

# Food Availability & Food Deserts

## in the Nonmetropolitan South

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*Over the past thirty years, the structure of food retailing in the United States has changed dramatically. Local grocery stores that once served a small community or neighborhood are increasingly being replaced by regional or national chain grocers. In addition, big box general merchandisers have also entered the retail grocery sector with the advent of hybrid superstores that combine groceries with a wide array of product lines. A key consequence of this restructuring is the growing uneven distribution of food retailers across rural America. For example, Kaufman reports that rural counties in the Lower Mississippi Delta average one supermarket per 190.5 square miles. Additionally, over 70 percent of the low income populations in this region must travel 30 or more miles to access the lower food prices offered by a supermarket or large grocery store. The remaining options included small grocers or convenience stores where consumers are likely to pay substantially higher prices for a smaller variety of lower quality foods [7].*

To date, researchers have yet to understand the implications of rural retail restructuring on food access among rural populations. Prior research on the determinants of food intake and dietary quality have focused almost exclusively on the relationship between individual level characteristics such as family structure, race, age and food security [1, 2, 9, 10, 11, 12]. Although these studies inform our understanding of the individual level processes that influence food security, prior studies have overlooked the role of commercial food distribution in the United States and the manner in which the structure of retail food distribution conditions the accessibility and availability of food within local communities.

Studies undertaken in the United Kingdom have described areas with limited access to food as “food deserts” [6]. In the United Kingdom, some economically disadvantaged neighborhoods lost all grocery stores and markets, creating a food insecure population. Although researchers have documented rural populations with restricted access to low cost, high quality food, the concept of food deserts has eluded policy makers and researchers in the United States. One possible explanation for

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this oversight is that unlike the United Kingdom, the proliferation of convenience stores and gas stations ensure that some type of food is accessible to almost everyone. However, the quality and price of food products varies dramatically by the types of food retailers. Consumers who are forced to purchase food at small grocery or convenience stores often pay a premium for food products that may or may not contribute to healthy diet.

In this report we document the presence of food deserts in the non-metropolitan South. Our analysis addresses two issues regarding food deserts. First, we examine the distribution of food desert counties across the nonmetropolitan South. Second, we examine the food retail environment in food desert counties to understand the nature and range of products available to local residents.

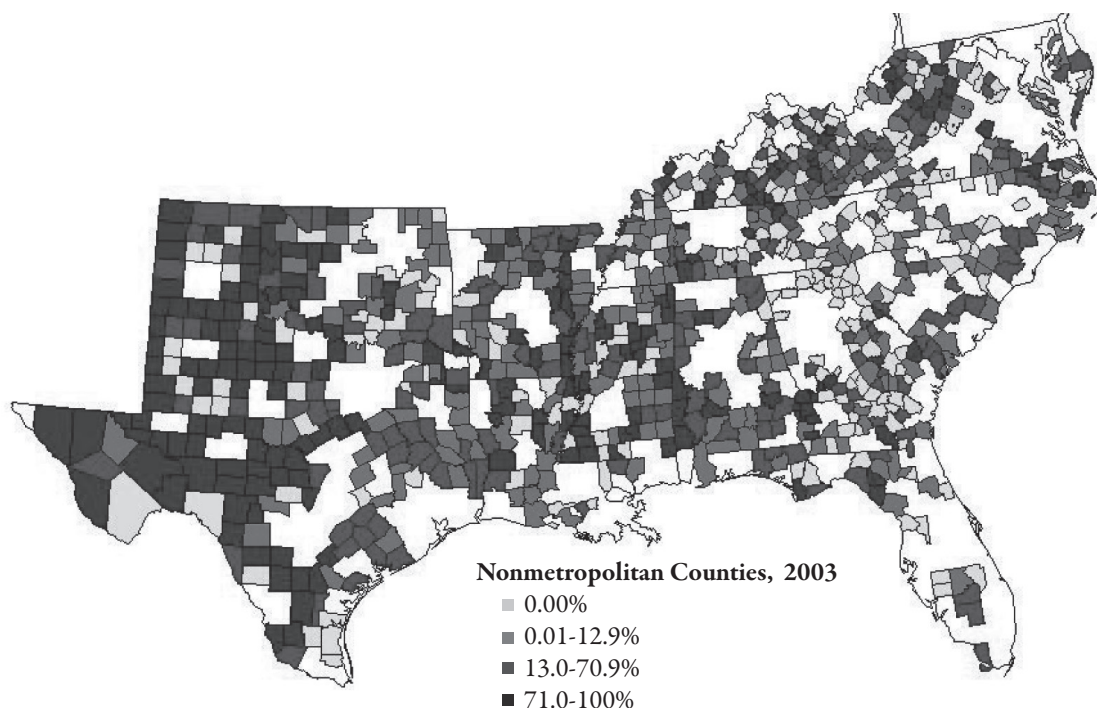
### How Are Food Deserts Distributed in the Non-metropolitan South?

To our knowledge, this is the first attempt to identify U.S. food deserts. To address this issue, we created a food desert classification based on the percentage of a county's population with "convenience of access" to large food retailers. Large food retailers include supermarkets with 50 or more employees, supercenters (hybrid retailers offering general merchandise and groceries), and wholesale clubs. Using data from the 2000 Census of Population and Housing and the 1999 Zip Code Business Patterns, we determined the level of access to a large food retailer. Residents with convenient access are defined as persons who reside no more than 10 miles from a large food retailer. Persons travel-

ing more than 10 miles are classified as having low access to a supermarket, supercenter or wholesale club. Using this criterion for identifying residents with low access to supermarkets, supercenters and wholesale clubs, we tabulated the percentage of the population with low access for each county and designated counties as food desert or non-food desert counties (see Figure 1 for a map of these percentages). A county is classified as a food desert if 50 percent or more of the population experiences low access to a supermarket, supercenter or wholesale club [3, 4].

According to our classification scheme, 256 of the 873 nonmetro South counties are food deserts. A map of these counties is presented in Figure 2. Among the southern states, Texas, Alabama, Arkansas and Oklahoma have the highest percentage of nonmetro counties that are

**Figure 1. Percent of County Population with Low Food Access in the Nonmetropolitan South**







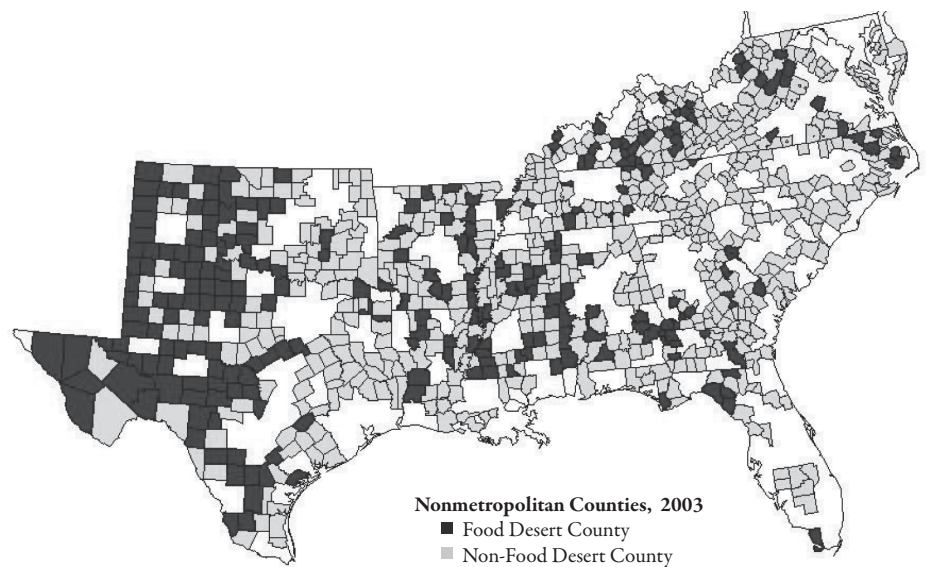
classified as food deserts. Clearly, the largest food desert region in the non-metro South is located in the western portions of Texas and Oklahoma. Smaller clusters of food desert counties are found along the Mississippi Delta, the Appalachian region in Kentucky and West Virginia, and the band of counties often referred to as the “Black Belt” that stretches from southwestern Louisiana through the central portions of Mississippi, Alabama and Georgia, to the eastern shore of North Carolina.

The presence of food desert counties in these three regions—the Delta, the Black Belt and the northern portions of Appalachia—are especially important because of their high rates of poverty. The average poverty rate in 1999 for nonmetro counties in Kentucky and West Virginia was approximately 21 percent [13]. Similar high levels of poverty are found in the Mississippi Delta and Black Belt states. The average poverty rate in 1999 for Louisiana and Mississippi was nearly 25 percent [13]. For residents of these regions, especially the poor, the lack of access to supermarkets and supercenters presents a health risk because of the scarcity of low cost, high quality food retailers.

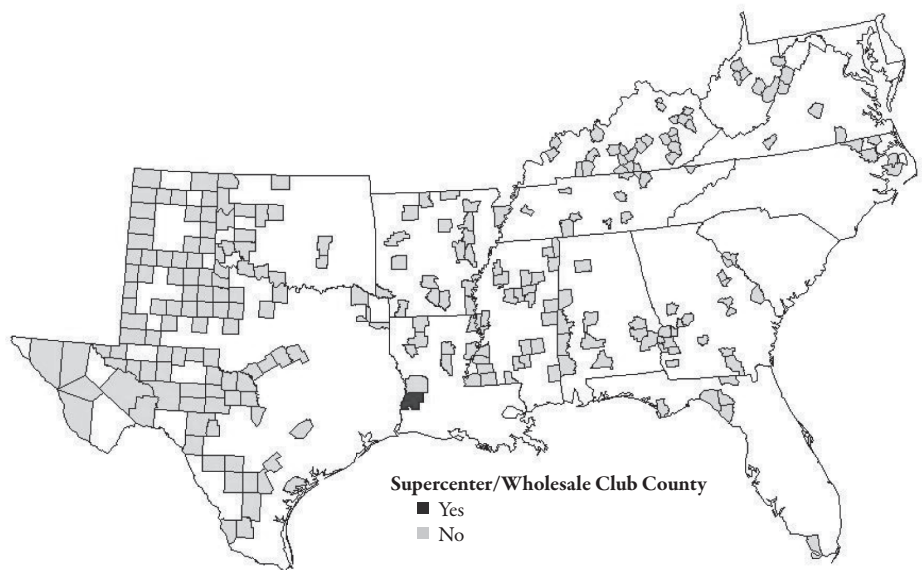
### What Types of Food Retailers Exist in Food Deserts?

In Figures 3–5 we present maps that identify the types of food retailers found in food desert counties. Food desert counties that contain a supercenter or wholesale club are identified in Figure 3. Only one of the 256 food desert counties contain a supercenter store,

**Figure 2. Food Desert Counties in the Nonmetropolitan South**



**Figure 3. Presence of Supercenter/Wholesale Club in Food Desert Counties**



such as a Wal-Mart Supercenter or Super K-Mart, or a wholesale club, such as Sam’s. Thus, virtually all food desert populations lack access to a supercenter or wholesale club in their county of residence.

In Figure 4, we examine the presence of large supermarkets

(supermarkets with 50 or more employees) in food desert counties. This map indicates only a small fraction of food desert counties (10 of 256) contain a supermarket. The distribution of supermarkets differs from that of supercenters and wholesale clubs in one respect:



**Figure 4. Presence of Supermarket in Food Desert Counties**



some food desert counties contain multiple supermarkets. A second finding regarding supermarkets, supercenters and wholesale clubs is that all counties containing these stores are adjacent to a metro area.

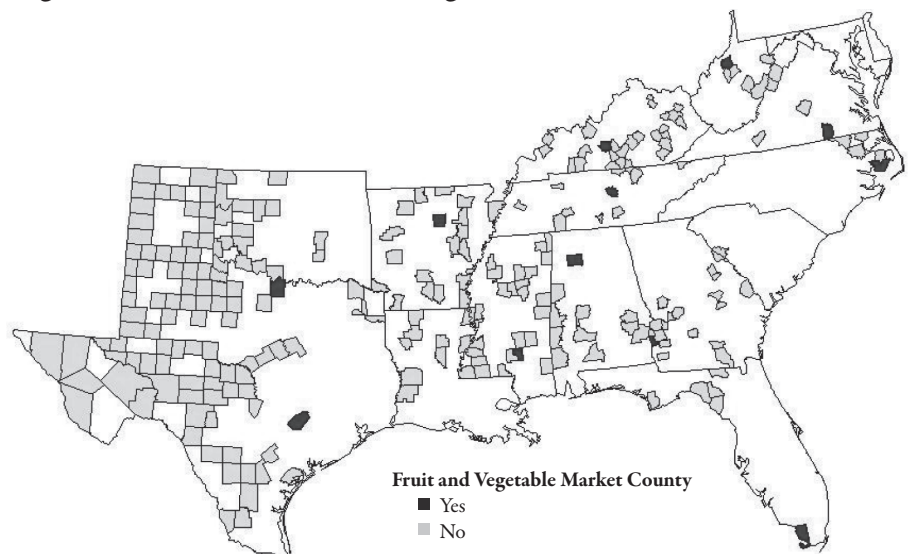
Given the lack of large retail outlets in food desert counties, we also explored the possibility that these counties may contain alternative sources of nutritious foods, such as fresh fruit and vegetable markets. In other words, the lack of large retailers may be offset by produce markets, which provide healthy foods. In Figure 5, we map the prevalence of fruit and vegetable markets for food desert counties. Two important findings emerge from this map. First, only 12 of the 256 nonmetro South food desert counties contain a fruit and vegetable market. Second, much like other types of food retailing, fruit and vegetable markets are most prevalent in counties adjacent to a metro area.

To complete our analysis of food

retailers in the nonmetro South, we examined the availability of small grocers, convenience stores, gas station convenience stores, fast food restaurants, and full service restaurants in food desert and non-food desert counties (see Table 1) [a]. Shopping at small grocers, convenience stores, and gas station stores is not an optimal solution for consumers because of the higher food prices

and smaller selection of products. In addition, the available foods may be of a lower quality or not meet the requirements of a healthy diet. All counties contained at least one small grocer or convenience store. Furthermore, food desert counties contained nearly twice as many small grocers as the non-food desert counties. We interpret this finding to mean that small grocers are less viable in counties with large food retailers. For food desert residents, small grocery stores may be the only option for obtaining food. Both food desert and non-food desert counties contain a similar number of convenience and gas station stores. In contrast, the presence of fast food restaurants varies dramatically between the two types of counties. Non-food desert counties contain a substantially larger number of fast food restaurants than food desert counties. However, food desert and non-food desert counties contain a similar number of full service restaurants. These findings suggest that small food

**Figure 5. Presence of Fruit and Vegetable Market in Food Desert Counties**







retailers, especially small grocers, fill the gaps left by larger retailers.

### Conclusions

This analysis was designed to develop and measure the emerging concepts of retail food access and food deserts in nonmetro counties in the South. Over the past 20 years, the United States has witnessed a transition from smaller scale retail distribution of groceries to larger scale supermarkets and supercenters. This trend has signaled a decline in "mom and pop" stores and the increasing penetration of large national and multinational corporations into rural communities. Although this process involves many actors, ranging from wholesalers, processors, retailers and consumers, we focused on the spatial relationships between types of retail food outlets and consumers. Our findings shed light on the importance of food deserts in the explanatory framework employed

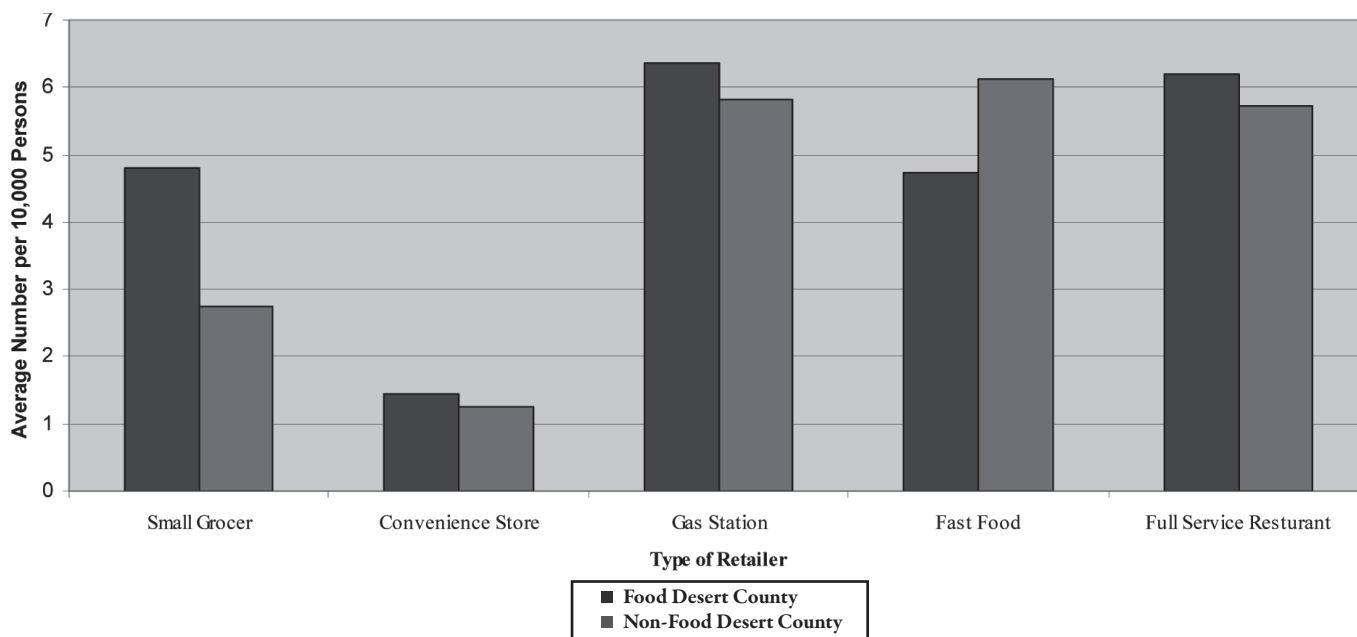
in food assistance research. To be sure, all counties, even those classified as food deserts, contained some retail source of food. However, the quality of the food retailers across these counties is not consistent.

A primary finding from our study is that populations in a substantial number of counties in the nonmetro South experience limited access to supermarkets, supercenters and wholesale clubs. There are a number of implications that speak to the issue of food security and food desertification. First, individuals living in areas with low access to large food retailers are likely to pay higher prices for groceries and/or incur a greater travel cost to access the large food retailer. The travel cost may offset the savings available at these stores. This is especially troubling for economically vulnerable segments of the population in the impoverished regions of the South, such as the Black Belt, the Mississipp-

pi Delta and Appalachia. For individuals living in these regions it may not be feasible or practical to shop at a large food retailer because of travel cost and time considerations. Without access to the large food retailer, these individuals are left to shop at convenience stores, gas stations and small "mom and pop" grocery stores.

Food deserts also have consequences for the nutritional health of nonmetro populations in the South. In an exploratory analysis not presented here, we applied our concept of food deserts to explain fruit and vegetable intake among 3,322 nonmetro Mississippi residents. Our findings showed that persons residing in food desert counties were 23.4 percent less likely to consume the recommended five or more servings of fruits and vegetables per day than those in non-food desert counties [b]. Given the important role of diet in reducing the prevalence of diabetes, heart disease, stroke

**Table 1. Other Food Stores and Restaurants by Type of County**





and certain types of cancer, food deserts present a clear threat to the health of nonmetro populations.

Given the prevalence of food deserts in the nonmetro South and the health risk associated with living in a food desert, policies directed at alleviating food insecurity in the United States should consider the role of the local community context. For example, persons receiving food stamps stand little chance to achieve food security without convenient access to food retailers to redeem benefits. In addition, the Food Stamp Program limits total assets held by program participants to no more than \$6550, limiting the ability of a family to simultaneously own reliable transportation and receive food stamp benefits. Beyond the basic issue of access to food retailers, food stamp participants in food desert areas would have a smaller selection of foods. The poorer quality of foods at smaller grocers place program participants at a disadvantage relative to participants in non-food desert counties.

One approach to remedying the food desert problem involves spatially matching food retailers and consumers. Because food desert counties contain a large number of underserved food consumers, rural economic development efforts directed at the creation of produce markets and other alternative food retailers could yield beneficial results for the dietary health of these populations. For consumers in food deserts, a central concern is transportation to and from the nearest large retail supermarket, supercenter or wholesale club. Policies directed at creating shuttles operated by local community organizations or

carpooling can assist disadvantaged residents in accessing large retailers.

### Endnotes

- [a] The findings presented in Table 1 are reported in the number of stores per 10,000 persons. We chose this measure rather than the raw number of stores because the average population size of food desert and non-food desert counties differed substantially. Because the scale of retail activity is strongly related to the population size, comparing the number of stores between food desert and non-food desert counties could yield misleading results.
- [b] We obtained these findings after controlling for differences in fruit and vegetable intake attributable to age, sex, race, and education.

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