



TRF first used this methodology to conduct a study based on a 13-state sample. TRF later conducted a broader study using data from the entire nation. The corresponding methodology is outlined in this document. TRF estimates that 24.8 million US residents (8.1%) live in areas with inadequate access to supermarkets.

Identifying Low Access Areas (LAA)

TRF's methodology is designed to identify areas¹ where residents travel longer distances to supermarkets compared to the average distance of higher-income areas that share similar values for population density and car ownership rate. Our data sources include US Census (2000) for population living in households, residential land area, and car ownership rate; and Trade Dimensions (2009) for supermarket locations².

Many prior research efforts to identify underserved areas have used fixed distances for urban, suburban, and rural areas throughout entire counties, metro areas, and even states; TRF's methodology accounts for the wide-ranging values for population density and car ownership rate and their profound influence on how far households are expected to travel to shop for food. This methodology's key assumption is that block groups with a median household income greater than 120% of their respective metro area household medians (or county medians for non-metro areas) are adequately served by supermarkets and thus travel an appropriate distance. This assumption establishes the benchmark to which all block groups are compared. This assumption is based on existing research that indicates an intense level of competition in the supermarket industry in higher-income communities.

Step I. TRF categorized all block groups in the continental US into categories using Census data for population density and car ownership. This process results in 13 categories ranging from "Density 1 (lowest density) – High Car Ownership" to "Density 7 (highest density)– Low Car Ownership". *Note that block groups with fewer than 250 people living in households were excluded because they do not represent the typical community structure, in that a significant portion of their land area contains non-residential uses.*

Step II. TRF calculated the benchmark distances to support our key assumption noted above. Each benchmark represents the average distance between the population-weighted centroids of all non low-moderate income (LMI) block groups and their nearest supermarket, within each category created in Step I. The benchmark distance represents a comparatively acceptable distance for households to travel to a supermarket.

Step III. TRF compared the distance between each block group's population-weighted centroid and its nearest supermarket to that of its respective benchmark within the same category created in Step I. All block groups having a longer distance than their benchmark were assigned an Access Score that identifies the extent to which they are underserved.

Step IV. TRF used Geographic Information System (GIS) methods to identify which underserved block groups are clustered together; a single cluster must contain at least two contiguous block groups, each of which must have at least two bordering block groups that are also underserved. These underserved clusters, referred to as low-access areas (LAA), represent areas with the strongest need for additional access to supermarkets.

Step V. TRF created retail grocery leakage estimates as a way to determine the magnitude of each LAA's access problem and its potential remedy – leakage represents grocery purchases made outside of the LAA boundaries. Using household income categories and their respective percentages of income spent on "food at home" (Consumer Expenditure Survey, 2009), TRF estimated total retail grocery demand in each LAA. Total grocery sales occurring within each LAA (from superettes and limited assortment stores) were then subtracted from demand, resulting in estimates for retail grocery leakage. Because the access problem is better understood in terms of square feet, TRF converted dollars leaked to square feet using nationwide weighted averages for sales per square foot.

¹ US Census block groups serve as the unit of analysis; "areas" are clusters of underserved block groups.

² "Supermarkets" include all grocery stores except "limited assortment" and "superettes", as defined by Trade Dimensions (a Nielsen Media company), because they are less likely to provide a wide range of fresh groceries.

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