

BRIEF

2020 Census Count Question Resolution & Population Estimates Challenge Programs

Opportunities for Improving Postcensal Population Estimates

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KEY TAKEAWAYS

- The decennial census is the constitutionally-mandated count of all residents of the United States. In the years between each census, the Census Bureau produces annually-updated estimates of the nation's population using the most recent census count as a starting point.
- Reliable population estimates are critical to the federal statistical system and affect how more than \$1 trillion in federal funding is annually distributed.
- To improve the quality of the postcensal population estimates, the bureau provides Tribal, state, and local governments with opportunities to identify and address a limited range of mistakes. These opportunities include the Count Question Resolution (CQR) and Population Estimates Challenge (Challenge) programs.

Every decade, the U.S. Census Bureau conducts a constitutionally-mandated count of the nation's population. In doing so, the bureau undertakes what is—even under the best circumstances—a vast and staggeringly complex operation. While the bureau and stakeholders aim for a complete and fair count, the census has never been—and, perhaps, never will be—perfect.¹ Historically, the Census Bureau has fallen short of its ideal of counting everyone once, only once, and in the right place.

Recognizing that a census will have shortcomings, the Census Bureau provides Tribal, state, and local governments with opportunities to identify and address a limited range of mistakes. These opportunities exist at various points during the census and after it is completed. Once the bureau publishes the first data products from the 2020 Census, governmental units will have two main opportunities to review their data and seek revisions: the Count Question Resolution (CQR) and

Population Estimates Challenge (Challenge) programs. Both the CQR and Challenge programs can be described as “postcensal” opportunities.

In participating in the CQR and Challenge programs, governmental units hope to not only improve the quality of federal statistics but also affect how more than \$1 trillion in federal funding is annually distributed.² However, the programs are limited in scope and impact. Given the unprecedented challenges the bureau faced in conducting the 2020 Census, along with longstanding concerns about these programs, efforts to revise and expand the scope of the programs may be warranted. As of April 2021, the bureau has not yet finalized the design criteria for the Challenge and CQR programs.

AN OVERVIEW OF THE CENSUS QUESTION RESOLUTION & POPULATION ESTIMATES CHALLENGE PROGRAMS

The decennial census produces a count of the nation's population every ten years. For the years between each census—or the intercensal years—the Census Bureau releases annually updated estimates of the nation's population, known as the postcensal population estimates (i.e. “population estimates”).³ Population estimates are a foundational dataset in the federal statistical system. They are used for an array of federal funding allocations and serve as a control for major federal statistical surveys, such as the American Community Survey.⁴ The decennial census serves as the initial population “base”—or starting point—for the calculation of postcensal population estimates.

Two key Census Bureau programs facilitate challenges to the decennial results or subsequent population estimates. The CQR program allows for government units to challenge the decennial census results, while the Challenge program allows government units to review and comment on the population estimates which are built on the decennial results. Unlike the Special Census program which involves a re-enumeration of the population and housing in a governmental unit (see Box 1), both the CQR and Challenge programs primarily accept submissions based on processing issues.

BOX 1. SPECIAL CENSUS PROGRAM

Under section 196 of Title 13, the Census Bureau can conduct an enumeration of an area through the Special Census program at the request of a governmental unit.⁵ Local officials might request this enumeration if there has been a significant population change in their community due to growth or annexation since the last national decennial census or postcensal population estimate.⁶ The government of any state, county, city, or other political subdivision within a state or area, including American Indian reservations and Alaska Native villages, can request a special census.⁷ The governmental unit requesting a special census must pay the cost.⁸ The costs will depend on whether the governmental unit requested a full or partial special census and its population size and housing count.⁹ In 2017, the Census Bureau estimated a partial Special Census of the City of Washington, Illinois (2010 Census population: 15,134), would cost \$113,570.¹⁰ Laws of states and localities dictate when and why governmental units may request a special census. For instance, Iowa permits each city only one Special Census per decade, while Illinois has no restriction, allowing towns to request as many as they deem necessary and can afford.¹¹ The results of a special census are designated “Official Census Statistics.”¹²

CENSUS QUESTION RESOLUTION PROGRAM

The CQR program—part of 2020 Census operations—allows challenges to the decennial census results for a finite period of time starting in January 2022.¹³ The program addresses only technical mistakes such as the incorrect placement of a geographic boundary and the placement of housing units or group quarters in the wrong places. The CQR program also can fix coverage errors, such as undercounts, but only if the errors are a result of processing mistakes affecting housing units or group facilities. In other words, the bureau will revise population counts associated with corrected housing data. For example, the bureau may correct an error where a housing unit is mistakenly identified as a duplicate and deleted the housing unit and, with it, its occupants from the data. (The bureau, however, will not accept CQR challenges that seek to include housing units and associated population counts that the bureau missed entirely *in the enumeration*.)

Though census data are crucial for congressional apportionment and legislative redistricting, the CQR program does not affect census numbers used for either purpose. The Census Bureau also will not revise any other census data products, such as the Demographic and Housing Characteristics summary files, through the CQR challenge process. However, if a CQR challenge is successful, the bureau will issue a certificate reflecting the corrected housing and/or population counts for the governmental unit, which in turn will affect the subsequent annual population estimates used to guide federal funding allocations.

POPULATION ESTIMATES CHALLENGE PROGRAM

The Challenge program periodically accepts submissions after the annual release of postcensal population estimates. For the 2020 Census, this process starts after the release of the 2021 population estimates in late 2021. The Challenge program addresses issues resulting from the use of incorrect data or a mistake made in calculating the estimates. The challenges must use the methodology deemed appropriate for the level of geography. A county must use the cohort component method (CCM) in their challenge, while subcounty units—such as cities—must use the distributive housing unit (DHU) methodology.

The CCM involves taking the population base (either the census or the prior year’s population estimate) and adding births and subtracting deaths, as well as adding net international and domestic migration.¹⁴ To calculate the population estimates for geographic entities below the county level (such as incorporated places and minor civil divisions), the bureau relies on the “distributive housing unit method” (DHU).¹⁵ This method does not produce independent population estimates. Instead, the method allocates the county-level population estimates proportionately to subcounty areas.

Following a successful challenge, the bureau will revise the governmental unit’s official 2020 Census results or its population estimate, and the change will be carried through in the calculation of population estimates for subsequent years. The current program, however, has strict rules that limit the scope of submissions.

As a result, only a few of the submitted challenges over the past decade were successful and, each time the bureau accepted a submission, the agency made modest revisions.

REVISIONS RESULTING FROM THE 2010 CQR PROGRAM

The CQR operation has historically resulted in a small number of revisions to census results (see Figure 2). Following the 2010 Census, CQR revisions to population and housing totals impacted around one percent of governmental units (394¹⁶ out of roughly 39,000¹⁷). While there can be large relative changes in the population

counts for small geographic units (such as cities or counties), the increase in population or housing units for one area is usually offset by a loss in a neighboring area. Consequently, there is typically little change in the population and housing unit totals at the state and national level. The 2010 CQR operation, for example, resulted in a net increase of 527 people and 224 housing units in the U.S. overall.¹⁸

Figure 1. A Comparison of the Count Question Resolution & Population Estimate Challenge Programs

	Count Question Resolution (CQR)	Population Estimate Challenge (Challenge)
Purpose	Allows challenges to census counts for housing units (and associated population) based on narrow criteria related to geographic errors* and data processing issues for information already collected by the Census Bureau	Allows challenges to improve postcensal population estimates by correcting errors related to data or the processes used to calculate estimates
Eligible Challenges	Challenges due to (i) inaccurate recording of jurisdictional boundaries, (ii) the incorrect geocoding of living quarters, including housing units and group facilities, and (iii) coverage errors resulting in the exclusion or duplication of living quarters and associated population counts.	Challenges due to incorrect data or technical errors in the processing of data and producing population estimates
Timing of Challenges	January 2022 through June 2023	Following each release of annual population estimates—beginning in 2022 after the release of 2021 population estimates—and until the subsequent decennial census
Eligible Governmental Units	States, counties, minor civil divisions, incorporated places, Alaska Native Regional Corporations, Alaska Native Villages, American Indian reservations, trust lands, and other Tribal areas	Counties, municipalities, townships, incorporated places, or other minor civil divisions below the state level; a non-functioning governmental unit** can be represented by the state-designated agency to the Federal-State Cooperative for Population Estimates
Required Evidence	Documentation including maps and/or address lists indicating all living quarters with (i) the exact location of each challenged address marked (for boundary issues) and/or (ii) evidence in support of counts in blocks showing the existence of housing units (e.g. detailed maps).	Population estimates from the government unit issuing the challenge, which must be calculated based on either the (i) county method ¹⁹ or (ii) the Distributive Housing Unit (DHU) method. ²⁰ Challenging counties must use the county method while subcounty units must use the DHU method.

Note: * Geographic errors include the incorrect placement of boundaries (between tracts, cities, etc.) or the incorrect placement of living quarters and associated populations. ** These are legally-defined entities without appointed or elected officials that exist primarily for administrative purposes, such as reporting census data or administering tax assessments.

Source: Georgetown Center on Poverty & Inequality, 2021. “Comment Request; 2020 Census Count Question Resolution Operation” United States Census Bureau, Federal Register, August 2020. Available at <https://www.federalregister.gov/documents/2020/08/04/2020-16962/agency-information-collection-activities-submission-to-the-office-of-management-and-budget-omb-for>; “Review Guide for the Population Estimates Challenge Program.” United States Census Bureau, updated February 2020. Available at <https://www2.census.gov/programs-surveys/popest/about/challenge-program/challenge-review-guide.pdf>; “Keys Dates: 2020 Census Count Question Resolution Program.” United States Census Bureau, 13 May 2021. Available at https://www.census.gov/newsroom/press-releases/2021/2020-census-count-question-resolution.html?utm_campaign=20210513MSC20s1ccnwsrs&utm_medium=email&utm_source=govdelivery.

Figure 2. State-Level Changes Resulting From the 2010 Count Questions Resolution Program Were Relatively Small

Original 2010 Census Total Population & Housing Unit Counts & the Corrected Counts Resulting From the 2010 Count Question Resolution Program

State	Original tabulation		Corrected (revised)		Absolute change	
	Total population	Total housing units	Total population	Total housing units	Change in population	Change in housing units
Alabama	4,779,736	2,171,853	4,779,753	2,171,862	17	9
Alaska	710,231	306,967	710,235	306,970	4	3
Arkansas	2,915,918	1,316,299	2,915,919	1,316,300	1	1
District of Columbia	601,723	296,719	601,767	296,739	44	20
Florida	18,801,310	8,989,580	18,801,332	8,989,592	22	12
Georgia	9,687,653	4,088,801	9,687,850	4,088,882	197	81
Idaho	1,567,582	667,796	1,567,652	667,796	70	0
Maryland	5,773,552	2,378,814	5,773,626	2,378,860	74	46
Michigan	9,883,640	4,532,233	9,883,706	4,532,269	66	36
New Jersey	8,791,894	3,553,562	8,791,909	3,553,569	15	7
New Mexico	2,059,179	901,388	2,059,181	901,390	2	2
Ohio	11,536,504	5,127,508	11,536,504	5,127,509	0	1
South Dakota	814,180	363,438	814,191	363,442	11	4
Texas	25,145,561	9,977,436	25,145,565	9,977,438	4	2

Note: The table only shows states where there was total population and housing unit counts differed between the original and corrected tabulation at the state level. While there can be large relative changes in the population counts for small geographic units, the increase in population or housing units for one area is usually offset by a loss in a neighboring area. Consequently, there is typically little change in the population and housing unit totals at the state and national level.

Source: Georgetown Center on Poverty & Inequality, 2021; “Notes and Errata: 2010 Census Population and Housing.” U.S. Census Bureau, last revised May 2018. Available at <https://www.census.gov/library/publications/2010/dec/sf10-1.html>.

REVISIONS RESULTING FROM THE CHALLENGE PROGRAM

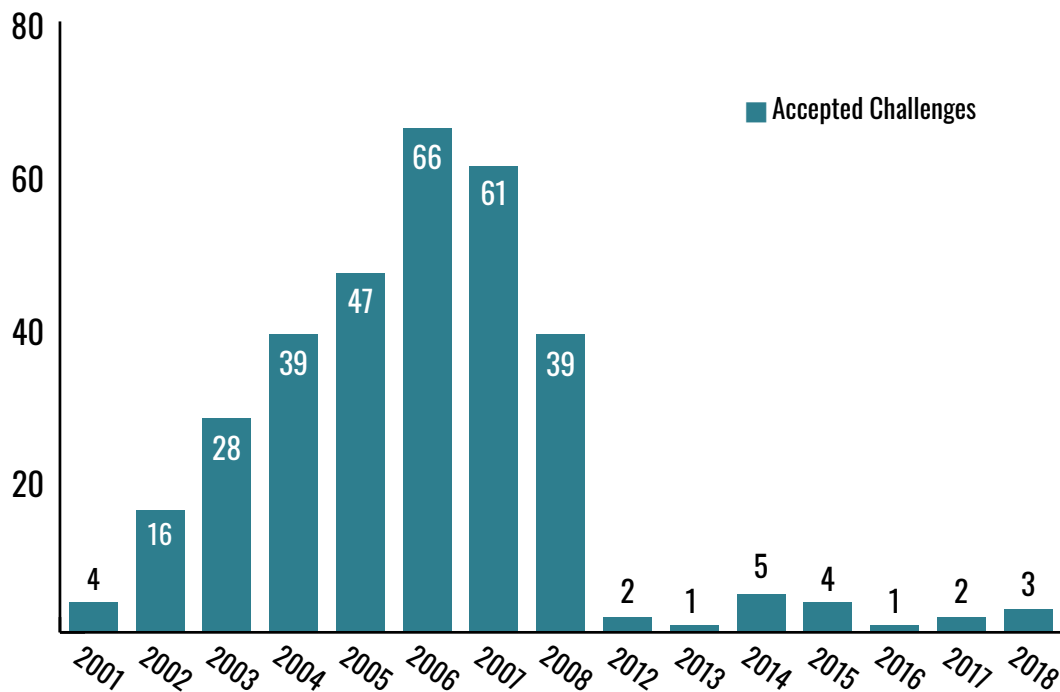
Policies introduced after the 2010 Census have limited the magnitude of the Challenge program’s impact. As shown in Figure 3, the number of successful population estimate challenges declined sharply after 2010. Successful challenges during the 2010s resulted in smaller percent changes to population totals than during the 2000s (Figure 4). Some observers at the time argued that these policy changes rendered the Challenge program “essentially meaningless”.²¹

During the 2000s, the Census Bureau produced county-level estimates using the CCM but accepted challenges based on an alternate methodology—the housing unit-based method. However, after evaluations of the Challenge program during the 2000s, the bureau found that the CCM generally produced more accurate

population estimates for a majority of counties as compared to the housing-unit based method. In response to this finding, the bureau decided that only the CCM would be acceptable for county level challenges. This limited the types of evidence that could be used to challenge these estimates.

Further, the bureau decided that subcounty challenges must use the DHU method. An important difference between the housing-unit based methods that were allowed prior to 2010 and the DHU method is a weighting strategy referred to as the “Rake Factor.” Due to the Rake Factor, changes in one sub-county area, such as an incorporated place, will draw away from another sub-county area—and the county-level estimate remains the same. So, while the DHU method allows for more sources of evidence, such as building permits, to be used, subcounty challenges are limited in that they impact only how the county-level population estimate (determined via the CCM) is distributed among subcounty areas.

Figure 3. The Number of Successful Population Estimate Challenges Has Declined
Accepted Challenges to the Vintage Population Estimates During the 2000s & 2010s

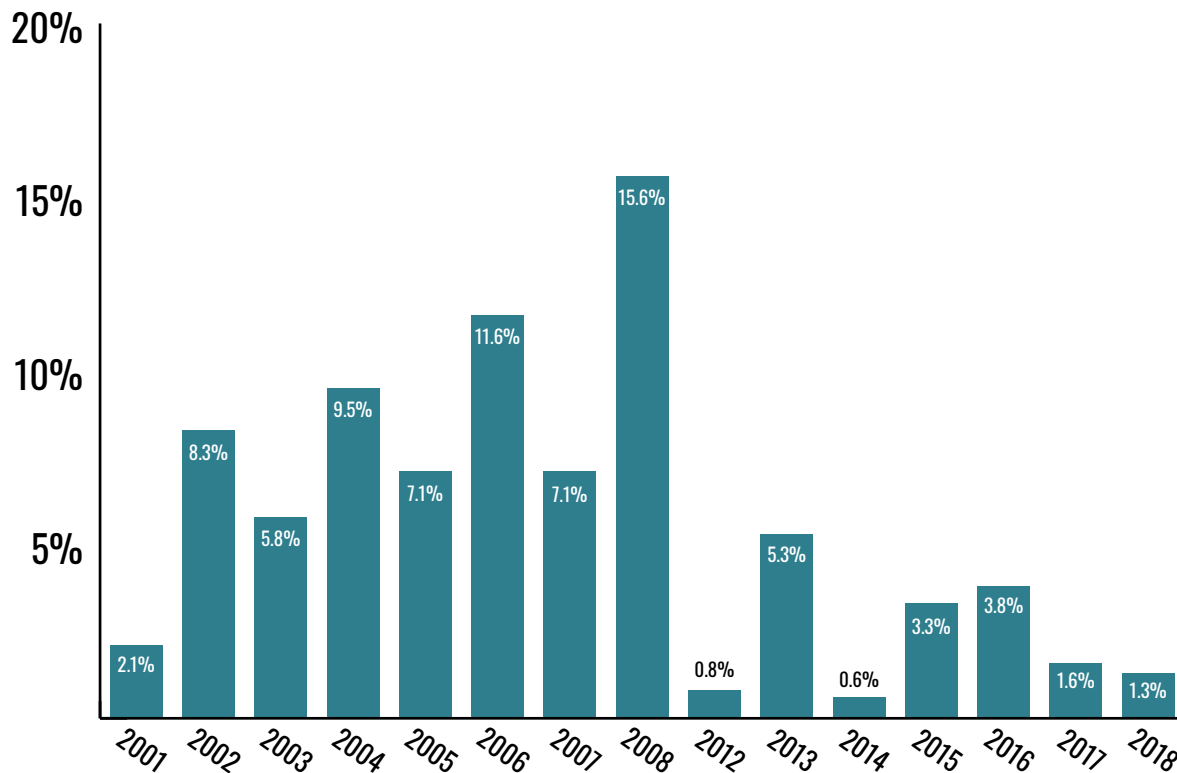


Note: Population Estimates Challenge (Challenge) program results are available for the vintage estimates for the years 1998, 2001 to 2008, and 2012 to 2018. The Challenge program is typically suspended during the decennial census year and the subsequent year to accommodate census operations. The available data for the successful 1998 challenge (for Collier County) is not reflected in the figure.

Source: Georgetown Center on Poverty & Inequality, 2021. “Challenge Results.” U.S. Census Bureau, last revised February 2020. Available at <https://www.census.gov/programs-surveys/popest/about/challenge-program/results.html>.

Figure 4. Successful Challenges During the 2010s Have Resulted in Smaller Percent Changes to Population Totals Than During the 2000s

Average Percent Change in a Governmental Unit's Vintage Population Estimate by Year Following a Successful Challenge During the 2000s & 2010s



Note: Population Estimates Challenge Program results are available for the vintage estimates for the years 1998, 2001 to 2008, and 2012 to 2018. The Challenge program is typically suspended during the decennial census year and the subsequent year to accommodate census operations. The available data for the successful 1998 challenge (for Collier County) is not reflected in the figure. Estimates have been rounded to the closest decimal percentage point.

Source: Georgetown Center on Poverty & Inequality, 2021. "Challenge Results." U.S. Census Bureau, last revised February 2020. Available at <https://www.census.gov/programs-surveys/popest/about/challenge-program/results.html>.

CONCLUSION

The CQR and Challenge programs provide governmental units with the crucial opportunity to review and comment on the decennial census results and the postcensal population estimates for their areas. As of May 2021, the bureau has not yet finalized the design and scope of the CQR and Challenge programs. There are ongoing stakeholder efforts to explore ways the CQR and Challenge programs may be changed and potentially expanded to address their limitations, especially given the unique and unprecedented issues faced through the course of the 2020 Census. In the fall of 2021, the Census Bureau will post a Federal Register notice announcing the beginning of a 30-day comment period for the public.

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ENDNOTES

1. Groves, Robert. "Quality in a Census, Some Overview Thoughts." United States Census Bureau, 9 September 2010. Available at <https://www.census.gov/newsroom/blogs/director/2010/09/quality-in-a-census-some-overview-thoughts.html>.
2. "Importance of the Data." U.S. Census 2020. Available at <https://2020census.gov/en/census-data.html>.
3. Postcensal estimates differ from intercensal estimates. Postcensal estimates are produced by updating the last-available decennial census count (e.g. 2010 Census). When the results from two consecutive decennial census counts are available (e.g., 2010 Census and 2020 Census), the bureau can calculate the intercensal estimates. The intercensal estimates are calculated by retroactively adjusting the postcensal estimates to create a consistent time series of population estimates (e.g., from 2010 Census to the 2020 Census). For more information, see <https://www2.census.gov/programs-surveys/popest/technical-documentation/methodology/intercensal/2000-2010-intercensal-estimates-methodology.pdf>.
4. Reamer, Andrew. "Census-derived Datasets Used to Distribute Federal Funds." GW Institute of Public Policy, December 2018. Available at <https://gwipp.gwu.edu/sites/g/files/zaxdzs2181/f/downloads/Counting%20for%20Dollars%20%234%20Census-derived%20Datasets.pdf>.
5. Special Censuses, 13 U.S.C. Sec. 196 (1976). Government Printing Office, <https://www.govinfo.gov/content/pkg/USCODE-2007-title13/pdf/USCODE-2007-title13.pdf>.
6. "Special Census Program." United States Census Bureau. Available at <https://www.census.gov/programs-surveys/specialcensus.html>.
7. "Frequently Asked Questions." United States Census Bureau. Available at <https://www.census.gov/programs-surveys/specialcensus/faqs.html#limits>.
8. "Frequently Asked Questions." United States Census Bureau. Available at <https://www.census.gov/programs-surveys/specialcensus/faqs.html#pay>.
9. "Temporary Suspension of the Special Census Program." National Archives Federal Register, 20 September 2016. Available at <https://www.federalregister.gov/documents/2016/09/20/2016-22629/temporary-suspension-of-the-special-census-program#:~:text=To%20begin%20the%20Special%20Census,fee%20to%20request%20an%20estimate>.
10. Oilphant, Jon. "Memorandum to the Mayor Manier and City Council." City of Washington Planning and Development Department, 27 April 2017. Available at https://www.ci.washington.il.us/egov/documents/1493409888_86294.pdf.
11. "Frequently Asked Questions." United States Census Bureau. Available at <https://www.census.gov/programs-surveys/specialcensus/faqs.html#limits>.
12. "Frequently Asked Questions." United States Census Bureau. Available at <https://www.census.gov/programs-surveys/specialcensus/faqs.html#dataproducs>.
13. "Keys Dates: 2020 Census Count Question Resolution Program." United States Census Bureau, 13 May 2021. Available at https://www.census.gov/newsroom/press-releases/2021/2020-census-count-question-resolution.html?utm_campaign=20210513MSC20s1ccnwsrs&utm_medium=email&utm_source=govdelivery.
14. Reamer, Andrew. "Census-derived Datasets Used to Distribute Federal Funds." GW Institute of Public Policy, December 2018. Available at <https://gwipp.gwu.edu/sites/g/files/zaxdzs2181/f/downloads/Counting%20for%20Dollars%20%234%20Census-derived%20Datasets.pdf>.
15. "Review Guide for the Population Estimates Challenge Program." United States Census Bureau, May 2013. Available at <https://www2.census.gov/programs-surveys/popest/about/challenge-program/challenge-review-guide.pdf>.
16. "Methodology for the United States Population Estimates." Available at <https://www2.census.gov/programs-surveys/popest/technical-documentation/methodology/2010-2018/2018-natstcopr-meth.pdf>.
17. "Methodology for the Subcounty Total Resident Population Estimates." Available at <https://www2.census.gov/programs-surveys/popest/technical-documentation/methodology/2010-2016/2016-su-meth.pdf>.
18. "Notes and Errata." United States Census Bureau. 2010. Available at <https://www2.census.gov/programs-surveys/decennial/2010/technical-documentation/errata-notes/errata.pdf>.
19. Hogue, Carma. "Government Organization Summary Report: 2012." United States Census Bureau, 26 September 2013. Available at <https://www.census.gov/content/dam/Census/library/publications/2013/econ/g12-cg-org.pdf>.
20. "Notes and Errata." United States Census Bureau. 2010.
21. "Rules and Regulations." Bureau of the Census, Department of Commerce, 2013. Available at https://www2.census.gov/programs-surveys/popest/about/challenge-program/fedreg_78_2.pdf.