Census Accuracy

Five Key Results & Trends Explained

JAE JUNE LEE & WILLIAM O'HARE

KEY TAKEAWAYS

- Inaccuracies in U.S. Decennial Census data undermine fair political representation and the equitable distribution of over $2 trillion in federal funds each year.
- Despite overall improvements in census accuracy over time, significant and widening undercounts persist for people of color, young children, people in rural areas, and others. These coverage differences have profound implications for civil rights, political representation, and the fair distribution of resources.
- By understanding how these persistent disparities are measured, stakeholders can better advocate for improved census methodologies, outreach strategies, and funding for the census to ensure that all communities are counted accurately and fairly.

The U.S. Decennial Census is the statistical backbone of the United States democratic system. Mandated by the Constitution, the census is the only attempt to count the entirety of the country's population and serves as the basis for allocating political power. The census guides planning for community services, policymaking, the enforcement of civil rights protections, and the distribution of more than $2 trillion in federal funds to states and localities annually.

An accurate census helps ensure fairness in our core democratic institutions, but problems with accuracy persist despite the Census Bureau's best efforts. Crucially, census errors often reflect broader societal inequities, disproportionately and persistently affecting groups such as Black and Hispanic populations, households with low incomes, recent immigrants, and people with disabilities—elevating the census as a civil rights issue.

This is the second brief in a three-part explainer series designed as a user guide on census accuracy for civil rights organizations, advocates, and policymakers. The first brief in this series, "Census Accuracy: Key Concepts Explained," introduces essential terms needed to interpret census accuracy, such as net and gross accuracy and differential undercounts.[1] The second brief, "Census Accuracy: Key Methods Explained," provides an overview of the Bureau's evaluation methods, namely Demographic Analysis (DA) and the Post-Enumeration Survey (PES). This final brief provides a summary of key results and trends from the 2020 Census and prior censuses.

Overall, this explainer series provides information intended to help stakeholders:

- Advocate for necessary research and reforms to ensure every community is accurately counted.
- Promote robust funding for the census by emphasizing the need for accurate data to help ensure fair political representation and equitable resource distribution.
- Implement measures to mitigate the impact of census inaccuracies.

Part I. The Good News: Improvements in Overall Census Accuracy

Systematic evaluations of census accuracy began in the mid-20th century, centuries after the first census in 1790.[2] These evaluations indicate a steady improvement in the overall accuracy of the census (i.e., how closely the census count of the total U.S. population matched benchmark estimates)—a notable achievement, especially given declining self-response rates and the increasing operational complexity of counting a growing and diverse population.[3]

TAKEAWAY 1: THE 2020 CENSUS NATIONAL COUNT DEFIED THE ODDS

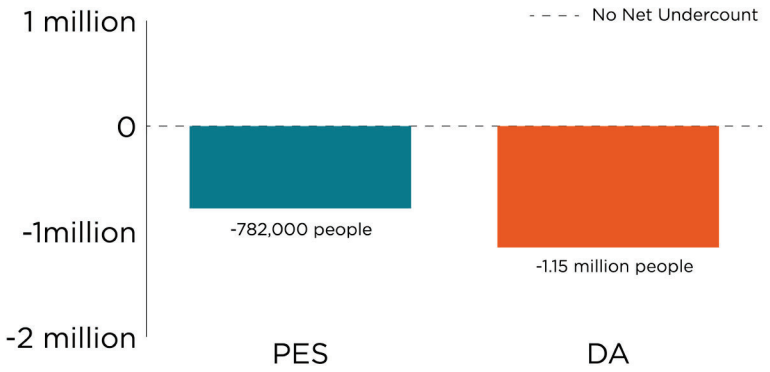
In the 2020 Census, the Census Bureau enumerated a total of 331,449,281 people living in the 50 states and the District of Columbia (D.C.), marking a high level of accuracy even in the face of severe challenges like the COVID-19 pandemic.[4, 5] Evaluations based on DA and PES show that this national-level population count was quite accurate.

- The PES estimated a net undercount of 0.24 percent (or 780,000 people).[6]
- The DA estimated a net undercount of 0.35 percent (or 1.1 million people).[7]

These slight undercounts suggest that the census came very close to counting everyone in the country. (In comparison, the 1940 DA estimated a national net undercount of 5.2 percent.)[8] The national net accuracy is particularly impressive, given pandemic-related disruptions. As the Committee on National Statistics noted, "The overriding, signature achievement of the 2020 Census is that there was a 2020 Census at all."[9]

FIGURE 1. Measures of National Net Coverage Suggest an Accurate 2020 Census

Net Coverage Error Estimates for the U.S. Population, Estimates From the Post-Enumeration Survey (PES) & Demographic Analysis (DA) for 2020



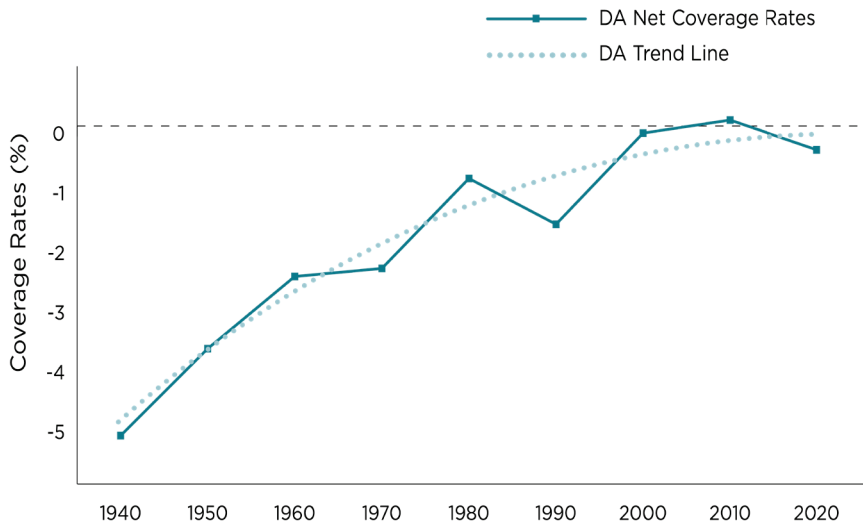
Note: Negative values indicate net undercounts; positive values indicate net overcounts. Both the DA and PES estimates have a range of uncertainty due to limitations in the methodology and design of each benchmark. The PES provides measures of standard error while the DA offers a range of possible estimates, ranging from a low- to high-estimates series. For further discussion on this, please refer to the second brief in this series, "Census Accuracy: Key Methods Explained."
Source: "Census Bureau Hosts News Conference to Release 2020 Census Data Quality Results" Census Bureau, 10 March 2022. Available at https://www.census.gov/content/dam/Census/newsroom/press-kits/2022/20220310-presentation-quality-news-conference.pdf; Khubba, Shadie, Krista Heim, and Jinhee Hong, "National Census Coverage Estimates for People in the United States by Demographic Characteristics: 2020 Post-Enumeration Survey Estimation Report." Census Bureau, March 2022. Available at https://www2.census.gov/programs-surveys/decennial/coverage-measurement/pes/national-census-coverage-estimates-by-demographic-characteristics.pdf.

TAKEAWAY 2: THE NATIONAL COUNT HAS BECOME MORE ACCURATE OVER TIME

The Census Bureau has progressively improved the accuracy of its national population count. The DA estimated a national net undercount of 5.2 percent in 1940. By the 2010 Census, this had decreased to virtually zero. The 2020 Census, despite COVID-19 pandemic constraints, also achieved a national net undercount close to zero, as estimated by both DA and PES. The PES results nonetheless suggest a similar trend in improving net accuracy since 1990, when PES data first became available

FIGURE 2. Steady Improvement in Overall Census Accuracy Over Time

Line Graph Showing Net Coverage Error Rates for the Total U.S. Population, 1940 to 2020 (DA)



Note: Negative values indicate net undercounts; positive values indicate net overcounts.
Source: O'Hare, William P. "Historical Examination of Net Coverage Error for Children in the U.S. Decennial Census: 1950 to 2010," U.S. Census Bureau, 5 March 2014. Available at https://www.census.gov/srd/papers/pdf/ssm2014-03.pdf; "Census Bureau Hosts News Conference to Release 2020 Census Data Quality Results" Census Bureau, 10 March 2022. Available at https://www.census.gov/library/video/2022/news-conference-release-2020-census-data-quality-results.html.

Part II. The Bad News: Persistent Disparities

Despite gains in national net accuracy, significant disparities persist between different demographic groups and geographic areas. These differences have profound implications for civil rights, political representation, and the fair distribution of resources. For example, undercounted groups may receive less political representation because census data determine the allocation of seats in the House of Representatives and the drawing of legislative districts; if certain populations are undercounted, they may be underrepresented in these political processes.[10] Similarly, areas with undercounted communities receive less than their fair share of federal funds for essential services because census data guide the distribution of billions of dollars to communities for services like health care, education, and infrastructure.[11]

BOX 1.

BLACK RESEARCHERS LED THE CHARGE TO EVALUATE DIFFERENTIAL UNDERCOUNTS

In 1918, three Black statistical researchers at the Census Bureau—Robert A. Pelham, Charles E. Hall, and William Jennifer—highlighted differential undercounts for the first time,[12] revealing a 10 percent undercount of the Black population in the 1870 census, compared to a 2 percent undercount of the white population.[13] Four years later, Kelly Miller, a prominent Black public intellectual and mathematician, extended critiques of the census based on the 1920 Census.[14] While the 1920 Census results suggested that the growth rate of the Black population had halved since the last census, Miller argued that this apparent statistical trend was instead a result of a significant undercount of the Black population. Miller pointed to the Bureau's overlooked urban migration and unreliable birth records prevalent in the South.[15] Differential undercounts of the Black population persist as an urgent issue today.

TAKEAWAY 3: SIGNIFICANT UNDERCOUNTS BETWEEN DEMOGRAPHIC GROUPS

Despite the high overall accuracy of the 2020 Census, substantial accuracy gaps persist between demographic groups. This means that certain populations are systematically underrepresented in the census data. For example, the gaps in census accuracy are apparent by age group, race and ethnicity, and housing tenure status.

- **Age:** Young children (age 4 years and younger) have a higher net undercount than any other age group and are among the groups who are most severely undercounted in the census.
- **Race and Ethnicity**: The Bureau has persistently undercounted many communities of color. Significant undercounts exist for Black and Hispanic populations, as well as American Indians/ Alaskan Native populations living on reservations.
- **Tenure:** Renters, who are often younger, lower-income, and more racially diverse, are more likely to be undercounted compared to homeowners.

These substantial differences in census accuracy raise fundamental questions about data equity across groups. For example, the Non-Hispanic White Alone population was overcounted by 1.64 percent while the Hispanic population was undercounted by around 5 percent, representing a near 7 percentage point coverage gap. This coverage gap between the Non-Hispanic White Alone population and the Hispanic population highlights the greater systemic inequities that need to be addressed.

FIGURE 3. Net Undercount Rates for Demographic Groups in the 2020 Census

Table Showing Select Socio-Demographic Groups With Significant Net Undercounts Based on PES & DA Estimates

Demographic Groups	Coverage Rate
American Indians/Alaskan Natives Living on Reservations (PES)	-5.64
Age 0 to 4 (DA)	-5.4
Hispanic or Latino (PES)	-4.99
Some Other Race (PES)	-4.34
Black or African American (PES)	-3.3
Age 30 to 49 Males (PES)	-3.05
Age 25 to 29 (DA)	-2.9
Households in Census Tracts in the 0 to 10th Percentile of Response Rates (PES)	-2.69
Age 18 to 29 Males (PES)	-2.25
Age 35-39 (DA)	-1.9
South Region (PES)	-1.85
Age 40 to 44 (DA)	-1.8
Age 25-29 (DA)	-1.6
Age 30-34 (DA)	-1.6
Age 45 to 49 (DA)	-1.6
Households in Census Tracts in the 10 to 20th Percentile of Response Rates (PES)	-1.51
Age 5 to 9 (DA)	-1.5
Renter (PES)	-1.48
Males (all Ages) (DA)	-1.3
Adult Male (PES)	-1.28
Age 18 to 29 Females (PES)	-0.98
American Indian/Alaskan Natives balance of U.S. (PES)	-0.86
Children (ages 0 to 17) (PES)	-0.84

Note: This table includes groups with net undercount rates that are statistically significant from zero. Only DA estimates equal to or greater than 1 percent are included due to the lack of traditional measures of uncertainty.
Source: Hill, Courtney, et al. "Census Coverage Estimates for People in the United States by State and Census Operations: 2020 Post-Enumeration Survey Estimation Report." Census Bureau, June 2022. Available at https://www2.census.gov/programs-surveys/decennial/coverage-measurement/pes/census-coverage-estimates-for-people-in-the-united-states-by-state-and-census-operations.pdf; Khubba, Shadie, et al. "National Census Coverage Estimates for People in the United States by Demographic Characteristics: 2020 Post-Enumeration Survey Estimation Report." Census Bureau, March 2022. Available at https://www2.census.gov/programs-surveys/decennial/coverage-measurement/pes/national-census-coverage-estimates-by-demographic-characteristics.pdf; Jensen, Eric. "Census Bureau Expands Focus on Improving Data for Young Children." Census Bureau, 10 March 2022. Available at https://www.census.gov/library/stories/2022/03/despite-efforts-census-undercount-of-young-children-persists.html.

TAKEAWAY 4: PERSISTENT & WIDENING DEMOGRAPHIC ACCURACY GAPS

A worrisome trend in the 2020 Census was a widening gap in net coverage error among demographic groups. Instead of narrowing, disparities have increased for some populations. For example, the 2020 Census worsened overcounts of white populations and undercounts of Black and Hispanic/Latinx populations.

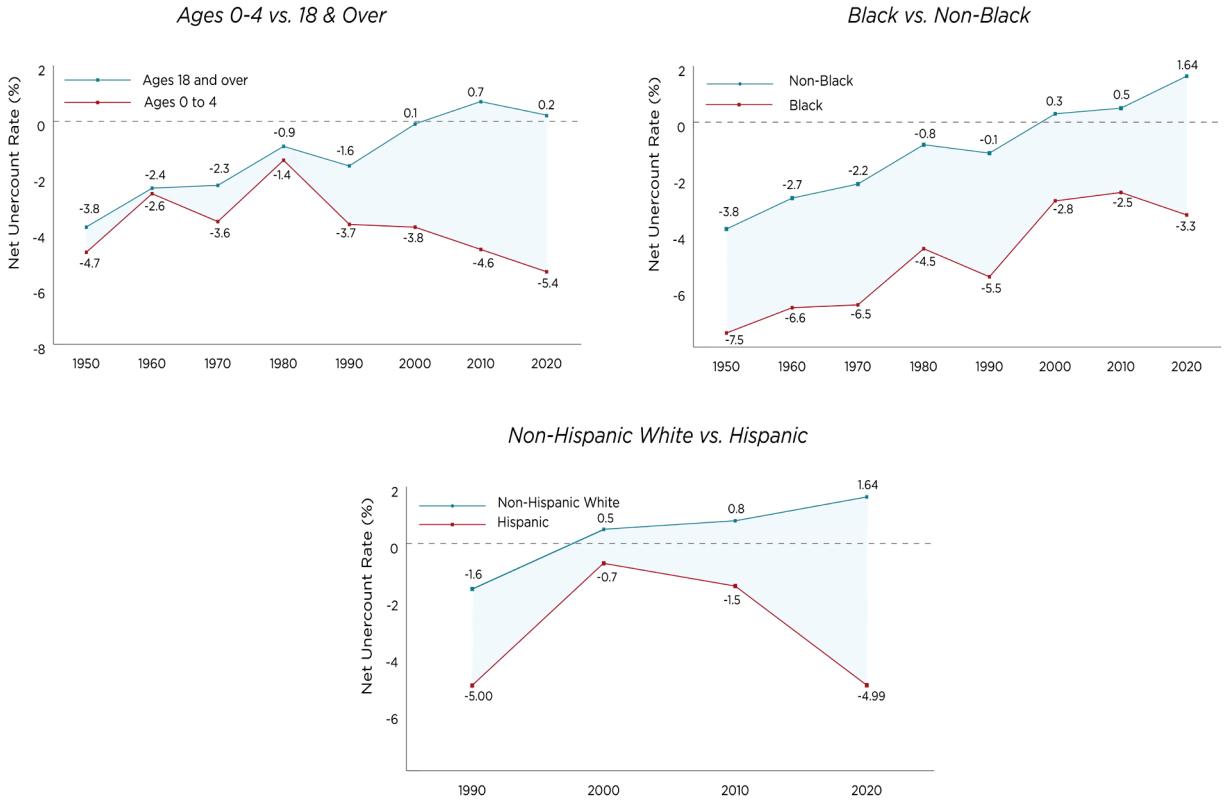
- The net overcount of Non-Hispanic White Alone population has increased between 2000 and 2020 (from 0.83 to 1.63 percent);

- The net undercount of the Black (Alone or in combination) population worsened, rising from 2.06 to 3.3 percent; and
- The net undercount rate for the Hispanic/Latinx population worsened, rising from 1.34 to 4.99 percent.

Figure 4 below offers a historical view of the widening gaps. It shows the startling accuracy gap between age groups (young children and adults), ethnicity (Hispanic and non-Hispanic White, and race (Black and a residual non-Black category).

FIGURE 4. Widening Gaps in Census Accuracy Between Age Groups & Racial & Ethnic Populations

Comparison of Net Coverage Error Rates Censuses for Major Demographic Groups, 1950 to 2020



Note: The graphs use data from DA and PES. The two measures rely on different methodologies. The 2020 DA estimate for calculating the gap between Black populations and the residual non-Black group is based on Connie Citro's work, as official estimates are not yet available due to production delays for the 2020 Modified Race File.

Source: Authors' analysis of data from "Envisioning the 2020 Census." National Research Council, 2010. Available at https://www.nap.edu/catalog/12865/envisioning-the-2020-census; Hogan, Howard, et al. "Quality of the 2010 Census." Population Research and Public Policy, 32(5): 637-662, October 2013. Available at https://link.springer.com/article/10.1007/s11113-013-9278-5#Sec; Mule, Thomas. "Census Coverage Measurement Estimation Report." U.S. Census Bureau, 22 May 2012. Table 7. Available at www2.census.gov/programs-surveys/decennial/2010/technical-documentation/methodology/g-series/g01.pdf; O'Hare, William P. "Census Coverage Differentials by Age," in Differential Undercounts in the U.S. Census. Springer, 14 February 2019. Available at link.springer.com/chapter/10.1007/978-3-030-10973-8_5; Citro, Connie. "Census 2020—Counting Under Adversity." 16 October 2021. Available at https://nul.org/sites/default/files/2021-10/2020_Census_Preliminary_DA_Oct_2021_1.pdf; "Census Bureau releases estimates of undercount and overcount in the 2020 Census." Census Bureau, 10 March 2022. Available at https://www.census.gov/newsroom/press-releases/2022/2020-census-estimates-of-undercount-and-overcount.html.

TAKEAWAY 5: SIGNIFICANT GAPS IN ACCURACY ALSO EXIST ACROSS GEOGRAPHIC AREAS

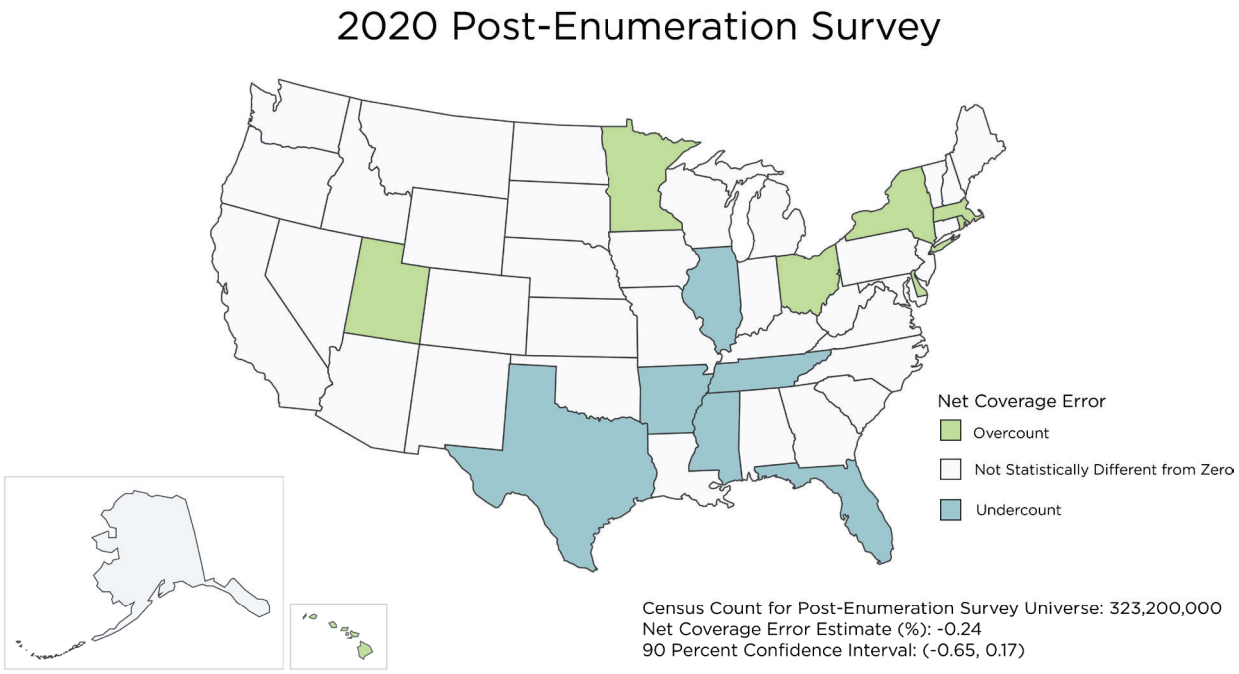
Census accuracy also varies widely across states, showing geographic disparities. For example, coverage rates range from a net overcount of 6.79 percent in Hawaii to a net undercount of -5.04 percent in

Arkansas, resulting in an 11.83 percentage point gap between the states with the largest net overcount and undercount. Omissions rates also vary, with Delaware having the lowest omissions rate at 0.7 percent and Montana the highest at 11.1 percent—a 10.4 percentage point gap.

State total population counts are particularly important because they drive congressional reapportionment and political redistricting. Census figures are also used to distribute more than $2 trillion in federal funds to states and localities each year. People living in states that have a net undercount in the census are less likely to receive their fair share of political power or federal assistance. It is also important to recognize local census data is used extensively for planning things like schools and hospitals.

FIGURE 5. State-Level Data Reveal Geographic Differences in Census Accuracy

Table Showing Net Coverage and Omissions Rates by State in the 2020 Census



Note: A negative (positive) estimate of net coverage error indicates an undercount (overcount). Census counts are rounded. As a result, counts may not sum to the totals shown. The census count for the state of Alaska includes additional rounding to protect the count of the resident population in the Remote Alaska Type of Enumeration Area (TEA). The PES did not evaluate the coverage of the population living in Remote Alaska.
Source: Source: U.S. Census Bureau, Decennial Statistical Studies Division, 2020 Post-Enumeration Survey (May 2022 Release). Available at https://data.census.gov/table/DECENNIALPES2020.G_STATES?y=2020&d=DEC%20Decennial%20Post-Enumeration%20Survey and https://data.census.gov/table/DECENNIALPES2020.E_REGIONS?y=2020&d=DEC%20Decennial%20Post-Enumeration%20Survey.

Conclusion

Accurate census data is essential for fair political representation and resource allocation. However, persistent disparities in the counts of communities of color, young children, renters, and specific geographic areas continue to affect the accuracy of the census. This undercount can lead to less funding for programs like early childhood education, health care, and nutrition assistance that directly affect their well-being. This underrepresentation impacts political representation and the allocation of resources to these communities. Addressing these disparities is crucial to ensure civil rights and equality in our society.

Appendix 1: Glossary of Terms

This glossary provides brief definitions of terms related to census accuracy. Please refer to Brief 1 for a more comprehensive discussion of these concepts.

- **Components of Coverage**: Categories of census accuracy, including correct enumerations, erroneous enumerations, omissions, and whole-person imputations.
- **Differential Undercount**: The difference in undercount rates between different population groups, often highlighting racial, ethnic, or geographic disparities in census accuracy.
- **Group Quarters**: Places where people live or stay in a group living arrangement, such as dormitories, nursing homes, or prisons. These are treated separately from private households for census purposes.
- **Net Coverage**: The difference between the census count and an independent benchmark, such as the Demographic Analysis (DA) or Post-Enumeration Survey (PES). It reflects whether there was a net overcount or undercount of the population.
- **Net Overcount**: Occurs when the census count exceeds an independent benchmark estimate, indicating that more people were counted than should have been.
- **Net Undercount**: Occurs when the census count falls short of an independent benchmark estimate, meaning that fewer people were counted than actually exist.

ACKNOWLEDGMENTS

At the Georgetown Center on Poverty and Inequality, Kim Herbert and Liz Lowe contributed to the drafting process, addressing questions and research topics. Aileen Carr, Lelaine Bigelow, Isabella Camacho-Craft, and Cara Brumfield provided edits and suggestions on versions of the brief series. Thank you to Hailey Joyce Padua for editing support and the design and layout of this brief.

This brief is partly based on a prior Georgetown Center on Poverty and Inequality (GCPI) report. See O'Hare, William P., Cara Brumfield, and Jae June J. Lee. "Evaluating the Accuracy of the Decennial Census: A Primer on the Fundamentals of Census Accuracy and Coverage Evaluation." Georgetown Center on Poverty and Inequality, last updated November 2020. Available at http://www.georgetownpoverty.org/wp-content/uploads/2020/11/EvaluatingAccuracyDecennialCensus-Nov2020.pdf.

Any errors of fact or interpretation remain the authors'.

We are grateful to the Census Equity Initiative for their support for this brief. The views expressed are those of the authors and should not be attributed to our advisors or funders. Funders do not affect research findings, interpretations, recommendations, or conclusions of GCPI.

Endnotes

1 Though not covered in this brief, "operational metrics"—such as self-response rates—provide insights into census data collection and processing operations. These metrics help understand data quality, though they are not themselves direct measures of census quality. For further discussion, see O'Hare, William P., and Jae June Lee, "Who Responded in the 2020 Census? Variation in Tract-Level Self-Response Rates in the 2020 U.S. Census." Georgetown Center on Poverty and Inequality, 13 April 2021. Available at https://www.georgetownpoverty.org/issues/who-responded-in-the-2020-census/; and "Assessing the 2020 Census." Teresa A. Sullivan and Daniel L. Cork, Editors. National Academies of Sciences, Engineering, and Medicine, 2023. Available at https://nap.nationalacademies.org/catalog/27150/assessing-the-2020-census-final-report.

2 O'Hare, William P., Cara Brumfield, and Jae June J. Lee. "Evaluating the Accuracy of the Decennial Census: A Primer on the Fundamentals of Census Accuracy and Coverage Evaluation." Georgetown Center on Poverty and Inequality, last updated November 2020. Available at http://www.georgetownpoverty.org/wp-content/uploads/2020/11/EvaluatingAccuracyDecennialCensus-Nov2020.pdf.

3 O'Hare, William P., Cara Brumfield, and Jae June J. Lee. "Evaluating the Accuracy of the Decennial Census: A Primer on the Fundamentals of Census Accuracy and Coverage Evaluation." Georgetown Center on Poverty and Inequality, last updated November 2020. Available at http://www.georgetownpoverty.org/wp-content/uploads/2020/11/EvaluatingAccuracyDecennialCensus-Nov2020.pdf.

4 "Census Bureau releases estimates of undercount and overcount in the 2020 Census." Census Bureau, 10 March 2022. Available at https://www.census.gov/newsroom/press-releases/2022/2020-census-estimates-of-undercount-and-overcount.html.

5 The Census Bureau calculates the coverage rates based on estimates for the 50 states and the District of Columbia. While 3.6 million people live in the U.S. territories, the Bureau excludes these populations from the agency's calculation of net coverage rates. Post-Enumeration Survey results are only available for Puerto Rico but are published separately. For further discussion of the U.S. territories and the Decennial Census, see Lee, Jae June, Cara Brumfield, Neil Weare. "Advancing Data Equity for U.S. Territories." Georgetown Center on Poverty and Inequality, 29 November 2022. Available at https://www.georgetownpoverty.org/issues/advancing-data-equity-for-us-territories/

6 The PES undercount of -0.24 percent has a standard error of 0.25 percent, meaning the estimate is not statistically different from zero.

7 The DA offers a range of possible from a possible 1.21 percent undercount to a 0.22 percent overcount, with a middle estimate of 0.35 percent undercount.

8 Both methods indicate that the undercount is small enough that it might not be statistically significant—that is, it could be due to normal variations in data collection rather than major issues with the census process.

9 National Academies of Sciences, Engineering, and Medicine. 2023. Assessing the 2020 Census: Final Report. Washington, DC: The National Academies Press. https://doi.org/10.17226/27150.

10 Sanchez, Gabriel. "Why census undercounts are problematic for political representation." Brookings, 28 March 2022. Available at https://www.brookings.edu/articles/why-census-undercounts-are-problematic-for-political-representation/.

11 Ross, Ceci Villa. "Uses of decennial census programs data in federal funds distribution: fiscal year 2021." Census Bureau, June 2023. Available at https://www2.census.gov/library/working-papers/2023/decennial/census-data-federal-funds-fy-2021.pdf.

12 Bouk, Dan and Danah Boyd. "Democracy's Data Infrastructure." Knight First Amendment Institute at Columbia University, 18 March 2021. Available at https://knightcolumbia.org/content/democracys-data-infrastructure.

13 "Black Population 1790-1915." U.S. Census Bureau, 1918. Available at https://www.census.gov/library/publications/1918/dec/negro-population-1790-1915.html.

14 Miller, Kelly. "Enumeration Errors in Negro Population." Scientific Monthly 14(2): 168-177, February 1922. Available at https://www.jstor.org/stable/6436.

15 Bouk, Dan and Danah Boyd. "Democracy's Data Infrastructure." Knight First Amendment Institute at Columbia University, 18 March 2021. Available at https://knightcolumbia.org/content/democracys-data-infrastructure.