

An Examination of Food Insecurity in the United States, and the Case for Food Rescue



Created by Kaleo from the Noun Project

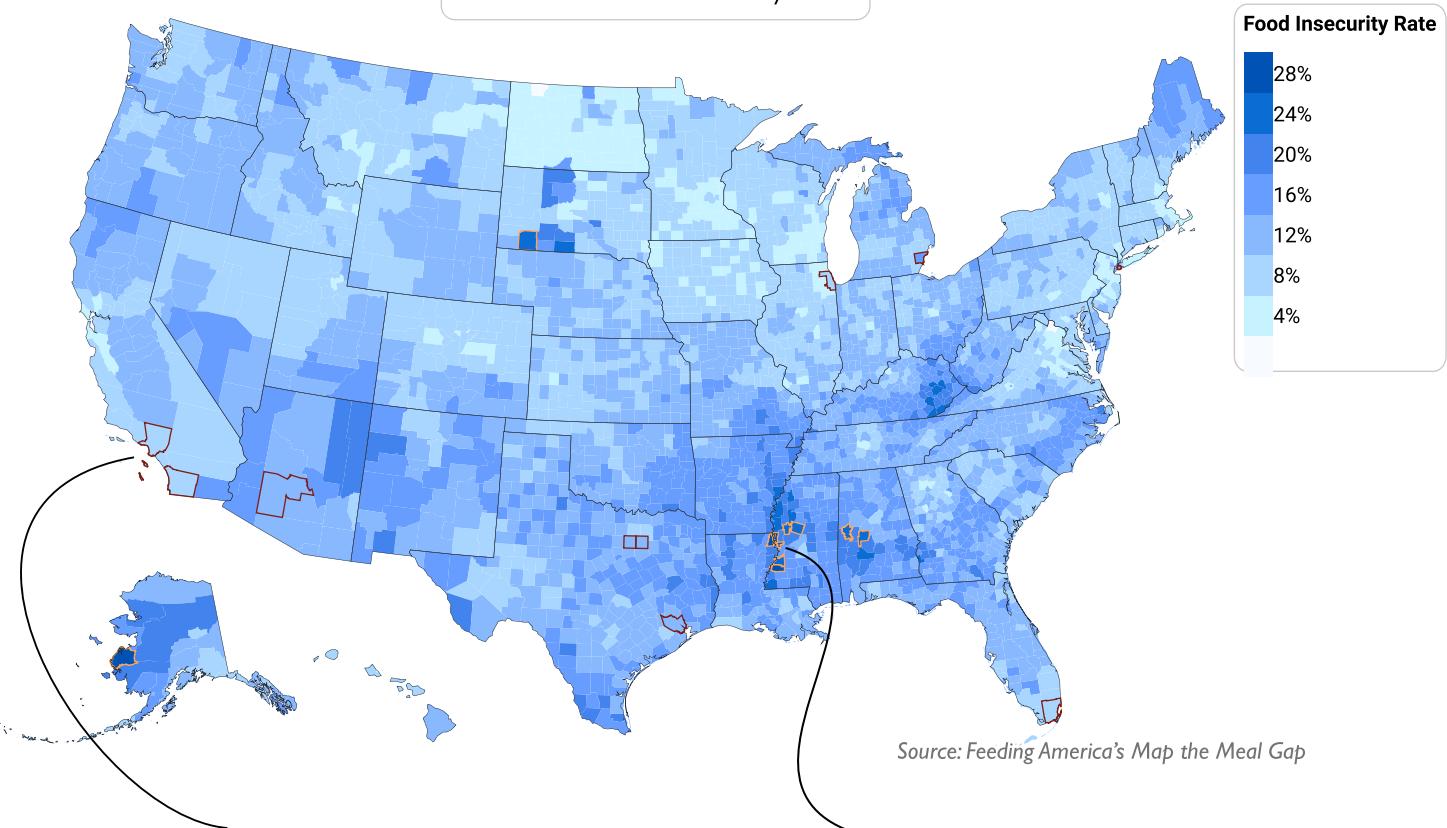
Millions of people across the United States (approximately 1 in 9) suffer with food insecurity, meaning they lack regular access to adequate food. Efforts to combat the food insecurity crisis - which ballooned following the Great Recession - have been successful in diminishing its prevalence. Nonetheless, counties all across the United States still contend with the pervasive presence of food insecurity - although the degree of severity varies significantly due to a multitude of factors. This report examines food insecurity in the United States from 2012 - 2018 at the state and county level, and evaluates food waste rescue as a high potential solution to reducing hunger.

Southern Counties Experience the Highest Food Insecurity Rates in the U.S. (2018)

Urban Counties Have the Most Food Insecure Residents

Notable Counties

- Orange: Ten Most Food Insecure Counties by Rate
- Red: Ten Most Food Insecure Counties by Total #



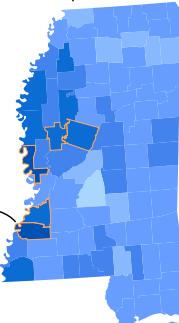
Los Angeles County has 1,140,290 Food Insecure Residents (2018)
This is over 450,000 more insecure residents than the next largest county

The county's food insecurity rate in 2018 was ~11.4%, well below the national county average.



Mississippi is Home to the 5 of the Top 10 Most Insecure Counties in the Country

Jefferson County has the highest food insecurity rate in the country (30.4%), but only has ~7500 residents



Food Insecurity Rates at the State Level

Examining the Trajectory of Food Insecurity Rates at the State Level

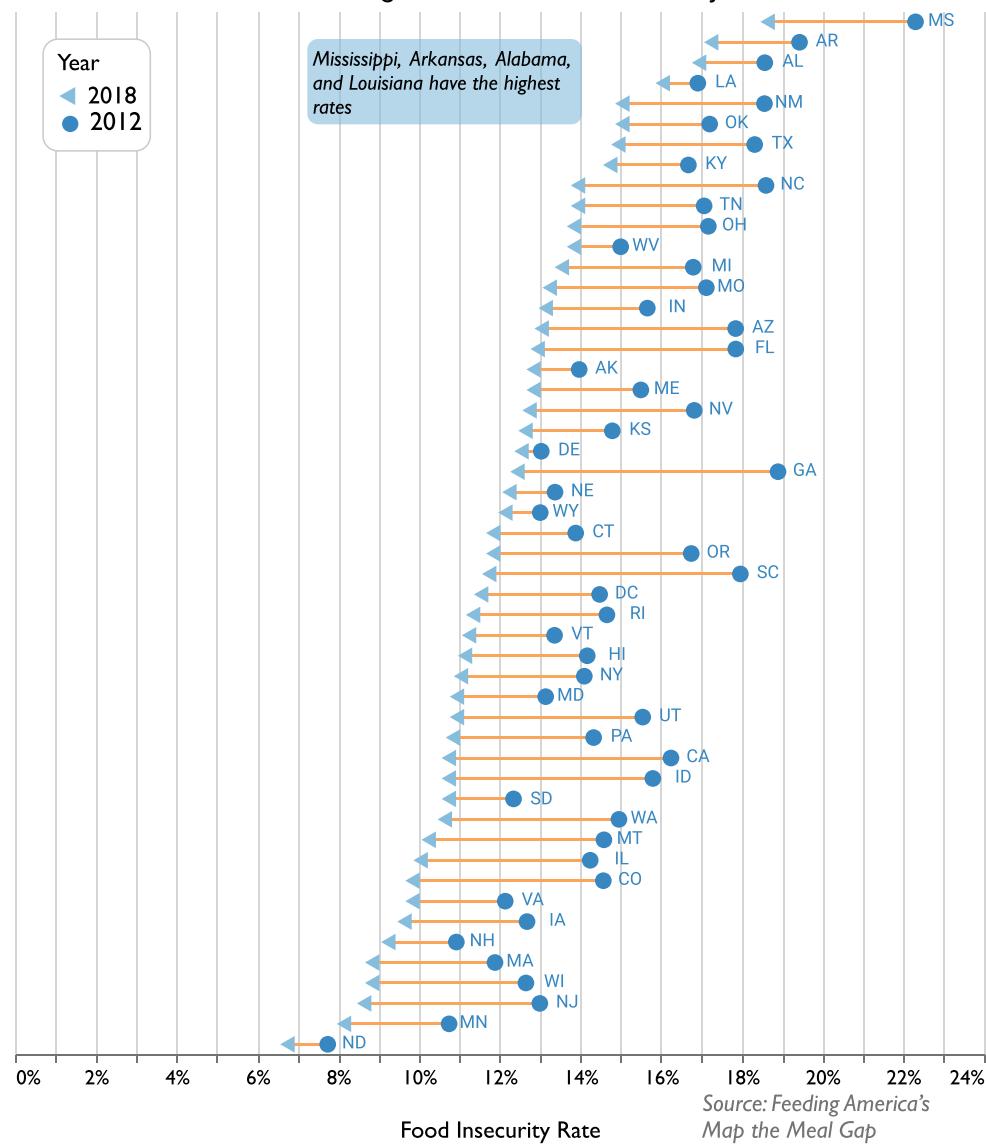
Food insecurity rates dropped among all states from 2012 to 2018. The degree of change differs substantially, with states such as South Carolina, Georgia, and California exhibiting the largest drops in food insecurity. Note at the state level that estimated rates range from as low as ~6% (North Dakota) to ~17.5% (Mississippi) in 2018. Reflecting the conclusion drawn from the county level analysis, southern states suffer from the highest rates of food insecurity.

The Higher Prevalence in Child Food Insecurity Rates Suggests that Families are More Likely to be Food Insecure

When households suffer from food insecurity, children are critically affected. Children suffering from hunger are at a higher risk of developmental impairments and are more vulnerable to serious health conditions. Unfortunately, food insecurity rates for children are much higher than overall insecurity rates, with state level rates ranging from ~10% to ~25%. There appears to be greater variance in child insecurity rates (versus overall rates) across states over time. The change in child food insecurity rates has not been a continuous decline either; for example, some states actually saw a rise in rates from 2017 to 2018.

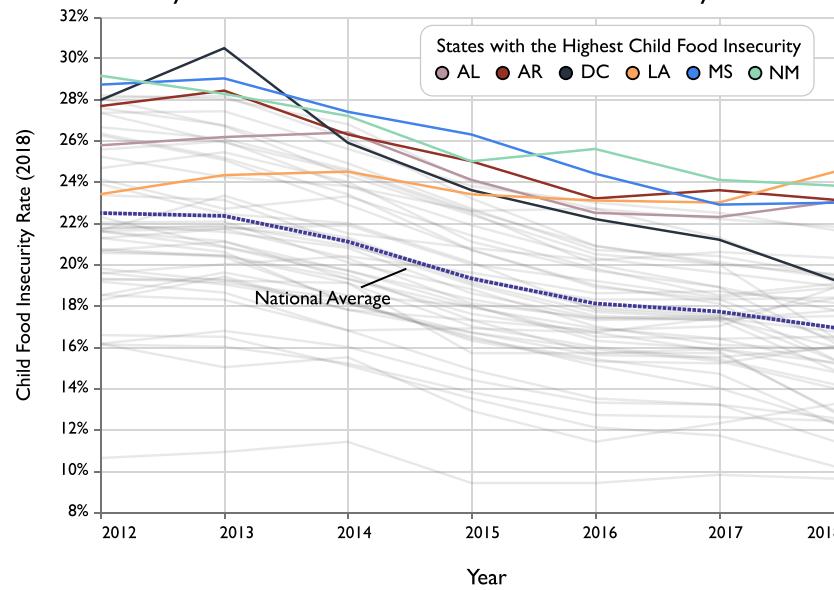
Unsurprisingly, the same states that have the highest overall rates of food insecurity also experience the highest rates of child food insecurity.

Insecurity Rates Dropped Among All States from 2012 to 2018 Southern States Have the Highest Rates in the Country

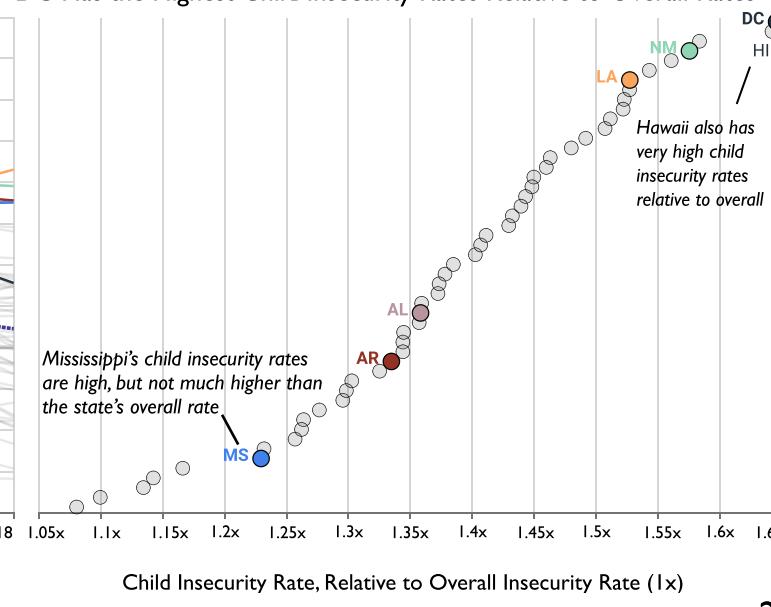


The States with the Highest Overall Insecurity Rates also have the Highest Child Food Insecurity Rates

Child Insecurity Rates Exceed Overall Rates Across the Country



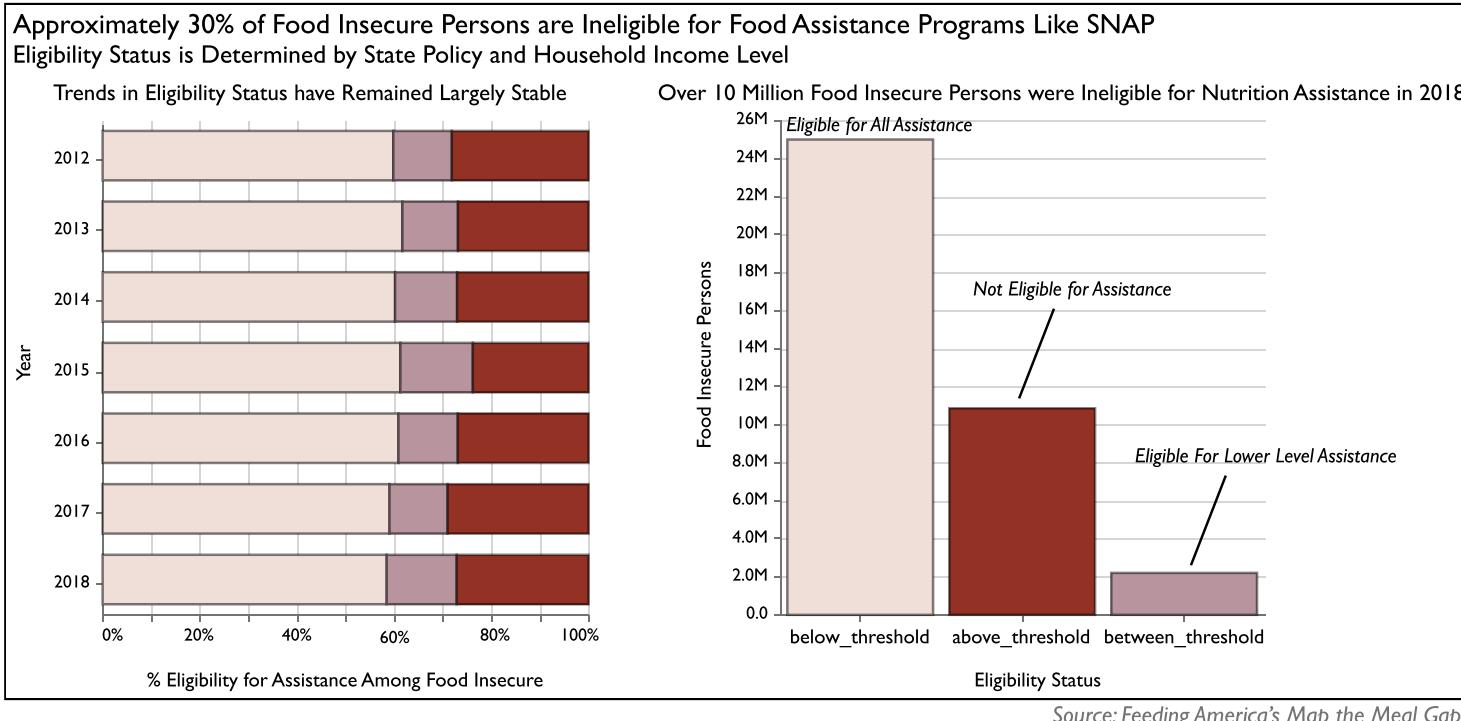
DC Has the Highest Child Insecurity Rates Relative to Overall Rates



Examining Financial Assistance Programs and Food Budget Shortfalls

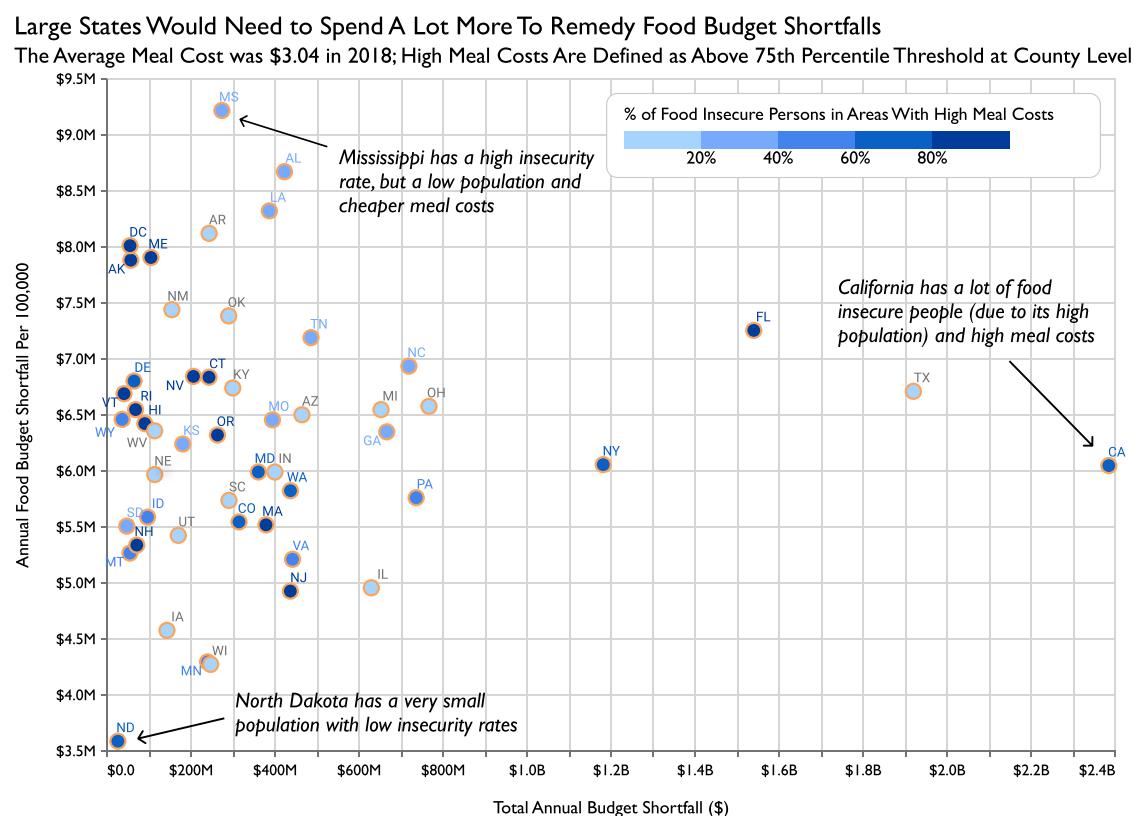
One method by which the federal and state governments provide assistance to families and children suffering from food insecurity is through the administering of programs like SNAP (Supplemental Nutrition Assistance Program) and WIC (Women, Infants, and Children program). These programs provide nutrition benefits that bolster the budget of families in need, with the additional aim of guiding the purchase of healthier foods. Eligibility for these programs is state specific, with each setting household income thresholds.

There are usually two thresholds provided: a lower income threshold that corresponds to one nutrition program, and a higher income threshold that corresponds to alternative nutrition programs offering smaller benefits. As the charts below demonstrate, approximately 30%, or ~11 million food insecure persons in 2018 were deemed ineligible for any nutrition assistance programs due to having incomes above the high threshold.



How Much Would it Cost States to Remedy Food Budget Shortfalls?

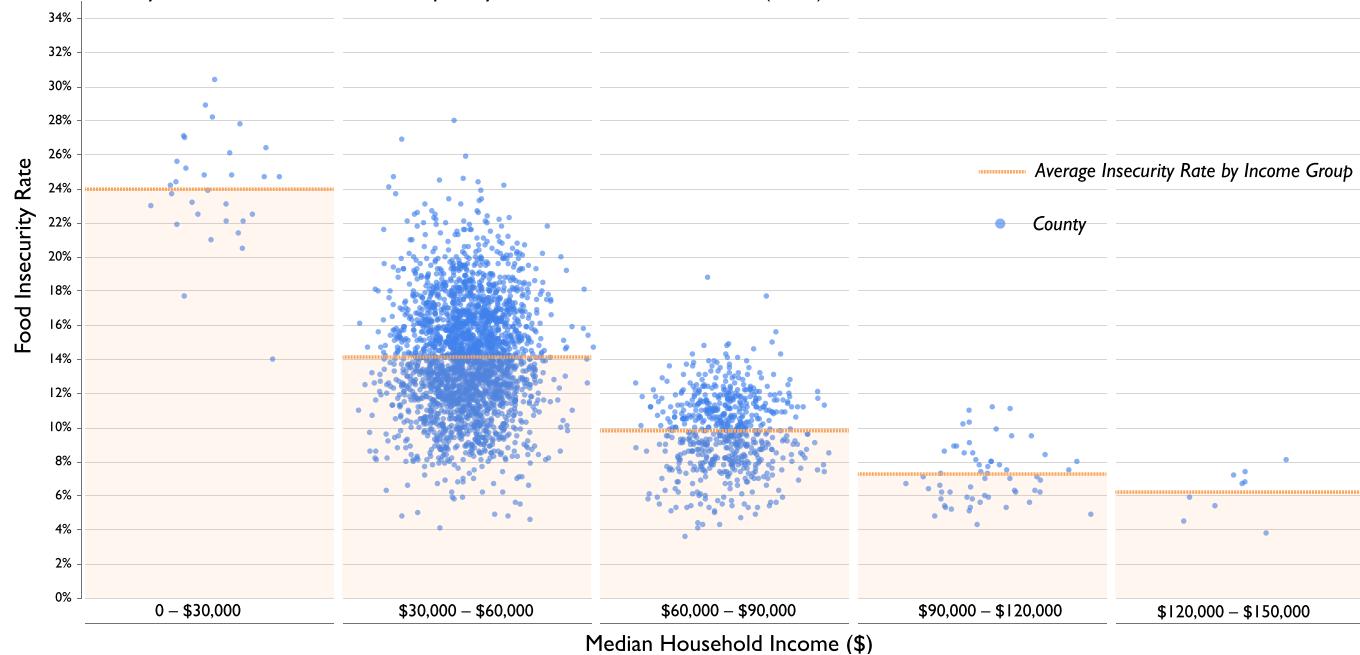
The Current Population Survey - administered by the Census Bureau - makes an effort to measure the budget shortfall of households suffering from food security. This budget shortfall measure represents the amount of additional money a food insecure person would likely spend to meet their food nutrition needs. According to their estimates, the weekly food budget shortfall of these households was approximately 17 dollars in 2018, leading to an annual national budget deficit of \$19.5B. As shown to the right, states vary greatly in their annual budget shortfalls per 100,000 residents. The difference in meal costs shows that there is an additional burden on food insecure families in higher cost areas, which needs to be taken under consideration. It also highlights the importance at looking at the total number of food insecure persons, not just rates.



County Level Socioeconomic Factors and Food Insecurity

Given the context provided by the depiction of nutrition eligibility among food insecure persons, while poverty is a significant contributer to food insecurity, not all persons in poverty experience food insecurity, and many people above the poverty line are unable to consistently secure adequate food.

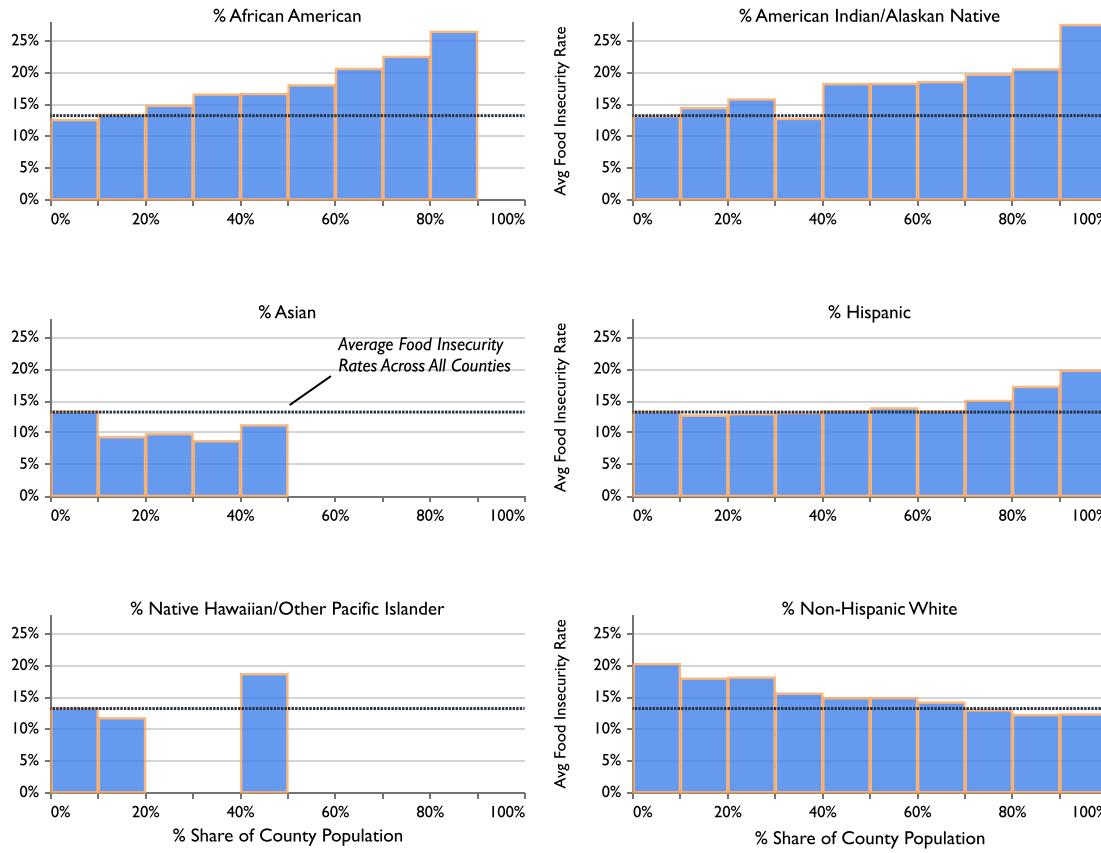
Counties With Lower Median Household Income Experience Higher Rates of Food Insecurity
Food Insecurity Rate For US Counties, Grouped by Median Household Income (2018)



Sources: Feeding America's Map the Meal Gap & County Health Rankings

The graph above shows food insecurity rates for five levels of median household income by county for 2018. The median household income for counties predominantly falls somewhere in the \$30,000 to \$60,000 range. There appears to be a clear connection between median household income and food insecurity rates at the county level, with the mean rate decreasing from 24% at the lowest income to 6% at the highest income. The high degree of variation in rates among the \$30,000 - \$60,000 income group suggests that there are a litany of other factors contributing to food insecurity.

Counties with Larger Shares of Black, Hispanic and American Indian Populations Experience Higher Food Insecurity
Average Food Insecurity Rate for Counties by Share of Population for Racial/Ethnic Groups (2018)



How do Food Insecurity Rates Vary by Race / Ethnicity?

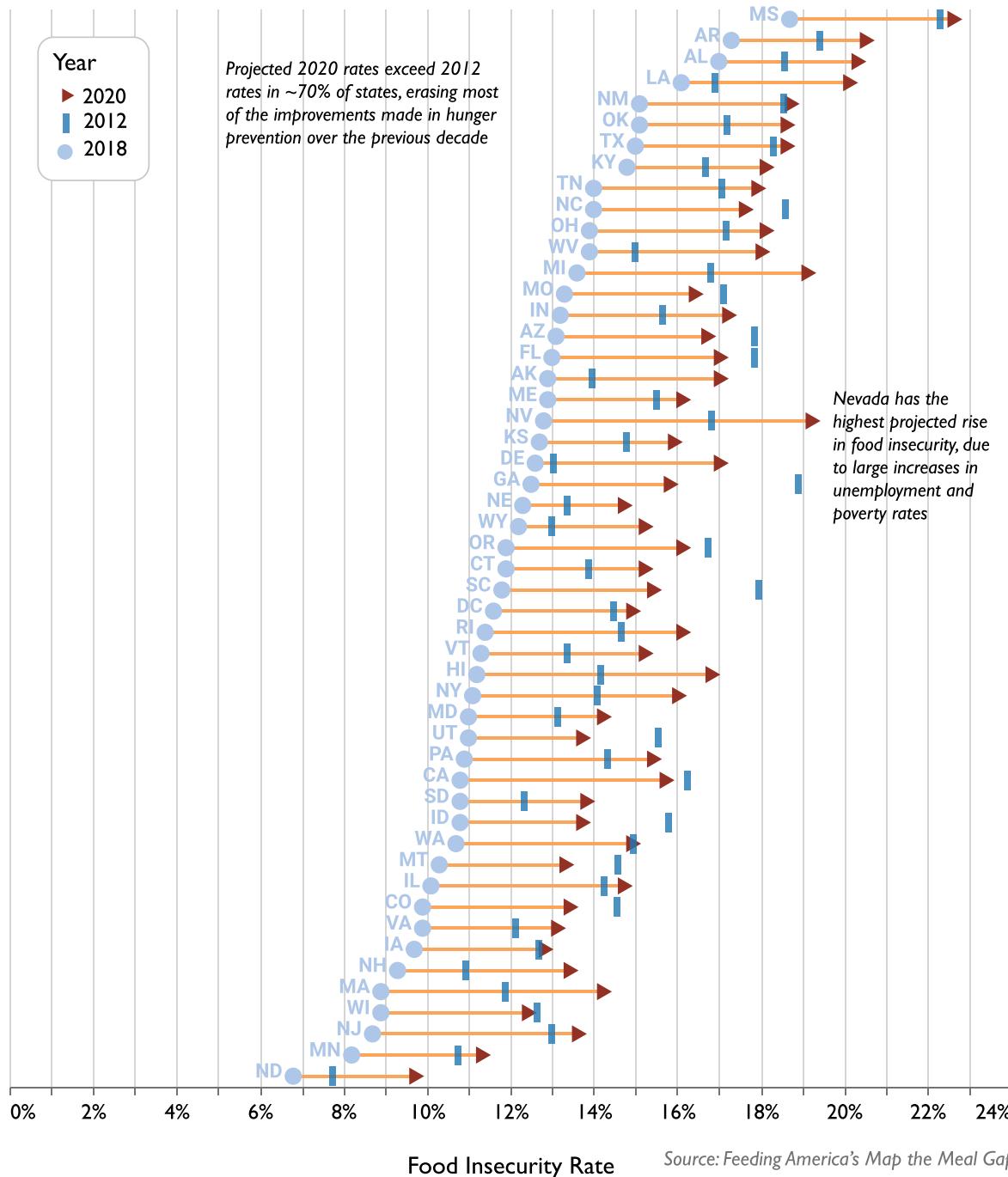
There are a multitude of root causes beyond income that contribute to food insecurity. Structural racial and ethnic inequities in areas like health care, housing, income and food access are key factors in food insecurity, which in turn leads to poor nutrition and chronic, underlying health issues. The chart to the left depicts county level food insecurity rates by the share of population for various racial and ethnic groups. The black dotted line represents the mean food insecurity across all counties for all racial and ethnic groups.

Sources: Feeding America's Map the Meal Gap & County Health Rankings

What Food Insecurity Might Look Like During the COVID-19 Pandemic

The emergence of the COVID-19 pandemic has drastically reduced the ability of Americans to obtain essential needs like shelter and food, and it has likely exacerbated existing health disparities. While significant gains were made in reducing food insecurity in the decade following the Great Recession, these improvements have been threatened by the widespread economic and public health downturn resulting from the pandemic. Unemployment and poverty rates are two of the most significant indicators (per Feeding America), and the critical loss of income and jobs during the pandemic means that many more households are struggling to access adequate, healthy food. Using estimated changes in unemployment and poverty adjusted based on actual rates at the start of the pandemic, Feeding America's Map the Meal Gap study projects that food insecurity rates rose significantly across all states in 2020. In most states, projected 2020 rates are higher than 2012 rates, which emphasizes the need to implement stronger policies at the state and federal level to combat food insecurity.

Due to COVID-19, Estimated 2020 State Insecurity Rates Increased in All States Projections were calculated based on changes in unemployment and poverty rates in 2020



Source: Feeding America's Map the Meal Gap

Assessing Domestic Food Waste in the Context of Food Insecurity

While the high degree of food insecurity across the country might suggest that the United States is not producing enough food, this is not the case; the U.S. manufactures more than enough food to sustain a growing domestic population. A considerable amount of food the United States produces, however, is lost at various stages of the supply chain cycle. Studies estimate that 30-40 percent - about \$408 billion worth - of the food supply goes uneaten. Much of this uneaten food festers, consigned to rot in landfills or abandoned on the fields in which they were grown. There are substantial efforts already in effect across the country to prevent this food waste from occurring in the first place, and to recover / divert to those in need when such waste inevitably occurs. Food banks are helping to lead these efforts, but much more can be done.

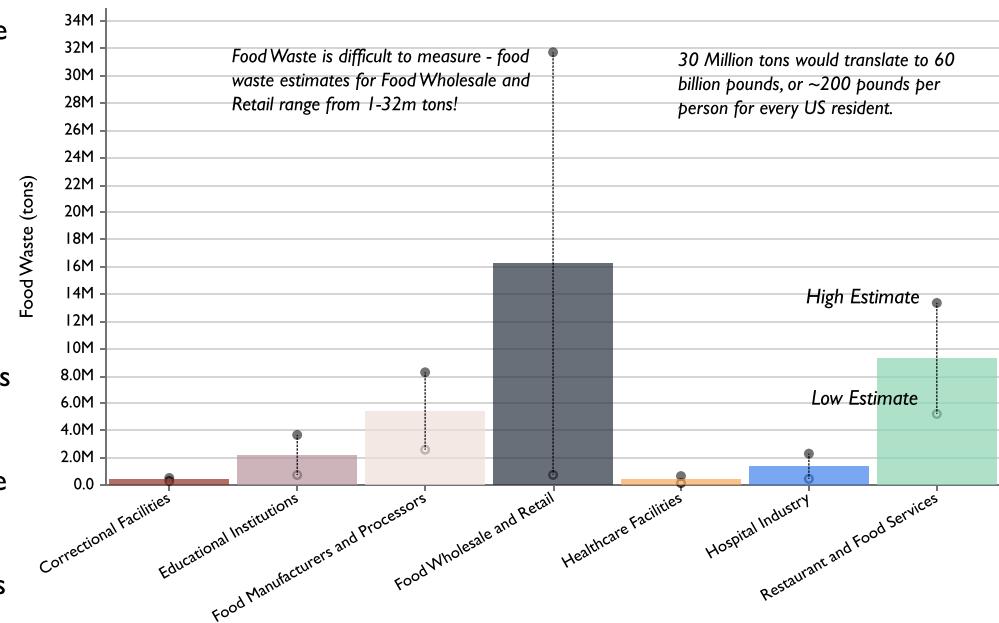
Who is Producing Food Waste?



A major challenge in examining food waste is the difficulty in capturing accurate estimates. Millions of facilities - not even factoring in households - produce billions of pounds of food waste annually, and efforts to standardize and consolidate estimates across the U.S. have only just come to fruition recently.

The graph to the right uses EPA (2018) estimates for food waste generation across a multitude of different facility types, ranging from food manufactures and to the education institutions. High food waste generators include manufacturers, manufacturers/producers, and restaurants, but the inclusion of high and low estimates by the EPA suggests that these results should be viewed with caution.

The EPA Estimates That on Average, 30 Millions Tons are Generated Annually by Commercial Institutions
Average Estimates of Annual Domestic Food Waste by Facility Type (2018), Not Including Residential Waste

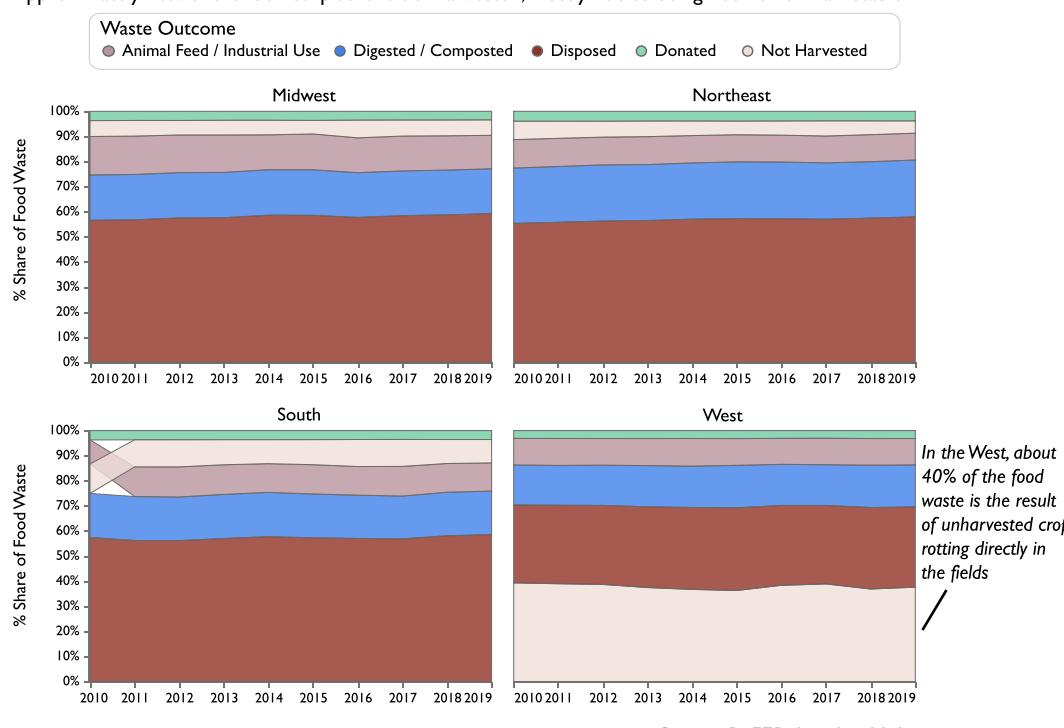


Source: EPA Excess Opportunities Map

How Much Food Waste is Being Rescued?

Unfortunately, very little food waste is being currently being rescued in the U.S. as a proportion of the total food waste being generated, despite the best efforts of food banks, food pantries, and other food rescue organizations. At the regional level in the United States, the outcomes for food waste are remarkably similar and stable over time. About 50% of the food waste being generated is disposed via methods such as incineration and being dumped in landfills. Another 20% on average is simply unharvested. Most of the remaining food waste is being redirected towards animal feed or industrial use, with a significant amount also being composted or supplied to anaerobic digestors. Food donation, which consists of disseminating extra food to organizations like food banks / pantries that can give food directly to those in need, only rescued a ~4% share of the waste being generated.

Only About 4% of Food Waste Across All Regions of The U.S. is Rescued or Donated
Approximately 20% of the food surplus is left unharvested, mostly due to being deemed unmarketable



Source: ReFED Insights Hub

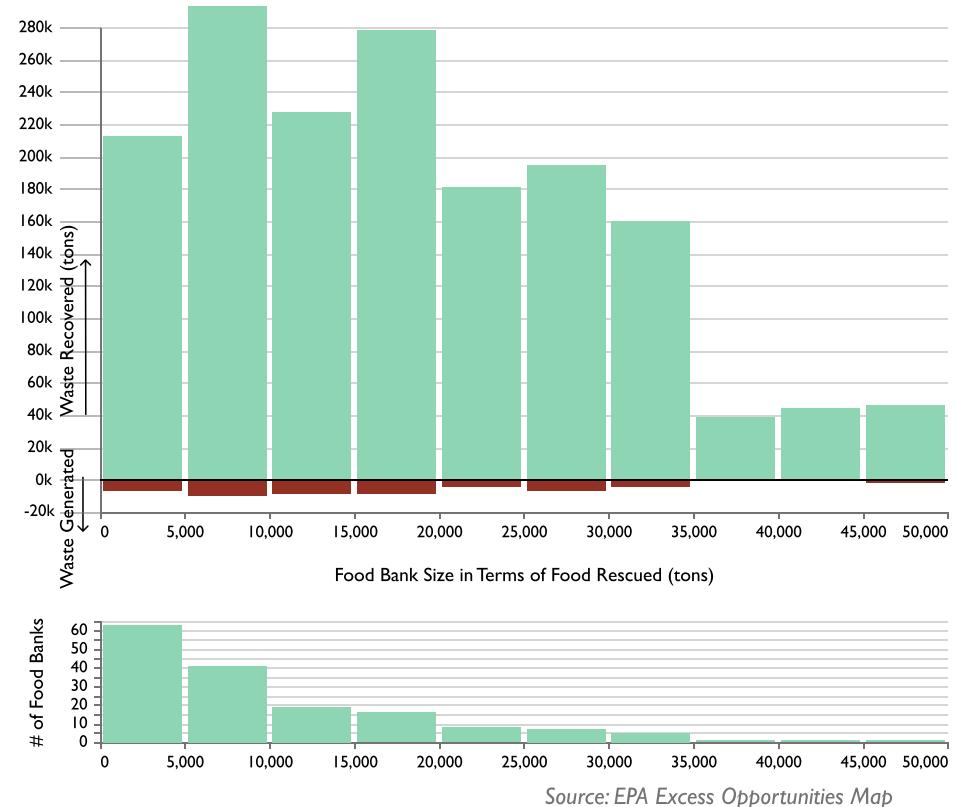
Assessing Domestic Food Waste in the Context of Food Insecurity

Food Rescue and Food Banks

There are three broad categories of solutions to reduce food waste: prevention, rescue/recovery, and recycling. Food banks help lead the rescue/recovery branch of food waste reduction, with the express aim of disseminating recovered food to food insecure households across the U.S. They function specifically as storage and distribution hubs for the thousands of food pantries and other front line agencies that hand out food to people directly.

As shown above, food banks help recover hundreds of millions of pounds worth of food waste annually and vary greatly in size and operational capacity (depending on the population of the regions in which they operate). Note that food banks do incur their own significant amount of waste, due to factors such as lack of storage or poor quality of received food, and inefficient distribution channels.

Food Banks Are Vital Disseminators of Rescued Food, but Still Incur Some Waste
Estimates of Recovered and Wasted Food by Food Banks, in tons (2018)



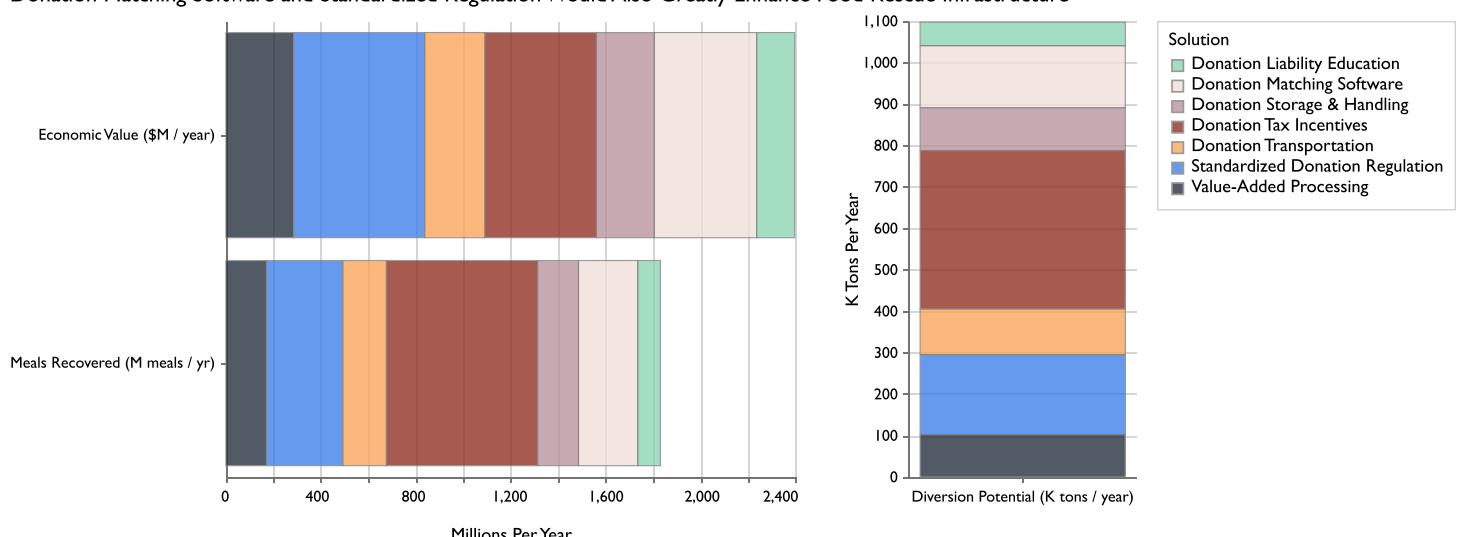
Source: EPA Excess Opportunities Map

Evaluating Strategies for Increasing the Capacity of Food Banks and Other Food Rescue Organizations

According to ReFED, a national non-profit dedicated to achieve a 50% reduction in food waste by 2030, only about 3% of surplus food ends up being donated annually. ReFED proposes numerous solutions to help improve the scalability of these recovery efforts and solve some of the inextricable challenges facing food banks, which are outlined in the chart above. These solutions are evaluated with respect to their estimated diversion potential, economic benefits, and meal recovery totals.

Among the largest potential meal recovery solutions is donation tax incentives, which would make food donation a more appealing economic consideration for businesses. To help increase the capacity of food banks, pantries, and other front line recovery organizations, ReFED finds that improving donation transportation, investing in donation coordination software, and standardizing donation regulation to maintain food quality would be highly effective solutions. The adoption of these and other strategies represent an opportunity to significantly increase the country's food rescue capacity and provide millions of more meals to food insecure households.

Among Recovery Solutions, Incentivizing More Waste Donations Via Tax Credits is the Most Impactful
Donation Matching Software and Standardized Regulation Would Also Greatly Enhance Food Rescue Infrastructure



Source: ReFED Insights Hub