The Census Multidimensional Deprivation Index: Revised and Updated

Brian Glassman
Poverty Statistics Branch
Social, Economic, and Housing Statistics Division
U.S. Census Bureau[1]

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Abstract

The Census Bureau released a report on Multidimensional Deprivation in the spring of 2019 for the years 2009 through 2017. The Multidimensional Deprivation Index (MDI) consisted of six dimensions: standard of living, health, education, economic security, housing quality, and neighborhood quality. The purpose of this paper is to revise the health, economic security, and housing quality dimensions and redefine the neighborhood quality dimension. Two sets of results are examined. The first set are comparisons at the national level, at the state level, and by demographic groups between the Census Report MDI and the revised MDI from this paper using 2017 data. The second set are MDI estimates using the new MDI methodology. These MDI estimates are compared to official poverty rates and examined over time, by state, and by demographic groups. Furthermore, the MDI is decomposed into contributions made by each dimension of the MDI and decomposed into contributions made by population subgroups.

[1] This paper is released to inform interested parties of ongoing research and to encourage discussion of work in progress. Any views expressed are those of the author and not necessarily of the U.S. Census Bureau.
The Census Bureau reviewed this data product for unauthorized disclosure of confidential information and has approved the disclosure avoidance practices applied to this release. CDDRB-FY21-POP001-0034.

Introduction

As of 2020, 26 countries used national or local multidimensional deprivation indexes (MDI) as their official measure of poverty.[2] 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 is to reduce the percentage of people living in poverty in all its dimensions.[3]

Multidimensional deprivation measurement is based on the idea that there are income and non-income based indicators that may identify people as deprived. 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 only income poor but are not deprived in other areas.

There has been increased interest in multidimensional poverty since Alkire and Foster published their dual-cutoff approach in 2011. This approach involves setting one cutoff to determine deprivation in a particular dimension and a second cutoff to determine in how many dimensions a person must be deprived in order to be considered poor.

The Census Bureau released its first report on Multidimensional Deprivation in 2019.[4] The report included MDI rates for the years 2009 through 2017 calculated from the American Community Survey. The U.S. Census Bureau also produces official[5] 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.[6] Both the official poverty measure (OPM) and the supplemental poverty measure (SPM) are unidimensional measures of poverty that compare resources to a poverty threshold to determine poverty status.[7]

The MDI should be viewed as a separate measure from the OPM or SPM. The OPM and SPM measure income available to meet some minimum threshold of consumption needs, while the MDI evaluates deprivations in a number of different areas in addition to income poverty. However, the overlap across the two types of measures is valuable because it shows how much of the population with multiple deprivations is captured by the unidimensional poverty measures.

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[2] A full list of countries using a multidimensional approach is available at https://mppn.org/multidimensional-poverty/who-uses/.
[3] See https://sustainabledevelopment.un.org/topics/povertyeradication.
[4] See https://www.census.gov/content/dam/Census/library/publications/2019/demo/acs-40.pdf.
[5] 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: 2019.
[6] See Income and Poverty in the United States: 2019; Supplemental Poverty Measure: 2019; Monthly and Average Monthly Poverty Rates by Selected Demographic Characteristics: 2013.
[7] In this report, we use OPM to refer to estimates from the ACS that use the official poverty methodology.

The purpose of this paper is twofold: first, to improve the measurement and definition of several dimensional definitions in order to provide revised estimates for the years 2010 through 2017, and second, to add two new years of data, 2018 and 2019, to the MDI. There are six dimensions in the MDI in this paper. Two dimensions, standard of living and education, are defined just as they were in the 2019 Census Report. The other four dimensions, health, economic security, housing quality, and neighborhood quality, are changed in significant ways detailed in the methods section.

The paper is organized as follows. Section 2 of the paper presents a short literature review. In section 3, the data and methodology for the MDI are discussed. Section 4 lays out the main results of the paper. In this section, two things are done. First, MDI results using the revised methodology are explored by demographic group, by state, and over time. Second, decompositions of the revised MDI are performed, which allow for the analysis of subgroup contributions to the MDI rate as well as each dimension's contribution to the MDI rate. Section 5 discusses the main findings and concludes. In the appendix, the MDI results using the revised methods in this paper are compared to the 2017 MDI from the 2019 Census report.

Literature review

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

In the U.S., researchers have used the National Health Interview Survey (Alkire and Foster 2011), the CPS ASEC (Mitra and Brucker 2016, 2019), the ACS (Dhongde et al. 2019; Glassman 2017, 2019; Dhongde and Haveman 2016; Reeves et al. 2016), the SIPP (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 and Apablaza 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 three (Dewilde 2008) to seventeen (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

[8] See Stiglitz et al., 2009.

(education, health, employment, poverty status), unique combinations of indicators also appear, even from researchers using the same data source.[9]

Data and Methods

The data used to construct the MDI comes from the ACS 1-year sample. The 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).[10] The ACS is the best source of sub-national economic, social, and employment characteristics and its large sample size allows for decompositions by demographic characteristics and small geographical areas.

The ACS data is supplemented with data at the block group level from the Area Deprivation Index (ADI) created by the University of Wisconsin-Madison.[11] The ADI is an index of seventeen socioeconomic indicators from the American Community Survey 5-year sample.

The MDI is constructed using the Alkire-Foster method, a widely-used flexible methodology (Alkire 2011a) 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. Similar to the poverty estimates using official thresholds from the CPS ASEC, SIPP and ACS, the MDI is limited to the poverty universe - all persons except unrelated individuals under age 15 and individuals residing in institutional group quarters. A person is defined as deprived according to the MDI if they are deprived in at least two dimensions.[12]

The MDI produced in this report uses six dimensions, summarized in the table "Changes to the Multidimensional Deprivation Index" and discussed in detail below, to determine if someone is categorized as deprived. Table 1 also includes how dimension definitions changed from the 2019 Census report to this paper. The standard of living dimension, which uses the same definition as the 2019 Census report, is a traditional unidimensional poverty measure. Many studies have used a country's income-based poverty measure to determine standard of living, as is done in this paper.

Education, which also uses the same definition as the 2019 Census report, is included in the MDI because limited educational attainment 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 of age and is without a high school degree or GED. Since people under age 19 are likely to still be in school, for this group the educational attainment of the householder is substituted for their own educational attainment. Therefore, a child under age 19 is deprived in this dimension if the householder lacks a high school degree or GED.

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[9] For a more detailed review of the literature, see https://www.census.gov/content/dam/Census/library/publications/2019/demo/acs-40.pdf.

[10] 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. Homeless populations are not included in the sample universe unless they are living in shelters at the time of the survey.

[11] This project was supported by National Institute on Aging Award (RF1AG057784 [PI Kind, MPI Bendlin]) and National Institute on Minority Health and Health Disparities Award (R01MD010243 [PI Kind]). This material is the result of work also supported with the resources and the use of facilities at the University of Wisconsin Department of Medicine Health Services and Care Research Program. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

[12] A cut-off of two dimensions is used in much of the literature to define multidimensional deprivation.

Table 1: Changes to the Multidimensional Deprivation Index		
Dimensions	2019 Census Report	Current paper
Standard of living	In poverty according to the official poverty measure	No change
Education	Aged 19 or older and without a high school diploma or GED[a]	No change
Health	Predicted health status[b] is poor. Based on cutoff value of 3 for people under age 65 and 3.5 for people age 65 and over.	**For people under age 65:** Lacked health insurance. **For people age 65 and over:** Lacked health insurance or reported at least two disabilities
Economic security	At least two of the following conditions[c]: • Lacked health insurance • Unemployed at the time of the survey AND did not work the prior 12 months[a] • Average hours worked in a normal week per adult in the household was less than 20 hours and there was no retirement income in the household.	**For people under age 65:** • Aged 18 and older and unemployed at the time of the survey OR • Lived in a household in which average household hours worked OR average household weeks worked for working-age adults (age 18 to 64, not currently enrolled in school) was less than 20 hours a week or less than 26 weeks a year, respectively[13] **For people age 65 and over:** • Unemployed at the time of the survey OR • Worked less than 20 hours a week OR less than 26 weeks a year AND had minimal retirement income
Housing quality	At least two of the following conditions: • Lacked complete kitchen • Lacked complete plumbing • Overcrowded housing unit • High cost burden.	Lived in a housing unit with more than two people per bedroom or lived in a shelter.
Neighborhood quality[14]	Lived in a county with at least two of the following: • High crime • Poor air quality • Poor food environment	Lived in a deprived block group as measured by the Area Deprivation Index: all block groups with an ADI score greater than 90.

[a] For people age 18 and under, this is with respect to the householder.
[b] There are no questions about health status in the ACS. However, data on both age and disabilities are available in both the ACS and the CPS ASEC and the CPS ASEC asks about health status. Health status is regressed on age and disabilities in the CPS ASEC and these values are used to predict health status in the ACS.
[C] For people 65 and over, only one of these conditions is necessary.

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 health status would be used. This is not available in the ACS. However, two variables can be used as a reasonable approximation of health. The first variable is health insurance coverage. Studies have found a consistent positive relationship between health insurance coverage and health-related outcomes. The evidence suggests that health insurance is associated with more appropriate use of health care services and better health outcomes (Institute of Medicine Committee on the Consequences of Uninsurance 2002; Sommers et al. 2017).

[13] Those with zero weeks/hours worked were included in the hours and weeks calculations.
[14] For more information on the change in the neighborhood quality dimension, see https://www.census.gov/content/dam/Census/library/working-papers/2020/demo/SEHSD-WP2020-08.pdf.

A second variable, number of disabilities, is used for people age 65 and over since nearly all people in this age group have health insurance coverage. People can report up to six disabilities in the ACS.[15] For this dimension, a person is health deprived if they lack health insurance coverage or if they are 65 years of age or over and report at least two disabilities.

In the 2019 Census report, predicted health status was used for people of all ages and health insurance coverage was included in the economic security dimension. This change was made for two reasons. First, predicted health status was dependent on number of disabilities and is not a good measure for people under 65 since they are less likely to have disabilities, which makes it harder to predict their health status from the CPS ASEC. Second, a person without health insurance may skip routine doctor visits and not seek help for minor issues which means their health, rather than their economic security, is affected.

Economic security is included in the MDI because it is possible to be above the standard of living threshold but still face economic insecurity. An economically insecure person is one with a tenuous connection to the labor market. A person can meet this deprivation requirement in a number of ways. A person is considered economically insecure if they are:

1) Under age 65:
    i. Aged 18 and older and unemployed at the time of the survey OR
    ii. Live in a household in which average household hours worked OR average household weeks worked for working-age adults (age 18 to 64, not currently enrolled in school) is less than 20 hours a week or less than 26 weeks a year, respectively[16]
2) Age 65 and over:
    i. Unemployed at the time of the survey OR
    ii. Work less than 20 hours a week OR less than 26 weeks a year AND retirement plus Social Security plus Supplemental Security Income for the household is less than the minimum Social Security benefit assuming 30 years of work experience. [17]

Requirement 1.ii is designed to capture people who live in households that are marginally connected to the labor market: those working full-time part of the year or working part-time for the full year. Requirement 2.ii is included because a report from the National Institute of Retirement Security found that non-working older households without retirement income were significantly more likely to be food insecure, face housing hardship, be in poverty, and be on public assistance (Bond and Porell 2020).

In the 2019 Census report, an average hours condition was used along with health insurance and employment status. A change was made because this dimensional definition was overly complicated. For a person under age 65 to be deprived, two of the conditions had to be met while only one condition had to

[15] There are six disabilities a person can report in the ACS: Hearing difficulty, vision difficulty, difficulty going out, difficulty dressing, physical difficulty, and difficulty remembering.
[16] Those with zero weeks/hours worked were included in the hours and weeks calculations.
[17] The minimum social security benefit was calculated using tables available at https://www.ssa.gov/cgi-bin/smt.cgi. To calculate the minimum benefit, it was assumed that the person worked the maximum number of years, 30. For the year 2019, the minimum benefit was $872.50 per month or $10,470 annually.

be met for people age 65 and over. Health insurance was moved to the health dimension and the format of the dimension was changed in order to make the dimension definition more straightforward.

The housing quality dimension accounts for the need for physical space and security within one's home. A household has poor housing quality if it is overcrowded. An overcrowded household is defined as having more than two people per bedroom. Furthermore, people living in emergency or transitional shelters are considered deprived in housing quality.

In the 2019 Census report, these conditions along with complete kitchen, complete plumbing, and high cost burden were used against a benchmark of two of the conditions having to be met for a deprived dimension. Kitchen and plumbing are removed from the current definition because there is no good way to differentiate poor housing without complete kitchens from expensive retirement communities. High cost burden is removed because, though it does take housing costs into account, it is largely income based and more indicative of housing affordability than housing quality. The other housing conditions may be the result of household income, but they don't explicitly include income in their calculation. Furthermore, similar to the economic security dimension, there no longer is a requirement that multiple conditions have to be met.

Neighborhood quality is an important dimension when measuring well-being for several reasons. First, there is evidence that among people in poverty, there are better outcomes for those living in less deprived areas than in more deprived areas. In a 2012 paper, Ludwig et al. found that moving from a high-poverty to a low-poverty neighborhood led to long-term improvements in adult physical and mental health and subjective well-being. Furthermore, they found that this movement did not change a family's financial situation. In a 2015 paper, Chetty and Hendren found that low-income children were more likely to succeed in in counties with lower poverty, lower income inequality, lower crime, better schools, and a larger share of two-parent families. Neighborhood disadvantage may also influence health independently of a person's socioeconomic status: studies have suggested that, among people in poverty, those who live in extremely disadvantaged neighborhoods may have worse health outcomes than those who live in wealthier neighborhoods (Ludwig et al. 2011, Hu et al. 2018).

Second, there is evidence that there are independent negative effects for people living in deprived areas over and above the effects of living in a poor or deprived household. In Ludwig et al. 2013, the authors stated that "living in a disadvantaged social environment may depress life outcomes by, for example, shaping exposure to peer norms or access to resources such as schools or job referrals." Numerous studies have found that people living in more disadvantaged neighborhoods fare worse with respect to earnings, education, health, crime involvement, and other life outcomes (Jencks and Mayer 1990; Ellen and Turner 1997; Sampson, Raudenbush, and Earls 1997; Kawachi and Berkman 2003; Sampson, Morenoff, and Gannon-Rowley 2002; Sampson 2012).

Third, there were a number of papers coming out of the moving to opportunity (MTO) program that demonstrated the importance of neighborhoods. The MTO was a program for applicants in high-poverty housing projects for which eligibility for a housing voucher was determined by a random lottery. The studies found that moving to a lower poverty neighborhood led to increased college attendance rates and earnings, improved adult physical and mental health and subjective well-being, lower poverty rates, and increased safety (Chetty, Hendren, and Katz 2015; Ludwig et. al 2013; Kling, Liebman, and Katz 2005; Katz, Kling, and Liebman 2000).

In the 2019 Census report, neighborhood quality was proxied by crime, pollution, and access to food at the county level. For small rural counties this may be reasonable, but even mid-sized counties have a significant amount of heterogeneity that is not captured by county-level measures.[18] Furthermore, since the cutoff values were based on national numbers, there were a significant number of states which had no deprived counties. To deal with these issues, a different neighborhood quality measure was chosen for the MDI.[19]

The neighborhood quality measure used in this paper is the Area Deprivation Index (ADI) created by the University of Wisconsin-Madison.[20] The ADI score includes block group measures of education (percent with less than 9 years of education; percent with at least a high school diploma), employment (percent employed in a white-collar occupation; unemployment rate), income (median family income; income disparity;[21] percent below poverty level; percent below 150% of poverty level), housing (median home value; median gross rent; median monthly mortgage; home ownership rate), household composition (percent of single parent households), and household resources (percent without a car; percent without a telephone; percent without complete plumbing; percent of housing units with more than one person per room). The ADI measure is constructed by ranking the ADI score from low to high for the nation and grouping the block groups into bins corresponding to each 1 percent range of the ADI score. The ADI ranks block groups from 1, least disadvantaged, to 100, most disadvantaged in the U.S.[22] To be deprived in neighborhood quality, a person must live in a Census block group that is in the top ten percent of deprived areas, an ADI over 90.

Results

Deprivation Rates: 2018 and 2019

The focus of this section is on MDI rates using the methodology developed in this paper.[23] In Table 2, the percent of the U.S. population deprived in each dimension is shown for 2018 and 2019. The percent of people deprived in health and neighborhood quality increased from 2018 to 2019, while the percent of people deprived in standard of living, education, economic security, and housing quality decreased from 2018 to 2019. In both years, the deprivation rate was highest for the standard of living dimension and lowest for the housing quality and neighborhood quality dimensions.[24]

[18] The 2016 Reeves et al. paper used PUMAs which also contain significant heterogeneity.
[19] For more information about the selection and evaluation of the ADI and other neighborhood quality measures, see Glassman (2020).
[20] For an extensive list of publications using the ADI, see https://www.neighborhoodatlas.medicine.wisc.edu/citations.
[21] Defined as the ratio of households with income less than $10,000 to households with income > $50,000.
[22] For more information on the ADI, see https://www.neighborhoodatlas.medicine.wisc.edu/.
[23] For comparisons of the Census report and current paper MDI rates overall, by demographics groups, and by state and region, see Appendix.
[24] In 2018, the difference between housing quality and neighborhood quality was not statistically significant.

Table 2: Percent of People Deprived in Individual Dimension: 2018 and 2019						
	2018		2019		Change (2019 less 2018)[1]	
Dimension	**Percent**	**Standard error**	**Percent**	**Standard error**	**Percent**	**Standard error**
Standard of living	13.11	0.044	12.34	0.046	*-0.78	0.064
Education	11.47	0.040	11.18	0.044	*-0.29	0.060
Health	11.77	0.040	12.13	0.045	*0.36	0.060
Economic security	11.07	0.031	10.86	0.029	*-0.21	0.042
Housing quality	6.47	0.039	6.27	0.042	*-0.20	0.058
Neighborhood quality	6.49	0.023	6.58	0.027	*0.09	0.035

* difference is statistically different from zero at the 90 percent confidence level.
[1] Details may not sum to totals due to rounding.
Note: The deprivation universe excludes children under age 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.
Source: U.S. Census Bureau, 2018 and 2019 American Community Survey.

In Table 3, the percent of people deprived in different numbers of dimensions is shown for 2018 and 2019. Two or more dimensions is bolded because that row represents the MDI rate (15.4 in 2018 and 14.9 percent in 2019). The percent of people deprived decreased from 2018 to 2019 for all categories except for one or more dimensions. In 2019, approximately 38.2 percent of the population was deprived in at least one of the six dimensions that define the MDI, while about 0.2 percent were deprived in five out of the six dimensions.

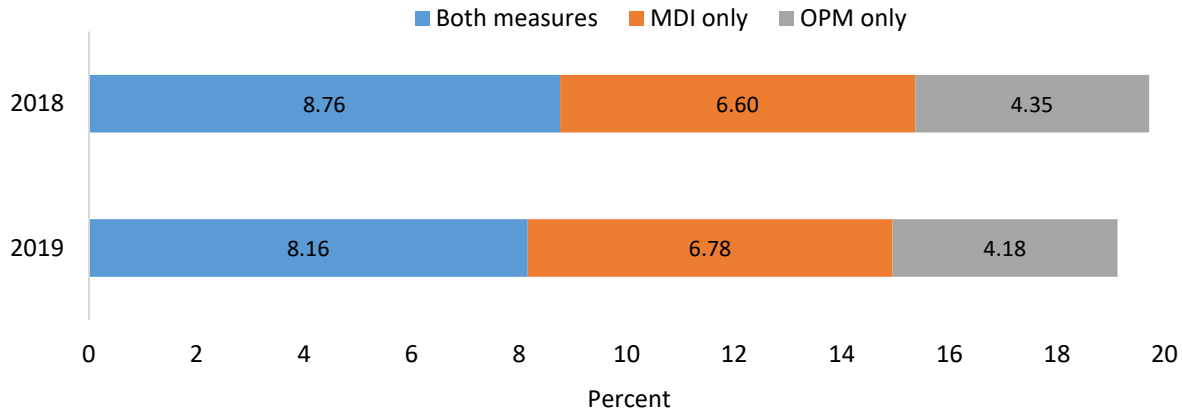
Table 3: Percent of People Deprived in Different Numbers of Dimensions: 2018 and 2019						
	2018		2019		Change (2019 less 2018)[1]	
Dimension	**Percent**	**Standard error**	**Percent**	**Standard error**	**Percent**	**Standard error**
One or more dimensions	38.32	0.079	38.15	0.084	-0.17	0.116
Two or more dimensions	**15.36**	**0.056**	**14.95**	**0.059**	***-0.42**	**0.081**
Three or more dimensions	5.17	0.030	4.87	0.029	*-0.30	0.041
Four or more dimensions	1.30	0.013	1.19	0.013	*-0.11	0.018
Five or more dimensions	0.20	0.005	0.18	0.006	*-0.02	0.007

* change is statistically different from zero at the 90 percent confidence level.
[1] Details may not sum to totals due to rounding.
Note: The deprivation universe excludes children under age 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.
Source: U.S. Census Bureau, 2018 and 2019 American Community Survey.

MDI and OPM

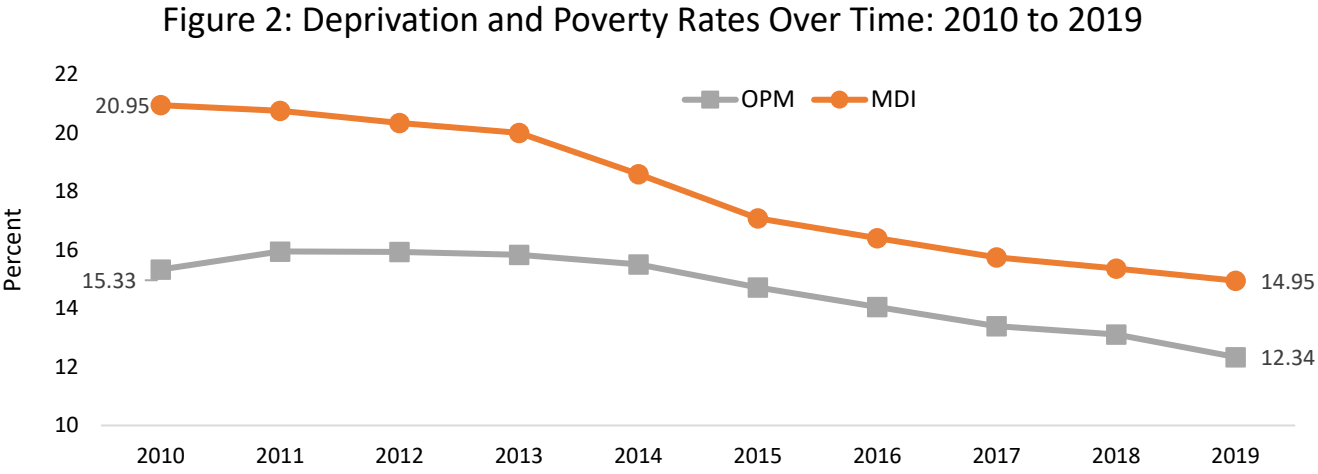
In Figure 1, the MDI is compared to the OPM, which is a traditional unidimensional measure of deprivation, for the years 2018 and 2019. Although the OPM is a dimension (standard of living) in the MDI, in 2019 there was a large amount of the population that was either deprived in at least two dimensions other than standard of living (6.8 percent) or deprived in standard of living but not deprived in any other dimensions (4.2 percent). There was also a large segment of the population (8.2 percent) that was deprived in standard of living and deprived in at least one other dimension. From 2018 to 2019, the

percentage of people deprived in both measures and the percentage of people in poverty but not MDI deprived decreased, while the percentage of people MDI deprived but not in poverty increased.



Note: Details may not sum to totals due to rounding.
Source: U.S. Census Bureau, 2018 and 2019 American Community Surveys.

In Figure 2, the OPM is compared to the MDI, using the current paper methodology, over time.[25] Three conclusions are readily apparent. The first is that the MDI was higher than the OPM in each year. The second is that the MDI and OPM have merged close together over time. In 2010, the MDI was 5.62 percentage points higher (37 percent) than the OPM, while in 2019 the MDI was 2.61 percentage points higher (21 percent) than the OPM. The third is that both the MDI and OPM were lower in 2019 than they were in 2010.



Source: U.S. Census Bureau, 2010 through 2019 American Community Surveys.

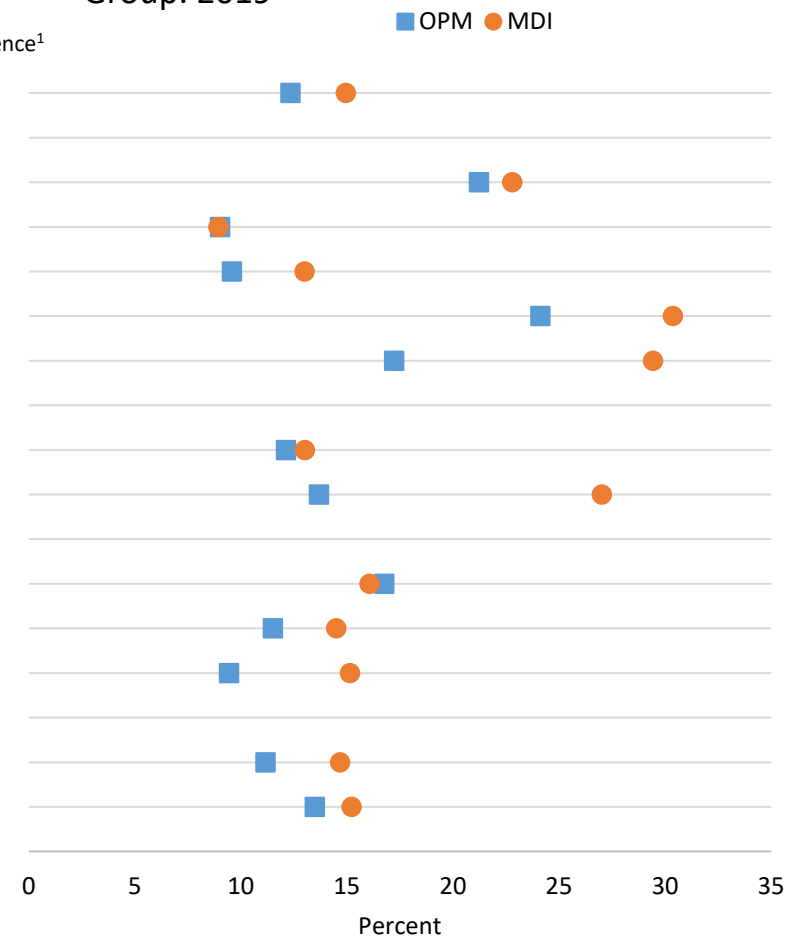
[25] The ADI index is only available starting in 2010.

In Figure 3, the MDI rate and the OPM rate are compared for different demographic groups for 2019. The MDI rate was higher than the OPM rate for all groups in Figure 3, except for Non-Hispanic Whites and those under age 18. By race and Hispanic origin, the largest difference between the OPM and the MDI was for Hispanics while the smallest differences was for non-Hispanic Whites. By nativity, there were substantial differences. There was an approximately 0.9 percentage point difference between the OPM and MDI for people born in the U.S., while this difference was approximately 13.3 percentage points for people born outside the U.S. The large differences for Hispanics and the foreign-born were due to deprivation rates more than twice as large in the education, health, and housing dimensions for the foreign-born and Hispanics compared to the native-born and non-Hispanics, respectively.

By age category, the largest difference between the OPM and the MDI was for people aged 65 and over, followed by people aged 18 to 64, and then by people under age 18. The OPM was higher than the MDI for people under age 18, while the OPM was lower than the MDI for people in the other two age groups. Furthermore, people age 65 and over had the lowest poverty rates of the age groups, while people age 18 to 64 had the lowest MDI rates of the age groups. Finally, the difference between the OPM and the MDI was larger for males than it was for females.

Figure 3: Difference between OPM and MDI by Demographic Group: 2019

	OPM	MDI	Difference[1]
All people	**12.3**	**14.9**	***2.6**
Race and Hispanic Origin			
Black, NH	21.2	22.8	*2.2
White, NH	9.0	8.9	-*0.1
Asian, NH	9.6	13.0	*3.4
AIAN, NH	24.1	30.4	*6.2
Hispanic (any race)	17.2	29.4	*12.2
Nativity			
Native-born	12.1	13.0	*0.9
Foreign-born	13.7	27.0	*13.3
Age			
Under age 18	16.8	16.1	-*0.7
Age 18 to 64	11.5	14.5	*3.0
Age 65 and over	9.4	15.1	*5.7
Sex			
Male	11.1	14.7	*3.5
Female	13.5	15.2	*1.7



* statistically significant at the 90 percent confidence level.
[1] Details may not sum to totals due to rounding.
Note: NH = Non-Hispanic. AIAN = American Indian and Alaska Native.
Source: U.S. Census Bureau, 2019 American Community Survey.

As shown in Table 4, the MDI rate was higher than the OPM rate in 29 states, lower than the OPM rate in 8 states and the District of Columbia, and not significantly different than the OPM rate in 13 states. The MDI ranges from 7.0 percent in New Hampshire to 23.6 percent in Mississippi.[26]

[26] The MDI rate in Vermont is not different from the MDI rate in New Hampshire at the 90 percent confidence level.

Table 4: Percent of People in OPM poverty and MDI Deprived by State: 2019						
	OPM		MDI		Difference (MDI less OPM)	
	Est.	S.E.	Est	S.E.	Est	S.E.
United States	**12.3**	**0.05**	**14.9**	**0.06**	***2.6**	**0.07**
Alabama	15.5	0.32	17.2	0.29	*1.8	0.30
Alaska	10.1	0.67	12.8	0.67	*2.7	0.67
Arizona	13.5	0.29	17.4	0.28	*4.0	0.26
Arkansas	16.2	0.35	17.1	0.36	*0.9	0.34
California	11.8	0.11	17.7	0.12	*5.9	0.11
Colorado	9.3	0.22	9.5	0.24	0.2	0.23
Connecticut	10.0	0.24	10.5	0.23	*0.5	0.25
Delaware	11.3	0.71	11.6	0.64	0.3	0.60
District of Columbia	13.5	0.77	12.1	0.73	*-1.4	0.80
Florida	12.7	0.16	15.9	0.15	*3.3	0.15
Georgia	13.3	0.21	16.4	0.24	*3.1	0.21
Hawaii	9.3	0.51	10.6	0.43	*1.2	0.49
Idaho	11.2	0.48	11.6	0.41	0.4	0.38
Illinois	11.5	0.19	12.9	0.19	*1.4	0.16
Indiana	11.9	0.23	13.9	0.25	*2.0	0.22
Iowa	11.2	0.32	9.6	0.32	*-1.6	0.28
Kansas	11.4	0.30	12.6	0.37	*1.1	0.28
Kentucky	16.3	0.32	16.7	0.31	0.4	0.30
Louisiana	19.0	0.39	19.2	0.30	0.2	0.29
Maine	10.9	0.44	9.6	0.35	*-1.2	0.36
Maryland	9.0	0.21	10.4	0.26	*1.4	0.24
Massachusetts	9.4	0.18	8.8	0.17	*-0.6	0.19
Michigan	13.0	0.19	13.9	0.16	*0.9	0.16
Minnesota	9.0	0.20	8.1	0.22	*-0.8	0.13
Mississippi	19.6	0.50	23.6	0.53	*4.0	0.42
Missouri	12.9	0.24	13.9	0.22	*1.0	0.20
Montana	12.6	0.46	10.8	0.41	*-1.9	0.44
Nebraska	9.9	0.31	9.9	0.30	0.0	0.29
Nevada	12.5	0.38	16.3	0.41	*3.8	0.35
New Hampshire	7.3	0.34	7.0	0.32	-0.3	0.33
New Jersey	9.2	0.18	11.9	0.20	*2.7	0.19
New Mexico	18.2	0.45	21.8	0.52	*3.6	0.43
New York	13.0	0.15	17.2	0.18	*4.1	0.14
North Carolina	13.6	0.21	15.1	0.21	*1.5	0.18
North Dakota	10.6	0.50	9.5	0.56	*-1.0	0.40
Ohio	13.1	0.17	14.1	0.18	*1.1	0.16
Oklahoma	15.2	0.24	17.5	0.27	*2.4	0.25
Oregon	11.4	0.25	11.7	0.30	0.4	0.28
Pennsylvania	12.0	0.19	12.4	0.15	*0.4	0.16
Rhode Island	10.8	0.58	10.2	0.56	-0.6	0.55
South Carolina	13.8	0.33	15.6	0.32	*1.7	0.25
South Dakota	11.9	0.57	12.1	0.51	0.1	0.39
Tennessee	13.9	0.24	15.6	0.24	*1.7	0.22
Texas	13.6	0.15	21.2	0.19	*7.6	0.13
Utah	8.9	0.30	9.3	0.24	0.4	0.31
Vermont	10.2	0.46	7.8	0.45	*-2.4	0.49
Virginia	9.9	0.18	10.7	0.19	*0.8	0.15
Washington	9.8	0.21	10.8	0.24	*1.0	0.22
West Virginia	16.0	0.49	16.0	0.55	0.0	0.41
Wisconsin	10.4	0.20	9.5	0.18	*-0.9	0.21
Wyoming	10.1	0.61	9.1	0.62	-1.0	0.65

* difference is statistically different from zero at the 90% confidence level.
Source: U.S. Census Bureau, 2019 American Community Survey.

Decompositions

One of the advantages of the MDI is that it can be decomposed into the contributions that subgroups of the population and individual dimensions make to the MDI. 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. In 2019, the adjusted headcount ratio (6.0 percent) is defined as the headcount ratio (14.9 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 multi-dimensionally deprived according to the MDI (2.4). This number is then divided by the total possible number of deprivations, which was six in this case. 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.

Dimension decomposition provides the contributions that each dimension made to the MDI rate. 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. As shown in Figure 4, in both years, 2018 and 2019, standard of living was the largest contributor to the MDI rate, while housing quality and neighborhood quality were among the smallest contributors. However, health became a larger contributor from 2018 to 2019 while standard of living became a smaller contributor. Changes in the contributions to the MDI rate made by the education, economic security, housing quality, and neighborhood quality dimensions from 2018 to 2019 were not statistically significant.

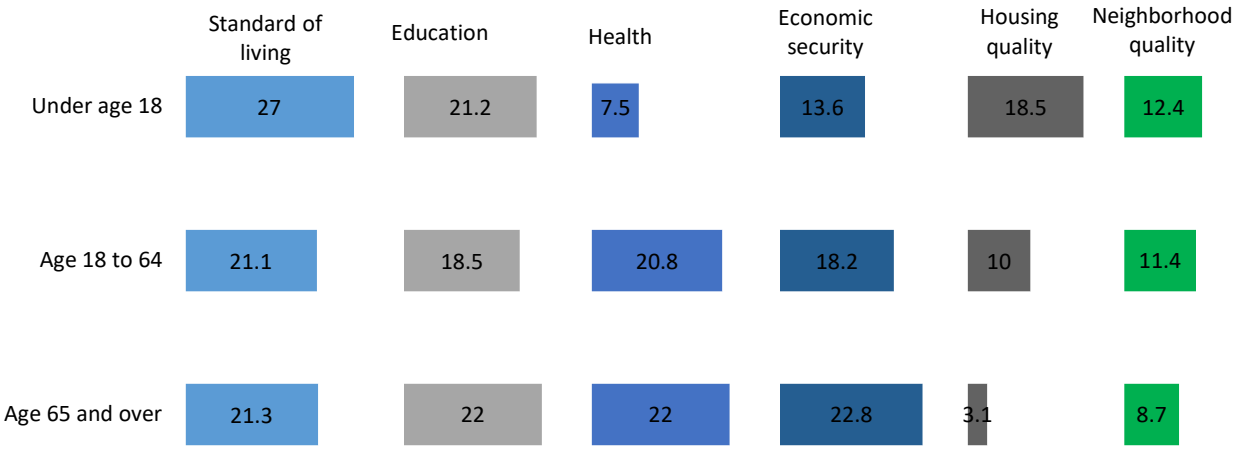
Figure 4: Contribution of Each Dimension to the MDI: 2018, and 2019

* Change in dimension over time is statistically significant at the 90 percent confidence level.
Source: U.S. Census Bureau, 2018 and 2019 American Community Survey.

In addition to looking at dimensional decompositions over time, selected demographic decompositions are shown in Figures 5 and 6. Deprivation in standard of living accounted for 27.0 percent of the MDI rate for people under age 18, but accounted for about 21 percent of the MDI rate for both

people aged 18 to 64 and people aged 65 and over. Similarly, deprivation in economic security accounted for 22.8 percent of the MDI rate for people age 65 and over, but accounted for 13.6 percent of the overall MDI rate for people under age 18. One of the largest discrepancies across age classes was in the health dimension. Health deprivation accounted for 22.0 percent of the MDI rate for people aged 65 and over, while it accounted for 7.4 percent of the MDI for people under age 18. Finally, housing quality accounted for 18.5 percent of the MDI rate for people under age 18, but only 3.1 percent of the MDI rate for people age 65 and over.

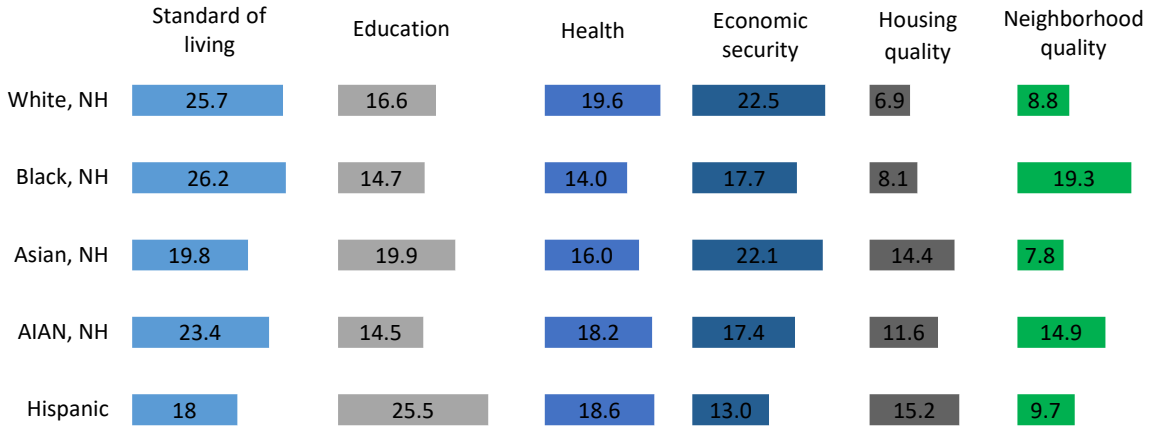
Figure 5: Contribution of Each Dimension to the MDI by Age: 2019



Source: U.S. Census Bureau, 2019 American Community Survey.

The largest contributor to multidimensional deprivation for Non-Hispanic Whites, Blacks, and American Indian and Alaska Natives in Figure 6 was standard of living, while economic security was the largest contributor for Asians, and education was the largest contributor to the MDI rate for Hispanics. Standard of living was a larger contributor to multidimensional deprivation for Blacks than for other groups, health was a larger contributor to multidimensional deprivation for Whites than for the other groups, economic security was a larger contributor for Whites and Asians than for other groups, education was a larger contributor to multidimensional deprivation for Hispanics than for the other groups, housing quality was a larger contributor for Asians and Hispanics than for other groups, and neighborhood quality was a larger contributor to multidimensional deprivation for Blacks than for other groups.

Figure 6: Contribution of Each Dimension to the MDI by Race and Hispanic Origin: 2019



Source: U.S. Census Bureau, 2019 American Community Survey.

Decomposing the MDI by population subgroups gives the percentage of the national MDI rate contributed by a particular subgroup. In order to decompose the MDI by subgroups, the 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. As seen in Table 5, in 2019, Blacks, American Indian and Alaska Natives, Hispanics, people under age 18, and people aged 65 and over represented larger shares of the multi-dimensionally deprived population than the overall population. Alternatively, Whites, Asians, other races, and those aged 18 to 64 were underrepresented in the multidimensional deprivation population relative to their overall population.

Table 5: Multidimensional Deprivation Index Shares and Population Shares: 2019

	MDI Population Share		Total Population Share		Difference	
	Percent	Std. err.	Percent	Std. err.	Percent	Std. err.
Race and Hispanic Origin						
White, NH	34.35	0.24	60.07	0.01	*-25.72	0.24
Black, NH	18.73	0.14	12.17	0.01	*6.56	0.14
Asian, NH	4.82	0.06	5.65	0.01	*-0.83	0.06
AIAN, NH	1.44	0.22	0.67	Z	*0.77	0.22
Other, NH	2.76	0.05	2.94	0.02	*-0.19	0.05
Hispanic	37.90	0.25	18.50	Z	*19.40	0.25
Age						
Under age 18	24.10	0.20	22.38	0.01	*1.72	0.20
Age 18 to 64	58.93	0.33	61.13	0.01	*-2.20	0.33
Age 65 and over	16.97	0.10	16.49	0.01	*0.48	0.10

* difference is statistically different from zero at the 90% confidence level.
Z Represents or rounds to zero.
Source: U.S. Census Bureau, 2019 American Community Survey.

Conclusion

The purpose of this paper was twofold. The first was to revise the definitions of four out of the six dimensions of the MDI. The second was to provide updated MDI rates for 2010 through 2017 and to provide new rates for 2018 and 2019.

Two sets of comparisons were done. First, the deprivation rates for 2019 were compared to the deprivation rates for 2018. The percent of people deprived in two or more dimensions decreased from 15.4 in 2018 to 14.9 percent in 2019. The percent of people deprived in health and neighborhood quality increased from 2018 to 2019, while the percent of people deprived in standard of living, education, economic security, and housing quality

Second, comparisons were made between the MDI rates using the new methodology and OPM rates using 2019 data. In general, the MDI rate was higher than the OPM rate. This held true over time and when the population was stratified by demographic groups, except for non-Hispanic Whites and people under age 18. When stratified by state, the MDI rate was higher than the OPM rate in 29 states, lower than the OPM rate in 8 states and the District of Columbia, and not significantly different than the OPM rate in 13 states.

The final part of the paper set forth decompositions by dimension and by population subgroup. The contribution that each dimension made to the MDI rate was shown over time, by age group, and by race and Hispanic origin. Population subgroup decomposition showed the contribution to the MDI rate made by each population subgroup. Blacks, American Indian and Alaska Natives, Hispanics, people under age 18, and people aged 65 and over represented larger shares of the multi-dimensionally deprived population than the overall population.

The appendix of the paper compared 2017 MDI results between the methodology used in the Census report and the new methodology created in this paper. The current MDI was higher than the Census report MDI in 2017. This result was consistent for non-Hispanic Asians and American Indian and Alaska Natives, Hispanics of any race, the foreign born, people aged 18 to 64, and males. The current MDI rate was lower than the Census report MDI for non-Hispanic Blacks and Whites, the native born, people under age 18, and females. The current MDI was higher than the Census report MDI in 21 states, lower than the Census report MDI in 19 states and the District of Columbia, and not significantly different from the Census report MDI in 9 states.

Going forward, the plan is to continue to produce MDI rates on an annual basis. The next step is to examine the relationships between the MDI and different types of outcomes such as: volunteerism rates, health outcomes, and voting.

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Appendix: Comparisons to the Census Report: 2017 MDI[27]

As discussed in detail in the data and methods section, the definitions of the health, economic security, housing quality, and neighborhood quality dimensions are updated for the current MDI, while the definitions of the standard of living and education dimensions remain the same. In Table A.1, the percent of people deprived in each of the dimensions using both sets of definitions are presented for 2017**.** The new definitions cause deprivation in health and economic security to be higher and deprivations in housing quality and neighborhood quality to be lower.

Table A.1: Percent of People Deprived in Individual Dimension: 2017

	Census Report MDI		Current MDI		Difference (Current less Report)[1]	
Dimension	**Percent**	**Standard error**	**Percent**	**Standard error**	**Percent**	**Standard error**
Standard of living	13.40	0.046	13.40	0.046	N/A	
Education	11.82	0.040	11.82	0.040	N/A	
Health	5.63	0.015	11.63	0.040	*6.00	0.043
Economic security	9.20	0.028	11.41	0.030	*2.21	0.042
Housing quality	11.25	0.042	6.45	0.039	*-4.80	0.058
Neighborhood quality	9.66	0.004	6.80	0.022	*-2.86	0.022

* difference is statistically different from zero at the 90 percent confidence level.
[1] Details may not sum to totals due to rounding.
Note: The deprivation universe excludes children under age 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.
Source: U.S. Census Bureau, 2017 American Community Survey and 2019 Census MDI Report.

In Table A.2, the percent of people deprived in different numbers of dimensions are presented for both the Census Report MDI and the current MDI for 2017. There are more people deprived using the current MDI in one or more and two or more dimensions, while there are more people deprived using the Census Report MDI using three or more, four or more, and five or more dimensions. Similar to the Census

[27] 2017 ACS data is used in order to make comparisons between results using the current methods (Current MDI) and published results in the 2019 Census MDI report (Census Report MDI).

MDI report, individuals are considered MDI deprived if they are deprived in two or more dimensions, which is why this line is bolded in Table A.2.

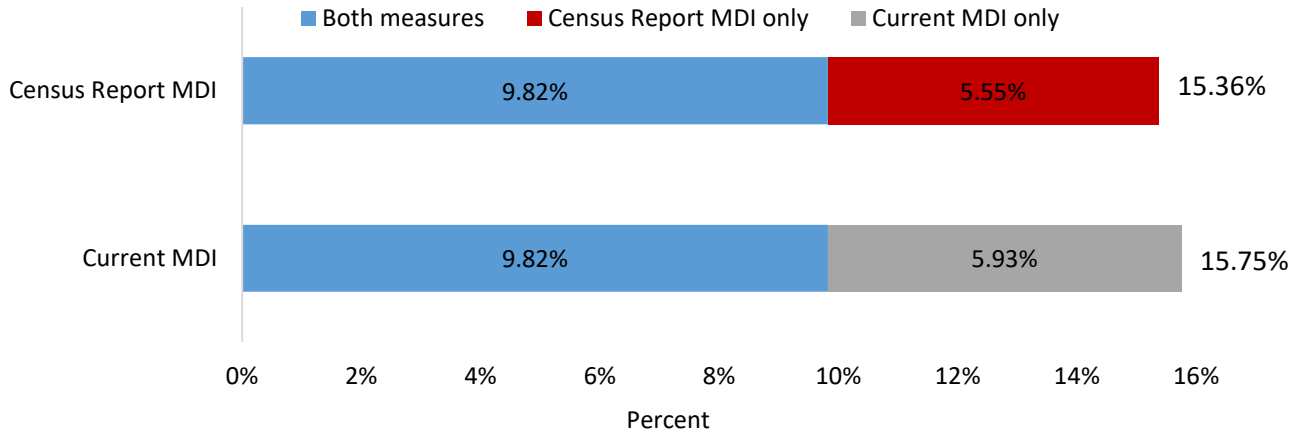
Table A.2: Percent of People Deprived in Different Numbers of Dimensions: 2017

	Census Report MDI		Current MDI		Difference (Current less Report)[1]	
Dimension	**Percent**	**Standard error**	**Percent**	**Standard error**	**Percent**	**Standard error**
One or more dimensions	37.08	0.065	38.77	0.077	*1.69	0.101
Two or more dimensions	**15.37**	**0.047**	**15.75**	**0.054**	***0.38**	**0.072**
Three or more dimensions	6.40	0.038	5.35	0.028	*-1.05	0.047
Four or more dimensions	1.78	0.013	1.38	0.012	*-0.39	0.018
Five or more dimensions	0.28	0.004	0.23	0.005	*-0.04	0.007

* change is statistically different from zero at the 90 percent confidence level.
[1] Details may not sum to totals due to rounding.
Note: The deprivation universe excludes children under age 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.
Source: U.S. Census Bureau, 2017 American Community Survey and 2019 Census MDI Report.

A graph of the overlap between the Census Report MDI and the current MDI is shown in Figure A.1. Approximately 10 percent of the U.S. population is considered deprived according to both measures. This accounts for 64 percent of the Census Report MDI population and 62 percent of the current MDI population. The remainder of the MDI populations are made up of people deprived according to the Census Report MDI but not the current MDI (5.55 percent of the U.S. population) and people deprived according to the current MDI but not the Census Report MDI (5.93 percent of the U.S. population).

Figure A.1: Overlap of the Census Report MDI and Current MDI: 2017



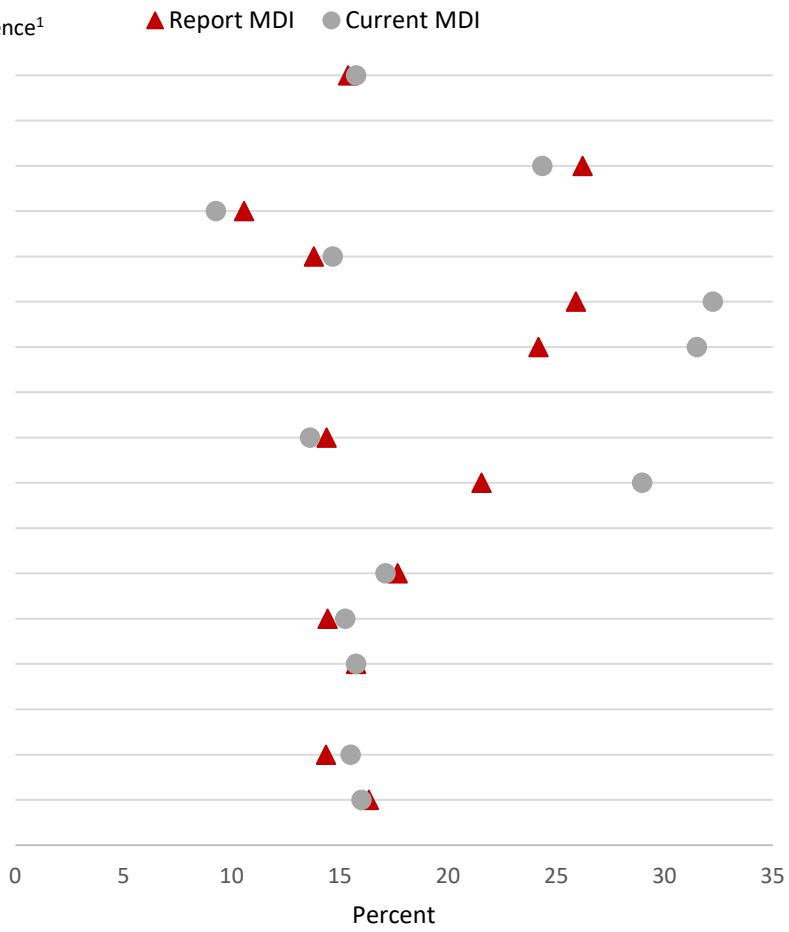
Source: U.S. Census Bureau, 2017 American Community Survey and 2019 Census MDI Report.

In Figure A.2, Census Report and current MDI results are compared by race and Hispanic origin,[28] nativity, age, and sex. The current MDI is lower than the report MDI for Blacks and Whites, while the current MDI is higher than the report MDI for Asians, American Indian and Alaska Natives, and Hispanics of any race. For the native-born, the current MDI is lower than the report MDI and for the foreign-born, the current MDI is higher than the report MDI. The current MDI is lower than the report MDI for people under age 18, higher than the report MDI for people aged 18 to 64, and not significantly different from the report MDI for people aged 65 and over. Lastly, the current MDI is higher than the report MDI for males and lower than the report MDI for females.

[28] Race and Hispanic origin categories differ from Census MDI Report. In that report, Hispanics were included in each race category. In the current paper, each race category includes the non-Hispanic portion of that category. Therefore, the race and Hispanic categories are mutually exclusive in this paper. This means the race and Hispanic origin estimates for the Report MDI differ from previously published estimates.

Figure A.2: Differences Between Census Report MDI and Current MDI by Demographic Groups: 2017

	Report	Current	Difference[1]
All people	**15.4**	**15.7**	***0.4**
Race and Hispanic Origin			
Black, NH	26.2	24.3	*-1.9
White, NH	10.6	9.3	*-1.3
Asian, NH	13.8	14.7	*0.9
AIAN, NH	25.9	32.2	*6.3
Hispanic (any race)	24.2	31.5	*7.3
Nativity			
Native-born	14.4	13.6	*-0.8
Foreign-born	21.5	29.0	*7.4
Age			
Under age 18	17.7	17.1	*-0.6
Age 18 to 64	14.4	15.2	*0.8
Age 65 and over	15.8	15.7	0.0
Sex			
Male	14.4	15.5	*1.1
Female	16.3	16.0	*-0.4



* difference is statistically different from zero at the 90 percent confidence level.
[1] Details may not sum to totals due to rounding.
Note: NH = Non-Hispanic. AIAN = American Indian and Alaska Native.
Source: U.S. Census Bureau, 2017 American Community Survey and 2019 Census MDI Report.

There were large differences between the Census report MDI and current MDI for non-Hispanic American Indian and Alaska Natives, Hispanics, and the foreign-born. This came down to large differences in the health dimension. As shown in Figure A.3, each of these groups was more than twice as likely to be deprived in the new health dimension than in the old health dimension. This deprivation was due to significantly lower likelihood of having health insurance for these groups.

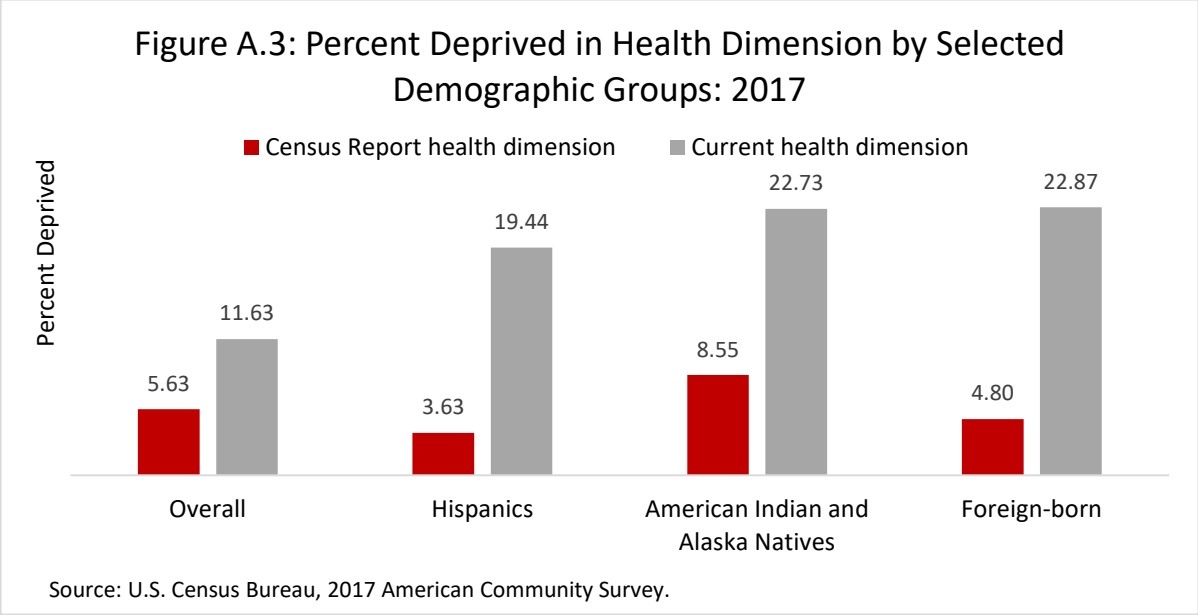


Table A.4 compares the current MDI to the report MDI in each state and the District of Columbia. [29] The current MDI was higher than the Census report MDI in 21 states, lower than the Census report MDI in 19 states and the District of Columbia, and not significantly different from the Census report MDI in 9 states.

[29] After the release of the 2017 data products, the U.S. Census Bureau identified issues with data collection in Delaware. As a result, 2017 estimates for Delaware are omitted. For more information, see <www.census.gov/programs-surveys/acs/technical-documentation/errata/120.html>.

Table A.4: Percent of People in OPM poverty and MDI Deprived by State: 2017						
	Report MDI		Current MDI		Difference (Current MDI less Report MDI)	
	Est.	S.E.	Est	S.E.	Est	S.E.
United States	**15.4**	**0.05**	**15.7**	**0.05**	***0.4**	**0.07**
Alabama	21.3	0.32	17.7	0.32	*-3.6	0.29
Alaska	11.9	0.64	15.9	0.74	*4.0	0.64
Arizona	14.2	0.26	18.6	0.23	*4.4	0.22
Arkansas	19.4	0.41	17.1	0.37	*-2.2	0.37
California	18.6	0.12	18.9	0.12	*0.3	0.10
Colorado	9.9	0.19	10.8	0.23	*1.0	0.21
Connecticut	11.1	0.31	10.6	0.32	*-0.5	0.29
Delaware	N	N	N	N	N	N
District of Columbia	21.8	0.67	16.3	0.74	*-5.5	0.73
Florida	14.3	0.17	16.9	0.15	*2.6	0.14
Georgia	16.0	0.27	17.6	0.25	*1.6	0.21
Hawaii	10.1	0.40	10.3	0.43	0.2	0.41
Idaho	11.2	0.46	11.6	0.40	0.4	0.39
Illinois	20.5	0.18	14.0	0.18	*-6.5	0.17
Indiana	15.4	0.27	14.7	0.29	*-0.7	0.20
Iowa	9.3	0.22	9.3	0.23	0.0	0.25
Kansas	10.6	0.29	12.6	0.26	*2.0	0.27
Kentucky	18.7	0.28	16.8	0.31	*-2.0	0.22
Louisiana	21.6	0.35	19.9	0.33	*-1.7	0.28
Maine	10.7	0.34	9.5	0.35	*-1.2	0.30
Maryland	14.2	0.23	11.2	0.24	*-3.0	0.18
Massachusetts	11.6	0.20	9.5	0.17	*-2.1	0.16
Michigan	16.3	0.17	15.0	0.18	*-1.3	0.15
Minnesota	9.0	0.16	8.6	0.18	*-0.4	0.15
Mississippi	19.8	0.37	22.5	0.37	*2.7	0.35
Missouri	13.4	0.19	14.4	0.21	*1.0	0.21
Montana	10.8	0.44	10.6	0.43	-0.2	0.41
Nebraska	9.4	0.31	11.5	0.32	*2.1	0.30
Nevada	13.0	0.42	17.3	0.46	*4.3	0.33
New Hampshire	8.6	0.36	7.4	0.33	*-1.2	0.33
New Jersey	11.9	0.18	12.6	0.18	*0.6	0.16
New Mexico	20.5	0.46	20.4	0.47	-0.1	0.43
New York	17.6	0.14	18.8	0.14	*1.2	0.12
North Carolina	13.9	0.22	15.6	0.21	*1.7	0.15
North Dakota	9.0	0.44	9.0	0.45	0.1	0.44
Ohio	15.2	0.16	14.5	0.17	*-0.7	0.15
Oklahoma	14.2	0.25	18.0	0.25	*3.7	0.20
Oregon	13.0	0.28	12.7	0.29	-0.3	0.23
Pennsylvania	14.8	0.16	12.5	0.17	*-2.2	0.15
Rhode Island	13.0	0.58	10.9	0.46	*-2.1	0.49
South Carolina	14.6	0.28	16.5	0.28	*1.9	0.30
South Dakota	10.8	0.44	12.4	0.43	*1.6	0.45
Tennessee	16.4	0.20	15.5	0.26	*-0.9	0.21
Texas	18.2	0.14	22.3	0.14	*4.1	0.12
Utah	8.3	0.34	10.1	0.31	*1.8	0.25
Vermont	10.9	0.58	8.0	0.44	*-3.0	0.55
Virginia	11.0	0.20	11.6	0.21	*0.6	0.15
Washington	11.1	0.20	11.4	0.19	0.2	0.16
West Virginia	17.4	0.44	17.9	0.43	0.5	0.39
Wisconsin	10.4	0.18	9.8	0.18	*-0.6	0.16
Wyoming	8.9	0.58	10.0	0.66	*1.1	0.63

* difference is statistically different from zero at the 90% confidence level.
N Not available or not comparable. After the release of the 2017 data products, the U.S. Census Bureau identified issues with data collection in Delaware. As a result, 2017 estimates for Delaware are omitted from this table. For more information, see <www.census.gov/programs-surveys/acs/technical-documentation/errata/120.html>.
Source: U.S. Census Bureau, 2019 American Community Survey.