



Meeting the Challenges of the 2020 Census

By Benjamin Chevat and Terri Ann Lowenthal March 2015

Center for American Progress



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Introduction and summary

The nation's decennial census is the very foundation of the nation's representative democracy. It is so fundamental that it appears in the fifth paragraph of the U.S. Constitution, preceding even the structure of the new Congress and the presidency.¹ The decennial census takes place once every 10 years, in years ending in zero, in order to count the population of the entire country. The enumeration, as the census is called in the Constitution, determines how seats in the U.S. House of Representatives are apportioned among the states.

As the Founding Fathers envisioned, the census also serves as a vehicle for informed decision making, giving civic and business leaders the tools to understand the nation's social and economic progress and the means to address the needs of its people objectively and fairly.

Today, the decennial census is the nation's largest peacetime activity, touching virtually every person and household in the country and requiring the mobilization of hundreds of thousands of temporary workers to prepare for and conduct the enumeration. But increased racial, ethnic, and cultural diversity and more complex household arrangements have pushed traditional counting methods to their limits, in terms of both cost and accuracy. The U.S. Census Bureau now faces the dual challenge of producing a high-quality 2020 Census with a requirement by Congress that it be at a lower per-household cost than the 2010 Census.

That the American public largely takes the census for granted, except perhaps when the questionnaire arrives every 10 years, is not surprising. Alarming, however, Congress—which has constitutional responsibility for overseeing the census—has not made this fundamental civic activity a priority in the years between each census, when essential research, testing, development, and preparation activities take place, alongside the ongoing collection of vital socioeconomic data in the American Community Survey, or ACS, the modern version of the census long form. The U.S. Department of Commerce, which houses the Census Bureau,

also has competing priorities that can hinder the bureau's ability to make its case for sufficient fiscal resources and programmatic support in a timely way. This inattention has severely impeded the bureau's efforts to design and plan a modern 2020 Census that employs cost-saving methods without sacrificing data quality.

The Census Bureau is pursuing a rigorous research and testing program for the 2020 Census. The agency believes it can save \$5 billion by offering multiple response options, including via the Internet and other electronic means; streamlining the management and conduct of field operations using modern technologies and adaptive design techniques; and using administrative records to update the address and mapping databases, as well as to identify households and people who may have been missed. The new initiatives are promising, but complex, and require significant testing and development throughout the decade. As we reach the midpoint of the census cycle, insufficient funding and sparse congressional oversight have put thorough, timely planning for the 2020 Census at high risk.

This report begins with a look at the American census as both the foundation of our democratic system of governance and a vehicle for charting the nation's economic and social progress and needs. The report then describes the unique nature of the decennial census as the nation's largest, most inclusive peacetime activity, as well as the challenge of building sustained interest and support—both in Congress and the executive branch—for thorough, timely census planning and preparations. Next, the report explores the Census Bureau's efforts to design a modern, cost-effective, and accurate 2020 Census in a tight fiscal environment and amidst a rapidly changing cultural and technological landscape. Finally, this report concludes with four recommendations to strengthen and protect the census planning and budgetary process:

- Change the Department of Commerce organizational structure so that the Census Bureau director reports directly to the secretary, rather than the under secretary for economic affairs, in order to help streamline the decision-making process and improve efficiency.
- Require that the president and Congress propose and approve funding for decennial censuses in five-year blocks in order to facilitate thoughtful consideration of the complexities and goals of this constitutionally mandated activity.
- Change congressional rules for consideration of the decennial census budget in order to prohibit reallocation of census funding to other programs within the Commerce, Justice, Science, and Related Agencies appropriations account.

- Prohibit legislative riders on the Census Bureau's appropriations bill in order to prevent attempts to modify the scope and structure of the census and related ACS outside of the regular, authorizing process.

The Founding Fathers created the American census both as a mechanism for representative government and as a means to measure the nation's conditions, progress, and needs. In recent decades, the Census Bureau's ability to carry out its mission objectively and efficiently has been compromised by a lack of timely support for planning resources, as well as by use of the appropriations process to advance fundamental changes to census design and scope, outside the normal legislative process. This report underscores the critical importance of an accurate, comprehensive census to our democracy; explains the challenges the Census Bureau faces in meeting its constitutional mission; and offers some common-sense ways to meet those challenges.

Making sense of the census

The role of the census in the day-to-day functioning of society is far-reaching and irreplaceable. Yet lawmakers, civic and business leaders, the press, and the public pay relatively little attention through much of the decade as the U.S. Census Bureau lays the groundwork for the decennial enumeration.

The Center for American Progress recognizes the vital importance of an accurate, cost-effective 2020 Census to the nation's political and economic well-being. It also understands that a successful census doesn't materialize overnight; years of research, planning, and preparation precede the nation's largest peacetime activity.

Last year, CAP launched a project to elevate and broaden the dialogue about expectations for the 2020 Census and how best to support and inform the Census Bureau's path to 2020. The effort began with a roundtable of census experts to review and discuss the Census Bureau's 2020 Census plans. These experts included current and former senior leadership from the Census Bureau; current and former congressional staff; academic researchers; and representatives from diverse stakeholder organizations, including those representing data users, communities of color, the business sector, and state and local governments. Representatives from the Department of Commerce and the Office of Management and Budget also attended. Topics of discussion included budget, accuracy, technology, and communications.

Roundtable participants expressed support for the Census Bureau's approach to designing and conducting the 2020 Census. They also identified challenges the Census Bureau faces in trying to meet its goals and offered ideas for building greater support for the census throughout the decade among key stakeholders, including Congress and the public.

220 years and counting

At the founding of our nation, the primary purpose of the census was apportioning seats in the House of Representatives and direct taxes “among the several States.”² Each state’s number of Representatives, plus two Senators, determines its number of electors for choosing the president.³ This use of a census was revolutionary for its time. For millennia, government censuses had been used as means of control—for taxation, military impressment, and management of a social caste system.⁴ The United States was the first nation to conduct a periodic census for the purpose of organizing government.⁵

In designing the first census in 1790, James Madison envisioned a survey that also supported the daily functioning of the emerging nation. He posited that “[I]n order to accommodate our laws to the real situation of our constituents, we ought to be acquainted with that situation” by collecting information on the characteristics of the population. As further explained in *The Papers of James Madison*:

Mr. Madison Observed [sic] that they [the members of Congress] had now an opportunity of obtaining the most useful information for those who should hereafter be called upon to legislate for their country if this bill was extended so as to embrace some other objects besides the bare enumeration of the inhabitants; it would enable them to adapt the public measures to the particular circumstances of the community. In order to know the various interests of the United States, it was necessary that the description of the several classes into which the community was divided, should be accurately known. ...

This kind of information, he observed, all legislatures had wished for; but this kind of information had never been obtained in any country. He wished, therefore, to avail himself of the present opportunity of accomplishing so valuable a purpose. If the plan was pursued in taking every future census, it would give them an opportunity of marking the progress of the society, and distinguishing the growth of every interest.⁶

As Madison envisioned, throughout U.S. history, Congress has used census-derived information to help it make decisions based on “the real situation of ... constituents.” Moreover, with time and other innovations, the uses of the decennial census beyond “bare enumeration” have grown to include public policy and the functioning of the economy. (see text box below)

The value of the decennial census to the nation

Democracy

- As directed by the Constitution, the seats in the House of Representatives, and by extension Electoral College votes, are apportioned among the states on the basis of population.
- States and localities redraw legislative boundaries to comply with standards for population equity—so that one person has one vote—and racial and ethnic balance.⁷

Public policy

- Census data provide key benchmarks for federal enforcement of civil rights and anti-discrimination laws and court decisions.
- Census data guide the flow of hundreds of billions of dollars in federal domestic assistance across the nation.
- Federal agencies use census data to inform the design, implementation, and evaluation of programs and policies in every government realm, including education, health, housing, employment, transportation, small business development, human services, emergency

preparedness and response, and environmental protection.

- State and local governments rely on census data to make real, on-the-ground investment decisions across all domains of government.

Economy

- Businesses of all types and sizes use census data to identify markers; select business locations; make investment decisions in plant, equipment, and new product development; determine goods and services to be offered; and assess labor markets.
- Nonprofit organizations such as hospitals and community service organizations rely on census data to better understand and serve the needs of their constituencies.
- Census data are essential to efforts by state and local governments, chambers of commerce, and public-private partnerships to attract new companies and to promote business expansions and startups that lead to job creation and a larger tax base.⁸

The decennial census has continuously provided a narrative for the United States—the nation’s growth from a series of settlements hugging the East Coast to the largest economy in the world and a highly diversified collection of almost one-third of a billion people spread across 3.8 million square miles.⁹ In the 19th century, presidents regularly used the census findings to celebrate the nation’s remarkable progress. In the 20th century, they discussed the importance of the census for public policy.

As the nation's dependence on the census grew by several orders of magnitude, so did the complexity of conducting the decennial count. In response, and in keeping with its origins, those in charge of the census facilitated the development of a series of innovations, many of which were immediately put to use in the wider society. These innovations included the design of large, complex organizations; application of statistical science; machine tabulation of data; statistical sampling to reduce the burden of response on the public; civilian use of computers; geographic information systems; and the ongoing measurement of population characteristics to produce more timely data.¹¹

As the population and economy boomed after the Civil War, the shortfalls of “marking the progress of the society” only once a decade became clear. In 1872, President Ulysses S. Grant asked Congress to authorize a mid-decade census, noting that data collected at the beginning of a decade became outdated after several years and was of “little practical value” in monitoring the nation's evolving conditions and needs.¹²

Congress did not heed President Grant's suggestion until 1976, authorizing a mid-decade census beginning in 1985. The supplemental data collection effort would not be used to reapportion the House of Representatives, and lawmakers never appropriated funds for such a survey. However, after falling response rates and high undercounts plagued the 1990 Census, Congress began calling for an alternative to the census long form,¹⁴—sent to roughly one in six households to gather more detailed information on the nation's social and economic characteristics—which many lawmakers viewed as weighing down an efficient population count. Other legislators echoed President Grant's observations: Decision-makers relied increasingly on Census Bureau data to identify areas of need and to allocate resources, but rapidly changing conditions rendered long-form data almost obsolete only a few years into each decade.

The Census Bureau's response to these concerns was the innovative American Community Survey, an ongoing, rolling survey of households and group facilities—such as, prisons, military barracks, college dorms, and nursing homes—which would provide more current data and allow the bureau to streamline the decennial census. Developed over the course of a decade, with strong bipartisan support—

The columns of age, commencing from infancy, have hitherto been confined to a few periods, all under the number of 45 years. Important knowledge would be obtained by extending these columns, in intervals of 10 years, to the utmost boundaries of human life. The labor of taking them would be a trifling addition to that already prescribed, and the result would exhibit comparative tables of longevity highly interesting to the country.¹⁰

– President John Quincy Adams, 1828

The work of the Census Bureau has been energetically prosecuted. The preliminary report, containing much information of special value and interest, will be ready for delivery during the present session. The remaining volumes will be completed with all the dispatch consistent with perfect accuracy in arranging and classifying the returns. We shall thus at no distant day be furnished with an authentic record of our condition and resources. It will, I doubt not, attest the growing prosperity of the country, although during the decade which has just closed it was so severely tried by the great war waged to maintain its integrity and to secure and perpetuate our free institutions.¹³

– President Ulysses S. Grant, 1870

starting in 1994 with research, small test sites, and then a national test during the 2000 Census—the ACS was implemented nationwide in 2005 and replaced the long form in the 2010 Census.¹⁵ The survey covers 3.5 million addresses a year, or 295,000 per month, and annually produces updated estimates of key demographic, social, and economic characteristics for every community in the country. Because the ACS sample is roughly equivalent to, although slightly smaller than, the old census long form over a five-year period, the Census Bureau averages data collected over five years to produce estimates for the smallest geographic areas. These areas include Census Bureau-designated census tracts, with an average population size of about 4,000 and a range of 1,200 to 8,000 people, depending on an area’s population density, as well as some block groups—which are clusters of blocks, the smallest Census Bureau unit of geography, equivalent to a city block or small rural community—within census tracts, containing 600 to 3,000 people. Because it is conducted under the authority for the decennial census, response to the ACS is mandatory, a requirement that some in Congress are now challenging.¹⁶

With a groundbreaking approach, the ACS provides the nation with comprehensive, annual data that were previously available only once a decade; it also samples fewer households over 10 years than was necessary with the long form as part of decennial census. In short, the ACS accomplishes more while asking less of Americans.

An unprecedented challenge

The challenge of preparing for a decennial census is unique. The census is our nation's largest peacetime mobilization, requiring hundreds of thousands of temporary employees working from hundreds of local offices, round-the-clock data processing during the height of the enumeration, and an outreach and advertising campaign of unprecedented scope to encourage participation. It affects every household and every person residing in the United States, regardless of location, living arrangements, or legal status. In 2020, the Census Bureau not only has to count nearly one-third of a billion people, but it must also determine their exact living address as of April 1, 2020. In addition, it must chart basic but vital demographic characteristics—including age, gender, household relationship, race, and ethnicity—in order to help lawmakers meet the fundamental requirements of fair political representation and to address the nation's social and economic needs.

There are no flexible deadlines or second chances. The Census Bureau must conduct the count on schedule and report the results to the president by December 31, 2020, in order to meet the constitutional requirement of re-apportioning seats in the U.S. House of Representatives every 10 years—a deadline the Census Bureau and its historical equivalents have never failed to meet.¹⁷ States also require census results no later than three months after that first deadline so that they can redraw their own legislative districts in time for the 2022 elections.

The complexities of planning for such a massive undertaking are magnified because the lead time and foresight required to research, test, develop, and implement the multiple components of a census do not always align with the decision-making process in Congress; executive branch decisions also can throw roadblocks in the path of census development. The Census Bureau needs a full decade to prepare for each decennial census; in fact, research for possible changes to the 2020 Census began during the 2010 Census.¹⁸ But few members of Congress pay attention to the decennial census until a year or two before the count starts, when the Census Bureau starts opening field offices and hiring temporary employees across the country. Understanding that an accurate, on-time census is in their own self-interest, lawmakers by and large accede to the Census Bureau's large budget requests

in the three years immediately leading up to a decennial Census year, presumably fearing that any cutbacks in final preparations and implementation could adversely affect the accuracy of the count in their own districts.¹⁹ But for the rest of each decade, the Census Bureau struggles to justify relatively modest funding requests for critical research, testing, and development activities and is often on the losing end of the competition for funds in the commerce, justice, and science appropriations bill.²⁰ Congressional oversight of census planning tends to be sparse as well.

Both Democratic and Republican administrations have, at times, also weakened the Census Bureau's ability to implement and build support for a long-term vision for the census by failing to nominate census directors in a timely way and by limiting the bureau's ability to engage Congress directly in support of its programs. Fortunately, enactment of the Presidential Appointment Efficiency and Streamlining Act in August 2012 gives new census directors a five-year term of office, renewable for a second term, which removes the uncertainty and lapse of strong leadership that turnover and subsequent lengthy vacancies have caused during previous census cycles.²³

Holding the line on costs: Invest now, save later

In recent decades, the Census Bureau has dramatically improved the accuracy of the decennial census—from a 2.6 percent net undercount in 1970 to a 0.01 percent net overcount in 2010, a level of accuracy unsurpassed by any other nation.²⁴ The historically disproportionate undercount of people of color, people in low-income households, children, and rural residents also has decreased by varying degrees. Further reducing these persistent disparities remains one of the Census Bureau's greatest challenges.²⁵ As several participants in CAP's census roundtable observed, there is a difference between an accurate census and a fair census. What is not disputed is that the quest for accuracy, amid high expectations, comes at a price.

In fact, the cost per housing unit of conducting the census has grown significantly, from \$14 in 1970 to \$96 in 2010, a 570 percent increase in 2010 dollars. Without major reforms in the census process, the Census Bureau estimates the real per household cost in 2020 will be \$151. This alone creates a compelling case for a new approach to Census 2020.²⁶

The values which flow from the census taking are of paramount importance both from a point of view of government, economic advancement, social determinations, and every person in the country has an interest in making it absolutely effective. It furnishes a datum point from which we move in every advancement of the country.²¹ . . . We need, particularly, a knowledge of employment at all times, if we are intelligently to plan a proper functioning of our economic system. I have interested myself in seeing that the census we are taking today makes for the first time a real determination of unemployment. I have hopes that upon this foundation we can regularly secure information of first importance to daily conduct in our economic world.²²

— President Herbert Hoover, 1930

Even at a historically high price, the census is a bargain for the nation: It produces data that drive sound public- and private-sector decision making, the prudent allocation of tax dollars, economic growth, and the information Americans need to hold their government accountable. Nevertheless, faced with a 2010 price tag of \$13 billion and government-wide fiscal constraints, Congress has directed the Census Bureau to keep the per household cost of the 2020 Census at the same level as the 2010 Census.

The Census Bureau cites five cost drivers behind the projected increase in costs:

- Increased population diversity
- Wider use of census data
- National neighborhood and community pre-census canvassing
- Declining census self-response rates
- Administrative and management challenges

First, the population continues to become more racially, ethnically, and linguistically diverse; living arrangements and family structures also have become more complex and varied, making it more difficult to ensure that every person in a household is counted. Second, greater reliance on detailed census data for policymaking and the allocation of political representation and resources has increased demand for improvements in accuracy. These two factors are beyond the Census Bureau's control; the challenge is to adapt census methods and operations to reach all segments of the population and to measure these changes accurately. Therefore, the Census Bureau is focusing its cost-containment efforts on three other factors that have driven up costs rapidly in recent decades.

In the 1970 census we will learn, for the first time, exactly what portion of the American public is made up of Spanish speaking and Spanish-surname Americans. It is estimated that between 8 and 10 million of our people draw upon a Mexican, Puerto Rican, or Cuban heritage. Many members of this significant minority group have been too long denied genuine, equal opportunity. For example, many have been denied the dignity that comes from useful job training, good jobs, and a real share in American business enterprise.²⁷

– President Richard Nixon, 1969

The third of the five cost drivers is the pre-census nationwide canvass of every neighborhood and community in the country; this adds significant costs but is necessary in order to update the master address file that defines the scope of the enumeration. Traditionally, the Census Bureau has hired thousands of temporary workers one year before the census starts to walk every road and street in the country, verifying housing unit addresses and their GPS coordinates against a master list of addresses and the Census Bureau's digital mapping database. This address listing operation, which helps ensure that every household will receive a census form, is a labor-intensive and, therefore, expensive undertaking. Fourth, a decline in self-response rates has

expanded the scope and complexity of in-person follow up, the most expensive component of the census. In 2010, more than one-quarter of all households failed to mail back a census form, requiring a virtual army of hundreds of thousands of temporary employees to visit nonresponding households in order to gather the information, or, in some cases, determine if a housing unit was vacant.²⁸ The fifth, overarching challenge to a cost-efficient census has been the difficulty in linking major acquisitions, the planning schedule, and budget resources effectively.²⁹

The Census Bureau is committed to meeting the congressionally mandated goal of maintaining costs at the 2010 level in two ways. First and foremost, it will take advantage of recent advances in information technology, or IT, for every major census operation—from contacting households, to data collection and processing, to outreach and promotion. Incorporating modern technology will result in a dramatically redesigned census and yield significant cost savings. Second, the Census Bureau is instituting an integrated series of new management practices that will increase coordination among the numerous components of a census in order to enhance flexibility and address conditions in real time during the count and to reduce the risk of failed operations during each step of the census process. The overall theme for 2020 is reinvention—a theme that has regularly appeared throughout the 230-year history of the census. In preparation for the next decennial census, the Census Bureau is rewriting a 60-year-old playbook for executing and managing the basic population count.³⁰

Nevertheless, such a large undertaking faces external risks that could derail or endanger even the best plans and adversely affect the cost, schedule, or quality of the enumeration. The Census Bureau must carefully monitor unanticipated societal changes with respect to ethnicity, culture, and ideology, which could affect promotion and outreach plans, as well as the willingness or ability of some people to respond. Public concerns about the privacy of personal information have heightened since 2010, especially in light of revelations about the U.S. National Security Administration, or NSA, monitoring of personal communications and large-scale breaches in data security at major U.S. companies. Although Census Bureau data are backed by the strictest federal data confidentiality law, diminished public trust in the bureau's pledges of confidentiality and in IT security in general could dampen participation during the self-response phase.³¹

Inconsistencies in Congress' willingness to allocate sufficient funding for early research and testing of new census methods in order to meet the congressional directive of lowering overall census costs add another layer of uncertainty to the planning process. Sequestration and other budget cuts in FY 2012 and FY 2013,

and the government shutdown at the start of FY 2014, forced the bureau to delay, streamline, or cancel numerous research and testing activities. The political haggling over the Census Bureau's budget pushed back by a year the pivotal decision on the 2020 Census design framework that will guide subsequent systems and operational development. Insufficient early funding during this first phase of the census lifecycle could result in the implementation of procedures and systems for 2020 that have not been thoroughly tested, or could force the Census Bureau to fall back on outdated, more costly design features used in 2010.

Finally, congressional and administrative action or inaction could force 11th-hour changes in key elements of the census plan or derail promising innovations. For example, the Census Bureau often needs flexibility in civil service rules in order to hire and manage hundreds of thousands of temporary employees within a short time frame. Greater reliance on administrative records likely will require changes in various data-sharing statutes and timely cooperation from federal and state agencies with useful datasets. For example, the Census Bureau hopes to augment its own data with information that other government agencies have collected for programs such as Social Security, Medicaid, Supplemental Nutrition Assistance Program, and Temporary Assistance for Needy Families. This kind of inter-governmental data sharing could help the Census Bureau identify households and people who do not self-respond and improve the overall efficiency of the decennial census count. However, current federal and state laws often prohibit such data sharing and could require action by Congress and individual state legislatures in order to facilitate the Census Bureau's access to the information. Furthermore, legislative proposals affecting census content—such as question wording, or policies, including efforts to exclude undocumented residents from the census counts used for congressional apportionment—can introduce uncertainty and distract senior Census Bureau staff during critical final preparations.³²

The Census Bureau has encountered another unexpected hurdle in trying to reduce costly field tests needed for decennial census planning and preparation. Over the past several years, members of Congress advocating for limited government have challenged the bureau's authority to conduct the American Community Survey. In 2012, the House of Representatives approved two amendments to the Census Bureau's funding bill that threatened the ACS's integrity. The first amendment attempted to make response to the survey optional, while the second tried to eliminate the ACS altogether; votes for each amendment fell largely along party lines.³³ Although the amendments were dropped from the final appropriations bill in conference, opponents of the ACS have continued their efforts to weaken or abolish this seminal survey, jeopardizing the Census Bureau's plans to use the ACS as a cost-effective alternative to large field tests that have marked previous census planning efforts.³⁴

The Census Bureau's ambitious plans for 2020 require sustained congressional and administrative support over the entire decade. Investing fiscal resources relatively early in the decade promises a high payoff: The Census Bureau estimates that its new initiatives could save \$5 billion over the lifecycle cost of the decennial census. But time is running short to decide which new methods and technologies are likely to work and warrant further development. Sequestration and other budget cuts in FY 2013—which provided the bureau with \$37 million, or 11 percent, less than the administration's request—leaves the Census Bureau with what it aptly described as no more wiggle room to complete an initial assessment of new initiatives.³⁵

The government shutdown and four-month Continuing Resolution at the start of FY 2014 further hampered census planning and forced the temporary reassignment of dozens of 2020 Census employees and delayed the start of two field tests. The final FY 2014 funding level of \$234 million came close to, but did not meet, the administration's request for 2020 Census planning activities.

For FY2015, Congress again failed to support the Census Bureau's full request for a modest but steady funding increase to pay for key field tests that will inform the design selection at the end of the fiscal year, as well as the start of the IT acquisition and operational development phase of the 2020 Census. The final appropriation of \$840 million for the Periodic Censuses and Programs account—enacted three months after the start of the fiscal year—cut the administration's requested funding increase by about half.³⁶ The uncertainty associated with frequent temporary funding measures, called Continuing Resolutions, itself is disruptive to robust, sensible planning and preparation for a census. With funding finally in place for the current fiscal year, the Census Bureau must again determine how best to move forward with critical planning activities in a tighter fiscal environment.

Congressional reluctance to invest in the depth of research required to design and implement a modern census indicates a massive failure to understand the complexity of the census process, or to appreciate the nation's extensive reliance on accurate census data—or both.³⁷ Ironically, pinching pennies now will likely result in greater spending down the road, if lost research opportunities force the Census Bureau to use traditional, high-cost methods or attempt to use insufficiently tested ones.

Promising innovations, but no silver bullets

Despite the recent budget setbacks, the Census Bureau has forged ahead with an ambitious research and testing agenda to address the factors that contribute to cost increases and to modernize its approach to measuring a large, diverse population.

The two most costly census operations are pre-census address canvassing and nonresponse follow up, both of which have relied on large numbers of temporary employees and required hundreds of local census offices to manage the work flow and staff. The Census Bureau believes that reducing the scope of both operations will lower both the cost and complexity of the census design dramatically.

Building an accurate address list

Address canvassing takes place one year before the enumeration starts. In the past, the Census Bureau dispatched field staff to walk almost every street in the country; their job was to verify addresses on the master list (called the master address file, or MAF), add missing addresses, delete nonexistent ones, and ensure accurate placement in the digital mapping system—named the Topologically Integrated Geographic and Encoding Referencing database, or TIGER. For 2020, reliance on government and commercial databases, satellite imagery, and consultation with state and local governments to update the address frame and associated mapping system throughout the decade could narrow the scope of address canvassing to areas experiencing high growth or significant change in the housing stock. This targeted approach would lower the number of both temporary workers and local census offices needed to conduct the operation, potentially saving an estimated \$1 billion to more than \$2 billion.³⁸

However, early research and ongoing evaluation of the quality and coverage of address data obtained from administrative records is imperative. The importance of a comprehensive address list and accurate mapping system to a successful census cannot be overstated. Housing units not on the master address list can

be overlooked entirely during the enumeration unless residents realize they did not receive a questionnaire and take steps to obtain a generic form during the Be Counted operation.³⁹ A housing unit does not necessarily equate with a single structure or obvious address, such as when homes are divided to accommodate several families, sometimes in violation of local codes; census workers usually knocked on doors to determine if a structure included multiple units or households. Further, while an electronic response mode in 2020 could make it easier for people who believe they were missed during primary counting operations to submit information after the self-response period has ended, the Census Bureau must develop a method for tying Internet responses that lack a unique geographic code to the correct address and map location.

The process of building the address frame highlights the challenges of modernizing the census and underscores the need for timely, thorough research and development. In order to realize significant cost savings through targeted address canvassing, the Census Bureau must completely overhaul a process that previously relied on the U.S. Postal Service, or USPS, delivery file, input from state and local governments late in the decade—called the Local Update of Census Addresses, or LUCA program—and a universal address check shortly before the enumeration. Integration of the Census Bureau’s address file and mapping system into one database was a helpful advancement for the 2010 Census, but verifying the accuracy of the records was still labor intensive and costly. Less than one-third of the nation’s 39,329 state, local, and tribal governments participated in the LUCA program, with less than one-quarter submitting changes to the address records provided by the Census Bureau.⁴⁰

The bureau plans to modernize this entire activity for 2020 by updating its address file continuously through a geographic support system, or GSS, that absorbs electronic information from a wide array of sources, including the Census Bureau’s own Statistical Administrative Record System, or StARS; state, local, and tribal governments; commercial spatial databases; satellite imagery providers; the USPS; and other federal agencies.⁴¹ Simultaneously, the Census Bureau must assess the quality of its dynamic address list and identify areas where significant new construction or demolition, or administrative data of unacceptable quality, will require deployment of field staff in 2019 to verify and update the list for the count in 2020.

The biggest hurdle: Counting people who don't respond

The single most costly census operation is nonresponse follow up, when a virtual army of temporary enumerators—deployed from more than 490 field offices in 2010—visit households that did not answer the census during the self-response phase.⁴² The Census Bureau is attacking the scope of this major cost-driver in several broad ways:

- Making self-response easier with multiple options, including via the Internet, telephone, and traditional paper questionnaires
- Using administrative records to identify and remove vacant housing units from enumerator caseloads
- Automating both data collection and the management of field staff, including hiring, payroll, and other human resources tasks

Boosting self-response is a primary goal of a redesigned census. The 2010 Census started with an advance letter, alerting households to the coming questionnaire.⁴³ Most U.S. households received census forms by mail; census workers hand delivered forms to the remaining homes, primarily in remote communities and areas without city-style street addresses. The Census Bureau unleashed an unprecedented communications campaign, urging Americans to mail back their questionnaires. The benefits of a high mail-back rate were obvious: In 2010, the Census Bureau spent 42 cents on pre-paid postage for each questionnaire returned by mail, compared to an average of \$57 to enumerate each household that required an in-person visit.⁴⁴ For each 1 percent increase in the mail-back rate, taxpayers saved \$85 million.⁴⁵ And the data collected through self-response are more reliable, in large part because people fill out the form closer to Census Day on April 1.⁴⁶

By comparison, the 2020 Census promises to be high-tech. If all goes according to plan, Americans will be able to receive and fill out their questionnaires through multiple means. While some people will elect the traditional mail-out and mail-back option, the Census Bureau hopes many households will choose to answer the census online, using computers, laptops, tablets, or smartphones. A 2014 field test assessed low-cost methods for contacting households—such as postcard, email,

or text—to determine their preferred method of response. Another innovation currently used in other countries, is to offer the option of pre-registration by sending households an Internet link that would allow the household to respond online and match the address to a unique geographic identifier code. Other avenues for reducing reliance on paper questionnaires include telephone interviews, possibly using voice recognition technology, and strategically located public kiosks.

Electronic exchange of information is an obvious way to help contain skyrocketing costs in today’s plugged-in world. But experts who participated in CAP’s roundtable discussion on the 2020 Census cautioned that Internet response is not the silver bullet to rein in census costs that some in Congress envision and that high-tech solutions introduce new challenges and risks into the census process. They point to the digital divide that has left some segments of the population—including low-income households, older Americans, rural residents, and some racial and ethnic minority groups—less likely to use or have access to the Internet than others.⁴⁷ The technical challenges are significant; the Census Bureau must design forms that are compatible with multiple platforms and operating systems, all of which are constantly evolving. Public kiosks could encourage reporting by people who believe they were not counted, but the Census Bureau must develop ways to detect fraud and duplicate responses. It also must link every electronic response to a specific address, household, and spot on a map, to ensure accurate data for apportionment, redistricting, and resource allocation.

The Census Bureau must complete its initial evaluation of self-response options in time for a larger integration field test in April 2015 that will assess how new methods fit together in a census-like environment. With less funding than requested, the Census Bureau has made hard choices about where to focus its efforts in the current fiscal year, scaling back or delaying work on important components of a successful census, including language translations, the Partnership Program, research on privacy and confidentiality concerns, and more.

Motivating participation across a diverse population

The Census Bureau is also exploring ways to promote census participation using social media, an effort that would complement a paid advertising campaign that relies on more traditional communication avenues, such as television, radio, and print media. The rapid changes in media, however, further complicate the Census Bureau’s efforts to reach hard-to-count populations, as media consumption moves from television networks to on-demand video on mobile devices.

Some technology, such as the DVR or TiVo, could make it more difficult to deliver motivational advertising to key population subgroups in a timely way. Identifying the most effective ways to reach different segments of a population marked by unprecedented racial, ethnic, cultural, linguistic, generational, and geographic diversity will be key to deploying communications resources wisely and effectively and will require a rigorous set of research and testing activities to determine how best to leverage new and old media and to target messages. The 2020 Census communications plan must also be flexible and nimble, designed to take advantage of emerging social networks in a rapidly changing media environment.

As modern as the 2020 Census might be, a successful enumeration, at its core, is still dependent on the Census Bureau's ability to engage Americans in the nation's largest civic activity. The successful 2010 Census Partnership Program provided a vital link between the government and the people, harnessing the good will of 268,000 national, state, and local organizations and businesses to promote the importance of a complete census and, especially, serve as "trusted voices" in communities where residents might be skeptical or even fearful of participating.⁴⁸ Census advocates agree that this decidedly low-tech collaboration must continue in 2020. Technology can boost the effectiveness and reach of partnerships, but the program's success largely rests on building trust by leveraging the connection between civic, religious, business, and grassroots organizations and the people they serve.

Harnessing 21st century technology and big data

The Census Bureau often has been at the forefront of advances in technology, from a punch-card system for data tabulation in 1890, to mainframe computers, large data-processing systems, and digital maps in the 20th century. Yet, the basic census design has remained highly paper and labor intensive. Surprisingly, there was no Internet response option in 2010: The Census Bureau recruited 3.9 million job applicants and hired 857,000 non-managerial temporary workers for field operations because it was unable to take advantage of emerging technologies to collect, process, and store millions of records quickly and at low cost.⁴⁹ Important research and testing stretched through much of the decade leading up to the 2010 count, leaving insufficient time to modify or refine weak design elements.

For 2020, the question is not if but how to incorporate advanced IT into the census process. Although the Census Bureau has identified the ways it might use technology in broad terms, the breadth of the transformation, the complexity of the census process, and the uncertain trade-offs between cost and accuracy demand a rigorous program of research and testing in the next two years. This will be necessary to define specific approaches and document potential cost savings and efficiency improvements that investments in technology are likely to yield. The Census Bureau must lock down basic technology decisions in 2015 to begin the acquisition and development process for new systems and operations.

Technology clearly offers the promise of major improvements in the census process, but significant risks also loom at almost every turn. Two obvious examples involve electronic response to the census: building a system with the capacity to handle upwards of 8 million hits per day during peak census operations and ensuring the security of responses provided through the Internet. While the Census Bureau has gained experience with Internet response in its economic surveys and, more recently, the American Community Survey, the decennial census presents a challenge of volume on an unprecedented scale. Census officials

Since our Nation's founding, the census has been a way of taking a "statistical snapshot" of our people and determining their number and location. Over the years, census information has become essential in the distribution of billions of dollars annually under Federal and State programs for such worthwhile purposes as education, health care, community development, transportation, and crime prevention. Government policymakers routinely use census data to make decisions on where to locate or expand public facilities and services, while business planners employ census numbers to devise strategies for the Nation's economic development. ... Leaders in government and the private sector will use the information it provides in making critical decisions as we prepare to enter the 21st century. Abraham Lincoln once observed: "If we could just know where we are and whither we are tending, we could better judge what to do and how to do it." The census helps to provide us with such insight.⁵⁰

– President George H.W. Bush, 1990

also are mindful of cybersecurity concerns; the risk, they say, cannot be taken lightly. Former Census Deputy Director Thomas Mesenbourg told CAP census roundtable participants that the 2020 Census website will be a prime target for hackers. He pointed to the 10 million emails the Census Bureau receives monthly, four-fifths of which—largely originating in foreign countries, including many from China—are blocked by the bureau’s cybersecurity system.⁵¹ Further, early Census Bureau research shows that email is the preferred method of communication for people inclined to answer the census electronically, opening the door to phishing scams purporting to be official communications from the Census Bureau. The 2014 Census Test revealed that many people are wary of electronic communications from unknown sources; only 3 percent of respondents given several options for initial notice of the start of the test census chose email or text message communication in lieu of traditional notification through the mail.⁵² Any negative publicity about the security of Internet response, experts note, could diminish public confidence in the online option and the credibility of the entire census.

Harnessing technology to improve the efficiency and greatly reduce the cost of field operations is another major focus of 2020 Census planning. The bureau tried unsuccessfully to automate fieldwork for the 2010 Census. Plans to equip census takers with handheld devices fell apart just two years before the enumeration, when the technology failed to meet performance requirements during the pre-census address canvassing operation; the Census Bureau had to request an emergency appropriation of roughly \$2 billion, as it scrambled to reconfigure plans for door-to-door visits using paper questionnaires.⁵³ Government auditors blamed the costly failure on difficulties in aligning contract specifications with requirements, an over-reliance on contractor expertise, and poor program management.

The Census Bureau again is exploring ways to automate field data collection and management in 2020. Proposals under consideration for census takers include government-issued devices, such as tablets or smartphones, to capture census responses during door-to-door visits and transmit the information electronically for processing, and a bring-your-own-device model, which would allow census takers to use their personal equipment to download a secure application for collecting census information. The Census Bureau also might reach out to unresponsive households by email and through call centers before assigning interviewers to knock on doors. These new approaches, if successful, could sharply reduce costs associated with handling and processing paper forms and improve data quality by reducing coding errors, while increasing productivity through automated workload management, case routing, and similar techniques. The bureau can reduce its brick and mortar footprint and the significant costs associated with siting, opening, staffing, and managing nearly 500 local offices.

Equally important, with automation of data collection, both during the self-response and follow-up phases of the 2020 Census, the Census Bureau can rely on more advanced technologies for processing and storing data. The 2010 Census utilized three large data processing centers, operated by an outside contractor, to scan and capture information from more than 100 million paper forms. For 2020, the Census Bureau hopes to take advantage of cloud services to handle a large portion of the data it collects and ensure ready, sufficient capacity.⁵⁴

Census officials are confident that their acquisitions process is far more rigorous—and that risk management procedures are more robust—than in 2010; they point to the successful rollout of an Internet response option for the ACS in 2013.⁵⁵ The Government Accountability Office, Congress' independent auditing agency, has emphasized the importance of communicating the complexity of both the census design and the decision-making process to Congress in order to build timely and informed support for 2020 Census planning activities.⁵⁶

The promise and challenge of administrative records

Just as technology permeates most aspects of modern life, big data are becoming ubiquitous in addressing public- and private-sector operational, managerial, and fiscal challenges. The Census Bureau is exploring ways to use administrative records, including data that the federal and state governments already collect and third-party commercial databases, to replace or supplement traditional methods at several key points in the census process.

One example is relying on existing government and commercial databases to update the master address list continuously, allowing the Census Bureau to target costly boots on the ground address canvassing to a small number of areas. The Census Bureau also is evaluating commercial databases as a source of email addresses and telephone numbers to contact households in advance of the self-response period and to follow-up with unresponsive households. It is testing ways to improve the efficiency of its temporary field staff through an adaptive design approach. This approach would use administrative records and paradata—data it has previously collected about households through other censuses and surveys—to manage each census taker's caseload in real time by, for example, assigning travel routes and best times to visit households.⁵⁷

Administrative records conceivably could play a much larger role in counting the population and tackling the biggest census cost driver—the door-to-door operation—by replacing some or all visits to a housing unit that has not responded by mail, Internet, or telephone. In past censuses, enumerators first had to determine if a housing unit was occupied, vacant, or perhaps not a viable housing unit at all.⁵⁸ Then they tried numerous times to contact residents, in person and by phone, to fill out the questionnaire. If these efforts failed, census takers could ask neighbors, landlords, or even a passing letter carrier for basic information about the household. After the field follow-up period ended, the Census Bureau would impute data, using statistical models based on the characteristics of nearby homes, for households that it could not count any other way.⁵⁹

Not surprisingly, as efforts to count reluctant households drag on, the quality of the data gets worse, partly because the person answering the questions may not recall accurately the names and characteristics of everyone who lived in the household on April 1, Census Day, and partly because the bureau may have to rely on indirect sources of information such as neighbors to round out the count. Further, multiple door knocks and phone calls can lead to resentment and noncooperation among hesitant residents. To address these issues and to reduce the number of high-cost follow-up visits, the Census Bureau plans to use administrative records to identify vacant households and remove those addresses from the door-to-door operation entirely, streamlining the caseload for census takers.

But the Census Bureau is thinking more broadly. Can it access data previously collected through its own surveys and censuses and by federal agencies and state governments—for example, IRS and social security files or Medicaid and Temporary Assistance for Needy Families records—to obtain information on unresponsive households and avoid dispatching an enumerator altogether? Or, perhaps government records can supply some of the information collected on the census form, such as the number of people in a household, their age and gender, and whether they own or rent the property, while statistical methods, such as imputation of answers based on the characteristics of the surrounding neighborhood, can be used to fill in information not readily available in administrative records, most notably detailed race and ethnicity data.

The bureau is exploring a range of these options, and the questions it needs to answer are complex and important. Will agencies cooperate with the Census Bureau? In most cases, the bureau would need to negotiate separately with each federal and state agency to secure access to databases; in many cases, it

must seek changes in federal and state laws to facilitate the data sharing. Are administrative records accurate enough, in real time, to replace face-to-face data collection? Do existing databases offer consistent and comparable data for key characteristics, such as the relationship of household members to each other?

At CAP's roundtable discussion, advocates for historically hard-to-count population groups cautioned that widespread reliance on administrative records could be problematic for their communities. A significant concern, they said, is whether government databases contain accurate data on race and ethnicity that are essential for implementing and enforcing civil rights laws and policies. Census Bureau officials noted that, in the past, 20 percent of households in the nonresponse follow-up group were counted indirectly, using proxy measures, such as information from neighbors or landlords, or statistical imputation; they believe administrative records could improve the quality of data on households that don't answer the census. Nevertheless, they acknowledged that the quality, coverage, and scope of various databases varies widely and emphasized the need for in-depth evaluation of potential sources of administrative data before the bureau can determine whether or how to incorporate this new census design element.

Quality issues aside, some observers suggested that the Census Bureau still must sell to Congress and the public the idea of replacing direct counting methods with big data; broader societal concerns about data sharing and privacy could give rise to skepticism about the bureau's proposal. The Census Bureau estimates that broad use of administrative records in the census process could save up to \$2 billion, but answering these wide-ranging questions requires rigorous research, testing, and evaluation in the near future.

Common-sense reforms

To sustain America's historical commitment to quality, objective, and trusted statistical information about our nation's population, communities, and economy, we must return to the roots of the census, when the Founders conceived the census as a means to secure the knowledge on which to grow a new nation. We must honor the values and judgment of leaders, such as James Madison and Thomas Jefferson, who embedded the census in the opening paragraphs of the Constitution, even before defining their broader vision of the government through the Congress, the presidency, and the judiciary.

It is time for a structural reform that takes the census out of the political arena, that reflects the importance the Founders placed in informed decision-making, and that helps ensure the Census Bureau has reliable, steady, and adequate funding that honors its constitutional origins and purpose.

The Center for American Progress has already examined the need for structural changes in the way the government administers the census. And while Sen. Tom Carper (D-DE) and former Sen. Tom Coburn (R-OK) took a small, but important, step in enacting a five-year, renewable term of office for the Census Bureau director, more needs to be done to keep Congress and the highest levels of the administration focused on the unique, complex, and long-term activities of the Census Bureau and, especially, the decennial census.

The importance of the census as the foundation of the nation's democracy, economy, and public policy cannot be overstated. Yet, the 2020 Census and the American Community Survey remain vulnerable to interests that do not understand their fundamental value and, consequently, view the Census Bureau's budget as a dispensable resource and piggy bank for other favored programs, as well as vulnerable to interests that reject a long-standing federal role in our nation's economic growth.

To start, Congress and the administration must reform the census budget process in order to avoid repeating the mistakes of the past 40 years. CAP proposes four new structural changes to strengthen and protect the census planning and budgetary process:

1. **Rather than reporting to the under secretary for economic affairs, the Census Bureau director should report directly to the commerce secretary.** This direct reporting structure will help streamline the decision-making process, improve efficiency, and elevate the importance of Census Bureau programs within the Office of the Secretary.
2. **Require that the president and Congress propose and approve funding for decennial censuses in five-year blocks in order to promote thoughtful consideration of the complexities and goals of this unique, multi-year, and constitutionally mandated activity—one that cannot be delayed, postponed, or scaled back.** Inadequate funding in the earlier years of the census planning cycle consistently leads to operational challenges and 11th-hour emergency spending requirements, increasing the overall cost of the enumeration significantly. Five-year funding commitments would match the term of office of the Census Bureau director and cover the major phases of the census lifecycle. In the planning budget, these phases include research, testing, and selection of a design framework, while they include development, preparations, and execution in the operational budget.
3. **Change congressional rules for consideration of the decennial census budget to prohibit reallocation of census funding to other programs within the Commerce, Justice, and Science, and Related Agencies' appropriations account.** Congress, in consultation with the administration and Census Bureau, should determine and enact a sufficient level of funding for each major stage of the decennial census and then ensure sufficient progress and stewardship of resources through frequent congressional oversight of census planning and preparations.

The census is unique among the many programs funded through this broad appropriations account—a constitutionally required activity for which the federal government has sole responsibility and upon which the resilience of the nation's democratic ideals lie. While the benefits of an accurate, comprehensive census—including the ACS—flow to every person and community in the country, the value is not readily apparent or easily explained to lawmakers and their constituents, leaving the Census Bureau's budget highly vulnerable to the competition for resources among a wide range of programs of more immediate interest to members of Congress.

4. Congress should prohibit legislative riders on the Census Bureau's appropriations bill. In recent years, there have been numerous attempts to modify the scope and structure of the census and related ACS through the funding process. A notable example was an effort in the Senate, only months before the start of the 2010 Census, to exclude undocumented residents from the census population counts used to apportion seats in Congress; if enacted, the constitutionally suspect proposal would have stopped the enumeration in its tracks. Congress should consider proposals affecting the scope, content, and methodology of the census through the regular legislative process after thorough oversight and debate about the implications of changing the nation's statistical and constitutional foundations.

The history of planning for the census over the past four decades clearly demonstrates the need for these common-sense reforms. Congress and the administration should consider and adopt these changes as expeditiously as possible, to facilitate proper oversight of Census Bureau activities and, more importantly, a prudent, consistent pathway to accomplishing one of the nation's most fundamental constitutional responsibilities.

Conclusion

The risk of a less cost-effective and less-accurate census just five years from now is all too real and immediate. The Census Bureau has faced the same planning challenge with every decennial census since 1980: Congress' inability to view the census as a complex, 10-year activity that requires adequate resources and support for research, planning, and preparation.

Regardless of the political party in control, Congress has failed to fully appreciate and support the investment and attention required in the early years of the decade to execute an accurate and fair census. That failure has predictable results: Huge cost increases and the threat of unreliable data, which the nation has to live with for another decade.

Halfway through the census planning cycle, Congress continues to reduce the budget for 2020 Census research, testing, and development, undermining informed decision making and timely preparation for the next enumeration. Continued significant budget cuts jeopardize the Census Bureau's ability to maintain its 2020 Census planning schedule and to pursue all promising and necessary reforms in the census design. Sens. Carper and Coburn, chairman and ranking minority member, respectively, of the Census Bureau's Senate oversight committee in the 113th Congress, sounded the alarm earlier this year in a letter to Census Bureau Director John Thompson.⁶⁰ Nevertheless, despite this timely warning from two experienced congressional overseers, congressional and administrative apathy toward the Census Bureau, regrettably, is bipartisan and will continue in the absence of structural reforms.

The sequester, the federal government shutdown in October 2013, frequent reliance on Continuing Resolutions to fund government activities, and the prospect of insufficient annual spending ramp-ups for decennial census planning and preparations have consequences far beyond the decennial census, cutting across all Census Bureau programs, including the production of vital economic indicators.

Ironically, in an information and analysis-driven economy, we are undermining the quality of the most important data about our economic conditions, progress, and strengths and weaknesses. At a time when data about the global economy are driving creative, innovative, and productive advances in our nation's economic well-being, Congress is pulling the plug on a primary source of objective, useful, and comprehensive data.

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About the authors

Benjamin Chevat is executive director of both 911 Health Watch Inc. and Citizens for the Extension of the James Zadroga Act Inc., two nonprofit organizations dedicated to overseeing the implementation of the James Zadroga 9/11 Health and Compensation Act of 2010 and its renewal and extension on behalf of injured and ill 9/11 responders and survivors.

Chevat was formerly Chief of Staff for Congresswoman Carolyn B. Maloney (D-NY), where he worked to create the Census Caucus in order to ensure a fair and accurate Census and American Community Survey. He drafted Census reform legislation proposed by Rep. Maloney, creating a term of office for the director of the Census, provisions of which were eventually enacted into law.

Chevat received his B.A. from Queens College, City University of New York and his J.D. from the City University of New York Law School at Queens College, where he was in the inaugural class.

Terri Ann Lowenthal is a consultant specializing in issues related to the census, the federal statistical system, and the use of data for policy purposes. She served from 1981–95 as a congressional staff aide in the U.S. House of Representatives and U.S. Senate and was staff director of the House census oversight subcommittee for many years. She also was a member of the 2008 Obama Presidential Transition Team with responsibility for the Commerce Department’s statistical agencies, including the Census Bureau. Lowenthal is co-director of The Census Project, a consultant to the Funders Census Initiative and The Leadership Conference on Civil and Human Rights, and writes The Census Project Blog. She holds a Bachelor of Arts degree from Cornell University and Juris Doctorate from Georgetown University Law Center.

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