



2020 CENSUS SNAPSHOT

Methodology Report

METHODOLOGY / SEPTEMBER 2025

All data presented in the 2020 Census Snapshot come from the 2020 Decennial Census via data.census.gov, including from published tables on household type by relationship (found [here](#)) and from the Privacy-Protected Microdata Files (PPMF). Data regarding gender and marital status was extracted from the published tables linked above, while data regarding race/ethnicity and raising own children came from the PPMF. Census data was extracted at several geographic levels: national, state, county, city (which includes incorporated places, independent cities, and consolidated cities), and Census tracts.

Geographies listed as “independent cities” (such as Richmond City, VA) are included in both the “county” and “city” designation in this analysis. “Independent cities” are cities that are outside the jurisdiction of any county and are recognized as “county equivalents” by the U.S. Census Bureau. They are assigned a Federal Information Processing Series (FIPS) code. Despite their equivalence to counties, they are also still recognized as cities (as they often have comparable populations to cities of similar geographic size). Independent cities are only located in Virginia, Maryland, Nevada, and Missouri. Census tracts are small, relatively permanent statistical subdivisions of a county or statistically equivalent entity and generally have a population size of 1,200 to 8,000 residents.

The 2020 Decennial Census is a full enumeration of the population, therefore what we present are counts, not estimates, of the U.S. population. No adjustments or transformations were made to the Census data before we completed our calculations. To facilitate comparability across geographies of different sizes, rates per 1,000 households were calculated by dividing the number of households of interest by the total number of households in the relevant geography and multiplying by 1,000. For instance, the national rate of same-sex couples per 1,000 households was computed as:

$$SS_{per1000}^{National} = \frac{SS^{National}}{Households^{National}} \times 1,000$$

Additionally, we calculated percentages to describe the composition of subgroups. For example, the percentage of same-sex couples that were male-male couples in a given geography was calculated by dividing the number of male-male couples by the total number of same-sex couples in that area.

IDENTIFYING SAME-SEX COUPLE HOUSEHOLDS

The 2020 Decennial Census questionnaire was completed by the householder, who is “either the person, or one of the people, in whose name the home is owned, being bought, or rented”.¹ The householder is referred to as “Person 1” in the 2020 Decennial Census questionnaire. The householder discloses the relationship between themselves and the other occupants of the household. For instance, the householder responds to the following questions:

1. Print name of Person 2

First Name MI

Last Name(s)

2. Does this person usually live or stay somewhere else? Mark ☒ all that apply.

☐ No

☐ Yes, for college

☐ Yes, for a military assignment

☐ Yes, for a job or business

☐ Yes, in a nursing home

☐ Yes, with a parent or other relative

☐ Yes, at a seasonal or second residence

☐ Yes, in a jail or prison

☐ Yes, for another reason

3. How is this person related to Person 1? Mark ☒ ONE box.

☐ Opposite-sex husband/wife/spouse

☐ Opposite-sex unmarried partner

☐ Same-sex husband/wife/spouse

☐ Same-sex unmarried partner

☐ Biological son or daughter

☐ Adopted son or daughter

☐ Stepson or stepdaughter

☐ Brother or sister

☐ Father or mother

☐ Grandchild

☐ Parent-in-law

☐ Son-in-law or daughter-in-law

☐ Other relative

☐ Roommate or housemate

☐ Foster child

☐ Other nonrelative

4. What is this person's sex? Mark ☒ ONE box.

☐ Male ☐ Female

Same sex couples are identified by looking at the sex of the householder and their disclosed unmarried/married partner.²

To identify same-sex couples in the PPMF, households were first filtered to include only same sex spouse or partner households, using the couple type variable (CPLT). The UPART variable was used to confirm same sex unmarried partner households contained either a male householder and male partner or a female householder and female partner, as opposed to two non-partner members.

¹ This definition comes from the U.S. Census Bureau's Glossary, found at <https://www.census.gov/glossary/?term=Householder>

² The householder is sometimes referred to as “Person 1” in other Census documentation.

GEOGRAPHIC DISTRIBUTION

Once same-sex couples were identified, their locations were identified at the state, county, and Census tract level using the TABBLKST, TABBLKCOU, and TABTRACTCE variables, respectively. To understand the geographic distribution of same-sex couples, data were aggregated at both the county and census tract levels. For each geographic unit, the number of identified same-sex couple households was calculated, as well as the total number of households (HHT). The number of same-sex couples per 1,000 households was then derived by dividing the number of same-sex couple households by the total number of households in that geography and multiplying by 1,000, similar to the above formula. This normalization allows for meaningful comparisons across regions with different population sizes.

RACE AND ETHNICITY

The racial and ethnic composition of same-sex couples was analyzed using the race (THHRACE) and Hispanic origin (THHSPAN) variables for the householder in each identified same-sex household. Individuals were categorized into mutually exclusive groups following standard Census race/ethnicity determination: Hispanic (of any race), Non-Hispanic White, Non-Hispanic Black or African American, Non-Hispanic Asian, Non-Hispanic American Indian or Alaska Native, Non-Hispanic Native Hawaiian or Pacific Islander, Non-Hispanic Multiracial, or Non-Hispanic Other.

The THHRACE and THHSPAN variables only account for the householder's race and ethnicity, not their partner's/spouse's. This classification enabled the production of both counts and percentages of same-sex couple households by race/ethnicity of the householder at the various geographic levels.

GENDER AND MARITAL STATUS

The gender composition and marital status of same-sex couples were determined by examining the sex, couple type, and marital status variables in the Census' published table PCT15: Coupled Households, By Type. Households were categorized into four primary groups: male-male married couple households, female-female married couple households, male-male unmarried partner households, and female-female unmarried partner households. The distinction between spouses and unmarried partners was based on the new "relationship to householder" question presented in the 2020 Decennial Census questionnaire, which helped prevent miscoding errors for same-sex couples found in previous censuses (a process described in more detail below).

SAME-SEX COUPLES RAISING THEIR OWN CHILDREN

To assess parental status, households were analyzed to determine whether same-sex couples were raising their own children. The presence of children was identified using the PAOC variable, which flags the presence of individuals under the age of 18 who are the biological or adopted child of the householder. Same-sex couple households with at least one own child present were classified as "parenting households."

For each geography, the number of male/female and married/unmarried same-sex couple households raising children was calculated and expressed as a percentage of all same-sex couple households. This allowed for analysis of parenting rates among same-sex couples by marital status, gender, and geography. In the PPMF analyses for same-sex couples raising their own children, the gender composition and marital status of same-sex couples were determined by examining the sex (HHSEX), couple type (CPLT), and unmarried partner status (UPART) for these households.

DATA RELIABILITY AND DISCLOSURE AVOIDANCE

We include all values at the national, state, county, city, and Census tract levels. As previously stated, the data at all geographic levels are counts, not estimates. The U.S. Census Bureau notes that small geographies and small populations should be aggregated to “improve accuracy and diminish implausible results.”³ Therefore, counts and percentages provided for same-sex couples at small geographic levels should be interpreted with caution. Additionally, the authors applied an additional threshold when ranking counties and cities by the number of same-sex couples per 1000 households. This prevents ranked lists from being influenced by anomalies in the data at small geographic levels. Specifically, counties with fewer than 50 same-sex couples are not included in ranked lists of counties but are listed separately. Cities with fewer than 50 same-sex couples are not listed.

For past censuses, the U.S. Census Bureau used disclosure avoidance techniques, such as data swapping and suppression of small geographies, to protect individuals’ privacy.⁴ For the 2020 Census, the Census Bureau adjusted their disclosure avoidance methodology through the adoption of differential privacy, a mathematically rigorous privacy protection framework.⁵ The new approach was applied to the PPMF to minimize the risk of disclosing personally identifiable information in published data. The PPMF was used during the development and evaluation phase of the 2020 Census Disclosure Avoidance System (DAS), providing simulated microdata outputs with differential privacy protections applied.⁶ The methodology introduces random noise, calibrated to a predefined privacy-loss budget, into the tabulation process, ensuring that individual responses cannot be reverse-engineered from published statistics while preserving the overall reliability of the data.

With the 2020 Census, the Census Bureau implemented a 2-step top-down algorithm (TDA) that first used the differentially private algorithms to apply noise to the data in line with their privacy-loss budget, then ran postprocessing routines to ensure certain characteristics of the data at larger geographies or populations were maintained.⁷ The TDA allowed for more data reliability at smaller geographies while taking steps to prevent reconstruction of individual-level data. Yet, the Census Bureau recommends aggregating across small populations and small geographies.

2010 CENSUS MEASUREMENT ERROR, MITIGATED IN 2020

In the 2010 Census, data on same-sex couples were affected by a significant measurement error, where some different-sex couples were mistakenly coded as same-sex couples due to misreporting the sex of one partner. Prior research estimated that 28% of observed same-sex couples in the 2010 Census were likely miscoded different-sex couples.⁸ While the Census Bureau released corrected, or “preferred,” estimates at the state level, no such

³ U.S. Census Bureau. (n.d.). COUPLED HOUSEHOLDS, BY TYPE. *Decennial Census, DEC Demographic and Housing Characteristics, Table PCT15*. Retrieved July 29, 2025, from <https://data.census.gov/table/DECENNIALDHC2020.PCT15?q=pct15&g=010XX00US&y=2020&d=DEC+Demographic+and+Housing+Characteristics>.

⁴ US Census Bureau. (2024, August). *Disclosure Avoidance for the Demographic and Housing Characteristics File (DHC) and Guidance for Data Users*. 2020 Census Briefs. <https://www2.census.gov/library/publications/decennial/2020/census-briefs/c2020br-08.pdf>.

⁵ US Census Bureau, 2024

⁶ US Census Bureau. (2023, March 27). *Why the Census Bureau Chose Differential Privacy*. 2020 Census Briefs. <https://www2.census.gov/library/publications/decennial/2020/census-briefs/c2020br-03.pdf>.

⁷ US Census Bureau. (2023, March 27). *Disclosure Avoidance and the 2020 Census: How the TopDown Algorithm Works*. 2020 Census Briefs. <https://www2.census.gov/library/publications/decennial/2020/census-briefs/c2020br-04.pdf>.

⁸ Gates, GJ, Steinberger, MD. (2009, April 30–May 2). *Same-Sex Unmarried Partner Couples in the American Community Survey: The Role of*

corrections were made available for smaller geographies like counties, cities, or census tracts. To address this, Gary Gates, author of the Williams Institute's 2010 Census Snapshot Report, developed an adjustment procedure that estimated local misclassification rates, subtracted likely miscoded couples, and redistributed the corrected state-level totals to provide an adjusted estimate of same-sex couples at sub-state levels.⁹ This miscoding error was accounted for and prevented in the 2020 Decennial Census through changes first introduced in the 2019 American Community Survey.¹⁰ Therefore, no similar adjustment is needed for analyses of same-sex couples in the 2020 Decennial Census.

Misreporting, Miscoding and Misallocation [Conference presentation]. Population Association of America, Detroit, MI, United States. <https://paa2009.populationassociation.org/papers/90814>.

⁹ Gates, G. J. (2011, September). *Census Snapshot: 2010 Methodology Adjustment procedures for same-sex couple data*. The Williams Institute. <https://williamsinstitute.law.ucla.edu/wp-content/uploads/Census-Snapshot-US-Sep-2011.pdf>.

¹⁰ US Census Bureau (2020, September). *Changes to the relationship to householder question*. Census.gov. <https://www.census.gov/programs-surveys/acs/technical-documentation/user-notes/2020-02.html>.