USDA

United States Department of Agriculture

Reaching Those in Need:

ESTIMATES OF STATE SUPPLEMENTAL NUTRITION ASSISTANCE PROGRAM PARTICIPATION RATES IN 2014

The Supplemental Nutrition Assistance Program (SNAP) is a central component of U.S. policy to alleviate hunger and poverty. The program's main purpose is "to permit low-income households to obtain a more nutritious diet… by increasing their purchasing power" (Food and Nutrition Act of 2008). SNAP is the largest of the domestic food and nutrition assistance programs administered by the U.S. Department of Agriculture's Food and Nutrition Service. During fiscal year 2016, the program served over 44 million people in an average month at a total annual cost of nearly $67 billion in benefits.

SNAP provides an important support for "working poor" people—people who are eligible for SNAP benefits and live in households in which someone earns income from a job. In fiscal year 2015, 44 percent of all SNAP participants lived in households that had earned income. That was up from 30 percent of all participants in 1996, the year in which passage of the Personal Responsibility and Work Opportunity Reconciliation Act placed more emphasis on work for public assistance recipients.

The SNAP participation rate is the percentage of eligible people in the U. S. who actually participate in the program. Farson Gray and Cunnyngham (2016) examined national SNAP participation rates and rates for socioeconomic and demographic subgroups of people. This document presents estimates of State SNAP participation rates for all eligible people and working poor people for fiscal year 2014. These estimates can be used to assess recent program performance and focus efforts to improve access.

Participation rates in fiscal year 2014

An estimated 83 percent of eligible people received SNAP benefits in fiscal year 2014. Participation rates varied widely from State to State, however. In 22 States and the District of Columbia, the rates were significantly higher (in a statistical sense) than the national rate, and in 17 States, the rates were significantly lower.

Among the regions, the Midwest Region had the highest participation rate. Its 95 percent rate was significantly higher than the rates for all of the other regions. The Western Region's participation rate of 73 percent was significantly lower than the rates for all of the other regions except the Southwest Region. (See the last page for a map that shows regional boundaries.)

An estimated 70 percent of eligible working poor people participated in SNAP in fiscal year 2014. As with participation rates for all eligible people, rates for working poor people varied widely across States. In 23 States, SNAP participation rates for working poor people were significantly higher than the national rate for working poor people, and in 9 States and the District of Columbia they were significantly lower.

In fiscal year 2014, the national SNAP participation rate for working poor people was significantly lower than the national rate for all eligible people. In 37 States and the District of Columbia, the participation rate for working poor people was likewise significantly lower than the rate for all eligible people. In 8 of these States and the District of Columbia, the difference between the rates for working poor people and all eligible people was significantly greater than the 12 percentage point difference between the national rates. In no State was the rate for working poor people significantly higher than the rate for all eligible people.

BY KAREN CUNNYNGHAM • MATHEMATICA POLICY RESEARCH • JANUARY 2017

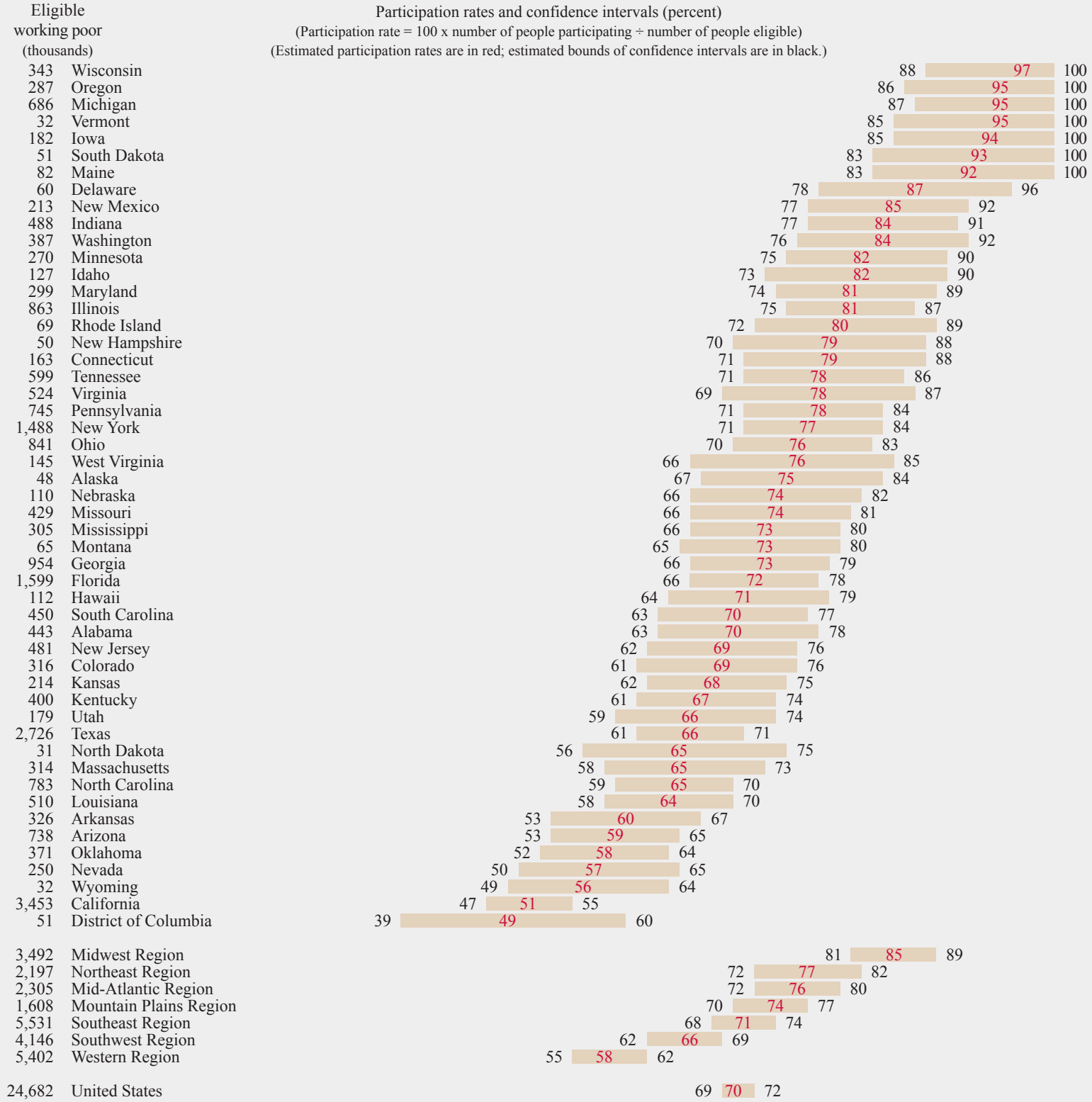
How many were eligible in 2014? What percentage participated?

Eligible people (thousands)		Participation rates and confidence intervals (percent)
		(Participation rate = 100 x number of people participating ÷ number of people eligible)
		(Estimated participation rates are in red; estimated bounds of confidence intervals are in black.)
663	Oregon	94 100 100
77	Vermont	94 100 100
872	Washington	94 100 100
1,503	Michigan	95 100 100
695	Wisconsin	95 100 100
198	Maine	94 100 100
122	Delaware	95 100 100
1,813	Illinois	95 100 100
1,317	Tennessee	93 99 100
359	Iowa	92 97 100
702	Maryland	92 97 100
132	District of Columbia	89 96 100
161	Rhode Island	90 96 100
105	South Dakota	87 94 100
388	Connecticut	88 94 100
436	New Mexico	86 92 98
3,620	Florida	87 90 93
1,901	Georgia	85 89 93
498	Minnesota	83 88 93
1,797	Pennsylvania	84 88 92
1,001	Indiana	83 88 92
1,830	Ohio	83 87 92
986	Missouri	81 86 92
3,276	New York	82 86 90
101	Alaska	80 86 91
1,012	Alabama	81 86 90
885	Massachusetts	80 85 90
229	Idaho	78 84 90
114	New Hampshire	79 84 90
917	Kentucky	79 84 88
1,094	Virginia	78 83 89
761	Mississippi	79 83 87
206	Hawaii	77 83 89
408	West Virginia	76 82 88
1,006	South Carolina	74 79 84
1,812	North Carolina	75 78 82
211	Nebraska	72 77 83
146	Montana	71 77 82
613	Colorado	71 76 81
748	Oklahoma	72 76 81
1,112	Louisiana	72 76 80
1,052	New Jersey	71 75 80
305	Utah	69 74 80
396	Kansas	70 74 78
4,866	Texas	70 73 75
680	Arkansas	65 70 75
1,310	Arizona	64 68 72
5,959	California	64 66 69
508	Nevada	59 65 70
66	North Dakota	58 64 70
59	Wyoming	54 59 64
7,339	Midwest Region	92 94 97
5,099	Northeast Region	85 88 90
12,345	Southeast Region	85 87 89
5,307	Mid-Atlantic Region	83 86 88
3,246	Mountain Plains Region	79 81 84
7,842	Southwest Region	72 74 76
9,848	Western Region	71 73 75
51,026	United States	82 83 84

A confidence interval expresses our uncertainty about the true value of a participation rate. Each interval displayed here is a 90 percent confidence interval. One interpretation of such an interval is that there is a 90 percent chance that the true participation rate falls within the estimated bounds. For example, although our best estimate is that Alabama's participation rate was 86 percent in 2014, the true rate may have been higher or lower. However, the chances are 90 in 100 that the true rate was between 81 and 90 percent.

See Estimation method section for information on participation rates of 100 percent.

How many working poor people were eligible in 2014? What percentage participated?



A confidence interval expresses our uncertainty about the true value of a participation rate. Each interval displayed here is a 90 percent confidence interval. One interpretation of such an interval is that there is a 90 percent chance that the true participation rate falls within the estimated bounds. For example, although our best estimate is that Montana's working poor participation rate was 73 percent in 2014, the true rate may have been higher or lower. However, the chances are 90 in 100 that the true rate was between 65 and 80 percent.

See Estimation method section for information on participation rates of 100 percent.

State comparisons

The estimated SNAP participation rates presented here are based on fairly small samples of households in each State. Although there is substantial uncertainty associated with the estimates for some States and with comparisons of estimates from different States, the estimates show whether a State's participation rate for all eligible people was probably at the top, at the bottom, or in the middle of the distribution. In fiscal year 2014, Oregon was very likely at the top, with a higher rate for all eligible people than all other States. In contrast, Wyoming likely had a lower rate than other States.

Similarly, it is possible to determine that some States were probably at the top, at the bottom, or in the middle of the distribution of rates for working poor people. In fiscal year 2014, Wisconsin, Oregon, Michigan, Vermont, Iowa, South Dakota, and Maine were very likely at the top, with higher rates for working poor people than most States. In contrast, the District of Columbia and California likely had lower rates than most States.

How a State compares with other States may fluctuate over time due to both statistical variability in estimated rates and true changes in rates. The statistical variability is sufficiently great that a large change in a State's rate from the prior year should be interpreted cautiously, as should differences between the rates of that State and other States. It may be incorrect to conclude that program performance in the State has improved or deteriorated dramatically. Despite this uncertainty, the estimated participation rates for all eligible people and working poor people suggest that some States have been fairly consistently in the top or bottom of the distribution of rates in recent years. In all 3 fiscal years from 2012 to 2014, Delaware, Maine, Michigan, Oregon, Tennessee, Vermont, Washington, and Wisconsin had significantly higher participation rates for all eligible people than two-thirds of the States. The District of Columbia, Iowa, Illinois, and New Mexico had significantly higher rates than half of the States. California, Kansas, North Dakota, New Jersey, Nevada, Texas, and Wyoming had significantly lower rates than two-thirds of the States in all three fiscal years, while Arkansas, Arizona, Colorado, Montana, and Nebraska had significantly lower rates than half of the States.

A State ranked near the top or bottom of the distribution of SNAP participation rates for all eligible people is likely

to be ranked near the top or bottom, respectively, of the distribution of rates for working poor people. However, rankings of States by participation rates for working poor people and all eligible people are not always similar. Three States (Indiana, North Dakota, and South Dakota) are ranked significantly higher for all three fiscal years when ranked by their participation rate for working poor people than when ranked by their rate for all eligible people. In contrast, 5 States—Florida, Illinois, Massachusetts, Tennessee, and Washington—and the District of Columbia are ranked significantly lower for all 3 fiscal years when ranked by their participation rate for working poor people than when ranked by their rate for all eligible people.

Estimation method

We derived the estimates presented here using shrinkage estimation methods developed to improve precision when sample sizes are small (Cunnyngham et al. 2016). The shrinkage estimator averaged direct sample estimates of participation rates with predictions from a regression model, using data for all the States, all three years, and both groups (all eligible people and working poor people) to derive each estimate.

We obtained the direct sample estimates by applying SNAP eligibility rules to households in the Current Population Survey Annual Social and Economic Supplement to estimate numbers of eligible people and by using SNAP administrative data to estimate numbers of participating people. Farson Gray and Cunnyngham (2016) present details on the estimation methods used to derive the direct sample estimates.

Estimates of participation rates (percent)

	All eligible people			Working poor		
	2012	2013	2014	2012	2013	2014
Alabama	89	88	86	82	78	70
Alaska	86	85	86	71	74	75
Arizona	78	76	68	72	71	59
Arkansas	77	73	70	72	67	60
California	64	68	66	49	53	51
Colorado	73	79	76	65	71	69
Connecticut	88	90	94	76	79	79
Delaware	97	98	100	85	92	87
District of Columbia	95	97	96	50	63	49
Florida	91	92	90	75	75	72
Georgia	94	96	89	81	81	73
Hawaii	66	75	83	54	63	71
Idaho	89	89	84	84	84	82
Illinois	93	99	100	75	81	81
Indiana	85	89	88	85	86	84
Iowa	98	96	97	94	95	94
Kansas	72	77	74	65	70	68
Kentucky	89	88	84	76	73	67
Louisiana	84	88	76	74	78	64
Maine	100	100	100	98	96	92
Maryland	89	95	97	75	83	81
Massachusetts	87	87	85	64	68	65
Michigan	100	100	100	99	100	95
Minnesota	83	87	88	77	80	82
Mississippi	84	85	83	84	81	73
Missouri	92	92	86	82	80	74
Montana	77	81	77	72	77	73
Nebraska	72	78	77	67	73	74
Nevada	61	63	65	48	52	57
New Hampshire	84	85	84	80	80	79
New Jersey	73	78	75	69	72	69
New Mexico	92	94	92	88	90	85
New York	81	87	86	70	77	77
North Carolina	81	81	78	73	72	65
North Dakota	64	69	64	61	66	65
Ohio	85	92	87	77	82	76
Oklahoma	80	77	76	68	65	58
Oregon	100	100	100	90	96	95
Pennsylvania	86	89	88	78	79	78
Rhode Island	88	96	96	72	80	80
South Carolina	88	86	79	82	81	70
South Dakota	81	88	94	82	90	93
Tennessee	100	100	99	81	80	78
Texas	75	76	73	69	68	66
Utah	82	77	74	73	69	66
Vermont	100	100	100	93	99	95
Virginia	85	85	83	80	82	78
Washington	99	100	100	75	83	84
West Virginia	80	81	82	82	79	76
Wisconsin	96	100	100	89	94	97
Wyoming	63	58	59	63	57	56
Mid-Atlantic Region	84	87	86	76	79	76
Midwest Region	91	95	94	83	87	85
Mountain Plains Region	82	84	81	75	77	74
Northeast Region	84	88	88	71	77	77
Southeast Region	90	90	87	78	77	71
Southwest Region	78	78	74	71	70	66
Western Region	72	74	73	58	61	58
United States	83	85	83	72	74	70

There is substantial uncertainty associated with most of these estimates. Confidence intervals that measure the uncertainty in the estimates for 2012 and 2013 are presented in Cunnyngham et al. (2016). These confidence intervals are generally about as wide as the confidence intervals that are presented in this document for the 2014 estimates.

See Estimation method section for information on participation rates of 100 percent.

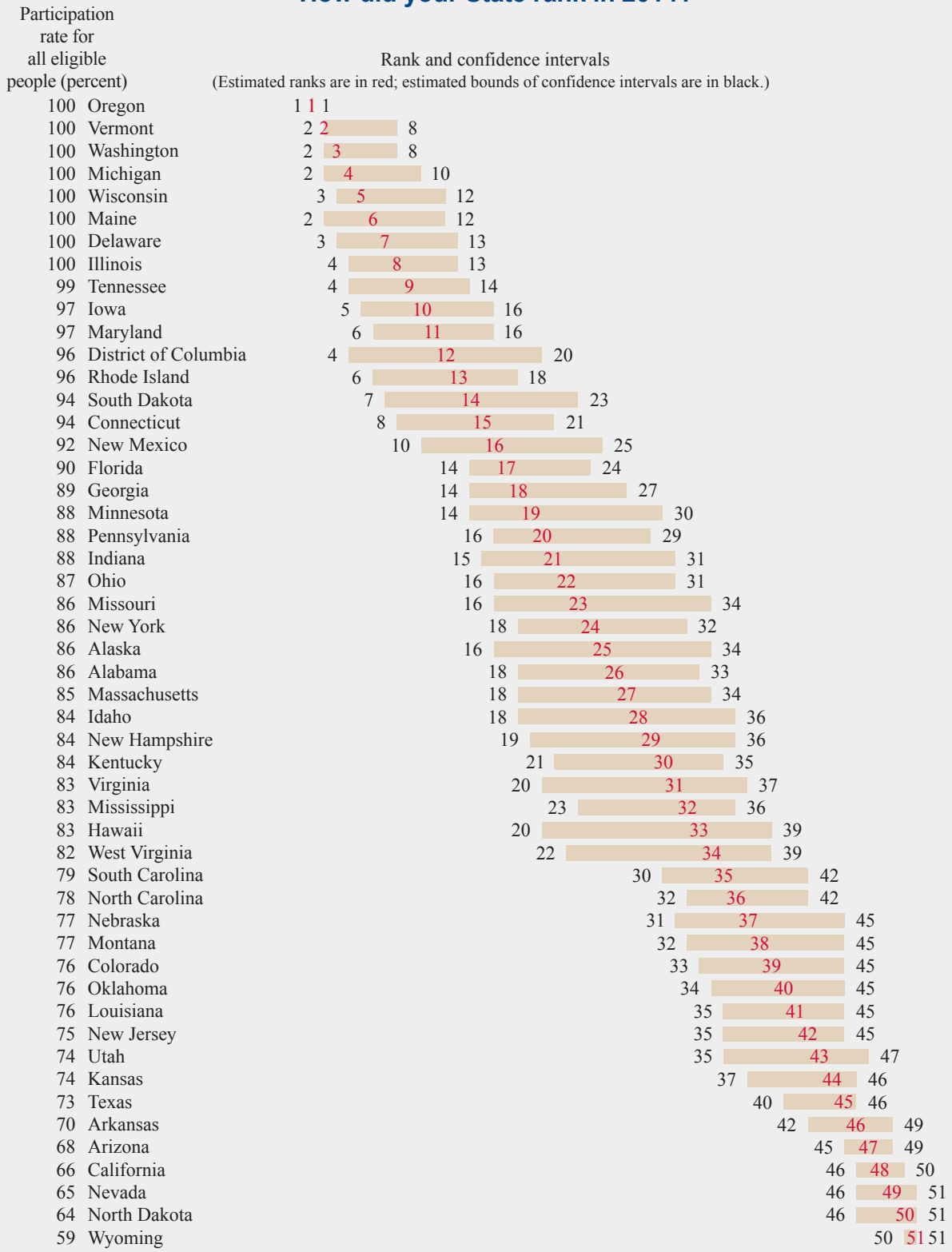
The regression predictions of participation rates drew on data from the American Community Survey, individual tax returns, population estimates, and administrative records, and were based on indicators of socioeconomic conditions, such as the percentage of the total State population receiving SNAP benefits. Because of differences between the years being estimated, the regression model differs slightly from the one developed for Cunnyngham (2016). The regression model developed for this year's report was chosen for its strong predictive ability for all 3 years and its consistency with the model developed for the prior report.

The shrinkage estimates presented here are substantially more precise than the direct sample estimates (Cunnyngham et al. 2016). Estimates for fiscal years 2012 and 2013 differ from estimates presented in Cunnyngham (2016) because of differences in the 3 fiscal years being jointly estimated and the regression model.

The estimates for all eligible people include people in households that pass all applicable Federal SNAP income and asset tests or in which all members receive cash public assistance. People eligible solely through State categorical eligibility policies are not included in the estimates presented here. The estimates for eligible working poor people include people who are eligible for SNAP as defined above and live in a household in which a member earns money from a job.

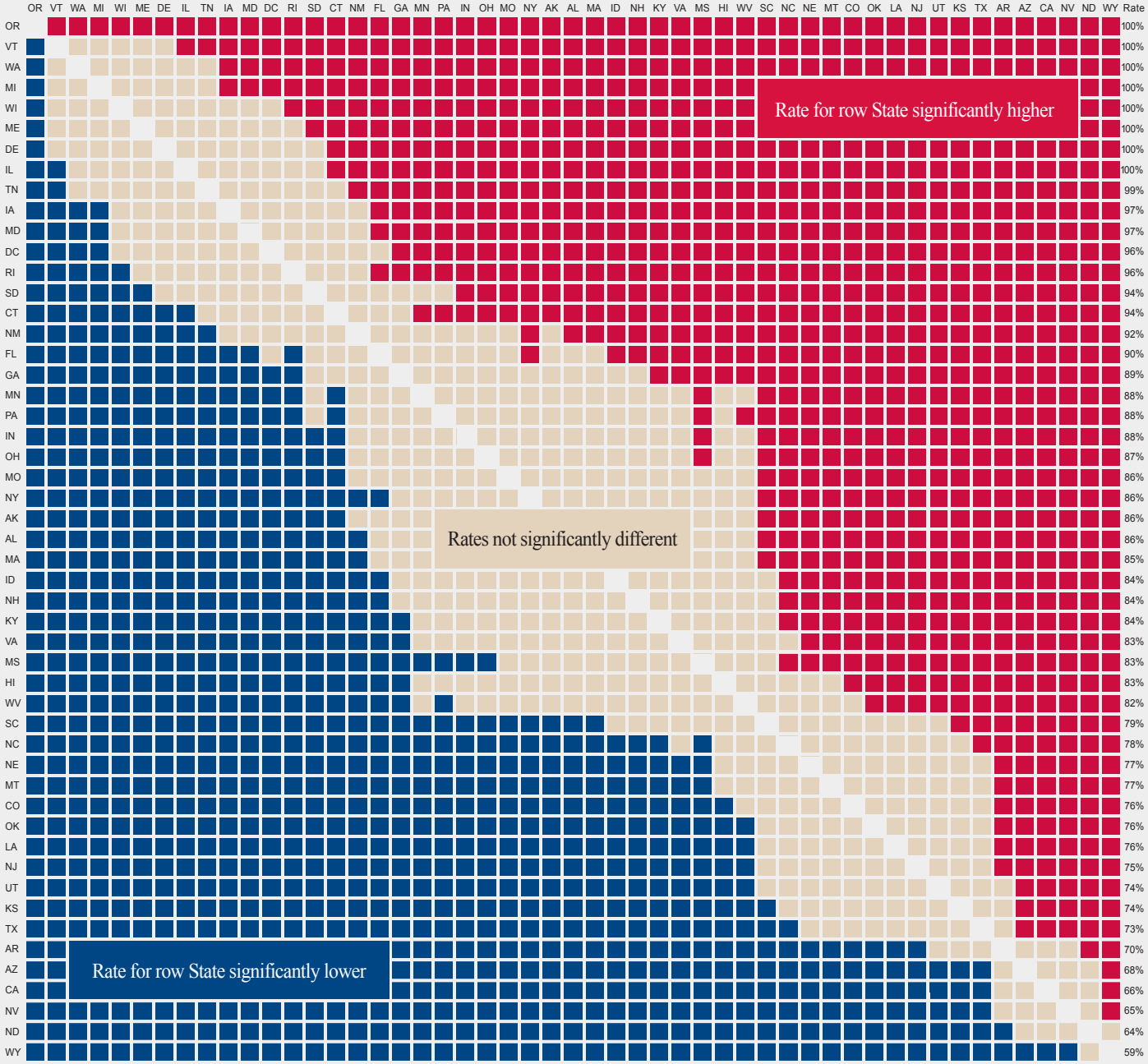
Estimated participation rates of 100 percent are the result of differences between the data used to estimate the number of eligible people and the data used to estimate the number of participants; they should not be interpreted to mean that every eligible person is participating in SNAP. Using different data sources to estimate rate denominators and numerators can result in a preliminary estimate of eligible people in a particular State that is lower than the corresponding estimate of participants, leading to a participation rate that exceeds 100 percent. We capped participation rates at 100 percent by adjusting estimates of eligible people so no State had fewer eligible people than participants. See Cunnyngham et al. (2016) for details on how we made the adjustments.

How did your State rank in 2014?



A confidence interval expresses our uncertainty about the true value of a State's rank. Each interval displayed here is a 90 percent confidence interval. One interpretation of such an interval is that there is a 90 percent chance that the true rank falls within the estimated bounds. For example, although our best estimate is that Alabama had the 26th highest participation rate in 2014, the true rank may have been higher or lower. However, the chances are 90 in 100 that the true rank was between 18 and 33 among all of the States. To determine how Alabama or your State compares with any other State, see the chart on page 7.

How did your State compare with other States in 2014 for all eligibles?

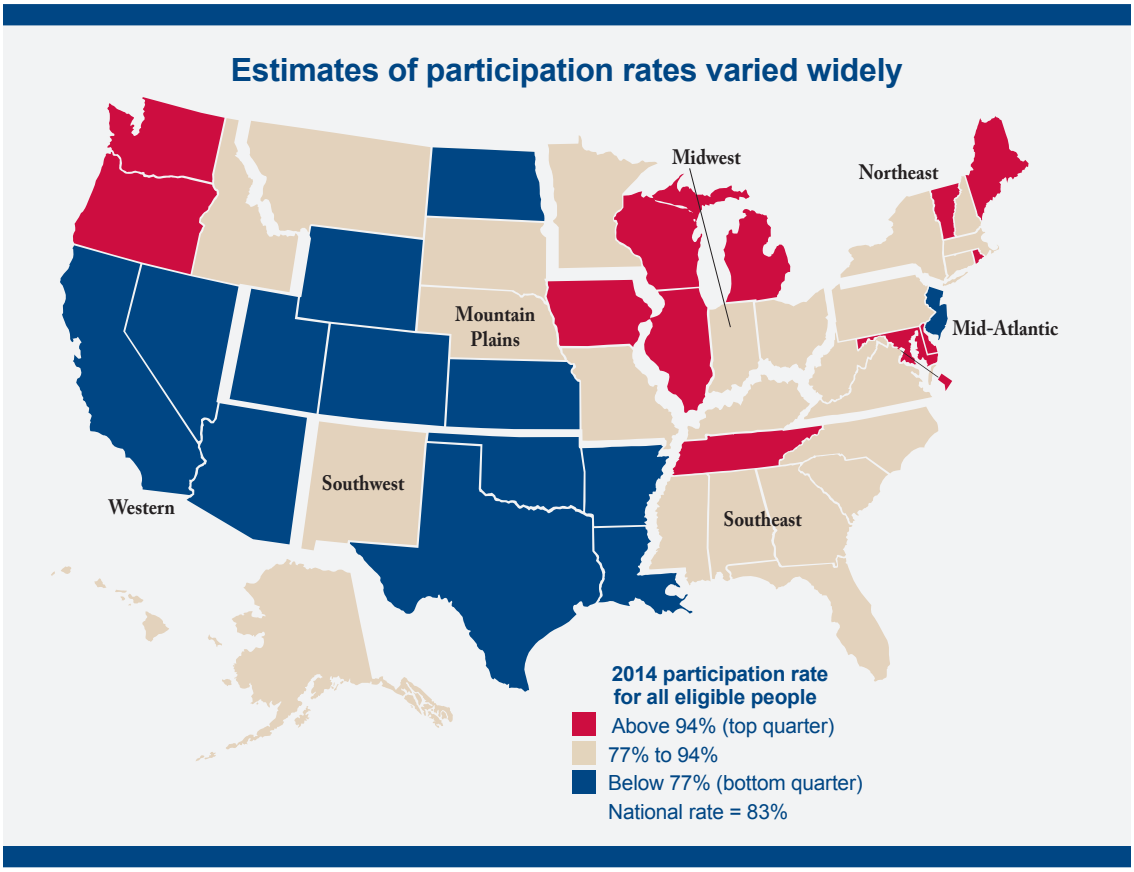


Whether one State has a significantly higher participation rate than another State can be determined from this figure by finding the row for the first State at the left of the figure and the column for the second State at the top of the figure. If the box where the row and column intersect is red, there is at least a 90 percent chance that the first State (the row State) has a higher true participation rate. If the box is blue, there is at least a 90 percent chance that the second State (the column State) has a higher true participation rate. Equivalently, there is less than a 10-percent chance that the first State has a higher rate. If the box is tan, there is more than a 10 percent chance but less than a 90 percent chance that the first State has a higher rate; thus, we conclude that neither estimated rate is significantly higher.

Taking Alabama, the State in the middle of the distribution, as an example, we see that it had a significantly lower participation rate than 16 States (Oregon, Vermont, Washington, Michigan, Wisconsin, Maine, Delaware, Illinois, Tennessee, Iowa, Maryland, the District of Columbia, Rhode Island, South Dakota, Connecticut, and New Mexico) and a significantly higher rate than 17 States (Wyoming, North Dakota, Nevada, California, Arizona, Arkansas, Texas, Kansas, Utah, New Jersey, Louisiana, Oklahoma, Colorado, Montana, Nebraska, North Carolina, and South Carolina). Its rate was neither significantly higher nor significantly lower than the rates for the other 18 States, suggesting that Alabama is probably in the broad center of the distribution, unlike, for example, Oregon and Wyoming, which were surely at or near the top and bottom of the distribution, respectively. Although we use the statistical definition of "significance" here, most of the significant differences were at least 10 percentage points, a difference that seems important as well as significant, and each was at least 4 percentage points.

See Estimation method section for information on participation rates of 100 percent.

Because the Current Population Survey does not collect data on participation in the Food Distribution Program on Indian Reservations, we did not adjust the estimates presented here to reflect the fact that participants in that program were not eligible to receive SNAP benefits at the same time (Farson Gray and Cunnyngham 2016). The Food Distribution Program on Indian Reservations served about 85,000 people in fiscal year 2014, so the effects of such adjustments would be negligible in almost all States. Because the focus in this document is on participation among people who were eligible for SNAP, we adjusted the estimates of eligible people using available data to reflect the fact that Supplemental Security Income recipients in California are not eligible to receive SNAP benefits because they receive cash instead.[1] However, in some other contexts, it might be useful to consider participation rates among those eligible for SNAP benefits or a cash substitute.



References

Cunnyngham, Karen, Amang Sukasih, and Laura Castner. "Empirical Bayes Shrinkage Estimates of State Supplemental Nutrition Assistance Program Participation Rates in Fiscal Year 2012 to Fiscal Year 2014 for All Eligible People and Working Poor People." Final report submitted to the U.S. Department of Agriculture, Food and Nutrition Service. Washington, DC: Mathematica Policy Research, 2017. Available at https://www.mathematica-mpr.com/our-publications-and-findings/publications/empirical-bayes-shrinkage-estimates-of-state-snap-participation-rates-in-2012to2014.

Cunnyngham, Karen. "Reaching Those in Need: State Supplemental Nutrition Assistance Program Participation Rates in 2013." Final report submitted to the U.S. Department of Agriculture, Food and Nutrition Service. Washington, DC: Mathematica Policy Research, February 2016.

Farson Gray, Kelsey, and Karen Cunnyngham. "Trends in Supplemental Nutrition Assistance Program Participation Rates: Fiscal Year 2010 to Fiscal Year 2014." Report submitted to the U.S. Department of Agriculture, Food and Nutrition Service. Washington, DC: Mathematica Policy Research, June 2016.

[1] About 1.3 million Supplemental Security Income recipients in California receive a small food assistance benefit through the State supplement. In the absence of the State rule excluding these people from receiving SNAP benefits, about 700,000 more California residents would be eligible for SNAP.

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