# Multidimensional Deprivation in the United States: 2017

American Community Survey Report

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## INTRODUCTION

The U.S. Census Bureau provides official[1] as well as alternate measures of poverty from several household surveys and programs. The Census Bureau releases poverty statistics from the Current Population Survey Annual Social and Economic Supplement (CPS ASEC), the American Community Survey (ACS), and the Survey of Income and Program Participation (SIPP). The CPS ASEC is the source for both official poverty estimates and estimates using an alternative methodology, the Supplemental Poverty Measure (SPM). The official methodology is also used to produce poverty estimates from both the ACS and SIPP.[2] Both the official poverty measure (OPM)[3] and the supplemental poverty measure (SPM) are unidimensional measures of poverty that compare resources to a poverty threshold to determine poverty status. While both measures evaluate income security, they may miss the impoverished who are deprived in other areas or dimensions.

The multidimensional deprivation index (MDI) presented in this report provides a new research measure intended to complement, not replace, the OPM or SPM.[4] This report presents estimates of poverty using the official definition of poverty and estimates of deprivation using the MDI based on information collected primarily in the 2017 American Community Survey.[5]

### What Is the American Community Survey?

The American Community Survey (ACS) is a nationwide survey designed to provide communities with reliable and timely demographic, social, economic, and housing data for the nation, states, congressional districts, counties, places, and other localities every year. It has an annual sample size of about 3.5 million addresses across the United States and Puerto Rico and includes both housing units and group quarters (e.g., nursing facilities and prisons).* The ACS is conducted in every county throughout the nation, and every municipio in Puerto Rico, where it is called the Puerto Rico Community Survey. Beginning in 2006, ACS data have been released annually for geographic areas with populations of 65,000 and greater. For information on the ACS sample design and other topics, visit <www.census.gov/acs>.

* While people living in group quarters are sampled in the ACS, those living in institutional group quarters (e.g., nursing homes or correctional facilities) are not included in the poverty universe.

[1] Following the standard specified by the Office of Management and Budget (OMB) in Statistical Policy Directive 14, data from the Current Population Survey Annual and Social Economic Supplement are used to estimate the official national poverty rate, which can be found in the report *Income and Poverty in the United States: 2017.*

[2] See *Income and Poverty in the United States: 2017*; *Supplemental Poverty Measure: 2017*; *Poverty: 2016 and 2017; Monthly and Average Monthly Poverty Rates by Selected Demographic Characteristics: 2013*.

[3] In this report, we use OPM to refer to estimates from the ACS that use the official poverty methodology.

[4] This report builds off prior research from Glassman (2017).

[5] The Census Bureau reviewed this data product for unauthorized disclosure of confidential information and has approved the disclosure avoidance practices applied to this release. DRB-FY19-ROSS-B0030.

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## HIGHLIGHTS[6]

- In 2017, the OPM rate was 13.4 percent, lower than the MDI rate of 15.4 percent.
- The MDI rate declined by 1.1 percentage points in 2017, from a rate of 16.4 percent in 2016.
- The MDI rate decreased for the sixth consecutive year in 2017, from a rate of 20.8 percent in 2011.
- The MDI rate in 2017 was higher than the OPM rate in 20 states and the District of Columbia, lower than the OPM rate in 16 states, and not significantly different from the OPM rate in 14 states.
- From 2016 to 2017, the MDI rate increased in 2 states (Alaska and Delaware), decreased in 32 states, and did not change significantly in 16 states and the District of Columbia.
- Standard of living and housing quality were the largest contributors to multidimensional deprivation in 2017.

### The Value of a Multidimensional Deprivation Index

Multidimensional deprivation provides a more expansive view of well-being than income based poverty measures. Multidimensional deprivation estimates may include people who are income poor and would be considered in poverty by traditional unidimensional income measures. However, these estimates also include people who may not be income poor, but face hardships or deprivations in other areas of their lives. Multidimensional deprivation estimates also exclude people who are income poor but are not deprived in other areas. In other words, the multidimensional deprivation index includes some people who are income secure and deprived in other ways, but it excludes some people who are low income, but do not have other deprivations. The value added of a MDI is that if any person faces deprivation in two dimensions—monetary or nonmonetary—they will be recognized as deprived.

The MDI should be viewed as a completely separate measure from the OPM or SPM. The OPM and SPM measure income security, while the MDI evaluates deprivations in a number of different areas along with income. The overlap across the two types of measures is valuable because it shows how much of the population with multiple deprivations are described by the unidimensional poverty measures.

## WHY MULTIDIMENSIONAL DEPRIVATION

As of 2017, 16 countries used national or local multidimensional deprivation indexes as their official measure of poverty.[7] Mexico was the first country to do so in 2009, and at least four countries have adopted the measure per year since 2015. While nations adopting multidimensional measures as their official poverty measure tend to be in the developing world, there has been significant use and study of multidimensional deprivation measures in the United States and Europe. Furthermore, one of the United Nation's 2030 Sustainable Development Goals indicators is to reduce the percentage of people living in poverty in all its dimensions.[8]

In 2008, the president of France created the Commission on the Measurement of Economic Performance and Social Progress in order to find more relevant measures of social progress. While the Commission did not focus on deprivation, it did recommend eight dimensions for the measurement of quality of life in a 2009 report which have been used by many people to create multidimensional deprivation measures.[9] These include: material well-being (income, consumption, and wealth); health; education; personal activities, including work; political voice and governance; social connections and relationships; environment; and insecurity of an economic and

[6] The ACS is conducted every month, with income data collected for the 12 months preceding the interview. Since the survey is continuous, adjacent ACS years have income reference months in common. Therefore, comparing the 2016 ACS with the 2017 ACS is not an exact comparison of the economic conditions in 2016 and 2017, and comparisons should be interpreted with caution. For more information on the ACS sample design and other topics, visit <www.census.gov/acs>.

[7] Mexico, Bhutan, Colombia, Vietnam, Chile, El Salvador, Costa Rica, Vietnam, Ecuador, Pakistan, Honduras, Mozambique, Armenia, Panama, Dominican Republic, and Nepal.

[8] See the report *Transforming Our World: the 2030 Agenda for Sustainable Development* by the United Nations.

[9] See Stiglitz et al., 2009.

physical nature. Some variant of these dimensions have been used in all multidimensional deprivation measures created in developed countries.

In the United States, researchers have used the National Health Interview Survey (Alkire and Foster, 2011a), the Current Population Survey Annual Social and Economic Supplement (Mitra and Brucker, 2016), the American Community Survey 1-year sample (Glassman, 2017; Dhongde and Haveman, 2016; Reeves et al., 2016), the Survey of Income and Program Participation (Short, 2005), the Panel Study of Income Dynamics (Ciula and Skinner, 2015), and the General Social Survey (Wagle, 2014) to measure multidimensional deprivation.

Studies of multidimensional deprivation in Europe have mostly used the European Union Statistics on Income and Living Conditions (Alkire et al., 2017; Garcia-Perez et al., 2016; Betti et al., 2015; Whelan et al., 2014; Coromaldi and Zoli, 2011; Ayala et al., 2011). Several studies used a related panel survey, the European Community Household Panel (D'Ambrosio et al., 2011; Dewilde, 2008). In Australia, a study used the Household Income and Labor Dynamics in Australia Survey (Martinez Jr. and Perales, 2015).

The number of dimensions used in these multidimensional measures ranged from 3 (Dewilde, 2008) to 17 (Ciula and Skinner, 2015). On average, seven dimensions were used. The determination of how many dimensions to use seems to be based largely on the availability of measures in the data source and the author's preferences. While there has been a significant amount of overlap in the use of indicators (education, health, employment, poverty status), unique combinations of indicators also appear, even from researchers using the same data source (see Appendix Table A-1).

### How Official Poverty Is Measured

Poverty status is officially determined by comparing annual income to a set of dollar values (called poverty thresholds) that vary by family size, number of children, and the age of the householder. If a family's before-tax money income is less than the dollar value of their threshold, then that family and every individual in it are considered to be in poverty. For people not living in families, poverty status is determined by comparing the individual's income to his or her poverty threshold.

The poverty thresholds are updated annually to account for changes in the cost of living using the Consumer Price Index (CPI-U). They do not vary geographically.

The ACS is a continuous survey and people respond throughout the year. Since income is reported for the previous 12 months, the appropriate poverty threshold for each family is determined by multiplying the base-year poverty threshold from 1982 by the average of monthly CPI values for the 12 months preceding the survey month.

For more information, see Subject Definitions at <www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html>.

The Census Bureau also publishes poverty estimates based on the Current Population Survey Annual Social and Economic Supplement (CPS ASEC). For information on poverty estimates from the ACS and how they differ from those based on the CPS ASEC, see Differences Between the American Community Survey (ACS) and Annual Social and Economic Supplement to the Current Population Survey (CPS ASEC) at <www.census.gov/topics/income-poverty/poverty/guidance/data-sources/acs-vs-cps.html>.

## METHODOLOGY

The MDI is constructed using the Alkire-Foster method, a widely-used flexible methodology in which individual-level indicators of deprivation in multiple dimensions are used to identify who is deprived and to assess the intensity of their deprivation.[10]

Multiple data sets were used to produce the MDI in this report. The majority of the data come from the 2017 ACS 1-year estimates.[11] The ACS is the best source of subnational economic, social, and employment characteristics and its large sample size, approximately 3.5 million addresses, allows for decompositions by demographic characteristics and small geographical areas.

[10] See Alkire and Foster (2011a).
[11] Puerto Rico is not included in this analysis.

The ACS data is supplemented with county-level data from the County Health Rankings and Roadmaps data set.[12] This data allows for measures of neighborhood quality as the ACS does not collect data on crime, environment, or the overall attractiveness of a neighborhood. The County Health Rankings and Roadmaps data set contains information on violent crimes, access to healthy foods, and air pollution, which are used together in this paper to measure the quality of the neighborhood people live in.

The MDI produced in this report uses six dimensions, detailed in the table "The Multidimensional Deprivation Index Defined," to determine if someone is categorized as deprived.[13] The standard of living dimension is an income measure most closely related to traditional unidimensional poverty measures such as the OPM or SPM. Many studies have used a country's income-based poverty measure to determine standard of living, as is done in this report.

Education is included in the MDI because limited education may limit opportunities, decrease attachment to the labor force, or make it significantly more difficult to increase one's social or economic standing. A person is considered deprived in education if he or she is over 18 years old and is without a high school degree or GED. Since people under the age of 19 are likely to still be in school, for this group the educational attainment of the head of household is substituted for their own educational attainment. Therefore, a child under the age of 19 is deprived if the head of household lacked a high school degree or GED.

The health dimension of the MDI accounts for the fact that poor health can make working or enjoying life more difficult. Ideally, a measure of reported health status would be used. This is not available in the ACS. However, reported disabilities[14] are available in the ACS and both reported health status[15] and disabilities are available in the CPS ASEC. This allows for the assignment of predicted health status in the ACS using information from the CPS ASEC (see appendix for more details). For this dimension, a person is health deprived if their predicted health is poor.[16]

Economic security is included in the MDI because it is possible to be above the standard of living threshold but still face economic insecurity. In order to be economically insecure, at least two of the three possible conditions must be met. The first is the lack of health insurance. The second is being in the labor force but unemployed for all of the past 12 months.[17] The third is based on employment among members of the household. For people under

[12] The County Health Rankings and Roadmaps data set is compiled by a collaboration between the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute. The rankings and the data are compiled from different sources and released on an annual basis. The 2018 rankings include data from 2012 to 2016. See <www.countyhealthrankings.org> for more information.

[13] It is possible for multidimensional deprivation measures to include a dimension for consumption. Unfortunately, the ACS does not include sufficient data on consumption to include this dimension.

[14] There are six disabilities a person can report in the ACS and CPS ASEC: Hearing difficulty, vision difficulty, difficulty going out, difficulty dressing, physical difficulty, and difficulty remembering.

[15] Health status in the CPS ASEC is reported as: 1-excellent, 2-very good, 3-good, 4-fair, and 5-poor.

[16] Thresholds are calculated separately for people aged 65 and over due to higher reported disabilities and lower reported health status among people in this age category. In this report, poor health status is defined as 3 or higher for people under 65 and 3.5 or higher for people 65 and over.

[17] All people not in the labor force (children, retirees, students, etc.) would not meet this condition.

| The Multidimensional Deprivation Index Defined | |
|---|---|
| Dimensions | How Dimensions Are Measured |
| Standard of living | In poverty according to the official poverty measure. |
| Education | Aged 19 or older and without a high school diploma or GED; based on head of household educational attainment for those under the age of 19. |
| Health | Predicted health status is poor. Based on cutoff value of 3 for people under the age of 65 and 3.5 for people aged 65 and over. |
| Economic security | At least two of the following conditions:<br>▪ Lacked health insurance.<br>▪ Unemployed all of the prior 12 months.<br>▪ Cumulative hours worked per week for the household was less than 35 hours and no retirement or Social Security income in the household. |
| Housing quality | At least two of the following conditions:<br>▪ Lacked complete kitchen.<br>▪ Lacked complete plumbing.<br>▪ Overcrowded housing unit.<br>▪ High cost burden. |
| Neighborhood quality | Lived in a county with at least two of the following:<br>▪ High crime.<br>▪ Poor air quality.<br>▪ Poor food environment. |

the age of 65, this condition is met if less than 35 total hours are worked cumulatively across all members of the household in a normal week. People aged 65 and over only satisfy this condition if there is no reported retirement or Social Security income among any household members.[18]

The housing quality dimension accounts for the need for physical space and security within one's home. A household has poor housing quality if at least two of four possible conditions are met: lacking a complete kitchen, lacking complete plumbing, overcrowding, or cost burden. A housing unit is considered overcrowded if it has more than two people per bedroom. Residents face a cost burden if they spend more than 30 percent of their household income on housing costs.

Neighborhood quality accounts for the challenges and risk associated with one's environment. The ACS does not collect data about neighborhood quality, but supplemental data from the County Health Rankings and Roadmaps dataset provides this information. Residents in counties meeting at least two of the following three criteria are considered deprived in this dimension: high crime counties, if greater than 500 violent crimes per 100,000 people; poor air pollution counties, if average daily density of particulate matter is greater than 11; and low food

[18] For households with a mix of people under and over the age of 65, both conditions must be met.

Table 1.

## Percentage of People Deprived in Individual Dimensions: 2016 and 2017

(For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html*)

| Dimension | 2016 | | 2017 | | Change (2017 less 2016)[1] | |
|---|---|---|---|---|---|---|
| | Percent | Margin of error (±) | Percent | Margin of error (±) | Percent | Margin of error (±) |
| Standard of living | 14.0 | 0.1 | 13.4 | 0.1 | *–0.6 | 0.1 |
| Education | 12.3 | 0.1 | 11.8 | 0.1 | *–0.5 | 0.1 |
| Health | 6.3 | Z | 5.6 | Z | *–0.6 | Z |
| Economic security | 9.6 | 0.1 | 9.2 | Z | *–0.4 | 0.1 |
| Housing quality | 11.6 | 0.1 | 11.2 | 0.1 | *–0.4 | 0.1 |
| Neighborhood quality | 11.1 | 0.1 | 9.7 | Z | *–1.4 | 0.1 |

* Statistically different from zero at the 90 percent confidence level.

Z Represents or rounds to zero.

[1] Details may not sum to totals because of rounding.

Note: The deprivation universe excludes children under the age of 15 who are not related to the householder, people living in institutional group quarters (e.g., nursing homes or correctional facilities), and people living in college dormitories or military barracks. Data are based on a sample and are subject to sampling variability. A margin of error is a measure of an estimate's variability. The larger the margin of error in relation to the size of the estimate, the less reliable the estimate. This number when added to or subtracted from the estimate forms the 90 percent confidence interval.

Source: U.S. Census Bureau, 2016 and 2017 American Community Surveys and 2017 and 2018 County Health Rankings.

environment counties, if the food environment index is less than 6.[19]

In Table 1, the percentage of the population deprived in each dimension is listed for 2016 and 2017. The deprivation rates for each of the dimensions significantly decreased from 2016 to 2017.[20]

A person must meet the conditions of at least two dimensions in order to be considered deprived according to the MDI.[21] In Table 2, the percentage of the population deprived across dimensions is listed for 2016 and 2017. In 2017, 37.1 percent of the population were deprived in one or more dimensions, while 62.9 percent were not deprived in any dimensions. The 21.7 percent of the population that were deprived in only one dimension were not considered to be deprived under the MDI.

[19] The cutoff values for crime, pollution, and food environment are the worst 10 percent of counties in each category for 2017. These cutoff values were used for 2009 to 2016 and will be used going forward. For 2017 estimates, crime statistics are based on Federal Bureau of Investigation Uniform Crime Reporting for 2012 to 2014; pollution statistics are based on the 2012 Environmental Public Health Tracking Network; and food environment statistics are based on the 2015 U.S. Department of Agriculture Food Environment Atlas. The food environment index is an index based on proximity to grocery stores and access to a reliable food source.

[20] The ACS is conducted every month, with income data collected for the 12 months preceding the interview. Since the survey is continuous, adjacent ACS years have income reference months in common. Therefore, comparing the 2016 ACS with the 2017 ACS is not an exact comparison of the economic conditions in 2016 and 2017, and comparisons should be interpreted with caution. For more information on the ACS sample design and other topics, visit <www.census.gov/acs>.

[21] A two-dimension threshold was chosen because it is the least number of dimensions a person can be deprived in to be considered multidimensionally deprived and it is the cut-off point used in most of the literature.

Table 2.

## Percentage Deprived in Different Numbers of Dimensions: 2016 and 2017

(For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html*)

| Number of dimensions | 2016 | | 2017 | | Change (2017 less 2016)[1] | |
|---|---|---|---|---|---|---|
| | Percent | Margin of error (±) | Percent | Margin of error (±) | Percent | Margin of error (±) |
| One or more dimensions | 39.1 | 0.1 | 37.1 | Z | *–2.0 | 0.1 |
| Two or more dimensions | 16.4 | 0.1 | 15.4 | Z | *–1.1 | 0.1 |
| Three or more dimensions | 7.0 | Z | 6.4 | Z | *–0.6 | 0.1 |
| Four or more dimensions | 2.0 | Z | 1.8 | Z | *–0.2 | Z |
| Five or more dimensions | 0.3 | Z | 0.3 | Z | *–0.1 | Z |

* Statistically different from zero at the 90 percent confidence level.

Z Represents or rounds to zero.

[1] Details may not sum to totals because of rounding.

Note: The deprivation universe excludes children under the age of 15 who are not related to the householder, people living in institutional group quarters (e.g., nursing homes or correctional facilities), and people living in college dormitories or military barracks. Data are based on a sample and are subject to sampling variability. A margin of error is a measure of an estimate's variability. The larger the margin of error in relation to the size of the estimate, the less reliable the estimate. This number when added to or subtracted from the estimate forms the 90 percent confidence interval.

Source: U.S. Census Bureau, 2016 and 2017 American Community Surveys and 2017 and 2018 County Health Rankings.

## DEPRIVATION COMPARISONS: MDI VS. OPM

### Deprivation in 2017

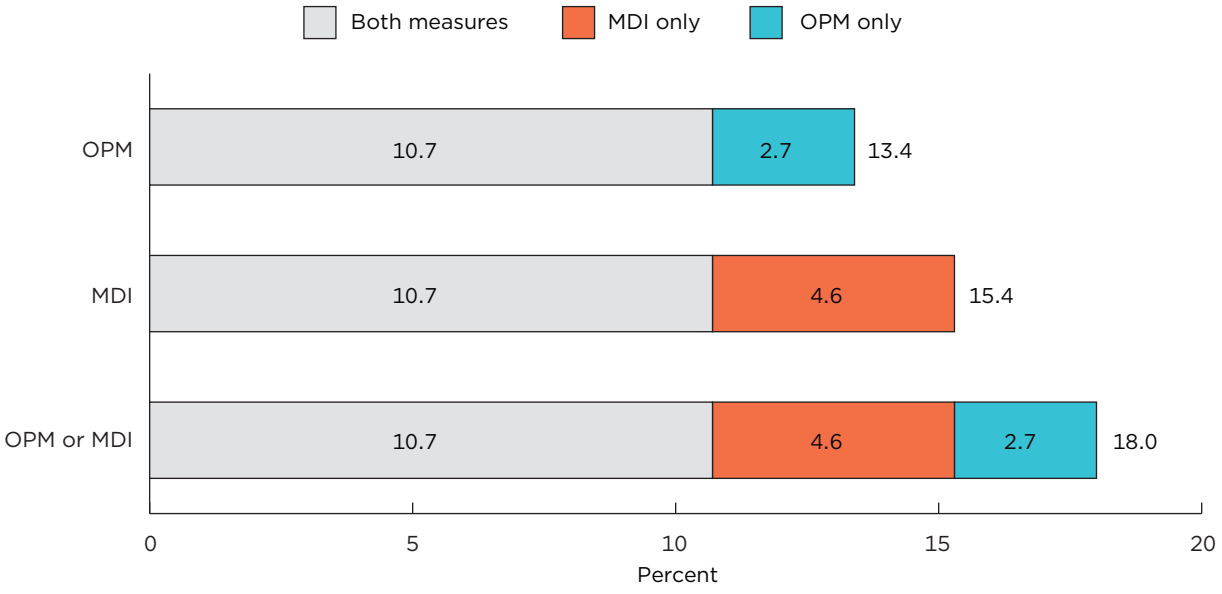
The overall correlation of the OPM rate and the MDI rate for 2017 was 70.6 percent, meaning that higher poverty rates were strongly associated with higher deprivation rates. In 2017, the OPM rate was 13.4 percent and the MDI rate was 15.4 percent, 2.0 percentage points higher. As shown in Figure 1, 10.7 percent of people in the United States were considered poor according to the OPM and deprived according to the MDI. The OPM, however, did not capture a significant portion of the population (4.6 percent) who were not in poverty but were deprived in other dimensions. Similarly, 2.7 percent of the population were considered in poverty under the OPM but were not deprived in multiple dimensions based on the MDI. In 2017, 18.0 percent of the population was either poor using the OPM or deprived using the MDI.

### Trends in Poverty Over Time

In Figure 2, the OPM and MDI are plotted over time from 2009 to 2017.[22] Both deprivation measures increased each year from 2009 to 2011 and decreased each year from 2013 to 2017. The MDI rate also decreased each year from 2011 to 2013, while the OPM rate did not change significantly during that time period. The MDI rate was consistently higher than the OPM rate, but the difference across the MDI and OPM rates decreased over time, with the MDI rate being 4.8 percentage points higher than the OPM rate in 2009 and 2.0 percentage points higher in 2017.

[22] Data for 2017 is the most recently available and 2009 is the earliest year that includes all the information needed for the MDI. The County Health Rankings are available starting in 2010.

Figure 1.
**Overlap of MDI and OPM: 2017**




Note: For information on confidentiality protection, sampling error, nonsampling error, and definitions, see <www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html>.
Details may not sum to totals because of rounding.
Source: U.S. Census Bureau, 2017 American Community Survey and 2018 County Heath Rankings.

## Demographics

Figure 3 presents the OPM and MDI rates in 2017 for select demographic populations. For both measures, among the race groups, American Indian and Alaska Natives had among the highest poverty and deprivation rates in 2017[23] and Whites had among the lowest.[24] However, while all race groups shown in Figure 3 had higher deprivation rates than poverty rates, the difference between the two rates was significantly greater for Asians and Blacks than for Whites and the American Indian and Alaska Native population. Hispanics and the foreign-born had higher deprivation rates and higher poverty rates than non-Hispanics and the native-born, respectively. However, for both groups, these differences were greater when measuring deprivation using the MDI.

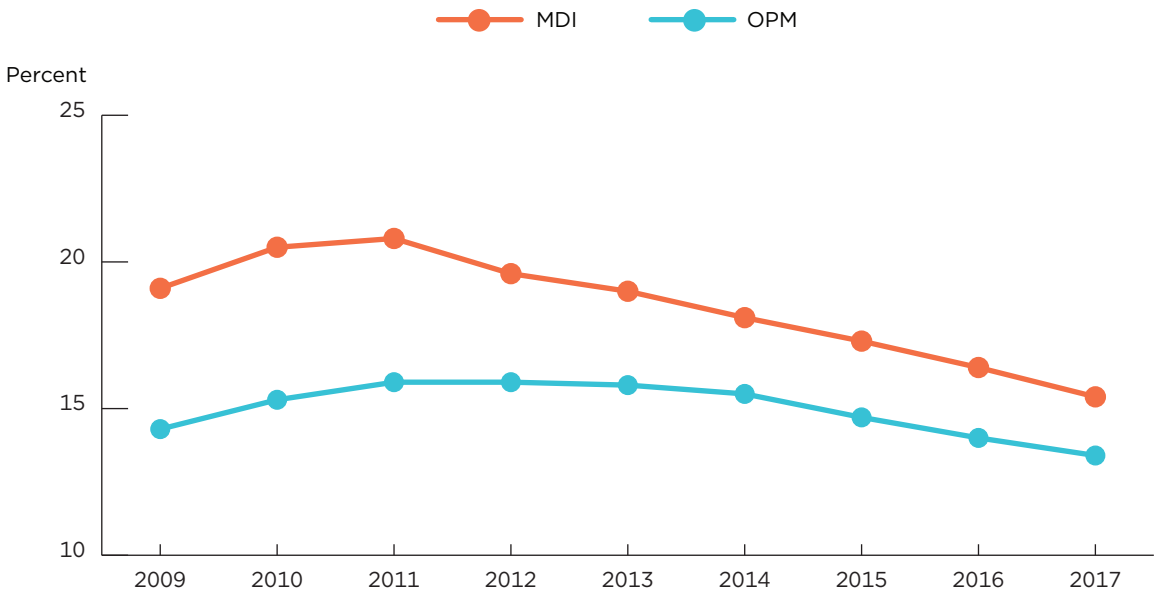
For both measures, people under the age of 18 had the highest poverty and deprivation rates in 2017 among the age groups. However, people aged 65 and over had the lowest poverty rates using the OPM and people aged 18 to 64 had the lowest deprivation rates using the MDI. The OPM rate was higher than the MDI rate for people under the age of 18, while the MDI rate was higher than the OPM for other age groups.

Those moving within the United States in the last year had higher poverty rates using the OPM than deprivation rates using the MDI, while the reverse was true for nonmovers. People moving to the United States from another

[23] The difference in MDI rates for American Indian and Alaska Native and Blacks was not statistically significant.

[24] The difference in OPM rates between Whites and Asians was not statistically significant.

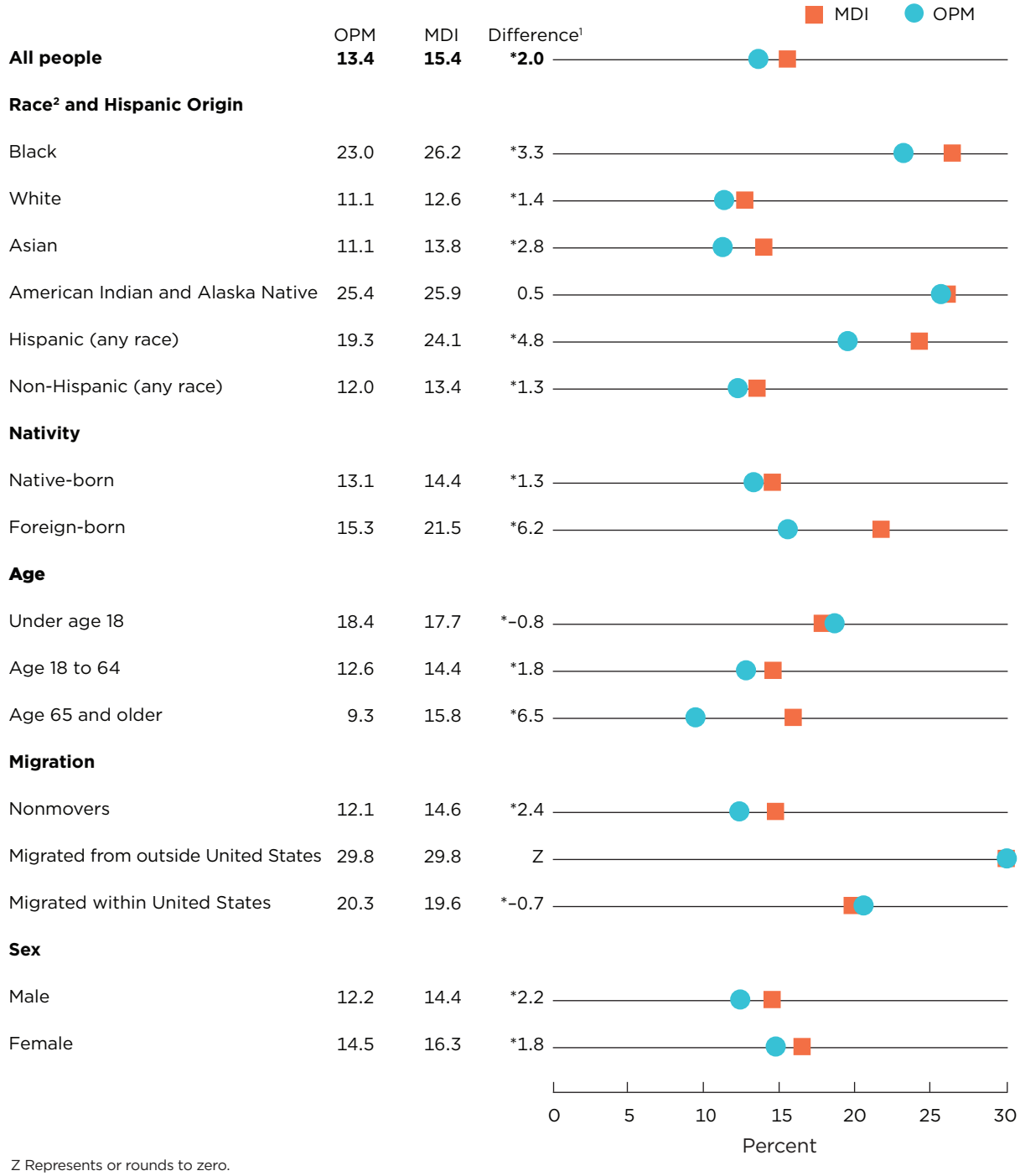
Figure 2.
**Deprivation and Poverty Rates Over Time: 2009-2017**




Note: For information on confidentiality protection, sampling error, nonsampling error, and definitions, see <www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html>.
Source: U.S. Census Bureau, 2009 to 2017 American Community Surveys and 2010 to 2018 County Health Rankings.

Figure 3.

## Percentage of People in Deprivation Across Measures by Demographic Group: 2017




| | OPM | MDI | Difference[1] |
|---|---|---|---|
| **All people** | **13.4** | **15.4** | ***2.0** |
| **Race[2] and Hispanic Origin** | | | |
| Black | 23.0 | 26.2 | *3.3 |
| White | 11.1 | 12.6 | *1.4 |
| Asian | 11.1 | 13.8 | *2.8 |
| American Indian and Alaska Native | 25.4 | 25.9 | 0.5 |
| Hispanic (any race) | 19.3 | 24.1 | *4.8 |
| Non-Hispanic (any race) | 12.0 | 13.4 | *1.3 |
| **Nativity** | | | |
| Native-born | 13.1 | 14.4 | *1.3 |
| Foreign-born | 15.3 | 21.5 | *6.2 |
| **Age** | | | |
| Under age 18 | 18.4 | 17.7 | *–0.8 |
| Age 18 to 64 | 12.6 | 14.4 | *1.8 |
| Age 65 and older | 9.3 | 15.8 | *6.5 |
| **Migration** | | | |
| Nonmovers | 12.1 | 14.6 | *2.4 |
| Migrated from outside United States | 29.8 | 29.8 | Z |
| Migrated within United States | 20.3 | 19.6 | *–0.7 |
| **Sex** | | | |
| Male | 12.2 | 14.4 | *2.2 |
| Female | 14.5 | 16.3 | *1.8 |



Z Represents or rounds to zero.
* Statistically significant at the 90 percent confidence level.
[1] Details may not sum to totals because of rounding.
[2] Federal surveys give respondents the option of reporting more than one race. Therefore, two basic ways of defining a race group are possible. A group such as Asian may be defined as those who reported Asian and no other race (the race-alone or single-race concept) or as those who reported Asian regardless of whether they also reported another race (the race-alone-or-in-combination concept). This table shows data using the first approach (race alone). The use of the single-race population does not imply that it is the preferred method of presenting or analyzing the data. The Census Bureau uses a variety of approaches. Information on people who reported more than one race, such as White and American Indian and Alaska Native or Asian and Black or African American, is available from the 2010 Census through American FactFinder. About 2.9 percent of people reported more than one race in the 2010 Census. Data for Native Hawaiians and Other Pacific Islanders and those reporting two or more races are not shown separately.
Note: For information on confidentiality protection, sampling error, nonsampling error, and definitions, see <www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html>.
Source: U.S. Census Bureau, 2017 American Community Survey and 2018 County Health Rankings.

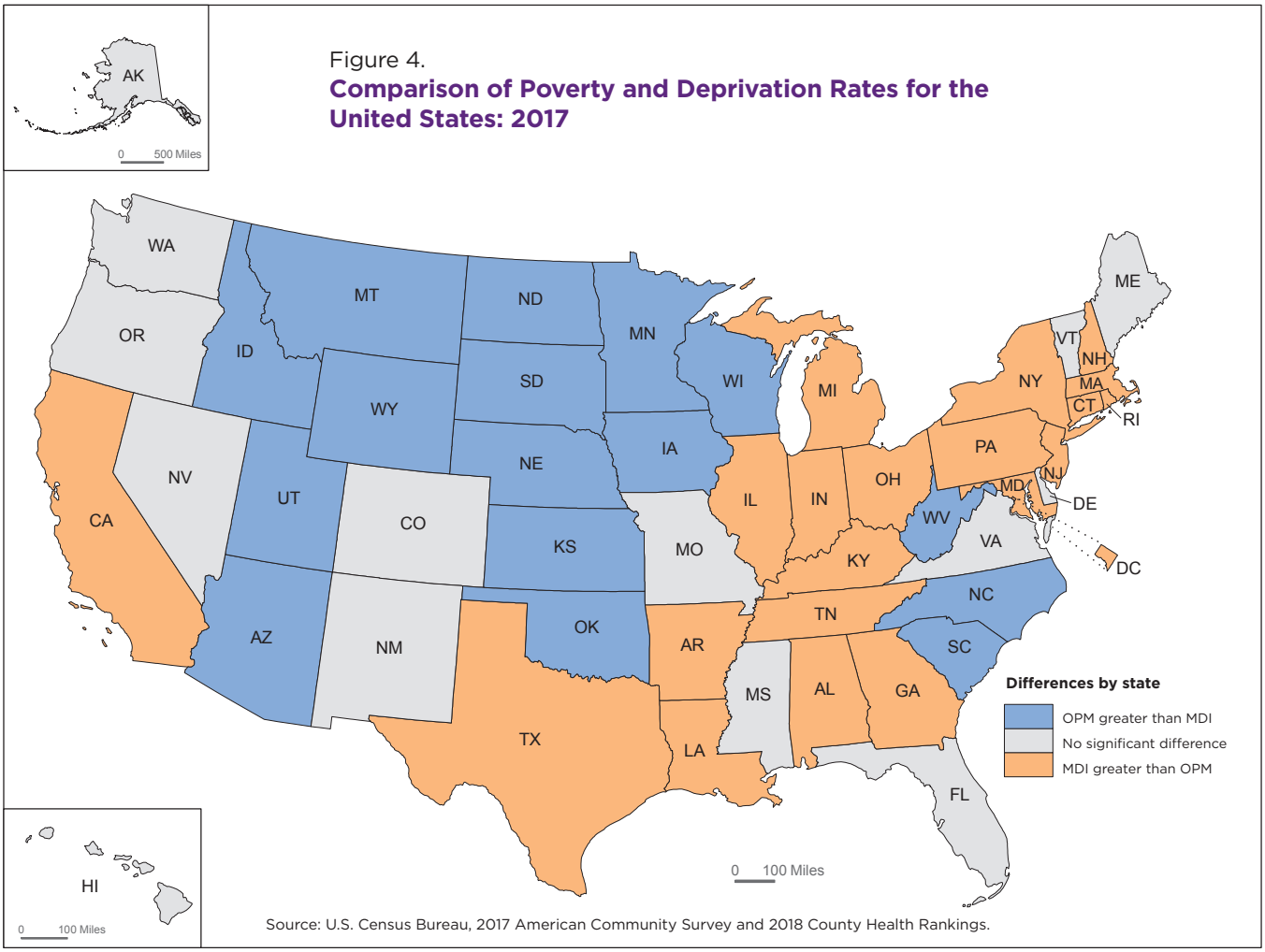
country in the prior year had the highest poverty and deprivation rates, but were the only group to have no significant differences across measures. Females had higher poverty and higher deprivation rates than males.

### Geographic Differences

All of the comparisons between the OPM and the MDI discussed thus far have been at the national level. However, significant differences existed by state. As shown in Figure 4, in 14 states, there was no significant difference between the OPM rates and the MDI rates in 2017, while in 20 states and the District of Columbia, the MDI rate was higher than the OPM rate. Unlike nationally, there were 16 states in which the OPM rate was higher than the MDI rate. The main difference between the three categories of states in Figure 4 is neighborhood quality. In states that were consistent with the national trend (the MDI rate was greater than the OPM rate), 14.8 percent of the population lived in poor quality neighborhoods. In contrast, 0.3 percent and 1.5 percent of populations lived in poor quality neighborhoods in states in which the OPM rate was greater than the MDI rate and in states in which the OPM rate was not significantly different from the MDI rate, respectively.

Nationally, both the OPM rate and MDI rate decreased from 2016 to 2017. As shown in Figure 5, over the same period, 20 states and the District of Columbia experienced declines in the OPM rate and 32 states saw declines in the MDI rate. The OPM rate increased in two states in 2017 (Delaware and West Virginia), while the MDI rate

Figure 4.
**Comparison of Poverty and Deprivation Rates for the United States: 2017**

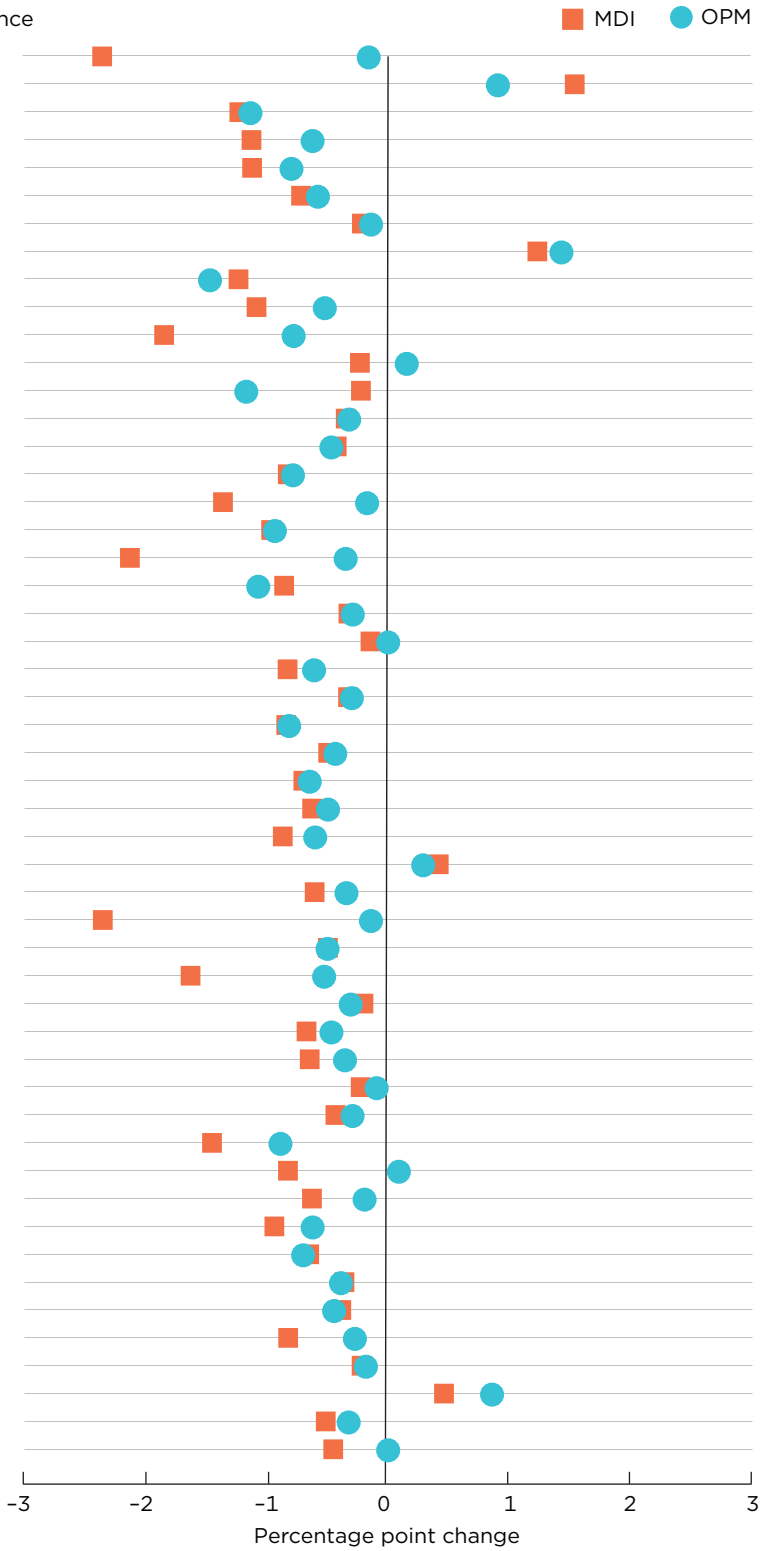



Source: U.S. Census Bureau, 2017 American Community Survey and 2018 County Health Rankings.

Figure 5.

## Change in State Poverty and Deprivation Rates: 2016 to 2017

| | OPM | MDI | Difference |
|---|---|---|---|
| Alabama | -0.2 | *-3.1 | *-2.9 |
| Alaska | 1.2 | *2.1 | 0.8 |
| Arizona | *-1.5 | *-1.6 | -0.1 |
| Arkansas | -0.8 | *-1.5 | -0.7 |
| California | *-1.0 | *-1.5 | *-0.4 |
| Colorado | *-0.8 | *-0.9 | -0.2 |
| Connecticut | -0.2 | -0.3 | -0.1 |
| Delaware | *1.9 | *1.6 | -0.3 |
| District of Columbia | *-1.9 | -1.6 | 0.3 |
| Florida | *-0.7 | *-1.4 | *-0.7 |
| Georgia | *-1.0 | *-2.4 | *-1.4 |
| Hawaii | 0.2 | -0.3 | -0.5 |
| Idaho | *-1.5 | -0.3 | 1.3 |
| Illinois | *-0.4 | *-0.5 | Z |
| Indiana | *-0.6 | -0.6 | 0.1 |
| Iowa | *-1.0 | *-1.1 | -0.1 |
| Kansas | -0.2 | *-1.8 | *-1.6 |
| Kentucky | *-1.2 | *-1.3 | Z |
| Louisiana | -0.5 | *-2.8 | *-2.4 |
| Maine | *-1.4 | *-1.1 | 0.3 |
| Maryland | -0.4 | -0.4 | Z |
| Massachusetts | Z | -0.2 | -0.2 |
| Michigan | *-0.8 | *-1.1 | -0.3 |
| Minnesota | -0.4 | *-0.4 | Z |
| Mississippi | *-1.1 | *-1.1 | Z |
| Missouri | *-0.6 | *-0.6 | -0.1 |
| Montana | -0.8 | -0.9 | -0.1 |
| Nebraska | -0.6 | *-0.8 | -0.2 |
| Nevada | -0.8 | *-1.1 | -0.4 |
| New Hampshire | 0.4 | 0.6 | 0.2 |
| New Jersey | -0.4 | *-0.8 | -0.3 |
| New Mexico | -0.2 | *-3.1 | *-2.9 |
| New York | *-0.7 | *-0.6 | Z |
| North Carolina | *-0.7 | *-2.2 | *-1.5 |
| North Dakota | -0.4 | -0.3 | 0.1 |
| Ohio | *-0.6 | *-0.9 | -0.3 |
| Oklahoma | -0.5 | *-0.8 | -0.4 |
| Oregon | -0.1 | -0.3 | -0.2 |
| Pennsylvania | *-0.4 | *-0.6 | -0.2 |
| Rhode Island | -1.2 | *-1.9 | -0.8 |
| South Carolina | 0.1 | *-1.1 | *-1.2 |
| South Dakota | -0.2 | -0.8 | -0.6 |
| Tennessee | *-0.8 | *-1.2 | -0.4 |
| Texas | *-0.9 | *-0.9 | 0.1 |
| Utah | -0.5 | -0.5 | Z |
| Vermont | -0.6 | -0.5 | 0.1 |
| Virginia | -0.4 | *-1.1 | *-0.7 |
| Washington | -0.2 | -0.3 | Z |
| West Virginia | *1.2 | 0.6 | -0.5 |
| Wisconsin | -0.4 | *-0.7 | -0.3 |
| Wyoming | Z | -0.6 | -0.6 |




* Statistically significant at the 90 percent confidence level.
Z Represents or rounds to zero.
Note: For information on confidentiality protection, sampling error, nonsampling error, and definitions, see <www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html>.
Source: U.S. Census Bureau, 2016 and 2017 American Community Surveys and 2017 and 2018 County Health Rankings.

increased in two states (Alaska and Delaware). There were no statistically significant changes in OPM rates across years in 28 states and no statistically significant changes in the MDI rates in 16 states and the District of Columbia.

Figure 5 also compares the change in poverty and deprivation rates from 2016 to 2017 across measures. The two rates were consistent with each other in the majority of states: both rates decreased in 18 states and both rates did not change significantly in 13 states. There were no states where trends from 2016 to 2017 were significant and contrary across the two measures. In 16 states and the District of Columbia, one measure showed a decrease while the other did not change significantly.[25] In West Virginia, the OPM rate increased while the MDI rate did not change significantly; in Alaska, the MDI rate increased while the OPM rate did not change significantly; and in Delaware both the OPM and MDI rates increased. The difference in the change in poverty and deprivation rates was significant in 10 states (Alabama, California, Florida, Georgia, Kansas, Louisiana, New Mexico, North Carolina, South Carolina, and Virginia), and in each of these states, the MDI rate decreased more than the OPM rate.

## DECOMPOSITIONS[26]

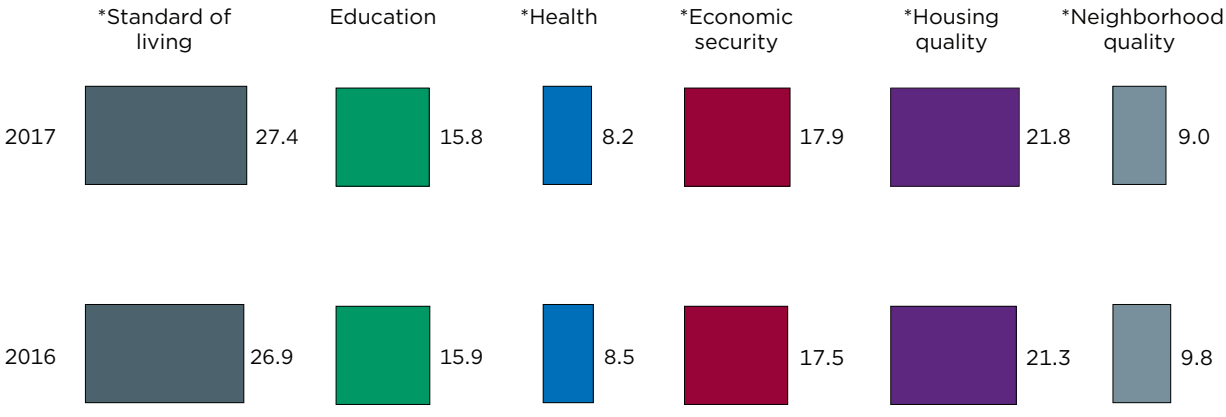
One of the advantages of the MDI is that it can be decomposed into the contributions that particular subgroups and individual dimensions make to the MDI.[27] These decompositions allow us to understand the impact that each dimension had on the overall MDI rate and facilitate comparisons of population shares. The MDI can be decomposed in two main ways: into contributions made by each of the dimensions and into contributions made by population subgroups.

[25] The MDI decreased in 14 states and the OPM decreased in 2 states and the District of Columbia.

[26] See appendix for decomposition methodology.

[27] The MDI is a headcount ratio—the count of people who are deprived divided by the total population. In order to perform a decomposition, the MDI must be converted to an adjusted headcount ratio. The adjusted headcount ratio (6.5 percent) is defined as the headcount ratio (15.4 percent) multiplied by the intensity of deprivation (0.4). The intensity measure is derived by first calculating the average number of deprivations for people who were multidimensionally deprived according to the MDI (2.6). This number is then divided by the total possible number of deprivations, which was six in this case. See appendix for details.

Figure 6.
**Contribution of Each Dimension to Multidimensional Deprivation: 2016 and 2017**
(In percent)




* Change in dimension over time is statistically significant at the 90 percent confidence level.
Note: For information on confidentiality protection, sampling error, nonsampling error, and definitions, see <www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html>.
Details may not sum to totals because of rounding.
Source: U.S. Census Bureau, 2016 and 2017 American Community Surveys and 2017 and 2018 County Health Rankings.

### Dimension Decomposition[28]

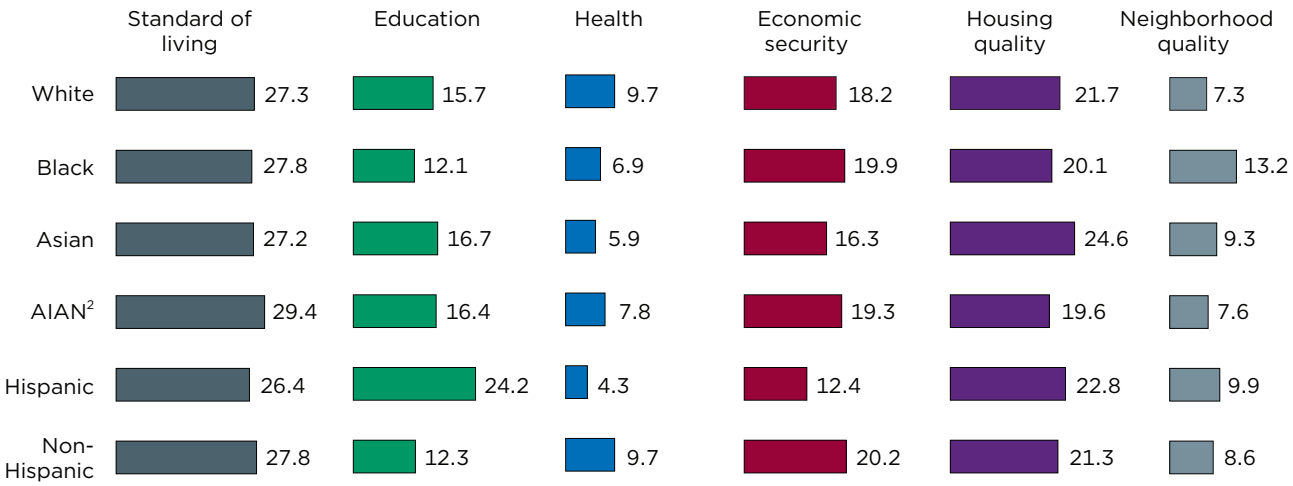
Dimension decomposition provides the contributions that each dimension made to the MDI rate. As shown in Figure 6, in both years, 2016 and 2017, standard of living and housing quality were the largest contributors while health was the smallest contributor. However, standard of living, economic security, and housing quality became larger contributors across years, while health and neighborhood quality became smaller contributors across years.

In addition to looking at dimensional decompositions over time, selected demographic decompositions are shown in Figures 7 and 8. The largest contributor to multidimensional deprivation for all groups in Figure 7 was standard of living. Health was a larger contributor to multidimensional deprivation for Whites than for the other races; housing quality was a larger contributor to multidimensional deprivation for Asians than for other races; standard of living was a larger contributor to multidimensional deprivation for American Indians and Alaska Natives than for other races; and neighborhood quality was a larger contributor to multidimensional deprivation for Blacks than for other races. Education, housing quality, and neighborhood quality were larger contributors to multidimensional deprivation for Hispanics than for non-Hispanics, while health, economic security, and standard of living were larger contributors to multidimensional deprivation for non-Hispanics than for Hispanics.

In Figure 8, the MDI is decomposed by dimension and age classification. Deprivation in standard of living accounted for 32.5 percent of the MDI rate for

[28] In order to decompose the MDI by its dimensions, the proportion of people who are both deprived in the dimension and multidimensionally deprived was calculated. Then, this value was divided by the number of dimensions, six, and then by the overall adjusted headcount ratio. See appendix for details.

Figure 7.
**Contribution of Each Dimension to Multidimensional Deprivation by Race[1] and Hispanic Origin: 2017**
(In percent)




[1] Federal surveys give respondents the option of reporting more than one race. Therefore, two basic ways of defining a race group are possible. A group such as Asian may be defined as those who reported Asian and no other race (the race-alone or single-race concept) or as those who reported Asian regardless of whether they also reported another race (the race-alone-or-in-combination concept). This table shows data using the first approach (race alone). The use of the single-race population does not imply that it is the preferred method of presenting or analyzing the data. The Census Bureau uses a variety of approaches. Information on people who reported more than one race, such as White and American Indian and Alaska Native or Asian and Black or African American, is available from the 2010 Census through American FactFinder. About 2.9 percent of people reported more than one race in the 2010 Census. Data for Native Hawaiians and Other Pacific Islanders and those reporting two or more races are not shown separately.
[2] American Indian and Alaska Native.
Note: For information on confidentiality protection, sampling error, nonsampling error, and definitions, see <www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html>.
Details may not sum to totals because of rounding.
Source: U.S. Census Bureau, 2017 American Community Survey and 2018 County Health Rankings.

people under the age of 18, but accounted for 20.3 percent of the MDI rate for people aged 65 and over. Similarly, deprivation in economic security accounted for 21.0 percent of the MDI rate for people aged 18 to 64, but accounted for 7.6 percent of the overall MDI rate for people aged 65 and over. One of the largest discrepancies across age classes was in the health dimension. Health deprivation accounted for 21.3 percent of the MDI rate for people aged 65 and over, while it accounted for 8.4 percent and 0.2 percent of the MDI for people aged 18 to 64 and people under the age of 18, respectively. Standard of living and housing quality were larger contributors to multidimensional deprivation for people under the age of 18 than for other age groups; economic security was a larger contributor to multidimensional deprivation for people aged 18 to 64 than for other age groups; and health, neighborhood quality, and education were larger contributors to multidimensional deprivation for people aged 65 and over than for other age groups.

### Population Shares[29]

Decomposing the MDI by population subgroups gives the percentage of the national MDI rate contributed by a particular subgroup. As seen in Table 3, in 2017, Blacks, American Indian and Alaska Native, Hispanics, and people under the age of 18 represented larger shares of the multidimensionally deprived population than the overall population. Alternatively, Whites, Asians, non-Hispanics, people aged 18 to 64, and those aged 65 and over were underrepresented in the multidimensional deprivation population relative to their overall population.

[29] In order to decompose the MDI by subgroups, the adjusted headcount ratio for a subgroup was divided by the overall adjusted headcount ratio. This number was then multiplied by the subgroup's share of the total population. See appendix for details.

## SOURCE AND ACCURACY

The estimates presented in this report are largely based on the ACS sample interviewed from January 2017 through December 2017 (2017 ACS). Estimates are also derived from the 2009 through the 2016 ACS. The estimates based on these samples describe the average values of person, household, and housing unit characteristics over this period of collection. Sampling error is the uncertainty between an estimate based on a sample and the corresponding value

Figure 8.
**Contribution of Each Dimension to Multidimensional Deprivation by Age: 2017**
(In percent)


Note: For information on confidentiality protection, sampling error, nonsampling error, and definitions, see <www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html>.
Details may not sum to totals because of rounding.
Source: U.S. Census Bureau, 2017 American Community Survey and 2018 County Health Rankings.

Table 3.

## Multidimensional Deprivation Index Shares and Population Shares: 2017

(For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html*)

| Characteristic | MDI population share | | Total population share | | Difference (MDI minus total)[1] | |
|---|---|---|---|---|---|---|
| | Percent | Margin of error (±) | Percent | Margin of error (±) | Percent | Margin of error (±) |
| **Race[2]** | | | | | | |
| White | 58.1 | 0.4 | 72.5 | Z | *–14.4 | 0.5 |
| Black | 22.6 | 0.2 | 12.5 | Z | *10.1 | 0.2 |
| Asian | 4.8 | 0.1 | 5.6 | Z | *–0.8 | 0.1 |
| American Indian and Alaska Native | 1.4 | Z | 0.8 | Z | *0.6 | 1.2 |
| **Hispanic Origin** | | | | | | |
| Hispanic | 29.4 | 0.3 | 18.7 | Z | *10.6 | 0.3 |
| Non-Hispanic | 70.6 | 0.5 | 81.3 | Z | *–10.6 | 0.5 |
| **Age** | | | | | | |
| Under age 18 | 26.5 | 0.3 | 22.8 | Z | *3.7 | 0.3 |
| Age 18 to 64 | 58.5 | 0.4 | 61.6 | Z | *–3.1 | 0.4 |
| Age 65 and over | 15.0 | 0.1 | 15.6 | Z | *–0.6 | 0.1 |

* Statistically different from zero at the 90 percent confidence level.

Z Represents or rounds to zero.

[1] Details may not sum to totals because of rounding.

[2] Federal surveys give respondents the option of reporting more than one race. Therefore, two basic ways of defining a race group are possible. A group such as Asian may be defined as those who reported Asian and no other race (the race-alone or single-race concept) or as those who reported Asian regardless of whether they also reported another race (the race-alone-or-in-combination concept). This table shows data using the first approach (race alone). The use of the single-race population does not imply that it is the preferred method of presenting or analyzing the data. The Census Bureau uses a variety of approaches. Information on people who reported more than one race, such as White and American Indian and Alaska Native or Asian and Black or African American, is available from the 2010 Census through American FactFinder. About 2.9 percent of people reported more than one race in the 2010 Census. Data for Native Hawaiians and Other Pacific Islanders and those reporting two or more races are not shown separately.

Note: Race shares do not sum to 100 percent. Approximately 8.6 percent of the population is made up of other racial categories alone or in combination. The deprivation universe excludes children under the age of 15 who are not related to the householder, people living in institutional group quarters (e.g., nursing homes or correctional facilities), and people living in college dormitories or military barracks. Data are based on a sample and are subject to sampling variability. A margin of error is a measure of an estimate's variability. The larger the margin of error in relation to the size of the estimate, the less reliable the estimate. This number when added to or subtracted from the estimate forms the 90 percent confidence interval.

Source: U.S. Census Bureau, 2017 American Community Survey and 2018 County Health Rankings.

that would be obtained if the estimate were based on the entire population (as from a census). Measures of sampling error are provided in the form of margins of error for all estimates included in this report. All comparative statements in this report have undergone statistical testing, and comparisons are significant at the 90 percent confidence level unless otherwise noted. In addition to sampling error, nonsampling error may be introduced during any of the operations used to collect and process survey data, such as editing, reviewing, or keying data from questionnaires. For more information on sampling and estimation methods, confidentiality protection, and sampling and nonsampling errors, please see the 2017 ACS 1-year Accuracy of the Data document located at <www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html>.

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## APPENDIX

### MDI Methodology

The methodology used in this report to create the MDI is the Alkire-Foster dual cut-off point method.[30] There are three main areas of consideration: headcount ratio, weighting, and dimensional decomposition.

### Headcount Ratio

The headcount ratio, *H*, is the count of people in multidimensional deprivation divided by the total population, *n*.[31] Determining who is considered in multidimensional deprivation involves the following six steps:

1. Determine the MDI dimensions.
2. Set cut-off points for each dimension (i.e., thresholds between people deprived in the dimension and those not deprived in the dimension).
3. Sum the dimensions each person is deprived in and decide on how to weight each dimension.
4. Set a second cut-off point that determines what share of weighted dimensions a person must be deprived of in order to be in multidimensional deprivation.
5. Sum the individuals who fall into this definition of deprivation, *q*.
6. Divide this value by the total population:

$$H = \frac{q}{n}$$

[30] See in-depth explanation of this methodology at <https://multidimensionalpoverty.org/chapter-5/>.

[31] The total population is limited to people in the deprivation universe. The deprivation universe excludes children under the age of 15 who are not related to the householder, people living in institutional group quarters (e.g., nursing homes or correctional facilities), and people living in college dormitories or military barracks.

### Weighting

While the MDI implies deprivation in multiple dimensions, not all dimensions have to be weighted equally. In this report, each dimension was weighted equally for three reasons. First, equal weighting of dimensions is easy to understand. Deciding to use an indicator as a dimension means it is important enough to stand on its own, not combined with several indicators into a composite dimension. Second, equal weighting is defensible. Weighting one dimension as more important than another dimension involves a value judgement that may be true for some people in the population and not true for others. Third, if all weighting schemes are problematic and cause one to be concerned about the robustness of the results, the most straightforward method is the natural choice.

### Decomposition

The MDI can be broken down into contributions made by dimensions and decomposed by population subgroups. This cannot be done, however, using the headcount ratio. In order to perform a decomposition, the headcount ratio needs to be adjusted.

### Dimension

In order to break the MDI down by dimensions and decompose it into subgroups, an adjusted headcount ratio needs to be calculated. The adjusted headcount ratio, *M*, is calculated by multiplying the headcount ratio, *H*, by the intensity of deprivation, *A*:

$$M = H \times A$$

The intensity of deprivation is the average percentage of total weighted dimension deprivations among the MDI deprived. This is calculated as the total number of dimensions in which the deprived are deficient, *T*, divided by the maximum possible number of dimensions in which the deprived could be deficient, 6*q*.

$$A = \frac{T}{6q}$$

Defined below through substitution:

$$M = \frac{T}{6n}$$

The total dimensions the deprived are deficient in, *T*, can then be separated into the number of individual dimensions the deprived are deficient in:

$$T = D_1 + D_2 + D_3 + D_4 + D_5 + D_6$$

The adjusted headcount ratio equation is expanded and divided through by *M*:

$$1 = \frac{D_1}{6nM} + \frac{D_2}{6nM} + \ldots$$

Therefore, the proportion of the overall population that is both deprived and deficient in dimension one, $D_1$, is defined as $D_1/n$. Dividing by the number of dimensions, 6, and the adjusted headcount ratio, *M*, provides the contribution to the MDI rate made by people deficient in dimension one. These same calculations can be done to find the contributions of the other dimensions.

### Subgroup

To illustrate a subgroup decomposition, imagine there are two subgroups in a population, *a* and *b*. Then, the adjusted headcount ratio, *M*, is defined below where $T_a$ is the total number of dimensions the deprived in subgroup population a are deficient in.

$$M = \frac{T_a}{6n} + \frac{T_b}{6n}$$

This equation can be expanded using the total population for subgroup *a*, $n_a$, and *b*, $n_b$:

$$M = \frac{T_a}{6n_a}\frac{n_a}{n} + \frac{T_b}{6n_b} \times \frac{n_b}{n}$$

and transformed through substitution and division as defined below:

$$1 = \frac{M_a}{M}\frac{n_a}{n} + \frac{M_b}{M} \times \frac{n_b}{n}$$

Above, $M_a$ is the adjusted headcount ratio for subgroup *a*. The first statement on the right-hand side of the equation provides the contribution to the MDI rate made by subgroup *a*. It is found by multiplying the deprivation share of subgroup a by the population share of subgroup *a*.

## Predicting Health Status

The first step in assigning predicted health status in the ACS is to calculate parameters in the CPS ASEC. In the CPS ASEC, respondents are asked to rate their general health. They are able to rate their health status as 1-excellent, 2-very good, 3-good, 4-fair, and 5-poor. Respondents are also asked if they have the following disabilities: hearing difficulty; vision difficulty; difficulty concentrating, remembering, or making decisions; difficultly walking or climbing stairs; difficulty dressing or bathing; or difficulty doing errands alone such as visiting a doctor's office or shopping. These same disability questions are also asked in the ACS. Reported health status is then regressed on age and dummy variables for each of the six disabilities. The parameters from this regression are an age coefficient, six disability coefficients, and a constant term.

These parameters are used in the ACS to assign a measure of predicted health status. The resulting reported health status variable ranges from low values indicating good health to high values indicating poor health.

Table A-1.

## Indicators Used to Create Dimensions for Multidimensional Deprivation Measures in the Literature

| Indicator | MDI report | Glassman 2017 | Dhongde 2016 | Garcia-Perez 2016 | Mitra 2016 | Reeves 2016 | Betti 2015 | Ciula 2015 | Martinez Jr. 2015 | Whelan 2014 | Wagle 2014 | Alkire 2011a | Ayala 2011 | Coromaldi 2011 | D'Ambrosio 2011 | DeWilde 2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Disabilities | | X | X | | | | | | X | | | | | | X | |
| Reported health | X | | | | X | | X | X | X | X | X | X | | X | X | |
| Health insurance | X | X | X | | X | X | | X | | | | X | | | | |
| Education | X | X | X | | X | X | X | X | X | | X | X | | | | |
| Percentage of median income or housing greater than 50% of income | | | X | | | | | X | X | | X | | | | X | X |
| Official poverty status | X | X | | | X | X | | | | | | X | | | | |
| Unemployment | X | X | | | X | X | X | | X | | | | | | | |
| Low quality housing | X | X | X | | | | | | | | | | | | | |
| Lack of space or light, the presence of leaks or dampness | | | | | | | X | X | | | | | X | X | | X |
| Neighborhood poverty | | X | | | | X | | | | | | | | | | |
| Crime, violence, vandalism, pollution, or noise | X | | | | | | X | X | X | X | | | | X | | |
| Lacking toilet, sink, running water, fridge, stove, or bath | X | X | | | | | | | | | | | | X | X | X |
| A person cannot afford: 1 week's holiday away from home, a meal with meat, chicken or fish every second day, a car, or keeping the house at an appropriate temperature | | | | X | | | X | X | | X | | | X | X | X | X |
| A person cannot afford: mortgage or rent payment, a telephone, a color television, or a washing machine | | | | X | | | X | | | | | | X | X | X | |
| Unexpected financial expenses | | | | X | | | X | | | | | | | X | | |
| Lacks computer or Internet | | | | | | | | | | X | | | X | | | |
| Ability to make ends meet | | | | | | | X | | | | | | | X | X | X |
| Social support, community participation | | | | | | | | | X | | X | | | | X | |
| Occupational prestige, electoral participation, and political activism | | | | | | | | | | | X | | | | | X |

Note: The variety of indicators used across studies are listed in the rows while the authors who used those indicators, represented by the first author, are listed in the columns, starting with this paper, MDI report, and ending with DeWilde 2008. An X is in the appropriate box if the author used that indicator or something closely related to that indicator.

Source: Glassman, Brian, "Multidimensional Deprivation in the United States: 2017," *American Community Survey Reports,* ACS-40, U.S. Census Bureau, Washington, DC, 2019.

Table A-2.

## Differences Between MDI and OPM by State: 2017

(For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html*)

| State | OPM | | MDI | | Difference (MDI minus OPM)[1] | |
|---|---|---|---|---|---|---|
| | Percent | Margin of error (±) | Percent | Margin of error (±) | Percent | Margin of error (±) |
| Alabama | 16.9 | 0.5 | 21.3 | 0.5 | *4.4 | 0.7 |
| Alaska | 11.1 | 1.0 | 11.9 | 1.1 | 0.8 | 1.5 |
| Arizona | 14.9 | 0.4 | 14.2 | 0.4 | *–0.7 | 0.6 |
| Arkansas | 16.4 | 0.6 | 19.4 | 0.7 | *3.0 | 0.9 |
| California | 13.3 | 0.2 | 18.6 | 0.2 | *5.3 | 0.3 |
| Colorado | 10.3 | 0.3 | 9.9 | 0.3 | –0.4 | 0.4 |
| Connecticut | 9.6 | 0.5 | 11.1 | 0.5 | *1.6 | 0.7 |
| Delaware | 13.6 | 1.0 | 13.2 | 1.0 | –0.3 | 1.4 |
| District of Columbia | 16.6 | 1.1 | 21.8 | 1.1 | *5.1 | 1.5 |
| Florida | 14.0 | 0.3 | 14.3 | 0.3 | 0.3 | 0.4 |
| Georgia | 14.9 | 0.5 | 16.0 | 0.4 | *1.1 | 0.7 |
| Hawaii | 9.5 | 0.6 | 10.1 | 0.7 | 0.5 | 0.9 |
| Idaho | 12.8 | 0.7 | 11.2 | 0.8 | *–1.6 | 1.1 |
| Illinois | 12.6 | 0.3 | 20.5 | 0.3 | *7.9 | 0.4 |
| Indiana | 13.5 | 0.4 | 15.4 | 0.4 | *1.9 | 0.6 |
| Iowa | 10.7 | 0.4 | 9.3 | 0.4 | *–1.5 | 0.5 |
| Kansas | 11.9 | 0.5 | 10.6 | 0.5 | *–1.3 | 0.7 |
| Kentucky | 17.2 | 0.5 | 18.7 | 0.5 | *1.5 | 0.7 |
| Louisiana | 19.7 | 0.6 | 21.6 | 0.6 | *1.9 | 0.8 |
| Maine | 11.1 | 0.6 | 10.7 | 0.6 | –0.3 | 0.8 |
| Maryland | 9.3 | 0.4 | 14.2 | 0.4 | *4.9 | 0.5 |
| Massachusetts | 10.5 | 0.3 | 11.6 | 0.3 | *1.2 | 0.5 |
| Michigan | 14.2 | 0.3 | 16.3 | 0.3 | *2.1 | 0.4 |
| Minnesota | 9.5 | 0.3 | 9.0 | 0.3 | *–0.5 | 0.4 |
| Mississippi | 19.8 | 0.5 | 19.8 | 0.6 | 0.1 | 0.8 |
| Missouri | 13.4 | 0.4 | 13.4 | 0.3 | Z | 0.5 |
| Montana | 12.5 | 0.8 | 10.8 | 0.7 | *–1.6 | 1.1 |
| Nebraska | 10.8 | 0.6 | 9.4 | 0.5 | *–1.4 | 0.8 |
| Nevada | 13.0 | 0.6 | 13.0 | 0.7 | Z | 0.9 |
| New Hampshire | 7.7 | 0.6 | 8.6 | 0.6 | *0.9 | 0.8 |
| New Jersey | 10.0 | 0.3 | 11.9 | 0.3 | *2.0 | 0.4 |
| New Mexico | 19.7 | 0.8 | 20.5 | 0.8 | 0.9 | 1.1 |
| New York | 14.1 | 0.2 | 17.6 | 0.2 | *3.5 | 0.3 |
| North Carolina | 14.7 | 0.4 | 13.9 | 0.4 | *–0.8 | 0.5 |
| North Dakota | 10.3 | 0.7 | 9.0 | 0.7 | *–1.3 | 1.0 |
| Ohio | 14.0 | 0.3 | 15.2 | 0.3 | *1.2 | 0.4 |
| Oklahoma | 15.8 | 0.4 | 14.2 | 0.4 | *–1.6 | 0.6 |
| Oregon | 13.2 | 0.5 | 13.0 | 0.5 | –0.3 | 0.7 |
| Pennsylvania | 12.5 | 0.3 | 14.8 | 0.3 | *2.3 | 0.4 |
| Rhode Island | 11.6 | 1.0 | 13.0 | 1.0 | *1.4 | 1.4 |
| South Carolina | 15.4 | 0.4 | 14.6 | 0.5 | *–0.8 | 0.6 |
| South Dakota | 13.0 | 0.8 | 10.8 | 0.7 | *–2.2 | 1.1 |
| Tennessee | 15.0 | 0.4 | 16.4 | 0.3 | *1.4 | 0.5 |
| Texas | 14.7 | 0.2 | 18.2 | 0.2 | *3.5 | 0.3 |
| Utah | 9.7 | 0.5 | 8.3 | 0.6 | *–1.4 | 0.8 |
| Vermont | 11.3 | 1.0 | 10.9 | 0.9 | –0.4 | 1.4 |
| Virginia | 10.6 | 0.3 | 11.0 | 0.3 | 0.4 | 0.5 |
| Washington | 11.0 | 0.3 | 11.1 | 0.3 | 0.1 | 0.5 |
| West Virginia | 19.1 | 0.8 | 17.4 | 0.7 | *–1.7 | 1.1 |
| Wisconsin | 11.3 | 0.3 | 10.4 | 0.3 | *–0.9 | 0.4 |
| Wyoming | 11.3 | 1.1 | 8.9 | 1.0 | *–2.4 | 1.4 |

Z Represents or rounds to zero.

* Statistically different from zero at the 90 percent confidence level.

[1] Details may not sum to totals because of rounding.

Note: The deprivation universe excludes children under the age of 15 who are not related to the householder, people living in institutional group quarters (e.g., nursing homes or correctional facilities), and people living in college dormitories or military barracks. Data are based on a sample and are subject to sampling variability. A margin of error is a measure of an estimate's variability. The larger the margin of error in relation to the size of the estimate, the less reliable the estimate. This number when added to or subtracted from the estimate forms the 90 percent confidence interval.

Source: U.S. Census Bureau, 2017 American Community Survey and 2018 County Health Rankings.

Table A-3.

## Percent Contribution of Each Dimension to Multidimensional Deprivation: 2017

(For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html*)

| Characteristic | Health | | Education | | Standard of living | | Economic security | | Housing quality | | Neighborhood quality | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Percent | Margin of error (±) | Percent | Margin of error (±) | Percent | Margin of error (±) | Percent | Margin of error (±) | Percent | Margin of error (±) | Percent | Margin of error (±) |
| **Year** | | | | | | | | | | | | |
| 2017 | 8.2 | 0.1 | 15.8 | 0.1 | 27.4 | 0.2 | 17.9 | 0.1 | 21.8 | 0.2 | 9.0 | 0.1 |
| 2016 | 8.5 | 0.1 | 15.9 | 0.1 | 26.9 | 0.2 | 17.5 | 0.1 | 21.3 | 0.2 | 9.8 | 0.1 |
| **Race**[1] | | | | | | | | | | | | |
| White | 9.7 | 0.1 | 15.7 | 0.2 | 27.3 | 0.3 | 18.2 | 0.2 | 21.7 | 0.2 | 7.3 | 0.2 |
| Black | 6.9 | 0.1 | 12.1 | 0.2 | 27.8 | 0.4 | 19.9 | 0.3 | 20.1 | 0.3 | 13.2 | 0.2 |
| Asian | 5.9 | 0.2 | 16.7 | 0.5 | 27.2 | 0.8 | 16.3 | 0.5 | 24.6 | 0.7 | 9.3 | 0.3 |
| American Indian and Alaska Native | 7.8 | 0.4 | 16.4 | 0.9 | 29.4 | 1.1 | 19.3 | 0.9 | 19.6 | 0.9 | 7.6 | 0.5 |
| **Hispanic Origin** | | | | | | | | | | | | |
| Hispanic | 4.3 | 0.1 | 24.2 | 0.3 | 26.4 | 0.3 | 12.4 | 0.2 | 22.8 | 0.4 | 9.9 | 0.1 |
| Non-Hispanic | 9.7 | 0.1 | 12.3 | 0.1 | 27.8 | 0.3 | 20.2 | 0.2 | 21.3 | 0.2 | 8.6 | 0.1 |
| **Age** | | | | | | | | | | | | |
| Under age 18 | 0.2 | Z | 16.3 | 0.2 | 32.5 | 0.4 | 16.3 | 0.3 | 25.4 | 0.4 | 8.6 | 0.1 |
| Age 18 to 64 | 8.4 | 0.1 | 14.0 | 0.1 | 26.8 | 0.1 | 21.0 | 0.1 | 20.8 | 0.1 | 8.9 | 0.1 |
| Age 65 and over | 21.3 | 0.2 | 21.8 | 0.2 | 20.3 | 0.2 | 7.6 | 0.1 | 19.3 | 0.2 | 9.8 | 0.1 |

Z Represents or rounds to zero.

[1] Federal surveys give respondents the option of reporting more than one race. Therefore, two basic ways of defining a race group are possible. A group such as Asian may be defined as those who reported Asian and no other race (the race-alone or single-race concept) or as those who reported Asian regardless of whether they also reported another race (the race-alone-or-in-combination concept). This table shows data using the first approach (race alone). The use of the single-race population does not imply that it is the preferred method of presenting or analyzing the data. The Census Bureau uses a variety of approaches. Information on people who reported more than one race, such as White and American Indian and Alaska Native or Asian and Black or African American, is available from the 2010 Census through American FactFinder. About 2.9 percent of people reported more than one race in the 2010 Census. Data for Native Hawaiians and Other Pacific Islanders and those reporting two or more races are not shown separately.

Note: The deprivation universe excludes children under the age of 15 who are not related to the householder, people living in institutional group quarters (e.g., nursing homes or correctional facilities), and people living in college dormitories or military barracks. Data are based on a sample and are subject to sampling variability. A margin of error is a measure of an estimate's variability. The larger the margin of error in relation to the size of the estimate, the less reliable the estimate. This number when added to or subtracted from the estimate forms the 90 percent confidence interval.

Source: U.S. Census Bureau, 2016 and 2017 American Community Surveys and 2017 and 2018 County Health Rankings.