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Diet, Food, Exercise, and Nutrition (D-FEND)

Center for Human Nutrition

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## **Thinking about availability and accessibility**

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# Thinking about availability and accessibility

Prepared for DFEND 3 series

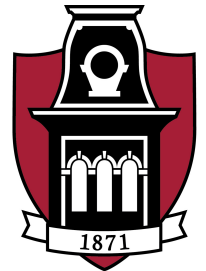
by

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Friday, April 30<sup>th</sup> 2021



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# Food Desert

- Neighborhoods or districts with inadequate access to healthy food retail options.
- Census tracts qualify as food deserts if they meet low-income and low-access thresholds (Ver Ploeg, Nulph, and Williams, 2011):
  - Low-income: a poverty rate of 20 percent or greater, or a median family income at or below 80 percent of the statewide or metropolitan area median family income.
  - Low-access: at least 500 persons and/or at least 33 percent of the population lives more than 1 mile from a supermarket or large grocery store (10 miles, in the case of rural census tracts).
- Supermarkets and large grocery stores--defined as food stores with at least \$2 million in annual sales and containing all the major food departments.
  - These are used as proxies for sources of healthy and affordable food.

# Access to Food

- For a small percentage of U.S. households, access to a supermarket or large grocery store is a problem (Ver Ploeg 2020).
  - 23.5 million people, or 8.4 percent based on the 2000 census.
- Low-income households often leave food deserts to shop where food prices are lower (Ver Ploeg 2020).
  - Access to a car allows people to leave the food desert.
  - About 2.3 million, or 2.2 percent, of households in the continental U.S. live in food deserts and do not have access to a vehicle.

# Food Access Research Atlas

- Presents a spatial overview of food access indicators for low-income and other census tracts using different measures of supermarket accessibility;
- Provides food access data for populations within census tracts; and
- Offers census-tract-level data on food access that can be downloaded for community planning or research purposes.

# Small Retailers

- Not every neighborhood can provide sufficient consumer demand to support a supermarket.
- Stores with total annual sales less than \$2 million, dollar stores and less-traditional formats ranging from warehouse club stores to fruit and vegetable stands on street corners.
  - Formats other than supermarkets can be especially important for people without access to vehicles (Wilde 2018).
- Small retailers may not have access to fresh-food suppliers, refrigeration equipment or marketing resources to publicize healthier options .
  - Programs that provide grants, loans, marketing support or other assistance may improve availability of affordable, healthful foods in underserved communities (Wilde 2018).
  - Some evidence suggests that such initiatives can improve healthy food offerings in small stores (Gittelsohn et al., 2012).

# Modified Retail Food Environment Index

- The mRFEI is calculated for each census tract using the following formula (CDC 2011):

$$mRFEI = 100 \times \frac{\# \text{ Healthy Food Retailers}}{\# \text{ Healthy Food Retailers} + \# \text{ Less Healthy Food Retailers}}$$

- Healthy food retailers include supermarkets, larger grocery stores, supercenters, and produce stores within census tracts or ½ mile from the tract boundary.
  - supermarkets and larger grocery stores (NAICS 445110); fruit and vegetable markets (NAICS 445230); warehouse clubs (NAICS 452910).
- Less healthy food retailers include fast food restaurants, small grocery stores, and convenience stores within census tracts or ½ mile from the tract boundary.
  - fast food stores (NAICS code 722211); convenience stores (NAICS code 445120); small groceries (NAICS code 445110) where the number of employees was three or fewer.

# Arkansas

## Modified Retail Food Environment Index According to Census Tract

**Modified Retail Food Environment Index (By U.S. Census Tract)**

- No retail food outlet within census tract
- No healthy food outlet within census tract
- 0.1 - 5
- 5.1 - 10
- 10.1 - 37.5
- 37.6 - 100

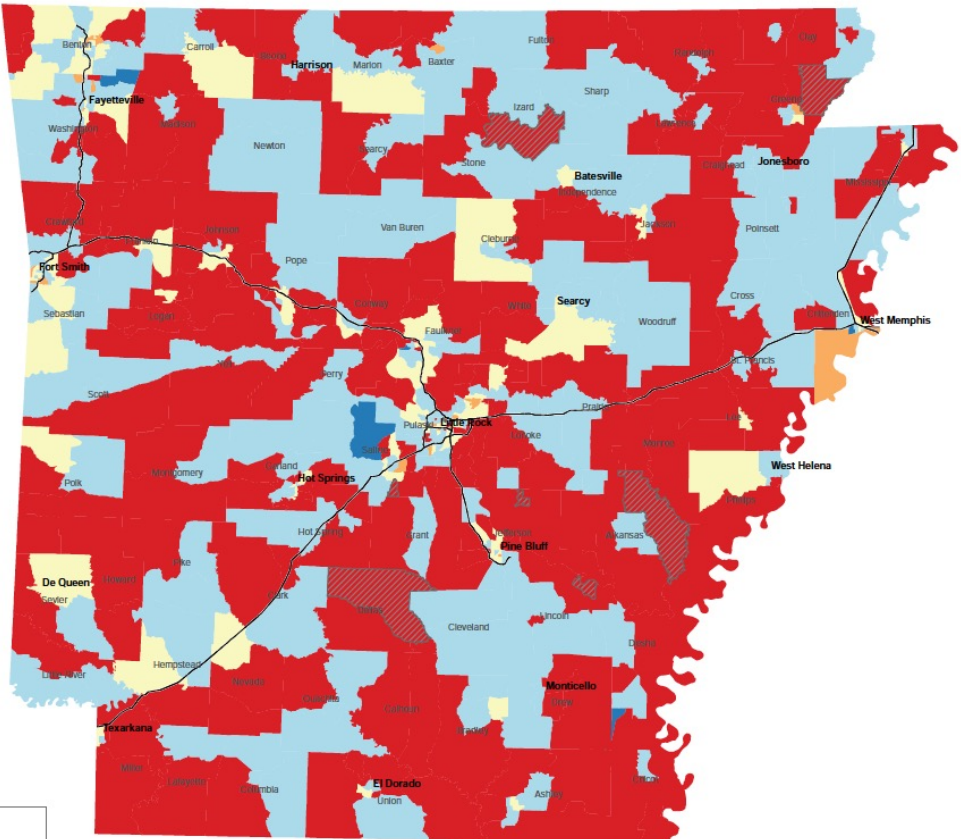
— Interstate Highways

Lower scores indicate that census tracts contain many convenience stores and fast food restaurants compared to the number of healthy food retailers. A zero score indicates no healthy food retailers (supermarkets, larger grocery stores, or supercenters) within the census tract.

DATA SOURCES:  
Supermarkets, Small and Large Groceries, Produce Stores, Supercenters: HoUSDA 2009  
Convenience stores: Homeland Security Infrastructure Program Database 2008  
Fast-food restaurants: NAVTEQ 2009

Date of map: September, 2011

National mRFEI Score = 10  
Arkansas mRFEI Score = 9



The modified Retail Food Environment Index (mRFEI) measures the number of healthy and less-healthy food retailers within a census tract using this formula:

$$\frac{\# \text{ Healthy Food Retailers}}{\# \text{ Healthy Food Retailers} + \# \text{ Less Healthy Food Retailers}} \times 100$$

For this indicator, healthy food retailers include supermarkets, larger grocery stores, supercenters, and produce stores.† Less healthy food retailers include convenience stores, fast food restaurants, and small grocery stores with 3 or fewer employees.‡

† Data sources are listed in the legend.



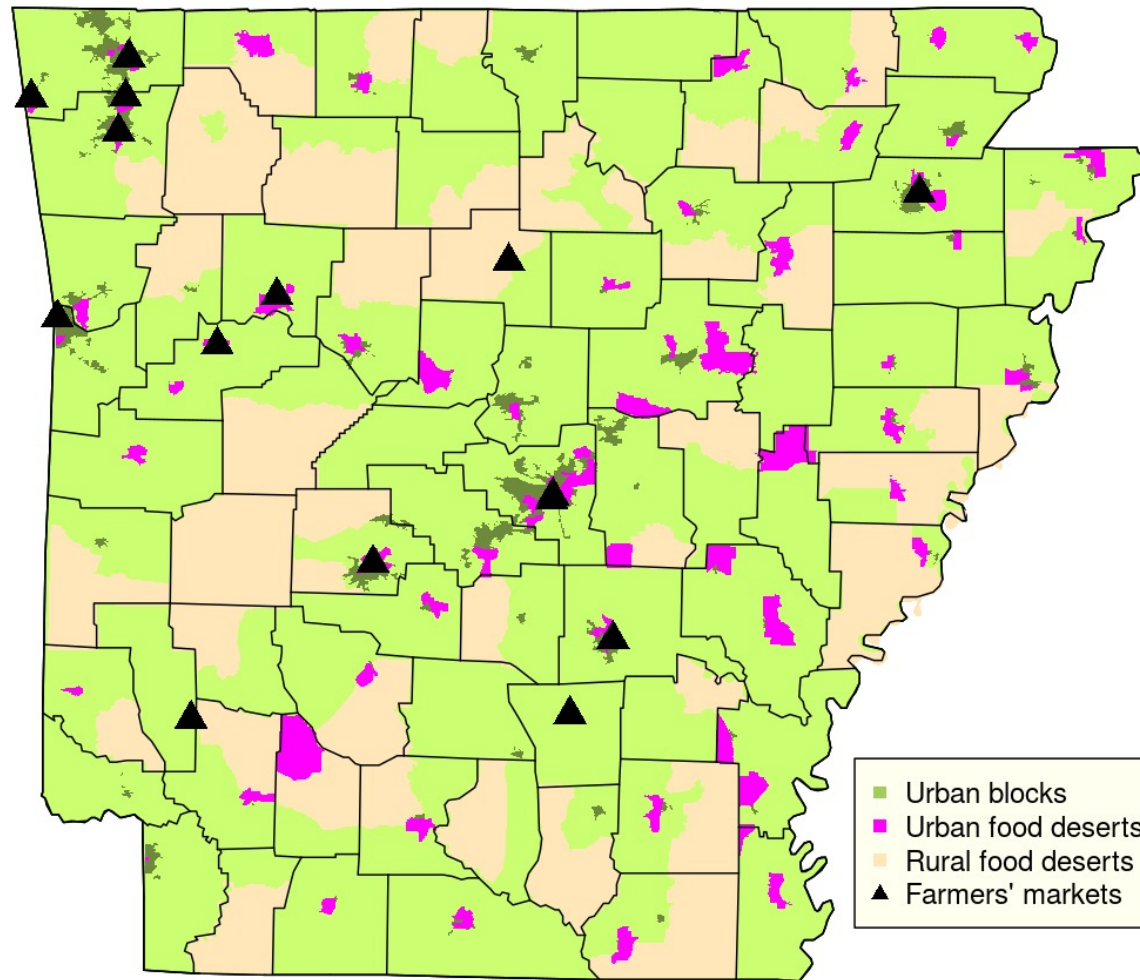


# National Evidence on Food Access

- Households with greater access to supermarkets tend to have healthier diets and lower obesity rates than those with less access (Wilde 2018).
  - Similarly, households with less exposure to nearby fast-food restaurants tended to have better diets and lower obesity rates than households with more fast-food access (Larson et al., 2009; Giskes et al., 2011).
- Handbury et al. (2015) concluded that, of the differences in nutritional quality of purchases between low- and high-income households, about one-third can be explained by what county one lives in and another third can be explained by what census tract one lives in.
- Courtemanche and Carden (2011) found Walmart Supercenter expansion to be associated with increased average body mass index (BMI):
  - This apparent effect was strongest for women, low-income married individuals and those living in the least populated counties.

# Nutrition Programs and Better Food Access

- Supplemental Nutrition Assistance Program (SNAP) is an entitlement program.
  - Income Eligibility differs by household size and state.
  - The maximum SNAP benefit amount is related to the cost of the Thrifty Food Plan, a model spending plan appropriate for people on a tight budget.
  - Research has shown that SNAP reduces the severity of food insecurity and promotes health for children and families.
- Double Up Food Bucks (DUFEB) Program provides SNAP program participants with matching dollars when they spend their SNAP benefits on locally grown fruits and vegetables.
  - Arkansas received a \$94,000 award from USDA and a \$25,000 Walmart Foundation State Giving award to launch DUFEB at 18 farmers markets across the state in 2016.
  - DUFEB pilots were implemented by the Arkansas Coalition for Obesity Prevention (ArCOP).



Interactive map: <https://difang.shinyapps.io/classcasestudy/>

# Nutrition Programs Continued

- The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) provides federal grants to states for supplemental foods, health care referral, and nutritional education.
  - State by state programs differ but requirement mainstays are categorical, residential, income, and nutritional risk eligibilities.
- Households participating in WIC have higher quality of food purchase compared to eligible non-participating households (Fang et al. 2019).
  - This difference is driven entirely by households who redeemed WIC foods during the interview week.
  - WIC food is particularly important in improving the healthiness of total fruit, whole grains, dairy, and empty calories.
  - Geographic barriers do not appear to be limiting WIC participation in this study.

## Pandemic EBT and Online Purchasing Pilots

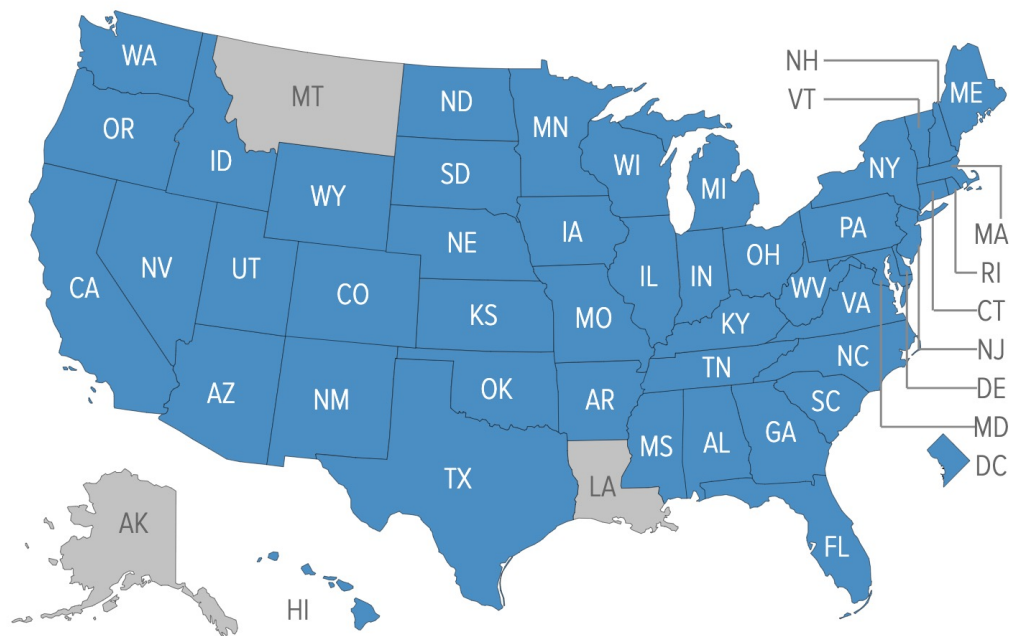
as of April 23, 2021

Pilots an online purchasing program

■ Yes

■ No

■ Hover for note



THE RAND BLOG

## Food Access: Challenges and Solutions Brought on by COVID-19

COMMENTARY (The RAND Blog)



## USDA Expands Access to Online Shopping in SNAP, Invests in Future WIC Opportunities

WASHINGTON, November 2, 2020 – The U.S. Department of Agriculture continues making great strides in bringing the online shopping experience to more of its program participants. USDA's Food and Nutrition Service (FNS) is working rapidly to expand capacity in the [Supplemental Nutrition Assistance Program \(SNAP\) Online Purchasing Pilot](#) — having grown the program exponentially over the past few months. And now the agency is investing in the future of online

Press Release  
Release No. FNS 0018.20

# Additional Thoughts

- The role of smaller retailers, e.g. corner stores
- Food access and structural racism
- Urban vs. rural disparity
- Nutrition program participation, e.g. EBT and smaller stores
- Community assistance program, i.e. food banks, food pantries, churches
- Social network and food sharing

# Q&A

Thank you for your attention. A list of reference can be obtained from the organizers.