MAP THE MEAL GAP 2018

General & Child Food Insecurity and Food Cost Estimates for 2016
Frequently Asked Questions

General Questions about Food Insecurity and Findings:

1. What is food security?

A household is food secure if there is access, at all times, to enough food for an active, healthy life for all household members. Each year, the U.S. Department of Agriculture (USDA) measures the extent and severity of food insecurity in households through a nationally representative survey (the Current Population Survey). These statistics are released in an annual report called *Household Food Security in the United States* and are based on a measure of food security derived from responses to questions about conditions and behaviors known to characterize households having difficulty meeting basic food needs. For more details, visit the USDA Economic Research Service.

2. What is the food-insecurity data?

Map the Meal Gap 2018 provides new information about food insecurity for each county and congressional district in the U.S. As with the estimates released in previous years, this year's estimates are based on a well-established, expert-reviewed regression model that combines the determinants of state food-insecurity rates derived from the Current Population Survey with county level metrics of factors closely related to food insecurity (i.e., unemployment, median income, poverty, homeownership, and demographic measures) that are also available at the state level. The result is detailed information about food-insecure persons in counties and congressional districts, and their income levels.

The data provided to all member food banks include food insecurity and meal cost estimates for food-insecure persons at various income levels in each county in their service area. The income levels shown are based on SNAP and other federal nutrition program thresholds specific to each state. This same information is provided for states, as well, showing food insecurity for all counties and congressional districts in the state. Additionally, the interactive map displays meal cost data for each county and state, and food insecurity estimates for each county, congressional district, service area, and state.

3. Who is behind the research?

The *Map the Meal Gap* analysis was developed by Dr. Craig Gundersen for Feeding America. The food-insecurity rates are based on a state-level model that allows us to determine the population in need of food at the county and congressional district level. Additionally, Feeding America worked in collaboration with Nielsen to arrive at estimates for food cost variation by county. In order to ensure accuracy and promote transparency, the results were reviewed by the Feeding America Technical Advisory Group. The research was generously supported by The Howard G. Buffett Foundation, the ConAgra Brands Foundation, and Nielsen.

4. What do these data tell me? How do I use them?

Like the state-level food-insecurity data provided by the USDA, this information can be used to tell a number of stories and can be applied in many ways. Some potential uses might include:

- Further refine planning tools, such as gap analyses or agency development
- Spark conversations with potential community partners

- Demonstrate need for multiple strategies in the same county
- Provide another perspective on relative pounds or program outreach needed in counties

For members serving just one county (or perhaps one large, primary county), you are welcome to contact us to discuss the possibility of developing sub-county estimates of food insecurity. These estimates can be established if you have sub-county variables for poverty, unemployment, and other demographic data.

5. What do these data not tell me? How should I not use them?

Food insecurity at any geographic level is a symptom of greater societal ills associated with poverty, unemployment, etc. Because rates of food insecurity or hunger can increase or decrease depending on outside factors, *a food bank or agency should not measure success as "reducing the food insecurity rate by x amount."* Additionally, these rates should not be used:

- To compare relative effectiveness of county distribution within or across food banks
- To compare performance in a county from one year to the next
- To evaluate the effectiveness of different programs

It should also be noted that the county-level food-insecurity rates are intended to provide another layer of information to the network. Study results should never be the only source of information used to direct food or other resources, rather, it can add to your arsenal of information when making those decisions.

6. Why are the food budget shortfall and "meal gap" so large?

Nationally, food insecurity did not change significantly (12.9 percent in 2016 versus 13.4 percent in 2015), but is down since the all-time high reached in 2009 (16.6 percent). Still, the USDA's annual report on *Household Food Security in the United States in 2016* estimates that more than 41 million individuals in the United States were food insecure in 2016. Given the documented need in the U.S., it is not a surprise that food-insecure individuals report a high food budget shortfall. When this dollar amount is translated into meals, it can seem overwhelming. Food insecurity is the result of a complex array of social challenges such as insufficient income, persistent poverty, structural inequities, etc. and it is important to remember that food banking is one part of a broader safety net. See: How can we as a food bank "close the gap"?

7. So you are saying it would cost $21.1B to meet the food needs of the food insecure? Is this the cost to end hunger?

The amount of $21.1B represents the estimated national annual food budget shortfall experienced by the food-insecure population in 2016. It is not the cost to end hunger. Even providing cash assistance to every food-insecure person in this amount would not mean that the underlying complex array of social challenges such as insufficient income, persistent poverty, structural inequities, etc. would be resolved.

6

We know from *Hunger in America 2014* that people are facing budget pressures, and are often making trade-offs between groceries and utilities, medical care, and other necessary resources. Additionally, the $21.1B figure does not take into account food banks' operational costs or the costs associated with locating and reaching out to food-insecure people.

8. How frequently can/will these data be updated?
The data are updated annually and released in the spring. Although the *Household Food Security in the United States* report is now released in early fall, the county-level data utilized for *Map the Meal Gap* is not released by the Census Bureau until later in the year. Namely, the USDA food security data is publicly released in early fall of each year and information from the American Community Survey is released later in the year.

Methodological Questions – Food Insecurity Rates:

9. Can you provide more detail about how the food insecurity model and methodology were developed?
To provide accurate estimates of local food insecurity in every county and congressional district in the United States, we use an expert-reviewed regression model based on well-established, transparent research methods. We proceed in two steps to estimate the extent of food insecurity in each county.

Step 1: Using state-level data from 2001-2016, we create a model where the food insecurity rate for individuals at the state level is estimated using variables associated with food insecurity at the state level and weights defined as the state population. In particular, the following variables were used: the unemployment rate, the poverty rate, the homeownership rate, and other demographic variables that are publicly available at both the county and state level. The set of questions used to identify whether someone is food insecure, i.e., living in a food-insecure household, are defined at the household level.

Step 2: We use coefficient estimates from Step 1 plus information on the same variables defined at the county level to generate estimated food-insecurity rates for individuals defined at the county level. Congressional district-level food-insecurity rates were estimated using the same methods.

For a summary explanation of regression models, please see the *Regression 101* resource in the *Map the Meal Gap* Supplemental Resources – Data Toolkit on HungerNet. A more detailed technical appendix is available online at map.feedingamerica.org.

10. What variables are included in the model?
Our choice of variables was guided first by the existing literature on the demographic factors that correlate with food insecurity and second by the availability of each variable at the state, county and congressional district level. Variables that fit these two criteria include the unemployment rate, poverty

rate, homeownership rate, median income, percent African American, and percent Hispanic. The model does not capture every variable that has been shown to have a relationship with food-insecurity rates, but we are limited by data availability at each geographic level. To account for variables that are not available, we include state and year fixed effects. These allow us to control for all other observed and unobserved influences on food insecurity.

For a full glossary of variables and more information on the model, please see the *Regression 101* resource in the *Map the Meal Gap* Supplemental Resources – Data Toolkit on HungerNet. A more detailed technical appendix is available online at map.feedingamerica.org.

11. Why is accuracy so critical to the model?
The Feeding America Network has invested broadly in *Map the Meal Gap*, and uses the food-insecurity estimates to allocate food and resources, plan programming, set their strategic plans, and tell their story to policy makers, communicators and the public. Given how widely these data are used, it is critical that the estimates of food insecurity be as accurate as possible.

12. Are there any limitations to the model?
There are inherent constraints when attempting to build a model that can be consistently applied across all counties. For example, a number of other variables (e.g., underemployment) might improve the model, but they are either altogether unavailable or not available at both the county and congressional district level. Another limitation is that we are currently unable to estimate food insecurity for seniors because key variables such as unemployment are less applicable to the senior population as a whole. Should variables of interest become available at the county, state and congressional district level, we will explore the possibility of incorporating them to address some of these limitations.

13. Why are we unable to estimate local-levels of food insecurity for seniors?
There are two obstacles to estimating senior food insecurity at the local level. The first is that the methodology we use to estimate food insecurity for the general and child populations is not a good fit for the senior population. For example, the unemployment, homeownership and median income variables in our regression model are not applicable to seniors who may be retired, in assisted living and/or on fixed incomes.

Another limitation is sample size. The county-level senior population can be quite small, which means that the sample size in any sub-county, locally administered survey will be even smaller, thus leading to large margins of error. This issue would prevent us from having a great degree of confidence in any local-level estimates we were to make for food insecurity among older adults.

14. Why are the race and ethnicity variables included in the model?
Race and ethnicity are included as variables in nearly every study on food insecurity that uses nationally representative data. This is because race and ethnicity are related to food insecurity even after accounting for other variables for which we have national data available.

One's race or ethnicity in and of itself does not suggest that someone is at higher or lower risk of food insecurity. Rather, factors that we cannot model because we do not have the data are partially "accounted for" with the race and ethnicity variables. These factors might include institutional racism, discrimination, formal and informal social support, neighborhood food environments, and a host of additional factors that we cannot otherwise capture in our models. Because we cannot capture all these variables in our models directly, we include race and ethnicity variables in order to partially account for them indirectly. The work that we do to create the models confirms for us that the race and ethnicity variables are in fact capturing some of the impact of "unmeasured" variables.

Including race and ethnicity is therefore critical to the accuracy of the model and allows us to better understand how the relationship between food security and race/ethnicity changes over time and in relation to the other variables. We wish to emphasize that depending on the population being examined (e.g., all households; all children; households with incomes under 130% of the poverty line), the percent of a county that is African American and the percent of the county that is Hispanic can be associated with higher or lower rates of food insecurity or have no association at all with food insecurity.

15. Does the model suggest that race and/or ethnicity lead to higher food insecurity rates in a county?
The inclusion of the percent of the population that identifies as Hispanic and/or African American in the model does not suggest that higher percentages of these populations equate to higher levels of food insecurity. Communities with comparatively large percentages of African Americans and/or Latinos vary dramatically. In our models, percent African American and percent Hispanic correlate with **higher** or **lower** rates of food insecurity (depending on the model) and can have very large or very small effects on the food-insecurity estimates. When taking into account unemployment, homeownership, poverty and the other variables in the model outside of race and ethnicity:

- Food-insecurity rates can be **higher** in communities with large minority populations, for reasons such as the impact of institutional racism, discrimination, segregation, etc.
- Food-insecurity rates can be **lower** in areas with large minority populations, perhaps due to the overall prosperity of the community, the presence of informal and formal community supports and ties, knowledge of or access to federal safety net programs, community food assistance resources, etc.

16. What would happen to food-insecurity estimates if we removed the race and ethnicity variables?
Removing race and ethnicity from the model would result in a less complete portrait of community populations and environments, which would, in turn, lead to less accurate estimates of local food

insecurity. The absence of these variables would contribute to overestimates or underestimates of food-insecurity rates.

Back to Table Of Contents

17. Why did you add the homeownership rate variable to the food-insecurity model? How did this affect food-insecurity rates?

We added this variable for *Map the Meal Gap 2013* (a report on county and congressional district food-insecurity rates in 2011) because statistical tests reveal that the addition of this variable strengthens the accuracy of the food-insecurity model. Homeownership rates function as a proxy for household assets, which are a known factor that can help insulate households from the effects of an unexpected change in income or expenses. Given the limited data available at the county level specific to assets, homeownership rates are currently the best available substitute. Generally, counties with higher rates of homeownership will have slightly lower rates of food insecurity and vice versa. Additionally, as national trends indicate that homeownership has declined in recent years, it is a timely and relevant inclusion in any discussion of food insecurity and poverty. See the food insecurity model for more information.

Back to Table Of Contents

18. What year do the variables come from and why?

The information at the state level is derived from the Core Food Security Module (CFSM) in the December Supplement of the Current Population Survey (CPS) for the years 2001-2016. The CPS is a nationally representative survey conducted by the Census Bureau for the Bureau of Labor Statistics, providing employment, income and poverty statistics. Using information on all persons in the CPS from which we had information on (a) income and (b) food-insecurity status, we aggregated information up to the state level for each year.

For information at the county level, we used five-year estimates for the years 2012-2016 from the American Community Survey (ACS). The ACS is a sample survey of 3 million addresses administered by the Census Bureau. In order to provide estimates for areas with small populations, this sample was accumulated over a 5-year period. Information about unemployment at the county level was taken from the Bureau of Labor Statistics' labor force data by county, representing 2016 seasonally-adjusted, annual averages.

For information at the congressional district level, including unemployment data, we used information from the 2016 1-year ACS estimates. In 2009, this analysis used information from the 2005-2009 5-year ACS to estimate food insecurity at the congressional district level. Beginning in 2010, all the information we needed for congressional districts became available within the 1-year ACS. Therefore, we have since used this dataset to estimate food insecurity for congressional districts.

For county and congressional districts, data were drawn from tables C17002 (ratio of income to poverty level), B19013 (median income), DP05 for percent African-American and Hispanic and DP04 for homeownership. Congressional district data additionally included S2301 for unemployment.

10

19. Which unemployment rate did you use for county-level rates in the model and why?
Information about unemployment at the county level was taken from the Bureau of Labor Statistics' labor force data by county, representing 2016 annual averages. Information about unemployment in congressional districts was taken from the 2016 1-year ACS. Note that this rate does not include discouraged workers, underemployed workers, etc. There is no consistent data on "underemployment", and rates of unemployment that take into account discouraged workers are not available at the county level. Inclusion of the poverty rate, median income, and state fixed effects in the model likely compensates for the effect that underemployment would have on the food-insecurity rate. If you have specific concerns about how, for example, the number of discouraged workers in your county might influence food-insecurity rates, we would be happy to work with you to think more about what this means in your service area.

20. How did you determine the county-level rates of persons above and below the SNAP threshold (and other nutrition program thresholds)?
American Community Survey (ACS) data were used to estimate the food-insecure population falling within each income bands. Specifically, we used 5-year estimates for the years 2012-2016, in order to establish rates for areas with small populations. The ACS provides population data broken into the following income bands: 0-50 percent of the federal poverty level, 50-99 percent, 100-124 percent, 125-149 percent, 150-184 percent, 185-199 percent, 200 percent and over. In cases where the breakdowns do not directly correspond to the SNAP threshold cutoffs (e.g., percent below 165 percent of the poverty line), we take the relevant midpoint between two categories. As an example, for "percent below 165 percent of the poverty line", we take the percent below 150 percent of the poverty line plus 3/7 of the percent between 150 and 185 percent of the poverty line.

The methods we use to arrive at the food-insecurity estimates are similar to those described above for the entire population of a county. The primary difference is that we estimate food insecurity for those within a particular income band (e.g., for those below 130 percent of the poverty line) rather than for the entire population. Congressional Districts are estimated in a similar manner.

Using these estimations, we arrive at the food-insecurity rate within a county for those below or above a particular income threshold. Using information on food-insecurity rates for a particular income category and the number of people in a county below that income threshold, we can calculate an estimation of the proportion of food-insecure persons in any county who fall above or below a particular threshold. Finally, based on our estimates of the proportion of the food-insecure population with incomes below and above a threshold, we can estimate the proportion of the food-insecure population between these thresholds. As an example, if the SNAP threshold is 130 percent of the poverty line, we can estimate the proportion of the food-insecure population with incomes between 130 and 185 percent of the poverty line. (For states with SNAP thresholds at 185 percent of the poverty line or above, there are no "between estimates" to calculate.)

21. What does food insecurity look like for those who are not eligible for federal nutrition programs (typically those above 185 percent of poverty)?

As we know from *Household Food Security in the United States in 2016,* 27 percent of food-insecure people whose incomes are known have incomes higher than 185 percent of the poverty line. While this may seem counterintuitive, one should note that 185 percent of the poverty rate is still only $46,435 for a household of four. In places with higher living costs, one can imagine that this income may be insufficient to ensure food security. These households may have experienced a recent job loss or other emergency and have become food insecure while in transition. However, because of their higher income, they are likely ineligible to receive help from federal nutrition safety net programs like SNAP or WIC. These families' ability to access our network's charitable food services may relieve pressure on their expenses, allow them to get back on their feet, and help them to avoid falling deeper into poverty. For more information about the poverty rate, please read Poverty Measure & Income Bands.

Methodological Questions – Food Cost:

22. Are high food costs and food insecurity related? Does this mean that high food costs cause food insecurity?

The *Map the Meal Gap* study does not intend to suggest correlation or causation between food insecurity and high food costs, although it bears mentioning that in a 2014 study, the USDA found that high food prices had contributed to sustained elevated levels of food insecurity in the years following the end of the Great Recession. However, the food insecurity and food cost data presented in this study are intended to provide two separate, but complementary pieces of information to illuminate some of the challenges of being food insecure, and together they provide the metrics needed to calculate the food budget shortfall.

23. How did you develop the weekly food budget shortfall number?

We used a question taken from the Core Food Security Module (CFSM), which asks respondents the following question prior to asking the 18 questions used to derive the food-insecurity measure but after other questions about food expenditures were asked: *In order to buy just enough food to meet (your needs/the needs of your household), would you need to spend more than you do now, or could you spend less?* Out of those responding "more", the following question is posed: *About how much MORE would you need to spend each week to buy just enough food to meet the needs of your household?*

Restricting the sample to households experiencing food insecurity over the previous 12 months, and including those who report zero dollars (i.e. those who could spend "the same" each week), we divide by the number of people in the household to arrive at an average per-person figure of $16.90 per week nationally.

This number is then adjusted at the county-level based on the Nielsen cost-of-food index.

24. If the weekly food budget shortfall (the additional dollars food-insecure individuals report needing) is based on a survey, how do we know people are reporting accurate numbers?

The Current Population Survey (CPS) is a nationally representative survey conducted by the Census Bureau for the Bureau of Labor Statistics, providing employment, income and poverty statistics. In December of each year, 50,000 households respond to a series of questions on the Core Food Security Module (CFSM) in addition to questions about food spending and the use of government and community food assistance programs. Households are selected to be representative of civilian households at the state and national levels, and thus do not include information on individuals living in group quarters (e.g. nursing homes or assisted living facilities).

In order to assess whether these results "make sense," we looked at various sub-groupings of the sample. When we break out the additional dollars needed by household size, income level, and food insecurity level, the results are consistent with what one would expect. Namely, larger households report needing more money to be food secure than smaller households; individuals with lower incomes report needing more money to be food secure than those with higher incomes; and individuals in households with very low food insecurity report needing more money to be food secure than households with low food insecurity. Analysis of these data over time indicates consistency with food pricing trends, showing a notable increase when food prices spiked in 2007.

Finally, the average value of $16.90 was selected both because it is a conservative estimate and because it is very similar to the difference in per-person weekly food expenditures between food secure and food insecure households reported elsewhere (Seligman, H. & Schillinger, D. Hunger and socioeconomic disparities in chronic disease, *New England Journal of Medicine*, 2010.).

25. Does the dollar figure representing the food budget shortfall take into account transportation to the food store or any measure of food access?

The dollar figures related to meal cost and food budget shortfall estimates are conservative estimates that reflect only the prices paid at the register by consumers. Other barriers to accessing food were not included. We do encourage you to discuss distance to a store, the local cost of gas, etc. as a critical layer of information/context you can provide as you are discussing this information with legislators, donors and other audiences.

Some resources from the USDA you might find helpful in discussing additional barriers to getting nutrition locally include:

- The Food Access Research Atlas, which includes the identity of areas that are "Low Income and Low Access," which means there is a great degree of poverty in those communities, as well as potentially insufficient access to grocery stores.

- The , a nationally-representative data set with information about how households in the United States purchase and acquire food.

26. Is SNAP or charitable food counted in the food budget shortfall?

Unfortunately, the Current Population Survey does not specify whether respondents should include their SNAP expenditures or food they receive from charitable food assistance when estimating the additional money they would need for adequate food. When asked about their weekly food expenditures (which precedes questions about additional money and the food-insecurity questions), they are asked to include SNAP purchases. However, we do not know whether or not they are taking federal food assistance or charitable food into account when they answer questions about what they would need to be food secure.

27. How did you arrive at 60 percent for frequency of food insecurity?

As reported by the USDA in the annual report *Household Food Security in the United States 2016*, "On average, households that were food insecure at some time during the year were food insecure in 7 months during the year" (Coleman-Jensen et al. 2017, p. 11).

28. How did you arrive at $3.00 as the average cost of a meal?

In order to estimate the number of meals needed to meet the needs of a food-insecure person, we also need to know the average cost per meal. We derived this information from the Current Population Survey where there is a question that asks how much a household usually spends on food in a week:

Now think about how much (you/your household) USUALLY (spend/spends). How much (do you/does your household) USUALLY spend on food at all the different places we've been talking about IN A WEEK? (Please include any purchases made with SNAP or food stamp benefits).

This dollar amount is then converted to a per-person value, averaged, and divided by 21 (i.e., assuming three meals per day, seven days per week), to arrive at an average per-meal cost of $3.00. We restricted the sample to food-secure households to ensure that the per-meal cost was based on the experiences of those with the ability to purchase a food-secure diet.

29. How do you arrive at the county-level estimates of cost per meal and food budget shortfall?

Nielsen collects data on the sales of UPC-coded food items across the country. To establish a relative price index that would allow for comparability the following steps were taken:

1. Nielsen assigned each UPC-coded food item to one of the 26 food categories in the USDA Thrifty Food Plan (TFP).

2. These were then weighted to the TFP market basket based on pounds purchased per week by age and gender. Specifically, pounds purchased by males age 19-50 were examined. Please note that while other age and gender weights may have resulted in different *total* market basket costs, *relative pricing* between counties (our goal for this analysis) would not have been affected.
3. The total market basket is then translated into a multiplier that can be applied to any dollar amount. This multiplier differs by county, revealing differences in food costs at the county level.

We then apply that multiplier to the national average for food budget shortfall ($16.90) and the national cost per meal estimate ($3.00) to arrive at localized estimates. This year Nielsen imputed prices for all counties with fewer than 20,000 people by averaging the market basket price in the county with price data from surrounding counties. Prices for these smaller/rural counties are more likely to be distorted and/or fluctuate from year-to-year because there are fewer stores in these areas from which to pull price data.

30. How do you ensure that meal prices for smaller counties are not extremely high or low?
As is described in county-level food cost estimates, Nielsen imputed prices for all counties with fewer than 20,000 people by averaging the market basket price in the county with price data from surrounding counties. This approach was implemented in 2013 to improve the accuracy of our estimates. Smaller counties likely have fewer stores from which to pull data, which can result in distorted prices. Please contact us directly if you have questions about your local meal cost estimates.

31. How did you arrive at the "meal gap"?
The meal gap is derived from the food budget shortfall. Using the methodology specified in "How did you develop the weekly food budget shortfall number?", we arrive at a national figure of approximately $22.3B. This is the amount that food-insecure people report needing to buy adequate food over the course of a year. We then translate that dollar figure into 7.6 billion meals by dividing by $3.00, the average cost per meal.

32. Can you provide more detail about the food cost index methodology?
Nielsen designed custom product characteristics so that UPC codes for all food items could be mapped to one of the 26 categories described in the USDA's 2006 Thrifty Food Plan (TFP). This is based on 26 categories of food items (examples include "all potato products", "fruit juices", and "whole fruits.") Each UPC-coded food item (non-food items, such as vitamins, were excluded) was assigned to one of the categories. Random-weight food items (such as loose produce or bulk grains) were not included; packaged fresh produce, such as bagged fruits and vegetables, were included. Prepared meals were categorized as a whole (rather than broken down by ingredients) and were coded to "frozen or refrigerated entrees." Processed foods, such as granola bars, cookies, etc. were coded to "sugars, sweets, and candies" or "non-whole grain breads, cereal, rice, pasta, pies, pastries, snacks, and flours," as appropriate.

The cost to purchase a market basket of these 26 categories was then calculated for each county. Sales of all items within each category were used to develop a cost-per-pound of food items in that category. Some categories, such as milk, are sold in a volume unit of measure and not in an ounces unit of measure. Volume unit of measures were converted to ounces by using "FareShare Conversion Tables." Each category was priced based on the pounds purchased per week as defined by the USDA Thrifty Food Plan for each of 26 TFP categories by age and gender. We used the weights in pounds for purchases by Males 19-50 years for this analysis. Other age/gender weights may have resulted in different total market basket costs, but are unlikely to have influenced relative pricing between counties, which was the goal of the analysis.

33. Are sales taxes included in the food cost index?
Yes. In an effort to most directly reflect the prices paid at the register by consumers, we elected to integrate food sales taxes at the state and county level into the market basket prices. Taxes on vending machine food items or prepared foods, however, were not included, as the market baskets do not incorporate those types of foods.

Twelve states levy grocery taxes and counties within a majority of these states levy an additional grocery tax of their own. An additional six states do not levy state-level grocery taxes, but do permit counties to levy a grocery tax. Within some counties, municipalities may levy additional grocery taxes. Because these taxes are not consistently applied across the county, however, they are not included. Nonetheless, it is worth noting that an additional burden may still be placed on residents of municipalities in which food taxes are in effect. County-level food taxes include all state taxes *and* all county taxes levied on grocery items. For state-level market basket costs, the average of the county-level food taxes is used.

34. How do I compare one cost-per-meal estimate to the cost per meal in other counties?
Nielsen estimates that the relative pricing index is accurate to $.05. However, there are many cost variations and expenses that one should also consider, such as housing, health care, utility costs, etc. While food cost is one indicator of pricing, we recommend that you take additional factors into account when considering pricing across counties.

Food Bank Application:

35. Why is the number of food-insecure individuals in my area higher than the number of people that we serve?
The *Map the Meal Gap* study examines a different population than people served by food banks (although they are not mutually exclusive). While we know that most people who access charitable food are food insecure we also know, based on *Hunger in America 2014*, that, in fact, 16 percent of the households served by the Feeding America network are food secure. Unfortunately, the USDA Food

Security survey does not provide reliable information about charitable food assistance use, so we do not know what percent of food-insecure people access charitable food. You can read more about the USDA's definition of food insecurity online.

36. A county in my service area is shared with another member. How do I use the data within this particular county?

The data for all shared counties are provided in both applicable members' tailored spreadsheets. As this is a measure of need, not of service delivery or people served by the food bank, it is not necessary to "split" the numbers. If you find it useful to discuss the implications of a particular demographic breakout in that county with your partner-member, you are welcome and encouraged to do so.

37. Can I use these data in my existing gap analysis projects?

The *Map the Meal Gap* data provide an additional level of information for your gap analysis. Because these analyses differ by food bank, we recommend contacting us directly to discuss how to best relate the *Map the Meal Gap* data to your own projects.

38. Can I use these data to set performance targets for my organization?

If you choose to use the data, the county-level food-insecurity rates and food budget shortfall can provide your food bank with a new way of considering need in your community. This information, in conjunction with your administrative data and other research, can provide fodder for strategic goals and plans for growth. You may consider setting meal distribution targets based on this information (i.e. distribute XX more meals per year, or provide XX more meals through SNAP outreach per year). Starting in Fiscal Year 2015, the local need within a food bank's service area is measured in meals per person in need (MPIN), which is based on *Map the Meal Gap* estimates. However, as indicated here, a change in food-insecurity rates should not be used to measure program effectiveness over time or from one county to the next. For more information on strategic planning and setting targets, please visit the Data and Analytics team HungerNet page.

39. If I choose to use these data, what should I consider and/or anticipate?

You may wish to consider the following:

- The meal gap is very large, and it is important to remember that food banking is one part of a broad safety net. Food insecurity is the result of a complex array of societal challenges such as insufficient income, persistent poverty, structural inequities, etc. While food banks play a critical role in getting food to people in need, it is not feasible for charitable food assistance to "close the gap" given the magnitude of the problem.
- Note that these results provide another layer to the information that you already use. They are not meant to replace the information that you collect.

- How do these numbers relate to the current numbers that you are using? Be prepared to discuss the similarities and differences.
- Think about how these measures fit in with your existing strategic plans, goals, and objectives.
- Populations benefit differently from different programs, so consider this as a potential factor in your planning. The methods used in establishing the county-level measures do not take into account, for example:
  - Eligibility criteria for public benefits, aside from poverty (e.g. assets, immigration status)
  - Costs of moving physical vs. "virtual" food
  - Capacity of access points (agencies, benefit offices)
  - Transportation or other food access issues

40. How does this relate to Meals per Person in Need (MPIN)?

Local food insecurity estimates from *Map the Meal Gap* are based on a select group of variables that research has shown to be indicators of food security at the state level, including unemployment, poverty, median income, homeownership, etc. The county-level food insecurity estimates do not account for food bank service or charitable food usage among people in need. MMG estimates are *measures of need*, while Meals per Person in Need (MPIN) is a *measure of distribution*. Additional questions that specifically relate to the MPIN metric should be directed to your Compliance and Capability Director at 312-263-2303, or Melinda Resser, Director of Network Analytics, at 312-641-6746. Additional questions that relate to *Map the Meal Gap* and county-level food insecurity estimates and methodology should be directed to research@feedingamerica.org.

41. What if I have already done a missing meals project – can I integrate this new information into my project? Should I?

Map the Meal Gap uses very different methodology than other "missing meal" analyses. Additionally, the "missing meals" analyses that have been conducted across the network vary substantially by food bank. While we are happy to discuss the details of your project, we have not been able to justify the methodology on which other "missing meals" studies are based. As needed, though, we can provide more information on utilization of *Map the Meal Gap*. Please feel free to contact us with questions.

42. How can we as a food bank "close the gap"?

The food budget shortfall and calculated meal gap are very large, and it is important to remember that food banking is one part of a broad safety net. Food insecurity is the result of a complex array of social challenges such as insufficient income, persistent poverty, structural inequities, etc. While food banks play a critical role in getting food to people in need, it is not feasible for charitable food assistance alone to "close the gap" given the magnitude of the problem. However, *Map the Meal Gap* provides a new layer of information about what need looks like in your service area. The large meal gap reflects unprecedented need and can assist you in your strategy for reaching the food-insecure population.

In recognition of the complexity of the issue of hunger, Feeding America's 2025 goal includes working with a variety of partners to ensure access to enough nutritious food for people struggling with hunger, and to make meaningful progress toward ending hunger. Feeding America's "Ending Hunger" initiative is designed to address this longer-term goal: to strengthening pathways out of hunger, so that targeted individuals and families no longer need charitable food assistance. You can find out more about this exciting new facet of our work on Hungernet.

Back to Table Of Contents

Questions about Trends from 2015 to 2016:

43. What comparisons can I make between the food-insecurity data released for 2015 and 2016? Why is my food-insecurity rate higher/lower?

In almost all counties, the changes from 2015 to 2016 were not statistically significant. Changes in food-insecurity rates at the county level are generally due to changes in poverty and unemployment (as these two variables are the primary drivers of food insecurity), and for the purpose of the MMG model, five-year averages for these variables are used at the county level. We will therefore not see many significant changes at the county level year-to-year in the independent variables, and in turn will not see large changes in food-insecurity estimates at the county level in a given year.

If you have specific questions about the changes in your food insecurity rates, please contact the Feeding America research department.

Back to Table Of Contents

44. Why did the national cost per meal go up from $2.94 to $3.00?

The Consumer Price Index (CPI) for food decreased by 1.3 percent in 2016, which is in contrast to the 2 percent *increase* in the national cost per meal. However, it is important to note that the national cost per meal is not the same as a relative price index insofar as it measures *how much food-secure people spend on food* rather than the price of a market basket. While the cost per meal will be associated with inflation and, in particular, changes in the price of food, there are many other determinants besides inflation that will influence the changes in the cost per meal. Another issue is that *the average cost per meal is calculated only for those who are food secure rather than the full population*. Thus, as the composition of this group changes, so too will the cost per meal.

Back to Table Of Contents

45. What comparisons can I make between the 2015 and 2016 food budget shortfall and meal gap?

With respect to the budget shortfall, this question is limited to food-insecure individuals and the composition of this group will change from one year to the next. Thus, even if overall food prices increase, there is a possibility that more people may be less food insecure and consequently report smaller shortfalls (even though they still identify as food insecure). Alternatively, if there are a higher proportion of people with more severe food insecurity reporting their budget shortfall, it could be larger than the rate of inflation.

Back to Table Of Contents

46. What about comparisons to the preliminary 2008 Map the Meal Gap data that were provided in fall 2010?

The original 2008 estimates were based on different data sources than those established in 2009 and 2010. In 2008, the poverty rate, median income and demographic data were not yet available at the county level in the American Community Survey (ACS). Instead, we used Small Area Income and Poverty Estimates (SAIPE) to arrive at the data used in the model. We will continue to use the ACS data going forward. In addition, the 2008 estimates were based on purchased unemployment figures from the Bureau of Labor Statistics (BLS) for December 2008. As for the 2009 - 2016 food-insecurity estimates, we use 1-year annual average unemployment figures from BLS in an effort to ensure that the data are consistent and represent the entire year. As a result of these changes, the 2009 estimates are to be considered the first year of data availability and, therefore, comparisons of 2009 - 2016 results with those from 2008 should not be pursued.

47. Are these data an update to *Child Food Insecurity in the United States, 2006-2008*? Can I compare the two datasets year-over-year?

No. Although the child food-insecurity estimates provided in *Map the Meal Gap* replace and expand upon the *Child Food Insecurity in the United States, 2006-2008* report published by Feeding America in 2010, they are not comparable because they are separate studies that are drawn from different data sets and use different statistical methodology. Additionally, this year's child food-insecurity estimates are for 2016 while the 2010 report was for 2006-2008. Given the sharp increase in child food insecurity since 2008, the food-insecurity rates are likely to be substantially different in 2016 in comparison to an average from 2006-2008. Starting with *Map the Meal Gap 2013* (estimates for 2011), we have used a consistent methodology for estimating *local child food-insecurity* results annually, allowing comparisons of 2011-2016.

Questions about Child Food Insecurity and Findings:

48. How is "child" defined? Do you have breakouts by smaller groups of children, such as children under 5?

In this study, the results reflect all persons under the age of 18. Unfortunately, the numbers of children under age 5 become too small to garner reliable results at the county level.

49. What does "children in food-insecure households" mean? Is it different from "food-insecure children"?

There are three measures of food insecurity among children that are found in Table 1B in *Household Food Security in the United States, 2016* (Coleman-Jensen et al., 2017). The first, and the one we use, is "children in food-insecure households". To be in this category, a household with children must respond affirmatively to at least three of the 18 questions in the Core Food Security Module in the Current

Population Survey (CPS). The complete listing of the 18 questions can be found on page 3 of *Household Food Security in the United States, 2016*. This information will also be provided in the forthcoming *Map the Meal Gap*: Technical Brief. The second measure of child food insecurity is "children experiencing food insecurity". In this case, the children themselves experience food insecurity and children are said to be in this category if the household responds affirmatively to two or more child-specific questions in the Core Food Security Module. The third measure is "very low food security among children". Children are said to be in this category if the household responds affirmatively to five or more questions in the CFSM.

For our purposes, we assume that "children in food-insecure households" are also experiencing the negative effects of the food insecurity identified by their caregivers, so we refer to them as "food-insecure children".

<div align="right">

Back to Table Of Contents

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50. Aren't children who live in food-insecure households often protected from food insecurity? The USDA report *Household Food Security in the United States* suggests that this is true.

We are fortunate in the United States that households experiencing food insecurity are often able to protect their children from some of the more serious manifestations of hunger. For example, children in households experiencing food insecurity generally do not have to miss multiple meals. However, while most children in food-insecure households may not experience hunger, they do have to live in households where they see parents making large sacrifices (e.g., skipping meals so children can have enough to eat) and, often times, the amount of food children can eat is reduced in the face of food insecurity. There is evidence that, in many households with food insecurity, parents may not be entirely aware of their children's experiences with food insecurity, resulting in underreporting of food insecurity among children when the food-security module is administered only to adults. Moreover, the serious negative health consequences for children associated with food insecurity are manifest in households experiencing food insecurity, even if the children themselves are not experiencing more severe levels of hunger.

<div align="right">

Back to Table Of Contents

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51. Why is the food-insecurity rate among households with children so much higher, in general, than the food-insecurity rate for the general population?

In part, this is likely due to larger household sizes with members dependent on caregivers to provide income and support. They may also have more specific nutritional needs than adults due to their growth and development. This phenomenon can be observed at the national level per the USDA report. "Rates of food insecurity were below the national average of 12.3 percent for married-couple families with children (9.9 percent)" and "households with more than one adult and no children (8.0 percent)." Rates of food insecurity were higher than average for "…all households with children (16.5 percent)" and "households with children headed by a single woman (31.6 percent) or a single man (21.7 percent)" (Coleman-Jensen et al., 2017, p. 13).

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Back to Table Of Contents

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52. Can I update the number of food-insecure children by applying the 2016 child food-insecurity rates to my area's 2017 population?

No. The child food-insecurity rates are based on data up through 2016 and should not be used for other years. Child food-insecurity data for 2017 will be released as part of the *Map the Meal Gap 2019* study in 2019.

53. Can you provide more detail about the child food-insecurity model and methodology?

The child food-insecurity rates are based upon the same regression model used in the overall *Map the Meal Gap* food-insecurity rate estimates, with a few changes specific to the child population.

Step 1: Using state-level data from 2001-2016, we created a model where the food-insecurity rate for children (CFI) at the state level is estimated by the following equation:

$$CFI_{st} = \alpha + \beta_{UN}UN_{st} + \beta_{CPOV}CPOV_{st} + \beta_{FMI}FMI_{st} + \beta_{FOWN}FOWN_{st}\ \beta_{CHISP}CHISP_{st} + \beta_{CBLACK}CBLACK_{st} + \mu_t + \upsilon_s + \varepsilon_{st} \qquad (1)$$

where s is a state, t is year, UN is the unemployment rate, CPOV is the child poverty rate, FMI is median family income, FOWN is family homeownership, CHISP is the percent of children who are Hispanic, CBLACK is the percent of children who are African-American, μ_t is a year fixed effect, υ_s is a state fixed effect, and ε_{st} is an error term. This model is estimated using weights defined as the state population. The set of questions used to identify whether a child is living in a food-insecure household are defined at the household level.

Since our analysis is regarding children, our state-level observations are constructed based on households with children. As an example, CPOV (the poverty rate) is the poverty rate for children, not the poverty rate for all persons. The only exception is for the UN (the unemployment rate) which is based on the full labor force of states, not just the labor force of persons in households with children. Our choice of variables was first guided by the literature on demographic factors that correlate with child food insecurity. Next, we chose variables that are available both at the state level in the CPS and as compiled by the Bureau of Labor Statistics (BLS) and at the county level through the American Community Survey (ACS) and BLS. Variables that are not available at both the state and county level cannot be used.

Of course, these variables do not portray everything that could potentially affect food-insecurity rates. In response, we include the state and year fixed effects noted above which allow us to control for all other factors that influence food insecurity.

Step 2: We use the coefficient estimates from Step 1 plus information on the same variables defined at the county level to generate estimated food-insecurity rates for children defined at the county level. This can be expressed in the following equation:

$$CFI^{*}{}_{cs} = \hat{\alpha} + \widehat{\beta_{UN}}UN_{cs} + \widehat{\beta_{CPOV}}CPOV_{cs} + \widehat{\beta_{FOWN}}FOWN_{cs} + \widehat{\beta_{FMI}}FMI_{cs} + \widehat{\beta_{CHISP}}CHISP_{cs} + \widehat{\beta_{CBLACK}}CBLACK_{cs} + \widehat{\mu_T} + \hat{v}_s$$

where c denotes a county and T denotes the year from which the county level variables are defined. From our estimation of (2), we calculate both child food-insecurity rates and the number of food insecure children in a county. The latter is defined as $CFI^*_{cs}*N_{cs}$ where N is the number of children. Congressional district child food-insecurity rates were estimated using the same methods.

54. What is the source of the data used to create the estimates?
The information at the state level is derived from the Core Food Security Module (CFSM) in the December Supplement of the CPS for the years 2001-2016. While the CFSM has been on the CPS since 1996, it was previously on months other than December. To avoid issues of seasonality and changes in various other aspects of survey design, e.g., the screening questions, only 2001 and later years are used.

The CPS is a nationally representative survey conducted by the Census Bureau for the Bureau of Labor Statistics, providing employment, income and poverty statistics. In December of each year, 50,000 households respond to a series of questions on the CFSM in addition to questions about food spending and the use of government and community food assistance programs. Households are selected to be representative of civilian households at the state and national levels, and thus do not include information on individuals living in group quarters including nursing homes or assisted living facilities. Using information on all children in the CPS from which we had information on (a) household income and (b) whether a child is in a food-insecure household, we aggregated information up to the state-level for each year.

For information at the county level, we used information from the 2012-2016 five-year ACS estimates, and for the congressional district level, we used 2016 one-year ACS estimates. The ACS is a sample survey of 3 million addresses administered by the Census Bureau. In order to provide estimates for areas with small populations, this sample was accumulated over a 5-year period. Data were drawn from tables B17024 (ratio of income to poverty level by age), B19125 (median income, families with own children), B25115 (homeownership rate, families with own children), B01001B (percent of children African-American) and B01001I (percent of children Hispanic). Information about unemployment at the county level was taken from information from the Bureau of Labor Statistics' labor force data by county, 2016 annual averages. Information about unemployment in congressional districts was taken from the 2016 one-year ACS estimates, specifically table S2301.

55. Did you do a new cost-of-food analysis for this study?
No. The cost-of-food analysis was conducted in the Executive Summary for overall food-insecurity rates, but additionally analysis specific to child food insecurity was not conducted.

56. How is this different from the recent Annie E. Casey Foundation "Kids Count" data?

The Annie E. Casey Foundation annual Kids Count report and data center provides a collection of various measures of child wellbeing, including child poverty, graduation rates, low birth weight, etc. It does not include an estimate of food insecurity among children. The latest report, released in June 2016, focuses on topics that concern child wellbeing, like insured rates and drug and alcohol abuse. Many of the indicators of need provided in the Kids Count report are relevant and can be paired and compared with information about child food insecurity to help paint a fuller picture of need and challenges in your community.

57. The USDA will be releasing 2017 national food insecurity rates in the fall. Will this affect my MMG numbers?

The MMG food-insecurity estimates rely on the USDA dataset and data from the Census Bureau, which will be available to the public in winter, 2018-19. At that time, we will be able to begin updating the MMG data, including child food insecurity, to reflect the most recent USDA data available. Until then, the 2016 MMG data will remain the most current available numbers at the county and congressional district level.

58. How frequently can/will the child food-insecurity data be updated?

The child food-insecurity data will be updated annually, along with the overall *Map the Meal Gap* update in the spring. The food-insecurity estimates rely on the USDA Food Security data, which are released in September each year.

59. How did you determine the county-level rates of persons above and below the nutrition program threshold (185 percent of poverty)?

American Community Survey (ACS) data were used to determine the child population falling within each income band. The methods we use to arrive at the food-insecurity estimates are similar to those described above for the full child population in a county. The primary difference is that we estimate food insecurity for those households within a particular income band (e.g., for those below 185 percent of the poverty line) rather than for the entire population. Congressional districts are estimated in a similar manner.

Using these estimations, we arrive at the child food-insecurity rate within a county for those below or above a particular income threshold. Using information on food-insecurity rates for a particular income category and the number of people in a county below that income threshold, we can calculate an estimation of the proportion of food-insecure persons in any county who fall above or below a particular threshold. As an example, if the WIC threshold is 185 percent of the poverty line, we can estimate the proportion of the food-insecure child population in households with incomes above and below 185

24

percent of the poverty line. More detailed information, including regression equations, can be found in the Technical Brief for the CFI data.

Relationship to Other Studies and Data:

60. Is this different from the Missing Meals research some food banks have conducted? How?
Yes. Though this project was inspired by the Missing Meals analyses by Food Lifeline and Second Harvest Heartland, the methodology employed is different and the final result will be different. A primary difference is that *Map the Meal Gap* defines the population in need as those who are food insecure rather than as those with incomes below 185 percent of the poverty line (or some other poverty threshold). Based on the USDA's annual report, *Household Food Insecurity in the United States in 2016* (Coleman-Jensen, 2017), we know that 27 percent of food-insecure people have incomes higher than 185 percent of poverty. *Map the Meal Gap* assumes that food insecurity is a more accurate metric for hunger than poverty.

Additionally, the food budget shortfall and subsequent "meal gap" estimates are based on the amount of money food-insecure people say they would need to purchase enough food to meet their needs. Unfortunately, we do not know whether this amount takes into account the meals currently being provided by food banks, federal programs, or other nonprofit organizations.

61. How are the food-insecurity rates in *Map the Meal Gap* different from the Food Research and Action Center (FRAC) food hardship data?
The FRAC Food Hardship estimate is based on the answers to one question administered by Gallup asking whether or not the respondent and family did not have enough money to buy food at least once in the last 12 months. The food hardship estimate is not a measure of food insecurity, although it may shed light on financial hardship.

The Feeding America food-insecurity estimates are based on the 18-question food-security module in the Current Population Survey and its historical relationship to key variables available at the county and congressional district level, like unemployment and poverty. These measures have been rigorously tested and validated. FRAC is able to release more recent estimates because they are not relying on data collected and distributed by the Census and USDA. Another difference is that the food hardship estimates are provided for states, congressional districts, and 100 metropolitan areas while the *Map the Meal Gap* data are provided for every state, congressional district, and county.

62. I thought that the USDA only provided info at the state level. How did you get these numbers?
Our researchers used a regression model to estimate county-level food insecurity. We model the relationship between food insecurity and variables closely related to food insecurity at the state level.

These include unemployment, median income, poverty, homeownership specific demographic measures, and variation across states and years. We then use the relationships defined at the state level combined with county-level data to establish county-level food-insecurity estimates. The model is standard and well established, and was vetted through our Technical Advisory Group of experts.

63. Why are my state-level numbers slightly different from the state-level food-insecurity information provided in *Household Food Insecurity in the United States in 2016* (Coleman-Jensen et al., 2017)?

As discussed in other FAQs and in the *Household Food Insecurity in the United States in 2016* report, the methods we use are different from the USDA. While our underlying construct is the same – i.e., the food-insecurity measure – how we reach the state-level estimates differ. Among other differences, we aggregate our congressional district results to estimate state-level food insecurity, and use one-year data rather than three-year averages.

64. Why do my state-level numbers not match up to the sum of the counties in my state?

State-level estimates of food insecurity in *Map the Meal Gap* currently reflect aggregated congressional district estimates, not county estimates. In 2009, our state food-insecurity estimates did in fact reflect aggregated county-level estimates, which were derived from the five-year ACS. Beginning in 2010, however, one-year ACS congressional district data became available. As a result, we began aggregating our congressional district estimates based on more recent one-year data instead of our county

All state-level estimates related to food prices, meal costs and food budget shortfalls reflect state-level data and are not based on either counties or congressional districts. For more information about what year the county and congressional district variables are derived from, see: What year do the variables come from and why?

65. How does this relate to the poverty rate?

Food insecurity and poverty are measures of two different social problems. National data reveal that 58 percent of people who are food insecure earn incomes above the federal poverty level, and 61 percent of people living in poor households are food secure. Among individuals who are food insecure and whose incomes are known, an estimated 27 percent live in households that earn more than 185 percent of the poverty level and thus are unlikely to qualify for most federal nutrition assistance programs. Poverty rates also do not account for unemployment, which is a strong indicator of food insecurity. See: What does food insecurity look like for those who are not eligible for federal nutrition programs?

66. My food bank service area includes a large university student population. How might this impact the local poverty rate and my service area food insecurity estimates?

It is true that students in some university communities may benefit from considerable familial assets and resources beyond their own personal income and thus should not be considered to be living in poverty. However, there are also millions of college students carrying significant loan debt and working their way through school who may be particularly vulnerable to food insecurity. The growing popularity of college food pantries and even the Hunger Study data (nationally, 1 in 10 adults served by the Feeding America network is currently enrolled in school) corroborate the idea that being a student does not necessarily exempt a person from the risk of food insecurity. Unfortunately, from a data perspective, there is no way for us to separate students who are financially independent from those who still have access to family resources. The Urban Institute recently analyzed data about food insecurity among college students, and published a report with their findings, as well as a thorough explanation of the limitations of looking at hunger among this population. If you have additional questions regarding a particular county, please contact the Research department at research@feedingamerica.org.

67. Does *Map the Meal Gap* provide any data on very low food security?

The *Map the Meal Gap* data focus on food-insecure people (i.e., persons living in low food-secure households or very low food-secure households). County-level "very low food-security" rates are not available at this time, primarily due to sample size issues. We will be looking into this further in the future.

68. How does this relate to the Hunger Study (Hunger in America)?

Hunger in America (HIA) and *Map the Meal Gap* (MMG) examine two different populations (although they are not mutually exclusive). They are complementary studies reflecting need and service. Specifically:

- Hunger in America consists of two parts, the report on people served by our network, and the agency report. The populations on which HIA is focused include *people accessing charitable food assistance* and *charitable food assistance agencies.* Additionally, HIA provides a *measure of people served by the Feeding America network*.
- *Map the Meal Gap* looks at a different population, those identified as *food insecure.* MMG provides a *measure of need.*

While we know that most people accessing charitable food are food insecure, we also know, based on *Hunger in America 2014*, that, in fact, 16 percent of households served by the Feeding America network are food secure. Unfortunately, the USDA Food Security survey does not provide reliable information about charitable food assistance use, so we do not know what percent of food-insecure people access charitable food. For more on the USDA's definition of food insecurity, see the website of the Economic Research Service. In short, the studies provide two different types of critical information. *Map the Meal Gap* will not replace the quadrennial hunger study.