



United States
Department of
Agriculture

Food and
Nutrition
Service

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SUBJECT: 2010 State-Level Estimates of Infants and Pre-School-Age Children at or Below 185 Percent of Poverty

TO: Debra Whitford
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Attached are estimates of the number of infants and children (ages 1-4) in each State who were at or below 185 percent of poverty in 2010. The 2010 estimates are provided for use in the Women, Infants and Children (WIC) funding formula to determine States' fair shares of WIC food funds for fiscal year (FY) 2013. The 2010 estimates are recommended for use in FY 2013 funding allocations because they reflect the most recent data available. These estimates were primarily developed using a "shrinkage" methodology similar to that used to develop estimates used in the funding formula since FY 1995. Estimates for the territories were based on data from the 2000 Census. (Note: these estimates were produced using the Food and Nutrition Service's (FNS) historic shrinkage methodology for use in the funding formula. These estimates are not comparable to the more comprehensive eligibles estimates produced by the Urban Institute under contract with FNS and published on the FNS website in December 2011.)

Nationwide, the estimated number of infants and children (ages 1-4) at or below 185 percent of poverty increased by 2.17 percent from 2009 to 2010. The State-level estimates provided here are consistent with the national number of infants and children at or below 185 percent of poverty. Because the 2010 data will be updating 2009 data for funding formula purposes, comparisons are shown between these two years.

Several States had substantial percentage increases in the estimated counts of low-income infants and children from 2009 to 2010, while others saw substantial decreases. States with an *increase* of 10 percent or more are: Kansas, Louisiana, Maryland, Michigan, and South Carolina. States with a *decrease* of 10 percent or more are: Arizona, the District of Columbia, Maine, North Dakota, and Virginia.

Attached is a brief summary of the estimates and the shrinkage methodology used to develop them. We recommend releasing these materials to the States and other interested organizations on request.

Jay Hirschman
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Attachments

**2010 STATE-LEVEL ESTIMATES OF
INFANTS AND CHILDREN (AGES 1-4)
AT OR BELOW 185 PERCENT OF POVERTY**

Overview

Prior to Fiscal Year (FY) 1995, estimates of the number of infants and children (ages 1-4) at or below 185 percent of poverty were available for Census years only. For the FY 1995-2013 funding allocations, annual estimates have been developed using a statistical technique known as "shrinkage."

Shrinkage is a statistical approach, which combines information from survey samples with other data. For the State estimates of the number of infants and children at or below 185 percent of poverty, shrinkage is used to combine income data from the March Current Population Survey (CPS) with an estimation model that uses other State-level economic data that have been demonstrated to have value in predicting the prevalence of low-income infants and children.

Food Nutrition Service (FNS) has used this methodology to develop State-level estimates of infants and children at or below 185 percent of poverty for 1992-2009. We have now produced estimates for 2010.

Since the territories are not included in the CPS, FNS estimates assume that Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Northern Mariana Islands have the same share of the number of infants and children at or below 185 percent of poverty that they did in 1999. These estimates are based on the 2000 Census (which uses 1999 income data¹). It should be noted that we anticipate that updated Census data from the 2010 Census will be available when we produce the next round of estimates (for 2011). These updated data may significantly change the national share of WIC eligibles estimated to be in Puerto Rico and the territories.

As the most current data, the 2010 estimates should be used for funding allocations for FY 2013.

Results

For 2010, the total number of infants and children at or below 185 percent of poverty in the United States, Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Northern Mariana Islands was estimated to be 9.9 million. Table 1 provides estimates of the number of infants and children at or below 185 percent of poverty in 2010 in each State and territory and the national totals. Also shown are the 2009 shrinkage estimates.

¹ For Puerto Rico, the Census Bureau provided the number of infants and children at or below 185 percent of poverty. For the other territories, the Census Bureau only provided the number of infants and children below 185 percent of poverty and did not provide data on those who were exactly at 185 percent of poverty.

Use of the Estimates in the Funding Formula

State-level estimates of infants and children at or below 185 percent of poverty are used in the funding formula to determine each State's share of the national total of infants and children at or below 185 percent of poverty. This percentage share is used to determine a State's "fair share" of food funds. For example, for a State with 1 percent of the national total of infants and children at or below 185 percent of poverty, the fair share would be 1 percent of the total food funds.

Estimates of pregnant, postpartum and breastfeeding women at or below 185 percent of poverty are not used in determining fair share for the allocation process. Women are estimated as a direct constant function of the number of infants at or below 185 percent of poverty. As a result, inclusion of estimates of women would have no significant impact on the percentage distribution of people at or below 185 percent of poverty among States. Therefore, for simplicity, estimates of pregnant, postpartum, and breastfeeding women are not included in the calculation.

Shrinkage Methodology for Estimates of the Number of Infants and Children at or Below 185 Percent of Poverty

For the estimates, shrinkage is used to develop estimates of the proportion of infants and children in each State in households with incomes at or below 185 percent of poverty. These proportions are then applied to State population estimates of infants and children by single age category.

The shrinkage approach combines estimates obtained directly through surveys (i.e., CPS direct sample data) with estimates produced by an econometric model that used State-level economic data. The direct sample estimates used for the 2010 estimates were the March 2011 CPS Annual Social and Economic Supplement (CPS ASEC) estimates of the proportion of infants and children (ages 1-4) at or below 185 percent of poverty in each State. The econometric model used CPS ASEC data pertaining to 2007 to 2010, American Community Survey (ACS) three-year estimates for 2008 to 2010, and administrative data from individual income tax returns and population estimates pertaining to 2007 to 2010 for all the States to jointly derive estimates for each State.

Note that decennial Census data was the source for the population variables used in prior years' econometric models. Effective with the 2010 Census, the ACS replaces the Census long form. For purposes of this estimate, population variables used in the econometric model are taken from ACS three-year estimates for 2008 to 2010.

The data from the econometric model provides more information to use in developing an estimate. The "shrinkage" estimate that results from the combination of the CPS with these additional data provides an estimate that is more precise than the CPS sample estimates taken alone. The shrinkage technique averages the sample and the model estimates using weights that reflect the relative precision of each estimate². Thus, in cases where the CPS

² Specifically, the weights are chosen to minimize mean squared error (MSE).

estimate has a high standard error, the model estimate would tend to receive more weight than it does in cases where the CPS standard error is lower.

The shrinkage estimates are, for many purposes, superior to either the direct sample estimates or the model estimates. In particular, the shrinkage estimates have substantially lower standard errors than the direct sample estimates.

2010 Estimates

The model estimates were developed using a regression model, which estimates the proportion of infants and children at or below 185 percent of poverty. As in prior years, the regression model for 2010 incorporates both Census and individual income tax data.

The final model for the 2010 estimates had the following predictors (in addition to an intercept):

- the poverty rate for all individuals according to individual income tax data, namely, the percentage of exemptions that are claimed on tax returns with adjusted gross income below the poverty level;
- the poverty rate for children according to individual income tax data, namely, the percentage of exemptions for children that are claimed on tax returns with adjusted gross income below the poverty level;
- the elderly nonfiler rate—the percentage of elderly individuals who were not claimed on tax returns—according to individual income tax data and population estimates;
- the percentage of households with a female householder, no husband present, and related children under 18 years according to ACS three-year estimates;
- the percentage of individuals with household income under 200 percent of the federal poverty level according to ACS three-year estimates; and
- the percentage of children under age 18 with household income under 50 percent of the federal poverty level according to ACS three-year estimates.

The 2010 estimates were based on tax return data and population estimates for 2010 and the 2008–2010 ACS three-year estimates.

	2009	2009	2009	2010	2010	2010
State	Infants	Children (ages 1-4)	Infants + Children (ages 1-4)	Infants	Children (ages 1-4)	Infants + Children (ages 1-4)
Alabama	32,422	132,072	164,494	32,780	133,339	166,119
Alaska	5,251	19,955	25,206	5,186	20,651	25,837
Arizona	54,278	217,360	271,638	46,428	194,274	240,702
Arkansas	21,629	87,491	109,120	22,490	93,140	115,630
California	243,181	964,717	1,207,898	244,741	1,001,691	1,246,432
Colorado	27,597	109,673	137,270	27,046	112,310	139,356
Connecticut	11,102	45,594	56,696	11,293	48,590	59,883
Delaware	4,651	18,651	23,302	4,934	20,387	25,321
District of Columbia	3,633	13,562	17,195	3,058	10,810	13,868
Florida	106,399	428,478	534,877	106,518	439,332	545,850
Georgia	73,369	299,693	373,062	72,359	299,515	371,874
Hawaii	7,798	29,363	37,161	7,001	27,228	34,229
Idaho	12,276	48,624	60,900	12,583	52,320	64,903
Illinois	78,637	309,466	388,103	77,411	319,484	396,895
Indiana	42,034	169,174	211,208	42,383	175,804	218,187
Iowa	15,753	63,125	78,878	15,564	64,817	80,381
Kansas	17,889	70,634	88,523	20,851	84,077	104,928
Kentucky	27,103	111,134	138,237	27,602	113,682	141,284
Louisiana	32,189	129,017	161,206	36,043	146,526	182,569
Maine	5,742	23,832	29,574	4,983	21,346	26,329
Maryland	24,105	95,807	119,912	26,735	109,006	135,741
Massachusetts	22,662	90,638	113,300	21,704	89,662	111,366
Michigan	52,510	208,455	260,965	56,752	237,841	294,593
Minnesota	24,633	98,157	122,790	24,145	100,166	124,311
Mississippi	25,327	103,184	128,511	25,665	108,435	134,100
Missouri	36,255	145,247	181,502	37,140	153,232	190,372
Montana	6,124	23,659	29,783	5,408	22,389	27,797
Nebraska	10,735	41,263	51,998	11,256	45,624	56,880
Nevada	17,289	70,077	87,366	17,635	72,549	90,184
New Hampshire	3,628	15,437	19,065	3,193	13,978	17,171
New Jersey	32,901	132,330	165,231	33,775	139,649	173,424
New Mexico	16,527	66,153	82,680	17,010	70,056	87,066
New York	106,811	420,213	527,024	106,351	422,107	528,458
North Carolina	63,409	255,295	318,704	64,970	267,128	332,098
North Dakota	3,436	12,891	16,327	2,840	11,357	14,197
Ohio	65,779	263,517	329,296	64,478	269,692	334,170
Oklahoma	27,427	108,943	136,370	28,159	114,773	142,932
Oregon	21,431	85,466	106,897	21,211	88,081	109,292
Pennsylvania	52,104	211,856	263,960	54,823	227,476	282,299
Rhode Island	5,028	19,701	24,729	4,641	19,643	24,284
South Carolina	27,176	112,147	139,323	32,431	133,330	165,761
South Dakota	5,928	22,717	28,645	5,627	23,196	28,823
Tennessee	43,197	172,844	216,041	40,428	167,979	208,407
Texas	221,110	887,706	1,108,816	219,821	890,443	1,110,264
Utah	21,936	83,372	105,308	21,758	87,254	109,012
Vermont	2,405	9,594	11,999	2,159	9,423	11,582
Virginia	38,953	155,224	194,177	32,504	132,623	165,127
Washington	36,287	146,508	182,795	36,342	146,891	183,233
West Virginia	9,037	37,653	46,690	8,374	34,794	43,168
Wisconsin	28,129	111,992	140,121	27,327	113,633	140,960
Wyoming	3,114	12,208	15,322	3,143	13,089	16,232
United States	1,878,326	7,511,869	9,390,195	1,879,059	7,714,822	9,593,881
Puerto Rico	59,927	239,661	299,588	59,950	246,136	306,086
Virgin Islands	1,494	5,976	7,470	1,494	6,138	7,632
Guam	2,398	9,593	11,991	2,399	9,852	12,251
American Samoa	1,862	7,446	9,308	1,863	7,647	9,510
CNMI	1,204	4,137	5,341	1,204	4,253	5,457
Total- US + territories	1,945,211	7,778,682	9,723,893	1,945,970	7,988,847	9,934,817