Innovation @USCensusBureau

Changing How We Measure America

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THE BACKGROUND
The U.S. Census Bureau is the leading source of quality data about the America’s people, places and economy.

We collect and disseminate a wide array of data:

- Decennial census
- Economic census
- American Community Survey
- 13 principle economic indicators
- Demographic surveys – income, poverty & health insurance data
- Economic surveys
- Reimbursable surveys for other federal agencies
21st century challenges

Declining response rates

21st century challenges

Doing more with fewer resources

In an era of declining resources, data users want high-quality data.

• Federal budgets are shrinking

• Users’ demands for more timely, granular data are increasing
21\textsuperscript{st} century challenges

Emerging data needs

We need to meet our data users’ growing demand for data that can be easily combined with other data sources

- Opportunities to use new technology and methods to combine data from multiple sources – federal, state, local, and private sector

- Exposing our data to meet users’ needs in efficient ways

Examples of data user-generated tools from the Opportunity Project

- **School ResourceMapper**: Brings together economic, health center, and community institution data to help school leaders find and develop community partnerships.

- **Commuter Map**: Uses commuting data from the L510 Origin-Destination Employment Statistics, bus & rail transit routes to show commuter flows and gaps in access to transit.

- **FindHome**: Helps low income families overcome the stress of finding affordable housing this tool combines transit access, walkability and school information into one unique feed of available properties.
21st century challenges

Protecting privacy

We want to disseminate the most accurate, granular data possible. At the same time, we have the responsibility to protect the confidentiality of our respondents’ data.

• Uncertain implications of the database reconstruction theorem for a data product as large-scale as the census

• Actively researching ways to deliver statistics that meet users’ needs and limits reconstruction

Database reconstruction theorem
Too many statistics published too accurately from a confidential database exposes the entire database with near certainty

Challenge: How many statistics are too many, and too accurate?
21st century challenges

Concerns about federal data collection

Respondent, public and oversight concerns about the American Community Survey, economic surveys & other data collection efforts

- Mandatory nature of surveys
- Intrusive questions
- Respondent burden
THE 2020 CENSUS
The Decennial Census

**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 & voting precincts
- Enforce voting rights and civil rights legislation
- Distribute federal dollars to states
- Inform federal, tribal, state and local government planning decisions
- Inform business & nonprofit organization decisions (where to locate, size of market)
- Population benchmark for nearly every other U.S. survey
The 2020 Census is being conducted in a rapidly changing environment, requiring a flexible design that takes advantages of new technologies and data sources while minimizing risk to ensure a high quality population count.
The 2020 Census: Goal and Key Innovation Areas

GOAL: To count everyone once, only once, and in the right place

Focus on Four Key Innovation Areas

- Reengineering Address Canvassing
- Optimizing Self-Response
- Utilizing Administrative Records and Third-Party Data
- Reengineering Field Operations

Check out the 2020 Census Operational Plan at [www.census.gov/2020census](http://www.census.gov/2020census)
The 2020 Census: Looking Ahead

- **2017**
  - Award Contract for the Decennial Device as a Service
  - Local Update of Census Addresses – Invitations sent to governmental entities to participate in review of our Master Address File and is complete in 2018
  - Begin Opening Regional Census Centers
  - Publish Final 2020 Residence Criteria and Situations

- **2018**
  - 2018 End-to-End Census Test (April 1st Census Day)
  - Partnership Program – Launch of the partnership program
  - Question Wording to Congress – by March 31, 2018

- **2019**
  - Begin Opening Field Offices
  - Complete Count Committees – Formation of committee’s should be complete

- **2020**
  - Advertising – Begins in early 2020
  - Census Day – April 1, 2020
  - Nonresponse Followup – Begins in early April and continues until late July
  - Apportionment Counts to the President – December 31, 2020

- **2021**
  - Redistricting Counts to the States – by March 31, 2021
Agility In Action: Key Action Areas

• Reduce follow-up contacts
• Improve survey materials and the way we ask questions
• Obtain data from other sources
• Remove questions or ask questions less frequently
• Updated and published version 1.2 on September 19, 2016
• Published version 2.0 on May 31, 2017
THE ECONOMIC CENSUS
The Economic Census is the U.S. government's official five-year measure of American business and the economy. It’s conducted by the Census Bureau in years ending in 2 and 7.

- Includes almost 4 million employer businesses
- Key measure of the economy for the private sector – supports decisions and planning for businesses and informs trade associations and chambers of commerce
- Supports economic policy – government agencies, analysts and business organizations nationwide rely on it for planning and key economic reports
- Confidential – we only publish summary statistics
Move to 100% internet collection

2012 Economic Census overall electronic reporting return rate

2012 Survey of Business Owners share of total response

Return rate

<table>
<thead>
<tr>
<th>Year</th>
<th>Electronic</th>
<th>Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>8.4%</td>
<td>91.6%</td>
</tr>
<tr>
<td>2012</td>
<td>90.0%</td>
<td>10.0%</td>
</tr>
</tbody>
</table>
Reduce the burden for businesses

- Rely more on administrative data for construction sector
- Research use of third party data
- Add a due date reminder letter
- Change mail-out strategy
- Research collecting data from businesses in native format
- Rely more on data sharing with other agencies
How the Economic Census benefits businesses

- **Only source** of detailed information by industry, geography, and products
- **Comprehensive data** for every NAICS industry, published from the national to the ZIP code level
- Available **time series**
- **200+ unique data variables**
- Data on **10,000+ detailed product lines**
When it was time for James to open his second restaurant, he used Census Bureau economic statistics to help pick the location – free and available online. With industry trends and ZIP code-level data, he identified a downtown spot with high potential for growth.

Where did these statistics come from? James’ first restaurant and all the other companies who responded to the Economic Census and other surveys. Their data fuels the local, state, and national statistics used for planning and decision making.
IMPROVING ECONOMIC STATISTICS
We produce:

- 13 key economic indicators
- Provide primary inputs to Gross Domestic Product produced by the Bureau of Economic Analysis

America’s Economy app
CHALLENGES TO IMPROVING ECONOMIC STATISTICS

► Revisions to GDP
Provide broader range of accelerated statistics to BEA – more complete info when putting out early GDP estimates >>> fewer revisions

► Accelerating Census releases
Incorporate improved imputation methods and additional data sources

► Timeliness
Use Big Data (such as credit card transaction data) to supplement existing monthly and annual retail surveys
produce scientifically valid estimates and uncertainty measures of economic and social statistics from data collected from a wide variety of sources – most of which were not designed to produce inputs to the production of official statistics.

Develop the hardware and software infrastructure to compute and disseminate statistics constructed from a variety of sources – surveys, administrative sources, transaction data, social media, Internet of Things, and so on.

Secure legal permissions and stakeholder buy-in to utilize non-traditional sources of data for the production of official statistics, so that everyone understands the cost, benefits and risks of expanding the capabilities of this next-generation federal statistical system.

Satisfy users that the data products produced employing new data sources and techniques accurately measure the phenomena we intend them to /// educate users to properly draw inferences from estimates constructed in novel ways.
GOAL #1: Improve quality of Monthly Retail indicators data

Large retailers reluctant to supply data
Concepts about data quality

Strategies for improvement
• Collaborate with associations to contact executives of large companies and encourage participation
• Use findings from Big Data research with FirstData, NPD, and credit card data to test modeled hybrid estimates using survey and Big Data sources
GOAL #2: Improve timeliness of retail estimates

Strategies for improvement

• UNDERWAY: “Advance Report” – new product based on research on providing some data earlier

• Credit card and other data sources could be used to create weekly estimates of retail sales

• Collaborative research between Census and BEA to develop an Advance Services Report – first issued February 2017
GOAL #3: Improve granularity of retail estimates

Strategies for improvement
Small area estimation work with new data sources
• Can we produce sub-national retail estimates?
• If so, at what levels can we produce quality estimates: state, MSA, and/or county?

Census Business Builder: Small Business Edition
https://cbb.census.gov/sbe
GOAL #4: Reduce burden & improve value to retail data providers

Potential survey burden of a company in the Monthly Retail Trade Survey

Monthly
- MWTS
- M3
- Monthly Retail Trade Survey

Quarterly
- QSS
- QFR

Annually
- ARTS
- COS
- SAS
- ASM
- Other statistical agency surveys

Every 5 Years
- Economic Census (one for each establishment)

Strategies for improvement

- Can we reduce burden by obtaining data from other sources?
- Can we increase the value-added of our data products to entice companies to participate?
DISSEMINATING DATA IN NEW, EFFICIENT WAYS
Making Our Data Available for the 21st Century

Enterprise Data Dissemination Environment
https://data.census.gov

Suite of services and supporting infrastructure to handle data dissemination for the 130+ censuses and surveys within the Census Bureau

- Improved customer satisfaction
- Personalized customer experience
- Efficient operations
Making Our Data Available for the 21st Century

Future Data Services

- Transforming and expanding the dissemination of Census content and better serving our customers
- Taking advantage of a central platform to enable digital services
- Making data useful for a diverse set of customer needs
- Enabling data to be easily discovered, accessed, and consumed via census.gov or third party apps
LONGITUDINAL EMPLOYER-HOUSEHOLD DYNAMICS


Heat map of residences for jobs in Blacksburg, VA

Produced using OnTheMap web tool, based on LEHD Origin-Destination Employment Statistics
Making Our Data Available for the 21st Century

INFOGRAPHICS & VISUALIZATIONS

Represents Census Bureau data sets and subject areas – from household and family dynamics, to migration and geographic mobility, to economic indicators.
Making Our Data Available for the 21st Century

CENSUS BUSINESS BUILDER

Two editions – Small Business and Regional Analyst
Thank you!