

**Small Area
Income and Poverty Estimates
(SAIPE)
for School Districts,
Counties and States**

2008 Highlights

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Small Area Estimates Branch (SAEB)

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Small Area Income and Poverty Estimates (SAIPE) for School Districts, Counties and States: 2008 Highlights

Introduction

This document presents 2008 data from the Small Area Income and Poverty Estimates (SAIPE) program of the U.S. Census Bureau.¹ The SAIPE program produces poverty estimates annually for all school districts in the United States, as well as poverty and median household income estimates annually for all counties and states.²

SAIPE Data

For School Districts:

- Total population
- Children ages 5 to 17
- Children ages 5 to 17 in families in poverty

For Counties and States:

- All people in poverty
- Children under age 18 in poverty
- Children ages 5 to 17 in families in poverty
- Children under age 5 in poverty (states only)
- Median household income

The main objective of the SAIPE program is to provide timely, reliable estimates of income and poverty statistics for the administration of federal programs and the allocation of federal funds to local jurisdictions. In addition, some state and local programs use SAIPE income and poverty estimates to distribute funds and manage programs.

Small Area Estimation

Small area estimation is the use of statistical models to combine survey and administrative data to improve the reliability of survey estimates and extend their scope. It provides reliable estimates for geographic areas or population subgroups with small samples or even no sample. The development of small area estimation is highly related to the work of Robert E. Fay III and Roger A. Herriot of the U.S. Census Bureau. In 1979 Fay and Herriot published a paper in the *Journal of the American Statistical Association* showing how the statistical technique of shrinkage estimation could combine survey and administrative records data via statistical models to produce improved estimates for small areas. They used their approach to improve 1970 census long-form estimates of per capita income that were used to annually determine allocations of general revenue sharing funds for 39,000 local governmental units. This paved the way for other such applications by government statistical agencies, including the Census Bureau's Small Area Income and Poverty Estimates (SAIPE) program, begun in the 1990s to provide poverty estimates for school districts, counties and states.

The SAIPE estimates improve upon direct survey estimates by borrowing strength from administrative records, intercensal population estimates, and decennial census data. The modeling techniques allow SAIPE to publish single-year estimates for all school districts and counties annually, regardless of population size. The SAIPE estimates are broadly consistent with the direct survey estimates, but, with the help of other timely information, the SAIPE estimates are more precise than the survey estimates alone in most cases.

A related program to SAIPE is the Small Area Health Insurance Estimates (SAHIE) program, which produces estimates of health insurance coverage for all counties and states. Information about the SAHIE program is available at <http://www.census.gov/did/www/sahie/index.html>.

¹ The estimates in this document (which may be shown in text, figures and tables) are indirect estimates produced by statistical model-based methods. The estimates contain uncertainty stemming from model error, sampling error, and nonsampling error. As a result, apparent differences between pairs or groups of estimates may not be statistically significant. Information about uncertainty in the SAIPE estimates is available at: <http://www.census.gov/did/www/saipe/methods/index.html>.

² To maintain confidentiality, the Census Bureau uses procedures to assure that the estimates and related information that are released cannot be used to disclose individual data or violate other confidentiality restrictions applicable to the source data.

Data Highlights

This section presents data from the 2008 SAIPE release, including the lowest and highest estimates, summaries by metro/micro area status and by region, and maps by county.

Readers are cautioned that the SAIPE estimates contain uncertainty stemming from model error, sampling error, and nonsampling error (see footnote 1). As a result, apparent differences between SAIPE estimates may not be statistically significant, even if there is no overlap in the confidence intervals.

County Poverty and Median Household Income

The 2008 SAIPE data contain estimates for nearly all counties in the United States (3,141 counties).³ The poverty rate estimates (all ages) range from about 3 percent to about 55 percent (Figure 1).⁴ The median household income estimates range from about \$20,000 to about \$110,000 (Figure 3).

Figures 1 and 3 display some of the lowest and highest SAIPE county estimates by census region⁵—Midwest, Northeast, South, West—and by metro/micro area status⁶—metropolitan statistical area, micropolitan statistical area, and other. The margins of error shown correspond to 90-percent confidence intervals.⁷

Extended tables of the 30 lowest and highest individual SAIPE county estimates (and their corresponding margins of error) are available on the SAIPE program's web site,

<http://www.census.gov/did/www/saipe/data/highlights/2008.html>.

Figures 2 and 4 are county-level maps of the 2008 SAIPE estimates of poverty rate (all ages) and median household income, respectively.

In the 2008 SAIPE data, a majority of people, an estimated 62.9 percent, reside in counties with poverty rate estimates between 10 and 20 percent. An estimated 27.9 percent of people reside in counties with poverty rate estimates below 10 percent, and an estimated 9.2 percent of people reside in counties with poverty rate estimates above 20 percent (Figures 6 and 7, leftmost bars).

Figure 6 depicts SAIPE poverty data (all ages) by census region. In the Midwest, an estimated 5.2 percent of people live in counties with poverty rate estimates above 20 percent. In the Northeast, the estimate is 10.2 percent; in the South, the estimate

is 13.3 percent; and in the West the estimate is 5.8 percent.

Figure 7 displays SAIPE poverty data (all ages) by metro/micro area status. [A map depicting metro/micro area status by county is included in Figure 5.] In metro areas, an estimated 6.8 percent of people live in counties with poverty rate estimates above 20 percent. In micro areas, the estimate is 17.8 percent; and in counties not in metro or micro areas, the estimate is 27.1 percent.

Figure 8 provides summary information for all counties, with detail by census region and by metro/micro area status. For instance, metro areas contain an estimated 34.8 percent of the 3,141 counties, an estimated 83.7 percent of the population, and an estimated 80.0 percent of the persons in poverty.

³ One county is not included: Kalawao County, Hawaii.

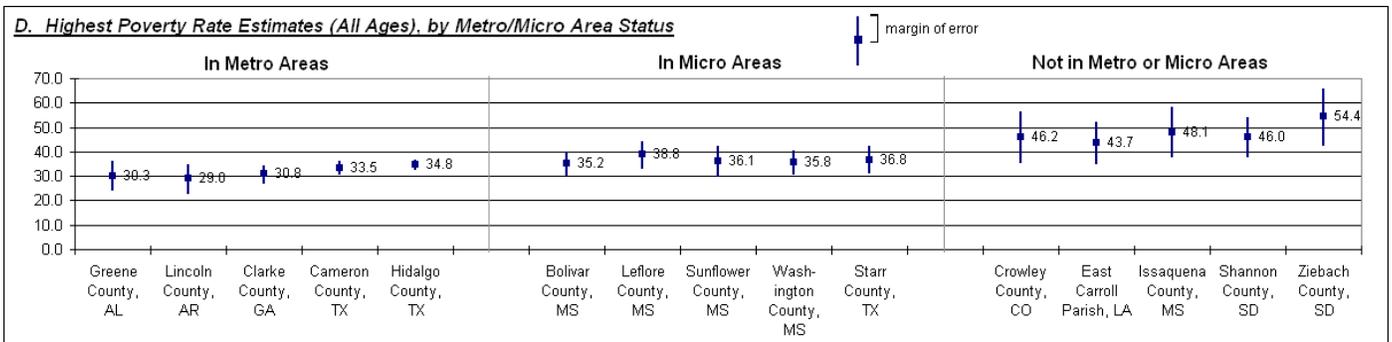
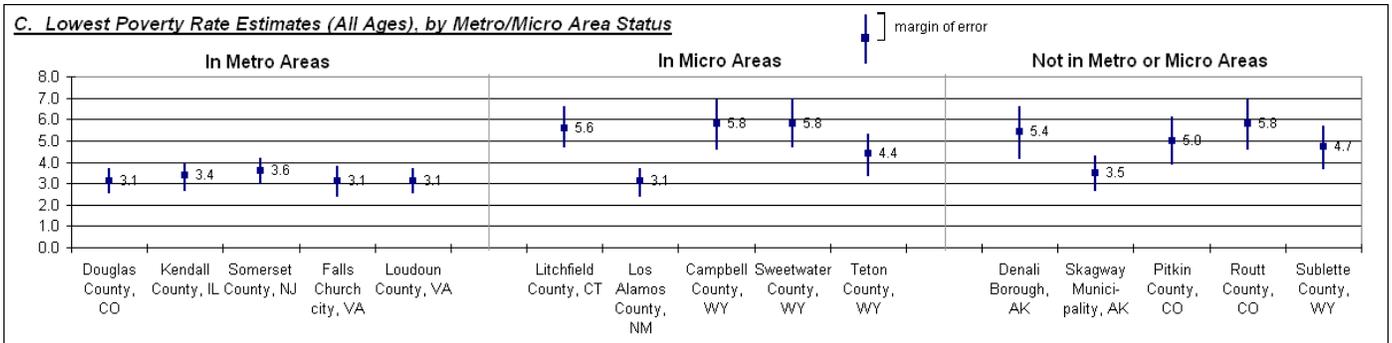
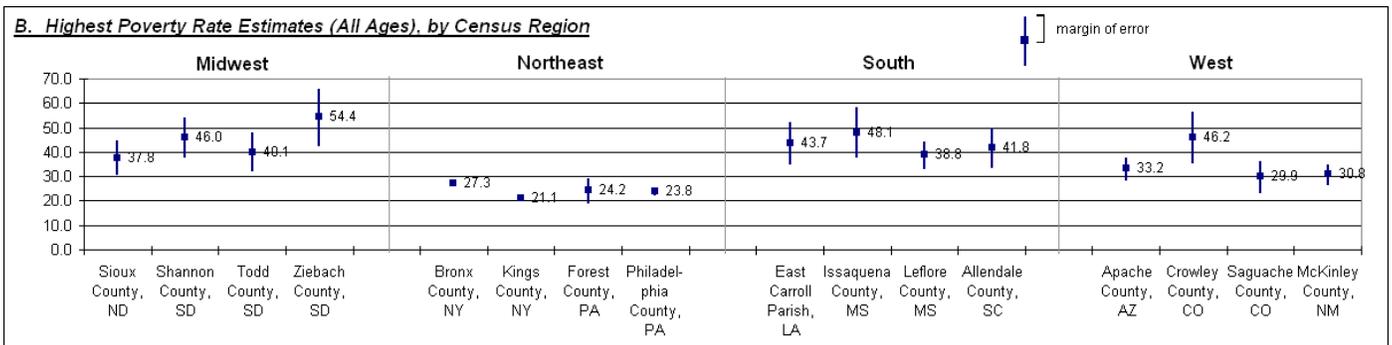
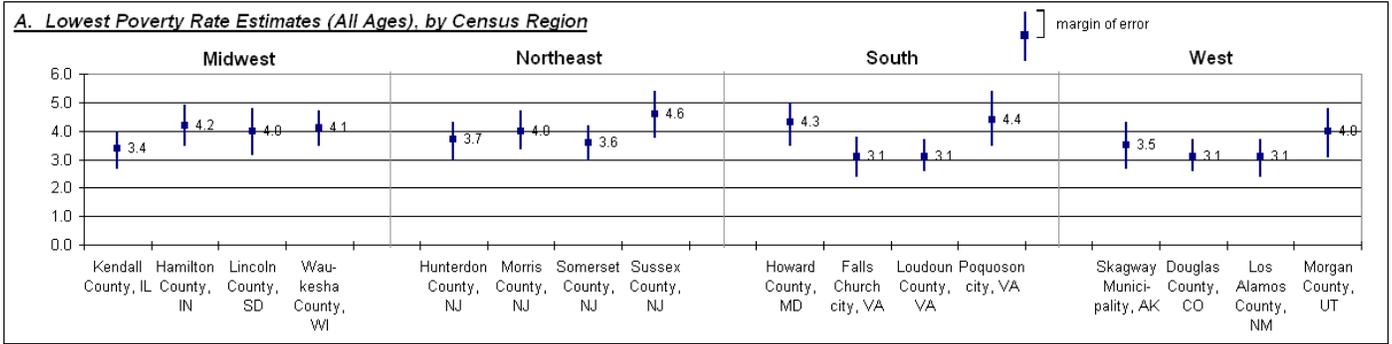
⁴ Poverty status is determined for persons living in households and for persons living in certain types of non-institutional group quarters housing. The poverty universe definition for SAIPE is the same as that in the American Community Survey (ACS). More information is available at <http://www.census.gov/hhes/www/poverty/definitions.html>.

⁵ The census regions categorize the 50 states and the District of Columbia geographically into four groups: Midwest, Northeast, South and West. Further information is available at <http://www.census.gov/geo/www/reference.html>.

⁶ Metro/micro area status is described in the text box on page 10 and is shown by county in the Figure 5 map.

⁷ A margin of error (MOE) is a measure of the precision of an estimate at a given level of confidence (e.g., 90-, 95-, 99-percent). In the case of a 90-percent level of confidence, the data user could be 90 percent certain that the estimate and the actual value differ by no more than the value of the MOE. The endpoints of the confidence interval are computed as the estimate plus or minus the MOE.

Figure 1: Lowest and Highest SAIPE County Poverty Rate Estimates (2008), by Census Region and by Metro/Micro Area Status *



* Apparent differences between estimates for counties shown or not shown may not be statistically significant, even if there is no overlap in their confidence intervals.

Source: Small Area Income and Poverty Estimates (SAIPE) program, U.S. Census Bureau

Figure 2: Map of SAIPe County Poverty Rate Estimates (2008)

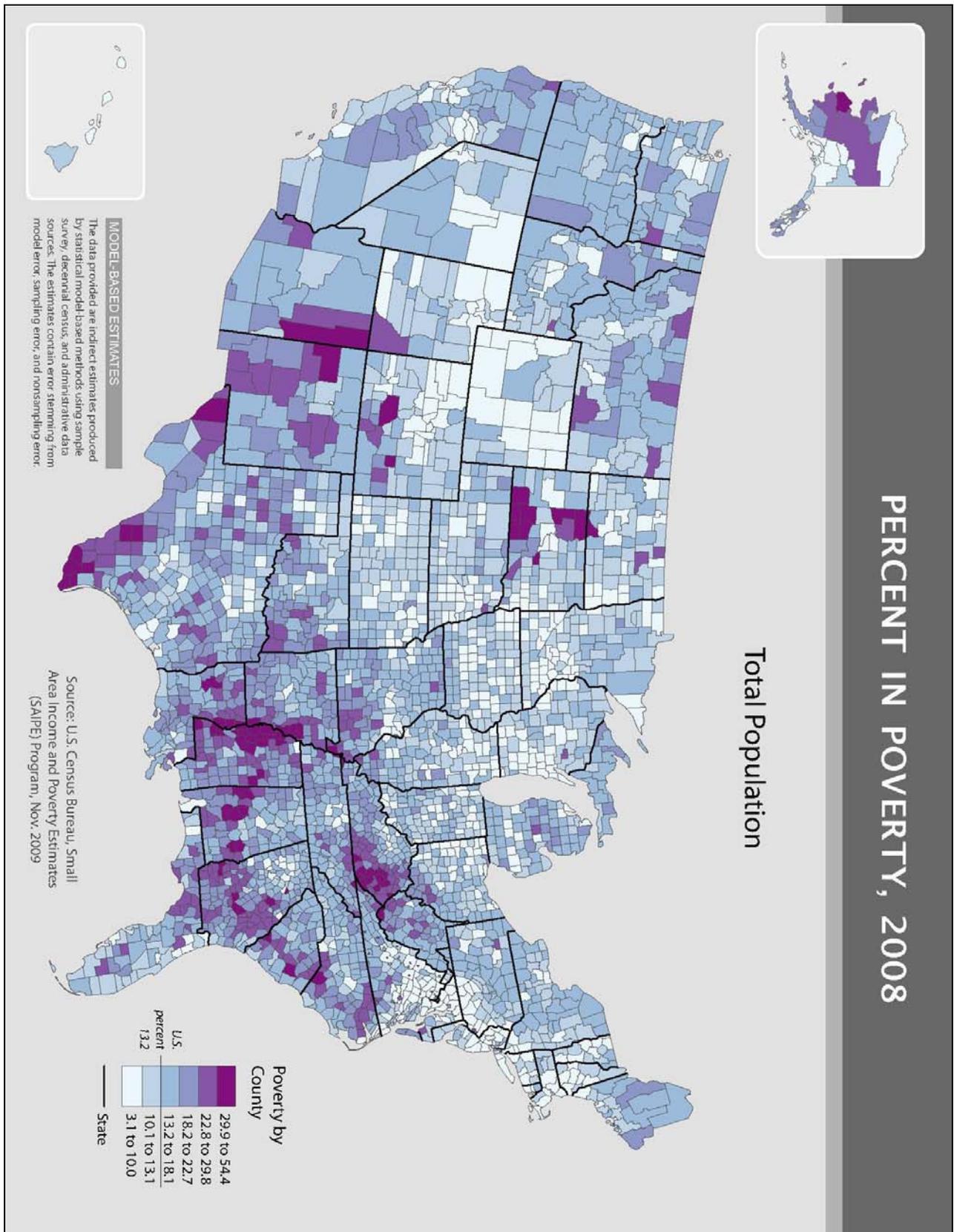
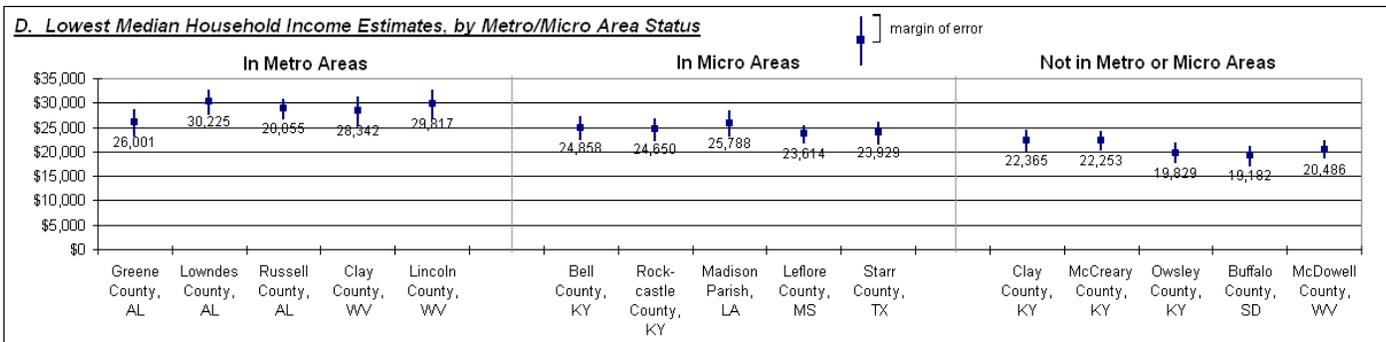
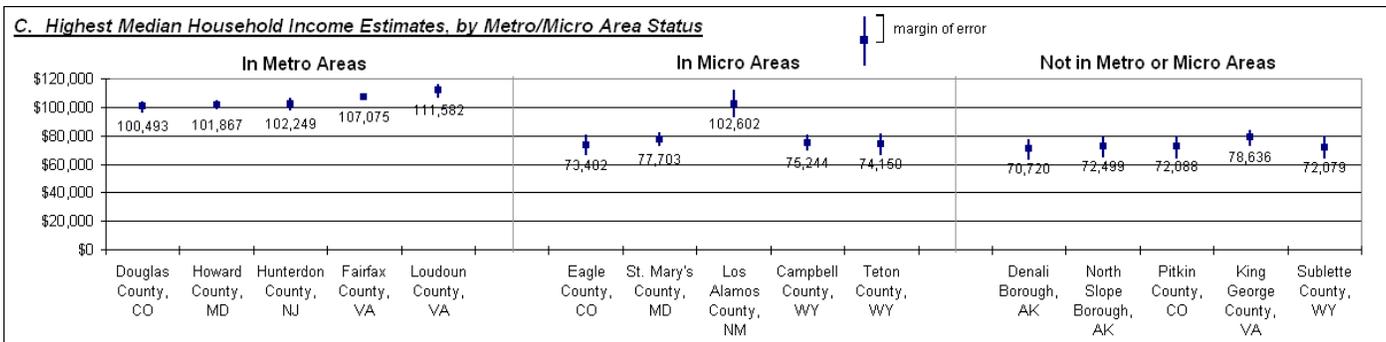
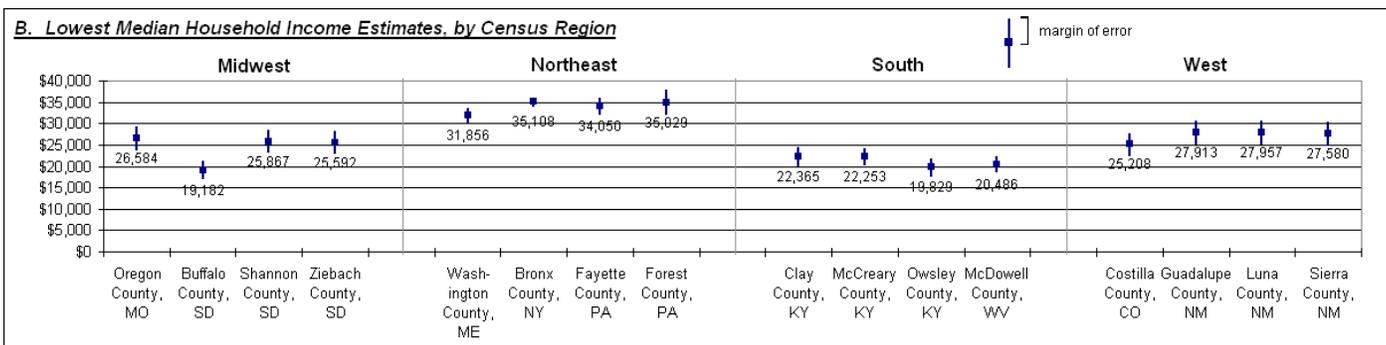
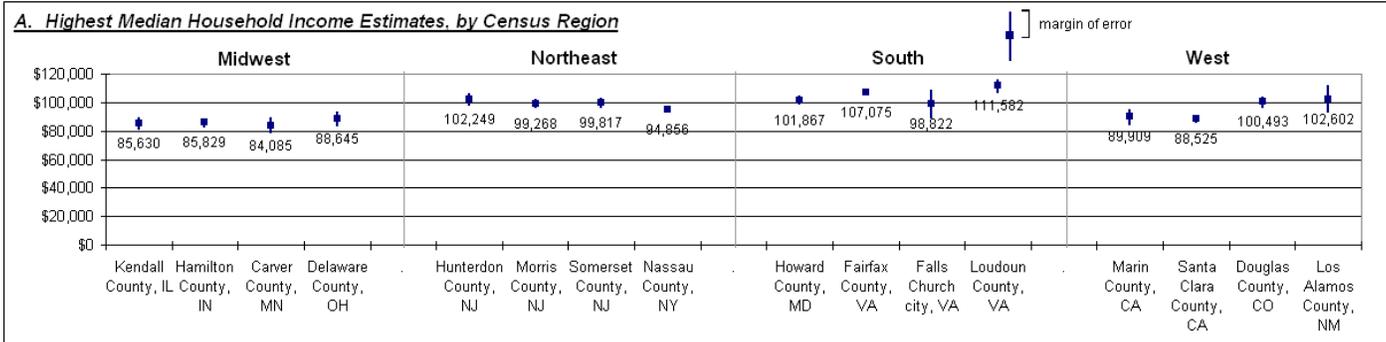


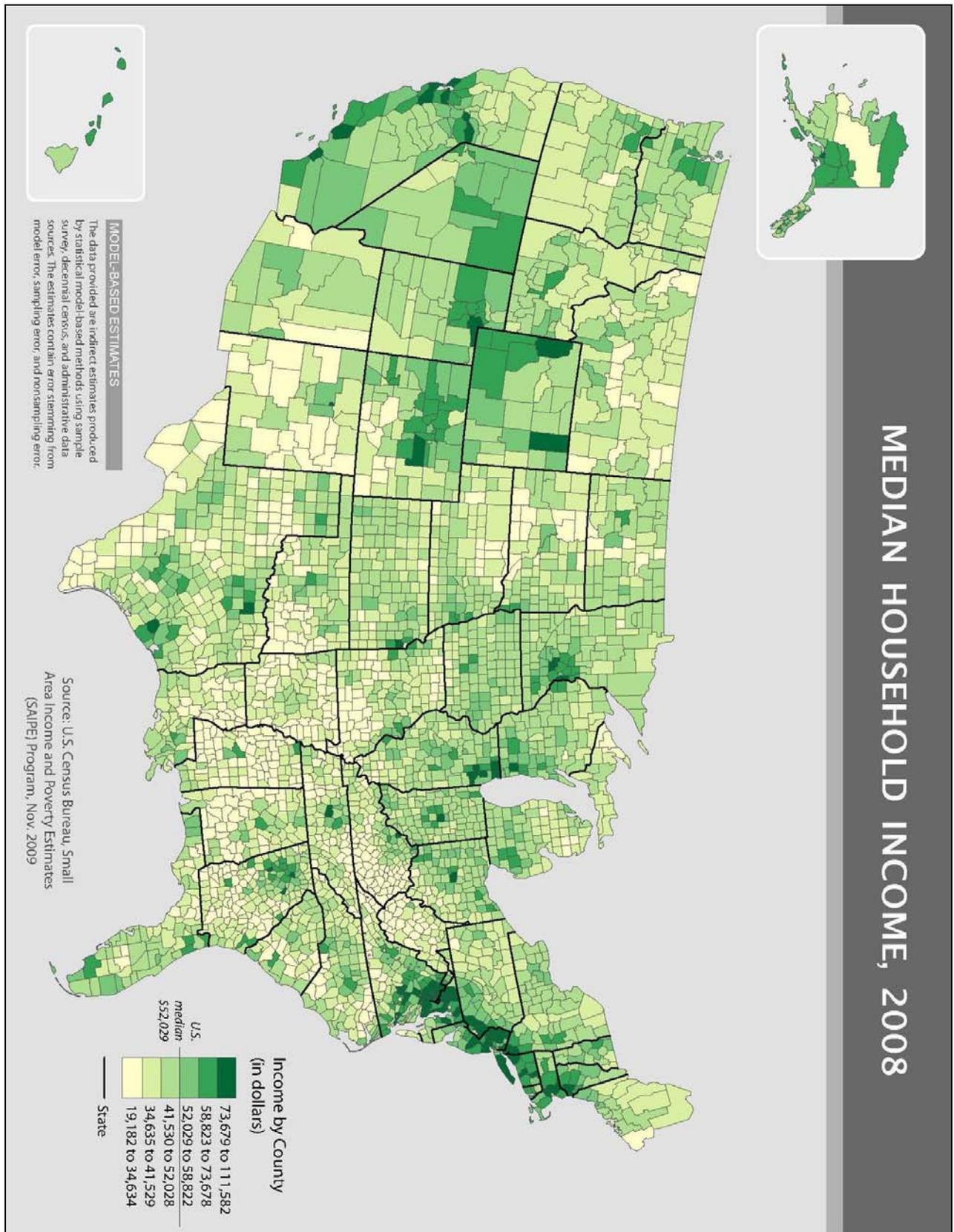
Figure 3: Highest and Lowest SAIPE County Median Household Income Estimates (2008), by Census Region and by Metro/Micro Area Status *



* Apparent differences between estimates for counties shown or not shown may not be statistically significant, even if there is no overlap in their confidence intervals.

Source: Small Area Income and Poverty Estimates (SAIPE) program, U.S. Census Bureau

Figure 4: Map of SAYPE County Median Household Income Estimates (2008)



Metropolitan and Micropolitan Statistical Areas

Metropolitan and micropolitan statistical areas (metro and micro areas) are geographic entities defined by the U.S. Office of Management and Budget (OMB) for use by federal statistical agencies in collecting, tabulating and publishing federal statistics. They are the result of the application of published OMB standards to Census Bureau data. A metro area contains a core urban area of 50,000 or more population, and a micro area contains an urban core of at least 10,000 (but less than 50,000) population. Each metro or micro area consists of one or more counties and includes the counties containing the core urban area, as well as any adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core.

Figure 5 is a map depicting metro/micro area status by county. Information about metro and micro areas, which are also known as "Core Based Statistical Areas (CBSA)," is available at <http://www.census.gov/population/www/metroareas/metroarea.html>.

Figure 5: Map of Counties by Metro/Micro Area Status

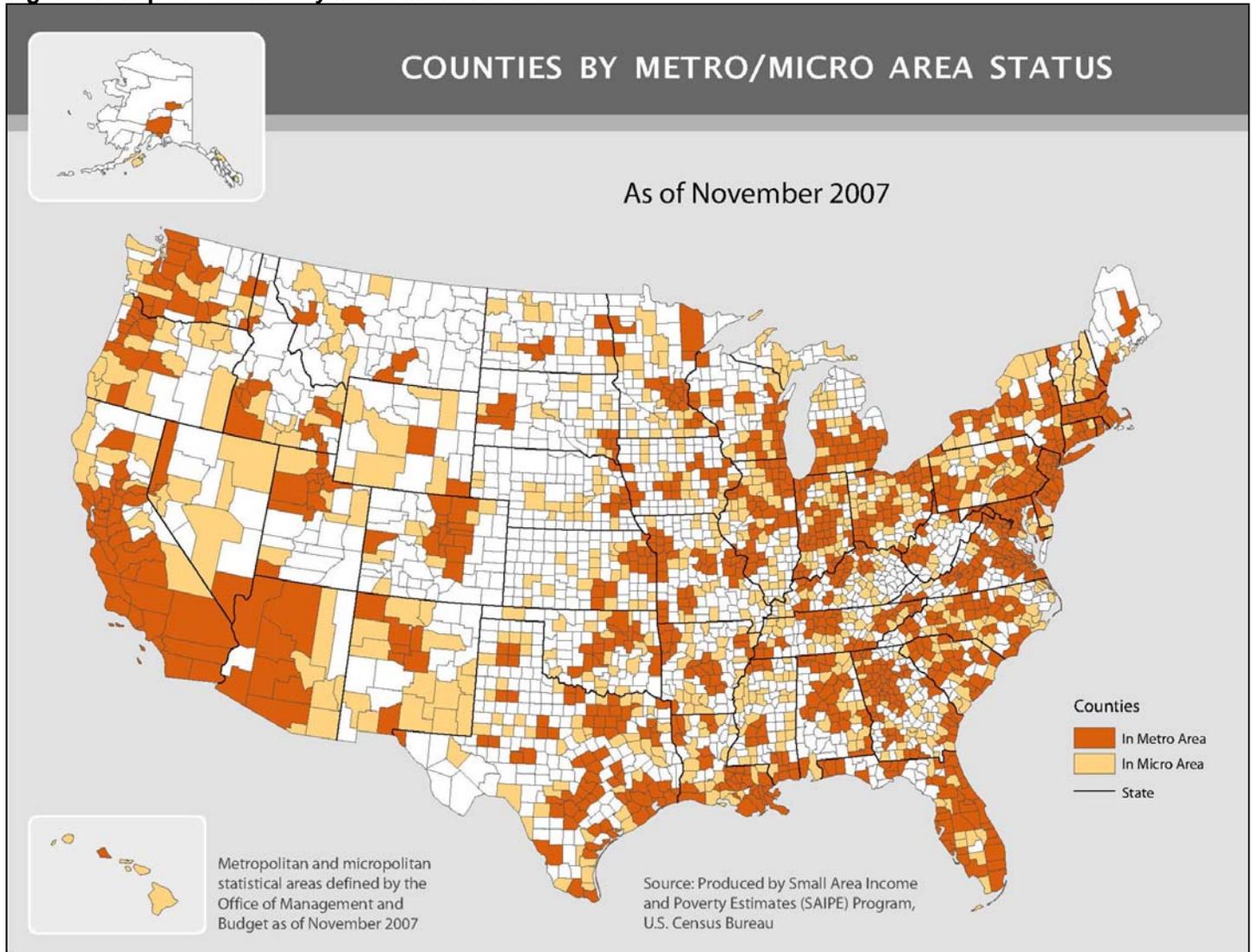


Figure 6: Percentage of Population by County Poverty Rate (2008), by Census Region *

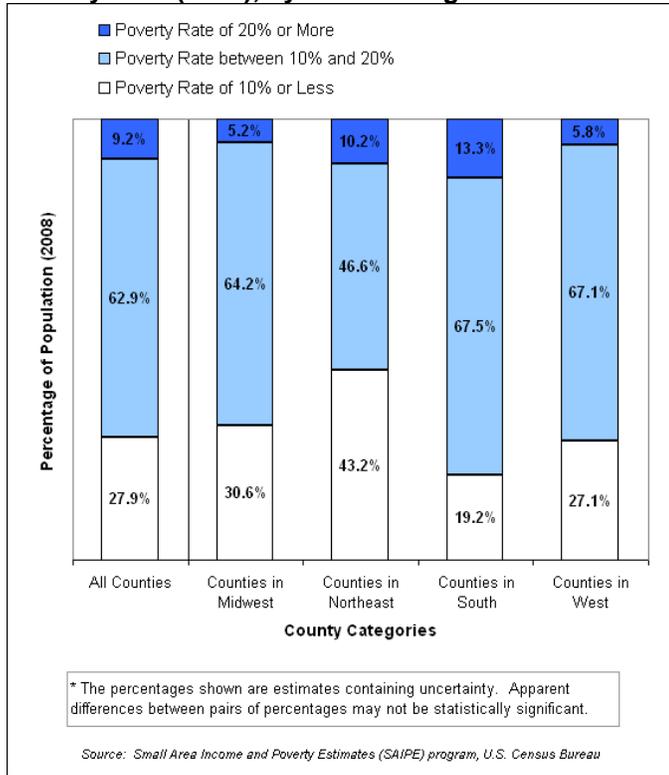


Figure 7: Percentage of Population by County Poverty Rate (2008), by Metro/Micro Area Status *

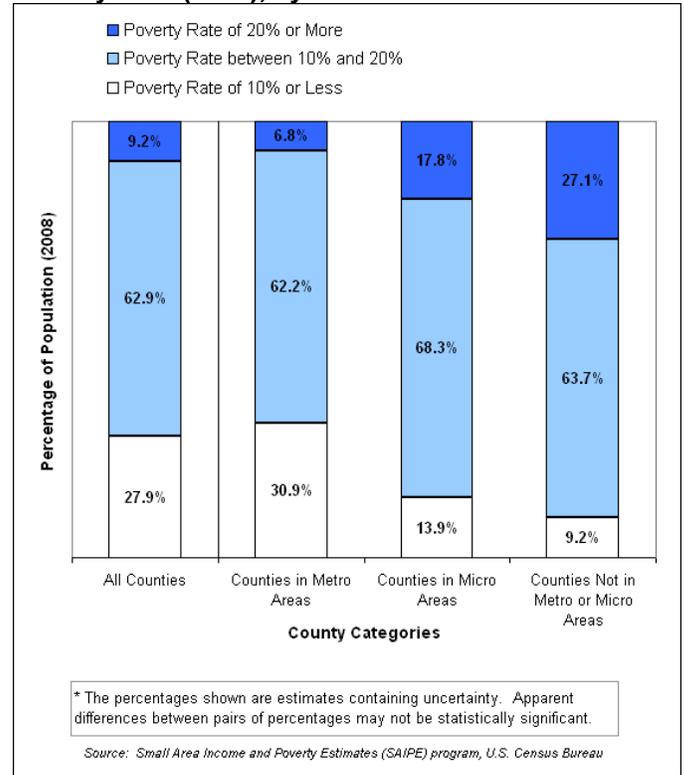


Figure 8: County Summary—2008 SAIPE Estimates, by Census Region and Metro/Micro Area Status *

row #	Category	Counties	Persons for Whom Poverty Status is Measured	Persons in SAIPE Poverty	Counties	Persons for Whom Poverty Status is Measured	Persons in SAIPE Poverty
		Number			Percent		
1	All Counties	3,141	296,184,480	39,108,422	100.0%	100.0%	100.0%
2	Counties in Midwest	1,055	64,722,762	8,053,321	33.6%	21.9%	20.6%
3	Counties in Northeast	217	53,311,888	6,176,549	6.9%	18.0%	15.8%
4	Counties in South	1,423	108,732,023	15,965,945	45.3%	36.7%	40.8%
5	Counties in West	446	69,417,807	8,912,608	14.2%	23.4%	22.8%
6	Counties in Metro Areas	1,092	248,176,416	31,375,552	34.8%	83.8%	80.2%
7	Counties in Micro Areas	694	29,461,216	4,584,818	22.1%	9.9%	11.7%
8	Counties not in Metro or Micro Areas	1,355	18,546,848	3,148,053	43.2%	6.3%	8.0%

* The data shown are estimates containing uncertainty. Apparent differences among the estimates may not be statistically significant.

Source: Small Area Income and Poverty Estimates (SAIPE) program, U.S. Census Bureau

School District Poverty

The 2008 SAIPE data contain estimates for all school districts in the Title I universe (13,753 school districts).⁸ In this document, the population of children ages 5 to 17⁹ is referred to as "school-age children," and children ages 5 to 17 in families¹⁰ in poverty are referred to as "school-age children in poverty."

Figure 9 shows summary information for all school districts, with detail by total population category.¹¹ School-age children, as well as school-age children in poverty, tend to be concentrated in school districts with population size of 20,000 or more. In 2008, an estimated 23.8 percent of school districts have total population size of 20,000 or more. These 23.8 percent of school districts house an estimated 80.2 percent of school-age children and an estimated 81.0 percent of school-age children in poverty.

In the 2008 SAIPE data, an estimated 40.2 percent of school-age children reside in school districts with poverty ratio estimates between 10 and 20 percent.¹² An estimated 28.5 percent of school-age children reside in districts with poverty ratio estimates below 10 percent, and an estimated 31.3 percent of school-age children reside in districts with poverty ratio estimates greater than 20 percent (Figure 10, top row).

Viewing the SAIPE poverty data separately by state suggests a wide range of variation (Figure 10). It is estimated that in some states most of the school-age children reside in districts with poverty ratios less than 10 percent, while in other states most of the school-age children reside in districts with poverty ratios greater than 20 percent. Most states have a pattern somewhere in between, exhibiting a mix of poverty ratio categories.

Figure 11 visually presents the poverty data from Figure 10.

⁸ The Title I universe is the set of U.S. school districts for which Title I of the No Child Left Behind Act of 2001 pertains. There are 13,753 such school districts as of January 1, 2008.

⁹ The term, "children ages 5 to 17," refers to an estimate of the number of children who live within the geographic boundaries of the school district and who are in the appropriate grade ranges. It is not a measure of school district enrollment.

¹⁰ The term, "children in families," denotes children who are related to the householder by birth, marriage or adoption. For example, foster children are not counted in families.

¹¹ A small set of geographic areas is not associated with any school district. The estimates quoted in this section are conceptually different from state and national estimates because these undefined geographic areas are not included.

¹² Poverty ratios for school districts are computed as the number of children ages 5 to 17 in families in poverty divided by the number of children ages 5 to 17. Thus children not in families (e.g., foster children) are included in the denominator but are not included in the numerator.

Figure 9: School District Summary—2008 SAIPE Estimates, by School District Population Size Category *

row #	School District Categories [SD stands for "School Districts"]	School Districts	Children Ages 5 to 17	Children Ages 5 to 17 in Families in Poverty	School Districts	Children Ages 5 to 17	Children Ages 5 to 17 in Families in Poverty
		Number			Percent		
1	All SD	13,753	52,929,553	8,547,931	100.0%	100.0%	100.0%
2	SD with total population size less than 20,000	10,480	10,490,302	1,622,095	76.2%	19.8%	19.0%
3	SD with total population size 20,000 or larger	3,273	42,439,251	6,925,836	23.8%	80.2%	81.0%

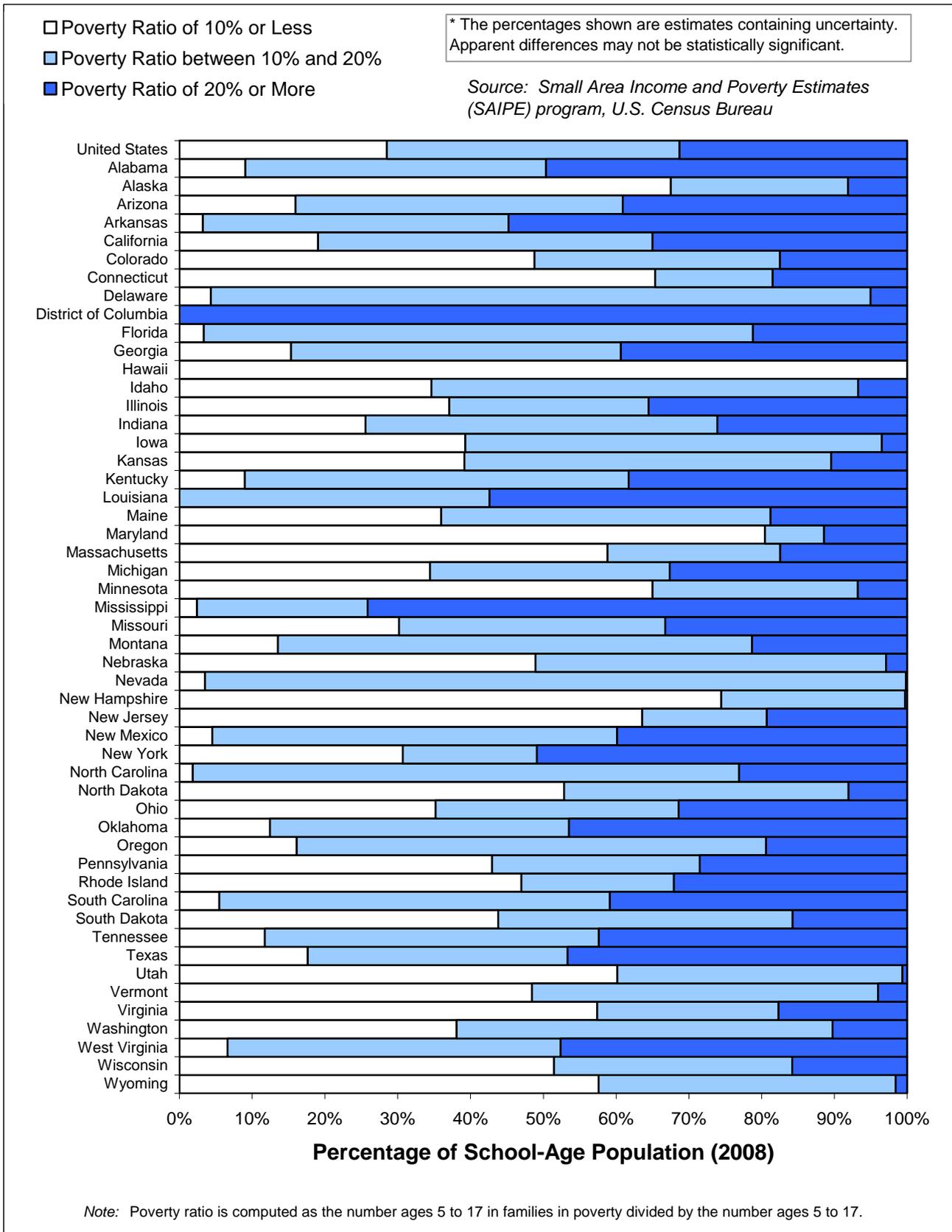
* The data shown are estimates containing uncertainty. Apparent differences among the estimates may not be statistically significant. The estimates shown are conceptually different from national estimates because some undefined geographic areas are not included in these estimates (see footnote 11).
Source: Small Area Income and Poverty Estimates (SAIPE) program, U.S. Census Bureau

Figure 10: Percentage of School-Age Population by School District Poverty Ratio (2008), by State *

Name	Number of Districts	Ages 5 to 17 Population	Less than 10%	10% to 20%	More than 20%
United States	13,753	52,929,553	28.5%	40.2%	31.3%
Alabama	133	811,373	9.1%	41.3%	49.6%
Alaska	53	127,793	67.5%	24.3%	8.1%
Arizona	231	1,188,487	16.0%	44.9%	39.1%
Arkansas	252	500,411	3.2%	42.0%	54.8%
California	977	6,658,087	19.1%	46.0%	35.0%
Colorado	178	848,855	48.8%	33.7%	17.5%
Connecticut	166	600,576	65.4%	16.2%	18.5%
Delaware	16	146,910	4.3%	90.6%	5.0%
District of Columbia	1	75,664	0.0%	0.0%	100.0%
Florida	67	2,863,755	3.4%	75.5%	21.2%
Georgia	183	1,808,320	15.3%	45.3%	39.3%
Hawaii	1	198,036	100.0%	0.0%	0.0%
Idaho	115	290,894	34.6%	58.6%	6.7%
Illinois	870	2,284,892	37.1%	27.4%	35.6%
Indiana	292	1,141,354	25.6%	48.3%	26.1%
Iowa	364	511,291	39.3%	57.3%	3.5%
Kansas	299	497,956	39.2%	50.4%	10.5%
Kentucky	176	723,462	9.0%	52.7%	38.3%
Louisiana	69	797,257	0.0%	42.6%	57.4%
Maine	300	203,408	36.0%	45.2%	18.8%
Maryland	24	968,796	80.5%	8.1%	11.4%
Massachusetts	303	1,043,465	58.8%	23.7%	17.5%
Michigan	552	1,764,672	34.5%	32.9%	32.6%
Minnesota	343	896,173	65.0%	28.2%	6.8%
Mississippi	149	545,907	2.4%	23.4%	74.2%
Missouri	522	1,022,019	30.2%	36.6%	33.2%
Montana	430	159,244	13.5%	65.1%	21.3%
Nebraska	255	314,903	48.9%	48.2%	2.9%
Nevada	17	468,626	3.5%	96.3%	0.2%
New Hampshire	176	218,060	74.5%	25.3%	0.3%
New Jersey	574	1,490,161	63.6%	17.1%	19.3%
New Mexico	89	354,127	4.5%	55.6%	39.8%
New York	685	3,197,994	30.7%	18.4%	50.9%
North Carolina	118	1,590,854	1.8%	75.1%	23.1%
North Dakota	191	101,152	52.8%	39.1%	8.0%
Ohio	614	1,986,618	35.2%	33.4%	31.4%
Oklahoma	539	639,488	12.4%	41.1%	46.5%
Oregon	197	624,092	16.1%	64.5%	19.4%
Pennsylvania	501	2,024,542	43.0%	28.5%	28.5%
Rhode Island	36	167,606	47.0%	21.0%	32.1%
South Carolina	87	763,202	5.5%	53.6%	40.9%
South Dakota	165	139,743	43.8%	40.5%	15.7%
Tennessee	136	1,062,260	11.8%	45.9%	42.4%
Texas	1,031	4,698,464	17.6%	35.7%	46.7%
Utah	40	580,719	60.2%	39.2%	0.7%
Vermont	274	96,295	48.4%	47.6%	4.0%
Virginia	138	1,300,529	57.4%	24.9%	17.7%
Washington	295	1,108,056	38.1%	51.7%	10.3%
West Virginia	55	280,723	6.6%	45.8%	47.6%
Wisconsin	426	952,132	51.5%	32.7%	15.8%
Wyoming	48	90,150	57.6%	40.8%	1.6%

* The data shown are estimates containing uncertainty. Apparent differences among the estimates may not be statistically significant. The estimates shown are conceptually different from state estimates because some undefined geographic areas are not included in these estimates (see footnote 11).
 Note: Poverty ratio is computed as the number ages 5 to 17 in families in poverty divided by the number ages 5 to 17.
 Source: Small Area Income and Poverty Estimates (SAIPE) program, U.S. Census Bureau

Figure 11: Graph of Percentage of School-Age Population by School District Poverty Ratio (2008), by State *



Source Information

This section provides background for the SAIPE estimates, including data inputs, estimation steps, program history, and web site features.

Overview of SAIPE Methodology

The SAIPE program models poverty, as measured by the American Community Survey (ACS), at the county and state levels. Synthetic-share methods are used to estimate poverty at the school district level. The poverty estimates for the different geographic levels aggregate: the school districts are controlled to sum to their respective counties; the counties are controlled to sum to their respective states; and the states are controlled to sum to the ACS estimate for the United States.

For counties and states (Figure 12), during SAIPE model-fitting the ACS estimates are brought together with the various income and poverty correlates. The models estimate trend relations between the ACS estimates and the basket of tax poverty, tax non-filers, SNAP participation, Census 2000 poverty (from census long form) and other data. [These data sources are described on page 16.] Then the resulting model predictions are combined with the ACS estimates again, on the basis of relative precision, in order to produce the SAIPE county and state estimates. The county and state models are run sequentially and independently.

For school districts (Figure 13), within-county shares of poverty and population are computed from Census 2000 long-form data and the latest available IRS data. School district population estimates are produced by the Census Bureau's Population Division and are provided to SAIPE. The within-county Census 2000 and IRS shares are applied to the county poverty and population estimates in order to obtain estimated district poverty ratios. These poverty ratios are then applied to the school district population estimates in order to produce the SAIPE school district poverty estimates.

The "SAIPE Models" section on page 20 contains additional information about SAIPE methodology. For model details, such as the variables for each equation, see the SAIPE program's web site, <http://www.census.gov/did/www/saipe/methods/index.html>.

The income and poverty concepts measured by SAIPE are by definition the same as those measured by the ACS. These concepts, including the poverty thresholds applied, are described in detail at <http://www.census.gov/hhes/www/poverty/definitions.html>.

Figure 12: Overview of SAIPE Methods (County and State)

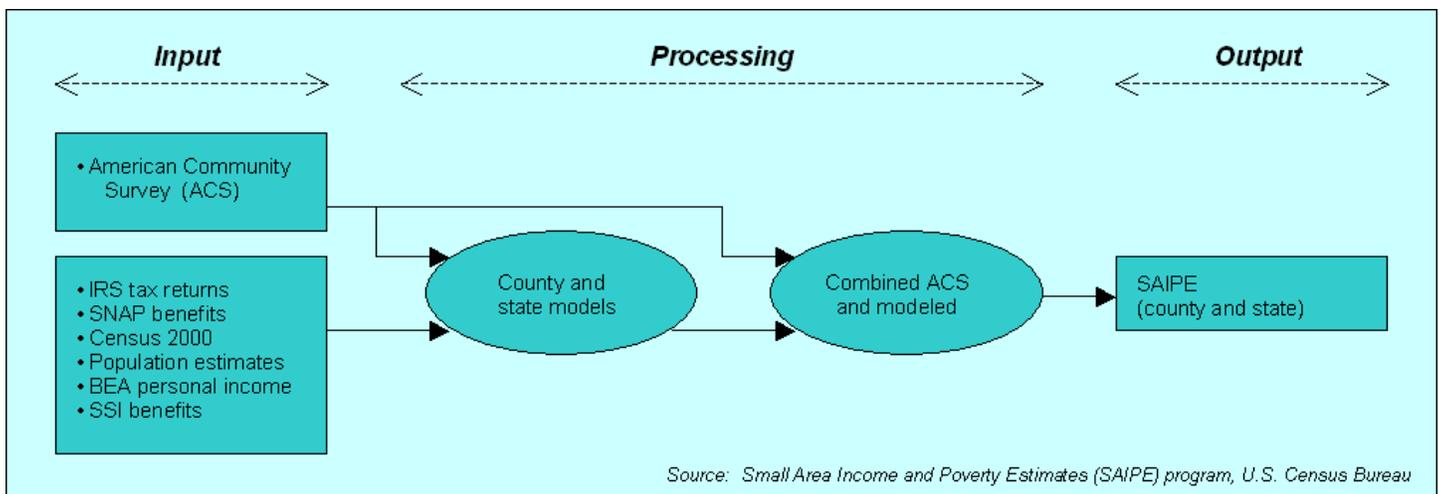
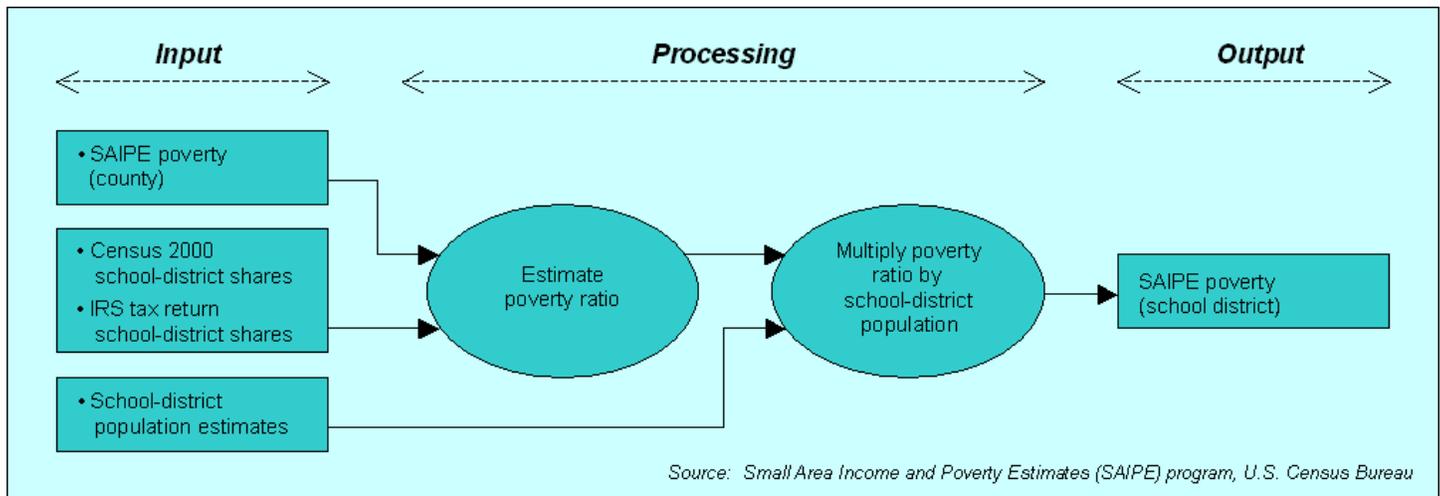


Figure 13: Overview of SAIPE Methods (School District)



School District Grade Relevance and Boundary Updates

Grade relevance refers to the grades served by school districts in a particular geographic area. For example, one district may provide secondary education for grades 9 through 12, while another district in the same geographic area may provide elementary education for grades Kindergarten through 8. These two districts thus occupy the same territory and can be said to have overlapping boundaries. In the SAIPE program's computations, each child is assigned to a specific grade and counted among either the secondary or elementary school-age population in that area. This is done based on the child's age in the decennial census and the updated grade spans of the secondary and elementary districts. In the above example of 9-12 and K-8 grade ranges, the relevant children ages 5 to 17 in the secondary district are the subset of children ages 14 to 17, and the relevant children ages 5 to 17 in the elementary district are the subset of children ages 5 to 13.

Grade spans and boundaries of school districts are updated through the Census Bureau's school district boundary review, known as the School District Review Program (SDRP). Specifically, the SDRP identifies new districts and districts no longer in existence, collects boundary changes to existing school districts, and collects other administrative information, such as the grade range for which each district is financially responsible. Further information is available at http://www.census.gov/geo/www/schdist/sch_dist.html.

SAIPE Input Data

The 2008 SAIPE estimates incorporate information from several survey and administrative data sources. These sources include the following:

- Income and poverty direct estimates from the American Community Survey (ACS).
- Income and poverty direct estimates from the Census 2000 long form.
- Data summarized from federal individual income tax returns, stripped of any identifying information.
- Numbers of Supplemental Nutrition Assistance Program (SNAP) benefits recipients from the

Food and Nutrition Service (FNS). SNAP is formerly known as the Food Stamp Program.

- Aggregated personal income estimates from the Bureau of Economic Analysis (BEA).
- Supplemental Security Income (SSI) recipients from the Social Security Administration (SSA).
- Intercensal estimates of population, by age and group quarters status from the Population Estimates Program. These are further adjusted to provide crude denominators for poverty rates.

Information about each of these input data sources is available on the SAIPE program's web site, <http://www.census.gov/did/www/saipe/data/model/info/index.html>.

Means-Tested Program Participation

Means-tested programs have criteria related to income and resources that determine eligibility for public assistance. Means-tested programs include Supplemental Nutrition Assistance Program (SNAP), formerly known as Food Stamp Program; Free and Reduced-Price Lunch (FRPL) participation under the National School Lunch Program (NSLP); Supplemental Security Income (SSI) Program; Temporary Assistance for Needy Families (TANF); and many others. The income criteria for means-tested programs typically differ from those which designate official poverty. For example, the SNAP income criteria are generally 130% of the federal poverty guidelines, as opposed to 100% of the guidelines; and the FRPL income criteria are generally 130% of the federal poverty guidelines for free lunch and 185% of the federal poverty guidelines for reduced-price lunch. Sometimes counts of program participants are referred to as "low-income" counts. Since the income criteria for program eligibility may differ from those which designate poverty, "low income" generally does not mean "poverty." For information about poverty guidelines, including how they differ from poverty *thresholds* used by the Census Bureau, see <http://aspe.hhs.gov/poverty/09poverty.shtml>.

Use of ACS Data

The SAIPE estimates are based closely on data from the American Community Survey (ACS). The ACS is a nationwide survey designed to provide communities with reliable and timely demographic, social, economic, and housing data every year. ACS 1-year estimates are published annually for areas with population size 65,000 or larger; ACS 3-year estimates are published annually for areas with population size 20,000 or larger; and ACS 5-year estimates will soon be published annually for all counties and school districts, as well as for other small geographic areas (e.g., census tracts). Documentation for the ACS is available online at <http://www.census.gov/acs/www/index.html>.

The SAIPE program uses the 1-year ACS estimates (including unpublished estimates) in its model-fitting for counties and states. The SAIPE

estimates are typically released slightly later than the 1-year ACS estimates because their models use the latest release of 1-year ACS data.

The ACS portion within the SAIPE estimates for individual counties is often substantial, particularly for counties with population size 65,000 or larger. For the very largest counties, the weight on the ACS data is often over 90 percent. The SAIPE estimates for such counties, and their variances, are likely very similar to the ACS direct estimates and their variances. For states, the benefits of modeling vary by state. For states with large populations, the SAIPE estimates and their variances tend to be very close to the corresponding ACS direct estimates and variances. For states with small populations, the SAIPE estimates tend to have lower variances than the ACS direct estimates, and may be to some extent different from the ACS direct estimates.

Other Census Bureau Income and Poverty Data Sources

SAIPE is one of several sources of income and poverty data available from the Census Bureau. Other sources include: Annual Social and Economic Supplement to the Current Population Survey (CPS ASEC); American Community Survey (ACS); Survey of Income and Program Participation (SIPP); and Decennial Census long form. Each of these sources differs from the others in some ways, such as the length and detail of its questionnaire, the number of households included (sample size), and the methodology used to collect and process the data. It is important to understand that different surveys and methods, which are designed to meet different needs, may produce different results.

Because of its detailed questionnaire, the CPS ASEC is the source of timely official national estimates of poverty levels and rates and of widely used estimates of household income and individual earnings, as well as the distribution of that income. The CPS ASEC provides a consistent historical time series beginning in 1959 at the national level and can also be used to look at state-level trends and differences (through multi-year averages) beginning in 1980. *[Continued on next page]*

Other Census Bureau Income and Poverty Data Sources (Continued)

Since 2006, the ACS releases annual subnational estimates of income and poverty for all places, counties, and metropolitan statistical areas with a population of at least 65,000 as well as for states and for the nation. The sample size of the ACS is about three million addresses per year, making this survey exceptionally useful for subnational analyses. Three-year ACS estimates were made available starting in 2008 for areas and subpopulations as small as 20,000. Five-year ACS estimates will be available for census tracts/block groups and for small subgroups of the population starting in 2010.

The SIPP is most useful for understanding the dynamics of income and poverty (changes in income and poverty rates for the same households over three or four years) and for examining the nature and frequency of poverty spells. The SIPP also permits researchers to look at monthly or quarterly changes in income and poverty. The Decennial Census long-form estimates offer the best measure of change between 1990 and 2000 for subnational areas and for subpopulations. Since the ACS replaces the long form, the 2010 census will not include a long form and will not provide income and poverty estimates. Since 2006, ACS estimates can be compared to Census 1990 and Census 2000 estimates. When released in 2010, ACS 5-year estimates will provide data at the census tract level which will be comparable to earlier decennial census estimates.

Further descriptions of these data sources, including guidance on which sources to use for which purposes, are included on the Census Bureau's Poverty web site, at <http://www.census.gov/hhes/www/poverty/description.html>.

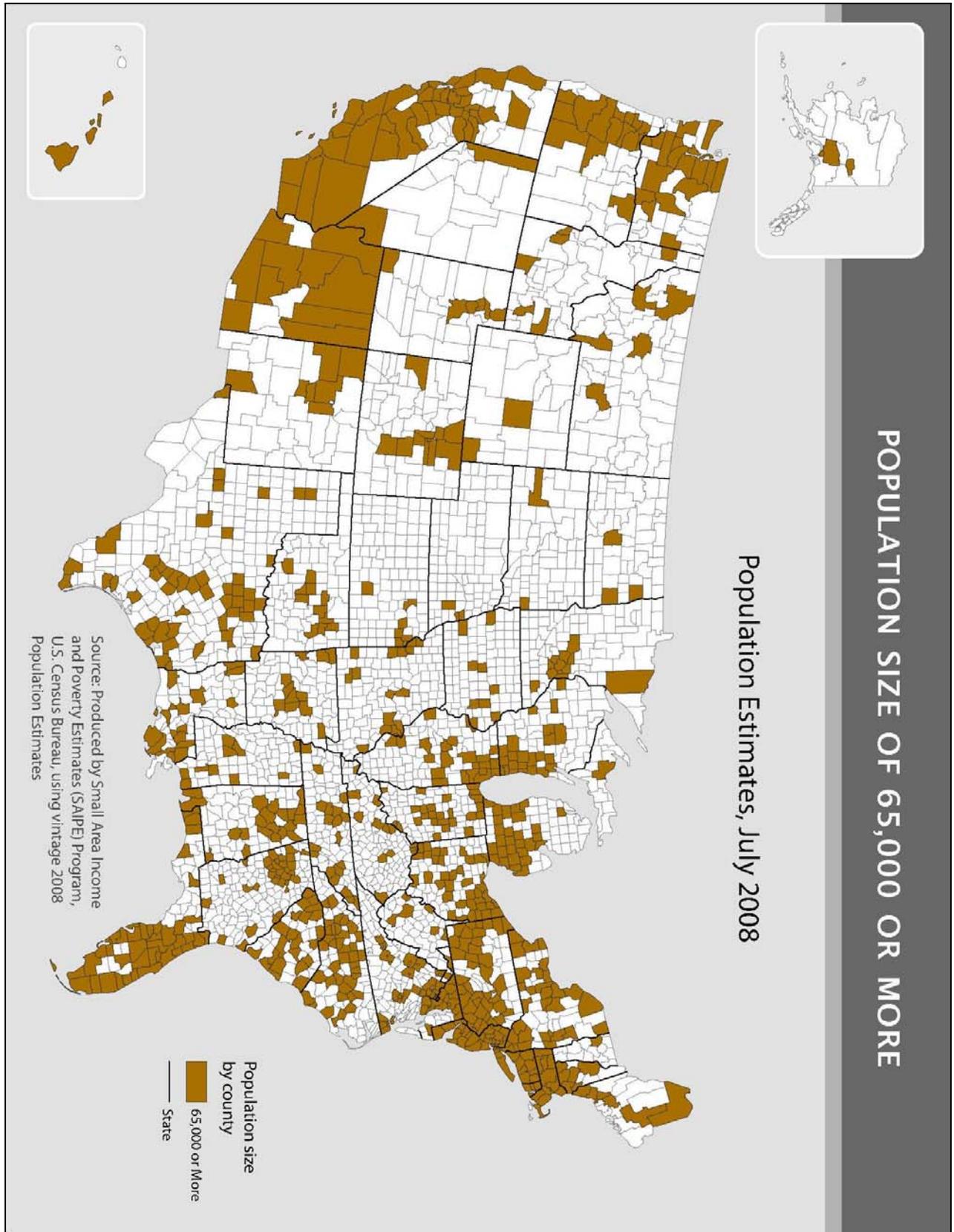
Of the 3,141 counties, there are 789 counties with population size 65,000 or more as of July 2008 (Figure 14). These are the counties for which 1-year ACS estimates are available. Similarly, of the 13,753 school districts in 2008, there are 935 school districts with population size 65,000 or more, and these are the school districts for which 1-year ACS estimates are available. For the other 2,352 counties and the other 12,818 school districts, ACS provides (or eventually will provide) 3-year or 5-year estimates as discussed on page 17. SAIPE, in contrast, provides income and poverty estimates each year for all school districts and counties based on a single year of ACS data and other related data.

Even with the very large national sample of the ACS, the ACS sample in individual geographic

areas with small population size is typically small (with resulting high variance) for a single year of data collection. As a result, 1-year ACS estimates are not published for all small geographic areas. The construction of multi-year estimates from ACS data, or the construction of model-based estimates by SAIPE, are two different approaches that produce estimates with lower variances than those of the 1-year direct ACS estimates. Each approach has relative advantages and limitations, and either can be appropriate depending on the situation and the interests of the data user.

Explicit guidance on when to use SAIPE estimates, ACS direct estimates, or other data sources is available at <http://www.census.gov/hhes/www/poverty/description.html>.

Figure 14: Map of Counties with Total Population Size of 65,000 or More (as of July 2008)



History of SAIPE

The Small Area Income and Poverty Estimates (SAIPE) program was created in the mid-1990s by the U.S. Census Bureau with support from other federal agencies. At the time, the decennial census was the only source of income distribution and poverty statistics for households, families, and individuals for "small" geographic areas (e.g., counties, cities, and other sub-state areas). The ten-year span between the release of these decennial census data left a large gap in information concerning the economic situation of local areas.

The SAIPE estimates were to be used in fulfillment of Title I of the Improving America's Schools Act of 1994 (PL 103-382). The law stated the Secretary of Education would use updated data on poor children in school districts, published by the Department of Commerce, unless the Secretaries of Education and Commerce determined that the use of the updated data would be "inappropriate or unreliable." In 1996 a Panel was formed through the National Academy of Sciences to provide advice on the suitability of the Census Bureau estimates for use in allocating funds ("Panel on Estimates of Poverty for Small Geographic Areas"). The Panel issued three interim reports between May 1997 and February 1999, and a final report in September 2000. The Panel also issued a report that examined issues for data users and areas for further research and development.¹³

In its third interim report (National Research Council, 1999), the Panel concluded that the SAIPE intercensal estimates were preferable to the prior decennial census estimates as a basis for Title I allocations. In January 2002, the Title I legislation was reauthorized and amended under the No Child Left Behind Act of 2001 (PL 107-110).

To date, the SAIPE program has published estimates for school districts, counties and states for 1995 through 2008 (except for 1996 and 1998). The SAIPE program continually conducts methodological research to improve its estimates and has implemented various improvements over the years. The most recent changes relate to (1) replacing CPS ASEC (see text box on page 17) with ACS in the dependent variables of the models in order to take advantage of the ACS' larger sample size and wider county coverage and (2) geocoding federal tax information to school districts in order to better reflect the latest within-county distribution of poverty. The switch to using the ACS was made after an external review that took place in September of 2007. Related documentation is available online at

<http://www.census.gov/did/www/saipe/methods/05change.html> and

<http://www.census.gov/did/www/saipe/publications/methods.html>.

¹³ Web links to the National Academy of Sciences reports are provided on the SAIPE program's web site, <http://www.census.gov/did/www/saipe/publications/nasreports.html>.

SAIPE Models

This section contains technical detail regarding the SAIPE models. Further documentation is also available online, <http://www.census.gov/did/www/saipe/methods/index.html>.

The county and state models both follow the general form suggested by Fay and Herriot (1979). The county models fit logarithmic (log) poverty levels and log median household income to log-level predictors, while the state models fit linear

poverty ratios and linear median household income to linear-ratio and linear-level predictors. The regression models are postulated for the true, unobserved poverty ratios and median household income. They are fitted to the direct ACS estimates allowing for the sampling errors in the data. The sampling error variances are estimated directly using successive difference replication (Fay and Train, 1995) and are assumed known during the model estimation. The county and state models are run sequentially and independently.

County model estimation is run via an iterated weighted least-squares algorithm, with iterations between estimates of the model error variance and estimates of the regression coefficients. The observation weights are the inverse of the log total error variance (i.e., the sum of the sampling and model variances). Single-year ACS estimates for all counties, both published and unpublished, are used in the model fitting. For some counties with small samples, the estimate of the number in poverty is zero by random chance. Since the log of zero is undefined, logs cannot be taken of these estimates, and such counties are excluded from the model fitting. After model estimation, empirical Bayes techniques combine the regression predictions and the direct survey estimates on the basis of their relative precision to produce "shrinkage" estimates.

State estimation is run using a Bayesian approach. The model error variance for each age-group (or median household income) is estimated as its posterior mean in the course of fitting the models to the ACS direct poverty ratio estimates. The Bayesian approach averages the shrinkage estimates computed over a plausible range of values of the model error variance, weighting the results for each of these values according to the

posterior (conditional on the data) probability distribution of the model error variance developed from the Bayesian calculations. The estimation uses prior distributions which are uniformly distributed (often called "noninformative" or "flat" priors) for all model parameters.

At the school district level, the latest available IRS within-county shares of poverty and population are combined with the corresponding Census 2000 within-county shares in order to obtain updated estimates of the within-county distributions of poverty and population. The IRS shares receive more or less influence depending on the number of tax returns that can be allocated within the greater county areas. The combined within-county shares of poverty and population are then multiplied by the corresponding county values in order to create preliminary school district poverty and population totals. The ratio of the preliminary poverty total to the preliminary population total is computed. These poverty ratios are then applied to the latest Census Bureau school district population estimates in order to obtain the SAIPE school district poverty estimates. The school district poverty estimates are then "control-rounded" in order to produce whole numbers while preserving the school district sums at the county level.

SAIPE Web Site

SAIPE data and documentation are accessible through the SAIPE program's web site (Figure 15), <http://www.census.gov/did/www/saipe/index.html>. Below are some of the main web site features.

- Interactive tables allow selection of data for particular geographic areas and age groups.
- Spreadsheet and flat-file download availability for easy access to full data sets.
- All model input data that can be publicly released are available for download.
- School district reference maps display boundaries and features for all school districts.
- Poverty rate and median income maps display estimates for all counties and states.
- Links are available to frequently-asked questions, estimation methodology, related publications, and program history.

From the SAIPE web site, once the user selects a particular category and geographic level of interest, an interactive table of the data is launched. The data columns of this table can be sorted, and glossary information is available via links from the column headings.

For the school district data, the interactive tables also contain links to maps showing the geographic boundaries of the districts.

All data that display in the interactive tables can in addition be readily downloaded as spreadsheets or flat files. Similarly, all maps showing school district boundaries can be downloaded in Adobe's Portable Document Format (PDF).

Figure 15: SAIPE Web Site—Small Area Income and Poverty Estimates Main Page

U.S. Census Bureau | People | Business | Geography | Newsroom | Subjects A to Z | Search@Census

Small Area Income and Poverty Estimates

Census.gov > People and Households > SAIPE Main

Main | About SAIPE | Data | Methodology | Publications | Related Sites | Contact Us

Quick Links

- [School District Data](#)
- [State and County Data](#)
- [Model Input Data](#)

Upcoming Releases
Our next release is planned for December 2010.

Model-based Small Area Income & Poverty Estimates (SAIPE) for School Districts, Counties, and States

The U.S. Census Bureau, with support from other Federal agencies, created the Small Area Income and Poverty Estimates (SAIPE) program to provide more current estimates of selected income and poverty statistics than those from the most recent decennial census.

Estimates are created for school districts, counties, and states. The main objective of this program is to provide updated estimates of income and poverty statistics for the administration of federal programs and the allocation of federal funds to local jurisdictions. Estimates for 2008 were released in November 2009. These estimates combine data from administrative records, intercensal population estimates, and the decennial census with direct estimates from the American Community Survey to provide consistent and reliable single-year estimates. These model-based single-year estimates are more reflective of current conditions than multi-year survey estimates.

Latest SAIPE Release

The 2008 school district, county and state estimates were released in November 2009.

- [Release highlights of 2008 »](#)
- [School district estimates for 2008 »](#)
- [State and county estimates for 2008 »](#)
- [View maps for 2008 »](#)

The challenge period for the 2008 estimates is November 18, 2009 to February 16, 2010. [Information about the challenge procedures is available here.](#)

Related Sites

- [Income Topics](#)
- [Poverty Topics](#)
- [Small Area Health Insurance Estimates \(SAHIE\) program](#)

Contact Us
For assistance, please contact the Demographic Call Center Staff at 301-763-2422 or 1-866-758-1060 (toll free) or visit [ask.census.gov](#) for further information.

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Source: U.S. Census Bureau | Small Area Income and Poverty Estimates | Last Revised: November 10, 2009

Related Web Sites

- SAIPE program web site
<http://www.census.gov/did/www/saipe/index.html>
- SAHIE program web site
<http://www.census.gov/did/www/sahie/index.html>
- Income web site
<http://www.census.gov/hhes/www/income/income.html>
- Poverty web site
<http://www.census.gov/hhes/www/poverty/poverty.html>
- Guidance on when to use income and poverty data sources
<http://www.census.gov/hhes/www/poverty/description.html>
- Income and poverty definitions
<http://www.census.gov/hhes/www/poverty/definitions.html>
- American Community Survey (ACS) main page
<http://www.census.gov/acs/www/index.html>
- American FactFinder (AFF)
<http://factfinder.census.gov/>

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Contact

For questions related to the contents of this document, including the SAIPE program's estimates and methodology, please call 301-763-3193.

For questions related to income and poverty definitions, the American Community Survey, or other Census Bureau surveys, please call 301-763-2422.