2020 Census

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Decennial Statistical Studies Division
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Decennial Census Overview (1 of 2)

Purpose:
To conduct a census of population and housing and disseminate the results to the President, the States, and the American People

Primary Uses of Decennial Census Data:

- Apportion representation among states as mandated by Article 1, Section 2 of the United States Constitution:
  
  **Representatives and direct Taxes shall be apportioned among the several States which may be included within this union, according to their respective Numbers ...**

  **The actual Enumeration shall be made within three Years after the first Meeting of the Congress of the United States, and within every subsequent Term of ten years, in such Manner as they shall by Law direct.**

- Draw congressional and state legislative districts, school districts and voting precincts
- Inform business and nonprofit organization decisions (e.g., where to locate, size of the market) – define the denominator for weighting for all household surveys and polls
- Establishes the data backbone for the country for 10 years
Decennial Census Overview (2 of 2)

- Census data help ensure fair share of political representation
  - Congressional apportionment (435 seats in House of Reps)
    - [https://www.youtube.com/watch?v=RUCnb5_HZc0](https://www.youtube.com/watch?v=RUCnb5_HZc0) (2 min)
  - Legislative redistricting (boundaries for Congressional Districts)
- Largest peacetime activity the federal government undertakes
- Congressional direction found in Title 13, U.S. Code
- Approximately 309 million people and 134 million housing units were counted in the 2010 Decennial Census
- Census data directly affect how more than $400 billion per year (more than $4 trillion over the next decade) in federal funding is allocated to state, local, and tribal governments
Check-In!

How many people were counted in the 2010 Census?

___ ___ ___ million

...in how many housing units?

___ ___ ___ million

True or False: The Constitution is silent on how to conduct a census or what to collect.
2010 Census Summary

- Cost about $12 Billion
- 44 operations (including a paper-based nonresponse follow-up to over 48 million addresses)
- 56 major systems (IT)
- 450 data interfaces
- Very complex
- Very accurate
  - Measured an net overcount--not statistically significant--of 0.01%
Overview of 2010 Census Approach

Address List
- Construct master address list so the Census Bureau can contact the public and conduct a quality census

Mailout
- Supply the public (mostly by mail) with the forms to participate in the census using the standard mail method

NRFU
- Follow-up in person to enumerate households that did not return a Census questionnaire by mail

Special Operations
- Implement various special operations to count hard-to enumerate populations (see next slide)
We find ways to include everyone!

Special Operations

- Group Quarters – nursing homes, prisons/jails, hospitals, religious institutions, dorms, etc.
- Transient Locations – RV parks, campgrounds, hotels, motels, marinas, racetracks, circuses, and carnivals
- Service-based Locations – soup kitchens, homeless shelters, and non-sheltered outdoor locations
- Overseas Enumeration – military and federally affiliated people living overseas
- Puerto Rico
- Island Areas – Guam, Virgin Islands, American Samoa, and Northern Mariana Islands
Check-In!

Which 2010 Census “Special Operation” included nursing homes, prisons/jails, hospitals, religious institutions, and dorms?
2020 Census
Reengineering Address Canvassing

Reduce the nationwide In-Field Address Canvassing by developing innovative methodologies for updating and maintaining the Census Bureau’s address list and spatial database throughout the decade.

Continual Research and Updating
Ongoing Process for In-Office Canvassing

In-Office Address Canvassing

In-Field Address Canvassing

Where Should We Start?

- Satellite Imagery
- Postal Files
- Tribal and State and local Government Files
- Third-Party Data

Is my address list consistent with other sources?
Has there been any growth or decline?

Address List and Spatial Database
Optimizing Self-Response

Generate the largest possible self-response, reducing the number of households requiring follow-up.

- Motivate People to Respond
- Tailored Contact Strategy
- Partnership Program
- Notices Encouraging Self-Response
- Multiple Modes and Devices
- Online Forms in Multiple Languages
- Pre-Assigned ID Not Required*

*Validates respondent addresses for those without a Census ID and prevent fraudulent submissions

- Assure respondents that their data are confidential and secure
- Make It Easy to Respond from Any Location at Any Time
Utilizing Administrative Records

Use information people have already provided to reduce expensive in-person follow-up.

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Task</th>
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</thead>
<tbody>
<tr>
<td>Improve the quality of the Frame</td>
<td>Update the Frame</td>
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<tr>
<td></td>
<td>Validate incoming data from tribal, federal, state, and local governments</td>
</tr>
<tr>
<td>Increase effectiveness of advertising and contact strategies</td>
<td>Support the micro-targeted advertising campaign</td>
</tr>
<tr>
<td></td>
<td>Create the contact frame (e.g., email addresses and telephone numbers)</td>
</tr>
<tr>
<td>Validate Respondent Submissions</td>
<td>Validate respondent addresses for those without a Census ID and prevent fraudulent submissions</td>
</tr>
<tr>
<td>Reduce Field Workload for Followup Activities</td>
<td>Remove vacant and nonresponding occupied housing units from the nonresponse followup workload</td>
</tr>
<tr>
<td></td>
<td>Optimize the number of contact attempts</td>
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</table>
Reengineering Field Operations

Use technology to more efficiently and effectively manage the 2020 Census fieldwork.

Streamlined Office and Staffing Structure

- Automated and optimized work assignments
- Automated recruiting, training, payroll and expense reporting
- Ability to conduct address updates and enumeration on same device
- Reduced paper and manual processing

Increased use of Technology

- Increased visibility into case status for improved workforce management
- Redesigned quality assurance operations
- Improved communications

Increased Management and Staff Productivity
Overview of 2020 Census Approach

Address Canvassing
• Visit only the worst 25% of blocks and do the rest with aerial images and In-Office techniques

Self-Response
• Use the internet! And offer option to respond without a Census ID (we do the work to get the ID)

NRFU
• Use technology to make enumerators more efficient (case assignment daily and routing) AND use Administrative Records

Special Operations
• Not a cost driver – but we will use reengineering field techniques
Reduce Costs by $5.2B

- **Reengineering Address Canvassing**
  - Reduced field workload resulting from: In-Office Address Canvassing and Redesigned Quality Assurance Functions

- **Optimizing Self-Response**
  - Reduced field workload resulting from engaging and motivating people to respond
  - Reduced paper data capture

- **Utilizing Administrative Records**
  - Reduced field workload resulting from: Use of administrative records and third-party data to remove vacant and nonresponding occupied housing units, and optimize the number of contact attempts

- **Reengineering Field Operations**
  - Improved efficiencies resulting from:
    - Automated and optimized work assignments
    - Automated instrument for data collection
    - Automated administrative functions
    - Streamlined management structure
    - Reduced total office square footage

*Estimated Cost Reduction of $5.2 billion as compared with implementing the 2010 Census in 2020*
In the next census, we will be trying to reach an increasingly diverse and growing population of around 330 million people in more than 140 million housing units.

The Census Bureau completed research in order to inform key design decisions by October 2015. We have completed 12 field tests since 2012.
The Path to the 2020 Census: Research and Testing

- **2013 Census Test**
  - Adaptive design
  - Administrative records

- **2014 Census Test**
  - Internet collection
  - “Notify Me” (pre-registration)
  - BYOD
  - Adaptive design
  - Administrative records

- **2015 Address Validation Test**
  - Statistical Models
  - In-Office and In-Field canvassing
  - Partial-block canvassing

- **2015 Optimizing Self-Response Test**
  - “Notify Me” (pre-registration)
  - Advertising, Partnership, and Promotion
  - Real Time Non-ID

- **2015 Census Test**
  - Automated training
  - Reengineered Field Structure
  - Adaptive design (optimize)
  - Administrative records
  - Device as a service

- **2015 National Content Test**
  - Race and Hispanic Origin
  - Same Sex relationship
  - Self-response rates
The Path to the 2020 Census: Research and Testing

*** Move away from research and closer to building for 2020 (production readiness)

- **2016 Census Test**
  - Finalize NRFU design
  - Integrate self and non response

- **2016-2019 MAF Coverage Study**
  - Quality control In-Office methods
  - Produce MAF Coverage measure

- **2016 Address Canvassing Test**
  - Test In-Field Methods
  - Change to new geography type (BCU)

- **2017 Puerto Rico Test**
  - Test different address scheme
  - Build and test all the systems for PR

- **2017 Census Test**
  - Update Enumerate methods
  - New Enumeration Types (TEA)
  - Systems integration

- **2018 End-to-End Test**
  - Test and validate operations, systems, infrastructure, and integration
  - Produce data products
  - This is the finish line

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United States Census Bureau  
U.S. Department of Commerce  
Economics and Statistics Administration  
U.S. CENSUS BUREAU  
census.gov
Innovation is happening!

Issued the 2020 Census Operational Plan on October 6, 2015

- Defines all the operations in 2020 Census
- Defines all the field tests
- Major census operational design decisions
- Defines a plan to answer all remaining questions to complete design
- Quality expectations for the high-level design

SAVE over $5 billion dollars
- The operational plan can be found HERE: [http://www.census.gov/content/dam/Census/programs-surveys/decennial/2020-census/pmr100615/2020%20census%20operational%20plan%20final.pdf](http://www.census.gov/content/dam/Census/programs-surveys/decennial/2020-census/pmr100615/2020%20census%20operational%20plan%20final.pdf)

Major 2020 Census development formally began in early 2016
Can you name the six major tests from 2013-2015 that lead the way to the 2020 Census design?
Why work at Census?
We have over 400 vacancies! We are hiring like crazy!

Here are the job announcements for the jobs for which I am recruiting:

- **Mathematical Statistician:**
  - [https://www.usajobs.gov/GetJob/ViewDetails/399497400/](https://www.usajobs.gov/GetJob/ViewDetails/399497400/)

- **IT Specialist** (2 different jobs):
  - [https://www.usajobs.gov/GetJob/ViewDetails/401626800/](https://www.usajobs.gov/GetJob/ViewDetails/401626800/) - Specialist
  - [https://www.usajobs.gov/GetJob/ViewDetails/399550300/](https://www.usajobs.gov/GetJob/ViewDetails/399550300/) - Application Software

- **Project Management Specialist:**
  - [https://www.usajobs.gov/GetJob/ViewDetails/428212700/](https://www.usajobs.gov/GetJob/ViewDetails/428212700/)

- **Statistician:**
  - [https://www.usajobs.gov/GetJob/ViewDetails/420776500/](https://www.usajobs.gov/GetJob/ViewDetails/420776500/)

We prefer NCRN schools, so you have an advantage...
Salary

- Undergrad students – generally start at GS-7 level
- Graduate students – generally start at GS-9 level
- Annual raises GS-7 to GS-9 to GS-11 to GS-12
- GS-13 is competitive – apply, interview, and accept

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<th>Statistician/Program Management</th>
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U.S. Census Bureau Organizational Structure

Director

Deputy Director

Office for Risk Management and Program Evaluation

Policy Coordination Office

Equal Employment Opportunity Office

Program Directorates

Decennial Directorates – 10-year census and the American Community Survey

Demographic – people/households

Economic – businesses/governments/establishments
Work/Life Balance

- 40 Hours a week! Really!
- Great retirement plan
- Great vacation (13 days a year) and sick leave (13 days a year)
- 10 paid holidays
- Teleworking
- Alternate Work Schedule (AWS) – work 9 or 10 hrs and get days off
- Free parking and casual attire
- Metro stop for mass transit
- Day care center
- Tons of sports leagues
- 100 percent tuition reimbursement
- Easy to change careers – I did 3 times.
Come and See

- After you apply and you get an interview....
- Walk around and see that people are happy at the Census Bureau
- Interesting Jobs that make a difference
- People stay here
- When they leave they come back
- Great job security
- Produce important data that everyone uses and relies on
- Smart, fun, hardworking, good people work at Census
Questions

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Backup slides
Census Data Collection

- From 1790 until 1970, virtually all data collection was done by door-to-door personal interviewing.

- In 1970, began using mailout/mailback data collection, followed by personal interviewing for addresses that did not mail back a form. By 2010, 90% of the addresses were designated for mailout/mailback.

- Until 1940, essentially all households and individuals were asked to answer all questions. From 1940 through 2000, the decennial census included both a short form sent to most households and a long form sent to a sample.

- For the 2010 Census, all households received the short form. The American Community Survey now collects and produces annual statistics on the detailed characteristics data previously collected and produced only once each decade by the long form.
From 1790 until 1890, millions of census forms had to be tabulated by hand.

Innovations included the punch card and electronic tabulator technology developed by Herman Hollerith to speed the tallying of the 1890 census. This technology later became the basis for a company called IBM.

The Census Bureau continued updating and using Hollerith's electronic tabulators until the 1950 census when they were replaced by UNIVAC (1st computer).
Census Data Processing (2 of 2)

- Developed FOSDIC (Film Optical Sensing Device for Input to Computers) to speed the transfer of paper responses to electronic form.
- FOSDIC proved so successful that it was not replaced until the introduction of optical character recognition for Census 2000.
- For the 2000 and 2010 Census, used an optical character recognition system to scan and electronically interpret the responses on paper forms.
Beyond the Major 2020 Design Decisions...

2015 Core Programmatic Work

• Census Questionnaire Assistance (aka... Telephony solution)
• Language and Content Programs
• Early work on the Integrated Communications Campaign (including partnerships)
• Beginning work on coverage improvement programs
• Beginning work on the planning and design of census operations in Puerto Rico and the Island Areas
• Planning and design of the geographic programs
• Mobile services
• Business architecture
• Operational and systems readiness
• And more...