



UNITED STATES DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. Census Bureau
Office of the Director
Washington, DC 20233-0001

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MEMORANDUM FOR: Barbara A. Anderson
Chair
Census Scientific Advisory Committee

From: John H. Thompson
Director
U.S. Census Bureau

Subject: Census Responses to the Census Scientific Advisory Committee
(CSAC) Recommendations from the 2016 Fall Meeting

The U.S. Census Bureau thanks the Census Scientific Advisory Committee (CSAC) for the recommendations submitted as a result of the Fall Meeting on September 15-16, 2016.

Your expertise is necessary to ensure that the Census Bureau continues to provide relevant and timely statistics used by federal, state, and local governments, as well as business and industry, in an increasingly technologically oriented society.

The Census Bureau's responses to the Committee's recommendations are attached.

Attachment

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We present CSAC's comments and recommendations from the Fall 2016 CSAC meeting. We hope these are helpful to the Census Bureau. - Barbara Anderson, CSAC Chair, 9/16/2016

1.0. Economic Programs Updates

- 1.1. We have no specific recommendations in this area. We raise several issues and ask several questions. We request that the Economic Programs staff direct us to papers or publications that address these questions.

CENSUS BUREAU RESPONSE: For further information on papers or publications that address these questions, please refer to Snijkers, G., et al., *Designing and Conducting Business Surveys*, Wiley, New York, 2013. Not only the book, but its 50 pages of reference should be helpful in providing useful information on the entire survey life cycle for business and organizational surveys.

- 1.2. How does the Census/Government know that businesses are self-reporting accurately? Are there legal penalties for failure to do so? (We have probably all filled out satisfaction surveys in which we just filled in the "best" category to save time, even if it wasn't aligned with our experience.) This relates also to questions/concerns regarding mandates. (Even with mandates in place, one may not be able to guarantee the quality of the data without the good will of the business, so the self-reporting is voluntary.)

CENSUS BUREAU RESPONSE: Title 13 provides penalties for failing to respond to a mandatory survey and for willfully providing false information (specifically, see Section 224 regarding questions affecting companies and businesses). Note that the penalty for falsifying response is greater than the penalty for not responding at all.

While the Census Bureau does have the authority to prosecute for not responding or falsifying responses, it is not our practice to do so, as we rely on maintaining our good will with respondents and the business community as a whole. Although it's true that response rates have declined over the years, we still typically achieve higher response rates for economic surveys with mandatory authority. We then rely on alternative sources for company data, when necessary, particularly data from administrative sources. In addition, we use statistically defensible methods to adjust for nonresponse.

Our editing process, described in the response to item 1.3, is also integral for identifying response data that appears incorrect or does not align with other reported data or data from alternative sources. In some cases, for key variables from respondents having the greatest influence on estimates, knowledgeable subject matter specialists may phone respondents to verify or correct suspicious reported data.

Finally, in accordance with best practices in statistical surveys, Census Bureau data quality standards require pretesting new question(naire)s or data items, or items undergoing substantive changes, and that this pretesting must occur with members of the target population. The Economic Directorate takes advantage of qualitative research methods, such as cognitive interviews or usability testing,

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that have been widely adopted in the field of survey research. Further, research methods adapted to the business survey environment include record-keeping studies, exploratory interviews that investigate the meaning and availability of data items in businesses, post-collection debriefings with respondents to evaluate reported data (these are like "re-interviews" in interviewer-administered surveys), along with other qualitative and quantitative statistical methodologies to evaluate the validity and correctness of reported data.

- 1.3. As data collection moves towards 100% internet, input errors, errors in reading files, etc. can potentially lead to situations where the data is 100% incorrect. There must be techniques the Census has available for picking up such problems. For example, we assume the Census compares the internet data with the historical data received.

CENSUS BUREAU RESPONSE: Post-collection edits compare reported data to identify potential outliers and/or incorrectly reported data. Examples of edits include: data slides, which attempt to identify data reported in the wrong units (e.g., dollars instead of thousands of dollars); validity checks, which ensure that the values entered are found in a pre-determined set of possible responses (e.g., state abbreviations); range edits, which compare reported data to pre-defined bounds (e.g., payroll ≥ 0), ratio edits, which compare ratios of 2 related variables (e.g., sales-to-payroll or payroll-to-employment or current period employment to prior period employment); and, top differences, which identifies those responses that differ the most from a previously reported value or an administrative data value). With the move to electronic collection, we are beginning to build some of these types of edits into the electronic instrument. It is important that we find the right balance between the use of hard edits (i.e., respondent can't continue until an acceptable response is provided) and soft edits (respondent receives a message, but can continue to next question or with submitting the response) at the time of data collection. Too many edit failures and/or too many hard edits could discourage the respondent from answering the survey.

- 1.4. It is impressive that the state statistics at 2-3 or 2-4 digit NAICS levels for all sectors are available up to 18 months earlier than in 2012. The Census should study this case (and other examples of significant improvement) for "lessons learned" that can be used elsewhere by the Census.

CENSUS BUREAU RESPONSE: We took a fresh look at our 2012 Economic Census data product schedule and decided to accelerate the 2017 Economic Census release of state data for the 2- and 3- digit NAICS levels. This acceleration includes the release of preliminary state estimates in the Industry Series reports that are scheduled for release in May 2019. This marks the first time releasing state data as part of the Industry Series, hence the 18 month earlier release schedule. To achieve this, we plan to make some modifications to our data review processes. We will then release final state estimates as part of the Geographic Area Series scheduled for release in June 2020. For the 2012 Economic Census, we first released the state data with the Geographic Area Series. We will continually assess and document our lessons learned to be

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shared and used by other programs. It is important to note that these plans assume full funding. A reduced budget could result in delays to our planned product release schedule.

- 1.5. As we move towards the "sharing economy" (Uber, Airbnb, etc.), how is the Census dealing with this? Presumably, Uber, Airbnb, etc. can provide accurate data on the amount of economic activity associated with their platforms. But some portion of room rentals, timeshares, etc., flows through other disparate platforms. How does the Census measure such economic activity? This sector of the economy is likely to continue growing.

CENSUS BUREAU RESPONSE: The Census Bureau is monitoring the growth of these new business models and taking steps to ensure they are properly measured in our data products.

The relevant business units that provide taxi transportation services are the individual drivers that use reservation applications such as Uber. These drivers are captured in the Nonemployer Statistics report, which covers businesses that generate annual receipts of \$1,000 or more, are subject to federal income taxes, and have no paid employment or payroll. Nonemployer Statistics data originate from statistical information obtained through business income tax records that the Internal Revenue Service provides to the Census Bureau. We are currently working on improving our processes for identifying the correct industry classification on these tax records. For example, a filer may note their business description by writing in "Uber driver" rather than providing the NAICS code for taxi service. We are instituting automated functions to identify these cases and code them in the correct industry.

Individuals that provide short-term lodging typically either do not need to pay taxes on this income (if the property is rented 14 days or less in the year) or report it on IRS 1040 Schedule E, Supplemental Income or Loss. These filers are not currently included in the universe of eligible nonemployer businesses. If tax regulations change, and these individuals were instead directed to complete IRS 1040 Schedule C, Profit or Loss from Business, they would be included in the eligible nonemployer universe.

Fee revenue retained by the companies that run taxi reservation applications are collected from these businesses directly in the Service Annual Survey and Economic Census. These activities are also classified in NAICS 485310, Taxi Service. Fee revenue retained by the companies that run short-term lodging reservation applications are included in NAICS 561599, All Other Travel Arrangement and Reservation Services.

Data from the Nonemployer Statistics report are also included with the Service Annual Survey and the Economy-Wide Key Statistics Report of the Economic Census. This allows users to evaluate industry data by employers, nonemployers, and the total of both.

Census Nonemployer Statistics have been cited by economic researchers studying the "gig" economy, as illustrated in this recent piece from the Brookings

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Institution: <https://www.brookings.edu/research/tracking-the-gig-economy-new-numbers/>

- 1.6. How are large e-tailer establishments (like an Amazon distribution warehouse) treated in the Economic Censuses? What challenges do they present to tracking retail activity by geography?

CENSUS BUREAU RESPONSE: Ideally, in situations where we have large e-tailers we prefer to tabulate the revenue at the headquarters location and that revenue would show up for that geography. In most instances, respondents would report it this way but there are instances where companies provide the sales from the locations of the distribution center. In the latter scenario those sales would be tabulated in the state the distribution center is located. From our perspective, we would look at past Census's for historic consistency to see if the data we are seeing for the distribution location is reasonable or if any additional follow-up is warranted.

- 1.7. This relates to the larger question of people using the internet to potentially move more transactions into the "dark economy/hidden economy" where it is difficult to tax. For example, if Bitcoin becomes more popular, is the Census ready to measure Bitcoin transactions?

CENSUS BUREAU RESPONSE: We currently measure all monetary values in terms of U.S. dollars. There are apparently a number of other "cryptocurrencies" and peer-to-peer currencies out there - see for example <http://www.businessinsider.com/9-alternatives-to-bitcoin-you-probably-havent-heard-of-2013-11>. The Census Bureau is not currently prepared to adequately measure economic activity conducted with alternative currencies. As with all new measurements, we would first conduct appropriate research on how best to measure these transactions.

- 1.8. Can experience with Internet collection and methods to reduce burden be more generally applied to other parts of the Census Bureau – including in the population census?

CENSUS BUREAU RESPONSE: Experience with Internet data collection and methods to reduce burden can generally be applied to other areas of the Census Bureau, and in many ways already are. With the Census Bureau's enterprise Centurion Internet data collection system, concepts and ideas utilized in any survey can be capitalized upon and used by any survey who uses Centurion for their data collection needs. Centurion has implemented more than 80 surveys, censuses, and/or data collections since it was brought online. The team continues to expand the feature set of the system, but is also expanding its reach as a data collection service. Capitalizing on the proven success of the system so far – infrastructure, security, methodologies, and capabilities that have already been built into the system and continue to be enhanced – the team is expanding their reach as a shared service to ensure all surveys/censuses have similar experiences and capabilities at their disposal. This extends to the technical staff who implement those surveys on the system as well. This staff is exposed to surveys across all areas of the Bureau (and outside agencies), ensuring that

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each staff member, their knowledge, and experience can be shared and extended to any survey, census, and/or data collection hosted on the system. During development and implementation, this staff work hand-in-hand with the survey subject matter areas across the Bureau, providing recommendations for online survey design and implementation. Ultimately, it is the survey subject matter areas that have the final decision as to which recommendations, techniques, and design strategies are utilized.

- 1.9. What is the status of the Tableau-based visualization, and are the benefits available to the general public? What about GIS based visualization? Educational use of the data? Does there need to be more emphasis on tools for use of the data as well as timely and less burdensome collection?

CENSUS BUREAU RESPONSE: The Economic Directorate uses data visualization and infographics to provide data to a wide ranging audience. Through a partnership with the Communications Directorate, ECON has developed infographics through "News Releases," "Stats for Stories," and "Facts for Features." Many of these graphics are designed to promote data through social media such as Twitter and Facebook. Furthermore, the data is used for education and awareness, as it graphically covers topics ranging from manufacturing to international trade to national grandparent's day to Hispanic-owned businesses in the United States. Many of these infographics can be found on www.census.gov/newsroom.html

- 1.10. Nick Orsini mentioned that most people get data through APIs now. Is that correct? If it's accurate that most people get data through APIs, then it might be useful to know more if we can about who those users are and what they are using the data for. This might inform future priorities for data release.

CENSUS BUREAU RESPONSE: Attached is an Excel file that shows visits to the Econ datasets in the API. Note that the numbers for some of the months may be inflated due to internal testing, as the system does not nor cannot provide separate counts for internal and external hits. The tabs are grouped as follows:

- Econ API Stats - Econ products besides the indicators from January 1, 2016 to October 17, 2016
- EITS API Stats - all of the Indicators from January 2016 to September 2016
- EITS API Timeseries Stats - all of the Indicator Timeseries from January 2016 to September 2016

As for users of the API, the Census Bureau has not analyzed trends, but the data on API hits has been shared with the Center for New Media and Promotion so it could possibly be included in their Customer Experience Dashboard. The Research & Methodology Directorate is also exploring a dashboard to share with data providers, but that is several months out.

2.0. Big Data Initiatives

This is an excellent set of projects. The Big Data project's initiatives appear to be having some success given the number of conference presentations listed in 2016 and planned for 2017.

- 2.1. The long-term sustainability of using large-scale retail data from credit card companies needs to be assessed. The initiatives by both the public sector

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(Census Bureau) and private sector (credit card company) is currently mutually beneficial. Will it stay that way?

CENSUS BUREAU RESPONSE: Very good point and one we worry about too. Currently, the relationships have generally been mutually beneficial. Keeping the environment that way where the initiatives are beneficial to the private sector for more than just monetary reasons will be a key to long-term success.

- 2.2. Does the Census Bureau need the full granularity that comes with the credit card data? An assessment of its needs should follow the current pilot project, which may make it easier to maintain a sustainable relationship with the companies. In this sense, only “sufficient” statistics may need to be delivered to the Census Bureau by the private companies.

CENSUS BUREAU RESPONSE: What does the Committee mean by “full granularity?” We need granularity and transparency sufficient enough to validate representativeness to combine the data with our survey estimates. While we don't necessarily need full granularity and aggregates would work, we do need to know coverage. If third party data is lacking major industry players or there are major classification issues, we need to be aware of them. Given the short time series in many of these data sources, we do not know how these third party estimates perform through the various peaks and valleys of an economic cycle. Data that tracks well now may break down during times of economic recession. Having said that, formalizing our criteria of what granularity is necessary would be beneficial to discussions with potential partners.

- 2.3. There's a generally held belief that “found” data (e.g., web-scraped and large-scale retail data) will be most effective when combined with carefully designed surveys. We recommend that the Census Bureau investigate whether without survey data, non-survey (e.g., web-scraped) data have value for official statistical use. One approach is to assess the use of web-scraped data through bias/variance trade-off criteria. Elliott, M. R. (2009), “Combining data from probability and non-probability sample using pseudo weights,” *Survey Practice*, vol.2(6) is an earlier relevant reference. We would like links to applications of the use of web-scraped data the Census Bureau and more recent papers which the Census Bureau has been relying on.

CENSUS BUREAU RESPONSE: Web-scraped data from SEC filings and government websites certainly have value. Census Bureau analysts currently use data from SEC filings in various ways. The quality of these data was investigated, but more recent research should be conducted. Also, respondents to public sector surveys sometimes refer Census Bureau analysts to their websites to obtain their data. We agree that an important way to assess the use of web-scraped data, and Big Data in general, is through bias/variance trade-off criteria. We will review the Elliott paper.

We have attached the paper by Brian Dumbacher and Cavan Capps. It will be available in the Joint Statistical Meetings proceedings in early 2017. In that paper, we cite the article on web scraping by the Italian National Statistical

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Institute: <http://content.iospress.com/download/statistical-journal-of-the-iaos/sji901?id=statistical-journal-of-the-iaos%2Fsj901>

We also cite the United Nations Economic Commission for Europe: Enterprise Websites Project

<http://www1.unece.org/stat/platform/display/bigdata/Report%3A+Enterprise+Web+sites>

- 2.4. Big Data preparation and pre-processing can be burdensome. The project is using some important new technologies in, for example, R, Apache Nutch, and Python. What kinds of training and continuing education are available to the programmers? The Census Bureau should focus on retaining these well-trained individuals. Training and retention are key to the project's long-term success.

CENSUS BUREAU RESPONSE: The Committee is correct that this work can be burdensome. Currently, the Bureau has very limited resources working on these efforts. As these efforts expand, so will our need to develop the appropriate skills. The Bureau has a class tailored to Big Data projects but that has been offered only once per year. The Department of Commerce has developed a series of classes in the past year and demand for these has been high. This includes both technical classes, as well as classes for more casual users (like managers or survey staff that won't be doing the technical work but need to understand the efforts). We need to continue to grow these opportunities. Opportunities to develop these skillsets are being given to current staff, but we will also be looking for the appropriate skillsets as we backfill vacancies.

- 2.5. The example of gathering building-permit data from localities illustrates a problem that will often have to be addressed. Those data come in multiple formats (APIs, reports, database queries), and there are inconsistencies in classification of single-family and multi-family and square footage definitions. Could the Census Bureau undertake an initiative to encourage jurisdictions to standardize these definitions, and at the same time promote making all their data available via APIs? This could be done by making the electronic version of the web-scraped data available back to the jurisdictions and encourage them to post it on their web sites in a downloadable fashion. Their constituents will then become accustomed to using the data in this consistent format.

CENSUS BUREAU RESPONSE: We could encourage jurisdictions to standardize their information. However, local building codes and inspection processes, which are different in almost every jurisdiction, dictate what definitions are used and what sort of information each jurisdiction needs to maintain on building permits. Most already have customized systems for gathering, using, and publicly sharing this information, so standardization would be a challenge.

- 2.6. Spatio-temporal statistical tools can potentially enhance the statistical power of the small-area estimates undertaken by the Census. We recommend that the Census Bureau continue efforts in this direction. The Census is to be commended for exploring the use of regression trees and neural networks as a tool for dealing with the missing data issues that are inevitable in the big data context.

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CENSUS BUREAU RESPONSE: The Research and Methodology Directorate and the Economic Directorate are exploring the use of spatio-temporal models to impute missing values for large companies in the Advanced Monthly Retail Trade Survey. This work is just beginning, and we will have more to report in the future.

3.0 2020 Census Updates

There was a great deal presented about what has been done, and there was some discussion about moving forward. However, it was unclear what decisions for the future have been made and what decisions were yet to be made. It would be good for CSAC to clearly understand the difference, since CSAC can contribute to the process for decisions yet to be made but not decisions that have already been made,

Here are some specific requests for more information:

- 3.1. We would like to receive a timeline that shows when various decisions about the 2018 End-to-End Test and the 2020 Census will be made. Then it would be clearer where CSAC input would be helpful. We also would like to receive available papers/materials about the 2016 Census Test and analysis and more detail about the administrative records used. We would also like more detail about the administrative records being considered for use in the 2020 Census.

CENSUS BUREAU RESPONSE: The 2020 Census Operational Plan includes a timeline of Design Decisions Made and Design Issues to be resolved along with an expected date for resolution. These design decisions are attributed to specific operations and appear within the operation sections in Chapter 5 – the 2020 Census Operations.

We will continue to document the design decisions in the 2020 Census Operational Plan as it is updated every year. Included is the link to the FY16 version 2.0, released publicly on October 28, 2016.

<http://www.census.gov/programs-surveys/decennial-census/2020-census/planning-management/planning-docs/operational-plan-2.html>

Additionally, the 2020 Census Memorandum Series documents significant decisions, actions, and accomplishments of the 2020 Census Program for the purpose of informing stakeholders, coordinating interdivisional efforts, and documenting important historical changes.

<https://www.census.gov/programs-surveys/decennial-census/2020-census/planning-management/memo-series.html>

A memorandum generally will be added to this series for any decision or documentation that meets the following criteria:

1. A major program level decision that will affect the overall design or have significant effect on the 2020 Census operations or systems.
2. A major policy decision or change that will affect the overall design or significantly impact the 2020 Census operations or systems.

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3. A report that documents the research and testing for the 2020 Census operations or systems.

The Census Bureau would be happy to share with the CSAC more information pertinent to the 2016 Census Test, specifically regarding administrative records and third-party data use. As our analysis completes and documentation is available, we will provide our findings and analysis reports to the committee. In addition, we can also share additional details pertaining to the administrative records and third-party data being used and being considered for use in the 2020 Census.

- 3.2. Slide 20 of the presentation states that administrative data is not determinative for NRFU in 86% of the cases. This seems very high. We would like an explanation. What administrative records are being used? Utility company records, particularly for electricity, seem like they should be quite informative here.

CENSUS BUREAU RESPONSE: The Census Bureau thanks the committee for its question and provides the following information in response: The Census Bureau is researching the opportunities that administrative records and third-party data usage provide regarding the identification of vacant, delete, and occupied cases in the universe of nonresponding addresses in the 2020 Census. Use of administrative records and third-party data is a new and important dimension to the Nonresponse Followup (NRFU) operational design and our ability to control cost in the 2020 Census.

Understanding the effective use of administrative records and third-party data while balancing quality is a process. As such, the Census Bureau has projected target rates for reducing the NRFU workload through the identification of cases as administrative records vacant or delete and cases that we believe are occupied and can be enumerated using administrative records. In the 2016 Census Test, as stated in your recommendation, for approximately 86 percent of the nonresponding cases and based on our administrative records processing and parameters, our assessment was that these cases would be subject to the full NRFU field data collection contact strategy. Meaning, we did not have administrative records meeting our confidence/completeness criteria for removing a case from the workload as vacant, delete, or occupied via enumeration with administrative records.

The administrative records used in the 2016 Census Test included:

- The United States Postal Service detailed reasons for mail pieces being Undeliverable As Addressed (UAA) as the main predictor of vacant addresses. Of the 120,679 cases eligible for NRFU, about 9.2 percent had UAA on the first or second mailing. Of these 9.2 percent, about 33

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percent had at least one person associated with the address from one or more of our four federal sources.

- The primary sources of data informing the determination of occupied cases that can be removed from the NRFU workload and enumeration were Tax Year 2015 Internal Revenue Service 1040 Individual Tax Returns, Tax Year 2015 Internal Revenue Service 1099 Informational Returns, Centers for Medicare and Medicaid Services Medicare Enrollment Data, and the Indian Health Services Patient Database. For the NRFU eligible cases, 51 percent of the addresses had at least one person associated with the address from one or more of the four federal sources listed. While 51 percent had person records associated with the address, our approach attempts to assess that our administrative records roster is the same roster we would obtain through conducting fieldwork at the address. In some instances, we may have information about some people who may live at the address but not enough about everyone to reduce the number of contacts.

Finally, the Census Bureau thanks you for your suggestion to explore the use of utility company records in our determination. Efforts along this front have begun at the Census Bureau but are in the very early stages of exploration. We look forward to further discussion of the Census Bureau's use of administrative records and third-party data as part of the working group proposed in recommendation 8.3.

- 3.3. We request more background material about the user experience in the 2016 test. What were the specific letters and brochures used in 2016 test? Are they the same materials that will be used in 2020 or is there more testing? What user experience testing is being planned? Are small scale experiments planned? Who is involved in decision making at the Census Bureau and in interacting with the vendor? What type of research is Y&R planning?

CENSUS BUREAU RESPONSE: For the 2016 Census Test, there were two different bilingual letters used in the initial mailings, available in English/Spanish, English/Korean, and English/Chinese.

The first letter was used in the "Internet Push" panel. The letter gave an introduction to the 2016 Census Test and "pushed" the respondents to the Internet to complete the survey or a toll-free number to speak to an operator. The back of this letter stated the confidentiality notice.

The second letter was used in the "Internet Choice" panel and was included with a paper questionnaire. The letter gave an introduction to the 2016 Census Test and encouraged response by using the Internet, filling out the paper questionnaire, or using a toll-free number to speak to an operator. The back of this letter also stated the confidentiality notice.

During the 2016 Census Test, we used two multilingual brochures. These brochures comprised information in English, Spanish, Chinese, and Korean. The first brochure was used in an initial mailing and gave an introduction to the 2016 Census Test, provided some information about how the 2020

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Census data will be used, included the confidentiality notice, and “pushed” the respondents to the Internet to complete the survey or a toll-free number to speak to an operator.

The second brochure was included in a follow-up mailing and was included with a paper questionnaire. This brochure encouraged response by using the Internet, filling out the paper questionnaire, or using a toll-free number to speak to an operator to complete the survey and also included the confidentiality notice.

We will use the findings from our mid-decade tests to finalize the mailing materials for the 2020 Census.

Any of the materials used during the 2016 Census Test are available upon request.

The Integrated Partnership and Communications (IPC) operation was not a test objective for the 2016 Census Test. Materials used for the IPC operation were generic versus audience specific. Therefore, the materials used in the 2016 Census Test will not be the same materials used for the 2020 Census. The Census Bureau will work with Young & Rubicam (Y&R) to create the materials for the 2020 Census. However, before these materials are created, Team Y&R will conduct research to determine the specific audiences we need to reach and the messages and themes that will resonate with these audiences. Team Y&R will work with the Census Bureau to develop a communications research plan that will outline the research activities we plan to implement. We anticipate having an initial draft of this plan by spring 2017.

We would be happy to arrange a meeting with the Census Bureau, Y&R and the Committee to ensure you are aware of the communications work that will be done for the 2020 Census.

- 3.4. How is coordinating the different subcontractors handled? Subcontractors have incentive to not admit that things aren’t going well. In this situation, Federal outsource tends to be bad.

CENSUS BUREAU RESPONSE: The contractual relationship of the Government is with the prime contractor. Prime contractors are accountable for deliverables and agreed upon contract budget and schedules.

If and when issues are encountered, the Contracting Officer Representative (COR) will be involved at the onset. Additionally, Technical Monitors (TM) meet regularly with contractors and are responsible for monitoring contractor’s performance to identify any potential programmatic risks.

Government technical monitors, task managers and CORs work with and communicate with the contractors on a routine basis that is appropriate for the given contract/project. In most cases, there are daily interactions. Further, status reports provided by the contractors to the government personnel at regular

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established intervals. Any performance issues identified by the government technical monitor(s) and/or COR are escalated to the government Program Manager via established communication channels. Depending on the nature of the issue, the government Program Manager may take actions ranging from inclusion on a risk register, issue tracking list (or similar), or may decide to immediately escalate the issue further.

- 3.5. CSAC recommends that user experience testing of the online self-response be done in the lab, not only in a major test. Our understanding is that considerable work has already been done that should be incorporated--work by Nancy Bates, Peter Miller, and on the ACS online experience so that the vendor and 2020 team does not need to start from scratch on the creation of the online form. Where exactly in the timeline is this type of user experience testing being planned? From the quick demonstration, we noticed typos, a lack of optimization for mobile use, etc.

CENSUS BUREAU RESPONSE: For the 2016 Census Test, the Internet Self-Response (ISR), Content and Forms Design (CFD), and Language Services Integrated Project Teams (IPTs) worked with RTI International and the Center for Survey Measurement (CSM) to test the usability and user experience of the Internet Instrument. Additionally, historical research, especially that done for previous census tests and for the American Community Survey Internet instrument, was utilized in the design of test instruments leading up to the 2020 Census, in order to build on knowledge and experience of prior instrument development. For development of the 2017 Census Test instrument, we are adhering to guidelines developed by the U.S. Digital Services (USDS), the World Wide Web Consortium (W3C), 18F, as well as industry standards and best practices that the commercial vendor brings to the table. Additionally, the Census Bureau will thoroughly test the instrument prior to deployment through the Center for Survey Measurement, as in previous tests. For the 2017 Census Test, instrument testing, which includes usability testing, is currently scheduled to take place between November 14, 2016 – January 3, 2017.

The demonstration at the CSAC was of the systems/applications built by the vendor as part of the Analysis of Alternatives (AoA). While the Census Bureau gave the high level capability requirements for the development of applications by the vendors, the design, user interface(s) definitions, coloring scheme, choice of on screen elements such as option buttons, input text boxes and other user interface controls were all decided by the vendor without our input. We assessed the capabilities of the platform without stressing on what the applications user interface built by the vendors for the AoA looked like, the key point being that there needs to be a comprehensive capability of the platform that can be efficiently leveraged to stand up applications specifically per our design and user interface requirements.

- 3.6. We recommend 2 working groups about 2020 Census to involve 2-3 CSAC members each:
- User experience committee. This is important because it is THE way most Americans will interact with the 2020 Census.

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- System integration/Stress testing. This committee will help with issues of contractor management and integration/stress testing, cyberattack/security. What are the back-up plans? What are perceptions about security? One possibility is to conduct a followup study with 2016 online responders, and include some feedback mechanism in the 2017 test.

CENSUS BUREAU RESPONSE: Thank you for your suggestion. We will be happy to explore the establishment of these working groups.

- 3.7. How can we get access to test data? Census should explore giving data – not just for 2020 but to committee work generally.

CENSUS BUREAU RESPONSE: We are exploring this and will get back to the Committee before the next meeting.

- 3.8. Systematic attention to succession planning is an excellent idea. This is often not done well in other Federal agencies.

CENSUS BUREAU RESPONSE: The Census Bureau agrees and accepts that recommendation.

- 3.9. Young and Rubicam should be aware of MTV's YouTube series called "Decoded" with Franchesca Ramsey which articulates clearly young people's criticisms of the Census Bureau's definition/classification of race, as well as other media critiques. They might want to involve/partner with MTV and similar outlets in a set of communications about the improvements in the Census 2020.

CENSUS BUREAU RESPONSE: The Census Bureau appreciates the recommendation regarding young people's criticisms that are a part of MTV's YouTube series. We will definitely review and provide to Team Y&R to review as well. Before we can develop an integrated communications plan that will reach all segments of the nation, we will conduct research to understand the mindsets, attitudes, and behaviors of our key audiences. Once we understand these, we will be able to develop messages and products that will more readily resonate with these audiences.

4.0. Potential Census Data Products

There were several suggestions about potential Census data products.

- 4.1. More or reorganized detail in existing products
- Restore pre-1980 immigration information to series that now show pre-1990 as earliest arrival date.
 - Restore former demographic tables at higher levels of geography and restore the longitudinal dimension.
 - Provide more information at lower levels of geography, e.g. Building permits, PUMS data that fits into governmental boundaries.

Census Bureau Response: We interpret this as a recommendation for Building Permits data to be broken down by finer levels of geography.

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The Building Permit Survey (BPS) is designed to provide national, state and local estimates on the number and valuation of new privately-owned housing units authorized by building permits in the United States. Approximately 9,000 permit offices are surveyed monthly and 20,000 annually and asked to report on their total number of authorizations. We do not collect detail information on individual permits and can only provide geographic information at the permit-issuing place level. If a further breakdown is needed, that would add a significant amount of burden to the respondents and would delay the release of the monthly indicator.

4.1.a. Put ACS data on group quarters in more usable forms.

Census Bureau Response: The Census Bureau agrees with the committee's recommendation to put ACS data on group quarters in more usable forms. The American Community Survey Office is working to expand the number of GQ types and provide data to lower levels of geography, such as State level for some GQ types, and County levels for some major GQ types.

4.1.b. Add detail on structure types (e.g., data centers) and subnational geography to monthly construction spending report.

Census Bureau Response: The current sample is not designed to provide monthly estimates at these levels. We would need to rethink our sampling methodology and research whether these additional subsector have large enough activity to support these additional breakdowns.

4.2. Seek more opportunities to coordinate data collection and harmonize definitions with other agencies or private sector --possible example: check occupied addresses against records of electric utility customers

CENSUS BUREAU RESPONSE: Thank you for your suggestion. This particular suggestion appears on the surface to align itself as potential scope that could or should be addressed as part of the Administrative Records Working Group, as outlined in recommendation 8.3. With the assumption that we form the recommended working group, we propose including this within the working group's scope.

4.3. Take lead on educating public on how to access/use Census and perhaps other government statistical information: more use of data visualization, MOOCs or other online courses

CENSUS BUREAU RESPONSE: The committee's recommendations are very timely. The Communications Directorate has an extensive training program at headquarters and around the country and has been working to expand our offerings and better promote the training we offer. Users can access training via the Training and Workshop links on census.gov. In FY2016, the Communications Directorate alone offered approximately 1,400 webinars and in-person trainings mostly focused on training the public and stakeholders on accessing and using

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data. Other directorates offer training as well and we are trying to consolidate our training site so that the public has information about the full array of training from the Census Bureau.

- 4.4. Work with other agencies on identifying and measuring emerging aspects of the economy, e.g., "gig" or "sharing" economy.

CENSUS BUREAU RESPONSE: We appreciate and note your recommendation.

- 4.5. The Census could have a MOOC (massive online open course) on how to use Census data. The MOOC would combine basic data analysis with interesting data and could be offered in conjunction with one or more university partners.

CENSUS BUREAU RESPONSE: We have looked into MOOCs and the Customer Liaison and Marketing Services Office (where our public training branch resides) does not have the resources to support such an approach. In addition, we believe that our current program of short, targeted trainings is very effective in reaching a wide array of users at minimal cost. If we were to offer a MOOC on our data tools, the content would be the same that we offer in our short, targeted trainings in which attendees learn about a single data tool in one sitting.

Students interested in multiple data tools (such as American FactFinder, TIGERweb, DataFerrett, or OnTheMap) have the option of selecting which of the trainings they need to attend without a long-term commitment to a single study course. Having separate courses also allows us to customize the trainings to fit different audiences with differing levels of skill, knowledge, and interest.

Nonetheless, we are asking other areas of the Census Bureau which offer training (most notably our research and methods directorate) to determine if there is interest in MOOCs elsewhere in the agency. In addition, if a university approached us with a proposal to participate in developing and offering a MOOC, we would give the proposal serious consideration.

5.0. Disclosure Avoidance

- 5.1. CSAC commends the Census Bureau for the valuable work on statistical disclosure, and looks forward to updates on its progress.

Census Bureau Response: Thank you for recommendation 5.1.

- 5.2. The presentation was very interesting, and several CSAC members would appreciate more presentations with this level of detail with regard to the fundamental science being used by the Census.

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Census Bureau Response: Recommendation 5.2 is noted. If CSAC has specific areas where it would value an in-depth discussion of the science, we will schedule those for the next meeting. Otherwise, we suggest a technical session on adaptive design experiments where we will treat the science underlying experiments that have been done on the Survey of Income and Program Participation, the National College Graduates Survey, and the National Health Interview Survey.

- 5.3. The presentation focused on privacy issues regarding published data. But with the hacking of Colin Powell's email account in the news, many members of the public may be concerned that any answers provided to the government (or private companies for that matter) could be hacked by third parties, even with the best efforts of government agencies to protect privacy (as through the privacy budget discussed by John). Are there ways for the public to provide individual-level data (and for the government to ensure that data has been provided) that avoid storing respondent identity on Census servers?

Census Bureau Response: Recommendation 5.3 is an ongoing area of concern and research. We asked the JASON to think about this as part of the White Paper we commissioned for the summer of 2016. Unfortunately, they did not make a substantive recommendation. We will try again in another forum, and we will continue our ongoing research. Some of those methods do work when the Census Bureau is not the custodian of the confidential data. For example, we have two different research projects using secure multi-party computing combined with privacy-preserving data analysis, which are the fundamental building blocks of a data collection and publication methodology that addresses this recommendation. In our opinion, those studies will not be sufficiently advanced to report at the next CSAC but a report could be scheduled at the meeting after that.

- 5.4. It would be desirable for more of the presentations to be backed up by material, such as was the case for this presentation.

Census Bureau Response: Recommendation 5.4 is noted. We will endeavor to collect relevant background papers as part of future meeting packages.

6.0. Evidence-Based Policymaking

The committee found the presentation clear and interesting. Having clear short term steps that can be implemented, as well as long term strategy is important.

The commission should be clear regarding which stakeholders will be impacted by their recommendations. The commission should focus on legislative changes that may be required. They will need to define how the enhanced datasets can be made available to researchers, policymakers, and others outside the federal government. The collaborative steps being taken are appreciated.

Census Bureau Response: No recommendations are noted. The Committee's points have been conveyed directly to the Commission.

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7.0. ACS

We are happy about the planned research to improve the ACS and reduce respondent burden. We think it is important that the Census Bureau conduct research on perceived respondent burden beyond the indicators of number of questions and time spent on the survey. We would like to see research on the overall respondent and non-respondent experience, including why non-respondents did not respond. There was a very promising reaction to the ACS research on using administrative data for income. Also using administrative data on housing is a potentially fruitful direction for research. We look forward to seeing the NAS/CNSTAT report on the Spring Conference and Agility in Action 2.0. The ACS and Census 2020 are looking at many similar questions. We are glad they are in good communication with each other. There has been excellent cooperation and communication between the CSAC working group and the ACS, as would be hoped for all working groups and relevant parts of the Census Bureau.

Census Bureau Response: We appreciate the committee's favorable response to our planned research on improving the ACS in an effort to reduce respondent burden. The American Community Survey Office is working on researching overall respondent and non-respondent experience, including why non-respondents did not respond and utilizing administrative data on housing and income. Our Agility in Action 2.0 is scheduled to be published this fall. Once published, we will make the document available to the committee.

8.0. Other Comments

- 8.1. Director Thompson described special consultations with Native American communities on the issue of tribal enrollment to be collected. There is variation in criteria from tribe to tribe. Can it be done with self-reporting?

Census Bureau Response: In addition to conducting two rounds of nine tribal consultations with AIAN leaders from across the United States, the U.S. Census Bureau has explored the feasibility of collecting data on tribal enrollment in a census environment through 11 focus groups, with 81 participants, and 64 cognitive interviews. Currently, we are preparing to test the feasibility of collecting tribal enrollment information through the 2017 Census Test.

While there is significant variation in tribal enrollment criteria from tribe to tribe, a tribal enrollment question collected through a census questionnaire would be solely based off of self-identification. Initially, the 2017 Census Test was designed to examine the rates of underreporting and overreporting by comparing self-reported tribal enrollment data to administrative tribal records. Specifically, extant administrative records for residents of the Standing Rock Reservation and the Colville Indian Reservation and Off-Reservation Trust Land would have been the primary tool for validating self-reported enrollment status. With the descoping of these sites due to budgetary uncertainties, however, that component of the field test was scaled back and is no longer a part of our evaluation. At present, we are not able to test whether self-reported tribal enrollment matches tribal administrative records; yet, this is something that we will continue considering for future research.

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- 8.2. There was too little time for general discussion in most of the sessions. We recommend that the presentation generally take no more than 1/3 of the allotted time, to allow time both for a designated discussant and for general committee discussion and responses from the presenter/presenters. We suggest that the presentations not mainly be on history but rather on the accomplishments and critical decisions that need to be made. We also suggest that each Census presenter at the end of the presentation make clear where the Census could benefit from CSAC input.

Census Bureau Response: We appreciate CSAC's recommendation and note the importance of presenting Census accomplishments and proposed focus areas, while allotting sufficient time for members to discuss, deliberate and provide input on critical decision points.

- 8.3. We should have a working group on Administrative data. This would include non-response followup and inhouse address canvassing.
- Administrative data provide more data, and this enhances the usefulness of the survey data for research. This use of administrative data does not require (although it is enhanced by) timeliness of making the linkage.
 - Administrative data might provide an alternative source of data and thus allow some questions to be dropped from the survey, easing respondent burden without undue loss of research usefulness. This is often discussed in the context of income questions. As an intermediate step, administrative data could be used for imputation of survey data, rather than a complete substitution for survey data.
 - Administrative data might enable more accurate survey data collection in real time, as the survey instrument or interviewer might have some prior knowledge from administrative data that, say, the household is receiving public assistance.

CENSUS BUREAU RESPONSE: The Census Bureau is in agreement with this recommendation and looks forward to working with the Committee to establish this working group.

- 8.4. At each meeting, there are several requests for sessions at upcoming meetings to further discuss issues. For example, in Spring 2016, there was a request for a session on the algorithms for including administrative data to help address NRFU efforts. That session is not included on the agenda this fall. So some means of making sure that the session appears at an upcoming meeting would be helpful, perhaps a tracking sheet that is updated over time.

CENSUS BUREAU RESPONSE:

Thank you for your recommendations to create a tracking sheet to capture the Committee's topic of interest. The tracking sheet will be a useful tool to facilitate planning for and scheduling of agenda topics for subsequent meetings. Specific to the Committee's request for a session on the algorithms used for including administrative data to help address the 2020 Census Nonresponse Followup efforts, we offer the following options:

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- Inclusion of the topic on the spring 2017 meeting agenda, or
- Schedule a teleconference between now and the spring 2017 meeting to present details on the topic of interest.
- Use the new Administrative Records Working Group (see 8.3)