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# The Post-Enumeration Survey of the Decennial Census

Every 10 years the U.S. Census Bureau conducts the decennial census of population and housing. The primary purpose of the constitutionally mandated decennial census is determining the apportionment of seats in the House of Representatives for each state. Decennial census data are used for many other purposes, including to inform various policy decisions, guide federal funding, offer the public insights on population trends, and help the private sector make informed business decisions.

The Census Bureau conducts a Post-Enumeration Survey (PES) at the conclusion of the decennial census to measure the accuracy of the survey. The PES provides measures of (1) *net coverage error*, the under- and overcounts of the population and (2) *components of census coverage*, the estimation of accuracy of decennial census records.

The accuracy of the decennial census impacts how seats of the House of Representatives are apportioned among the states as well as how federal funding is distributed across programs that utilize decennial census data. For these reasons, PES operations are of congressional interest.

This In Focus introduces an overview of the PES; discusses hard-to-count populations and net coverage errors from the 2020 PES; and concludes with a discussion of issues that may be relevant to Congress.

## Post-Enumeration Survey

The PES uses a *dual-system estimation*, which refers to the count conducted during the decennial census and the PES sample conducted over approximately two years after the decennial census concludes. The PES matches housing units and people to a list of addresses from the decennial census to determine who was counted in (1) the census only, (2) the PES only, and (3) both.

### Net Coverage Error

Net coverage error determined from the PES is the difference between the census count and PES estimates. A *negative net coverage error* indicates an undercount, whereas a *positive net coverage error* indicates an overcount.

Net coverage error is determined on a national and state level, as well as for several demographic characteristics including age group, sex, race, and ethnicity. The PES neither examines the reasons for net coverage errors nor results in revisions to decennial census data.

Over time, the Census Bureau has adjusted how it calculates standard errors used to determine the statistical significance of net coverage error in PES sampling. For this

reason, the Census Bureau does not compare net coverage errors across different decades.

### Components of Coverage

The Census Bureau conducts fieldwork during the PES to determine *components of coverage*, in which the Census Bureau attempts to estimate proportions of decennial census records that are correct, are incorrect, or for which there is not enough information to be certain of either. Components of coverage estimates provide an additional method to understand the accuracy of the decennial census. The Census Bureau reports components of coverage in three different groups:

- **Correct enumerations:** people accurately counted during the decennial census.
- **Erroneous enumerations:** Includes people correctly counted but with a duplicate record (i.e., more than one response for an address) and people who were counted who should not have been (i.e., people visiting the country).
- **Whole-person imputations:** people who do not report any of their demographic characteristics. This is not considered to have a significant impact on net coverage error estimates.

## Hard-to-Count Populations

The Census Bureau considers populations as hard to count when traditional enumeration methods may not be sufficient to fully include them in the decennial census. Hard-to-count populations are segmented into four categories by the Census Bureau:

- **Hard to locate:** people who want to remain hidden or whose homes are not on the Census Bureau's list of addresses.
- **Hard to contact:** highly mobile people, people experiencing homelessness, or people living in homes with physical barriers preventing contact.
- **Hard to persuade:** people suspicious of government or those who are not civically engaged.
- **Hard to interview:** people with language barriers, low literacy, health issues, or technological barriers.

Hard-to-count individuals may be categorized into one or more of these categories. People showing characteristics of hard-to-count populations may be contributing to *survey non-response bias*, which occurs when people who complete a survey differ from people who do not complete

the survey. The difference could be some of the aforementioned categories of hard-to-count populations.

Through the PES, the Census Bureau has identified *historically undercounted populations*. Unlike the definition of hard-to-count populations, historically undercounted populations are defined through technical procedures that consider data from official measures such as the PES.

According to the PES conducted for the 1990 through 2020 decennial censuses, the Census Bureau identified the following groups to have been persistently undercounted:

- the Black or African American population,
- the American Indian and Alaska Native population living on reservations,
- people who indicate that they are some other race than the categories offered,
- the Hispanic or Latino population,
- young children, ages 0-4,
- renters, and
- males, ages 18-29 and ages 30-49.

## 2020 Decennial Census PES Results

The Census Bureau identified several cases of net coverage error during the 2020 decennial census PES. **Table 1** provides statistically significant net coverage errors by state, and **Table 2** provides statistically significant net coverage errors by race and ethnicity.

**Table 1. 2020 Decennial Census PES Results by State**

State	Undercount or Overcount	Amount of Undercount or Overcount
Arkansas	Under	-5.04%
Florida	Under	-3.48%
Illinois	Under	-1.97%
Mississippi	Under	-4.11%
Tennessee	Under	-4.78%
Texas	Under	-1.92%
Delaware	Over	+5.45%
Hawaii	Over	+6.79%
Massachusetts	Over	+2.24%
Minnesota	Over	+3.84%
New York	Over	+3.44%
Ohio	Over	+1.49%
Rhode Island	Over	+5.05%

State	Undercount or Overcount	Amount of Undercount or Overcount
Utah	Over	+2.59%

**Source:** U.S. Census Bureau, “2020 Census Undercounts in Six States, Overcounts in Eight,” May 19, 2022.

**Table 2. 2020 Decennial Census PES Results by Race and Ethnicity**

Race or Ethnicity	Undercount or Overcount	Amount of Undercount or Overcount
Black or African American alone or in combination population	Under	-3.30%
Hispanic or Latino population	Under	-4.99%
American Indian or Alaska Native alone or in combination populations living on reservations	Under	-5.64%
Non-Hispanic White alone population	Over	+1.64%
Asian alone or in combination population	Over	+2.62%
Native Hawaiian or Other Pacific Islander alone or in combination population	Over	+1.28%

**Source:** U.S. Census Bureau, “Census Bureau Releases Estimates of Undercount and Overcount in the 2020 Census,” March 10, 2022.

## Issues for Congress

Members of Congress may have an interest in understanding how the accuracy of the decennial census impacts several policy areas and how the Census Bureau intends to maintain and assess accuracy of the once-a-decade count. Inaccurate decennial census data could lead to apportionment that does not accurately reflect the actual population in the United States; additionally, other programs and other private entities that rely on accurate decennial data could be impacted.

Members of Congress may also consider requesting additional reporting from the Census Bureau on potential topics including the causes of net coverage error, non-response bias, and the PES methodology.

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