



United States
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Office of
Analysis and
Evaluation

Food Retailers in the Food Stamp Program: Characteristics and Service to Program Participants

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Executive Summary

Food Retailers in the Food Stamp Program: Characteristics and Service to Participants

PURPOSE

This study presents a national assessment of the variety, quality and cost of food available at food retailers authorized by the Food Stamp Program (FSP). For over 20 years the FSP has been the cornerstone of the national commitment to protect the nutrition, health, and well being of America's low-income families. By design and law, the program seeks to achieve its nutritional goals by working through "normal channels of trade" – food retailers. It is therefore critical to know whether food stamp families are in fact able to purchase a variety of quality food at a reasonable price from food retailers authorized to accept food stamps.

In recent years, researchers and advocates for the poor have argued that access to food of reasonable quality and price through normal channels of trade may be problematic in low-income urban areas and sparsely populated rural areas. The concerns have been that the poor pay more for less, that chain supermarkets have left the inner city, and that food stamp families living in high-poverty urban and rural areas must buy their food from small stores with limited selection and high prices. The primary question addressed in this report is: do food stamp families have the same degree of access—not only in terms of proximity to food stores but also in terms of the quality, variety and price of food available in nearby stores—as families with higher incomes?

METHODS

We collected information on a market basket of foods from a nationally representative sample of almost 2,400 retailers authorized by the FSP. A market basket was analyzed to calculate three measures pertaining to the foods offered within each store: the percent of the market basket available for purchase (a measure of variety), an index of the quality of the items available for sale, and the annualized cost of purchasing the market basket at the store. In addition, we obtained the complete national listing of all 200,000 food retailers authorized by the FSP and analyzed it to show how the major types of food stores are distributed geographically¹. We linked census demographic data by ZIP Code to the street address for each store in both the market basket survey and the national listing in order to explore how store characteristics and service to food stamp participants vary by location in urban or rural ZIP Codes as well as by location in ZIP Codes where the percent of the population in poverty is high or low.

FINDINGS

The type of store at which food stamp customers buy food is critical, for store type determines the selection of food available and exerts a large influence on the cost of food. Quality of food does not vary by type of store. Our results confirm the common belief that supermarkets supply, on average,

¹ We use six categories: supermarkets, large groceries, small groceries, convenience stores and/or grocery/gas combinations, specialty stores (such as meat or produce markets) and "other" (such as general stores, co-ops, route vendors).

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nearly all food items in a market basket and have the lowest cost of any store type. Large grocery stores have an important role in food access. While a step down from supermarkets, they are closer to supermarkets than to other types of food retailers on both selection and cost. This is especially true in rural areas where large groceries provide the same level of selection and cost as supermarkets.

People and food stores appear to be located together. As a result few people lack access to supermarkets or large groceries. The population in poverty has about the same access to supermarkets as the general population. We sorted every ZIP Code into mutually exclusive categories: one or more supermarkets present, no supermarket but one or more large groceries present, small stores but no supermarket or large grocery, and no authorized store of any type present. Nationally, only 2 percent of the total population and 2 percent of the population under the poverty line live in ZIP Codes with no authorized food stores; 90 percent of the total population and 90 percent of the population under the poverty line live in ZIP Codes with at least one supermarket or large grocery present.

Store presence in high-poverty areas

The preceding analysis (which sorts ZIP Codes by the type of stores present within them) suggests that on the whole the food retailing system serves poor and non-poor alike. But this finding leaves open the possibility that specific communities may still have inadequate access. We therefore looked specifically at areas with high concentrations of people in poverty.

The average number of supermarkets in high-poverty urban areas is slightly less than in other urban areas, even when controlling for many of the market factors that influence store placement. We examined whether population, geographic size of the area, and supply and demand factors that influence food retailing can account for the number of supermarkets observed in an area (our analysis could not include the effect of zoning regulations or difficulties in assembling parcels of land). The estimated average number of supermarkets in high-poverty urban areas (0.9 supermarkets) is lower than the average number in lower-poverty urban areas (1.14 supermarkets). In rural high-poverty areas, market factors are sufficient to explain the number of supermarkets and large groceries that exist.

Availability and cost of food in high-poverty urban areas

Food stamp families shopping in high-poverty urban areas do not need to spend significantly more for food than those shopping in other areas. The cost of our market basket in supermarkets in urban high-poverty areas is nearly equivalent to stores in lower-poverty areas. When we examine where food stamp households actually shop, we find that they save money by selecting the stores that they visit. For those frequenting supermarkets in high-poverty areas, shoppers save approximately 4 cents on the dollar.

Food shoppers are able to find nearly the same percentage of our market basket available among supermarkets in high-poverty urban areas as in other urban areas. Some differences on specific *fresh* items were found. Only 33 percent of supermarkets in high-poverty areas carry fresh seafood compared to 83 percent in other urban areas. Among large groceries, fresh meat is *more* available in high-poverty areas than elsewhere; fresh produce slightly *less* available in high-poverty areas. Fresh produce and meat, however, are available in almost all supermarkets in urban areas regardless of location. Shoppers can find a high level of acceptable quality food in urban authorized stores, regardless of store type or location.

Although the cost, availability, and quality of food do not vary between urban supermarkets in high-poverty and other areas, the total shopping experience does. Supermarkets in high-poverty urban areas offer substantially fewer full-service departments and non-food product lines than

supermarkets in other urban areas. In addition, supermarkets in high-poverty urban areas offer 5 to 10 percent less variety in brands and package types than those in other areas.

Availability and cost of food in high-poverty rural areas

Among stores in rural areas, prices were always close to the same in high-poverty areas as in other areas. This was true both when calculated on a store basis or when adjusted for where participants actually shop.

Food stamp participants are able to find a slightly higher percentage of our market basket available among supermarkets in high-poverty rural areas as in other rural areas. Large groceries in rural areas provide the same level of selection as supermarkets. There is very little difference between high-poverty and other areas in level of selection. Moreover, in rural areas, shoppers can find acceptable quality food at virtually every authorized store: quality levels were identical across different store types and poverty levels.

CONCLUSION

Overall, these findings confirm that the design of the Food Stamp Program—to work through normal channels of retail trade—effectively reaches low-income populations and provides them with high quality food at reasonable prices. In most parts of the country, the low-income population can find supermarkets and large groceries that stock a wide selection of food that meets quality standards at reasonable prices. Other kinds of stores fill market niches when needed.

About forty percent of the rural population reside in localities without supermarkets or large groceries. However, this appears to reflect the economics of food retailing. Moreover, the absence of such stores does not fall disproportionately on the poor: proximity to stores is identical for both the population in poverty and the total population.¹ Finally, in rural areas, the price of the market basket was about the same among stores in high-poverty and lower-poverty areas.

In urban areas, the number of supermarkets and large grocery stores is lower in high-poverty areas than in other areas and the shopping experience in supermarkets (as measured by the number of full-service departments, non-food lines, availability of fresh seafood and variety of package types) is more restricted. However, there appears to be little effect on the cost of food. The price of our market basket was either about the same or lower among supermarkets and large groceries in high-poverty areas as among those in lower-poverty areas. The mix of stores in high-poverty urban areas is characterized by an extraordinarily high abundance of small groceries with less variety and higher prices than supermarkets. However, supermarkets exist in those same high-poverty urban areas and, based on actual food stamp redemption data, food stamp participants shop heavily at those supermarkets and appear to save about four cents on the dollar compared to supermarkets in other urban areas.

¹ Many observers point out that access to transportation may be problematic for low-income families and it is possible that the transportation burden of living in rural areas falls more on the poor than the non-poor.

Introduction

For more than 20 years the Food Stamp Program (FSP) has been the cornerstone of the national commitment to protect the nutrition, health, and well being of America's low-income families. Serving low-income families who need assistance to purchase nutritious food, the FSP is the only assistance program open to virtually everyone who meets income and asset levels. The program helped to provide food for an average of 25 million Americans each month of fiscal year 1996.

To meet its nutrition goal, it is critical that food stamp families be able to purchase a variety of quality food at a reasonable price. By design and law, the FSP works through "normal channels of trade," of which food retailers are the major component. Approximately 200,000 retail food stores are now permitted to accept and redeem food stamps. Food stores range from large chain supermarkets to small "mom and pop" groceries. In addition, the program has authorized other stores that offer a single line of food (e.g., produce markets) as well as those that sell food as a sideline to their primary business (e.g., general stores).

However, in the last ten years, low-income, urban areas and sparsely populated rural areas have been identified as places where access to food through normal channels of trade may be problematic.¹ In low-income urban areas, the major concern has been that residents do not have ready access to chain supermarkets within a reasonable distance and thus have to travel to do their shopping or purchase food from higher-priced, smaller stores within the area that offer less variety and quality. Rural areas are said to pose similar problems, but on a larger scale since distances required to reach population centers that have supermarkets are greater, and nearby smaller stores may not be as plentiful as in urban areas.

1. Recent studies include: (1) M. Green, *The Poor Pay More for Less*. New York City Department of Consumer Affairs, New York, 1991; (2) L. Ashman, et. al., *Seeds of Change: Strategies for Food Security for the Inner City*. Southern California Interfaith Hunger Coalition, Los Angeles, 1993; (3) D. M. Ambrose "Retail Grocery Pricing: Inner City, Suburban and Rural Comparisons," *Journal of Business*, Vol. 52, No.1, 1979 p. 993; (4) P. M. Morris, et. al. "Food Security in America: A Study of the Availability and Costs of Food," *Journal of Nutrition Education*, Vol 24. No. 1. Jan/Feb Supplement 1992. p.525; (5) E. G. Crockett, et. al. "Comparing the Cost of a Thrifty Food Plan Market Basket in Three Areas of New York State," *Journal of Nutrition Education*, Vol. 24 Jan/Feb Supplement, 1992. p. 765; (6) P.E. Nelson, *Analysis of the Impacts of Food Stamp Redemptions on Food Stores and Regions, Fiscal Year 1978*. Economic and Statistics Research Service, USDA. Technical Bulletin No. 1946, Washington D.C. April 1981; and (7) R. Cotterill. and A. W. Franklin, *The Urban Grocery Store Gap*. Food Marketing Policy Issue Paper No. 8. Food Marketing Policy Center, University of Connecticut, April 1995. Another important issue paper that provides an overview of the issues is "No Place to Shop: An Issue Paper", which is published by Public Voice for Food and Health Policy, Washington, D.C. February, 1996.

The purpose of this report is to present a national, authoritative assessment of access of food stamp participants and low-income Americans to food of good quality and reasonable prices. In presenting the findings, we first focus on the Nation at-large and examine differences in the ability of different types of stores authorized by the Food Stamp Program to supply foods of acceptable quality at a reasonable price. We then examine whether the mix of stores accessible to the low-income population is different than the mix available to the general population. Next we turn to the local level, highlighting high-poverty urban and rural areas. Finally, we explore whether local differences in the mix of stores has an impact on the selection, quality, and cost of foods. To a large extent, the question addressed in this report is: do food stamp families have the same degree of access—not only in terms of proximity but in terms of assured quality of services and food—as families with higher incomes?

This research is part of a larger Food and Consumer Service initiative to examine access to food from a variety of perspectives, including case studies of the proximity of food stamp households to authorized food stores, a conference on access to food, and an analysis of food purchasing patterns of low-income households.¹ This report provides an overview of the access issue, drawing from detailed analyses presented in a larger companion report and a detailed geographic analysis of access to food stores.

1. Two reports constitute the effort under the Authorized Food Retailer Characteristics Study. The companion report, which provides a more detailed analysis of the issues discussed here, is the Authorized Food Retailer Characteristics Study, Technical Report IV, February 1997, Food and Consumer Service., USDA. A second published report on 9 separate case studies of geographic access is: R. Mantovani and J. Welsh; The Authorized Food Retailer Characteristics Study: Technical Report III, February 1996, Food and Consumer Service. Another initiative was a conference on access to food (See R. Koralek Conference on Access to Food: September 18 and 19, 1995. Report of the Proceedings. November 1996. Food and Consumer Service, USDA.

Methodology

This section provides an overview of the study's sources of data and key measures.¹ We also present a road map to guide readers through the analytical strategy that underlies our findings.

Data Sources

The study is based on three sources of data. The first is a new, nationally representative survey of 2,378 FSP authorized retailers conducted specifically for this study. Sampled food retailers included every type of store open to the public and authorized to accept food stamps and ranged from chain supermarkets to informal food distribution centers.² As described below, this survey collected information on the prices, variety, quantity, and quality of foods from each store in the sample. The survey was conducted between April and August 1994. The response rate for the survey was approximately 95 percent.³

The second data source is the Store Tracking and Redemption Subsystem (STARS), a national database of retailers maintained by the Food and Consumer Service (FCS). From STARS we drew a data set containing the universe of approximately 200,000 food retailers that were open to the public and had authorization from FCS to accept food stamps at any time during calendar year 1993.⁴ Available data includes store type, street address, and level of sales and food stamp redemptions.

1. A detailed description of methods is available in Appendix C to the Authorized Food Retailer Characteristics Study: Technical Report IV, op. cit.

2. The survey – as well as the entire study – intentionally excludes Alaska, Hawaii and the territories and is representative of the 48 contiguous States. Because they are not “open to the public”, military commissaries and food wholesalers were also excluded and are the only categories of authorized “store” excluded from study databases.

3. A representative sample was selected from a frame of retailers located in the contiguous 48 States and authorized to redeem food stamps in 1993. A three-stage sampling approach with 40 Primary Sampling Units (PSUs) was used. Efforts were made to contact all sampled food stores; however only 2,378 stores were in business and willing to cooperate. A full description of the survey, the instruments, sample design, and data collection procedures are provided in Appendix B in Authorized Food Retailer Characteristics Study: Technical Report IV, op. cit.

4. Specifications on the data base supplied for this study can be found in the Retailer Characteristics Study Data Documentation Code book.

The final data source is census demographics for ZIP Code areas. In order to describe retailer characteristics by community we linked the stores in the first two data sets to a database of census demographics that allowed us to measure the urbanization and poverty characteristics of the ZIP Code in which the store is physically located.¹

Store-based Measures

Type of Store. The food retailing industry is characterized by a variety of stores that serve distinct market niches. Because the cost and selection of food may vary greatly by whether one shops at a supermarket or a gas 'n go convenience mart, our first analytic measure is type of store. The FSP recognizes 20 different types of stores. Almost 90 percent of the stores, however, are identified as one of five types: supermarkets, groceries, convenience stores, grocery/gas combination outlets, and specialty stores. Table 1 provides the definitions used in this study, the approximate number of each type of store as estimated by national trade organizations and the number of stores authorized by the FSP.

The Food Stamp Program "small to medium" sized grocery store category includes self-declared grocery stores with less than \$2 million in gross sales. Stores in this category range from very small "mom and pop" stores to larger stores indistinguishable from small supermarkets. Because of this large variation, we differentiated large grocery stores with gross sales of between \$500,000 and \$2 million from small grocery stores with gross sales of less than \$500,000.² This distinction is used throughout the analysis and applies to both the survey and STARS-based retailer data.

1. ZIP Code areas were the smallest geography that would allow us to map retailers to specific communities and their characteristics. Because these areas are smaller than counties, they allow us to more closely approximate access patterns within specific communities.

2. In classifying large groceries from small groceries, we selected a gross sales value that could reasonably define stores that could stand on their own in terms of meeting shopper's food needs. Preliminary work related to the retailer survey indicated that \$500,000 was a reasonable value.

Table 1
Profile of Retailers Authorized for The Food Stamp Program,
by Major Store Type

Store Type	Definition	Number Listed With Major Trade Organizations ¹	Number Authorized by FSP ²
Supermarkets	Food stores with \$2 million or more in annual gross sales and able to provide a full range of foods.	30,450	30,400
Groceries	Food stores that can provide a full range of foods with less than \$2 million in annual gross sales. In this study, large groceries (stores with annual gross sales between \$500,000 and \$2 million) are differentiated from small groceries (stores with annual gross sales of less than \$500,000).	42,550	Large Groceries: 13,541
			Small Groceries: 38,042
Convenience Stores and Grocery/Gas Combinations	Stores providing limited range of foods usually excluding fresh foods. These stores are generally aimed at supplementing larger stores and providing convenience in terms of their proximity to shoppers and hours of operation.	84,000	76,185
Specialty Stores	Stores specializing in one or two product lines such as produce, meats, or baked goods	18,500	17,352
Other Retailers	Includes health food stores, co-op food stores, routes, multi-stall and produce stands, general stores, and combination stores that sell food in addition to other goods.		23,881
<p>1. Sources for industry estimates are: Supermarkets and Groceries: Progressive Grocer Annual Report: April 1995; Convenience Stores and Grocery/Gas Retailers: Food Institute, Food Retailing Review, 1995; Specialty Stores: Food Marketing Review 1993-94 (AER-678), Economic Research Service, USDA, April 1994.</p> <p>2. Source for authorized retailer figures is Store Tracking and Redemption Subsystem (STARS): December 1993. Total number of stores equals 199,401. This number excludes authorized stores in Alaska, Hawaii, and the territories as well as retailers identifying themselves as wholesalers and military commissaries.</p> <p>Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997</p>			

Market Basket Measures. To obtain data on the price, quality, and variety of food available in authorized stores we sent data collectors to each store in the survey with instructions to identify both a core (42 item) and expanded (142 item) market basket of foods. Both market baskets included foods in all major food groups. Selection of items in the baskets was guided by the USDA Thrifty and Low Cost Food Plans. The items in the core market basket are presented in Figure 1 while the items in the larger market basket are presented in Appendix Figure A-1.

Figure 1

The Core Market Basket

Our measures of food cost and quality are based on the following items:

Fresh Ground Beef	Fresh Lettuce	Ice Cream	Canned Macaroni
Fresh Pork Chops	Fresh Tomatoes	Eggs	Catsup
Fresh Chicken	Frozen Orange Juice	Whole Wheat Flour	Peanut Butter
Fresh Fish Fillets	Frozen Potatoes	Dry Spaghetti	Canned Chicken Soup
Packaged Bacon	Canned Applesauce	White Rice	Canned Spaghetti Sauce
Frankfurters	Canned Corn	Corn Flakes	Soft Drinks, Cola
Canned Tuna	Canned Apple Juice	Bread	M&Ms type candy
Fresh Apples	Potato Chips	Crackers	Sugar
Fresh Bananas	Cheddar Cheese	Frozen Pot Pie	Coffee
Fresh Oranges	Stick Margarine	Frozen Pizza	
Fresh Potatoes	Whole White Milk	Dry Macaroni & Cheese	

Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997.

In each store, data collectors attempted to fill the 142 item market basket, which was used to calculate the percentage of these items actually available for purchase. The 42 items in the core market basket were priced and used to calculate the annual cost of purchasing the core items at that store. The items in the core market basket were also used to measure quality, which we calculated as the percentage of items that met standards set out by USDA.¹ Three key measures are used in this report:

- **Percent of Market Basket Available** - For each store we calculated the weighted percentage of the expanded market basket available to customers on the shelf when the data collector was in the store. Because some items are more frequently purchased than others calculating the simple percentage of all items available would have been misleading. To reflect the differential importance of each item in the expanded market basket, availability was calculated by using consumption weights derived for each item available in the market basket.²

1. The use of a core and expanded market basket reflected the greater burden associated with collecting cost, quality and quantity information. For more information on the rationale for specific items selected, please see data collection forms in Appendix C of the Authorized Food Retailer Characteristics Study: Technical Report IV, op. cit.

2. The consumption weights reflect the portion of the market basket accounted for by each item. It therefore reflects the importance of the items in the diets of low-income shoppers. The weights were derived from the 1987/1988 Nationwide Food Consumption Survey. The methodology relating to these weights is provided in Authorized Food Retailer Characteristics Study: Technical Report IV, op. cit.

- **Annual Cost of Market Basket**—Annual cost was calculated by weighting the price per pound of each product by its importance to the diet as determined by USDA's 1987/88 Nationwide Food Consumption Survey. Importance reflected amount purchased by a family of four during a year. The market basket for computing cost, quality and quantity was the core 42-item market basket, not the expanded basket used to measure availability. In developing this cost, we employed a low-cost strategy that used the item representing the lowest per-unit or pound cost within the product categories specified in Figure 1.
- **Percent of Acceptable Quality Items**—This measure was assessed by the proportion of acceptable items found in the core market basket. In assessing quality within a particular product, data collectors were told to attempt to find acceptable items and avoid poor quality items, if possible. For each food item, we established a quota representing the number of items that have to be purchased to meet shopping requirements of approximately 10 households. Within the food item, the quality measure represented the number of acceptable items over the total number present, up to the number established by the quota. Quality was determined by guidelines established in a 1975 USDA publication on "How to Buy Food For Enjoyment and Quality: Recommendations of the United States Department of Agriculture". Quality information on each item was weighted by its importance to the market basket

Analytic Strategy

Table 1 confirms that the United States Department of Agriculture, through the Food Stamp Program, has authorized a broad range of stores, covering virtually every category of food retailing and virtually every store that is a member of one of the trade associations that represent the different aspects of the food retailing industry. We therefore can eliminate prior Food Stamp Program authorization policy as a potential influence on access. In the study, we focus strictly on whether the normal channels of food retail trade adequately serve food stamp clients.

Previous examinations of the access issue imply that inner-city urban areas and poor rural areas have less access than other areas. Our primary analytic strategy therefore is to sort stores by their geographic location in areas categorized by varying levels of urbanization and poverty. Then, for the nation and for each combination of urbanization and poverty we present data on the mix of store types and the market basket characteristics of those stores.

In the study we utilize ZIP Code areas as our local areas. Every store in both our survey and STARS databases was linked by the ZIP Code of the store's location to demographic data compiled by the Census Bureau for that ZIP Code.¹ These ZIP Code areas were categorized by urbanization and poverty level in the following manner.

Urbanization. We utilize three categories based on urbanization level:²

- **Urban**—stores located in ZIP Codes with an urbanized population of 90 percent or more.
- **Rural**—stores located in ZIP Codes with an urbanized population of 10 percent or less.
- **Mixed**—stores located in the remaining ZIP Code areas.

Table 2 presents demographic information on each of these areas.

Table 2 Distribution of Geographic Area, Total U.S. Population, and Population in Poverty, by Urbanization Level*				
Urbanization Level	Percent of Total U.S. Land Area	Percent of Total U.S. Population	Percent of Total U.S. Population in Poverty	Percent of Total Authorized Food Stamp Retailers
Urban	3.2%	56.1%	52.8%	47.8%
Rural	64.2%	12.4%	14.8%	19.1%
Mixed	32.6%	31.5%	32.5%	33.1%
Total	100.0%	100.0%	100.0%	100.0%
N=29,073 * Excludes Hawaii, Alaska and U.S. territories Source: Macro International Inc., Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997.				

1. This procedure has several known limitations. For example, rural ZIP Code areas can be very large and access to a store located within the ZIP Code may not be easy. In urban areas, ZIP Code areas can be very small: there may be no supermarket within a particular urban ZIP Code but there may be a few blocks away in the neighboring ZIP Code. Despite problems such as these, ZIP Codes are the best of all feasible units for geographic analysis. For the purpose of this study, the potential inaccuracies in specific ZIP Codes will counterbalance each other and do not diminish the validity of the national picture as the focus of this study. For a fuller discussion of this issue see Authorized Food Retailer Characteristics Study: Technical Report IV, op. cit.

2. Urbanized population was estimated based on data provided by the 1990 Census. A ZIP Code area could contain an urbanization mix and therefore reflect both urban and rural experiences.

Poverty. Depending upon the analyses we categorize poverty in one of two ways:

- **Quintiles**—Within urban, mixed and rural areas, we divided ZIP Code areas into five quintiles based on their poverty rate. The quintiles are used for that portion of the analysis that describes the distribution of retailers nationally. The breakpoints (poverty rates) for each of the quintiles vary slightly from one table to the next. This signified different poverty rate distributions across the various urbanization levels. A footnote for each table provides the breakpoints.
- **High-Poverty/Other Areas**—With regard to the retailer characteristics survey data, we subdivided the retailers into two groups. The first included stores located in ZIP Codes where the number of households under the poverty level was equal to or more than 20 percent. These high-poverty areas are equivalent to the poorest quintile used in the national level analysis.

Findings

THE NATIONAL SITUATION

The type of store at which food stamp customers buy food is critical, for store type determines the selection of food available and exerts a large influence on the cost of food. In general, the quality of food is high and does not vary notably by type of store. However, there is some variation in the quality of fresh produce by store type. Table 3 presents our three key market basket measures by store type.

Table 3 Summary of Availability, Cost, Quality of Foods by Major Store Type Categories, and Total Redemptions of the Stores in These Categories					
Store Type	Average Percent of Market Basket Available	Annual Cost of Market Basket	Average Percent of Acceptable Quality Items	Food Stamp Redemptions	
				Amount (in millions of \$)	Pct. Of Total
Supermarkets	95%	\$871	99%	16,074.2	76.7%
Large Groceries	81%	\$1,000	98%	1,275.1	6.1%
Small Groceries	51%	\$1,169	97%	1,148.2	5.5%
Convenience Stores and Grocery/Gas Combinations	51%	\$1,303	99%	1,075.9	5.1%
Specialty Stores	20%	\$1,155	99%	818.6	3.9%
Other Retailers	29%	\$1,183	98%	564.8	2.7%
Total				20,956.8	100.0%

Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997.

- The results confirm the common belief that supermarkets supply, on average, nearly all food items in a market basket and have the lowest cost of any store type.
- Large grocery stores, although not providing the food selection and cost advantages of supermarkets, are closer to supermarkets than to other stores on both selection and cost.
- Other types of stores (smaller groceries, convenience stores, grocery/gasoline outlets, specialty stores, and other stores) have a significantly smaller selection of items available and charge notably more than supermarkets and large groceries. These stores are commonly perceived to occupy important niches in the food retailing industry, catering to ethnic food tastes, convenience or other aspects of the shopping experience.

- Quality does not vary substantially across store types for most foods. The variation in quality is greatest for fresh produce with supermarkets being able to supply quality items for 97 percent of the fresh produce in the market basket and small groceries being able to supply quality items for 86 percent of fresh produce in the market basket.¹

Food stamps are used largely in store types with the largest selection of foods and lowest costs.

Redemption information presented in Table 1 indicates food stamp households use most of their food stamps in supermarkets and large groceries, rather than in store categories with lower availability of food items. Seventy-seven percent of the food stamps are redeemed by supermarkets and 6 percent are redeemed by large groceries. It should be noted that supermarkets account for 15 percent and large groceries account for about 7 percent of all authorized stores. In other words, 80 percent of all food stamps are redeemed in about 20 percent of all stores.

The mix of store types varies considerably across urban and rural areas. Because the availability and price of food varies so much by store type, it is critical to know whether stores with higher availability and lower prices are uniformly present throughout the nation. Not surprisingly, there are substantial urban and rural differences (Table 4).

Table 4 Number and Percent of Stores, by Store Type and Urbanization Level of Store's Location								
Store Type	Urban Areas		Mixed Areas		Rural Areas		Total Areas	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Supermarkets	14,876	15.6%	12,228	18.6%	3,296	8.6%	30,400	15.2%
Large Groceries	5,349	5.6%	3,675	5.6%	4,517	11.8%	13,541	6.8%
Subtotal	20,225	21.2%	15,903	24.2%	7,813	20.4%	43,941	22.0%
Small Groceries	22,978	24.1%	7,572	11.5%	7,492	19.6%	38,042	19.1%
Convenience Stores and Grocery/Gas Combinations	31,809	33.3%	28,557	43.4%	15,819	41.5%	76,185	38.2%
Specialty Stores	9,670	10.1%	5,650	8.6%	2,032	5.3%	17,352	8.7%
Other Retailers	10,725	11.3%	8,169	12.3%	4,987	13.2%	23,881	12.0%
All Retailers	95,407	100.0%	65,851	100.0%	38,143	100.0%	199,401	100.0%
Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997.								

¹ We also examined the percentage of stores within each store type category that can supply 90 percent of the market basket of 10 households with foods meeting quality standards. Virtually all supermarkets (99.75 percent) meet this 90 percent test, but 7 percent of small groceries and 10 percent of "other" stores do not.

- Supermarkets constitute a larger share of authorized retailers in urban than in rural areas: they account for 16 percent of the authorized stores in urban areas but only 9 percent in rural areas. On the other hand, large groceries account for 6 percent of the authorized stores in urban areas but almost 12 percent in rural areas.
- Other stores contribute differently to the overall mix of retailers across the three urbanization categories. For instance, small groceries have a larger relative presence in urban and rural areas, while convenience stores have a larger relative presence in mixed and rural areas.
- Convenience stores and grocery/gas outlets are the most prevalent regardless of area. In urban areas, they account for one-third of the stores and in mixed and rural areas they account for more than 40 percent of the stores.

While the mix of food stores is not constant across urban and rural geographic areas, people and food stores appear to be located together. As a result few people lack access to supermarkets or large groceries. Somewhat surprisingly, the population in poverty has about the same access as the general population. We sorted every ZIP Code in the continental United States into the following five mutually exclusive categories that reflect the presence or absence of authorized supermarkets and large groceries:

- Two or more supermarkets present in the ZIP Code
- One supermarket present
- No supermarkets, but 1 or more large groceries present in the ZIP Code
- Only small stores in the ZIP Code, and
- No authorized food stores of any type present in the ZIP Code.

We then looked within each of these categories to see whether the population under the poverty line fares poorly compared to the general population. The results are provided in Table 5.

- **Only 4 percent of the total population in urban areas and just over 3 percent of those below the poverty line live in urban areas served only by small stores (i.e., with no authorized supermarket or large grocery).** About 1 percent of both the total population and the population in poverty live in areas with no stores. In urban areas, about 92 percent of the general population and 92 percent of the population under the poverty line are located in ZIP Code areas served by at least one supermarket.

Table 5
Distribution of ZIP Code Areas, Total Population, and Population Living in Poverty,
by Urbanization Level and Availability of Retailers

Urbanization Level and Availability of Retailers	ZIP Code Areas		Total Population		Population Living in Poverty	
	No.	Pct.	No.	Pct.	No.	Pct.
Urban Areas						
Two or More Supermarkets	3,559	59.8%	108,614,577	78.5%	13,190,754	78.5%
One Supermarket	1,215	20.4%	19,074,365	13.8%	2,218,138	13.2%
Large Grocery But No Supermarkets	270	4.5%	3,364,483	2.4%	711,600	4.2%
Smaller Stores but No Large Stores	581	9.8%	5,398,489	3.9%	556,925	3.3%
No Stores	322	5.5%	1,962,051	1.4%	129,720	0.8%
Total	5,947	100.0%	138,413,965	100.0%	16,807,137	100.0%
Mixed Areas						
Two or More Supermarkets	3,122	46.9%	57,107,355	73.4%	8,085,750	78.2%
One Supermarket	1,473	22.1%	13,065,598	16.8%	1,448,395	14.0%
Large Grocery But No Supermarkets	460	6.9%	2,484,642	3.2%	293,669	2.8%
Smaller Stores but No Large Stores	1,030	15.5%	4,028,049	5.2%	439,940	4.3%
No Stores	567	8.6%	1,158,136	1.4%	73,515	0.7%
Total	6,652	100.0%	77,843,780	100.0%	10,341,269	100.0%
Rural Areas						
Two or More Supermarkets	546	3.3%	3,149,332	10.3%	525,588	11.2%
One Supermarket	2,053	12.5%	7,972,658	26.1%	1,169,241	24.9%
Large Grocery But No Supermarkets	3,178	19.3%	7,180,605	23.5%	1,142,213	24.3%
Smaller Stores but No Large Stores	6,808	41.3%	9,520,590	31.2%	1,542,304	32.8%
No Stores	3,889	23.6%	2,706,677	8.9%	319,853	6.8%
Total	16,474	100.0%	30,529,862	100.0%	4,699,202	100.0%
All Areas						
Two or More Supermarkets	7,227	24.9%	168,871,264	68.4%	21,802,092	68.5%
One Supermarket	4,741	16.3%	40,112,621	16.3%	4,835,774	15.2%
Large Grocery But No Supermarkets	3,908	13.4%	13,029,730	5.3%	2,147,482	6.7%
Smaller Stores but No Large Stores	8,419	29.0%	18,947,128	7.7%	2,539,169	8.0%
No Stores	4,778	16.4%	5,826,864	2.3%	523,088	1.6%
Total	29,073	100.0%	246,787,607	100.0%	31,847,608	100.0%
N=29,073						
* Further information on characteristics of the various urbanization categories by poverty level is provided in Table A-1 in the Appendix. Information provided gives the population, population density, the area, poverty rate, and retailer density of each of the areas.						
Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997.						

- **Mixed areas with only small stores contain 5 percent of the general population and 4 percent of the poor.** In mixed areas, the proportion of individuals living in ZIP Code areas with at least one supermarket exceeds 91 percent for both the general population and the population in poverty. It must be noted, however, that mixed ZIP Codes tend to be substantially larger than urban ZIP Codes (79 square miles versus 8) so the similarity of the general and poverty populations is less certain.¹
- **Rural areas with only smaller stores present account for 31 percent of the overall population and a marginally higher 33 percent of the population in poverty. Rural areas without *any* stores account for 9 percent of the overall population and 7 percent of the poor.** In rural ZIP Code areas (which average 68 square miles), about 36 percent of the population live in areas that have a supermarket available within their boundaries. An additional 24 percent of the rural population live in areas that have a large grocery but no supermarket. Both these latter figures are the same for the rural poverty population and general rural population.
- **Nationally only about 8 percent of the general population and 8 percent of the population in poverty live in areas with only smaller stores.** Only 2 percent of either the general or poverty population live in areas without stores of any type.

Thus, when viewed from a population perspective, a relatively small proportion of the population seems to live in areas that have no food stores, and those living in poverty seem to have the same access to supermarkets or large groceries as the general population (at least at the level of ZIP Code areas).

The preceding analysis (which sorts ZIP Codes by the type of stores present within them) suggests that on the whole the food retailing system adequately serves poor and non-poor alike. But this finding leaves open the possibility that specific communities may still have inadequate access. In the next section therefore we identify urban and rural ZIP Codes where there are very high concentrations of people in poverty and compare them to areas where there are very few people in poverty. In doing so, our research interest changes slightly: we are no longer asking whether the normal channels of food retail trade reach the poverty population as a whole, rather we seek to determine whether there are some who are left behind by virtue of living in specific geographic areas.

¹ See Table A-1 in the Appendix. In mixed areas, square miles of the ZIP Code area increases as poverty increases but the number of stores per 5,000 residents also increases.

STORE PRESENCE AT THE LOCAL LEVEL

In areas with high concentrations of persons in poverty there are relatively more small stores than in other areas, regardless of urbanization. Tables 6 to 8 provide the share of stores within each urbanization level by poverty quintile:

- *In high-poverty urban areas, supermarkets account for 8 percent of authorized stores compared to 40 percent in low-poverty areas (Table 6). There are actually more supermarkets in high-poverty urban areas than low-poverty areas (2,882 vs. 2,384). However, there are 42 times more small groceries in high-poverty urban areas than low-poverty areas (12,991 vs. 307). As poverty level rises, the shares of all stores accounted for by small groceries increases from 5 percent to 35 percent, respectively. Small groceries are most prevalent in high-poverty urban areas.*

Table 6 Number and Percent of Stores in Urban Areas, by Store Type and Poverty Level of Store's Location												
Store Type	Poverty Rate Quintile of ZIP Code in Which Store is Located*											
	Lowest Poverty Rates		Second		Third		Fourth		Highest Poverty Rates		Total	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Supermarkets	2,384	39.8%	2,760	27.6%	3,354	20.3%	3,496	13.4%	2,882	7.8%	14,877	15.6%
Large Groceries	196	3.3%	443	4.4%	750	4.5%	1,477	5.7%	2,483	6.7%	5,349	5.6%
Subtotal	2,580	43.1%	3,203	32.0%	4,104	24.9%	4,973	19.1%	5,365	14.5%	20,226	21.2%
Small Groceries	307	5.1%	950	9.5%	2,426	14.7%	6,304	24.2%	12,991	35.2%	22,979	24.1%
Convenience Stores and Grocery/Gas Combinations	2,085	34.8%	3,856	38.6%	6,586	39.9%	9,096	35.0%	10,186	27.6%	31,810	33.3%
Specialty Stores	440	7.4%	921	9.2%	1,585	9.6%	2,716	10.4%	4,008	10.9%	9,670	10.1%
Other Retailers	571	9.6%	1,068	10.7%	1,800	11.0%	2,934	11.3%	4,352	11.8%	10,725	11.3%
All Retailers	5,983	100.0%	9,998	100.0%	16,501	100.0%	26,023	100.0%	36,902	100.0%	95,411	100.0%
* The median poverty rates by quintile are: 2.9 percent, 5.3 percent, 8.3 percent, 13.3 percent, and 26.5 percent.												
Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997.												

- *In high-poverty mixed areas, the representation of supermarkets is about half that in other mixed areas.* There are almost twice the number of supermarkets and three times the number of large groceries as there are in areas with the lowest levels of poverty. The difference in the number of small stores between high-poverty and other areas, while still dramatic, is less than in urban areas. Overall and by store type, there are more authorized retailers located in higher poverty mixed areas (Table 7). There are about ten times as many small groceries and five times as many convenience stores and grocery/gasoline outlets in high-poverty areas as in low-poverty areas. As a result, the share of all stores accounted for by supermarkets decreases from 29 percent to 13 percent as the poverty level increases.

Table 7
Number and Percent of Stores in Mixed Areas,
by Store Type and Poverty Level of Store's Location

Store Type	Poverty Rate Quintile of ZIP Code in Which Store is Located*											
	Lowest Poverty Rates		Second		Third		Fourth		Highest Poverty Rates		Total	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Supermarkets	1,594	29.2%	2,168	23.1%	2,524	20.1%	3,047	18.0%	2,895	13.4%	12,229	18.6%
Large Groceries	309	5.7%	540	5.8%	717	5.7%	976	5.8%	1,133	5.3%	3,675	5.6%
Subtotal	1,903	34.9%	2,708	28.9%	3,241	25.8%	4,023	23.8%	4,028	18.7%	15,904	24.2%
Small Groceries	309	5.7%	724	7.7%	1,194	9.5%	1,835	10.9%	3,510	16.3%	7,572	11.5%
Convenience Stores and Grocery/Gas Combinations	2,130	39.1%	4,013	42.8%	5,422	43.1%	7,388	43.7%	9,604	44.6%	28,559	43.4%
Specialty Stores	437	8.0%	789	8.4%	1,154	9.2%	1,445	8.5%	1,825	8.5%	5,650	8.6%
Other Retailers	675	12.3%	1,137	12.2%	1,568	12.4%	2,222	13.1%	2,567	11.9%	8,170	12.3%
All Retailers	5,454	100.0%	9,371	100.0%	12,579	100.0%	16,913	100.0%	21,534	100.0%	65,855	100.0%

* The median poverty rates by quintile are: 4.2 percent, 8.0 percent, 11.8 percent, 16.3 percent, and 24.2 percent.

Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997.

- In high-poverty rural areas, the representation of supermarkets is again less than in other areas.* However, the difference between high-poverty and other areas in supermarket representation is not as large as the difference in urban areas. There again are more small stores in high-poverty areas. As a result, supermarkets account for 15 percent of all the stores in low-poverty areas and 6 percent in high-poverty areas (Table 8). Large groceries account for almost twice as many of the stores in low-poverty areas as they do in high-poverty areas. As in urban and mixed areas, small groceries, and convenience stores and grocery/gas outlets have a larger share in higher poverty rural areas. Across all store types, there are greater similarities in store mix between low and high-poverty areas in rural areas than in urban areas.

Table 8
Number and Percent of Stores in Rural Areas,
by Store Type and Poverty Level of Store's Location

Store Type	Poverty Rate Quintile of ZIP Code in Which Store is Located*											
	Lowest Poverty Rates		Second		Third		Fourth		Highest Poverty Rates		Total	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Supermarkets	751	14.6%	608	10.3%	633	9.6%	619	7.4%	685	5.6%	1,304	6.4%
Large Groceries	733	14.2%	895	15.2%	929	14.1%	996	12.0%	964	7.9%	1,960	9.6%
Subtotal	1,484	28.8%	1,503	25.5%	1,562	23.7%	1,615	19.4%	1,649	13.5%	3,265	16.0%
Small Groceries	692	13.4%	954	16.2%	1,174	17.8%	1,629	19.6%	3,043	24.9%	4,673	22.8%
Convenience Stores and Grocery/Gas Combinations	1,979	38.4%	2,270	38.6%	2,630	39.9%	3,567	42.9%	5,373	44.1%	8,941	43.6%
Specialty Stores	321	6.2%	381	6.5%	402	6.1%	419	5.0%	509	4.2%	928	4.5%
Other Retailers	675	13.2%	768	13.2%	827	12.5%	1,094	13.1%	1,623	13.3%	2,717	13.1%
All Retailers	5,151	100.0%	5,876	100.0%	6,595	100.0%	8,324	100.0%	12,197	100.0%	20,524	100.0%

* The median poverty rates by quintile are: 6.9 percent, 11.1 percent, 14.6 percent, 19.0 percent, and 27.5 percent.

Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997.

Because of the economics of food retailing, some areas are less able than others to sustain supermarkets and large groceries. However, the average number of supermarkets in high-poverty urban areas is slightly less than in other urban areas, even when controlling for many of the market factors that influence store placement. Counts of the number of authorized supermarkets and large groceries by urbanization, and by poverty level do not adequately explain the greater presence of supermarkets in some areas over others. We investigated one possible explanation for this phenomenon: that the differences reflect the economics of the food retailing industry. This section details our findings.

To investigate this possibility, we examined whether population, geographic size of the area, and other market factors that influence food retailing can account for all or part of the differences we found. Because many factors come into play at once, we employed a Poisson regression framework.¹ The regression is set up to draw conclusions about the number of stores present in each of six geographic areas (our three urbanization levels crossed against two poverty levels). In these analyses, we have modified our approach with regard to defining poverty level. Instead of quintiles, we use two levels with high-poverty areas defined as those with a 20 percent or greater poverty rate. This split contrasts the very poorest communities with other communities. The regression provides the mean number of stores that should be expected to exist in each area based on the factors specified in Figure 2.

To keep our findings comparable with those in the previous section (which utilized poverty data available at the ZIP Code level), we limited the regression to variables available for ZIP Code areas from the 1990 Census. Therefore the equations do not reflect several important influences—such as zoning restrictions, the availability of food wholesalers and distributors, and the ability to assemble parcels of land within specific geographic locations. The regression nonetheless enables us to approximate the degree to which areas differ in supermarket and retailer availability after controlling for many supply and demand factors. These factors include population as well as other factors, and thus in effect provide an expected retailer density measure.

1. Poisson regression was used to estimate the number of supermarkets and large stores separately. A Poisson restriction was needed due to address the highly skewed nature of the store count data in which most cases had a value of zero.

Figure 2

Market Factors Relating to Predicting Store Location

Population Based Factors

- | | | |
|----|--|---|
| 1. | Population | general measure of demand |
| 2. | Population < 20 Years | included because young generally consume more food than the elderly |
| 3. | Population > 65 Years | included because elderly food intake and shopping differs from the rest of the population |
| 4. | Household Size | included because large households can achieve economies of scale in shopping, influencing demand for food separately from population |
| 5. | Households with children | included because the food purchases of households with children differ substantially from households without children |
| 6. | Access to vehicle | included because vehicles expand individuals shopping choices beyond the local area and is therefore a potential influence on local demand for food |
| 7. | High School Graduates | used as a proxy for education which can affect shopping preferences |
| 8. | Female Headed Households
Male Headed Households
Single Persons | used to reflect the effect in how household composition affects management of food shopping decisions |
| 9. | Hispanics, Blacks, Asian,
Foreign | used to indicate preference variables that can affect the type of stores frequented |

Household or Community Context Variables

The following variables are used to describe the population of the community identified by the ZIP Codes. These factors may relate to supply and to demand, but mostly provide a context for describing the community.

- | | | |
|----|------------------------------|---|
| 1. | Average No. of Rooms | density of residential housing development |
| 2. | Average time to commute | used as proxy for efficiency of transportation infrastructure |
| 3. | Use of public transportation | used as proxy for efficiency of transportation infrastructure |
| 4. | Area | general measure likely to be associated with the supply of food |
| 5. | Population Squared | included to allow for economies of scale. As population increases relative to geographic areas, at the higher density levels store size and efficiency levels can increase. |
| 6. | Absence of Plumbing | used to approximate the state of the infrastructure in the area and therefore the ease/difficulty of building or maintaining stores |
| 7. | Median Rent | used to approximate the cost of land in the area and therefore the cost of doing business |
| 8. | Employed in Services | used to approximate the local labor supply and, indirectly the cost of doing business in the area |
| 9. | Employed as an Operator | also used to approximate the local labor supply and indirectly, the cost of doing business in the area |

Interaction Terms

To capture the outcome we are most interested in—the joint effect of urbanization and poverty on the number of supermarkets and large groceries—we included five interaction terms. The five included terms are: Urban High-poverty, Mixed High-poverty, Rural High-poverty, Urban Other, Mixed Other. The effect including the preceding five interaction terms in the regression is that the regression intercept—i.e., the “constant” in Table 5—is “normed on Rural Other (i.e., non-high-poverty) areas.

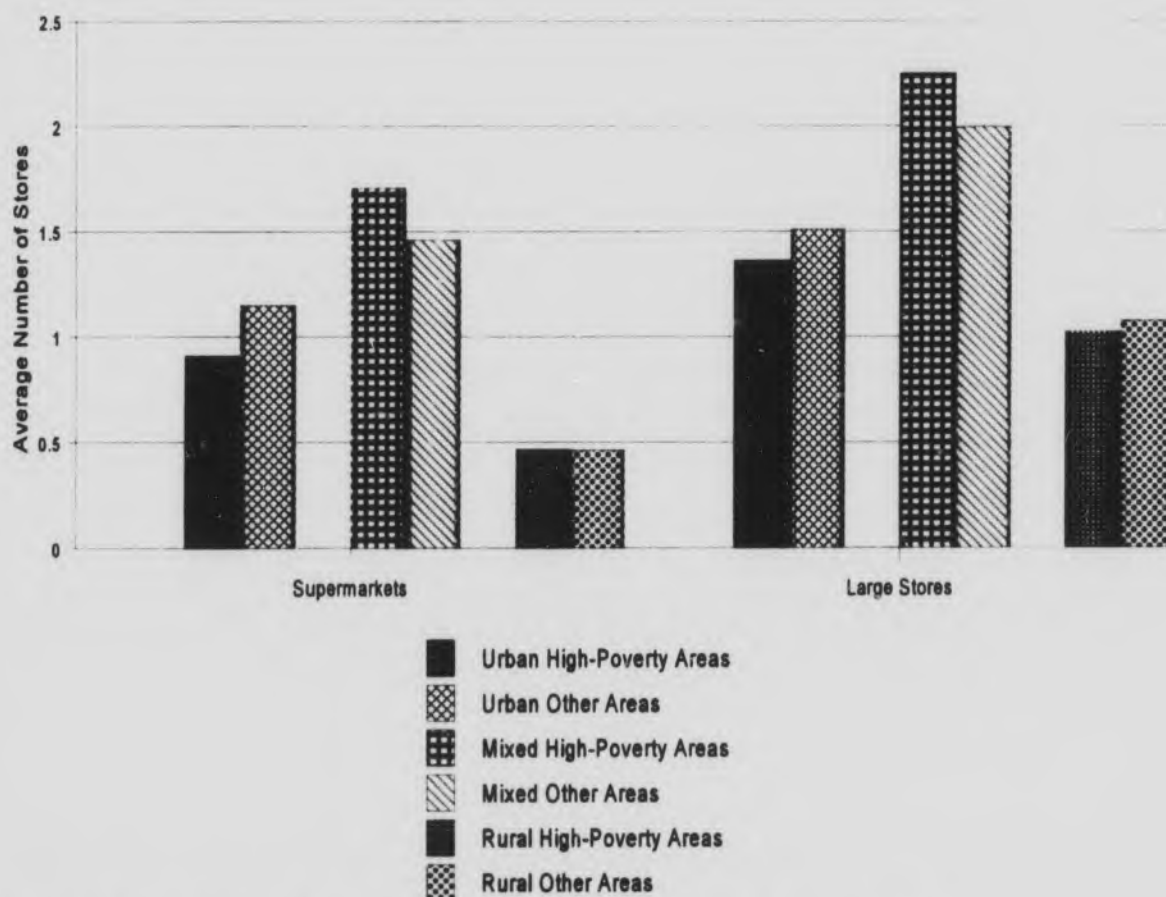
Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants. February, 1997.

Figure 3 presents a graphical depiction of the coefficients estimated for each of the urbanization and poverty level variables. The actual regression results are presented in Table A.2 in the Appendix.

- The estimated average number of supermarkets in high-poverty urban areas (0.9 stores) is lower than the average number in lower-poverty urban areas (1.14 stores). The regression coefficients are statistically significant.
- The number of estimated supermarkets is larger in high-poverty mixed areas than in lower-poverty mixed areas; and there is virtually no difference in the number of supermarkets in high-poverty and lower-poverty rural areas.

Figure 3

The Average Number of Stores in the Area Controlling for Demographics, by Store Type, Urbanization and Poverty Level



Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997.

Looking at the regression for *all* large stores (i.e., supermarkets plus large groceries), the coefficient in urban high-poverty areas (1.36 stores) is slightly lower than the average number of large stores in lower-poverty urban areas (1.5 stores). Again, both of the regression coefficients are statistically significant. These results mean that the market factors measured in our model do not sufficiently explain the fewer number of supermarkets and large groceries we find in urban high-poverty areas.¹

In rural high-poverty areas, the coefficient was not statistically significant, suggesting that the market factors in our regression are sufficient to explain the number of supermarkets and large groceries that exist.

AVAILABILITY AND COST OF FOOD AT THE LOCAL LEVEL

The previous sections document that supermarkets and large groceries account for a relatively smaller share of all stores in high-poverty areas than other areas and that in high-poverty urban areas there are fewer supermarkets and large groceries than expected based on a model of many factors that influence the economics of food retailing. This raises the possibility that food stamp participants living in high-poverty areas may be at a disadvantage either because prices may be higher and/or the variety of food available for purchase narrower. The following analyses compare authorized food retailers in high-poverty areas to retailers in other areas in terms of costs, selection, quality and services provided. Because the data for the coming analyses derive from our nationally representative survey of 2,378 retailers, we again collapse our categorization of poverty areas from five to two to improve the validity of comparisons. Therefore, high-poverty areas will now be defined as those areas with a poverty rate of 20 percent or more. This is very close to the areas defined as the fifth quintile in the previous section.²

High-Poverty Urban Areas

Food stamp families shopping in high-poverty urban areas do not need to spend significantly more for food than those shopping in other areas. The cost of our market basket in supermarkets in

1. In our model we were unable to control for some factors related to the cost of doing business (such as rent) and other difficulties in establishing viable stores (e.g., land use restrictions, land accumulation), which may account for some of the differences between high-poverty and other urban areas.

2. The high-poverty areas defined in these next tables are roughly equivalent to the fifth (high-poverty) quintile used previously. It also corresponds to one of the definitions used by HUD to qualify areas for the Enterprise Zone/Empowerment Community Program.

urban high-poverty areas is nearly equivalent to stores in lower-poverty areas, and the cost in the "other store" category in high-poverty urban areas is *lower* than similar stores in lower-poverty areas. Table 9 presents the costs (in dollars) of purchasing the market basket over or under the cost of purchasing the market basket in a typical supermarket.¹

- Among supermarkets in urban areas, the cost of our market basket is 2 percent higher in high-poverty areas than in other areas. Among supermarkets nationally, the cost of our market basket is 4 percent lower in high-poverty areas than in other areas
- Among large groceries (both urban and national), prices are lower at stores in high-poverty areas than in stores in other areas.

Table 9			
Cost Index, by Store Type and Poverty Level, in Urban Areas (^a Supermarket Cost = 1.00)			
	High-Poverty Areas	Other Areas	All Areas
Urban Areas			
Supermarkets	1.02	1.00	1.00
Large Groceries	1.13	1.27	1.24
Other Stores	1.41	1.48	1.46
All Areas (Includes Urban, Mixed and Rural Areas)			
Supermarkets	.96	1.00	1.00
Large Groceries	1.09	1.16	1.15
Other Stores	1.37	1.43	1.42
N=2,378			
Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997.			

The costs computed for each of the major store types above assume that shoppers are equally likely to purchase an item from any store. This "store-based" cost therefore does not reflect the actual purchase patterns of FSP recipients as represented by the level of food stamp redemptions within individual stores. Redemption-based costs consider where food stamp households shop.

1. The cost measure was calculated as an index with the cost of the market basket at supermarkets used as a base. Costs at other types of stores were calculated as a percentage of this base. The cost index provides several advantages over reporting actual costs. First, because the market basket on which price information is collected is only a partial and selective version of a list of foods that would be actually purchased, the cost should not be the focus. The index provides information on relative costs. Second, the index provides a method to avoid price imputation when stores in a certain category do not carry a line of food. In this case, the index is formed only from those items available in all stores within that category. The supermarket base then consists of those items that are present in the comparison category.

Therefore, to examine how choice of store might alter the comparison, we calculated cost weighted by the redemptions of food stamps in the sampled stores and indexed the result to the store-based measure. This redemption-based measure reflects the savings (or additional costs) experienced by participants using some authorized stores within a given type over others. The redemption-based costs for urban areas are presented in Table 10. The redemption-based costs are indexed on overall supermarket cost presented in Table 9. Thus, all comparisons reflect the percentage saved by participants by shopping in particular types of stores.

When we examine where food stamp households actually shop, we find that they save money by selecting the stores that they visit. For those frequenting supermarkets in high-poverty areas, shoppers save approximately 4 cents on the dollar. Food Stamp Program households are apparently using food stamps in less expensive supermarkets and large groceries. Even for small stores, redemption-based costs are less than store-based costs.

Table 10 Redemption-Based Costs, by Store Type and Poverty Level, in Urban Areas (Store-Based Supermarket Cost=1.00)			
	High-Poverty Areas	Other Areas	All Areas
Urban Areas			
Supermarkets	0.94	0.96	0.96
Large Groceries	1.08	1.17	1.12
Other Stores	1.27	1.39	1.31
All Areas (Includes Urban, Mixed and Rural Areas)			
Supermarkets	.94	.96	.96
Large Groceries	1.05	1.08	1.06
Other Stores	1.27	1.32	1.30
N=2,378 Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997.			

In urban areas, redemption-based costs in supermarkets are slightly lower in high-poverty areas. This is reversed from the store-based cost figures, in which slightly higher costs are detected in high-poverty areas. The redemption-based cost in large groceries was still higher than in supermarkets in urban areas, but not as high as in large groceries in general.

Food shoppers are able to find nearly the same percentage of our market basket available among supermarkets in high-poverty urban areas as in other urban areas. Among large groceries availability of items in the market basket was marginally lower in high-poverty areas than other areas.

Table 11 gives the average percent of the market basket filled in stores located in urban areas:

- Whereas supermarkets, on average, were able to supply more than 95 percent of the market basket, large groceries could supply just over two-thirds, and other stores were able to supply two-fifths.
- When all food stores are considered regardless of type (and regardless of redemptions), food stores in high-poverty areas could supply 46 percent of the market basket compared to 57 percent for food stores in other areas. This reflects the greater number of smaller stores in high-poverty areas.

Table 11 Average Percent of Market Basket Available, by Store Type, and Poverty Level in Urban Areas			
Store Type	High-Poverty Areas	Other Areas	All Areas
Urban Areas			
Supermarkets	94%	96%	96%
Large Groceries	67%	70%	69%
Other Stores	40%	44%	43%
All Stores	44%	55%	52%
All Areas			
Supermarkets	96%	95%	95%
Large Groceries	78%	82%	81%
Other Stores	41%	45%	44%
All Stores	46%	57%	54%
N=2,378			
Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997.			

Shoppers can find a high level of acceptable quality food in urban authorized stores, regardless of store type or location. The lowest average proportion of foods in the market basket of acceptable quality (97 percent) is found in the "other store" category located in high-poverty urban areas.

While the overall percentage of the market basket available did not substantially vary according to a store's location in high-poverty or lower-poverty urban areas, some differences can be noted in the availability of fresh meat, fresh seafood and fresh produce.

- Fresh meat was available in all urban supermarkets. It is found in 92 percent of the large groceries in high-poverty areas and 75 percent of the large groceries in other urban areas. Fresh meat was found in 45 percent of the other stores in high-poverty areas and 38 percent of the other stores in other areas.
- Except for supermarkets, fresh seafood is generally unavailable in most stores in high-poverty areas. Only 14 percent of the large groceries and 6 percent of the other stores carry this item. Even among supermarkets, only 33 percent in high-poverty areas carry fresh seafood. This compares to 83 percent in other urban areas.
- Fresh produce is available in almost all supermarkets in urban areas in both high-poverty and other areas; it is carried in about 85 percent of the large groceries in high-poverty areas and 95 percent of the large groceries in other areas.

Although the cost, availability, and quality of food do not vary between urban supermarkets in high-poverty and other areas, the total shopping experience does. Supermarkets in high-poverty urban areas offer substantially fewer full-service departments and non-food product lines than supermarkets in other areas. Table 12 displays these data for supermarkets in urban and all areas:

- Supermarkets in high-poverty urban areas have half the number of full-service departments as supermarkets in other urban areas.
- Moreover, supermarkets in high-poverty urban areas offer about a fourth fewer non-food product lines than supermarkets in other areas.
- Finally, supermarkets in high-poverty urban areas offer 5 to 10 percent less variety in brands and package types than those in other areas.¹

¹ With regard to variety in brands, stores in high-poverty areas offer an average of 1.90 different brands while those in other areas offer an average of 2.05 different brands. The corresponding figures for package types are 2.11 and 2.31.

Table 12			
Extent to Which Supermarkets Have Full Service Departments and Non-Food Product Lines, by Poverty Levels, and Urbanization Level of Area			
	High-Poverty Areas	Other Areas	All Areas
Urban Areas			
Full Service Departments	1.7	3.5	3.4
Non Food Product Lines	7.9	10.1	9.9
All Areas (Includes Urban, Mixed and Rural Area)			
Full Service Departments	2.2	3.1	3.0
Non Food Product Lines	9.3	10.0	10.0
N=2,478			
Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997.			

While food stamps can only be used for food, food stamp participants use their cash income for non-food necessities. Because they are less able to do so in high-poverty urban area supermarkets than those in other areas, urban food stamp participants may perceive high-poverty area supermarkets as less satisfactory than those in low-poverty areas.

High-Poverty Rural and Mixed Areas

Among stores in mixed and rural areas, prices were always lower or close to the same in high-poverty areas as in other areas. This was true whether calculated on a store basis or adjusted for where food stamp participants actually shop (redemption basis).

- Market basket costs in rural supermarkets are less in high-poverty areas than other rural areas. This is true when calculated on either a store basis (Table 13) or a redemption basis (Table 14).
- Market basket costs among supermarkets in mixed areas are about the same for high-poverty and other areas.
- In rural areas, the market basket in large groceries in high-poverty areas had nearly the same cost as supermarkets.

Table 13			
Store-Based Costs, by Store Type, and Poverty Level, in Rural and Mixed Areas (Supermarket Cost =1.00)			
	High-Poverty Areas	Other Areas	All Areas
Mixed Areas			
Supermarkets	0.93	0.98	0.98
Large Groceries	1.14	1.13	1.13
Other Stores	1.35	1.43	1.41
Rural Areas			
Supermarkets	0.93	1.05	1.04
Large Groceries	0.91	1.11	1.09
Other Stores	1.31	1.34	1.34
All Areas			
Supermarkets	0.96	1.00	1.00
Large Groceries	1.09	1.16	1.15
Other Stores	1.37	1.43	1.42
N=2,378			
Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997.			

Table 14			
Redemption-Based Costs, by Store Type and, Poverty Level, in Rural and Mixed Areas (Store-Based Supermarket Cost=1.00)			
	High-Poverty Areas	Other Areas	All Areas
Mixed Areas			
Supermarkets	0.94	0.96	0.96
Large Groceries	1.05	1.08	1.06
Other Stores	1.27	1.32	1.30
Rural Areas			
Supermarkets	0.93	0.96	0.95
Large Groceries	0.90	1.04	1.02
Other Stores	1.26	1.29	1.28
All Areas (includes Urban, Mixed and Rural Areas)			
Supermarkets	0.94	0.96	.96
Large Groceries	1.05	1.08	1.06
Other Stores	1.27	1.32	1.30
N=2,378			
Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997.			

Food shoppers are able to find a greater percentage of the market basket in high-poverty rural supermarkets than in other rural areas. Supermarkets in high-poverty mixed areas also can supply a slightly higher proportion of the market basket than supermarkets in other mixed areas. Large groceries in high-poverty rural areas also provide more of the market basket than large groceries in other rural areas. Large groceries in rural areas provide about the same level of selection as supermarkets.

Table 15 gives the average percent of the market basket filled in stores located in mixed and rural areas:

- In mixed areas, supermarkets were able to supply 95 percent of the market basket, while large groceries supplied 84 percent and "other" stores supplied 42 percent. When all food stores are considered, those in high-poverty areas could supply 47 percent of the market basket compared to 56 percent in other areas.
- In rural areas, supermarkets and large groceries were able to supply about 90 percent of the market basket and "other" stores were able to supply 50 percent. Again, when availability of the market basket is considered apart from store type, those stores in high-poverty areas could supply 49 percent of the market basket compared to 63 percent in other areas.

Table 15			
Average Percent of Market Basket Available, by Store Type, and Poverty Level and Urbanization Level of Area			
	High-Poverty Areas	Other Areas	All Areas
Mixed Areas			
Supermarkets	97%	94%	95%
Large Groceries	83%	84%	84%
Other Stores	39%	43%	42%
All Stores	47%	56%	54%
Rural Areas			
Supermarkets	97%	91%	91%
Large Groceries	95%	90%	90%
Other Stores	44%	52%	50%
All Stores	49%	63%	60%
All Areas (Includes Urban, Mixed and Rural Areas)			
Supermarkets	96%	95%	95%
Large Groceries	78%	82%	81%
Other Stores	41%	45%	44%
All Stores	46%	57%	54%
N=2,378			
Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997			

In rural and mixed areas, shoppers can find acceptable quality food at virtually every authorized store: quality levels were identical across different store types and poverty levels.

With the exception of seafood, fresh food is available among large groceries and supermarkets in rural and mixed areas.

- Fresh meat is available in more than 96 of the supermarkets and large groceries in rural areas. In mixed areas, fresh meat is available in more than 97 percent of the supermarkets and 90 percent of the large groceries. There are only slight differences between high-poverty and other areas.
- Fresh seafood is generally unavailable in most rural area stores. This item is available in just half of the supermarkets in high-poverty rural areas and about one-third of the supermarkets in other areas. Outside of supermarkets, it is not generally available.
- Fresh produce is available in over 95 percent of the supermarkets and large groceries in mixed and rural areas. It is also available to a larger degree in smaller stores in rural areas than mixed areas. In rural areas, approximately 80 percent of the stores carries fresh produce.

Unlike urban areas, the shopping experience in supermarkets is similar in high-poverty and other rural areas (Table 16). The number of full-service departments and non-food product lines offered by supermarkets in rural and mixed areas does not vary by location.

Table 16 Extent to Which Supermarkets Have Full Service Departments and Non-Food Product Lines, by Poverty Level, and Urbanization Level of Area			
	High-Poverty Areas	Other Areas	All Areas
Mixed Areas			
Full Service Departments	2.7	2.9	2.9
Non Food Product Lines	10.2	10.2	10.2
Rural Areas			
Full Service Departments	2.2	2.1	2.1
Non Food Product Lines	9.3	9.4	9.4
All Areas (Includes Urban, Mixed and Rural Areas)			
Full Service Departments	2.2	3.1	3.0
Non Food Product Lines	9.3	10.0	10.0
N=2,478			
Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997.			

CONCLUSIONS

Overall, these findings confirm that the design of the Food Stamp Program—to work through normal channels of retail trade—effectively reaches low-income populations and provides them with high quality food at reasonable prices. In most parts of the country, the low-income population can find supermarkets and large groceries that stock a wide selection of food that meets quality standards at reasonable prices. Other kinds of stores fill market niches when needed.

About forty percent of the rural population resides in localities without supermarkets or large groceries. However, this appears to reflect the economics of food retailing. Moreover, the absence of such stores does not fall disproportionately on the poor. Proximity to stores is identical for both the population in poverty and the total population.¹ Finally, in rural areas, the price of the market basket was uniformly lower among stores in high-poverty areas.

In high-poverty urban areas, the number of supermarkets and large grocery stores is lower than predicted by a model of retailing supply and demand variables. In addition, the shopping experience in supermarkets (as measured by the number of full-service departments, non-food lines, and availability of fresh seafood, and in the variety of brands and packaging available) is more restricted. However, there appears to be little effect on the cost of food. The price of our market basket was either about the same or lower among supermarkets and large groceries in high-poverty areas as among those in non-poverty areas. The mix of stores in high-poverty urban areas is characterized by an extraordinarily high abundance of small groceries with less variety and higher prices than supermarkets. However, supermarkets exist in those same high-poverty urban areas and, based on actual food stamp redemption data, food stamp participants frequent those supermarkets in high numbers and appear to save about four cents on the dollar compared to supermarkets in other urban areas.

1. Many observers point out that access to transportation may be problematic for low-income families and it is possible that the transportation burden of living in rural areas falls more on the poor than the non-poor. As a recent report has indicated (R. Mantovani and J. Welsh; Authorized Retailer Characteristics Study: Technical Report III, February 1996, Food and Consumer Service, USDA), most individuals live in or near to towns or small cities in rural areas.

APPENDIX

Reference Tables

Figure A-1

Full Market Basket Used for Data Collection

Fresh/Perishables	Frozen	Canned/Bottled	Dried
Apples	Green Beans	Applesauce	Fruits
Bananas	Broccoli	Green Beans	Peas, Beans
Green Beans	Carrots	Cabbage or Sauerkraut	Potato Chips
Broccoli	Corn	Carrots	White Potatoes
Cabbage	Fruit	Corn	Fish
Carrots	Orange Juice	Apple Juice	Eggs
Cantaloupe	Onions	Orange Juice	Skim/Lowfat Milk
Celery	Peas	Tomato Juice	Bran/Wheat Cereal
Corn	Potatoes	Onions	Rich/Corn Cereal
Cucumbers	Ground Beef	Oranges	Presweetened Cereal
Orange Juice	Chicken	Peas	Unsweetened Corn Flakes
Lettuce	Fish Filets	Peaches	Cookies
Onions	Breaded Fish	Potatoes, White	Cornmeal
Oranges	Ham	Squash	Soda Crackers
Peaches	Pork Sausage	Tomatoes	All Purpose Flour
Potatoes, White	Turkey	Fish	Whole Wheat Flours
Squash	Yogurt	Frankfurters	M & M Type Candy
Tomatoes	Bread, Any Type	Ham	Oatmeal
Bacon	Grain Based Breakfast Foods	Poultry	Macaroni
Roast Beef	Sweet Baked Goods	Pork Sausage	Popcorn
Ground Beef	Chicken /Beef Dinner	Tuna	Salt
Cold Cuts	Meat Pot Pie	Baked Beans	Spaghetti Dry
Chicken Parts	Ice Cream	Canned Beans	White Sugar
Chicken Whole	Macaroni and Cheese	Catsup	White Rice
Fish Filets	Macaroni & Meat	Macaroni and Sauce	Macaroni and Cheese Dinner
Frankfurters	Frozen Pizza	Dry Roasted Peanuts	Pizza Mixes
Ham, Not Canned		Peanut Butter	Soup Mixes
Pork Chops		Soup, with Meat	Coffee Regular
Pork Sausage		Soup, Non-Meat	Coffee Instant
Fresh Turkey		Soup Chicken Noodle	Peeper/Spices
Butter		Spaghetti Sauce, Meatless	Powdered Ades
Cheddar Cheese		Hydrogenated Vegetable Fat	Salad Dressing Mixes
Cottage Cheese		Jelly	Tea
Eggs		Mayonnaise	
Soft Tub Margarine		Canned Whole Milk	
Skimmed Milk		Milk(Skim/Lowfat/Evaporat	
Yogurt		ed	
Donuts/Pastry		Salad Dressing	
White Bread		Diet Soft Drinks	
Other Bread		Non Diet Soft Drinks	
Fresh Meat Pot Pie		Maple or Corn Syrup	
Fresh Pizza		Vinegar	

* This market basket was assembled to assess availability along several dimensions of variety. Although the market basket is not representative, it does include the item categories accounting for a large proportion of food purchases. It should be noted that in some cases, items may be difficult to find in many stores (dried fish). Including such items allow us to distinguish between different levels of variety across different store types. For more information on how information on these products were used for the analysis, see Appendix B of Authorized Food Retailer Characteristics Study: Technical Report IV, February 1997. The Food and Consumer Services, USDA.

Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997.

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Table A-1

Geographic, Population, and Retailer Characteristics of ZIP Code Areas,
by Urbanization Level and Poverty Quintile

Urbanization Level	Poverty Quintile	Median Area (Square Miles)	Median Population	Median Density (Persons Per Sq. Mile)	Median Poverty Level	Supermarkets		Large Stores		Total Stores	
						Median Number	Median Density*	Median Number	Median Density*	Median Number	Median Density*
Urban	0-20%	9	16804	1911	2.9	2	0.09	2	0.10	4	0.22
	20-40%	8	20604	2543	5.3	2	0.09	2	0.11	7	0.35
	40-60%	8	22969	2719	8.3	2	0.10	3	0.13	11	0.53
	60%-80%	7	24174	3166	13.3	2	0.10	3	0.15	17	0.77
	80%-100%	4	20242	4064	26.5	2	0.09	3	0.17	23	1.26
Mixed	0%-20%	27	8203	311	4.2	1	0.07	1	0.10	3	0.33
	20-40%	47	8382	172	8.0	1	0.12	1	0.16	5	0.58
	40-60%	79	8348	106	11.8	1	0.14	2	0.20	6	0.75
	60%-80%	106	8835	83	16.3	2	0.17	2	0.24	9	0.98
	80%-100%	134	8013	54	24.2	2	0.18	2	0.26	12	1.43
Rural	0-20%	36	1698	54	6.9	0	0.00	0	0.00	1	0.53
	20-40%	51	1252	26	11.1	0	0.00	0	0.00	1	0.86
	40-60%	68	1075	18	14.6	0	0.00	0	0.00	1	1.06
	60%-80%	75	1082	17	19.0	0	0.00	0	0.00	2	1.36
	80%-100%	68	1123	19	27.5	0	0.00	0	0.00	2	2.02

* Density is the number of stores per 5,000 persons.

N=29,073

Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997.

Table A.2

**Regression Coefficients Demonstrating
the Effects of Selected Demographic and Housing Measures on Store Location**

Measure	Large Stores		Supermarkets	
	Coefficient	t-Value	Coefficient	t-Value
Constant	-0.6831	-5.29	-0.8971	-5.83
Area	0.0001	10.34	0.0001	8.02
Population	0.0831	83.85	0.0916	73.85
Population Squared	-0.0006	-44.19	-0.0008	-41.21
Population <20 Years	7.1012	1.92	-0.0049	-1.51
Population >65 Years	28.2020	6.89	0.0058	3.18
Household size	-1.8624	-7.90	-0.4596	-10.25
Female Headed Households	13.8450	5.79	0.0076	3.49
Male Headed Households	30.4617	-4.39	-0.0540	-8.63
Households with Children	0.0075	4.08	0.0095	4.23
Single Persons	0.0001	5.30	0.0000	1.79
Hispanics	0.0000	-0.67	0.0000	4.51
Blacks	-0.0018	-3.63	-0.0014	-2.24
Asian	0.0033	2.39	0.0012	0.68
Foreign	0.0057	5.37	0.0012	0.86
High School Graduate	-0.0081	-8.64	-0.0061	-5.13
Average No. of Rooms	0.0219	1.81	0.0507	3.48
Median Rent	0.0001	1.22	0.0003	3.40
Absence of Plumbing	-0.0257	-9.00	-0.0190	-4.66
Employed in Services	-0.0008	-0.73	-0.0006	-0.48
Employed as an Operator	0.0104	8.95	0.0122	8.15
Average Time of Commute	-0.0042	-3.21	-0.0042	-2.56
Use of Public Transportation	-0.0017	-1.42	-0.0008	-0.55
Access to Vehicle	0.0040	3.08	0.0019	1.15
Urban High-poverty	0.2374	7.10	0.6757	15.46
Mixed High-poverty	0.7404	28.20	1.3052	38.62
Rural High-poverty	-0.0505	-1.86	0.0055	0.13
Urban Other	0.3405	13.85	0.9099	28.73
Mixed Other	0.6186	30.46	1.1484	42.18

Source: Food Retailers in the Food Stamp Program: Characteristics & Service to Participants, February 1997