



Child Food Insecurity in the United States: 2006-2008

A 2010 Feeding America report on the state of child food insecurity in our nation, based on analysis of USDA food security data by Boston Medical Center researcher, John Cook, Ph.D.

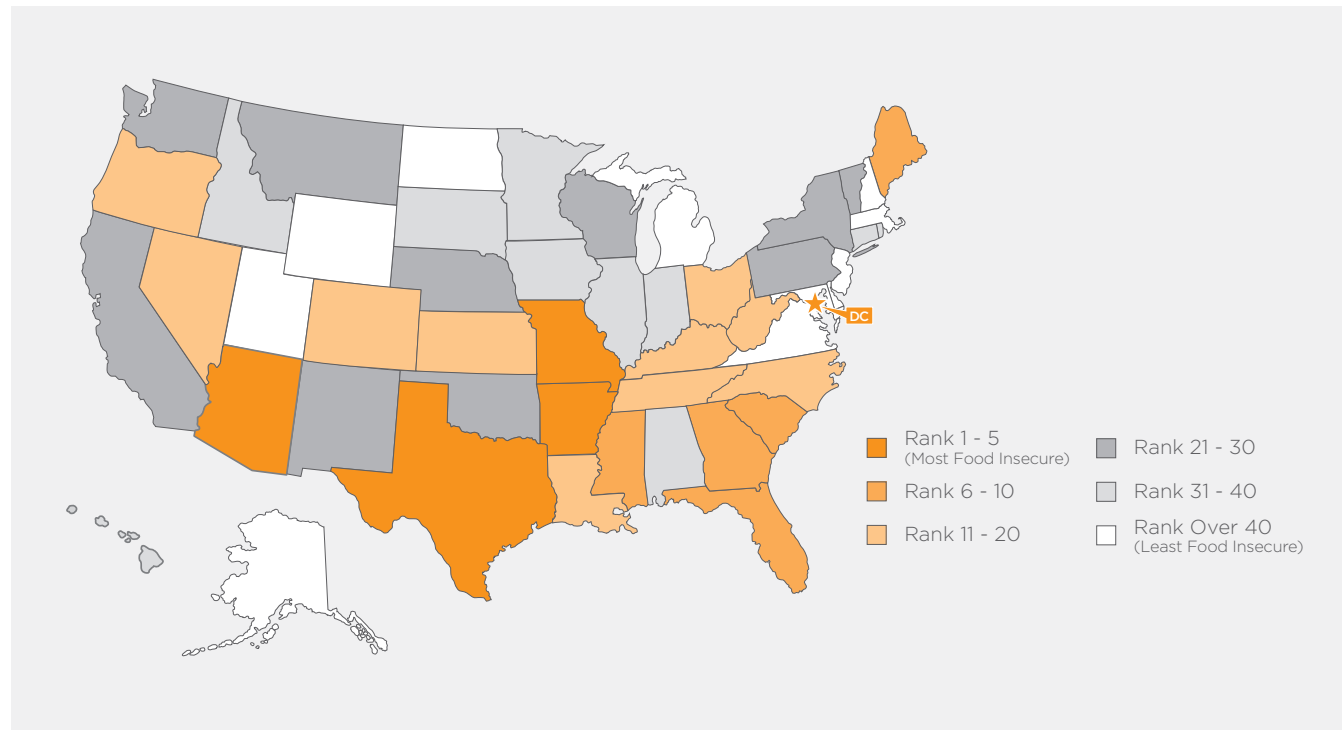


CHILD FOOD INSECURITY IN THE UNITED STATES: 2006-2008

Each year since 1995, the United States Department of Agriculture (USDA) Economic Research Service (ERS) has released a report on the state of food insecurity in our nation, or what we consider “hunger” or “at risk of hunger.” The report, “Household Food Security in the United States,” includes food insecurity rates for the general population in each state but does not provide estimates of food insecurity for children at the state-level.

Given the growing body of research that shows the adverse effects of food insecurity on childhood development, it is helpful to have a better understanding of the extent to which children across the nation are affected by the lack of access to nutritionally adequate diets.

Feeding America, through the generous support of The ConAgra Foods Foundation, has contracted with nationally-recognized Boston Medical Center researcher, John Cook, Ph.D., to analyze the USDA food security data in order to provide state-level child food insecurity estimates. These estimates improve the level of detail available to policymakers, service providers and others concerned with the well-being of children.

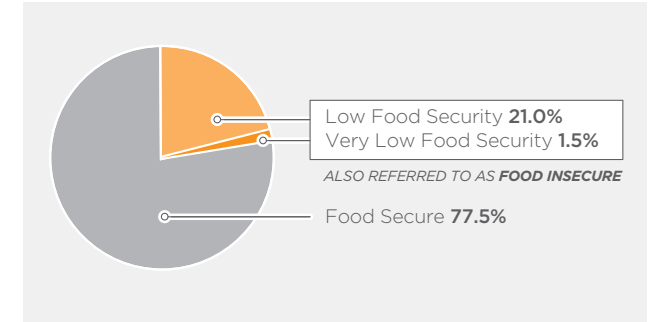


Highest Rate of Children Under 18 with Food Insecurity, State Rank

METHODOLOGY

The estimates were derived from the Current Population Survey Food Security Supplement (CPS FSS) microdata for 2006-2008 obtained from the Federal DataWeb, a network of data libraries storing data from 15 government-sponsored national surveys. Special care was used to replicate as precisely as possible the selected sample of children under 18 years of age obtained by the USDA ERS in producing its national-level child food security estimates.

The summary food security status variable was cross-tabulated by state using Census Bureau geographic codes for states, also available in the CPS dataset. The food security supplement person-level weight was used to obtain population-weighted estimates. The numbers of children in the two food-insecure categories (low food security and very low food security) were summed to provide estimates of the total number of food-insecure children in each state. The proportion of food insecure children in each state was calculated by dividing the number of food-insecure children in each state by the total number of children in each state. These procedures were repeated using data from the December 2006, 2007 and 2008 implementations of the CPS FSS. The numbers and proportions of children that were food insecure in each state in each of these three years were then averaged to produce the estimates reported. Averaging over three consecutive years of data is conducted in order to remove some of the sampling error inherent in single-year estimates, in accordance with procedures used by the USDA ERS to produce overall state-level food security estimates from the annual CPS FSS data.



National Child Food Insecurity (in percent)

An additional set of food insecurity estimates pertains to children under 5 years of age. As a result of the smaller set of observations available for this age group, it was determined that reporting the four major Census Regions' estimates was the most appropriate choice for this type of analysis. Estimates were produced using a nearly identical procedure to that in the prior description. The only significant difference is that instead of cross-tabulating by food security status and Census state codes, these estimates were derived by cross-tabulating food security status and Census region codes. Thus data from the states within each of the four major Census Regions were effectively summed or collapsed. The procedure for calculating standard errors for the regional estimates is very similar to those used for state-level estimates. The only difference is that parameters and population values are used along with slightly different formulae.

RESULTS—TABLE 1

State-Level: Average Number and Percent of Food Insecure Children Under 18 Years of Age, 2006-2008¹

STATE	Average Number of Children Under 18, 2006-2008	Average Number of Children Under 18 Food Insecure, 2006-2008	Margin of Error* (+/-)	Average Percent of Children Under 18 Food Insecure, 2006-2008	Margin of Error* (+/-)	State Rank by Proportion of Food Insecure Children
U.S.	73,756,134	13,911,774	297,763	18.9%	0.4%	—
AK	184,963	26,534	5,475	14.3%	2.8%	47
AL	1,106,990	179,497	35,292	16.2%	3.0%	35
AR	681,780	166,371	26,563	24.4%	3.5%	1
AZ	1,684,290	408,201	53,533	24.2%	2.9%	3
CA	9,459,201	1,757,375	112,870	18.6%	1.1%	23
CO	1,193,996	234,080	41,102	19.6%	3.2%	18
CT	802,909	127,687	27,409	15.9%	3.2%	39
DC	111,606	26,498	5,496	23.7%	4.4%	4
DE	210,000	30,984	6,810	14.8%	3.1%	45
FL	3,980,114	827,839	76,038	20.8%	1.7%	10
GA	2,524,611	567,992	62,974	22.5%	2.3%	7
HI	301,131	48,994	9,669	16.3%	3.0%	31
IA	693,795	112,992	24,144	16.3%	3.3%	32
ID	407,547	66,628	12,282	16.3%	2.8%	33
IL	3,217,046	521,819	61,720	16.2%	1.8%	36
IN	1,575,167	255,686	41,992	16.2%	2.5%	37
KS	700,111	144,340	26,052	20.6%	3.4%	12
KY	996,340	201,015	37,823	20.2%	3.5%	16
LA	1,026,317	201,183	37,791	19.6%	3.4%	19
MA	1,426,493	186,157	36,473	13.0%	2.4%	49
MD	1,370,598	209,547	39,768	15.3%	2.7%	42
ME	282,263	59,687	12,599	21.1%	4.1%	8
MI	2,401,513	366,708	52,013	15.3%	2.0%	43
MN	1,229,179	200,701	38,087	16.3%	2.9%	34
MO	1,375,543	318,588	47,911	23.2%	3.1%	5

¹ No data available for Puerto Rico.

*Estimated standard errors were used to calculate 90% confidence intervals corresponding to the reported margins of error.

STATE	Average Number of Children Under 18, 2006-2008	Average Number of Children Under 18 Food Insecure, 2006-2008	Margin of Error* (+/-)	Average Percent of Children Under 18 Food Insecure, 2006-2008	Margin of Error* (+/-)	State Rank by Proportion of Food Insecure Children
MS	753,058	170,578	28,039	22.7%	3.4%	6
MT	211,761	39,453	7,794	18.6%	3.4%	24
NC	2,214,632	449,069	57,093	20.3%	2.4%	15
ND	143,654	16,926	4,344	11.8%	2.9%	51
NE	445,802	74,822	14,611	16.8%	3.0%	29
NH	298,341	39,546	9,763	13.3%	3.1%	48
NJ	2,117,985	326,754	48,669	15.4%	2.2%	41
NM	521,157	98,753	17,782	18.9%	3.2%	22
NV	653,552	133,708	23,494	20.5%	3.3%	13
NY	4,385,574	731,328	73,814	16.7%	1.6%	30
OH	2,784,955	567,985	64,178	20.4%	2.1%	14
OK	907,542	165,989	31,484	18.3%	3.2%	25
OR	868,830	180,672	33,683	20.8%	3.5%	11
PA	2,734,656	476,841	59,176	17.4%	2.0%	28
RI	242,037	39,201	8,552	16.2%	3.3%	38
SC	1,071,533	225,851	39,812	21.1%	3.4%	9
SD	193,557	30,216	5,922	15.6%	2.9%	40
TN	1,429,714	280,740	44,440	19.6%	2.9%	20
TX	6,718,250	1,634,229	107,933	24.3%	1.4%	2
UT	804,948	117,281	20,350	14.6%	2.4%	46
VA	1,834,127	218,862	39,786	11.9%	2.1%	50
VT	129,444	23,005	5,323	17.8%	3.8%	26
WA	1,536,576	297,850	46,257	19.4%	2.8%	21
WI	1,301,451	228,479	40,344	17.6%	2.9%	27
WV	386,109	77,913	14,305	20.2%	3.4%	17
WY	123,385	18,612	4,280	15.1%	3.3%	44

*Estimated standard errors were used to calculate 90% confidence intervals corresponding to the reported margins of error.

TABLE 2

U.S. Census Regions: Average Number and Percent of Food Insecure Children Under 5 Years of Age, 2006-2008

REGION	Average Number of Children Under 5, 2006-2008	Average Number of Children Under 5 Food Insecure, 2006-2008	Margin of Error* (+/-)	Average Percent of Children Under 5 Food Insecure, 2006-2008	Margin of Error* (+/-)
U.S.	20,697,476	3,998,775	162,245	19.3%	0.9%
South ¹	7,929,293	1,733,088	110,896	21.8%	1.5%
West ²	5,072,617	998,063	85,116	19.6%	1.8%
Midwest ³	4,383,995	815,250	74,369	18.6%	1.8%
Northeast ⁴	3,311,571	452,376	55,813	13.7%	1.8%

The following tables offer brief summaries of state level comparisons of child food insecurity. Table 3 lists the ten states with the highest rates of child food insecurity (these numbers are taken from data in table 1). Tables 4 and 5 illustrate the ten states with the greatest change (increase or decrease) in child food insecurity rates, as compared to "Child Food Insecurity in the United States: 2005-2007" report.

TABLE 3

Ten States with the **Highest Rate** of Children Under 18 who are Food Insecure, 2006-2008 Average

STATE	Rate
Arkansas	24.4%
Texas	24.3%
Arizona	24.2%
District of Columbia	23.7%
Missouri	23.2%
Mississippi	22.7%
Georgia	22.5%
Maine	21.1%
South Carolina	21.1%
Florida	20.8%

TABLE 4

Ten States with the **Highest Increase** in the Rate of Children Under 18 who are Food Insecure, 2005-2007 to 2006-2008

(Based on percent change of average total number of food insecure)

STATE	% Change
Arkansas	+ 6.1%
Florida	+ 4.9%
Arizona	+ 4.0%
Montana	+ 3.9%
Hawaii	+ 3.7%
Georgia	+ 3.4%
Wisconsin	+ 3.4%
Missouri	+ 3.2%
Indiana	+ 3.1%
Connecticut	+ 2.9%

TABLE 5

Ten States with the **Highest Decrease** in the Rate of Children Under 18 who are Food Insecure, 2005-2007 to 2006-2008

(Based on percent change of average total number of food insecure)

STATE	% Change
Wyoming	- 2.4%
Utah	- 2.3%
Iowa	- 1.6%
Alaska	- 1.4%
Michigan	- 0.9%
Idaho	- 0.3%
New Mexico	- 0.3%
Tennessee	- 0.1%
Louisiana	< - 0.1%
Maryland/Washington	+ 0.2%



About the Author of the Study

John Cook is an Associate Professor of Pediatrics at Boston University School of Medicine. He received an MA Ed. in Educational Psychology from Arizona State University in 1976 and a Ph.D. in Planning for Developing Economies from the Department of City and Regional Planning at University of North Carolina-Chapel Hill in 1990. Dr. Cook was on the faculty of Tufts University's School of Nutrition Science and Policy from 1991-1998 where his research focused on the causes and consequences of poverty, food insecurity and hunger. While at Tufts, Dr. Cook was Principal Investigator from 1995-1997 for the U.S. Government's Food Security Measurement Study, which developed and validated the measures of food security, food insecurity and hunger currently implemented by the Census Bureau and USDA for the U.S. population.

Regarding Source Data

The Source and Accuracy Documentation for the Food Security Supplement File describing procedures for calculating standard errors of individual-year estimates can be found on the Census Bureau's Current Population Survey website at <http://www.census.gov/apsd/techdoc/cps/cpsdec08.pdf>. The Source and Accuracy Documentation for the 2008 Annual Social and Economic Supplement Microdata File describing the procedure for calculating standard errors of multi-year averages can be found at http://www.census.gov/hhes/www/p60_236sa.pdf. Data from these two documents were used to calculate standard errors of the estimated numbers and proportions of children food insecure in each state for each year, and for the averages over the three years,

using "Generalized Variance Parameters" (see below). The standard errors thus calculated for the three-year averages were used to produce margins of error comparable to 90% confidence intervals by multiplying the standard errors by 1.645, and adding and subtracting these amounts to and from the three-year average values for each state.

Confidence Intervals

Estimated standard errors were used to calculate 90% confidence intervals corresponding to the reported margins of error.

Generalized Variance Parameters

Experience has shown that certain groups of estimates have similar relationships between their variances and expected values. Modeling or generalizing may provide more stable variance estimates by taking advantage of these similarities. The generalized variance function is a simple model used by the Census Bureau that expresses the variance as a function of the expected value of the survey estimate. The parameters of the generalized variance function are estimated using direct replicate variances. The resulting generalized variance parameters provide a relatively straightforward method to obtain accurate approximate standard errors for numerous characteristics. The Generalized Variance Parameter method used for calculating standard errors of the state-level child food insecurity estimates contained in this report are described in detail in the Source and Accuracy Documentation referenced above.

¹ The South region includes: DE, DC, FL, GA, MD, NC, SC, VA, WV, AL, KY, MS, TN, AR, LA, OK, TX. ² The West region includes: AZ, CO, ID, MT, NV, NM, UT, WY, AK, CA, HI, OR, WA. ³ The Midwest region includes: IL, IN, MI, OH, WI, IA, KS, MN, MO, NE, ND, SD. ⁴ The Northeast region includes: CT, ME, MA, NH, RI, VT, NJ, NY, PA.

* Estimated standard errors were used to calculate 90% confidence intervals corresponding to the reported margins of error.



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