



SOUTH CAROLINA COMMISSION FOR MINORITY AFFAIRS

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Spatial Dynamics of Socioeconomic Deprivation in Orangeburg County,
South Carolina: A Geospatial Statistical Brief

Spatial Dynamics of Socioeconomic Deprivation in Orangeburg County, South Carolina: A Geospatial Brief

Summary of Findings

- **Race was strongly related to the location of deprived communities. All intensely minority communities (90-100% minority) were found to be “distressed.” Of the 5 communities identified as “at-risk,” 3 were in minority identifiable (70-89% minority) communities. 2 “at-risk” communities were majority minority (50-69% minority).**
- **Middle-class and affluent communities in Orangeburg County were more equally distributed by racial composition. Of the 11 middle-class to affluent communities, 5 were majority minority, 3 were minority identifiable (70-89% minority), and 3 were in majority white (50-69%) white communities.**
- **All 3 majority white census tracts in Orangeburg County were middle-class to affluent.**
- **7 census tracts were identified to have high Native American populations. One of these census tracts, the community of Holly Hill, was identified to be “at-risk.” None of the 7 high Native American census tracts were designated as food deserts.**
- **The location of food deserts was more strongly related to race than socioeconomic composition of communities. 5 out of 6 food deserts in Orangeburg County were located in communities that were 70 to 100% minority. Only half of the food deserts in the county were located in socioeconomic deprived (“distressed” or “at risk”) communities.**

Measures in Report

Socioeconomic Status Metrics

The Distressed Communities Index (DCI) was developed by the Economic Innovation Group to compare economic distress across all zip codes in the United States. The DCI classifies geographical areas into quintiles which include “distressed”, “at-risk”, “mid-tier”, “comfortable”, and “prosperous.”¹ While “distressed” and “at-risk” quintiles are socioeconomically deprived, “comfortable” and “prosperous” quintiles are classified as affluent. Tracts falling into the “mid-tier” quintile could be classified as middle-class communities.

The DCI is computed across seven socioeconomic indicators that include percent without high school diplomas, housing vacancy rate, prime age unemployment, poverty rate, median income ratio, change in employment, and change in establishments. The computation of the DCI is modified in two ways. First, changes in employment and business establishments were not incorporated into the calculation because they were countywide statistics. The use of

¹ Economic Innovation Group (2018). *2018 Distressed Communities Index Methodology*. Retrieved from <https://eig.org/dci/methodology>.

countywide statistics may skew the calculations such that index scores would be inflated. Second, the modified DCI computes a median across the socioeconomic indicators rather than an average as does the original measure. This method was used in a previous study to prevent both the deflation and inflation of DCI distress scores.² Both modifications aim to ensure a more statistically sound assessment of the geographic areas. Rather than examining zip codes, the present study examines census tracts. The modifications are also consistent with the levels of geography assessed.

Racial Composition Metrics

Racial composition categories are derivative from research conducted by Gary Orfield and others.³ Originally, racial composition categories included majority minority (50-100% minority), majority white (50-69% white), and intensely segregated minority (90-100% minority). The present report expands these categories to include the following:

- intensely minority (90-100% minority)
- intensely white (90-100% white)
- minority identifiable (70-89% minority)
- white identifiable (70-89% white)
- majority minority (50-69% minority)
- majority white (50-69% white).

The expansion of racial categories acknowledges nuances in racial composition. For example, an area that is 55% white will look different from an area that is 70% white. As the category “white identifiable” indicates, an enclave that is 70% white will be more likely to be racially homogenous. Conversely, an area that is 55% white will have more racial diversity. Though racially identifiable communities are not as marked in racial composition as intensely minority or white areas, they still indicate some level of spatial segregation.

Native American Racial Composition

In most Southern cities, minority racial composition implies the presence of African Americans. Orangeburg County, on the other hand, is unique in that it is home to both the Pee Dee Indian Nation of Beaver Creek and the Santee Indian Organization. With its significant Native American population, Native American racial composition must be examined alongside minority racial composition to assess whether Native Americans are concentrated in minority identifiable communities in Orangeburg County. Native American racial composition categories include the following:

² Cuddy L. Carter (January 2019). *Geospatial Mapping of Community Socioeconomic Status with Publix and Whole Foods Locations*. Columbia, SC: South Carolina Commission for Minority Affairs. Retrieved from <https://cma.sc.gov/cma-white-papers>.

³ Orfield, G. and Lee, C. (2006). *Racial Transformation and the Changing Nature of Segregation*. Cambridge, MA: The Civil Rights Project at Harvard University.

- Low (\leq .28% Native American)
- Considerable (between .28% and .93% Native American)
- High (\geq .93% Native American)

Native American composition categories are arbitrary but still based upon statewide Native American demographics of South Carolina. As of 2016, there were approximately **15,417** residents in South Carolina who identified as American Indian and Alaska Native (One Race) out of a total of **4,834,605** people. Individuals identifying as Native American alone comprised **0.3%** of the state’s population. Additionally, there were **44,677** people who identified as American Indian and Alaska Native in combination with some other race. This group comprised **0.9%** of South Carolina’s population.⁴ Thus, the Native American racial composition categories considered the number of individuals who identified as Native American in combination with some other race.

Food Deserts

Food deserts are examined in the present report to observe whether they are racially or socioeconomically mediated. Food deserts are defined by the USDA as areas where whole foods, fresh vegetables, and fruits are sparse.⁵ They are usually located in economically distressed areas. With regard to census tracts, food deserts are defined by two criteria.⁶ In urban areas, they are tracts where at least 33 percent of the population lives more than a mile from a supermarket. In rural areas, they are tracts where at least a third of the population lives more than 10 miles from a supermarket. These criteria are used in the present report to identify food deserts in Orangeburg County.

Previous Examination of Race and Socioeconomic Status

A previous whitepaper found Orangeburg County to be socioeconomically deprived across three different measures.⁷ Appalachian Regional Commission and Economic Innovation Group index measures found Orangeburg County to be “distressed” and “at-risk,” respectively. The economic diagnosis measure developed by the SC Commission for Minority Affairs identified Orangeburg County as being “deprived” across socioeconomic indicators that included per capita income, median household income, percent below poverty, and unemployment.

⁴ American Community Survey 2012-2016 5 –Year Estimates, DP05: Demographic and Housing Estimates.

⁵ USDA Defines Food Deserts. *Nutrition Digest*, 38(2). Retrieved from <http://americannutritionassociation.org/newsletter/usda-defines-food-deserts>.

⁶ Michele Ver Ploeg, David Nulph, and Ryan Williams. Mapping Food Deserts in the United States. Retrieved from <https://www.ers.usda.gov/amber-waves/2011/december/data-feature-mapping-food-deserts-in-the-us/>.

⁷ Cuddy L. Carter (November 2018). *Comparing Three Economic Diagnosis Measures: Development of a More Precise Socioeconomic Distress Metric*. Columbia, SC: South Carolina Commission for Minority Affairs. Retrieved from <https://cma.sc.gov/cma-white-papers>.

Though Orangeburg County was found to be socioeconomically distressed at the county level, there still may be marked spatial differences in socioeconomic distress within the county. Another previous geospatial examination of Columbia, Charleston, and Greenville observed that there were spatially observable pockets of deprivation in South Carolina's most affluent cities.⁸ What this may mean for Orangeburg County is that there might be areas of affluence juxtaposed against the enclaves of low socioeconomic characteristics.

Moreover, another set of geospatial maps observed a racial nature of affluence in South Carolina's chief cities.⁹ Between Charleston and Columbia, Columbia was the only of the two with communities 70 to 100% minority that were either middle-class or affluent.¹⁰ All of Charleston's communities with minority identifiable racial compositions were socioeconomically deprived.¹¹ Though Columbia was the only city with affluent minority communities, nearly 95% of the city's white identifiable communities (70-100% white) were either middle-class or affluent. These findings collectively indicated that the socioeconomic status had to be examined alongside race to understand its nuances within cities.

Geospatial Mapping Results

Socioeconomic Status

As noted in the introduction, socioeconomic status quintiles included "prosperous," "comfortable," "mid-tier," "at-risk," and "distressed." In Figure 1, "prosperous" census tracts are indicated by dark blue color coding, "comfortable" by teal, "mid-tier" by gray, "at-risk" by pink, and "distressed" by red. There are a total of 20 census tracts in Orangeburg County. Figure 1 shows that there are two "prosperous" tracts, three "comfortable" tracts, six "mid-tier," five "at-risk," and four "distressed" census tracts.

⁸ *Geospatial Mapping of Community Socioeconomic Status with Publix and Whole Foods Locations.*

⁹ Cuddy L. Carter (April 2019). *Race x SES in Charleston*. Retrieved from <https://public.tableau.com/profile/cuddy.carter.research#!/vizhome/RacexSESinCharleston/RacexSESinCharleston>.; Cuddy L. Carter (April 2019). *Race x SES in Columbia*. Retrieved from <https://public.tableau.com/profile/cuddy.carter.research#!/vizhome/RacexSESinColumbia/RacexSESinColumbia>.

¹⁰ Ibid.

¹¹ Ibid.

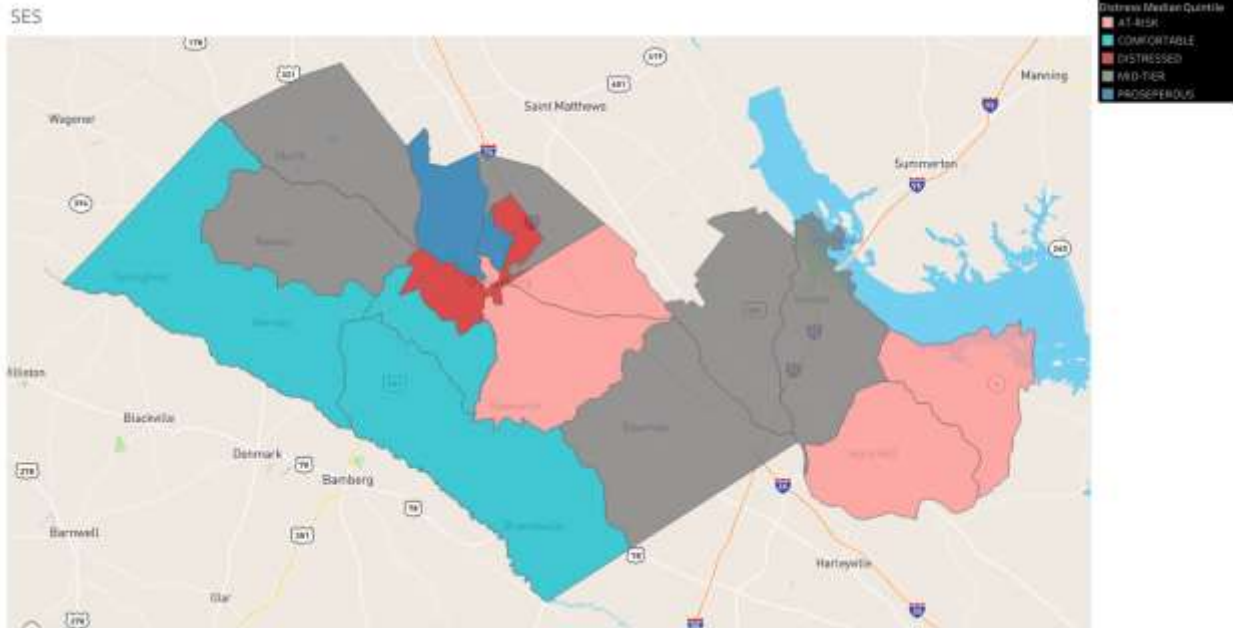


Figure 1. Socioeconomic Status of Census Tracts in Orangeburg County.

Racial Composition

As noted in the racial composition section of the introduction, racial composition categories included intensely minority (90-100% minority), intensely white (90-100% white), minority identifiable (70-89% minority), white identifiable (70-89% white), majority minority (50-69% minority), and majority white (50-69% white). Of the 20 census tracts in Orangeburg County, three were intensely minority, seven were minority identifiable, seven were majority minority, and three were majority white (see Figure 2).

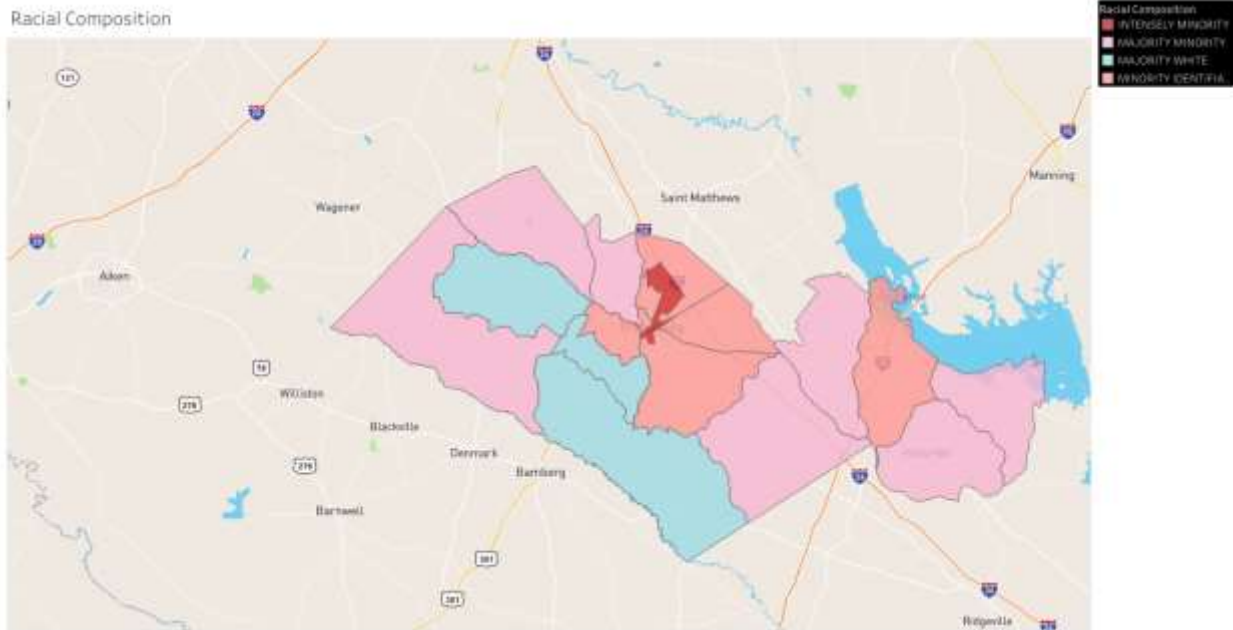


Figure 2. Racial Composition of Census Tracts in Orangeburg County.

Food Deserts

Figure 3 shows that six of Orangeburg County’s 20 census tracts were designated as food deserts. Food deserts are coded in pink.

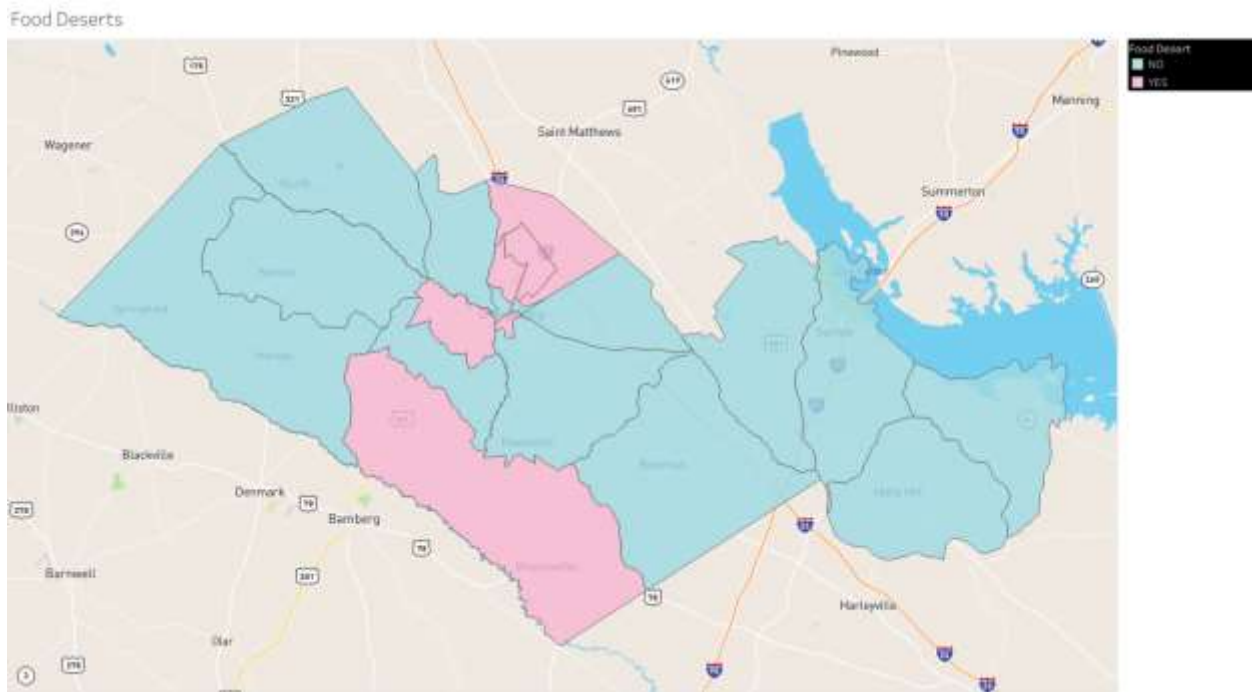


Figure 3. Food Deserts in Orangeburg County.

Native American Composition and Racial Composition

In Figure 4, census tracts with high proportions of Native Americans (.93% or higher) were selected and coded in red. They were paired with racial composition maps to observe Native American spatial proximity to minority and white residents. Seven census tracts were classified as high proportion. Of these seven census tracts, five were located in majority minority areas and two were located in majority white areas.

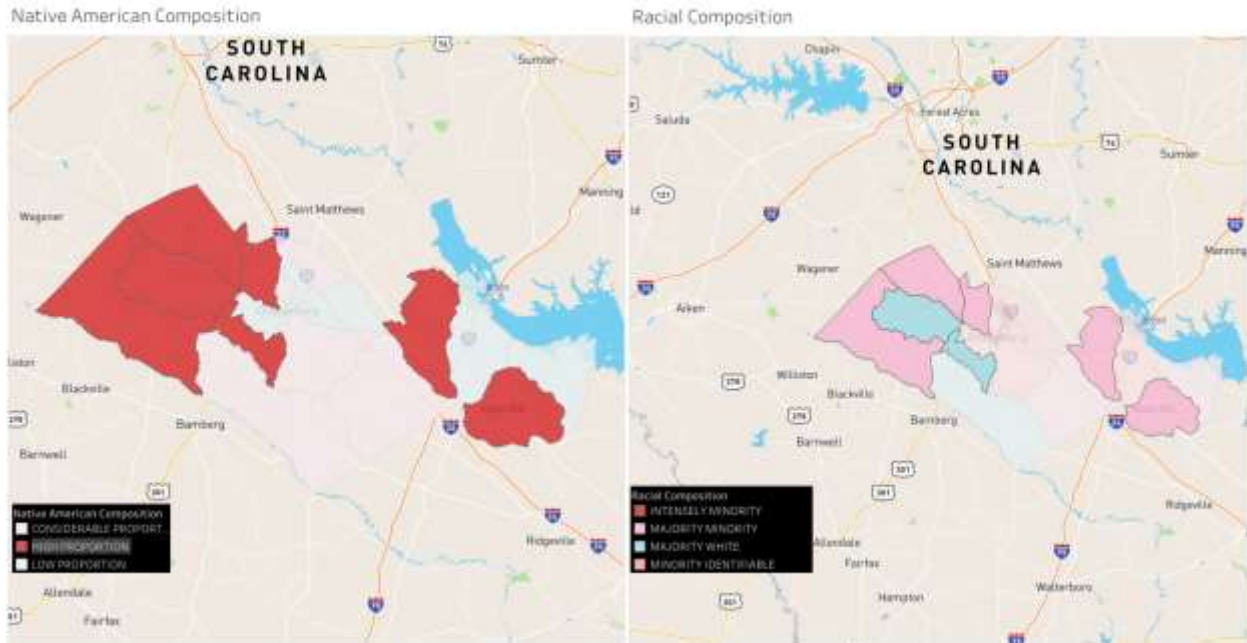


Figure 4. Native American Composition by Racial Composition.

Affluent Census Tracts and Racial Composition

Affluent census tracts are classified as either “prosperous” or “comfortable.” There were five affluent census tracts. Of the five affluent census tracts, one was located in a minority identifiable area, two were located in majority white areas, and two were located in majority minority areas. Figure 5 shows affluent census tracts filtered to show their racial composition in the paired maps.

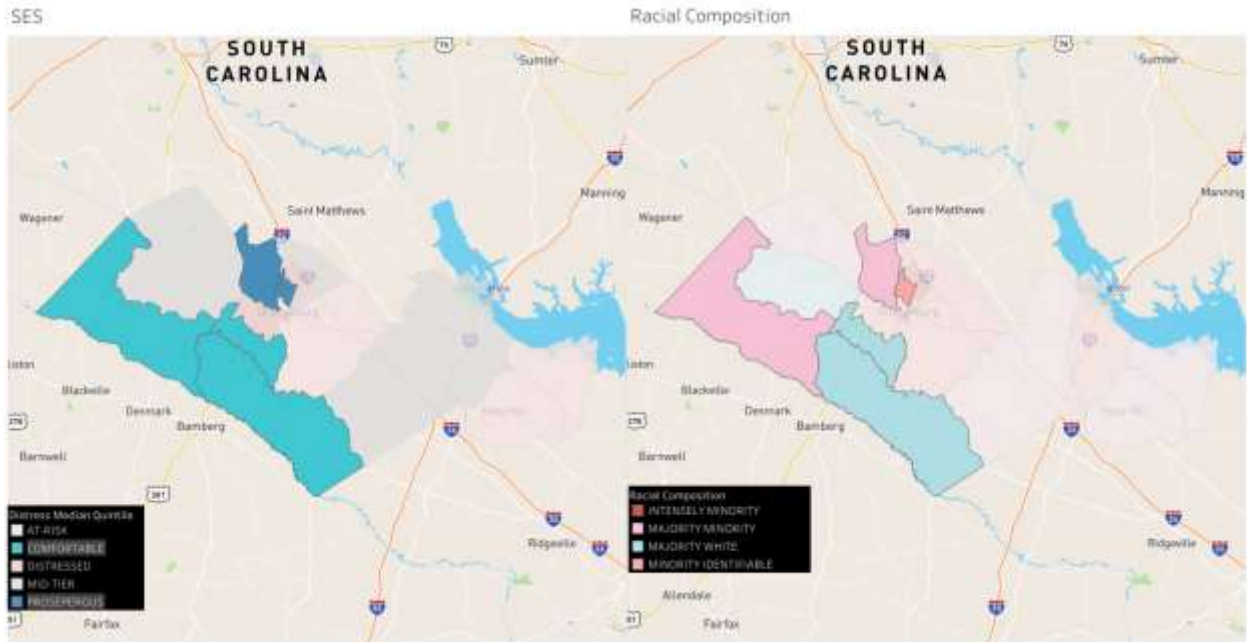


Figure 5. Racial Composition of Affluent Tracts.

Deprived Census Tracts and Racial Composition

Deprived census tracts are classified as either “at-risk” or “distressed.” There were nine deprived census tracts. Of the nine deprived census tracts, three were located in intensely minority areas, two were located in majority minority areas, and four were located in minority identifiable areas. Figure 6 shows deprived census tracts filtered to show their racial composition in the paired maps.

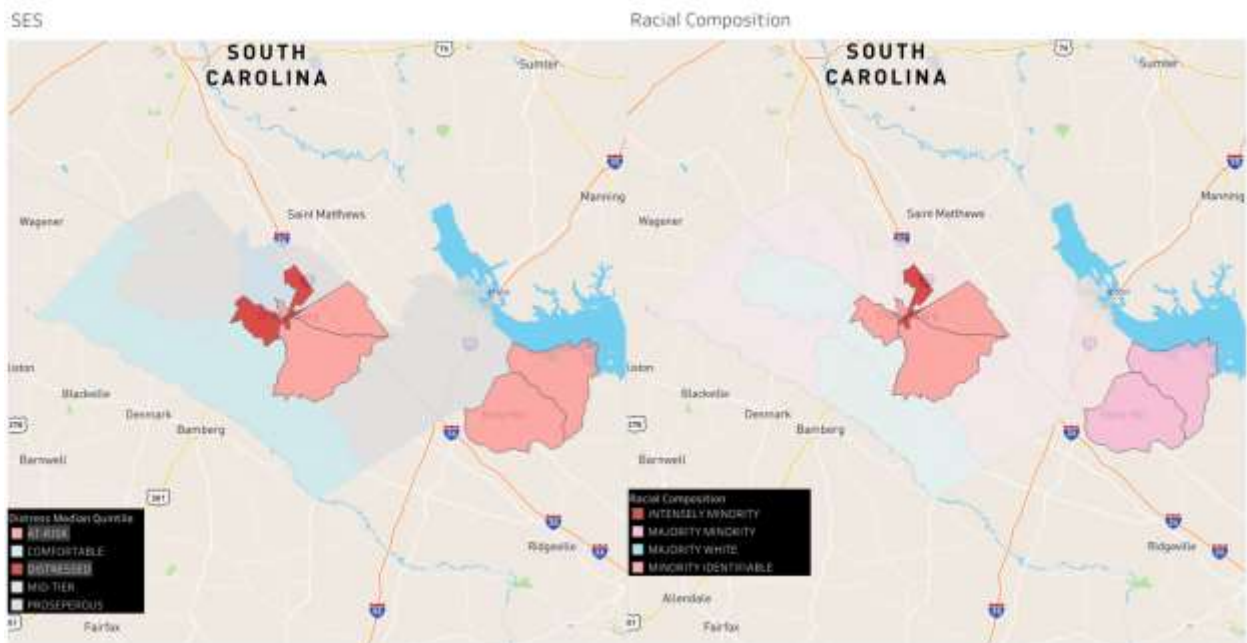


Figure 6. Racial Composition of Deprived Tracts.

Middle-Class Census Tracts and Racial Composition

Middle-class census tracts are classified as “mid-tier.” There were six middle-class census tracts. Of the six middle-class census tracts, one was located in a majority white area, three were located in majority minority areas, and two were located in minority identifiable areas. Figure 7 shows middle-class census tracts filtered to show their racial composition in the paired maps.

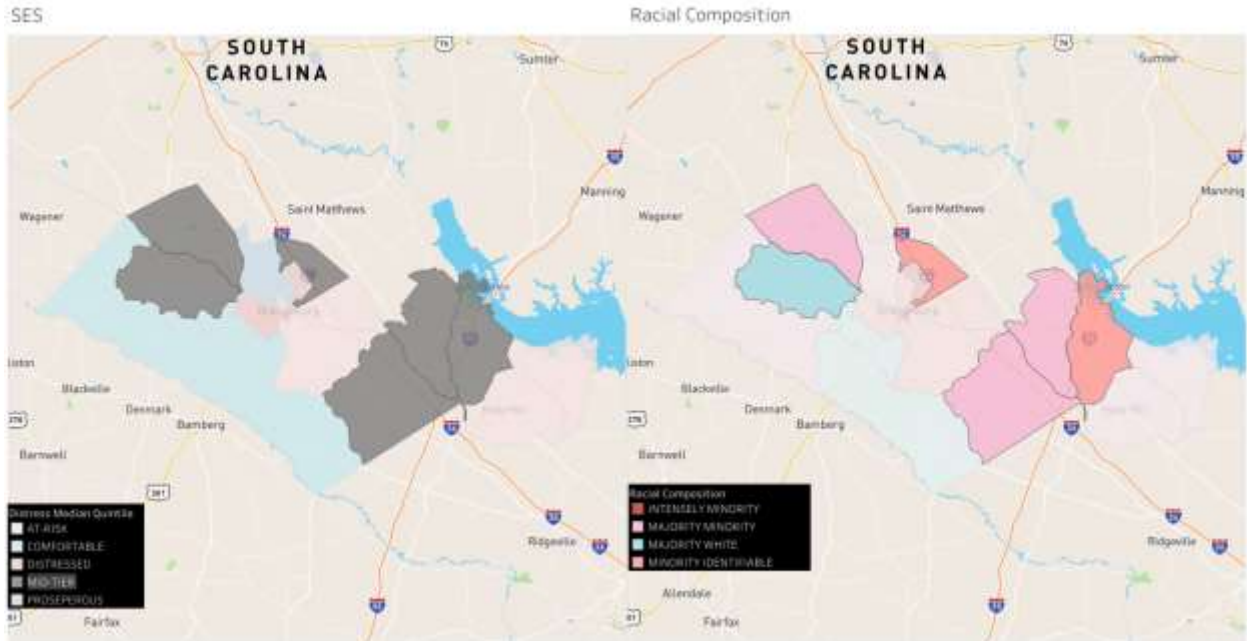


Figure 7. Racial Composition of Middle-Class Tracts.

Food Deserts and Socioeconomic Status

Figure 8 shows paired maps of food deserts and socioeconomic status. Of the six food deserts located in Orangeburg County, three are located in “distressed” tracts. Census tracts classified as “prosperous,” “mid-tier,” and “comfortable” tracts have one food desert each.

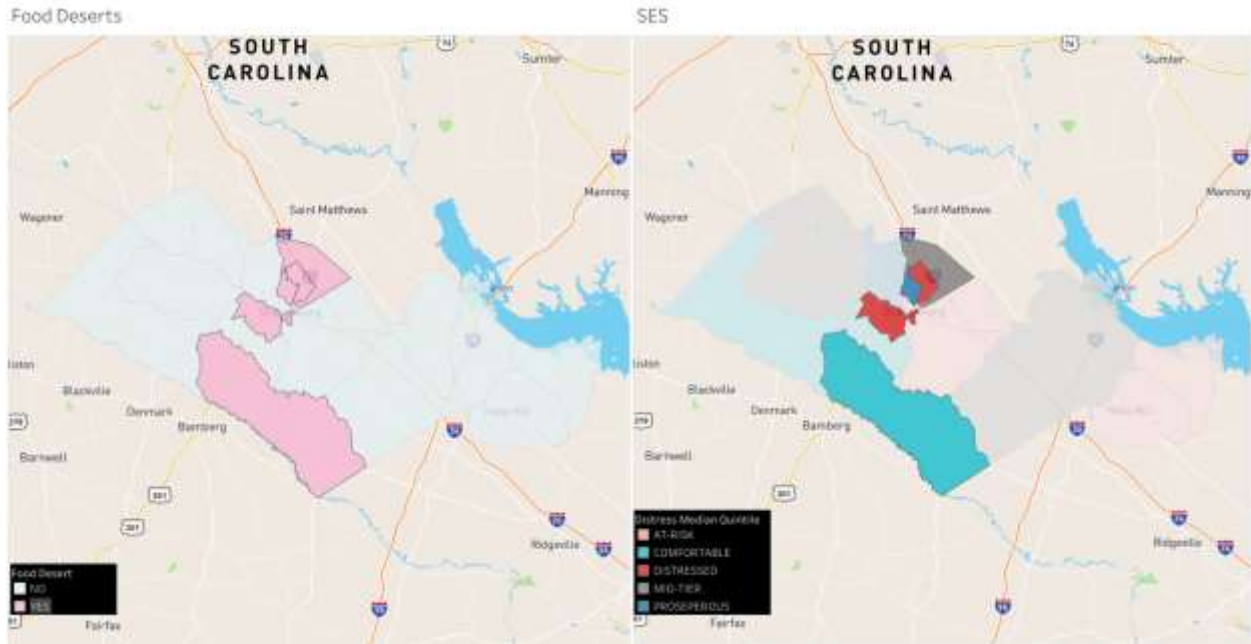


Figure 8. Food Deserts by Socioeconomic Status.

Food Deserts and Racial Composition

Figure 9 shows paired maps of food deserts and racial composition. Of the six food deserts located in Orangeburg County, three are located in minority identifiable tracts, two are located in intensely minority tracts, and one is located in a majority white tract.

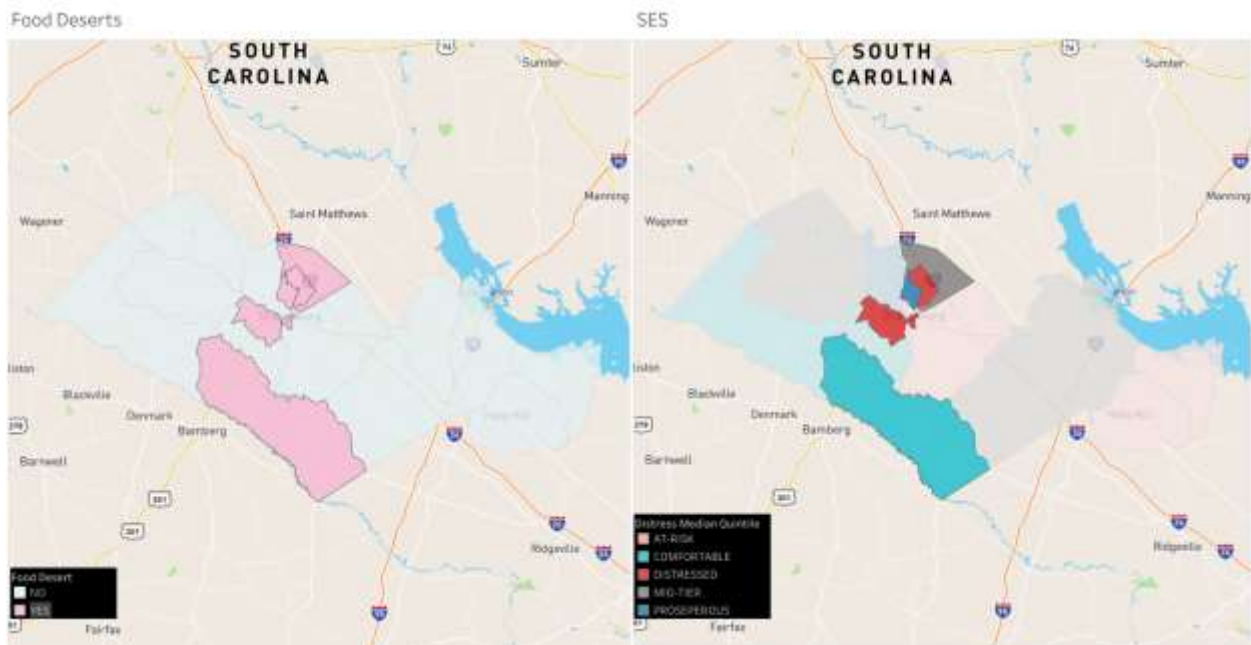


Figure 9. Food Deserts by Racial Composition.