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The Effect of Food Stamps on Spending for Grocery Products

by

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## *Introduction*

A major goal of the Food Stamp program is to improve the quality of the diet of low income households, and there have been several studies of the dietary impact of the program (e.g. Wilde, McNamara, and Rainey). Nearly all have used household survey data from the Continuing Survey of Food Intake by Individuals, and have examined either specific nutrients or broad classes of foods based on the food guide pyramid. Although results are mixed, generally it has been found that food stamps lead to increases in most nutrients. However, the largest increases appear to involve fats and oils and added sugars, a dubious dietary improvement. Wilde et al. found the program to be positively associated with consumption of meats, fats, and sugars, but little effect on fruits and vegetables, grains, or dairy products. Such results imply an increase in total food consumption with a disproportionate increase in less healthy components.

This study differs from previous work in two important ways. First, rather than examining the effect of food stamps on major nutrients or broad classes of foods, we consider the effect on sales across specific grocery products. Second, we employ 1990 annual sales, demographic, and food stamp benefit data from 54 major grocery markets across the US, accounting for 85% of total US sales.

Our goal is quite modest. At best the study is exploratory; some might term it data mining. To some extent we must plead guilty to this charge. Many equations are estimated, making it difficult to distinguish significant results from happenstance. For this reason, it is important to search for meaningful patterns, patterns supported by plausible prior expectations. The primary interest is to examine the evidence as to whether differences in food stamp usage across market areas alters the sales shares of grocery products. Because food stamps are a food-

specific increase in income, we might expect a shift into more desirable, income-elastic grocery categories, perhaps more nutritious ones. In the study, we endeavor to separate the effects of poverty and food stamps. This is because an important policy question is the extent to which the ill effects of limited food budgets on household food availability are alleviated by access to food stamps. We are also interested in the food buying habits of low income buyers, and how this might be affected by food stamp usage. The issue is, regardless of food product type, do households with limited food budgets find the lowest cost form? It is commonly felt that low income households are necessarily more adroit food shoppers and will tend to buy more economical versions of their choices. However, there is little evidence of this. Indeed, it has been repeatedly found that low income buyers are less likely to substitute private labels goods for their branded counterparts. We study the role of food stamp and poverty in differences across markets on private label share of 71 grocery categories. A recent study by Gundersen and Oliveira might suggest that food stamp users are more likely to watch the food budget than are low income nonusers, suggesting different effects.

Finally, a general purpose of the study is to assess the potential usefulness of data at the market level in attacking problems usually addressed—and not always successfully—with survey data. Indeed, the issue of interest here has never been examined with survey data. We doubt that it would be practicable to do so.

### ***Methods and Data***

All analysis consisted of regression estimations, in which a measure of food consumption is regressed on a set of demographic variables of varying components, but always including food stamps and a poverty measure. The food consumption measures were chosen on the basis of

pertinence to the study and data availability. The estimation was accomplished using an extensive set of food marketing data. This data comes from Sales Area Marketing, Inc. (SAMI), until recently the principal grocery store product tracking firm in the U.S. SAMI collected market data, which it then sold to food processing firms, pharmaceutical firms, and others selling through supermarkets and large drug stores. SAMI was late in exploiting scanner technology and was surpassed by competitors, so it abandoned the market completely in 1992. It then bequeathed its entire store of data, covering the period from 1980 to mid-1991, to Purdue University. Unfortunately, the data is not available in an electronic form, so considerable preparation is required before analysis can be conducted. Hence, although in theory one can perform very detailed market analysis using the SAMI data, in practice this is limited by cost considerations.

The data was collected from wholesale grocery and drug warehouses in 54 marketing areas throughout the U.S., and accounts for over 85% of U.S. branded grocery product sales. SAMI mainly sold the data to manufacturers, making it available in various forms, the most detailed being the “basic” reports. These list price, cases, sales, and share figures for every variation of every brand (e.g. Kellogg’s Corn Flakes in 32 oz. boxes packed in 12-box cases), for the previous four weeks and year. An important exception to this level of detail is that store label data was only available as total cases and total sales in each market. A further limitation is that no information on produce, unbranded meat, or milk and eggs is included.

The regions are aggregations of counties, each region containing from 40 to 70 counties, centered on one or more metropolitan areas. For these area, we developed several demographic measures, mostly based on county data from the US Census. We also obtained 1990 county food

stamp benefit data from the USDA. A special algorithm was used to aggregate county data to the SAMI regions.

Our goal in the subsequent analysis is to determine whether the data suggests evidence that the food stamp program has measurable impacts on consumer choice of food products, in terms of the product and/or brand mix chosen, and possibly in terms of nutrition. We emphasize “suggests.” We are not testing formal hypotheses, and make no pretense as to conclusiveness.

### *Analysis*

#### *Variation in Food Stamp Use Across Markets*

The first issue is the extent of variation in food stamp benefits across markets. As a measure of this we use the percent of grocery store sales accounted for by food stamps. These appear in table 1, which also lists the 54 SAMI areas. As can be seen, this measure shows considerable variation across the US, ranging from a little over one percent in the Boston area to over eleven percent in Charleston, San Antonio, and Shreveport. Usage is lowest on the East and West coasts, and highest in the South. These differences seem to correspond to broad differences in regional incomes, as one would might expect. They not only reflect differences in food stamp usage, they also reflect differences in food store spending. Per capita grocery spending varies considerably across the US, with highest spending in higher income regions (Jekanowski and Binkley). High income areas have lower use of food stamp benefits.

Further insight into the causes of these market area differences are found by a regression of per capita food stamp benefits on a set of demographic measures: POVERTY, the percent of households in poverty; INCOME, average per capita income; HISPANIC, the percent of

Table 1. Food stamp benefits as percent of grocery spending, 54 SAMI markets, 1990

ALBANY	1.89	MIAMI	3.02
ATLANTA	3.39	MILWAUKEE	2.90
BALTIMORE	2.50	MINNEAPOLIS	2.70
BIRMINGHAM	7.56	NASHVILLE	6.11
BOSTON	1.40	NEW ORLEANS	8.62
BUFFALO	4.13	NEW YORK	3.66
CHARLESTON WV	11.43	NORFOLK	4.02
CHARLSTON SC	4.54	OKLAHOMA CITY	4.13
CHARLOTTE	2.36	OMAHA	2.92
CHICAGO	6.18	PEORIA	4.60
CINCINNATI	5.17	PHILADELPHIA	3.39
CLEVELAND	6.98	PHOENIX	5.41
DALLAS	3.43	PITTSBURGH	4.35
DENVER	2.78	PORTLAND ME	2.32
DETROIT	6.36	PORTLAND OR	3.42
EL PASO	7.07	QUAD CITIES	3.59
GRAND RAPIDS	5.25	RALEIGH	3.37
GREEN BAY	2.36	SALT LAKE CITY	3.44
GREENVILLE	2.82	SAN ANTONIO	11.08
HARTFORD	2.44	SAN FRANCISCO	2.74
HOUSTON	4.96	SCRANTON	2.91
INDIANAPOLIS	3.27	SEATTLE	1.99
JACKSONVILLE	2.92	SHREVEPORT	11.45
KANSAS CITY	3.69	SPOKANE	4.29
LOS ANGELES	2.30	ST LOUIS	4.92
LOUISVILLE	7.28	SYRACUSE	2.91
MEMPHIS	8.05	WICHITA	3.35

households that are Hispanic; AFRAM, the percent of households that are African American; OTHER, the percent of other ethnic households; KIDS, the percent of population under 15; SGLPRNT, the percent of single parent households; OLDER, the percent of the population over 65; UNEMPLOY, the 1990 unemployment rate; FEMLAB, female labor force participation: and a set of regional indicators.

The results of this regression are shown in table 2. The model fits the data very well, with an adjusted  $R^2$  of .89. As expected, the most important factor accounting for differences in food stamp use across markets is the extent of poverty. The positive and significant effect of

income, however, might seem unexpected, perhaps inexplicable. However, it is a *ceteris paribus* effect, given poverty. What it suggests is that in two markets with the same percent of poverty households, that with the higher average market income has greater food stamp usage. This makes sense, for the cost of living is generally higher the higher is average income. Given poverty, income then becomes in part a proxy measure for living costs, and higher living costs are expected to increase the need for assistance for those of limited means.

Table 2. Results for regression explaining per capita food stamp benefits

Variable	Estimate	t value
Constant	2.68	0.22
Poverty	0.75	3.94
Income	0.00	2.82
Hispanic	-0.04	-0.88
Afram	-0.05	-0.82
Other Ethnic	-0.75	-3.51
Kids	50.19	2.38
Sglprnt	0.95	1.95
Older	-0.21	-1.14
Unemploy	-0.09	-0.29
Femlab	-0.45	-3.53
East	-0.78	-1.16
South	-1.21	-1.41
West	-1.79	-2.08
$\bar{R}^2$	.89	

Food stamp usage is estimated to be unrelated to the unemployment level. Taken at face value, this means, for example, that laid-off workers have no strong tendency to make recourse to food stamps. This might seem surprising, but unemployment is a short term problem, likely to be viewed as not warranting the effort required to apply for food stamps. Furthermore, those normally working are more likely to resist anything viewed as welfare. Areas with higher female



labor force participation have lower food stamp usage, an effect not related to income. There are numerous possible explanations for this, and it exceeds the scope of the model to speculate among them.

Food stamp usage is higher in areas with more children, and with more single parent households. Needs are greater, and households with children are more likely to satisfy eligibility requirements. Conversely, the number of older people in the area population is found to have little effect on food stamp usage.

Concerning ethnicity, the pattern of food stamp benefits across regions is unaffected by the presence or absence of either African-American or Hispanic households, but usage declines with other ethnic groups. We have no ready explanation for the difference, given the lack of specificity of the “other” category. It does appear that any differences in usage by the major ethnic groups is attributable to their over-representation in the poverty population. Finally, according to the model, households in the Western region makes significantly lower use of food stamps, correcting for the factors in the model.<sup>1</sup>

#### *Food Stamps and Food Spending*

We now consider whether the regional differences in food stamp usage lead to differences in the structure of food spending. For this purpose we estimate many regression models, all with similar form. In order to allow some degree of flexibility, all equations are estimated in double log form. For each, the dependent variable is a measure of market-level market share of a food category or aggregation of categories; in all equations the independent variables were the logarithms of the variables in the participation equation, including the dependent variable per

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<sup>1</sup>We found no significant differences among the simple sample means.

capita food stamp benefits. So the general estimating equation is of the form

$$C=f(\text{PCSTAMP, POVERTY, INCOME, HISPAN, AFRAM, OTHER, KIDS, SGLPAR, OLDER, UNEMPLOY, FEMLAB, REGION}), \quad (1)$$

where all variables except the region indicators are in logs.

Because we estimate numerous models, we can present only limited results, and for most of the equations will present none at all. Furthermore, most results are of no direct interest. We concentrate on two variables, PCSTAMP and POVERTY, and focus on  $t$  statistics. Notice that, with POVERTY in the model, the coefficient on PCSTAMP measures the effect on spending associated only with food stamps benefits.

### *Specific Categories*

With food stamps accounting for only a small portion of total food spending, we would not expect any dramatic changes in spending on specific grocery categories. As an ad hoc test of this assertion, the initial step in the analysis was to estimate (1) using a) market shares of 338 specific food categories, and, even more detailed, b) 160 specific cereal brands. Fortunately, these data sets had been prepared in the course of previous studies with the SAMI data. Then we simply tallied the number of  $t$  statistics on the STAMP coefficient that exceeded 2 in absolute value. Under a null hypothesis that food stamp benefits have little impact on the shares of specific food products and brands, “most” of the  $t$  statistics should be smaller than 2 in absolute value. In a sample of independent  $t$  statistics, we would expect approximately five percent to exceed that value. Of the 338 grocery product categories, 19, or about 6 percent, had  $t$  values with absolute value over 2. Of the 160 cereal brands, 6, or approximately 4 percent, were that large. This would seem to be indistinguishable with what would occur by chance if food stamps

have no effect.<sup>2</sup> But the assumption that the  $t$  statistics are independent is untenable, if for no other reason than the dependent variables in the original OLS models are shares, involving at least one perfect dependence. However, we think it unlikely that ignoring this is a major problem for present purposes.

### *Important Food Products*

Although differences in food stamp benefits across regions are not likely to have much of an effect on regional spending for a randomly chosen grocery category, it is of interest to examine their potential impact on certain food products. These include major foods, food types which tend to be income-sensitive, and foods with especially positive or negative nutritional characteristics. Some are specific categories; others are aggregations of categories. In this section we report the results for estimating (1) for 53 such selected foods. These are listed in table 3, along with the  $t$  statistics for the coefficients on STAMPS (average per capita food stamp benefits) and POVERTY. They are sorted by increasing values of the  $t$  statistics for STAMPS.

To put a great deal of stock in the particular  $t$  statistics would clearly be misplaced. Note there are but three on the STAMP variable which exceed 2, an outcome which could easily be due to chance. However, we believe there are meaningful patterns in the results, which are not due to chance.

1. Although most of the STAMP coefficients are not significant by conventional

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<sup>2</sup>Based on the normal approximation to the binomial, a 95 percent confidence interval for the number of success in  $n=338$  trials when the probability of success is .5 is 12.9 to 20.9; when  $n=160$  it is 5.2 to 10.8.

standards,<sup>3</sup> most are positive. Since a large number of the foods listed in the table are “basics,” this suggests that it is basic goods whose shares increase due to food stamp spending. This is a reasonable result, for if the percent of total grocery spending accounted for by low income households increases, we might expect a greater share of that spending to be devoted to basic foods.

2. With some exceptions, there is a tendency for larger STAMP  $t$ -values to be associated with more income-elastic goods. For example, frozen products are concentrated at the lower end of the table, as are items like butter and yogurt. Of the six foods which would qualify as significant at five percent three are frozen meat items; a fourth is bacon. These six foods are not necessarily highly correlated among themselves. We illustrate this by presenting their joint squared correlations (the  $R^2$  from regressing each on the other five) in table 4. They range from .12 for yogurt to .62 for frozen poultry dishes. They suggest that the apparent relation of each to food stamp benefits is not measuring some common relation.

3. There is some tendency for the more convenient products ( instant potatoes, for example) to be found lower down in the table.

4. There is a strong tendency for larger STAMP  $t$  statistics to be associated with smaller POVERTY  $t$  statistics. (Their simple correlation is  $-.8$ ). This makes sense. For example, it suggests that, holding poverty constant, an increase in food stamps will have the effect of undoing food spending adjustments made due to the food budget limits imposed by low income. We would certainly expect this, for food stamps can only be spent on food.

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<sup>3</sup>The critical  $t$  for a test against zero with size .05 is 2.02.

5. There is little evidence that food stamps divert consumers to either more or less nutritious foods. This is illustrated by the fact that both yogurt and bacon are among the foods estimated to be most benefitted by food stamp availability. This should not be surprising, for there is little evidence that any food buyers regard nutrition as a major factor in their food buying.

Table 3. Results for food category regressions.

CANNED MEAT	-1.04	0.29
DRY MILK	-0.63	0.19
INFANT FORMULA	-0.55	-0.03
COOKING OIL	-0.44	1.39
SHELF STABLE JUICE	-0.27	-0.81
LUNCH MEAT	-0.21	-0.01
CANNED FISH	-0.20	-0.60
REF ORANGE JUICE	-0.13	0.23
BABY FOOD	-0.02	-0.24
BAKING MIX	0.09	0.10
BAKING INGREDIENTS	0.19	0.18
PORK & BEANS	0.20	-0.01
PROCESSED CHEESE	0.22	-0.37
NATURAL CHEESE	0.25	-1.80
FROZEN SWEET GOODS	0.27	-0.65
DRY DINNERS	0.27	-0.29
SOLID SHORTENING	0.44	-0.13
INSTANT COFFEE	0.54	-0.41
DRIED FRUIT	0.54	-0.51
CANNED FRUIT	0.60	-1.41
CANNED VEGETABLES	0.61	-0.51
CEREAL	0.61	-1.45
FROZEN PIZZA	0.66	-1.12
SUGAR	0.69	-1.24
TEA	0.69	-1.13
MARGARINE	0.70	-0.47
FROZEN FRENCH FRIES	0.74	-1.45
SALAD DRESSING	0.78	-0.60
SOUP	0.79	-1.26
FROZEN VEGETABLES	0.95	-1.36
FROZEN BREAKFAST	1.01	-1.47
CANNED TUNA	1.03	-0.01
FRANKFURTERS	1.07	-1.15

LUX FROZ VEGETABLES	1.07	-1.97
BUTTER MARG BLENDS	1.09	-1.04
GUM	1.09	-2.83
PUDDING	1.14	-2.19
PASTA	1.31	-1.22
SAUSAGE	1.32	-0.88
FROZEN DINNERS	1.39	-2.12
SPAGHETTI SAUCE	1.40	-1.98
BUTTER	1.51	-2.42
INSTANT POTATOES	1.52	-1.93
FROZEN FISH	1.56	-2.67
FROZ ORANGE JUICE	1.59	-1.78
CANDY	1.72	-3.18
FROZEN DINNER ROLLS	2.00	-2.80
BACON	2.07	-1.46
FROZEN POULTRY DISHES	2.12	-2.68
YOGURT	2.25	-2.55
FROZEN MEAT DISHES	2.62	-4.33
FROZEN STEAKS	2.62	-3.15
BREWED COFFEE	2.79	-1.43

Table 4. Joint correlations ( $\sqrt{R^2}$ ) among 6 most significant categories in table 5.

CATEGORY	$\sqrt{R^2}$
BREWED COFFEE	0.52
FROZEN STEAKS	0.30
FROZEN MEAT DISHES	0.35
FROZEN POULTRY DISHES	0.62
BACON	0.12
YOGURT	0.26

Overall, then, the results in the table, while certainly not leading to any firm conclusions, do show a pattern that food stamps, if anything, cause some modest shifts to more expensive food categories, categories that have appeal in terms of quality and convenience. They clearly serve to counteract food budget restrictions brought by income limitations. That is, the evidence

here is that food stamp households are likely to behave the same as households whose incomes do not impose severe food budget restrictions.

### *Private Labels*

It is generally taken for granted that low income consumers obtain food as cheaply as they can given their available choices. This is a reasonable belief, since the lower the income, the higher its marginal utility, making a given cost savings of greater value. Thus, for example, finding that low-income households spend less per pound for food, a USDA report explains that “Low-income households select more economical foods such as store label and generic items, larger sizes, and lower quality items [in terms of sensory or convenience features] in order to attain lower food costs.” (Kaufman et al., p.16) But the report does not support this assertion.

We investigate it by considering purchasing patterns for private label products. We choose this because of data availability and because private label products are perhaps the most effective way to reduce food spending without jeopardizing nutrition nor changing the nature of the consumption bundle. They sell at a discount to major brands—averaging about 25 percent. However, they suffer from an image of low quality, despite the fact that respected sources like *Consumer Reports* often rate them at least as high as costlier national brands.

Despite conventional wisdom, the evidence is mixed as to whether low income buyers do buy store brands. Richardson et al. surveyed many studies which have examined the characteristics of the private label and generics consumer. While higher income households have generally been found to avoid store brands, *middle income* households are the most enthusiastic buyers. Surprisingly and importantly, studies have found very low income consumers reluctant to purchase store brands. Coe found that “Lower-income respondents

depended on advertising as a source of information...and equated quality with price.” (p.68) In a later study by Murphy (1978), lower income buyers also expressed a preference for national brands.

Indirect but important evidence is provided in the very USDA report noted above. Based on the USDA National Food Consumption Survey, they computed the ratio of per pound expenditures by low income households to that of all households for a wide range of food categories. Most of the ratios were less than 1, with the smallest for categories with the most options for quality substitution, such as fresh meats and seafood and frozen dinners.<sup>4</sup> For categories like frozen orange juice , frozen french fries, milk, eggs, and so on, with little opportunity for quality substitution, low income cost per pound was no lower and often higher than that of all households. Yet these are all categories where store brands are strong (in milk they are dominant), providing ample opportunity for cost savings. For tea bags, always available as a store brand, low income households paid twenty percent *more*. Yet in another part of the report are shown calculations using scanner data (from 3000 U.S. supermarkets for 1988- 1995) which indicate that buying store brand tea rather than the leading brand cuts spending by 46%, second only to graham cracker’s 52% among the 34 items considered. That this is the item for which low income households paid the greatest premium is hardly evidence that low income consumers are prone to store brands.

In short, analysis of the impact of low income households and food stamp benefits on shares of private label products is of interest. We study the role of food stamps and poverty in

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<sup>4</sup>Quality substitution involves, for example, whole chicken for boneless breast, frozen macaroni and cheese dinner for a frozen sirloin tips dinner, and so forth.



differences across markets on private label share of 66 grocery categories. A recent study by Gundersen and Oliveira might suggest that food stamp users are more likely to watch the food budget than are low income nonusers, suggesting different effects. We chose categories in which private labels are important and in which they compete primarily with a small number of national brands. We avoided those in which regional brands are prominent, since this reduces the validity of comparisons across market areas.

In table 5 we show the results from the 66 estimations of equation (1) with the indicated private label share as the dependent variable. We again present t statistics, this time for income as well as for food stamps and poverty. Also shown are the 1990 US sales. The t's are sorted by increasing values of those for STAMP. We see that the majority of these are positive, specifically 46 of them, or about 70 per cent. By comparison, only slightly more than half of the POVERTY t's are positive, as are about a third of those for INCOME. The respective averages of the three columns are .39, .11, and -.63. Focusing on the values exceeding |2|, while (not surprisingly) there are only three that large for STAMP, they are all positive; five of the nine for POVERTY are, and for INCOME only three of the sixteen are positive.

These observations show a broad pattern in which high income consumers, who are often more concerned with perceived quality than financial price, generally avoid private labels; low income buyers, who necessarily must be more attentive to cost, are less inclined to do so, *especially food stamp users*. In the context of this paper, the latter is the key outcome, although obviously it is not a statistically strong conclusion. But the results in table 4 certainly do *not* suggest that food stamp users are 'squandering' their benefits by replacing economical store brands with more expensive advertised brands. Furthermore, there is the clear indication that,

among low income households, those using food stamps are better food budget managers. This should not be too surprising, for by virtue of using food stamps a household demonstrates both a greater need to economize and a greater awareness of the means to do so. Such a household is likely to recognize the value of private label products.

Table 5. Results for private label regressions.

Category	Food Stamps	Poverty	Income	US Sales (\$mil.)
chocolate chips	-1.63	3.09	2.37	395.5
cream cheese	-1.6	0.37	-1.75	552.2
frozen fish	-1.55	3.01	0.85	896.9
pancake mix	-1.46	-0.6	-2.61	176.4
powdered sugar	-1.39	2.58	0.89	97.3
canned soup	-1.05	0.6	-2.01	2116.9
spanish olives	-0.84	2.37	1.88	141.8
processed cheese	-0.49	0.83	-1.19	2663.3
canned potatoes	-0.49	0.13	1.18	109.8
cold dessert toppings	-0.42	1.75	-0.51	354.6
baking powder & soda	-0.4	1.72	3.01	88
pasta	-0.38	0.6	1	1167.8
refrig biscuits	-0.34	0.21	-1.88	397.1
maple syrup	-0.29	0.05	-1.69	502.6
bottled water	-0.22	-0.25	-1.37	683.9
natural cheese	-0.13	0.17	-2.72	3561.7
butter	-0.09	-0.82	-2.81	646.4
tomato juice	-0.07	-0.18	-2.11	102.5
peanut butter	-0.06	0.59	-0.68	1012.8
margarine	0	-0.78	-2.72	1816.3
frozen lemonade	0.01	-0.79	-0.41	140
yogurt	0.02	1.94	0.34	1143.8
spaghetti sauce	0.04	1.21	0.78	1202.1
raisins	0.06	-0.67	-1.78	275.2
frozen potatoes	0.09	0.68	-0.19	898
vinegar	0.1	-0.48	-1.34	169.6
dried rice	0.25	1.84	1.18	547
tea bags	0.26	0.05	-1.78	539.2
frozen grape juice	0.33	-1.19	-2.41	118.3
canned tuna	0.42	-0.28	0.63	1518.1
canned kidney & misc beans	0.44	-1.2	-1.19	298.5
cake mixes	0.48	-1.67	-2.26	801
cooking & salad oils	0.5	-2.51	-3.59	1381.4
ground coffee	0.51	1.66	1.45	2498
marshmallows	0.51	0.71	1.46	102
tomato paste	0.53	-1	-3.18	153.2

tomatoe sauce	0.59	-1.08	-3.14	349.8
dehydrated soup	0.62	2.27	0.02	525.1
frozen spinach	0.63	0.26	0.41	83.1
ripe olives	0.63	0.82	1.24	195.8
canned asparagus	0.64	-0.55	-0.59	92.9
jams jellies & preserves	0.69	0.6	-0.16	680.6
milk flavorings	0.73	0.95	-0.36	443.3
canned peas	0.75	-1.17	-0.41	252.1
popcorn	0.78	-1.43	-4.1	602.7
frozen cauliflower	0.78	-0.02	0.22	28.5
bacon	0.84	-0.5	-1.24	1428.5
frozen brussel sprouts	0.85	0.61	0.74	36.6
spices & seasonings	0.89	2.58	2.26	794.5
instant potatoes	1.03	0.26	-1.77	276
canned peaches	1.06	-0.92	-2.09	323.8
lunch meat	1.11	-1.21	-1.22	3180.1
frankfurters	1.12	-0.05	-0.2	1774.9
canned green beans	1.18	-2.15	-1.55	430.2
frozen veg deluxe	1.18	0.26	-0.05	119.3
dry packaged dinners	1.25	-0.32	-1.49	1098.7
canned pineapple	1.25	-1.44	-1.23	273.5
frozen lima beans	1.28	0.46	0.29	71.6
barbecue sauce	1.33	-1.04	-0.36	373.6
frozen apple juice	1.45	-1.64	-1.95	171
catsup	1.5	-2.05	-1.56	531.1
regular soft drinks	1.61	-0.19	-0.22	899.2
evap condensed milk	1.85	-1.36	-1.19	374.6
meat sauce	2.05	0.23	1.01	244.3
dessert & ice cream toppings	2.3	1.8	1.45	105.7
baked beans	2.34	-0.3	0.69	516

### Concluding Remarks

In this study we used data from grocery marketing areas in an attempt to determine whether purchasing patterns for grocery products are affected by differences in food stamp benefits among buyers across areas. We have found modest evidence of impacts. In particular, there is some indication that food stamp beneficiaries use their increased food income to transfer spending to more desirable products. In other words, they behave exactly as should be expected, for as income increases, consumers shift to more desirable products. However, we found *no* evidence that food stamp benefits are being used to buy more expensive brands of what would have been purchased in the absence of food stamps. Indeed, through our analysis of private label

shares, our results suggest that food stamp users are more likely to be economical shoppers than are other low income buyers.

#### References

- Coe, Barbara D., "Private Versus National Preference Among Lower-and Middle-Income Consumers." *Journal of Retailing*, 1971, 47(3), pp. 61-72.
- Connor, John M. *Concentrations and Mergers in U.S. Wholesale Grocery Markets*, Research Bulletin RB-994, Department of Agricultural Economics, Purdue University, 2000.
- Gundersen, Craig, and Victor Oliveira. (2001) "The Food Stamp Program and Food Insufficiency." *American Journal of Agricultural Economics*, 83(4) November 2001 pp 875-887.
- Jekanowski, Mark and James Binkley. 2000. Food Purchase Diversity Across US Markets. *Agribusiness*, 16:4, 417-433.
- Kaufman, Philip R., James M. MacDonald, Steven M. Lutz, and David M. Smallwood. *Do the Poor Pay More for Food?*, 1997, Agricultural Economic Report No. 759,ERS, USDA, Washington, DC.
- Richardson, Paul S, Alan Dick, and Aruh K. Jain, "Household Store Brand Proneness: A Framework." *Journal of Retailing*, 1996:72(2),159-185.
- Wilde, Parke E., Paul E. McNamara, and Christine K. Ranney, "The Effect of Income and Food Programs on Dietary Quality: A Seemingly Unrelated Regression Approach with Error Components," *American Journal of Agricultural Economics*, 1999: 81 (4), 959-971.