size. Non-Black households had about $14,800 more in household income per year than Black

Table 1—Trends in the allocation of U.S. food expenditures, 1988-98

Food group	Share of food budget	
	1988-89	1997-98
	Percent	
Food away from home	41.1	38.8
Food at home	58.9	61.2
Cereals and bakery products	9.1	9.6
Meat, poultry, fish, and eggs	15.6	15.3
Beef	5.0	4.4
Pork	3.0	3.2
Poultry	2.4	2.9
Fish	2.1	2.1
Dairy products	7.3	6.9
Fruits	5.8	5.9
Vegetables	4.8	5.0
Sugars and sweeteners	2.1	2.7
Nonalcoholic beverages	5.7	5.3
Fats and oils	.6	1.7
Miscellaneous prepared foods	8.0	8.8

Source: Economic Research Service, USDA.

Table 2—Trends in inflation-adjusted food prices, 1989-98

Food group	Relative food prices		Change
	1989	1998	
	Index[1]		*Percent*
Food away from home	102.7	98.8	-3.8
Food at home	100.2	98.8	-1.4
Cereals and bakery products	106.8	111.1	4.0
Meat, poultry, fish, and eggs	97.8	90.4	-7.6
Beef	96.2	83.7	-13.0
Pork	91.3	91.1	-.02
Poultry	107.0	96.4	-9.9
Fish	115.8	111.5	-3.7
Dairy products	93.2	92.5	-.08
Fruits and vegetables	111.3	121.6	9.3
Sugars and sweeteners	96.3	92.1	-4.4
Nonalcoholic beverages	89.8	81.6	-9.1
Fats and oils	97.7	90.1	-7.8
Miscellaneous prepared foods	101.2	101.5	.03

[1]Based on the Consumer Price Index (CPI) for individual food groups divided by the CPI for all urban consumers, 1982-84 = 100.

Source: Economic Research Service, USDA.

Table 3—Annual household income and size by selected demographic groups, 1997-98

Demographic group	Annual income before taxes	Household size
	Dollars	*Number*
All groups	43,050	2.53
Season:		
Winter	43,407	2.54
Spring	43,788	2.56
Summer	43,030	2.54
Fall	41,855	2.48
Region:		
Northeast	44,613	2.42
North Central	43,323	2.45
South	40,359	2.57
West	45,078	2.64
Race:		
Non-Black	44,809	2.49
Black	29,994	2.83
Income quintile:		
I (lowest)	7,349	1.79
II	17,936	2.27
III	31,290	2.45
IV	49,509	2.88
V (highest)	100,353	3.14
Household size:		
1 member	24,183	
2 members	46,094	
3 members	52,096	
4 members	57,602	
5 members	57,362	
6 or more members	45,803	

Source: Economic Research Service, USDA.

households. The mean before-tax income for households in the lowest 20 percent of the income distribution was $7,349 per year, while the mean income for households in the top 20 percent of the income distribution was $100,353 per year. This gap narrows marginally if these figures are adjusted for household size, as lower income households tend to have fewer members.

Table 4 breaks total food expenditures per person into at-home and away-from-home components by selected socioeconomic characteristics, season, and household size. Care is required in interpreting this table because it does not isolate the effect of a single socioeconomic characteristic on expenditures. For example, household size, income, and other factors are not held constant in the breakdown by racial group.

While total food expenditures were nearly the same across the seasons, they were slightly higher in the spring and lowest in the winter. At-home food expenditures were highest in the fall and lowest in the summer. Conversely, away-from-home food expenditures were highest in summer and lowest in fall.

Food spending varied substantially by region, which may have been caused by relative price differences, income disparities, and differences in tastes and preferences. Households in the South spent the least on total food, while those in the Northeast spent the most. The same relative pattern held for food at home and food away from home, with households in the South spending the least and those in the Northeast spending the most.

Table 4—Weekly food expenditures per capita, at home and away from home, by selected demographic variables, 1997-98

Demographic group	Expenditures			Share of food budget, at-home	Share of income spent on food
	Total	At home	Away from home		
	Dollars			*Percent*	
All groups	40.32	24.68	15.64	61.2	10.8
Season:					
Winter	40.13	24.34	15.78	60.7	10.7
Spring	40.46	24.71	15.75	61.1	10.8
Summer	40.27	23.79	16.48	59.1	10.8
Fall	40.40	25.62	14.77	63.4	10.9
Region:					
Northeast	43.32	25.76	17.56	59.5	11.1
North Central	39.38	24.06	15.33	61.1	10.3
South	37.87	23.75	14.12	62.7	10.9
West	42.23	25.72	16.52	60.9	10.9
Race:					
Non-Black	41.32	25.06	16.26	60.6	10.6
Black	31.19	21.25	9.94	68.1	12.8
Income quintile:					
I (lowest)	32.17	21.84	10.33	67.9	35.5
II	35.13	23.50	11.63	66.9	19.3
III	40.30	24.71	15.59	61.3	13.3
IV	42.27	24.58	17.69	58.1	10.8
V (highest)	50.60	28.38	22.22	56.1	7.2
Household size:					
1 member	48.92	27.86	21.05	57.0	10.6
2 members	43.78	27.27	16.51	62.3	9.9
3 members	35.09	21.94	13.15	62.5	10.6
4 members	30.57	20.08	10.49	65.7	11.0
5 members	27.13	18.27	8.86	67.3	12.0
6 or more members	21.32	15.65	5.68	73.4	16.0

Source: Economic Research Service, USDA.

Non-Black households spent substantially more per person on total food, food at home, and food away from home than Black households, probably due to the income disparity between non-Blacks and Blacks and the larger household sizes among Blacks—larger households tend to have lower per capita expenditures.

Higher income households spent more per person for both at-home food and away-from-home food in 1997-98 than households at other income levels. Higher income households also spent a lower share of their food dollar on food at home. Larger households spent less per person for both food at home and food away from home than other households. Smaller households tend to spend more of their food dollars away from home. Because economies of size may be realized in expenditures on food at home but not on food away from home, these results are understandable.

Almost all households (98.7 percent) had some total food purchase every week (table 5). Among this share, 96.2 percent purchased food for at-home consumption, and 86.6 percent purchased food away from home. Among households purchasing individual categories of food at home, 91.4 percent of households purchased cereals and bakery products, and 89.1 percent purchased dairy products. Only 38 percent of all households purchased fish.

Table 5—Percentage of the population purchasing food items in a week, 1997-98

Food group	Share of population purchasing food item
	Percent
Total food	98.7
Food away from home	86.6
Food at home	96.2
Cereals and bakery products	91.4
Meat, poultry, fish, and eggs	87.2
Beef	59.6
Pork	54.6
Poultry	53.3
Fish	38.0
Dairy	89.1
Fruits	84.0
Vegetables	82.2
Sugars and sweeteners	65.8
Nonalcoholic beverages	79.3
Fats and oils	58.8
Miscellaneous prepared foods	84.0

Source: Economic Research Service, USDA.

Model Specification and Variables

In this study, we assume that a person's diet-health knowledge, such as knowing the benefits of eating a high-fiber diet or knowing which foods are likely to contain large amounts of fat, influences his or her expenditures on different food groups. For example, we hypothesize that a household headed by a married couple with a college education or higher is likely to buy more fruits and vegetables than a household whose inhabitants never finished high school. Further, we assume that this knowledge can be introduced as a separate factor into the consumer demand equation for each particular food category. Hence, diet-health knowledge is estimated as a separate equation and as a variable in each individual food expenditure equation.

The diet-health variable was based on participants' responses to health and nutrition knowledge questions in the 1994-96 Diet and Health Knowledge Survey (DHKS), a followup survey to USDA's 1994-96 Continuing Survey of Food Intakes by Individuals (CSFII). Each year of the 3-year CSFII data sets comprises a nationally representative sample of noninstitutionalized persons residing in the United States. From each CSFII household, a randomly selected participant who had provided initial (day 1) intake information and who was age 20 or older was contacted by telephone approximately 2-3 weeks after the CSFII was recorded. The DHKS questions covered a wide range of issues, including self-perceptions of the adequacy of intake levels of nutrients, awareness of diet-health relationships, perceived importance of following the dietary guidance, use and perceptions of food labels, and behaviors related to fat intake and food safety. Out of 7,842 households eligible for DHKS, respondents from 5,765 households, or 73.5 percent, completed the survey.

The diet-health knowledge variable used in this study was constructed from responses to 27 questions in the DHKS. These questions asked about the sources and occurrence of various nutrients in foods ("Which has more saturated fat: butter or margarine?"), the relationship of specific dietary components to specific diseases ("Have you heard about any health problems caused by eating too much cholesterol?"), and the number of servings of various food groups in a healthful diet ("How many servings would you say a person of your age and sex should eat each day for good health from the vegetable group?"). The number of correct answers to these questions given by a respondent provided a direct measure of his or her diet-health knowledge.

The range of the diet-health knowledge variable was 0-27. Based on the estimated proportions using sampling weights for the actual data, 74 percent of the respondents scored 16 or above on the 27-point test. Less than 1 percent answered three or fewer questions correctly. The mean score was 17.6.

The prediction equation for the diet-health knowledge variable in the expenditure equations was estimated using a linear multiple regression model. The diet-health knowledge variable from the DHKS was regressed on a selected set of economic and sociodemographic characteristics of the respondents. These explanatory variables were chosen to ensure that a consistent set of variables was also available in the CES data. For example, detailed racial and ethnic origin information was available in DHKS, but the ethnic origin variable in the CES had a significant proportion of missing values. Therefore, we included only a dummy variable indicating Black racial status in the regression model. After eliminating observations with missing values, a DHKS sample of 5,232 observations was available for estimation. The explanatory variables, their definitions, and means from the weighted data are reported in table 6.

The CSFII-DHKS is a complex survey with a stratified, multistage, probability sample design. Accordingly, the regression model was estimated using sampling weights to compensate for probabilities of selection, differential response rates, and possible deficiencies in the sampling technique. The standard errors of the parameter estimates were adjusted for sample design.

The diet-health knowledge equation had a reasonable fit with an R-squared of 0.2. Except for the proportion of household heads employed and located in a non-Metropolitan Statistical Area, all other variables or their categories had significant influence on diet-health knowledge. Among all variables, educational attainment had the largest effect on diet-health knowledge. Other variables held constant, those who completed college scored 3.12 points higher on the diet-health knowledge test than those who had less than 12 years of education. Based on a mean test score of 17.58, this translates to an 18-percent increase in test scores for college-educated respondents, compared with scores for respondents who did not complete high school.

Table 6—Definitions and sample means of independent variables for diet-health knowledge equations

Variable	Mean	Definition
Diet-health knowledge	17.58	Mean value of diet-health knowledge index in CSFII
Region:		
Northeast	.210	Omitted base region
North Central	.240	Equals 1 if household resides in North Central States, 0 otherwise
South	.340	Equals 1 if household resides in South, 0 otherwise
West	.210	Equals 1 if household resides in West, 0 otherwise
Race:		
Non-Black	.890	Omitted base
Black	.110	Equals 1 if household is Black, 0 otherwise
Income	3.280	Annual household income before taxes measured in hundreds of dollars per week per household member
Metro area	.780	Omitted base
Nonmetro area	.220	Nonmetro region
Female	.530	Omitted base
Male	.470	Household head is male
Female head	.160	Single head of household is female
Male head	.080	Single head of household is male
Employed	.640	Share of household heads employed
No high school	.260	Omitted base
High school	.350	12 years of schooling or GED
Some college	.220	1-3 years of college completed
College	.270	4 years or more of college completed
Household age composition:		
Proportion under age 5	.060	Proportion of household members under age 5
Proportion age 5-9	.050	Proportion of household members age 5-9
Proportion age 10-14	.050	Proportion of household members age 10-14
Proportion age 15-19	.050	Proportion of household members age 15-19
Proportion age 20-29	.130	Proportion of household members age 20-29
Proportion age 30-44	.230	Proportion of household members age 30-44
Proportion age 45-64	.250	Omitted base group
Proportion age 65-74	.110	Proportion of household members age 65-74
Proportion older than age 74	.070	Proportion of household members older than age 74

Source: Economic Research Service, USDA.

Income had a significant influence on knowledge, with an additional $100 in weekly per capita household income increasing test scores by 0.18 points. Among respondents of similar sociodemographics, men scored 1.6 points lower than women and Blacks scored 1.4 points lower than Whites. Adults from households with both a male and female head displayed greater diet-health knowledge than adults from households with only a male head or only a female head. Households with a greater proportion of adults age 75 or older scored lower on the diet-health knowledge test than households with a greater proportion of adults age 45-64.

Estimates of this equation using CES data were similar to initial estimates, which used a different data set. When we used the estimated parameters of the model from the CSFII data with the CES data, we found the predicted mean score to be 17.7. In addition, 82 percent of households in the CES data set scored 16.0 or higher. This score compares with a predicted mean value of 17.2 in the CSFII (this mean is different from the raw data mean due to the weighting of the model), and 86 percent of CSFII households scored 16.0 or higher. We feel the diet-health knowledge equation fits the CES

data very well and will provide reliable estimates for making projections of food expenditures.

As noted earlier, the Tobit model is the econometric procedure used to quantify the relationship of household characteristics and income to the purchase/nonpurchase decision and to the level of purchase. In addition, the diet-health knowledge equation is recursively solved to supply a numerical variable in the expenditure equations. The dependent variable in the food equations is average weekly food expenditures per person. Table 7 lists the household socioeconomic and demographic variables that are used to explain the observed expenditure patterns in the Tobit model, together with descriptions of the variables and their sample means. Table 8 presents the food groups analyzed in this study. The same model specification is applied for each product category.

Variations in size and composition across households are controlled in the model by including the inverse of household size and the proportion of household members in selected age groups. The inverse of household size variable captures the effects of economies of size, while the proportion of members in each age group controls for age composition of the household. Because the inverse decreases, a positive coefficient on this variable indicates positive economies of size. That is, larger households, even after controlling for the age of members, tend to spend less per person than smaller households. A negative coefficient has the opposite effect. The inverse transformation forces the size of the scale effect to diminish as households grow larger. Nine age groups are used to delineate the effects of household composition. However, to avoid estimation problems, the 45-65 age group is not entered directly into the equation.

Income per person, which includes the net value of food stamps, is entered quadratically. This specification has been shown to provide a good statistical fit in models with income and household composition entered in the model (Tomek). The quadratic form also allows the marginal propensity to spend and the income elasticity to vary with the level of income and has been shown to satisfy the adding-up criterion (that is, total expenditures must sum to total income).

Region of household residence, race, and season of the year are entered as a series of binary dummy variables. That is, the variable is assigned the value of 1 if the household has that characteristic and the value of 0 otherwise. The year in which a household was surveyed is also entered as a binary variable to account for changes in expenditures due to a change in relative prices between the 2 years.

Table 7—Definitions and sample means of independent variables for expenditure equations

Variable	Mean	Definition
Diet-health knowledge	17.65	Mean value of diet-health knowledge index
Region:		
Northeast	.182	Omitted base region
North Central	.246	Equals 1 if household resides in North Central States, 0 otherwise
South	.342	Equals 1 if household resides in South, 0 otherwise
West	.229	Equals 1 if household resides in West, 0 otherwise
Race:		
Non-Black	.891	Omitted base
Black	.109	Equals 1 if household is Black, 0 otherwise
Income	3.710	Annual household income before taxes measured in hundreds of dollars per week per household member
Income squared	27.137	Income variable raised to the second power
Season:		
Winter	.253	Equals 1 if winter, 0 otherwise; includes January, February, and March
Spring	.260	Equals 1 if spring, 0 otherwise; includes April, May, and June
Summer	.252	Equals 1, if summer, 0 otherwise; includes July, August, and September
Fall	.235	Omitted base season; includes October, November, and December
Year:		
1997	.502	Omitted base year
1998	.498	Equals 1 if 1998, 0 otherwise
Household size (inverse)	.559	Inverse of the number of household members
Household age composition:		
Proportion under age 5	.037	Proportion of household members under age 5
Proportion age 5-9 years	.047	Proportion of household members age 5-9
Proportion age 10-14 years	.046	Proportion of household members age 10-14
Proportion age 15-19 years	.057	Proportion of household members age 15-19
Proportion age 20-29 years	.145	Proportion of household members age 20-29
Proportion age 30-44 years	.227	Proportion of household members age 30-44
Proportion age 45-64 years	.242	Omitted base group
Proportion age 65-74 years	.103	Proportion of household members age 65-74
Proportion older than age 74	.097	Proportion of household members older than age 74

Source: Economic Research Service, USDA.

Table 8—Food product groups and their compositions included in food expenditures

Food group	Composition
Total food	Food at home and away from home (except food purchased on overnight trips), excluding alcoholic beverages.
Food away from home	Lunch, dinner, breakfast, brunch, snacks, and nonalcoholic beverages at restaurants, vending machines, and carryouts, including tips, board, meals for someone away at school, and catered affairs.
Food at home	Food used in the home, excluding alcoholic beverages.
Cereals and bakery products	Ready-to-eat and cooked cereals, pasta, prepared flour mixes, other cereal products (cornmeal, cornstarch, rice) bakery products (bread, crackers, cookies, biscuits, rolls, cakes, and other specified frozen and refrigerated bakery products).
Meat, poultry, fish, and eggs	Meat, poultry, fish, and eggs.
Beef	Ground beef, roasts, steaks, veal, and other cuts, excluding canned beef.
Pork	Bacon, porkchops, ham (including canned), roast, sausage, and other cuts.
Poultry	Fresh and frozen chicken, duck, turkey, and cornish hens, excluding canned.
Fish	Fresh and frozen fish and shellfish.
Dairy products	Fresh and processed dairy products.
Fruits	Fresh, frozen, and processed fruits, including juices.
Vegetables	Fresh, frozen, and processed vegetables, including juices.
Sugar and sweeteners	Sugar, candy, chewing gum, artificial sweeteners, jams, jellies, preserves, fruit butters, syrup, fudge mixes, icings, and other specified sweets.
Nonalcoholic beverages	Diet and nondiet carbonated drinks, coffee, tea, chocolate-flavored powder, and other specified beverages.
Fats and oils	Margarine, shortening, salad dressings, nondairy creamer, peanut butter, and substitute and imitation milk.
Miscellaneous prepared foods	Frozen prepared foods, canned and packaged soups, potato chips, nuts and other snacks, condiments, seasonings, olives, pickles, sauces and gravies, salads, desserts, baby foods, and canned beef and poultry.

Source: Economic Research Service, USDA.