Reaching Those in Need:

ESTIMATES OF STATE SUPPLEMENTAL NUTRITION ASSISTANCE PROGRAM PARTICIPATION RATES IN 2016

The Supplemental Nutrition Assistance Program (SNAP) provides nutrition assistance to eligible, low-income individuals and households in need. SNAP is the largest of the domestic nutrition assistance programs administered by the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture (USDA). During fiscal year 2018, the program served 40 million people in an average month at a total annual cost of $61 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 2017, 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 United States who actually participate in the program. Cunnyngham (2018b) examined national SNAP participation rates and rates for socioeconomic and demographic subgroups of people. This research brief presents estimates of State SNAP participation rates for all eligible people and working poor people for fiscal year 2016. These estimates can be used to assess recent program performance and focus efforts to improve access.

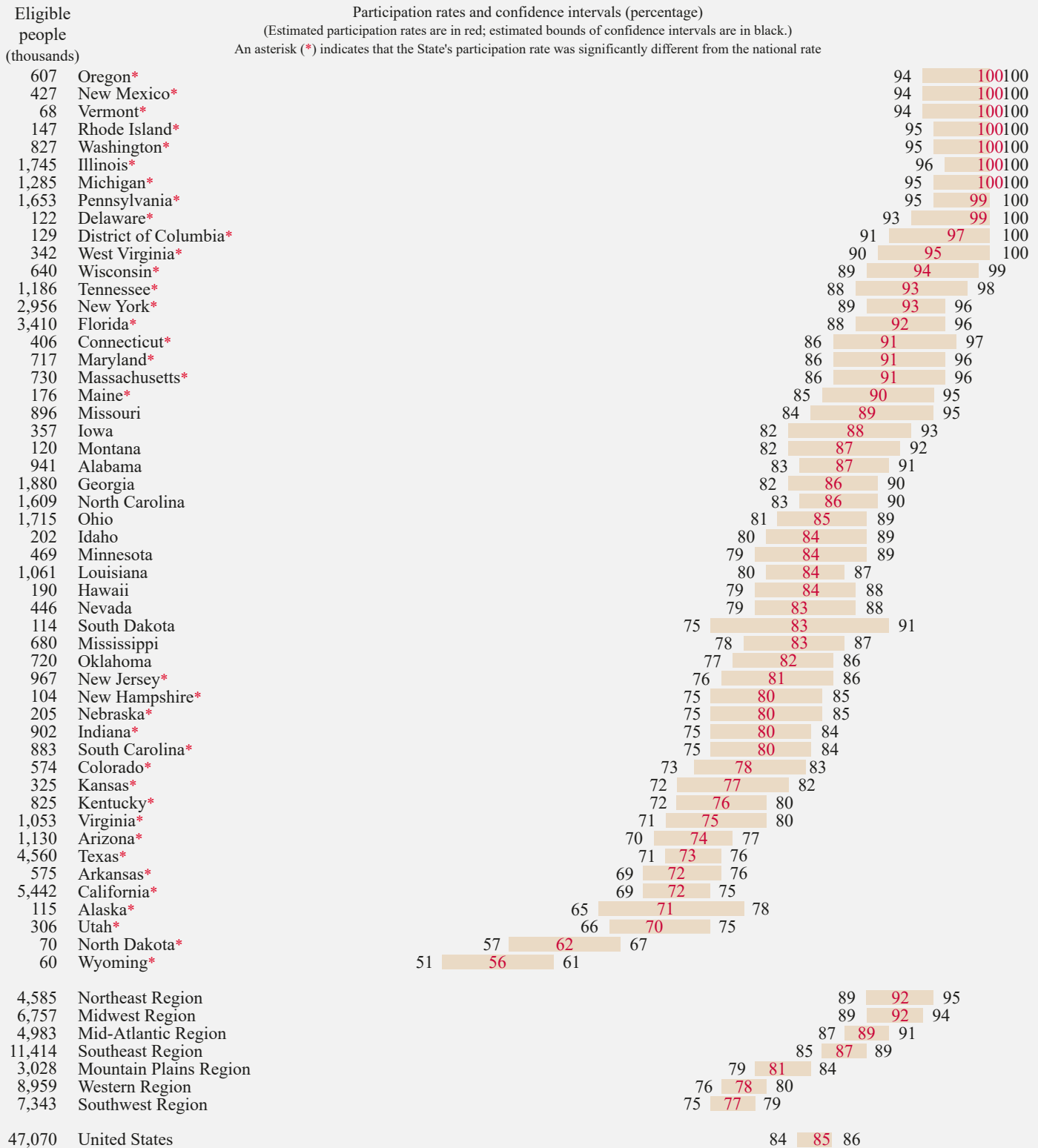## Participation rates in fiscal year 2016

An estimated 85 percent of eligible people received SNAP benefits in fiscal year 2016. Participation rates varied widely from State to State, however. In 18 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 Northeast and Midwest Regions had the highest participation rate. Their 92 percent rate was significantly higher than the rates for all of the other regions. The Southwest Region's participation rate of 77 percent was significantly lower than the rates for all of the other regions except the Western Region. (See the last page for a map that shows regional boundaries.)

An estimated 75 percent of eligible working poor people participated in SNAP in fiscal year 2016. As with participation rates for all eligible people, rates for working poor people varied widely across States. In 15 States, SNAP participation rates for working poor people were significantly higher than the national rate for working poor people, and in 12 States and the District of Columbia they were significantly lower.

In fiscal year 2016, the national SNAP participation rate for working poor people was significantly lower than the national rate for all eligible people. In 29 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 7 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 10 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.
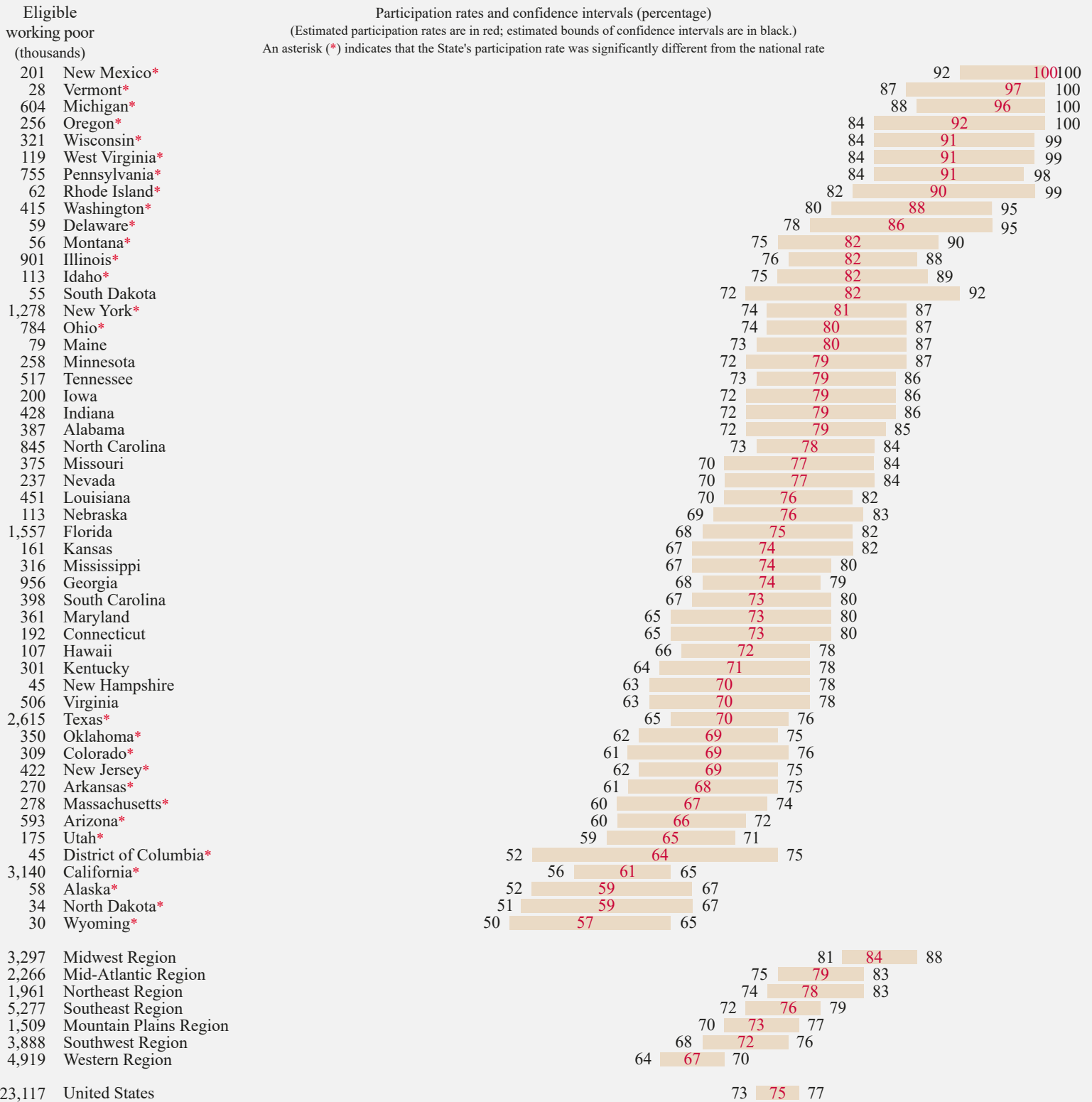
How many people were eligible in 2016? What percentage participated?

Eligible people (thousands)

Participation rates and confidence intervals (percentage)
(Estimated participation rates are in red; estimated bounds of confidence intervals are in black.)
An asterisk (*) indicates that the State's participation rate was significantly different from the national rate

Eligible people (thousands)	State	Lower bound	Estimate	Upper bound
607	Oregon*	94	100	100
427	New Mexico*	94	100	100
68	Vermont*	94	100	100
147	Rhode Island*	95	100	100
827	Washington*	95	100	100
1,745	Illinois*	96	100	100
1,285	Michigan*	95	100	100
1,653	Pennsylvania*	95	99	100
122	Delaware*	93	99	100
129	District of Columbia*	91	97	100
342	West Virginia*	90	95	100
640	Wisconsin*	89	94	99
1,186	Tennessee*	88	93	98
2,956	New York*	89	93	96
3,410	Florida*	88	92	96
406	Connecticut*	86	91	97
717	Maryland*	86	91	96
730	Massachusetts*	86	91	96
176	Maine*	85	90	95
896	Missouri	84	89	95
357	Iowa	82	88	93
120	Montana	82	87	92
941	Alabama	83	87	91
1,880	Georgia	82	86	90
1,609	North Carolina	83	86	90
1,715	Ohio	81	85	89
202	Idaho	80	84	89
469	Minnesota	79	84	89
1,061	Louisiana	80	84	87
190	Hawaii	79	84	88
446	Nevada	79	83	88
114	South Dakota	75	83	91
680	Mississippi	78	83	87
720	Oklahoma	77	82	86
967	New Jersey*	76	81	86
104	New Hampshire*	75	80	85
205	Nebraska*	75	80	85
902	Indiana*	75	80	84
883	South Carolina*	75	80	84
574	Colorado*	73	78	83
325	Kansas*	72	77	82
825	Kentucky*	72	76	80
1,053	Virginia*	71	75	80
1,130	Arizona*	70	74	77
4,560	Texas*	71	73	76
575	Arkansas*	69	72	76
5,442	California*	69	72	75
115	Alaska*	65	71	78
306	Utah*	66	70	75
70	North Dakota*	57	62	67
60	Wyoming*	51	56	61
4,585	Northeast Region	89	92	95
6,757	Midwest Region	89	92	94
4,983	Mid-Atlantic Region	87	89	91
11,414	Southeast Region	85	87	89
3,028	Mountain Plains Region	79	81	84
8,959	Western Region	76	78	80
7,343	Southwest Region	75	77	79
47,070	United States	84	85	86

A confidence interval expresses our level of certainty 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 Idaho's participation rate was 84 percent in 2016, the true rate might have been higher or lower. However, the chances are 90 in 100 that the true rate was between 80 and 89 percent.

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

How many working poor people were eligible in 2016? What percentage participated?

Eligible working poor (thousands)	State	Lower bound	Participation rate	Upper bound
			Participation rates and confidence intervals (percentage) (Estimated participation rates are in red; estimated bounds of confidence intervals are in black.) An asterisk (*) indicates that the State's participation rate was significantly different from the national rate	
201	New Mexico*	92	100	100
28	Vermont*	87	97	100
604	Michigan*	88	96	100
256	Oregon*	84	92	100
321	Wisconsin*	84	91	99
119	West Virginia*	84	91	99
755	Pennsylvania*	84	91	98
62	Rhode Island*	82	90	99
415	Washington*	80	88	95
59	Delaware*	78	86	95
56	Montana*	75	82	90
901	Illinois*	76	82	88
113	Idaho*	75	82	89
55	South Dakota	72	82	92
1,278	New York*	74	81	87
784	Ohio*	74	80	87
79	Maine	73	80	87
258	Minnesota	72	79	87
517	Tennessee	73	79	86
200	Iowa	72	79	86
428	Indiana	72	79	86
387	Alabama	72	79	85
845	North Carolina	73	78	84
375	Missouri	70	77	84
237	Nevada	70	77	84
451	Louisiana	70	76	82
113	Nebraska	69	76	83
1,557	Florida	68	75	82
161	Kansas	67	74	82
316	Mississippi	67	74	80
956	Georgia	68	74	79
398	South Carolina	67	73	80
361	Maryland	65	73	80
192	Connecticut	65	73	80
107	Hawaii	66	72	78
301	Kentucky	64	71	78
45	New Hampshire	63	70	78
506	Virginia	63	70	78
2,615	Texas*	65	70	76
350	Oklahoma*	62	69	75
309	Colorado*	61	69	76
422	New Jersey*	62	69	75
270	Arkansas*	61	68	75
278	Massachusetts*	60	67	74
593	Arizona*	60	66	72
175	Utah*	59	65	71
45	District of Columbia*	52	64	75
3,140	California*	56	61	65
58	Alaska*	52	59	67
34	North Dakota*	51	59	67
30	Wyoming*	50	57	65
3,297	Midwest Region	81	84	88
2,266	Mid-Atlantic Region	75	79	83
1,961	Northeast Region	74	78	83
5,277	Southeast Region	72	76	79
1,509	Mountain Plains Region	70	73	77
3,888	Southwest Region	68	72	76
4,919	Western Region	64	67	70
23,117	United States	73	75	77

A confidence interval expresses our level of certainty 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 Nebraska's working poor participation rate was 76 percent in 2016, the true rate might have been higher or lower. However, the chances are 90 in 100 that the true rate was between 69 and 83 percent.

See the 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 2016, Oregon and New Mexico were very likely at the top, with higher rates 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 2016, New Mexico, Vermont, and Wisconsin were very likely at the top, with higher rates for working poor people than most States. In contrast, Wyoming, North Dakota, and Alaska likely had lower rates than most States.

How a State compares with other States can 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 might 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 years from 2014 to 2016, Delaware, Illinois, Michigan, Oregon, Rhode Island, Vermont, and Washington had significantly higher participation rates for all eligible people than two-thirds of the States. The District of Columbia, Maryland, New Mexico, Tennessee, and Wisconsin had significantly higher rates than half of the States. Colorado, Kansas, Nebraska, and Virginia had significantly lower rates than half of the States in all three years, whereas Arkansas, Arizona, California, North Dakota, Texas, Utah, and Wyoming had significantly lower rates than two-thirds 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 rank 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. Two States (Idaho and Wisconsin) 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, 4 States—Connecticut, Illinois, Maryland, and Massachusetts—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 2019). 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. Cunnyngham (2018b) presented details on the estimation methods used to derive the direct sample estimates.

Estimates of participation rates (percentage)

	All eligible people			Working poor		
	2014	2015	2016	2014	2015	2016
Alabama	82	85	87	69	76	79
Alaska	80	82	71	65	67	59
Arizona	70	72	74	58	61	66
Arkansas	72	73	72	62	65	68
California	65	68	72	50	57	61
Colorado	78	75	78	68	63	69
Connecticut	91	91	91	73	69	73
Delaware	98	100	99	84	86	86
District of Columbia	98	100	97	55	63	64
Florida	91	91	92	75	77	75
Georgia	86	85	86	70	73	74
Hawaii	87	83	84	73	72	72
Idaho	86	83	84	83	78	82
Illinois	100	100	100	82	82	82
Indiana	86	84	80	81	74	79
Iowa	93	90	88	85	80	79
Kansas	79	76	77	76	67	74
Kentucky	85	81	76	74	73	71
Louisiana	74	78	84	62	70	76
Maine	97	90	90	84	78	80
Maryland	94	91	91	76	73	73
Massachusetts	90	84	91	68	61	67
Michigan	100	100	100	96	88	96
Minnesota	88	84	84	83	75	79
Mississippi	83	85	83	69	75	74
Missouri	87	88	89	73	73	77
Montana	84	83	87	79	72	82
Nebraska	78	76	80	75	69	76
Nevada	68	79	83	61	73	77
New Hampshire	83	78	80	76	67	70
New Jersey	77	77	81	68	64	69
New Mexico	93	100	100	84	95	100
New York	89	87	93	77	76	81
North Carolina	79	83	86	67	74	78
North Dakota	66	64	62	65	57	59
Ohio	87	88	85	80	79	80
Oklahoma	77	79	82	58	65	69
Oregon	100	100	100	93	92	92
Pennsylvania	89	91	99	82	81	91
Rhode Island	96	98	100	82	83	90
South Carolina	78	82	80	68	75	73
South Dakota	90	90	83	87	81	82
Tennessee	99	95	93	81	81	79
Texas	73	70	73	65	67	70
Utah	71	69	70	65	63	65
Vermont	100	100	100	97	86	97
Virginia	79	74	75	72	66	70
Washington	100	100	100	89	86	88
West Virginia	86	91	95	81	85	91
Wisconsin	100	97	94	97	90	91
Wyoming	60	58	56	60	55	57
Mid-Atlantic Region	85	85	89	75	73	79
Midwest Region	94	93	92	86	81	84
Mountain Plains Region	82	81	81	73	69	73
Northeast Region	90	87	92	76	74	78
Southeast Region	87	87	87	72	76	76
Southwest Region	75	74	77	65	68	72
Western Region	72	75	78	58	63	67
United States	83	83	85	70	72	75

There is substantial uncertainty associated with most of these estimates. Cunnyngham (2019) presented confidence intervals that measure the uncertainty in the estimates for 2014 and 2015. These confidence intervals are generally about as wide as the confidence intervals presented here for the 2016 estimates.

See the 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 State population receiving SNAP benefits. Because of differences between the years being estimated, the regression model differs slightly from the one developed for Cunnyngham (2018a). 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 2019). Estimates for fiscal years 2014 and 2015 differ from estimates presented in Cunnyngham (2018a) 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 resource tests or in which all members receive cash public assistance. The estimates presented here do not include people eligible solely through State categorical eligibility policies. 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 income 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 participated 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. Cunnyngham (2019) provides details on how we made the adjustments.

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

How did your State rank in 2016?

Participation rate | Rank and confidence intervals
(Estimated ranks are in red; estimated bounds of confidence intervals are in black.)

Participation rate	State	Lower bound	Estimated rank	Upper bound
100	Oregon	1	1	3
100	New Mexico	1	2	4
100	Vermont	2	3	7
100	Rhode Island	2	4	7
100	Washington	3	5	8
100	Illinois	3	6	10
100	Michigan	4	7	12
99	Pennsylvania	5	8	12
99	Delaware	4	9	14
97	District of Columbia	5	10	18
95	West Virginia	7	11	19
94	Wisconsin	9	12	19
93	Tennessee	9	13	21
93	New York	10	14	20
92	Florida	11	15	22
91	Connecticut	10	16	24
91	Maryland	11	17	25
91	Massachusetts	11	18	26
90	Maine	12	19	26
89	Missouri	12	20	30
88	Iowa	14	21	33
87	Montana	15	22	33
87	Alabama	17	23	32
86	Georgia	18	24	32
86	North Carolina	19	25	32
85	Ohio	20	26	35
84	Idaho	20	27	36
84	Minnesota	20	28	37
84	Louisiana	23	29	37
84	Hawaii	21	30	38
83	Nevada	22	31	38
83	South Dakota	18	32	42
83	Mississippi	22	33	40
82	Oklahoma	24	34	41
81	New Jersey	25	35	41
80	New Hampshire	27	36	43
80	Nebraska	28	37	42
80	Indiana	28	38	43
80	South Carolina	30	39	42
78	Colorado	30	40	45
77	Kansas	34	41	46
76	Kentucky	36	42	47
75	Virginia	37	43	47
74	Arizona	40	44	48
73	Texas	41	45	48
72	Arkansas	42	46	49
72	California	43	47	49
71	Alaska	40	48	49
70	Utah	43	49	49
62	North Dakota	50	50	51
56	Wyoming	50	51	51

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 Ohio had the 26th highest participation rate in 2016, the true rank might have been higher or lower. However, the chances are 90 in 100 that the true rank was between 20 and 35 among all of the States. To determine how Ohio or your State compares with any other State, see the chart on page 7.

How did your State compare with other States in 2016 for all eligible people?

Rate for row State significantly higher

Rates not significantly different

Rate for row State significantly lower

This figure can be used to determine whether one State has a significantly higher participation rate than another 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 Ohio, the State in the middle of the distribution, as an example, we see that it had a significantly lower participation rate than 18 States (Oregon, New Mexico, Vermont, Rhode Island, Washington, Illinois, Michigan, Pennsylvania, Delaware, West Virginia, Wisconsin, Tennessee, New York, Florida, Connecticut, Maryland, Massachusetts, and Maine) and the District of Columbia and a significantly higher rate than 15 States (Wyoming, North Dakota, Utah, Alaska, California, Arkansas, Texas, Arizona, Virginia, Kentucky, Kansas, Colorado, South Carolina, Indiana, and Nebraska). Its rate was neither significantly higher nor significantly lower than the rates for the other 17 States, suggesting that Ohio 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 the Estimation method section for information on participation rates of 100 percent.
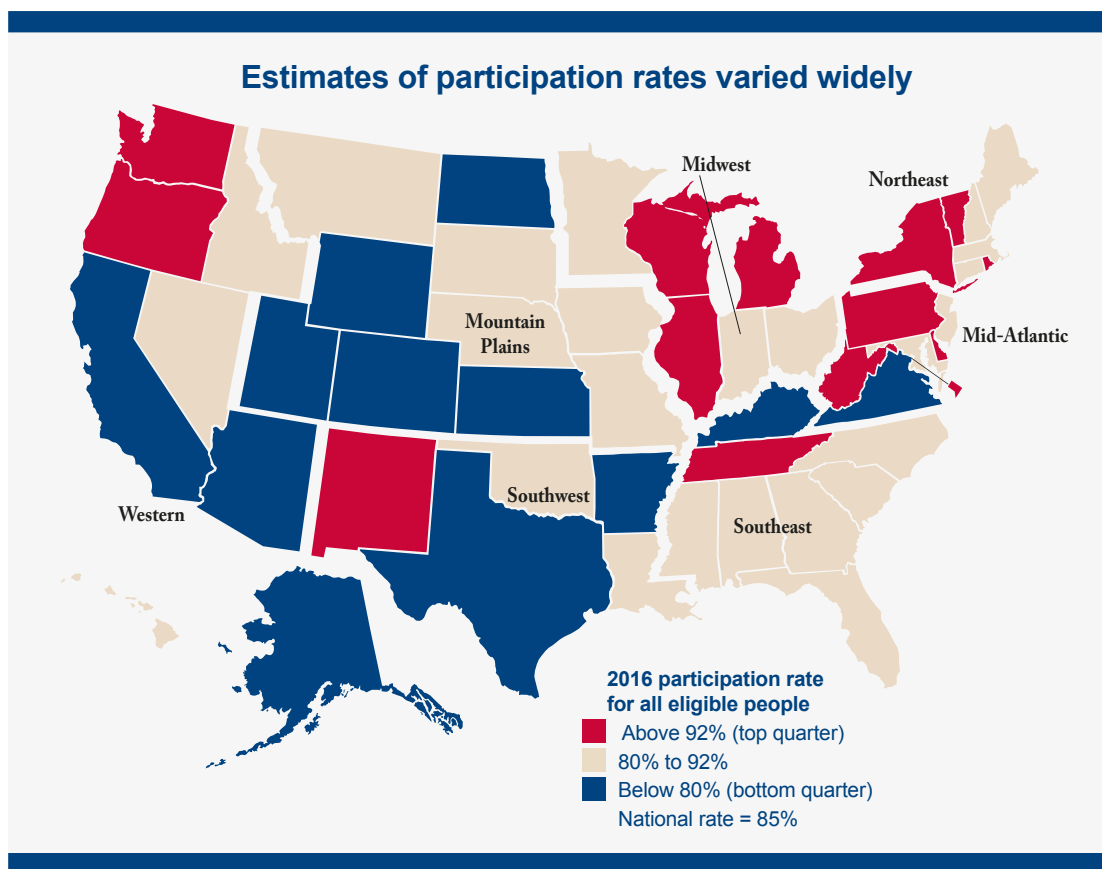
that program were not eligible to receive SNAP benefits at the same time (Cunnyngham 2018b). The Food Distribution Program on Indian Reservations served about 93,000 people in fiscal year 2016, so the effects of such adjustments would be negligible in almost all States. Because the focus in this document 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.

Estimates of participation rates varied widely

2016 participation rate for all eligible people
- Above 92% (top quarter)
- 80% to 92%
- Below 80% (bottom quarter)
National rate = 85%

References

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[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 800,000 more California residents would be eligible for SNAP.