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Session 1: Statistical literacy

Statistical literacy

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The United States has been making statistical information available since the very first census in 1790. In the 19th century, we introduced new ways to present information visually. Today, thanks to technological advances, the public can consume statistical information from their computers at home to their smartphones, with many formats to choose.   The use of graphics and visuals has increased significantly in an effort to display information in new and more accessible ways. These activities plus efforts to present information both remotely, in face-to-face meetings and via external partners highlights how the Census Bureau is presenting statistics to the U.S. public today.

VISUALIZATIONS AND GRAPHICS: YESTERDAY AND TODAY

One of the first efforts to present statistical information in a visual format took place more than 150 years ago. In 1861, the year the Civil War began and following the 1860 Census, the U.S. government created a cloropleth map showing the distribution of the slave population in the United States. In 1870, the Census Department published the first of its atlases, compilations of maps and visualizations on all aspects of the U.S. For example, one map graphically showed the distribution of wealth, vividly depicting how, five years after the devastating war between the northern and southern states, wealth remained significantly more concentrated in the victorious northern states. In that period, visual representations were also used to look at past censuses, to show the history in numbers of the young country from 1790 forward.

The advent of an early computer, the Holerith tabulation machine used in the 1890 census significantly accelerated tabulations of the data. While it took seven years to tabulate the 1880 census, it took two years to tabulate the 1890 census thanks to the Holerith machine. The effect of this improvement also resulted in the production of tables and interestingly, a move away from the production of visualizations. It would take more than one hundred years for visualizations and other graphical representations to again become an integral part of the offering of statistical information.

Today, visualizations and infographics are produced on a regular basis. Since their concerted reintroduction in 2011, multiple topics have been covered in a graphical format. They are produced either as standalone products or to complement a data release at a particular time. Another recent addition to the offerings has been the incorporation of "news graphics" directly into press releases, permitting a graphical representation of the statistical information being reported in the news product. Greater amplification of the agency's graphic products also takes place through social media channels including twitter, Facebook, Pinterest, as well as the GovDelivery subscriber system.

THE EVOLUTION OF THE WEB AS A DISSEMINATION PLATFORM

In 1994, the Census Bureau became one of the first government agencies to be on the World Wide Web when the agency launched its census.gov Website in March of that year. The Web allowed for greater and easier dissemination of statistical information. The most popular feature on census.gov since 1994 is the *Population Clock*. The clock estimates the world and U.S. population every second of the day. To this day, the population clock continues to be one of the most popular areas of census.gov, with more than 23,000 page views daily. The number of pages visitors viewed per day on census.gov has also grown steadily. In 1994, there were 12,000 pages views per day. Today, there are more than 650,000 page views per day, a 5,417 percent increase from 20 years ago.

In 2000, the Census Bureau introduced the *American FactFinder*, one of the agency's principal statistical access tools. Since its launch, *FactFinder* has permitted the dissemination of more and more demographic and socioeconomic information. *FactFinder* contains, in tabular format, three of the Census Bureau's largest data sets, including the American Survey (ACS), the 2000 and 2010 decennial censuses and the 2002, 2007 and 20012 economic censuses. It also contains multiple smaller surveys such as the American Housing Survey, the yearly population estimates and several annual economic surveys. *American FactFinder 2* was released in 2011 to allow users to discover data by topics.

While *FactFinder* is very powerful, it is geared mostly to expert users. For that reason, the Census Bureau released *Quick Facts* in 2000. This simpler tool was intended to make it easier for novice users to obtain pre-defined state and county information without having to use *American FactFinder*. In 2005, place-level information became available.

RECENT IMPROVEMENTS AND NEW INFORMATIONAL TOOLS

Following the 2010 Census, the Census Bureau undertook a series of significant steps to make it easier for the public to access statistical information. A key reason for this work was to conform to the Federal Digital Government Strategy. This directive mandated information and customer-centric approaches and the use of shared platforms to reduce costs, streamline development and ensure consistency. The agency was also driven make changes, especially to census.gov because research conducted earlier recommended improving the navigation and search features on census.gov.

The redesign of census.gov included the implementation of a content management system to better organize the Website and simplify update and changes by the content managers across the agency. Also planned was the introduction of topic-based navigation on such themes as *population*, *economy*, *education*, and *health*, just to name a few. The redesigned Website was introduced in May 2014. Later in 2014, another significant feature will be added: a new and improved search feature, making it easier for users to find information.

As mentioned previously, the population clock was a feature of the agency's Website since the very beginning. In 2013, a new *Population Clock* was introduced, with an embeddable and shareable feature. What was previously a static Web application became interactive tool with interactive graphics, providing an opportunity to present statistical information to new audiences. Furthermore, *Quick Facts*, another popular Web tool, will undergo improvements. Later in 2014, this tool will provide custom mapping, charting, with a focus on the novice users.

New Web-based tools were also introduced in 2012 and 2013 including *Easy Stats*, *My Congressional District*, and *Census Explorer*. As with the *Population* Clock, these tools are also embeddable and shareable, allowing for greater dissemination and visibility. Easy Stats gives users quick and easy access to selected statistics collected through the ACS. Users can find financial, job, housing, demographic and education information from the state to the community level. The *My Congressional District* app provides the same information as *Easy Stats*, but in this case for each of the 435 congressional districts represented in the U.S. Congress.

In late 2013, the Census Bureau released *Census Explorer*, a new interactive mapping tool that gives users easier access to neighborhood level statistics. The mapping tool uses updated statistics from the 2008-2012 ACS. This latest application allows users to map out different social, economic and housing characteristics of their state, county or census tract, and to see how these areas have changed since the 1990 and 2000 censuses. Added to *Census Explorer* in 2014 were online and "bricks and mortar" retail information. The mapping tool is powered by ACS statistics from the Census Bureau's application programming interface or API, which allows developers to take data sets and reuse them to create online and mobile apps.

HOW MOBILE DEVICES ARE CHANGING HOW INFORMATION IS CONSUMED

In 2012, the Census Bureau introduced its first mobile app, *America's Economy*. The development of the app was a collaborative effort across the Federal government, helping to meet one of the mandates of the Digital Government Strategy. The app provides real-time

updates for 19 key economic indicators released from the U.S. Census Bureau, Bureau of Labor Statistics, and Bureau of Economic Analysis. To date, *America's Economy* has been installed in nearly 124,000 Android and iPhone devices.

More recently, the Census Bureau introduced its second mobile app, *dwellr*. This app allows users to enter their preferences to create a list of top 25 places to live and gives the user information about each one. The app also uses the GPS feature on a user's smartphone phone to provide them with statistics about their current location. Later in 2014, the agency will release its third mobile app, *Pop Quiz*. This app will teach the user information about the U.S. through an engaging approach by asking a series of questions about each state and the nation.

Coupled with these introductions has also been an increase in the use of mobile devices (smartphones and tablets) to reach the Census Bureau's Website.   We had nearly 21% more visits from mobile devices in April 2014 than in April 2013.

WEBINARS, FACE-TO-FACE MEETINGS AND WORK WITH PARTNERS TO DISSEMINATE STATISTICS

In addition to all the work described above, the Census Bureau also undertakes other activities as a way to foster a better understanding of the available statistical products by the public. This requires a collaborative effort within the Census Bureau, with other federal and nongovernmental organizations along with other data-user groups to ensure easy access to products and data. For example, during fiscal year 2013, more than 6,000 participants were trained on various types of data and data tools in 59 web-based and 12 in-person trainings. These participants generally included the general public, business owners, students and educators, to name a few.

Another effort undertaken after the 2010 Census was to establish a data dissemination program across the country. The program was designed to leverage the promotional and outreach efforts of the 2010 Census in order to increase statistical literacy through outreach and training and improve dissemination efforts for all Census Bureau products at the local level.   Since the program's inception in 2011, the more than 40 local data dissemination specialists have reached more than 237,000 unique customers. This has been accomplished through workshops, trainings, and special events, all in an effort to inform the public about the available statistics and different informational tools.

The Census Bureau has also developed partnership programs with key stakeholder networks around the country. They are data experts/users who help support the Census Bureau mission to be the leading source of quality data about the nation's people and economy. The Census Information Center network is a group of 52 national nonprofit organizations, colleges and universities that represent historically underserved communities across the country. They focus on providing data and training in these communities.

A second stakeholder network are the State Data Centers, located in every state and territory. Their customers are state and local governments. Their mission is to provide to the public efficient access to Census Bureau data and data products, provide training and technical assistance, and act as a source of feedback to the Census Bureau on data usability, as well as the data needs of state and local governments.

CONCLUSION

Offering a variety of tools and using different presentation methods will continue to be important drivers in the Census Bureau's communications efforts. A key motivation is to be able to meet the needs of the many audiences consuming statistical information, from power to novice users and those in between. Clearly, rapidly changing technology will play a major role in how information is delivered and the agency will need to constantly adapt. Furthermore, the work by information specialists and partners in the field will continue to play a vital role as this staff interacts directly with data-user groups at the local level.