Poverty Among Working Families: Findings From Experimental Poverty Measures

Special Studies

1998
Issued September 2000

P23-203

Current Population Reports

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Highlights

This report examines poverty among working families with children using experimental measures of poverty that are based on recommendations by the National Academy of Sciences (NAS) Panel on Poverty and Family Assistance. These experimental poverty measures take into account elements not included in the current official measure of family income, such as noncash government benefits and job-related expenses. This analysis indicates that according to these experimental measures, people in full-time working families comprise a higher proportion of those in poverty than previously estimated. This result occurs because expenses, such as child care costs, social security taxes, and out-of-pocket medical expenses, tend to outweigh the noncash benefits, such as food stamps, working families may receive. Without the recent expansion of the Earned Income Credit, poverty among people in full-time working families would be even higher.

Introduction

Studies have shown that although median family incomes rose in the 1990s, not everyone shared equally in the prosperity. The proportion of working families living below the poverty line has remained relatively stable since the late 1980s despite the longest continuous economic expansion in decades (Goings, 1999; Klein and Rones, 1989). Families headed by women, young adults, and minorities continue to be the worst off (Danziger and Gottschalk, 1995).

However, it is difficult to describe just how people in working families are faring because the official poverty measure, on which the poverty estimates are currently based, does not account for other sources of noncash income, such as food stamps and housing subsidies, nor for nondiscretionary expenses, such as taxes and work-related costs. Including the value of noncash benefits would decrease the estimated incidence of poverty among working families and individuals; including nondiscretionary expenses would increase that estimate.

This report uses experimental poverty measures to more accurately discern the level of economic well-being among people in working families with children. These measures are based on recommendations by the National Academy of Sciences Panel on Poverty and Family Assistance (Citro and Michael, 1995; also see Ruggles, 1990). Data from the 1991 to 1999 Current Population Surveys are used to estimate the effect of various expenses and noncash transfers on poverty rates.

Analytic Strategy

Because poverty measurement is based on family income, size, and composition, and because everyone within a family is designated the same poverty status (regardless of one's own work status), a family-based measure of work is constructed. In this report, a "full-time working family" is defined as one where the aggregate number of hours worked by family members is greater than or equal to 1,750 hours over the previous year. The 1,750 figure is equivalent to a work effort of 35 hours a week for 50 weeks. This concept of year-round, full-time employment is consistent with its use in other Census Bureau reports (e.g., Dalaker, 1999; U.S. Census Bureau, 1992). A part-time working family is defined here as one where the aggregate number of hours worked by family members ranges from 50 to 1,749 hours in the previous year.

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The experimental poverty measures in this report were introduced in the Census Bureau's report, *Experimental Poverty Measures, 1990-1997* (Short et al., 1999). These measures are in turn based on recommendations by the NAS Panel (Citro and Michael, 1995). In general, the NAS panel recommended that a poverty measure should consist of a set of poverty thresholds representing the cost of a basic bundle of needs, and a definition of family resources for comparison to the thresholds, to determine who is poor.

More specifically, the panel recommended that a family's resources should be defined as the value of money from all sources, plus the value of near-money benefits that are available to buy goods and services covered by the new thresholds, and minus nondiscretionary expenses. Near-money benefits are defined as the following: food stamps, housing subsidies, school lunch subsidies, home energy assistance, and the Earned Income Credit (EIC). Expenses subtracted are: income taxes (including estimated capital gains or losses), social security payroll taxes, child care and other work-related expenses, and family contributions toward the costs of medical care and health insurance premiums (that is, medical out-of-pocket costs).

The Six Experimental Poverty Measures

1. **NAS**: This measure most closely follows the recommendations of the National Academy of Sciences Panel on Poverty and Family Assistance.

2. **DCM1** (different child care method 1): Identical to the NAS measure, except a different method of valuing child care expenses is used in the definition of family resources. In the NAS measure, statistical models are used to estimate who incurred child care expenses and the amounts paid. In contrast, in DCM1, a percentage of median child care expenditures based on data from the Survey of Income and Program Participation is subtracted from the income of all families with working parents and children under 12 years of age.

3. **DCM2** (different child care method 2): Again identical to the NAS measure, except that another method of valuing child care expenses is used, one based on deductions allowed for child care expenses under the food stamp and former Aid to Families With Dependent Children programs.

4. **DES-DCM2** (different equivalence scale and different child care method 2): In addition to having the different method of valuing child care described in DCM2 above, this measure contains a different equivalence scale, a three parameter one, rather than the two-parameter scale used in the NAS measure. Basically, these parameter scales represent different methods of adjusting the threshold for the reference family of two adults and two children for families of different sizes and composition.

5. **NAS-NGA** (no geographic adjustment): This measure is identical to the NAS measure, except no adjustments are made to the thresholds to account for differences in housing costs in different regions and metropolitan areas of various sizes.

6. **DES-DCM2-NGA:** This measure contains a different equivalence scale and child care cost estimation method, and no geographic adjustments to the thresholds, as described in the two measures DES-DCM2 and NAS-NGA above.

Poverty thresholds under the experimental poverty measures are represented by a dollar amount for food, clothing, shelter, utilities (FCSU), as well as a small amount for other needs (such as household supplies, personal care, and non-work-related transportation). As the panel recommended, a threshold is developed for a reference family type of two adults and two children using data from the Consumer Expenditure Survey. The thresholds used here, as in the previous Census Bureau report (Short et al., 1999), are set at the midpoint of the range recommended by the NAS panel. The reference family threshold is then adjusted for families of different sizes and composition by using an equivalence scale.[1] Further adjustments account for geographic differences in housing costs. Thresholds are updated annually to reflect changes in nominal growth in FCSU expenditures.[2]

In the previous Census Bureau report on experimental poverty measures, six measures were calculated. Three measures (NAS, DES-DCM2, and NAS-NGA) are highlighted in this report and results from all six are available on the Internet at: www.census.gov/hhes/www/poverty.html.

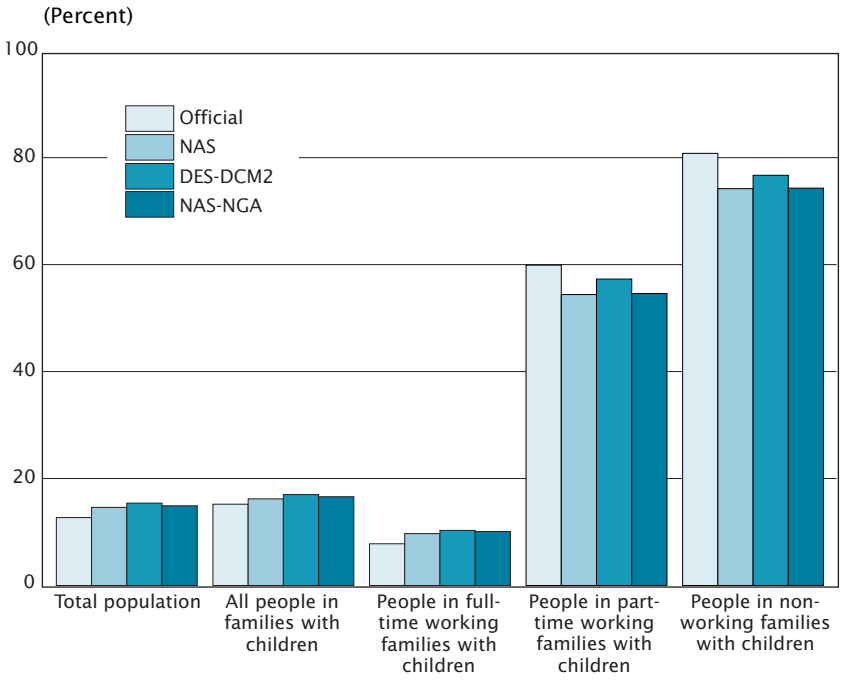
[1] The NAS panel recommended using a two-parameter equivalence scale, which takes into account both economies of scale, because larger families tend to consume proportionally less than smaller families, and the fact that children generally consume less than adults.

[2] Some of the NAS panel's recommendations could not be implemented here because necessary data (or model estimates) are not available. In particular, the CPS contains no data on child support payments made by the payer, or the value of benefits received under the Women, Infants, and Children nutritional supplement (WIC) program and the school breakfast program. In addition, data from the CPS are used for all the poverty estimates here, though the NAS panel recommended that the Survey of Income and Program Participation (SIPP) should eventually become the basis of official U.S. income and poverty statistics. While the SIPP asks more relevant questions and obtains income data of higher quality, more research and development is needed on the SIPP before it can become the official source of poverty statistics. Much of this research is currently underway, thus allowing comprehensive experimental poverty rates using SIPP data to be released in the near future.

The NAS measure is calculated by very closely following the methods outlined in the NAS panel's report, with only a few minor computational differences. The second and third experimental measures—DCM1 (Different Child Care Method 1) and DCM2 (Different Child Care Method 2)—are identical to the NAS measure except that they use different methods of estimating child care expenses in the calculation of family resources. DCM1 uses a percent of median child care expenditures estimated from the SIPP, while DCM2 uses amounts based on deductions for necessary child care in the food stamp and former Aid to Families With Dependent Children (AFDC) programs. DCM2 is similar to the NAS panel's method in its effect on experimental poverty estimates (see Short et al., 1999) but is easier to implement.

The fourth experimental measure, DES-DCM2, is constructed like DCM2, but a different equivalence scale is implemented.[3]

Figure 1.
Poverty Rates by Method of Measurement: 1998



Source: U.S. Census Bureau, Current Population Survey, March 1999.

Table 1.
Poverty Rates by Method of Measurement and Work Status: 1998

	Official measure	NAS measure	DES-DCM2 measure	NAS-NGA measure
Total population	**12.7**	**14.6**	**15.4**	**14.9**
All people in families with children	15.2	16.2	17.0	16.6
People in full-time working families with children	7.8	9.7	10.3	10.1
People in part-time working families with children	59.9	54.4	57.3	54.6
People in nonworking families with children	80.8	74.2	76.7	74.3

Source: U.S. Census Bureau, Current Population Survey, March 1999.

Finally, the NAS and DES-DCM2 measures without a geographic adjustment are referred to as NAS-NGA and DES-DCM2-NGA, respectively. These two measures are calculated exactly as the NAS and the DES-DCM2 measures except that the thresholds are not adjusted for differences in the cost of housing in different parts of the country. The geographic adjustment is excluded in these measures because, as the NAS panel noted, this element requires more research and better data sources. These measures, then, adopt the assumption that the cost of meeting basic needs does not vary by geographic area. For more details on these measures, see Short et al., 1999.

Results

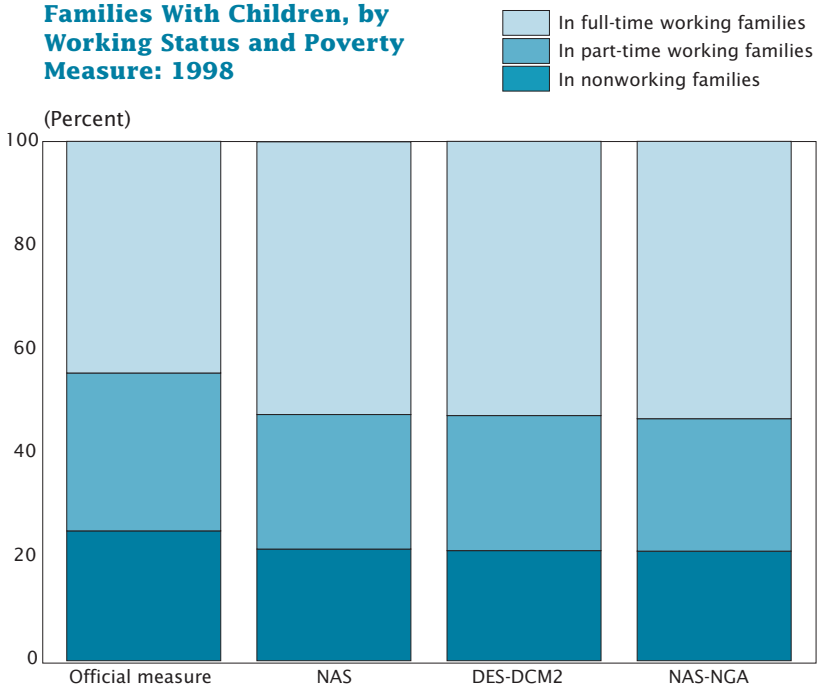
Figure 1 shows poverty rates by the measure used and family working status (see also Table 1 for these results). For the total population, the experimental poverty measures are all higher than the official one—about 15 percent (NAS: 14.6 (±0.4), DES-DCM2: 15.4 (±0.4), NAS-NGA: 14.9 (±0.4)) compared with 12.7 (±0.3) percent, respectively, in 1998.[4] The experimental poverty rates are higher in large part because expenses subtracted from family incomes tend to outweigh noncash benefits added to income.

A similar pattern is present when only people in families with children are considered: experimental poverty rates are higher than the official one. When families with children are tabulated by family working status, results indicate that experimental poverty rates are

[3] A three-parameter equivalence scale is used in the DES-DCM2 measure. This three-parameter scale is arguably more refined than the two-parameter scale the NAS panel employed. See Short et al., 1999, for a more detailed discussion of these equivalence scales.

[4] Some statements in the report may contain estimates followed by a number in parentheses. This number can be added to and subtracted from the estimate to calculate upper and lower bounds of the 90-percent confidence interval.

Figure 2.
Distribution of People in Poor Families With Children, by Working Status and Poverty Measure: 1998



Source: U.S. Census Bureau, Current Population Survey, March 1999.

higher than the corresponding official poverty rate among people in full-time working families—about 10 percent (NAS: 9.7 (±0.4), DES-DCM2: 10.3 (±0.4), NAS-NGA: 10.1 (±0.4)) compared with 7.8 (±0.4) percent. In contrast, experimental poverty rates are about the same or lower than the official rate among people in nonworking and part-time working families, in large part because these families have relatively lower work-related expenses and higher noncash government benefits than other families.

Figure 2 gives a clearer view of the differential effect of moving from the official measure to the experimental measures by showing the distribution of the poverty population by family working status. The estimated proportion of poor people in full-time working families increases substantially—from 45 percent to about 53 percent.

The figure also shows that another 26 percent of the poverty population in families with children live in *part-time* working families, according to the experimental measures—down from 30 percent under the official measure. About a fifth of the poor live in nonworking families according to the experimental poverty measures, down from about a fourth under the official measure. Thus, regardless of the measure used, the vast majority of poor families have at least one family member who worked at some point during the year.

Table 2 sheds light on why the experimental poverty rates are higher among people in full-time working families by displaying the effect of each of various elements of the experimental poverty measures on estimated poverty rates. For example, in row 1 of column 1 of the table, the official poverty rate for people in full-time working families with children is 7.8 percent. Because none of the additions or subtractions listed here are included in the official measure, ignoring them does not change official poverty rates.

Table 2.
Effect of Various Elements on Poverty Rates of People in Full-Time Working Families With Children by Measure: 1998

	Official measure	NAS measure	DES-DCM2 measure	NAS-NGA measure
Poverty rate	**7.8**	**9.7**	**10.3**	**10.1**
Poverty rate without the following additions to resources:				
Food stamps	7.8	10.6	11.0	10.7
School lunch subsidies	7.8	10.3	10.8	10.5
Housing subsidies	7.8	10.0	10.5	10.3
Energy assistance	7.8	9.7	10.3	10.1
Capital gains (or losses)	7.8	10.1	10.6	10.5
Without above additions	7.8	11.7	12.1	11.7
Percent increase in poverty rate without additions	*0.0*	*19.7*	*17.8*	*15.8*
Poverty rates without the Earned Income Credit:				
Without the Earned Income Credit	7.8	12.5	13.0	12.5
Percent increase in poverty rate without the Earned Income Credit	*0.0*	*28.7*	*27.0*	*24.1*
Poverty rates without the following subtractions from resources:				
Child care expenses	7.8	8.7	9.0	9.1
Other work-related expenses	7.8	8.2	8.6	8.4
Medical out-of-pocket expenses	7.8	6.3	6.7	6.4
Federal income taxes	7.8	9.5	10.0	9.9
State income taxes	7.8	9.4	9.9	9.8
Social security taxes	7.8	7.8	8.1	8.1
Without all subtractions	7.8	3.8	3.7	3.5
Percent decrease in poverty rate without subtractions	*0.0*	*–61.4*	*–63.9*	*–65.1*

Source: U.S. Census Bureau, Current Population Survey, March 1999.

Table 3.
Official and Experimental Poverty Rates for Individuals in Full-Time Working Families With Children: 1998

	Official measure	NAS measure	DES-DCM2 measure	NAS-NGA measure
Total	**7.8**	**9.7**	**10.3**	**10.1**
Race/Ethnicity				
White, total	6.9	8.9	9.4	9.2
White, non-Hispanic	4.3	5.6	5.9	6.3
Black, total	13.6	14.5	15.3	15.7
Other races, total	7.7	11.6	12.4	10.9
Hispanic, total	19.2	24.9	26.1	23.1
Family Type				
Married-couple	5.9	8.1	8.2	8.4
Male householder (unmarried)	10.3	12.6	15.3	13.2
Female householder (unmarried)	17.8	18.7	20.8	19.1
Education of Household Head				
Less than high school	23.6	27.3	27.8	27.1
High school graduate, no college	8.9	10.9	11.5	11.9
Some college	5.0	7.1	7.6	7.4
College graduate	1.3	2.3	2.7	2.3
Age of Head				
Less than 25 years old	20.7	24.8	26.6	26.7
25-34 years old	10.2	12.9	13.8	13.6
35-64 years old	6.1	7.7	8.1	7.9
65+ years old	8.4	11.5	11.7	11.0

Source: U.S. Census Bureau, Current Population Survey, March 1999.

In contrast, row 1 of column 2 indicates that the overall NAS poverty rate is 9.7 percent (this represents the rate after all additions and subtractions and other changes mentioned in the previous section are taken into account). Thus, because food stamp income *is* included in the definition of family income under this measure, if it is *not* added to family income (as shown in the second row in column 2), the estimated poverty rate would be nearly a percentage point higher, at 10.6 percent.

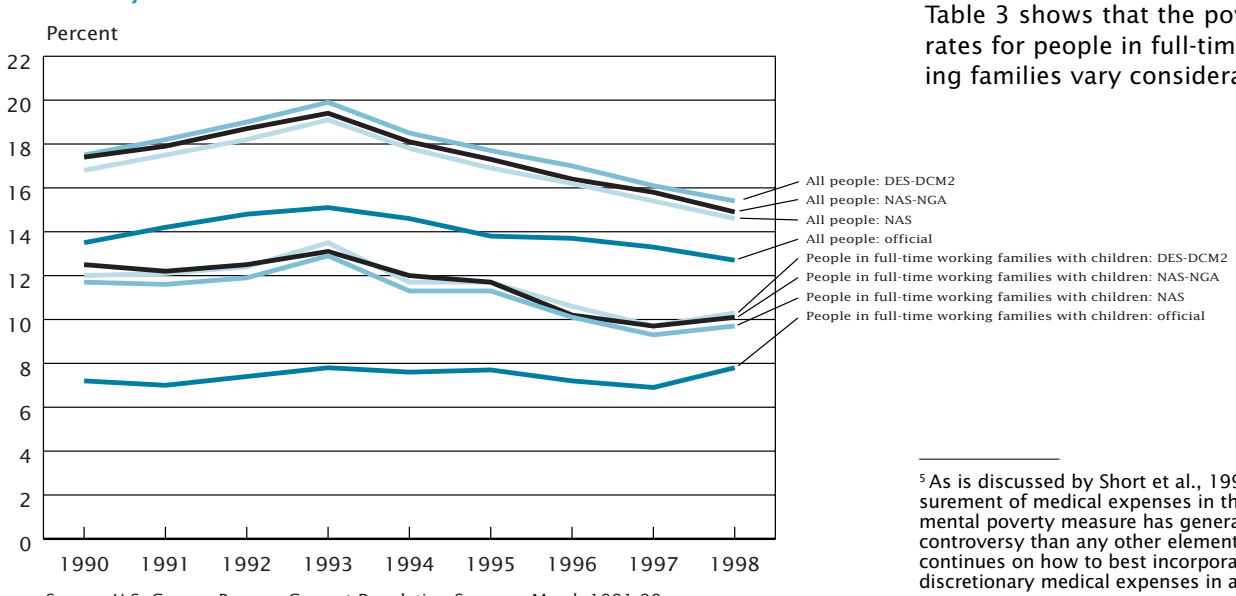
Overall, the top panel of Table 2 indicates that programs such as food stamps, school lunch subsidies, and housing and energy assistance benefit full-time working families. For example, without the addition of all of these elements, the NAS poverty rate would be 2 percentage points higher—which represents about a 20 percent increase. The middle panel also shows that the EIC in particular has a large impact on poverty.

The bottom panel of Table 2 indicates that many full-time working families incur high expenses. The bottom row shows that without subtracting all the listed expenses from income, the poverty rates among people in full-time working families would be roughly 65 percent lower, depending on the measure.

Of the expenses listed, medical out-of-pocket costs have the largest overall effect on experimental poverty rates, although work-related expenses and social security taxes also have a substantial impact.[5] For example, if child care expenses were *not* subtracted from the measure of family income, the estimated NAS poverty rate among people in full-time working families with children would be 8.7 percent, one percentage point lower than the overall NAS poverty rate of 9.7 percent.

Table 3 shows that the poverty rates for people in full-time working families vary considerably

Figure 3.
Poverty Rates by Family Working Status and Poverty Measure: 1990-98



Source: U.S. Census Bureau, Current Population Surveys, March 1991-99.

[5] As is discussed by Short et al., 1999, the measurement of medical expenses in the experimental poverty measure has generated more controversy than any other element. Research continues on how to best incorporate non-discretionary medical expenses in a measure of poverty.

across demographic subgroups. While only 5.6 percent of non-Hispanic Whites in full-time working families with children are poor when using the NAS measure, 14.5 percent of Blacks and a quarter of Hispanics are poor.[6] Results also show that people in working female-householder families have higher poverty rates than people in working married-couple or male-householder families, regardless of the poverty measure used.

According to the experimental poverty measures, about one quarter of all people in full-time working families with children and a family head with less than a high school education are in poverty. Likewise, people in full-time working families with young householders have high poverty rates, reflecting the importance of work experience and the difficulties young parents face in trying to make ends meet (Kim, 1999).

Time Trends

Figure 3 shows poverty rates for the total population and for people in full-time working families, by poverty measure, for the years 1990 to 1998. Among the total population, rates under the official and experimental measures behave similarly, increasing over the 1990-93 period and decreasing over the 1993-98 period.

The official rate rose from 13.5 percent to 15.1 percent from 1990 to 1993 and fell to 12.7 percent by 1998. The experimental poverty rates begin at a higher level than the official rate in 1990 and remained at higher levels subsequently.[7] However, the experimental poverty measures declined at a modestly faster rate than the official measure over the 1993-98 period. One important reason for the accelerated decline was the effect of an expanded EIC, a tax program that is not accounted for in the official poverty measure (see also Iceland et al., 2001; Short, Iceland, and Garner, 1999; Short et al., 1999).

Among people in full-time working families, the official poverty rate shows less volatility, remaining fairly stable over the period. Yet the experimental measures show an especially pronounced decline in poverty beginning in the early 1990s. The effect of the EIC is accentuated among people in working families, mainly because they are the target population of this government program.

Conclusion

People in full-time working families comprise a higher proportion of those in poverty under the experimental measures than under the official measure because their expenses for items such as child care, social security taxes, and medical expenses are higher. Moreover, the effect of the expansion Earned Income Credit in improving the economic situation of people in full-time working families in the 1990s is apparent under the experimental measures but not the official one.

Poverty rates for people in full-time working families are particularly high among certain demographic subgroups such as Hispanics and those where the head has less than a high school education or is under 25 years old. Overall, full-time working families fare less well according to the experimental measures than the official poverty rate suggests.

Accuracy of Estimates

Statistics from surveys are subject to sampling and nonsampling error. All comparisons presented in this report have taken sampling error into account and meet Census Bureau standards for statistical significance. Nonsampling errors in surveys may be attributed to a variety of sources, such as how the survey was designed, how respondents interpret questions, how able and willing respondents are to provide correct answers, and how accurately the answers are coded and classified. The Census Bureau employs quality control procedures throughout the production process—including the overall design of surveys, the wording of questions, review of the work of interviewers and coders, and statistical review of the reports.

The Current Population Survey employs ratio estimation, whereby sample estimates are adjusted to independent estimates of the national population by age, race, sex, and Hispanic origin. This weighting partially corrects for bias due to undercoverage, but how it affects different variables in the survey is not precisely known. Moreover, biases also may be present when people who are missed in the survey differ from those interviewed in ways other than the categories used in weighting (age, race, sex, and Hispanic origin). All of these considerations affect comparisons across different surveys or data sources. Contact Martha Jones, Demographic Statistical Methods Division, dsmd_s&a@census.gov, for information on the source of the data, the accuracy of the estimates, the use of standard errors, and the computation of standard errors.

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[6] People of Hispanic origin may be of any race.

[7] If an experimental measure was adopted to replace the current official measure, it could be standardized to equal the official rate in a specific year, or to have the same average value over a specified time period.

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