

2020 Census Quality Metrics : United States

The Second Expert Group Meeting on the Impact of the Covid-19 Pandemic on Conducting Population and Housing Censuses and Data Quality Concerns

Session 5: Assessment of the process quality and output quality for censuses conducted during the Covid-19 pandemic

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Ensuring High Quality Data from the 2020 Census

Multi-prong Approach:

- Chartered the 2020 **Data Quality Executive Guidance Group in April 2020** to ensure that we had the right focus and resources dedicated to detecting and addressing data quality issues.
- Initiated the **engagement of external expert groups**, as part of our commitment to transparency, to provide quality assessments on different aspects of the program and on different timelines.
- Expanded the **tools and metrics** already in place to assess Census Quality.

2020 Census : Current Status of Data Releases

2020 Census Results:

- Apportionment Results – released on April 26, 2021
- Census Redistricting Data (Public Law 94-171) Summary File – released in different formats on August 12 and September 16, 2021

Quality Indicator Releases:

- We released three sets of reports over the last six months exploring the operational quality of the 2020 Census
- This presentation will provide a brief overview of quality inquires and these releases

Three Releases of Operational Quality Metrics

- Release 1 on April 26
 - Final address resolution by data collection operation
 - Housing unit status for Nonresponse Followup (NRFU)
- Release 2 on May 28
 - Average household size by data collection operation
 - Housing unit status by data collection operation
- Release 3 on August 18 and 25
 - Sub-state summaries of selected release 1 metrics
 - Item nonresponse rates by data collection operation
- Metrics available for 2020 Census data and 2010 Census data (for comparison)*
- Metrics generated for the U.S. total (excludes Puerto Rico), each of the 50 States, the District of Columbia and Puerto Rico

*2010 data not available for sub-state summary metrics in release 3.

Comparisons from 2010 to 2020

- No single number can definitively quantify the quality of the census.
- Operational metrics are data points related to progress and results of census operations.
- Insights gained through comparisons by state and comparisons to past census results.
- Differences are:
 - A result of changes within the Census Bureau's control such as changes in the operational design since 2010.
 - A result of changes outside of the Census Bureau's control such as normal changes in the population, respondent behavior, and COVID-19.
 - Expected across geographies and when making comparisons to the 2010 Census.
- Different doesn't necessarily mean "better" or "worse."

Highlights from Release 1 : Comparisons from 2010 to 2020

	2010	2010 Cumulative Total *		2020	2020 Cumulative Total *
Highest quality data are collected through self-response online, by phone, or by mail	61.1%	61.1%		65.3%	65.3%
If we don't receive a self response, we:					
• Prefer an interview with a household respondent	18.8%	79.9%		10.8%	76.1%
• Can use high-quality administrative records, when available, when a household respondent can not be reached (only 2020)				4.6%	80.7%
• Will collect a response from a neighbor, landlord, or building manager (a proxy response) after multiple attempts to collect data from a household respondent are unsuccessful	19.5%	99.4%		18.2%	98.9%
Unresolved addresses after data collection	0.4%	99.8%		0.2%	99.1%
Unresolved addresses after person unduplication				0.7%	99.8%

2020 Census Comparison to 2010 Census: Addresses Resolved as Self-Response

2010 Census U.S. Total: 61.1%
2020 Census U.S. Total: 65.3%
Difference: 4.2%

Highest Self-Response Resolution: Minnesota 73.6%
 Wisconsin: 71.4%
 Washington: 70.4%

Lowest Self-Response Resolution: Maine 56.5%
 West Virginia 55.3%
 Alaska 47.9%

State	2010 Census	2020 Census	Difference
Alabama	56.8%	61.2%	4.3%
Alaska	43.7%	47.9%	4.2%
Arizona	55.6%	62.4%	6.9%
Arkansas	58.4%	58.8%	0.5%
California	62.1%	67.4%	5.3%
Colorado	63.6%	67.9%	4.3%
Connecticut	63.5%	69.0%	5.5%
Delaware	59.1%	64.8%	5.7%
DC	61.0%	61.2%	0.2%
Florida	57.9%	62.9%	5.0%
Georgia	57.2%	61.1%	3.9%
Hawaii	56.6%	61.0%	4.3%
Idaho	60.0%	67.6%	7.6%
Illinois	66.3%	70.1%	3.8%
Indiana	65.7%	69.1%	3.4%
Iowa	69.6%	70.2%	0.6%
Kansas	65.6%	68.1%	2.4%

State	2010 Census	2020 Census	Difference
Kentucky	59.9%	66.2%	6.3%
Louisiana	56.7%	58.7%	2.0%
Maine	52.0%	56.5%	4.5%
Maryland	63.8%	69.5%	5.8%
Massachusetts	62.9%	67.3%	4.5%
Michigan	63.4%	70.0%	6.6%
Minnesota	68.1%	73.6%	5.5%
Mississippi	55.7%	58.3%	2.6%
Missouri	63.6%	64.2%	0.6%
Montana	57.1%	59.7%	2.6%
Nebraska	67.0%	70.3%	3.2%
Nevada	55.5%	65.3%	9.8%
New Hampshire	57.8%	65.9%	8.2%
New Jersey	62.9%	68.1%	5.2%
New Mexico	50.4%	57.8%	7.4%
New York	58.1%	62.4%	4.4%
North Carolina	57.1%	61.8%	4.7%

State	2010 Census	2020 Census	Difference
North Dakota	63.0%	63.2%	0.2%
Ohio	65.6%	69.4%	3.9%
Oklahoma	58.9%	59.2%	0.4%
Oregon	63.2%	67.8%	4.6%
Pennsylvania	65.4%	67.9%	2.5%
Rhode Island	61.8%	64.8%	3.0%
South Carolina	57.9%	59.6%	1.7%
South Dakota	60.6%	65.8%	5.2%
Tennessee	62.0%	64.1%	2.2%
Texas	58.9%	60.7%	1.7%
Utah	61.5%	68.9%	7.4%
Vermont	52.8%	59.6%	6.7%
Virginia	63.1%	69.4%	6.3%
Washington	62.4%	70.4%	8.1%
West Virginia	54.8%	55.3%	0.5%
Wisconsin	63.8%	71.4%	7.6%
Wyoming	56.5%	59.7%	3.2%

States with largest increase.

States with smallest increase.

The Majority of 2020 Census Self-Responses were Online*

2020 Census U.S. Total: 79.7%

Highest States: Utah 90.3%
DC 86.6%
Washington 86.2%

Lowest States: Arkansas 67.4%
West Virginia 65.6%
Mississippi 61.5%

State	2020 Census
Alabama	70.1%
Alaska	80.1%
Arizona	81.5%
Arkansas	67.4%
California	83.1%
Colorado	85.8%
Connecticut	82.2%
Delaware	81.3%
DC	86.6%
Florida	78.3%
Georgia	80.2%
Hawaii	79.4%
Idaho	82.9%
Illinois	81.7%
Indiana	76.7%
Iowa	78.5%
Kansas	78.5%

State	2020 Census
Kentucky	73.9%
Louisiana	72.1%
Maine	73.4%
Maryland	85.0%
Massachusetts	83.6%
Michigan	78.1%
Minnesota	83.7%
Mississippi	61.5%
Missouri	74.4%
Montana	75.1%
Nebraska	79.1%
Nevada	82.9%
New Hampshire	82.6%
New Jersey	84.4%
New Mexico	75.9%
New York	79.7%
North Carolina	78.1%

State	2020 Census
North Dakota	80.3%
Ohio	77.1%
Oklahoma	73.5%
Oregon	82.9%
Pennsylvania	77.9%
Rhode Island	79.2%
South Carolina	74.2%
South Dakota	77.4%
Tennessee	74.4%
Texas	81.5%
Utah	90.3%
Vermont	76.6%
Virginia	81.7%
Washington	86.2%
West Virginia	65.6%
Wisconsin	82.0%
Wyoming	76.8%

*Internet self-response is an innovation for the 2020 Census.

2020 to 2010 Addresses: NRFU and Other Enumeration Activities Resolved by Household Interview

2010 Census U.S. Total: 18.8%
2020 Census U.S. Total: 10.8%
Difference: -8.0%

Highest Household Interview Resolution: Alaska 17.1%
 Texas 13.5%
 Mississippi 13.1%

Lowest Household Interview Resolution: Wisconsin 7.8%
 Michigan 7.4%
 Minnesota 7.3%

State	2010 Census	2020 Census	Difference
Alabama	19.2%	9.8%	-9.4%
Alaska	28.6%	17.1%	-11.5%
Arizona	17.9%	11.2%	-6.7%
Arkansas	19.0%	11.1%	-7.9%
California	22.0%	12.2%	-9.8%
Colorado	16.8%	9.2%	-7.6%
Connecticut	19.1%	11.0%	-8.0%
Delaware	16.6%	10.8%	-5.8%
DC	16.6%	9.4%	-7.2%
Florida	16.5%	11.0%	-5.6%
Georgia	19.8%	12.2%	-7.6%
Hawaii	22.0%	13.1%	-8.9%
Idaho	18.6%	10.6%	-8.0%
Illinois	17.3%	9.2%	-8.1%
Indiana	16.4%	10.1%	-6.3%
Iowa	15.2%	8.4%	-6.8%
Kansas	17.5%	9.8%	-7.7%

State	2010 Census	2020 Census	Difference
Kentucky	19.4%	9.7%	-9.6%
Louisiana	19.9%	11.8%	-8.1%
Maine	18.4%	10.8%	-7.7%
Maryland	18.4%	10.4%	-8.0%
Massachusetts	19.8%	10.2%	-9.6%
Michigan	14.2%	7.4%	-6.8%
Minnesota	14.7%	7.3%	-7.3%
Mississippi	21.8%	13.1%	-8.7%
Missouri	15.8%	9.0%	-6.8%
Montana	18.4%	9.7%	-8.7%
Nebraska	16.1%	9.2%	-6.8%
Nevada	18.5%	12.5%	-6.0%
New Hampshire	20.2%	10.0%	-10.2%
New Jersey	20.0%	11.0%	-9.0%
New Mexico	23.1%	12.5%	-10.6%
New York	20.6%	11.8%	-8.9%
North Carolina	18.4%	11.4%	-7.0%

State	2010 Census	2020 Census	Difference
North Dakota	17.2%	8.1%	-9.0%
Ohio	17.1%	9.4%	-7.7%
Oklahoma	19.6%	12.3%	-7.3%
Oregon	19.9%	10.4%	-9.5%
Pennsylvania	17.2%	9.5%	-7.7%
Rhode Island	19.4%	12.2%	-7.3%
South Carolina	16.7%	11.1%	-5.6%
South Dakota	19.7%	9.8%	-9.9%
Tennessee	17.9%	11.1%	-6.8%
Texas	20.6%	13.5%	-7.1%
Utah	21.3%	9.6%	-11.7%
Vermont	20.5%	10.3%	-10.2%
Virginia	19.5%	10.7%	-8.8%
Washington	20.6%	10.4%	-10.3%
West Virginia	21.4%	10.9%	-10.6%
Wisconsin	17.2%	7.8%	-9.4%
Wyoming	20.1%	10.9%	-9.2%

States with smallest decrease.

States with largest decrease.

2020 Census : Addresses Resolved by Administrative Records*

2020 Census U.S. Total: 4.6%

Highest Ad Rec Resolution: DC 5.5%
Delaware 5.7%
Florida 5.9%

Lowest Ad Rec Resolution: Hawaii 2.8%
Alaska 3.0%
Idaho 3.1%

State	2020 Census
Alabama	4.3%
Alaska	3.0%
Arizona	4.7%
Arkansas	4.6%
California	4.2%
Colorado	4.2%
Connecticut	4.8%
Delaware	5.7%
DC	5.5%
Florida	5.9%
Georgia	4.8%
Hawaii	2.8%
Idaho	3.1%
Illinois	4.6%
Indiana	4.4%
Iowa	5.2%
Kansas	4.1%

State	2020 Census
Kentucky	3.8%
Louisiana	5.5%
Maine	5.2%
Maryland	4.6%
Massachusetts	4.6%
Michigan	4.5%
Minnesota	3.9%
Mississippi	4.7%
Missouri	4.7%
Montana	3.6%
Nebraska	4.5%
Nevada	5.1%
New Hampshire	5.1%
New Jersey	4.4%
New Mexico	3.9%
New York	4.8%
North Carolina	5.1%

State	2020 Census
North Dakota	4.1%
Ohio	4.8%
Oklahoma	4.0%
Oregon	3.7%
Pennsylvania	4.6%
Rhode Island	5.4%
South Carolina	5.1%
South Dakota	4.3%
Tennessee	4.6%
Texas	4.7%
Utah	3.1%
Vermont	4.1%
Virginia	4.2%
Washington	4.0%
West Virginia	3.6%
Wisconsin	4.2%
Wyoming	4.5%

2020 to 2010: Addresses from NRFU and Other Enumeration Activities Resolved by Proxy Interview

2010 Census U.S. Total: 19.5%
2020 Census U.S. Total: 18.2%
Difference: -1.3%

Lowest Proxy Resolution: Connecticut 13.8%
 Washington 14.0%
 Minnesota 14.2%

Highest Proxy Resolution: Maine 26.3%
 West Virginia 29.1%
 Alaska 30.2%

State	2010 Census	2020 Census	Difference
Alabama	23.1%	23.5%	0.4%
Alaska	26.9%	30.2%	3.3%
Arizona	25.8%	20.9%	-5.0%
Arkansas	22.0%	24.5%	2.5%
California	15.3%	15.1%	-0.3%
Colorado	18.9%	17.8%	-1.1%
Connecticut	16.9%	13.8%	-3.1%
Delaware	23.2%	17.9%	-5.3%
DC	20.9%	22.4%	1.4%
Florida	24.9%	19.3%	-5.6%
Georgia	22.0%	20.8%	-1.2%
Hawaii	20.9%	21.7%	0.9%
Idaho	20.7%	17.9%	-2.8%
Illinois	15.9%	15.1%	-0.8%
Indiana	17.6%	15.6%	-2.0%
Iowa	14.8%	15.4%	0.6%
Kansas	16.5%	17.0%	0.5%

State	2010 Census	2020 Census	Difference
Kentucky	20.1%	19.2%	-0.9%
Louisiana	22.5%	22.2%	-0.3%
Maine	29.2%	26.3%	-2.9%
Maryland	17.1%	14.5%	-2.6%
Massachusetts	16.9%	16.3%	-0.5%
Michigan	21.8%	17.1%	-4.7%
Minnesota	16.5%	14.2%	-2.3%
Mississippi	21.6%	22.7%	1.1%
Missouri	20.1%	21.0%	1.0%
Montana	23.6%	26.0%	2.4%
Nebraska	16.6%	15.0%	-1.5%
Nevada	25.2%	16.2%	-9.0%
New Hampshire	21.8%	18.0%	-3.8%
New Jersey	16.4%	15.4%	-1.0%
New Mexico	25.3%	24.7%	-0.6%
New York	20.5%	19.4%	-1.1%
North Carolina	23.5%	20.6%	-2.9%

State	2010 Census	2020 Census	Difference
North Dakota	19.6%	23.4%	3.9%
Ohio	17.0%	15.5%	-1.5%
Oklahoma	21.1%	23.4%	2.4%
Oregon	16.3%	17.0%	0.7%
Pennsylvania	16.9%	16.8%	-0.1%
Rhode Island	18.2%	16.3%	-1.8%
South Carolina	24.6%	23.1%	-1.5%
South Dakota	18.9%	19.2%	0.3%
Tennessee	19.5%	19.2%	-0.3%
Texas	19.8%	20.2%	0.4%
Utah	16.8%	17.2%	0.4%
Vermont	26.4%	24.7%	-1.7%
Virginia	16.9%	14.8%	-2.2%
Washington	16.4%	14.0%	-2.4%
West Virginia	23.2%	29.1%	6.0%
Wisconsin	18.5%	15.5%	-3.0%
Wyoming	22.5%	23.4%	1.0%

States with largest decrease.

States with largest increase

2020 Census Comparison to 2010 Census: Total Unresolved Housing Unit Addresses

2010 Census U.S. Total: 0.4%
2020 Census U.S. Total: 0.9%
Difference: 0.5%

Lowest States: Arizona 0.7% Iowa 0.7%
 Delaware 0.7% Minnesota 0.7%
 Indiana 0.7% Nebraska 0.7%

Highest States: Massachusetts 1.3%
 New York 1.5%
 Louisiana 1.7%

State	2010 Census	2020 Census	Difference
Alabama	0.6%	1.2%	0.5%
Alaska	0.4%	1.0%	0.6%
Arizona	0.5%	0.7%	0.2%
Arkansas	0.4%	1.0%	0.6%
California	0.2%	0.9%	0.7%
Colorado	0.6%	0.8%	0.3%
Connecticut	0.2%	1.0%	0.8%
Delaware	0.4%	0.7%	0.3%
DC	0.9%	1.1%	0.2%
Florida	0.5%	0.9%	0.3%
Georgia	0.8%	1.0%	0.2%
Hawaii	0.3%	1.2%	0.9%
Idaho	0.5%	0.8%	0.3%
Illinois	0.3%	0.9%	0.6%
Indiana	0.1%	0.7%	0.6%
Iowa	0.1%	0.7%	0.5%
Kansas	0.1%	0.8%	0.7%

State	2010 Census	2020 Census	Difference
Kentucky	0.3%	1.0%	0.6%
Louisiana	0.7%	1.7%	1.0%
Maine	0.2%	1.0%	0.8%
Maryland	0.4%	0.8%	0.4%
Massachusetts	0.2%	1.3%	1.1%
Michigan	0.3%	0.9%	0.6%
Minnesota	0.2%	0.7%	0.5%
Mississippi	0.7%	1.1%	0.5%
Missouri	0.3%	0.9%	0.6%
Montana	0.4%	0.9%	0.5%
Nebraska	0.2%	0.7%	0.6%
Nevada	0.6%	0.9%	0.2%
New Hampshire	0.2%	0.8%	0.7%
New Jersey	0.4%	1.0%	0.5%
New Mexico	0.9%	1.0%	0.1%
New York	0.5%	1.5%	1.0%
North Carolina	0.6%	1.0%	0.3%

State	2010 Census	2020 Census	Difference
North Dakota	0.2%	0.9%	0.7%
Ohio	0.2%	0.8%	0.6%
Oklahoma	0.2%	0.8%	0.6%
Oregon	0.4%	0.8%	0.4%
Pennsylvania	0.3%	0.9%	0.7%
Rhode Island	0.2%	1.2%	1.0%
South Carolina	0.6%	1.0%	0.4%
South Dakota	0.5%	0.8%	0.3%
Tennessee	0.5%	0.9%	0.4%
Texas	0.5%	0.9%	0.4%
Utah	0.2%	1.0%	0.8%
Vermont	0.2%	1.0%	0.9%
Virginia	0.3%	0.8%	0.5%
Washington	0.3%	1.0%	0.6%
West Virginia	0.3%	1.1%	0.8%
Wisconsin	0.2%	0.8%	0.6%
Wyoming	0.5%	0.9%	0.4%

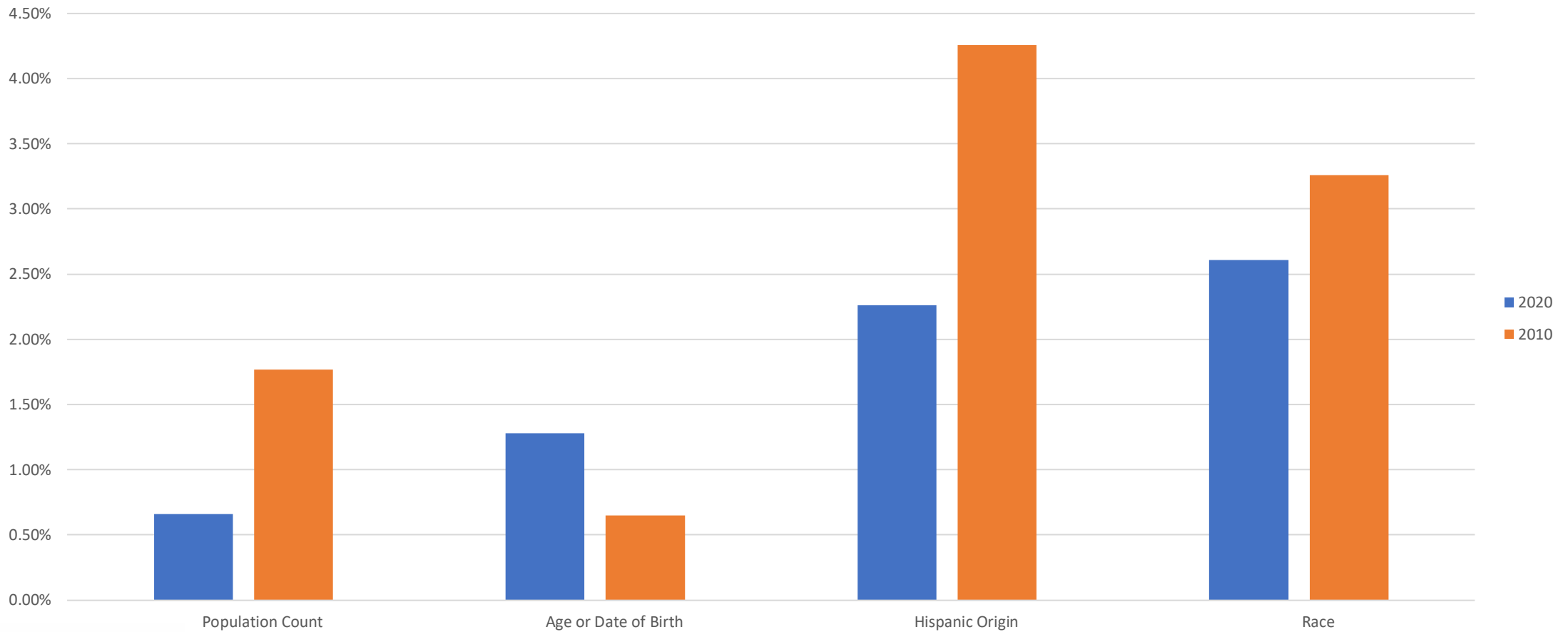
States with smallest increase.

States with largest increase.

Highlights from Release 3, item nonresponse rates

- Overall, item nonresponse rates for most questions were higher in the 2020 Census compared to 2010. Among all occupied households, this ranged from 0.52% for population count to 5.95% for age or date of birth.
- Item nonresponse rates for most questions were lowest for households that self-responded, especially for internet and phone respondents. Among internet respondents, this ranged from 1.37% for age or date of birth to 2.19% for race.
- Among households enumerated in NRFU, item nonresponse rates were highest when a proxy respondent provided the data. For example, among NRFU household member interviews 8.71% were missing race compared to 41.22% for proxy respondents.
- Group quarters tended to have relatively high item nonresponse rates across question items. For instance, 17.81% of people in GQs were missing age or date of birth.

2020 Census Comparison to 2010 Census: Item Nonresponse Rates for Self-Responding Households



Accessing the 2020 Census Data Quality Page



1. Go to www.census.gov

Select **SURVEYS/PROGRAMS**
(at the top of the page) and
2020 Census

2. Then select [2020 Census
Data Quality](#)



2020 Census Data Quality

On this webpage you'll find:

- Operational Quality Metrics
- An interactive Operational Quality Metrics tool
- Comparisons to population benchmarks
- Outside expert reviews
- Operational assessments and evaluations
- Technical documentation, FAQs, and more!

Other Ways of Measuring Quality in the 2020 Census

- [Comparing census results](#) to 2020 Demographic Analysis estimates and other population benchmarks
- Releasing information on the [improvements to how we measure race and ethnicity](#).
- Conducting a [Post-Enumeration Survey](#) to measure the proportion of people and housing units potentially missed or counted erroneously in the census.
- Working with respected members of the [scientific and statistical community](#) to provide independent, external assessments of the census.
- Conducting a robust series of planned [assessments and evaluations](#) of the 2020 Census operations.

Questions?