

# CHOICES



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## FOOD ENVIRONMENT, FOOD STORE ACCESS, CONSUMER BEHAVIOR, AND DIET

Michele Ver Ploeg

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Some low-income neighborhoods in the United States have been dubbed “food deserts” because there are few sources of healthy and affordable foods. Often these neighborhoods are served by convenience stores or fast food restaurants but are far from grocery stores that offer a full range of healthy foods. Some residents of these neighborhoods that lack transportation or have low incomes may be more reliant on smaller neighborhood stores that do not carry a full range of groceries and may not offer them at the most competitive prices. Some concerned groups have argued that the lack of healthy options leads to poor diets and to diet-related conditions such as obesity.

Concern over food deserts and the food environment in general has led some states and cities to enact programs that increase access to healthy foods. For example, Pennsylvania and New York City provide public and private funding to encourage supermarkets and other healthy food retailers to open in underserved areas. One of the four pillars of the First Lady’s Obesity Initiative, Let’s Move, is to increase access to affordable and healthy food, and President Obama’s proposed FY2011 budget calls for \$400 million to encourage the development of healthy food options in underserved neighborhoods (White House Task Force on Childhood Obesity, 2010).

The extent to which such policies are needed and their potential success, however, depends on how many people are impacted by limited access to affordable and healthy food, how consumers are affected by limited access and the food environment, and how they cope with food access limitations.

### A Small Share of People Live in Food Deserts

There is no single method for measuring and defining food deserts and food access, especially in a country as large and geographically diverse as the United States. A number of different studies using many different methods have examined food deserts in local areas. A national-level U.S. Department of Agriculture (USDA) study of the extent of the population with limited access to food used the availability of supermarkets and large grocery stores—including discount and supercenter stores—as a proxy for the availability of affordable, nutritious food (USDA, 2009). A directory of supermarkets and large grocery stores throughout the continental U.S. was used to examine distance to the nearest supermarket or large grocery store for vulnerable populations—low-income, elderly, and households without access to a personal vehicle.

This USDA study found that about 23.5 million people, or 8.4% of the U.S. population, live in low-income neighborhoods that are more than a mile from a supermarket (USDA, 2009). Low-income neighborhoods are areas where more than 40% of the population has income less than or equal to 200% of Federal poverty thresholds, which was \$44,000 per year for a family of four in 2008. Not all of those living in low-income neighborhoods are poor and so are less affected by lack of access. If only those with income below 200% of poverty are considered, then 11.5 million or 4.1% of Americans have low incomes and live in low-income neighborhoods that are more than a mile from a supermarket.

Vehicle ownership is another indicator of whether someone who lives far from a grocery store lacks access to healthy food. About 2.3 million households, or 2.2%, live more than a mile from a supermarket and do not have access to a vehicle (USDA, 2009). For these households, lack of transportation poses a barrier to accessing affordable and nutritious food.

### **Healthier Food Environments, Healthier Diets, and Thin Causal Evidence**

Many factors contribute to an individual's body weight and overall dietary health. These include individual factors, such as demographic characteristics, socioeconomic status, education, and preferences for food. Environmental factors can also impact body weight and dietary health. Such factors can include access to stores and restaurants, parks and recreation facilities, sidewalks, and the availability of public transportation, and social environmental factors like crime, neighborhood cohesion, and the social and cultural norms around food. Research has shown that individual factors can explain some differences in who becomes obese or who acquires diabetes, but alone, they cannot account for all the differences in rates of these diseases. The food environment and food store access may help explain differences in diet and health outcomes (Diez-Roux, 2009).

A number of studies have examined the relationship between food access, dietary intake, and obesity. Although results are not universal, most find that better access to supermarkets is associated with healthier diets and reduced risk of obesity, while greater access to convenience stores is associated with increased risk of obesity (Larson, Storey, and Nelson, 2009). In contrast, the relationship between fast food restaurant access and diet and obesity is not as consistent in the literature.

The National Food Stamp Program Survey (NFSPS) has been used to understand how store access was related to food spending—particularly on fruits and vegetables. Rose and Richards (2004) found that those with limited access spent less on fruits than those with better access. USDA (2009) found that those with limited access spent less on noncanned fruits, non-canned vegetables, and milk than those with better access.

These studies suggest a correlation between store access and diet-related outcomes, but none of these studies uses methods that can determine whether store access causes differences in diet or obesity. Only a few studies have used methods that can help assess causal relationships— and their evidence is mixed. Two studies used longitudinal data and a pre-post intervention design to measure how changes in access affect shopping behavior and dietary intake when supermarkets opened in underserved areas in Leeds and Glasgow, UK (Wrigley, Warm, and Margetts, 2003; Cummins et al. 2005). Both found that many sampled individuals from the neighborhood switched their shopping to the new store. Consumption of fruits and vegetables increased modestly in one study—just over one-third of a serving, but did not increase in the other study. Chen et al. (2010) use spatial econometrics to account for how residential choice and social networks influence diet. Accounting for these factors, this study found that proximity to fast food restaurants slightly increases body mass index (BMI), while proximity to grocery stores slightly decreases BMI. The sizes of the total effects were less than half a BMI point but were larger for people who lived very close to a store or restaurant.

### **Low-Income Consumers Shop for the Lowest Prices**

Improved access to sources of healthy foods may have a small impact on diet because those who live in food deserts cope by shopping at supermarkets outside their neighborhoods. As a result, their diets may not change much if a new supermarket opens closer to them. Research on the food-shopping behavior of participants in the Supplemental Nutrition Assistance Program (SNAP)—shows that almost 90% of SNAP benefits are redeemed at supermarkets or large grocery stores (USDA, 2009). Further, while SNAP participants on average lived 1.8 miles from the nearest supermarket, they traveled an average of 4.9 miles to get to the store they most often used to buy groceries (Ohls et al. 1999). Shopping further from home means greater travel and time costs as has been estimated by other studies (Rose et al. 2009; USDA 2009). On the other hand, lower prices at supermarkets and supercenters may offset these travel and time costs.

The 2009 USDA study also examined prices consumers paid at four different store formats—grocery, convenience, discount/supercenters, and “other”—for three frequently purchased foods—milk, ready-to-eat cereal, and bread. Data on food purchases of approximately 40,000 representative U.S. households were used and characteristics of the foods, such as fat content of milk or product size, were controlled. Results show that convenience store prices were higher than prices at grocery stores—milk prices were 5% higher; cereal, 25% higher; and bread, 10% more. However, food purchases at convenience stores make up just 2% to 3% of total food expenditures for low-income consumers who, along with middle-income consumers, are more likely than higher income consumers to purchase food at supercenters, where prices are lower (Broda, Leibtag, and Weinstein, 2009).

Broda, Leibtag, and Weinstein (2009) used the same household-level purchase data to analyze differences in prices paid for the same food items by consumers with different income levels. The analysis shows that many low-income consumers can find lower prices, but not all. Consumers with annual incomes between \$8,000 and \$30,000 paid the least of all income groups for the same food items. More worrisome, however, is that households with annual incomes less than \$8,000 paid slightly more—between 0.5 to 1.3%—for the same foods compared with those with incomes between \$8,000 and \$30,000. Households with annual incomes over \$100,000 paid the most for the same food items—between 2% to 3% more than poorer households. Presumably this is because they are less likely to shop at supercenters than low- and middle-income consumers, do not buy sale items as often as lower-income consumers, and are less willing to incur the time costs of shopping for the lowest prices.

### **Supply or Demand Factors and Access to Healthy Food**

Economic theory suggests that either supply factors or demand factors or both could cause variation in what and where food stores are available. A neighborhood could lack a supermarket or large grocery store because the costs food retailers face when building and/or operating a store in those locations are higher. Zoning rules, such as the amount of parking required for new businesses, employee training, and security costs have also been cited as reasons for few stores in underserved, poor communities (Food Marketing Institute, 1998; The Reinvestment Fund, 2008). Consumers' demographic and economic characteristics, buying habits, and tastes could also explain why stores do not locate in some areas or carry particular foods. More densely populated neighborhoods and those with growing populations are often able to support more stores. As a result, some less densely populated rural areas, or urban areas with diminishing populations, have fewer supermarkets. Food expenditures increase as income rises, which may explain why higher-income neighborhoods have more supermarkets than some lower income neighborhoods.

Many communities are developing policies to encourage stores to locate in underserved areas or to help existing stores offer more healthy options. The Pennsylvania Fresh Food Financing Initiative is a public-private partnership that has used state and Federal funding, along with private funding, to provide grants and loans to develop new stores or refurbish existing stores in underserved markets. This program is the model of the proposed Federal Healthy Food Financing Initiative (HFFI). In other efforts, communities have modified existing corner stores by upgrading coolers; increasing the availability of fruits and vegetables, low-fat milk options, and whole grain foods; or changing the physical layout of the store. Baltimore City created a grocery delivery system to increase access to healthy foods. Grocery ordering, delivery and pick-up, including redemption of SNAP benefits, are available in public libraries in lower-income Baltimore neighborhoods with few sources of healthy food (Schleter, 2010).

There is very little research on the effectiveness of these different private and public policies to improve healthy food spending, diet, and health outcomes. Most policies to reduce the impact of food access limitations have focused on increasing or improving the supply of healthy foods. This could be an important investment in underserved areas for economic, social, and cultural reasons, and it may make it easier for residents of the area to access healthy food. But it is unlikely that these policies will make much of a dent in improving diets, reducing obesity, and improving dietary health unless consumers change their eating habits. Almost two-thirds of Americans are overweight, but national estimates presented here indicate that only 2% to 8% of Americans have limited access to healthy food. Even though most Americans have fabulous access to healthy foods, on average, they eat only about half the recommended daily levels of fruits and vegetables (Report of the Dietary Guidelines Advisory Committee, 2010). Even if supermarkets are accessible to all, it is not clear consumers will significantly improve their diets by shopping at them—supermarkets carry all the unhealthy foods that small corner stores do and usually offer them at lower prices.

It may be that for too many Americans, healthier foods are not the easiest choices to make. Less healthy

foods could be relatively easier—and for many, tastier—to choose because they are easily accessible and because healthier foods, particularly fruits and vegetables and home cooked meals can take more time to plan and prepare. Unhealthy foods may “swamp” healthy foods in many areas (Rose et al. 2009), but perhaps particularly in areas that are food deserts. In addressing limited access to healthy foods and improving diets in general, it may be more important to encourage greater demand for healthy foods in a way that discourages demand for less healthy food.

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*Michele Ver Ploeg (sverploeg@ers.usda.gov) is an economist at the Economic Research Service, U.S. Department of Agriculture, Washington D.C. The views expressed here are those of the author and may not be attributed to the Economic Research Service or the U.S. Department of Agriculture.*

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