

EXHIBIT A

**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MARYLAND**

LA UNIÓN DEL PUEBLO ENTERO,
PROMISE ARIZONA, LYDIA
CAMARILLO, JUANITA VALDEZ-COX,
ROGENE GEE CALVERT; ZEENAT
NISHA HASAN; CANDY L. GUTIERREZ;
EUGENE WU, DEBORAH CHEN,
ORGANIZATION OF CHINESE
AMERICANS-GREATER HOUSTON,
DAVID CHIU, PHILLIP TING, ALBERT
MURATSUCHI, KENNY CHU, YICHENG
WU, CYNTHIA CHOI, VINCENT PAN,
JOHN PARK, JEFFREY D. HSI, JACINTA
TITIALII ABBOTT, VENGHAN TANG,
RAJ MUKHERJI, SHARON TOMIKO
SANTOS, MIA GREGERSON, JENNIFER
REYES, RAYMOND SANCHEZ,
MARICELA LECHUGA, MARTY
RAMIREZ, FELIPE CRUZ, ALEXANDRA
ROSY PALOMO-PUJOL, MARCO
ABARCA, COALITION FOR HUMANE
IMMIGRANT RIGHTS OF LOS
ANGELES, RALPH CARMONA, and
JAVIER GASTON-GREENBERG,

Plaintiffs,

v.

DONALD J. TRUMP, sued in his official
capacity as President of the United States,

WILBUR L. ROSS, sued in his official
capacity as U.S. Secretary of Commerce,

STEVEN DILLINGHAM, sued in his official
capacity as Director of the U.S. Census
Bureau,

U.S. DEPARTMENT OF COMMERCE, and

U.S. CENSUS BUREAU,

Defendants.

Civil Action No. 8:19-CV-02710-PX

SWORN EXPERT DECLARATION OF JOHN THOMPSON

I. Introduction

1. On April 13, 2020 the Secretary of Commerce, Wilbur Ross, and the Director of the Census Bureau, Dr. Steven Dillingham, issued a statement on 2020 Census operational adjustments due to the COVID-19 pandemic. This statement concluded that “[u]nder this plan, the Census Bureau would extend the window for field data collection and self-response to October 31, 2020, which will allow for apportionment counts to be delivered to the President by April 30, 2021, and redistricting data to be delivered to the states no later than July 31, 2021.”¹

2. On August 3, 2020 the Director of the Census Bureau, Dr. Steven Dillingham, issued a statement announcing that the Census Bureau would “accelerate the completion of data collection and apportionment counts by our statutory deadline of December 31, 2020, as required by law and directed by the Secretary of Commerce.”² Based on my experience and expertise, I am extremely concerned that this August 3 decision will adversely affect the quality and accuracy of the 2020 Census.

3. The 2020 Census results will be of great importance to our nation. The Constitution requires that the census be used for reapportioning the House of Representatives and the Electoral College. The 2020 Census will also be used for numerous other functions to support good policymaking and economic growth including: redrawing congressional and state legislative voting districts; allocating over \$1.5 trillion of federal funds annually; informing

¹ U.S. Department of Commerce Secretary Wilbur Ross and U.S. Census Bureau Director Steven Dillingham Statement on 2020 Census Operational Adjustments Due to COVID-19, April 13, 2020.

² Statement from U.S. Census Bureau Director Steven Dillingham: Delivering a Complete and Accurate 2020 Census Count, August 3, 2017.

sound policy development; providing critical information for state, local and tribal government planning; and supplying important data to large and small businesses to generate growth and job creation. Inaccuracies or errors in the 2020 Census will have grave consequences on these uses for the subsequent 10-year period.

4. I have carefully reviewed the 2020 Census Operational Plans as well as the documentation that the Census Bureau has issued describing the actions it is taking in response to the COVID-19 pandemic and its recently issued documentation regarding its plans to conclude data collection by September 30, 2020. Based on my experience and expertise, I am concerned that reducing the time for data collection at this late date will have serious consequences for the 2020 Census, because: (1) the time constraints will force the Census Bureau to modify the plans for their data collection operations; (2) these modifications will significantly increase the risk of larger total and differential undercounts for the hard-to-count populations, as well as increase the levels of erroneous enumerations and reduce the overall quality of this census, relative to previous censuses; (3) the Census Bureau's new push to adhere to a truncated schedule reduces not only data collection time frames, but drastically reduces time frames for necessary post data collection processes that ensure an accurate and complete count; and (4) the Census Bureau is not providing timely measures that will allow stakeholders to assess whether the 2020 Census is succeeding in carrying out a fair and accurate enumeration under the limitations imposed by the new push to adhere to a truncated schedule.

II. Qualifications

5. Below I briefly describe specific aspects of my qualifications and work experience that establish my credentials as an accomplished statistician and an expert on the Census Bureau and Decennial Census. I have also attached a copy of my CV to this declaration.

6. I have served both as the Director of the U.S. Census Bureau and as the career senior executive in charge of management of all aspects of the 2000 Decennial Census. I am also a distinguished professional in the areas of statistics and survey design. I have a deep understanding of the processes that are necessary to achieve a complete and highly accurate Decennial Census.

7. I served as the Director of the U.S. Census Bureau from August 2013 to June 2017. Prior to becoming Director, I worked at the Census Bureau for 27 years (from 1975 to 2002). I started my career as a mathematical statistician in 1975. I spent the majority of my employment at the Census Bureau focused on the Decennial Census and ultimately served as the Associate Director for the 2000 Decennial Census, with management responsibility for all phases of the 2000 Decennial Census.

8. The Census Bureau is the country's largest Statistical Agency and produces a wide range of demographic and economic statistics including: the Decennial Census; the American Community Survey; the Current Population Survey; the National Crime Victimization Survey; the National Health Interview Survey; the Economic Census; 13 principal key economic indicators released on a monthly or quarterly basis; and about 100 additional surveys. The Director of the Census Bureau is appointed by the President and confirmed by the Senate.

9. My responsibilities as Director of the Census Bureau included overseeing the research and testing that produced the design for the 2020 Census. During my tenure, the original operational plan for conducting the 2020 Census was released, as was an updated version 2.0 of this plan.³ In addition, major field tests were conducted in 2013, 2014, 2015 and

³ U.S. Census Bureau, *2020 Census Operational Plan, A New Design for the 21st Century*, version 2.0 issued September 2016.

2016. The results of these tests informed the final 2020 Census Design that was tested in the 2018 end-to-end test. This was the final large-scale test in advance of the 2020 Census. It combined the results of all previous tests and could be viewed as a dress rehearsal for the 2020 Census.

10. Prior to being appointed Director of the Census Bureau, I was at National Opinion Research Center (NORC) at the University of Chicago, serving as Executive Vice President from 2002 to 2008 and President from 2008 to 2013. NORC is an objective, non-partisan independent research institution that delivers reliable data and rigorous analysis to guide critical programmatic, business, and policy decisions. Clients include government, corporate, and nonprofit organizations around the world who partner with NORC to transform increasingly complex information into useful knowledge. NORC conducts research in five main areas: Economics, Markets, and the Workforce; Education, Training, and Learning; Global Development; Health and Well-Being; and Society, Media, and Public Affairs. NORC services include designing and conducting surveys (telephone, internet, and in-person), as well as analytical studies.

11. From July 2017 to August 2018, I served as the Executive Director of the Council of Professional Associations on Federal Statistics (COPAFS). COPAFS is an organization with a membership consisting of professional associations and research organizations that depend on and support high quality federal statistics. The Executive Director of COPAFS must have a deep understanding of the Federal Statistical System and the wide range of data products that are produced. Serving as the Executive Director of COPAFS reinforced my appreciation of the importance of high-quality Decennial Census data to the entire Federal Statistical System.

12. In addition to the work experience described above, I am an elected Fellow of the American Statistical Association and was selected to serve on the National Academies of Science, Engineering, and Medicine Committee on National Statistics.

III. Concerns

A. Background on the Decennial Census

13. The uses of the data generated by the Decennial Census are extremely important for all components of our democracy and economy, including: the constitutionally required reapportionment of the House of Representatives; redrawing congressional and state legislative voting districts; allocating over \$1.5 trillion in federal funds annually; supporting evidence-based policy making by state, local and tribal governments; and allowing informed decisions by large and small businesses to generate economic growth and job creation. The Census results are also carried forward throughout the decade in the form of population estimates⁴ that are used for a number of purposes including ensuring that most public and private household surveys are fully representative of all population groups.⁵ Any undercounts in the Census would be carried forward in the population estimates and reflected in the surveys. Inaccuracies or undercounts in Decennial Census data will result in under-representation of the affected population groups not just in the immediate term, but for ten subsequent years until the next Decennial Census results are available.

14. As I discussed above, the Census Bureau spent much of this decade conducting testing and research in order to develop the plans and procedures to be used in the 2020 Census.

⁴ U.S. Census Bureau, <https://www.census.gov/programs-surveys/popest.html>.

⁵ There are many important surveys that provide information that goes beyond the uses of the Decennial Census that I described above. For example, the Current Population Survey provides measures of unemployment, income and poverty; and the Health Interview Survey tracks health status, health care access, and progress in achieving national health objectives.

The plans for the 2020 Census include a number of operations and programs that are important to achieve a fair and accurate enumeration. I will briefly describe four of these here for background purposes and then discuss the impact of the COVID-19 pandemic and other issues relating to a fair and accurate enumeration in subsequent portions of this declaration. The four operations or programs are as follows:

- Developing a comprehensive address list – The Census Bureau worked this decade to continuously update the address list that supported the 2010 Census. Input is continuously received from sources such as the United States Postal Service and local governments. The Census Bureau also conducted an “address canvassing” operation that concluded in 2019. Address canvassing used field or office workers to find and include additional addresses that may not have been provided from other input sources. The address list is critical because it serves as the control file for most 2020 Census operations including data collection.
- Self-response – Most housing units on the address list received an invitation to self-respond to the 2020 Census in March 2020. Responses could be submitted by Internet, completing and mailing back a paper questionnaire, or over the telephone.
- Nonresponse Followup – Not all households provide self-responses, requiring the Census Bureau to conduct an operation to collect information from these self-nonresponding housing units. The Census Bureau refers to this operation as “Nonresponse Followup” or NRFU. NRFU requires recruiting and hiring a large staff of enumerators to visit the nonresponding housing units and obtain a response and is the most expensive and labor-intensive operation that the 2020 Census will carry out. As of August 16, the national self-response rate was 63.8 percent, which meant that over 36 percent—or over 50 million housing units and their

occupants must still be enumerated.⁶ Prior to the COVID-19 pandemic, the Census Bureau estimated that it would need to deploy at least 260,000 enumerators to conduct NRFU for a workload of this size.⁷ As I will discuss below, the hard-to-count populations are disproportionately represented in the nonresponse universe. Hard-to-count populations include young children, minorities, immigrants, low income renters, limited English speakers, residents of hard to reach rural areas; these include Asians and Latinos, and American Indian Reservations or Alaska Native Villages. A failure to obtain a complete enumeration in NRFU would result in disproportionate undercounts of these populations. Therefore, I view a successful NRFU as one of the most important census operations to ensuring a fair and accurate count.

- Developing and deploying an integrated communications and partnership program – The Census Bureau has conducted extensive research to develop a communications program, using paid advertising and digital media, coupled with a local partnership program to encourage self-response and participation in the 2020 Census. The goal of the program is to get out messages on a local level that the 2020 Census is important to local communities, and that respondent information is completely confidential. The Census Bureau will not share identifiable information for any person to any outside entity, including law and immigration enforcement. The Census Bureau was very successful in recruiting over 300,000 national and local partners for the 2020 Census. Many of these partners planned to hold local events to promote 2020 Census self-response.

⁶ U.S. Census Bureau 2020 Census daily response rate tracker, <https://2020census.gov/en/response-rates.html> (last accessed August 16, 2020).

⁷ U.S. Census Bureau, *2020 Census Detailed Operational Plan for: 18. Nonresponse Followup Operation (NRFU)*, Version 2.0 Final, July 15, 2019.

B. The requirement to end data collection by the end of September 2020 will force the Census Bureau to modify data collection procedures, resulting in a less complete enumeration compared to previous censuses.

15. The COVID-19 pandemic forced the delay of key 2020 Census operations out of concerns for the safety of both census workers and the general public. Of particular concern was the delay of the NRFU.

16. The NRFU operation had been scheduled to start on May 15, 2020 and run through July 31, 2020. However, as a result of the COVID-19 pandemic, the Census Bureau rescheduled it to start in most of the United States on August 11, 2020 and initially planned to complete it by October 31, 2020.

17. In order to accommodate this delay, the Census Bureau had requested, through the Department of Commerce, a four-month extension of the deadlines⁸ to deliver Apportionment and redistricting data. For apportionment, the requested extension was from the current deadline of December 31, 2020 to April 30, 2021. For redistricting, the requested extension was from March 31, 2021 to July 31, 2021.

18. However, the Census Bureau has now announced that the deadlines will not be extended, and that NRFU will now be completed by September 30, 2020.⁹ The Census Bureau will have to take steps to complete NRFU more rapidly than it planned, given that it has already lost over a third of the schedule that the career staff had developed under the original plan.

⁸ Title 13, US Code, Section 141, (b) and (c).

⁹ Statement from U.S. Census Bureau Director Steven Dillingham: Delivering a Complete and Accurate 2020 Census Count, <https://www.census.gov/newsroom/press-releases/2020/delivering-complete-accurate-count.html>, August 3, 2020.

19. The Census Bureau recently released a review of the 2020 Census Operational Plan Schedule¹⁰ that describes actions being taken to complete all data collection, including NRFU, by September 30, 2020. According to the review, these actions include:

- Starting NRFU in all areas by August 9, 2020
- Sending enumerators to make up to six visits to attempt to obtain an interview with occupied housing units
- Offering bonuses to NRFU enumerators to maximize staff production hours
- Making efforts at “Keeping Staff Levels Up”
- Implementing outbound telephone calling to supplement in-person contact attempts as a means of enumerating hard-to-count populations

20. The review document had a serious lack of detail regarding how NRFU would be actually implemented under the revised and shortened time schedule. The Census Bureau had prepared detailed information regarding how it was going to conduct NRFU under the original schedule and time frame. For example, the Census Bureau described three NRFU phases – Phase 1, Phase 2, and Closeout for the 2020 Census.¹¹ For each phase, criteria and dates were provided that described how each would start. There is no such discussion included in the review of the Operational Plan, nor is there even a mention as to whether there will still be three phases.

21. I am concerned that taking the actions described in the review of the Operational Plan will not effectively address the constraints imposed by the revised timelines for completing

¹⁰ U.S. Census Bureau, *Review of 2020 Census Operational Plan Schedule*, <https://www.census.gov/content/dam/Census/newsroom/press-kits/2020/2020-operational-plan-schedule-review.pdf>, August 17, 2020.

¹¹ U.S. Census Bureau, *2020 Census Detailed Operational Plan for: 18. Nonresponse Followup Operation (NRFU)*, Version 2.0 Final, July 15, 2019.

NRFU. My concerns are informed by my experiences in managing all aspects of the 2000 Census and by directing the research and development necessary to plan the 2020 Census. My concerns are as follows:

- The staffing levels will not be adequate to complete NRFU without accepting lower quality enumerations and incompletely enumerating the traditionally hard-to-count populations. The Census Bureau has lost over 30 percent of the time that had been planned for NRFU, and my experience and knowledge lead me to conclude that the Census Bureau will need significantly more staff to complete this critical undertaking. However, the plan being put forth to end data collection by September 30 is to maintain staffing, at levels determined before the advent of the COVID-19 pandemic. The Department of Commerce Office of the Inspector (OIG) has recently reviewed the progress of staffing for the NRFU and stated:

“Bureau management have stated that their target number of enumerators, needed by the end of August 2020 to complete NRFU production, is just above 300,000. As of August 17, 2020, the Bureau has just under 220,000 enumerators trained and ready to start working on the NRFU operation that is underway—this represents approximately 73 percent of the estimated number of enumerators needed to complete NRFU production. However, 132 out of 248 total Area Census Office (ACOs) are less than 75 percent toward reaching their estimated goals; of those 132 ACOs at less than 75 percent, 37 are less than 50 percent toward reaching their goal.”¹²

¹² Zabarsky, Mark H, Principal Assistant Inspector General for Audit and Evaluation, **2020 Census Alert: The Census Bureau Faces Challenges in Accelerating Hiring and Minimizing Attrition Rates for Abbreviated 2020 Census Field Operations Final Memorandum No. OIG-20-041-M.**, Memorandum for Steven D. Dillingham, Director, U.S.. Census Bureau, August 18, 2020.

To explain briefly, the Census Bureau has established Area Census Offices (ACO) to carry out the 2020 Census field operations, including NRFU. There are 248 ACOs, each of which has a significant portion of the NRFU workload to carry out. On average, this would be about 226,000 housing units from which a self-response was not received. It is very troubling that not only is the Census Bureau falling behind in its plans for staffing NRFU, but also the hiring shortfalls for NRFU staff are not uniform. Approximately 15 percent of the NRFU workload is in areas where the Census Bureau is falling 50 percent short of hiring goals. While the Census Bureau stated in the Review of the Operational Plan Schedule that it was making efforts at “keeping staff levels up,” it is falling well behind in reaching the staffing levels it had determined were necessary for NRFU. In addition the NRFU staffing levels cited by the OIG are lower than the Census Bureau projected requirements *prior* to the COVID-19 pandemic - 260,000 enumerators.¹³ I will discuss the impact of these staffing shortfalls for hard-to-count communities in more detail below.

- The self-response rates are not uniformly distributed and are disproportionately lower in areas with higher proportions of Black and Latino (referred to as Hispanic by the Census Bureau) populations, as well as in some rural areas. For example, as of August 6, 2020, there were 50.7 million people living in census tracts in the lowest fifth of self-response.^{14, 15} The overall self-response rate for these tracts is less than 51.3 percent, compared to a national

¹³ U.S. Census Bureau, *2020 Census Detailed Operational Plan for: 18. Nonresponse Followup Operation (NRFU)*, Version 2.0 Final, July 15, 2019.

¹⁴ A census tract is a small geographic area that is similar to a neighborhood. See https://www.census.gov/programs-surveys/geography/about/glossary.html#par_textimage_13.

¹⁵ Romalewski, Steven, Mapping “Self-Response” for a Fair and Accurate Census, Center for Urban Research at the Graduate Center, City University of New York, https://www.gc.cuny.edu/CUNY_GC/media/CUNY-Graduate-Center/PDF/Centers/Center%20for%20Urban%20Research/Resources/Census2020-self-response-rates-thru-Aug-6-CUNY-Graduate-Center.pdf, August 7, 2020.

average of over 63 percent. Furthermore, while Latinos make up 18.3 percent of the U.S. population, they represent 25.8 percent of the population in these low response areas. For non-Hispanic Blacks, the corresponding rates are 12.3 and 22.2 percent, respectively. The Census Bureau also noted that, as of August 6, 2020, the self-response rate in update-leave (rural areas) was a little over 34 percent. The low update-leave self-response is also problematic for Latinos living areas such as the colonias in Texas, and for American Indian Reservations or Alaska Native Villages. As I will discuss below, the likely outcome for these areas and populations will be increased undercounts relative to previous censuses and decreased quality of the information collected.

- Given the current NRFU staffing levels, the Census Bureau will have to rely less on direct in-person contact attempts and more on the following in order to meet the new September 30, 2020 deadline with deleterious consequences for the count:
 - a. Reduced in-person contact attempts with residents of the NRFU households, leading to increased undercounts of the traditionally hard-to-count populations. While the Census Bureau is planning for up to six attempts for most NRFU households, this will not be enough to obtain complete interviews in many hard-to-count communities. The Government Accountability Office (GAO) evaluated the early testing that the Census Bureau carried out to develop the current NRFU procedures. The GAO stated:

“according to preliminary 2016 Census Test data, there were 19,721 NRFU cases coded as non-interviews in Harris County, Texas and 14,026 in L.A. County, California, or about 30 and 20 percent of the test workload respectively.

According to the Census Bureau, non-interviews are cases where no data or insufficient data were collected, either because enumerators made six attempted

visits without success (the maximum number the Bureau allowed) or visits were not completed due to, for example, language barriers or dangerous situations.”¹⁶

The Census Bureau subsequently refined the NRFU procedures to allow for more contact attempts, as is necessary to reach higher resolution rates comparable to previous censuses.¹⁷ However, my opinion is that there is a significant risk that NRFU will not be successful in completely enumerating hard-to-count communities under the current time schedule.

Hard-to-count communities have significantly lower levels of self-response, and a corresponding larger proportion of households that fall into NRFU, making recruiting and hiring sufficient staff to achieve a complete enumeration particularly challenging. As I discussed above, the Census Bureau has identified hiring staff with relevant language skills and hiring people who live in local communities as key components of its design for achieving a complete enumeration of hard-to-count communities. Difficulties in recruiting NRFU staff with the necessary qualifications make it much harder to assign enumerators with the language skills necessary to enumerate non-English speaking local areas, and it will also require the Census Bureau to send enumerators into communities that they are not familiar with. The ultimate outcome for these hard-to-count areas will be a higher portion of incomplete responses. I am also very concerned about the proposal to use outbound telephone calling to conduct NRFU in hard-to-count communities. For example, the Pew Research Center has

¹⁶ United States Government Accountability Office, *2020 CENSUS Additional Actions Could Strengthen Field Data Collection Efforts*, GAO-17-191, a report to congressional requesters, January 2017

¹⁷ US Census Bureau, *2020 Census Detailed Operational Plan for: 18. Nonresponse Followup Operation (NRFU)*, Version 2.0 Final, July 15, 2019.

documented that telephone survey rates have fallen from 36 percent in 1997 to under six percent in 2018.¹⁸ Achieving a complete and accurate count in the hard-to-count communities requires a lot of hard work by well-trained enumerators who are very familiar with these areas. Furthermore, the use of outbound telephone calling to conduct NRFU enumeration has not been tested, nor have methodologies to deploy in-language telephone enumerators. Based on my experience in planning and managing the 2000 and 2020 Censuses it is my opinion that limited staff, a shortened time frame, and the use of untested procedures will most likely result in serious increases in the undercounts for these communities relative to previous censuses.

b. Increased proxy enumerations, resulting in increased levels of erroneous enumerations.

The limited NRFU workforce combined with the shortened schedule will result in a higher level of proxy enumerations than in previous censuses. Proxy enumerations are those obtained by asking people other than the actual residents of NRFU households for information about those residents. These proxies can include neighbors, apartment managers, or other knowledgeable persons. In the 2010 Census, proxy enumerations were obtained for about 21 percent of the NRFU returns. The erroneous enumeration rate for the proxy enumeration was 6.7 percent—over twice the overall erroneous enumeration rate of 3.3 percent.¹⁹

c. Increased reliance on administrative records to complete NRFU enumerations, leading to less complete enumerations for the hard-to-count populations. The Census Bureau

¹⁸ Kennedy, Courtney and Hartig, Hannah, *Response rates in telephone surveys have resumed their decline*, Pew Research Center report, February 27, 2019.

¹⁹ P. Cantwell, DSSD 2010 Census Coverage Measurement Memorandum Series # 2010-G-01, (May 22, 2012), https://www.census.gov/coverage_measurement/pdfs/g01.pdf.

plans include the use of administrative records (e.g., records from the IRS, Medicare, and the Social Security Administration) to reduce the NRFU workload, where feasible, by using such records to enumerate occupied households that have failed to respond after several contact attempts.²⁰ The Census Bureau may be forced to rely more heavily on such enumerations if NRFU cannot be completed as planned. Based on the research that the Census Bureau conducted to develop the current NRFU strategy, it had planned to enumerate 12.9 percent of the occupied NRFU housing units after making one visit.²¹ Expanding the uses of administrative records to enumerate a higher portion of the NRFU occupied housing units is not supported by the research the Census Bureau has used to date, and the Census Bureau has not released additional research to support such actions. Census Bureau research has shown that the quality and completeness of administrative records is not expansive enough to replace a decennial census.²² In addition, noncitizens and Latinos are disproportionately underrepresented in administrative records. Therefore, the use of administrative records beyond the planned levels for NRFU would be less representative of the hard-to-count populations than a complete NRFU.

- d. There will likely be an increased use of “whole person imputation” relative to previous censuses. Such imputations will not correct for any undercounts that have resulted from an incomplete NRFU. In conducting NRFU in previous censuses,

²⁰ Albert E. Fontenot, *Intended Administrative Data Use in the 2020 Census*, 2020 Census Program Memorandum Series: 2020.06, May 7, 2020.

²¹ U.S. Census Bureau, *2020 Census Detailed Operational Plan for: 18. Nonresponse Followup Operation (NRFU)*, Version 2.0 Final, July 15, 2019.

²² Rastogi, Sonya and Amy O’Hara, *2010 Census Match Study*, 2010 Census Planning Memorandum Series, No. 247, November 19, 2012

situations have arisen where, despite the best efforts of NRFU enumerators, either minimal or no information was obtained for some housing units by the conclusion of the NRFU. The Census Bureau uses statistical techniques, referred to as imputation, to correct for this missing data problem. The statistical processes are used to estimate—or impute—all of the characteristics of the persons in these housing units. The Census Bureau applies “Count Imputation” for situations where no information is available for a housing unit. This methodology will first estimate whether the unit is occupied, and if so, will estimate or impute a household size – meaning, the number of people in that household. The process will then use “whole person imputation” to estimate characteristics (including age, race, and ethnicity) for persons in a household of this size. The Census Bureau also uses whole person imputation in situations where only the count of people residing in a housing unit could be determined. In the 2010 Census, about 2.0 percent of the enumerations fell into the category of whole person imputation – 0.4 percent were the result of count imputation and 1.6 percent resulted when only the population count was known.²³ It should be noted that of the 16.3 million persons enumerated by proxy in the 2010 Census, 23.1 percent required whole person imputation.²⁴ I am very concerned that the levels of housing units requiring whole person imputation will be much larger than in 2010, due to the reduction in time and staff limitations for NRFU enumerators to get a complete response. Unfortunately, the statistical methods that the Census Bureau uses for imputation rely on using information from the resolved housing units to estimate or

²³ P. Cantwell, DSSD 2010 Census Coverage Measurement Memorandum Series # 2010-G-01, (May 22, 2012), https://www.census.gov/coverage_measurement/pdfs/g01.pdf.

²⁴ Id.

impute for the unresolved housing units. Therefore, any undercounts that are in the resolved housing units will be carried forward in the imputation and not corrected.

These undercounts would include persons omitted from housing units enumerated by both self-response and NRFU.

- The plan to offer bonuses or awards to increase the hours that NRFU enumerators work can have unintended consequences on accuracy. The Census Bureau plans to award NRFU enumerators up to \$800 above their regular pay, if they work a minimum number of hours and complete 0.75 cases per hour. I am concerned that in order to meet production goals, particularly in areas that are difficult to enumerate, some NRFU enumerators may be tempted to falsify data for some households to meet production goals. The result would be that instead of obtaining an accurate enumeration for these households, the data would be made-up. The Census Bureau has not conducted any testing to understand the effects on quality of such awards.
- The schedule will not allow the Census Bureau the flexibility to complete NRFU in areas affected by natural disasters. We are currently in the midst of a very active hurricane season, and there are many areas in the West that are dealing with wildfires. The Census Bureau will be forced to delay NRFU in such areas until it is safe to return and resume enumeration activities. The current schedule simply does not allow enough time to carry out a thorough NRFU in areas that may be impacted by these unforeseen events.

C. The reduced schedule for NRFU will have serious accuracy and quality implications for the 2020 Census

22. Undercounts, particularly for traditionally hard-to-count populations, are likely to increase relative to previous censuses as a result of the Census Bureau's new, reduced schedule.

As I discussed above, the NRFU workloads will be relatively higher in areas with lower self-

response rates. The Census Bureau uses low self-response as a key measure in determining whether an area is hard-to-enumerate,²⁵ so by definition the challenge for NRFU to obtain a complete count is in these areas. In addition, these areas also contain higher proportions of Black, Latino, and immigrant populations relative to the White non-Hispanic population. The end result for these communities is likely to be incomplete NRFU enumeration due to staffing and time limitations, as well as more use of proxy enumerations and whole person imputation. This will lead to increased undercounts relative to previous censuses. For example, in the 1990 Census the undercount of the Latino population was 5.0 percent and the undercount for the Black or African American population was 4.6 percent.²⁶ It is important to understand that in 1990, the Census Bureau had the flexibility to extend the NRFU beyond its planned end date until it had reached a completion rate of over 99 percent for NRFU enumeration.²⁷ However, even with this high completion rate for 1990, serious undercounts were measured.²⁸ The Census Bureau is now being forced to stop all data collection, including NRFU as of September 30, 2020. In my opinion, there is a high risk that the measures the Census Bureau will be forced to take to complete NRFU by this new deadline (as I discussed above relying more on proxy or count-only enumerations and administrative records), even potentially falling short of the 99 percent completion goal, will likely result in undercounts that will be materially larger than were observed in the 1990 Census.

²⁵ Response Area Outreach Mapper, Census.gov, www.census.gov/roam, (July 2018).

²⁶ P. Cantwell, DSSD 2010 Census Coverage Measurement Memorandum Series # 2010-G-01, (May 22, 2012), https://www.census.gov/coverage_measurement/pdfs/g01.pdf.

²⁷ U.S. Census Bureau, *1990 Census of Population and Housing – History Field Enumeration 6-36*, Report Number CPH-R-2, <https://www.census.gov/library/publications/1996/dec/cph-r-2.html>, 1996.

²⁸ P. Cantwell, DSSD 2010 Census Coverage Measurement Memorandum Series # 2010-G-01, (May 22, 2012), https://www.census.gov/coverage_measurement/pdfs/g01.pdf.

D. The compressed schedule for post data collection processing significantly increases the risk of inaccuracies into the 2020 Census data

23. The initial Census Bureau schedule had NRFU ending at the end of July 2020 leaving about five months for the post data collection operations prior to the release of the Apportionment counts. In the revised schedule the Census Bureau issued in its request for an extension of the deadlines, there were six months allocated to complete the post data collection before the release of the Apportionment counts. Under the current schedule, there are only three months available for post data collection prior to release of the Apportionment counts. In the August 17, 2020 Review of the Operational Plan, the Census Bureau offered no insights into how it was going to address this shortfall. There are critical activities that must be accomplished as part of the post data collection processing, including:²⁹

- Apply data codes to facilitate data tabulation – Many of the questions included on the 2020 Census questionnaire allow respondents to write-in a response (for example the questions on Race and Ethnicity). In order to properly tabulate these responses, they must be assigned a numeric code. Coding is conducted by both automated and computer-assisted manual processes.
- Identify potential fraudulent returns from self-responses and record final fraud investigation disposition – The 2020 Census allows multiple opportunities for response. Including “non-ID” response where a respondent can go online and respond with just their address. In previous censuses respondents had to use a multi-digit identification code that uniquely identified their housing unit in order to self-respond. The non-ID process was designed to make it easier to respond to

²⁹ U.S Census Bureau, *2020 Census Operational Plan, A New Design for the 21st Century*, version 4.0 issued December 2018.

the 2020 Census, but it does carry a risk that it could be misused by those who might want to introduce inaccuracies into the 2020 Census data files. To guard against such actions, the Census Bureau has developed computer algorithms to detect such fraud. It is critically important that these algorithms be run, and the results evaluated during the post data collection processing.

- Resolve potential duplicate responses – Duplicate responses can occur in the conduct of a census. For example, someone could self-respond in one location and also be enumerated during NRFU in another. Given that NRFU is now taking place at a point in time that is much further from Census Day, April 1, 2020 the potential for duplicate responses is much higher since more people will have moved than the Census Bureau initially anticipated. It will be critical for the Census Bureau to have the time to identify and remove any duplicates.
- Identify the return of record for housing units with multiple returns – When multiple opportunities for response are allowed, situations arise where more than one questionnaire is returned for a housing unit. In these situations, the Census Bureau uses a Primary Selection Algorithm to establish the single enumeration record for the housing unit.
- Repair missing or conflicting data – There are situations where responses to some of the questions are missing. The count-imputation and whole person imputation scenarios that I discussed above are examples of these situations. This component of the post data collection processing is designed to carry out these statistical processes.

- Provide final census results – Finally, a census file must be created that combines the results of the steps I have outlined above so that it can provide the tabulations necessary for producing the Apportionment counts.

24. Each of the activities I described above must be carried out to ensure that the post data collection processing will generate high quality data. The Census Bureau has not stated what actions it will take to fit processes that were initially planned for five months into a three month window. Dropping or seriously curtailing any one of the above processes would have severe consequences by reducing the quality of the 2020 Census data.

25. The reduced time frame for post data collection processing will not allow the Census Bureau to run the computer programs that have been prepared to carry out the critical activities as had originally been planned. At a minimum the Census Bureau will have to modify or alter the sequence of these computer programs. Rushing to modify computer programs at the last minute introduces the risk of making systematic programming errors which would further erode the quality of the resulting 2020 Census data.

26. The initial 2020 Census schedule for post data collection is very reasonable and is consistent with the schedule for previous censuses. In both the 2000 and 2010 Censuses, NRFU was completed within the schedule originally planned for 2020 – June 26, 2000 and July 9, 2010, respectively. In both of these censuses the Apportionment counts were delivered to the President in late December of 2000 and 2010 respectively. The 2020 Census schedule, as originally revised and requested by the Census Bureau, was also following this well-established time schedule.

27. The overall quality of the 2020 Census data will most likely be lower than in previous censuses. As I noted above, it is very likely that the Census Bureau will have to rely

more on proxy enumeration and whole person imputation that in previous censuses. While this will be a particular problem for the hard-to-count communities, these less accurate enumeration methods will also most likely be used more across the board in the 2020 Census relative to previous censuses. In addition to the increased use of proxy enumeration, as I discussed above, employing a higher level of administrative records and statistical imputation will result in lower quality than would have been achieved through direct in-person contact. Finally, the extreme truncation of time to conduct the post-data collection activities, as discussed above, will most likely lead to additional inaccuracies that will disproportionately hurt hard-to-count populations.

28. The impacts of undercounts and poor quality data will not just be a problem for the immediate uses of the 2020 census (e.g., apportionment and redistricting), but will remain for the 10 years until they can be corrected in the 2030 Census (e.g. federal funding).

E. Increased transparency is essential to assure stakeholders of the legitimacy of 2020 Census data collection

29. At this point, there is little information available to assess the conduct of the 2020 NRFU. The Census Bureau has been very forthcoming about the self-response phase of the 2020 Census. Very detailed and granular data have been made available to allow for public assessment of self-response for many areas, including census tracts.

30. The current Census Bureau plan is to release only NRFU resolution rates at the State level. These rates are not helpful in assessing the actual progress of NRFU in achieving a complete enumeration of all population groups and areas. In order to demonstrate that NRFU is meeting the goal of a complete and accurate enumeration, it is essential that the Census Bureau provide additional data beyond just the resolution rate of housing units in NRFU. These data should include information such as the rate of proxy and count only enumerations at similar

levels of geographic aggregation as the self-response data. Further, in order to ensure that the reported apportionment tabulations will be complete and accurate, the Census Bureau should also provide additional information on how it plans to conduct needed post-data collection processes without the additional time it had originally requested.

31. The Census Bureau has recently announced three new political appointees including a new Deputy Director for Policy³⁰ and a new Deputy Director for Data,³¹ raising concerns among stakeholders. Having political appointees with vague responsibilities at the Deputy Director level of the Census Bureau (which has always been a career position) is unprecedented and is raising serious concerns among stakeholders. Perceptions that the results of the 2020 Census have been manipulated for political purposes will erode public and stakeholder confidence, not only in the 2020 Census, but also in our democratic processes more generally. Therefore, it is critical that the Census Bureau release the data that I have described above to demonstrate that it is achieving a complete and fair enumeration through NRFU.

IV. Conclusion

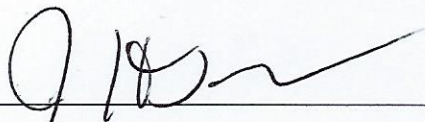
32. It is my conclusion that the current deadlines for delivering the 2020 Census Apportionment and redistricting data place unreasonable time constraints on the Census Bureau. These constraints will not allow the Census Bureau to carry out data collection operations that will deliver high quality results. I am very concerned that these timing constraints will significantly increase the risk of much larger undercounts for the 2020 Census than measured in

³⁰ Statement from Census Bureau Director Steven Dillingham, Release Number CB20-RTQ.20

³¹ Statement from Census Bureau on Deputy Director for Data, Release Number CB20-RTQ.24, August 17, 2020

previous censuses. These undercounts will disproportionately affect the traditionally hard-to-count communities including immigrants, persons of color, and the underserved.

I declare under penalty of perjury that the foregoing is true and correct.



John Thompson

Executed on August 27, 2020 at Bend, Oregon.

APPENDIX 1

JOHN H. THOMPSON

BRIEF CAREER HISTORY

Extensive Senior Executive leadership in the non-profit and federal sectors, with experience in social science research and statistics, congressional advocacy, building coalitions, operational management, business development, stakeholder relations, innovation, and strategic vision.

Independent Consultant, August 2018 to present

Consulting service focusing on survey methodology, executive leadership, the Federal Statistical System, and decennial census. Activities have included:

- Expert witness for the plaintiffs in two court cases opposing the addition of a citizenship question to the 2020 Census
 - New York Immigration Coalition, et al v. United States Department of Commerce and Wilbur Ross, U.S. District Court for the Southern District of New York, and
 - Robyn Kravitz et al., v. United States department of Commerce, et al
- Training news media journalists on the 2020 Census with Georgetown University, the Poynter Center, and the Harvard Shorenstein Center.
- Providing consultation services to NORC at the University of Chicago

Executive Director, Council of Professional Associations on Federal Statistics – July 2017 to August 2018

The Council of Professional Associations on Federal Statistics (COPAFS) was founded in 1981 to coordinate activities of a number of Associations, Organizations, and Businesses that rely on federal statistics to support good governance and economic growth. COPAFS now represents a growing body of stakeholders that support the production and use of high quality statistics. The Executive Director represents these stakeholders in realizing their mission to *Advance Excellence in Federal Statistics*. Activities include:

- Advocated on behalf of federal agencies. For example, COPAFS is a co-chair of the Friends of the Bureau of Labor Statistics, and the Friends of the National Center for Health Statistics;
 - Worked with stakeholder coalitions to support proper funding for the 2020 Census and the American Community Survey;
 - Ensured members of Congress, COPAFS members, and other stakeholders were informed of critical issues facing agencies that produce federal statistics;
 - Alerted members and stakeholders of breaking issues that needed immediate support and attention;
 - Organized and supported ongoing educational efforts for members of Congress and their staff on the value and importance of federal statistics both nationally and in their own states and districts;
 - Created and joined in powerful coalitions of organizations and businesses to advocate on behalf of federal agencies that produce statistics, building broad support across a wide spectrum of data users;
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- Built partnerships with foundations that help fund critical research in the statistical agencies and academia to ensure the on-going modernization of how statistical data are created and made available to the public and researchers, and to fund educational efforts;
- Worked closely with the Chief Statistician of the United States and the statistical agencies to help inform and promote modernization efforts underway and assist agencies in keeping abreast of new stakeholder data needs; and
- Hosted events to demonstrate the importance of federal statistics such as the 2018 Federal Committee on Statistical Methodology Research and Policy Conference.

Director, United States Census Bureau – August 2013 to June 2017

Appointed by the President as Director of the largest federal statistical agency, with a staff of over 5,000 headquarters employees and approximately 10,000 to 15,000 staff spread across the United States in six regional offices and a major production facility in Indiana, with an annual budget exceeding \$1 billion. Key accomplishments include:

- Worked successfully with the executive and legislative branches of the federal government, including the White House, the Office of Management and Budget, Cabinet officials, and members of Congress and congressional staff, to accomplish a major transformation of the Census Bureau into a forward-looking 21st century statistical agency. Testified at 6 congressional hearings on the Census Bureau;
 - Provided a conceptual vision and lead a redesign of the 2020 decennial census that is estimated to save \$5 billion through effective use of operations research-driven reengineering of field operations, innovative use of technology, and partnership with key stakeholders;
 - Lead outreach to key stakeholders including representatives of state local and tribal governments; advocacy organizations; professional associations, business groups, various media; and academic researchers;
 - Put in place a robust research program to support mission critical activities, such as linking administrative records, disclosure avoidance methods, economic studies, statistical research, survey methodology, big data, and data dissemination;
 - Lead efforts to maintain congressional support and funding for the American Community Survey, a critical data asset of the federal government, including mobilizing a diverse group of key stakeholders to effectively advocate in support of the survey, personally visiting almost all of the House of Representatives and Senate members of the Census Bureau appropriations and oversight committees, and establishing a program of research directly related to the concerns that had been raised;
 - Improved economic statistics through research on using alternatives to direct survey data collection to produce statistics that are timelier and have increased granularity, and carrying out three initiatives to advance the release of principal economic indicators on trade, retail sales and services, which allowed the Bureau of Economic Analysis to significantly reduce revisions to Gross Domestic Product (GDP) estimates;
 - Recruited outstanding research staff including new senior leadership for Research and Methodology, the Director of a newly established big data center, and seven former Presidential Innovation Fellows; and
 - Improved data dissemination to the public, including development of a platform to deliver data in ways that will meet the rapidly evolving demands of a growing body of users. In addition,
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in order to meet immediate targeted demands two new tools were released: City SDK (Software Development Kit) to allow easy developer access; and Census Business Builder a tool that combines small area demographic and economic data in a way that is easily accessible for entrepreneurs and small business owners.

President and Executive Vice President, NORC at the University of Chicago – July 2002 to August 2013

NORC is a national non-profit organization that conducts high quality social science research in the public interest. As President, I had responsibility for all NORC corporate activities and for the quality of all NORC research efforts. I provided vision for NORC to establish the organization as a leader in the social science research industry. My accomplishments included:

- Strengthened the organization's high-quality, diverse staff;
- Broadened the scope of the collaborations between NORC and the University of Chicago;
- Realized nearly 50 percent growth in revenue and greatly expanding NORC's portfolio of business and research programs; and
- Provided leadership in the social science research community - selected to be a Fellow of the American Statistical Association (ASA), elected to serve a term as Chair of the Social Statistics Section of the ASA, and chaired the 2009 ASA Committee on Fellows. Also elected as a member of the Committee on National Statistics, serving on two National Academy of Sciences panels addressing 2010 and 2020 Census concerns.

As Executive Vice President of Survey Operations (2002 – 2008), I provided oversight and direction to the Economics, Labor Force, and Demography Research Department, the Statistics and Methodology Department, and Survey Operations for field and telephone data collection. My major accomplishments included:

- Provided leadership and guidance for a major corporate initiative, the National Immunization Survey, which is conducted on behalf of the Centers for Disease Control and Prevention, and is the largest telephone survey in the United States conducted via random digit dialing for scientific purposes.
 - Significantly increased the productivity and cost effectiveness of NORC's overall data collection activities;
 - Successfully utilized skills in directing large project start-ups, and in managing large complex operations, directing the project through the completion of the first contract phase, which included the first year of data collection and the delivery of the first data set; and
 - All survey operations were completed on schedule, and within budget including the delivery of an extremely complex data set, and a public use file.
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Principal Associate Director and Associate Director for Decennial Census Programs, United States Census Bureau – 1997 to July 2002

Served as the senior career executive responsible for all aspects of the 2000 Decennial Census. This was the largest peacetime mobilization undertaken by the U.S. government, with a budget of \$6.5 billion, establishment of over 500 field offices, a temporary workforce that peaked at over 500,000, and establishment of telephone capacity to receive over 5 million calls over a period of one month. I was also chairman and director of the Executive Steering Committee for Accuracy & Coverage Evaluation Policy for the 2000 Census. This Committee was charged with making a recommendation as to whether or not to adjust the 2000 Census redistricting data for coverage errors, an issue fraught with political disagreement and controversy. This work was widely recognized as superb – with the Committee’s recommendation supported by numerous reviews, including the National Academy of Sciences Panel on evaluating Census 2000.

EDUCATION

- M.S. Virginia Polytechnic Institute and State University, 1975 Mathematics
Graduate course work in statistics - George Washington University 1977-1981
- B.S. Virginia Polytechnic Institute and State University, 1973 Mathematics

PROFESSIONAL SERVICE AND ASSOCIATIONS

American Statistical Association, 1975 to Present

Chair, Social Statistics Section – 2011

Chair, ASA Committee on Fellows - 2009

National Academy of Sciences,

Member of the Committee on National Statistics – 2011 - 2013

Member of the Panel on the Design of the 2010 Census Program of Evaluations and Experiments

Member of the Panel to Review the 2010 Census

HONORS AND AWARDS

Virginia Tech College of Science Hall of Distinction inaugural class, 2013

Presidential Rank Award of Meritorious Executive, 2001

Department of Commerce, Gold Medal, U.S. Bureau of the Census, 2000

Elected Fellow of the American Statistical Association, 2000

Department of Commerce, Silver Medal, U.S. Bureau of the Census, 1998

Department of Commerce, Bronze Medal, U.S. Bureau of the Census, 1988

PAPERS AND PUBLICATIONS

- 2018 Thompson, John H and Yablon, Robert. Issue Brief: "Preparing for the 2020 Census Considerations for State Attorneys General". American Constitution Society., October 10, 2018
- 2012 Thompson, John H. (Panel Member). "Panel Discussion: Considering Changing Sectors in the Research Industry?: Advice From Those Who Have Done It!" AAPOR 67th Annual Conference, Orlando, Florida, May 19, 2012
- 2012 Thompson, John H. (Discussant). "Future is Now: Realignment of Current Survey Management and Operations at the Census Bureau". Population Association of America 2012 Annual Meeting, San Francisco, California, May 4, 2012.
- 2012 Thompson, John H. (Discussant). "Use of Administrative Records in the 2020 Census." Federal Committee on Statistical Methodology, Washington, DC., January 10, 2012
- 2011 Weinberg, Daniel H. and Thompson, John H., "Organization and Administration of the 2010 U.S. Census." In Margo J. Anderson, Constance F. Citro, and Joseph J. Salvo (eds.) *Encyclopedia of the U.S. Census*, Second Edition, CQ Press., July 2011
- 2010 Thompson, John H., "Challenges, Innovation and Quality for the 21st Century" Keynote Speech at the 2010 FCSM Statistical Policy Seminar, Washington, DC, December 14, 2010.
- 2010 Thompson, John H., "The Future of Survey Research: Opportunities and Challenges" Paper presented at the Applied Demography Conference, San Antonio, Texas., January 11, 2010 and at the Population Association of America 2010 Annual meeting, Dallas, Texas, April 15, 2010.
- 2008 Thompson, John H. (Panel Member). "Panel Discussion: The American Community Survey: Promise, Products and Perspectives." Population Association of America Annual Meeting, New Orleans, Louisiana, April 17, 2008.
- 2006 Thompson, John H. (Discussant). "Census 2010: A New Census for the 21st Century." Population Association of America Annual Meeting, Los Angeles, California, March 30, 2006.
- 2004 Thompson, John H., "Interviewer Falsification of Survey Data." Paper presented at the Joint Meetings of the American Statistical Association, Toronto, Canada, August 11, 2004.
- 2003 Thompson, John H., "Is Interviewer Falsification Scientific Misconduct?" Roundtable paper presented at the American Association for Public Opinion Research 58th Annual Conference, Nashville, Tennessee, May 16, 2003.
- 2002 Thompson, John H. (Discussant). "Eliminating the 2010 Census Long Form? – Current Status of the American Community Survey." Population Association of America Annual Meeting, Atlanta, Georgia, May 9, 2002.
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- 2001 Thompson, John H., "Decision on Release of Statistically Corrected Redistricting Data." Invited paper presented at the Joint Meetings of the American Statistical Association, Atlanta Georgia, August 6, 2001.
- 1999 Thompson, John H., "Census 2000 – Innovations and New Technology." Paper presented at the Economic Commission for Europe's Conference of European Statisticians Meeting, Geneva, Switzerland, February 15-17, 1999.
- 1998 Thompson, John H. and Robert E. Fay, "Census 2000: The Statistical Issues." Paper presented at the Joint Meetings of the American Statistical Association, Dallas, Texas, August 9-13, 1998.
- 1996 Thompson, John H. and Karen Mills, "Census 2000 Content: Tradeoffs on Cost, Quality, and Quantity." Paper presented at the Annual Meeting of the Population Association of America, New Orleans, Louisiana, May 9-11, 1996.
- 1995 Thompson, John H., Mary H. Mulry, Susan M. Miskura, "Census 2000: Statistical Issues in Reengineering the Decennial Census." Paper presented at the Annual Meeting of the American Statistical Association, Orlando, Florida, August 13-17, 1995.
- 1992 Fay, Robert E. and John H. Thompson, "The 1990 Post-Enumeration Survey: Statistical Lessons in, Hindsight." Paper presented at the Annual Research Conference, March 22-25, 1992, Arlington, Virginia.
- 1989 Edson, Robert G. and John H. Thompson, "1990 Decennial Census Coverage Improvement Program." Paper presented at the Annual Winter Meetings of the American Statistical Association, San Diego, California, January, 1989.
- 1988 Navarro, Alfredo, John H. Thompson, and Linda Flores-Baez, "Results of Data Switching Simulation." Paper presented to the Census Advisory Committees at the Joint Advisory Committee Meetings, Oxon Hill, Maryland, April, 1988.
- 1987 Griffin, Richard A. and John H. Thompson, "Confidentiality Techniques for the 1990 Census." Paper presented to the Census Advisory Committees at the Joint Advisory Committee Meetings, Oxon Hill, Maryland, October, 1987.
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- 1984 Miskura, Susan M., John H. Thompson, Henry F. Woltman, "Uses of Sampling for the Census Count." Paper presented at the Annual Meeting of the American Statistical Association, Philadelphia, Pennsylvania, August, 1984.
- Fan, Milton C., Martha L. Sutt, and John H. Thompson, "Evaluation of the 1980 Census Precanvass Coverage Improvement Program." Paper presented at the Annual Meeting of the American Statistical Association, Philadelphia, Pennsylvania, August, 1984.
- Keeley, Catherine and John H. Thompson, "The 1980 Census Nonhousehold Sources Program." Paper presented at the Annual Meeting of the American Statistical Association, Philadelphia, Pennsylvania, August, 1984.
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- 1983 Miskura, Susan M. and John H. Thompson, "1980 Census Findings and Their Implications for 1990 Census Planning." Presented at the Joint Statistical Meetings, Toronto, Canada, August, 1983.
- Tauber, Cynthia and John H. Thompson, "1980 Census Data: The Quality of the Data and Some Anomalies." Paper presented at the Annual Meeting of the Population Association of America, April, 1983.
- 1982 Fan, Milton C., John H. Thompson, Jay Kim, and Henry F. Woltman, "Sample Design, Estimation and Presentation of Sampling Errors for the 1980 Census Early Publications National Sample." Paper presented at the Annual Meetings of the American Statistical Association, Chicago, Illinois, August, 1982.
- 1981 Woltman, Henry F., Susan M. Miskura, John H. Thompson, and Peter A. Bounpane, "1980 Census Weighting and Variance Estimation Studies, Design and Methodology." Paper presented at the Annual Meetings of the American Statistical Association, Detroit, Michigan, August, 1981.
- Kim, Jay, John H. Thompson, Henry F. Woltman, and Stephen M. Vajs, "Empirical Results from the 1980 Census Sample Estimation Study." Paper presented at the Annual Meetings of the American Statistical Association, Detroit, Michigan, August, 1981.
- Fan, Milton, C., John H. Thompson, and Susan M. Miskura, "1980 Census Variance Estimation Procedure." Paper presented at the Annual Meetings of the American Statistical Association, Detroit, Michigan, August, 1981.
- Thompson, John H., "Convergence Properties of the Iterative 1980 Census Estimator." Paper presented at the Annual Meetings of the American Statistical Association, Detroit, Michigan, August, 1981.
- 1978 Thompson, John H., "The Nonhousehold Sources Program." Paper presented at the Annual Meetings of the American Statistical Association, San Diego, California, August, 1978.
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APPENDIX 2

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Romalewski, Steven, Mapping “Self-Response” for a Fair and Accurate Census, Center for Urban Research at the Graduate Center, City University of New York, https://www.gc.cuny.edu/CUNY_GC/media/CUNY-Graduate-Center/PDF/Centers/Center%20for%20Urban%20Research/Resources/Census2020-self-response-rates-thru-Aug-6-CUNY-Graduate-Center.pdf, August 7, 2020.

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Rastogi, Sonya and Amy O’Hara, *2010 Census Match Study*, 2010 Census Planning Memorandum Series, No. 247, November 19, 2012

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