Accessing American Community Survey Block Group Data Webinar

Speaker Notes

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This presentation was presented as a webinar to the General Public on January 27, 2016 by Gretchen Gooding of the U.S. Census Bureau's American Community Survey Office. A link to the recording is available at https://census.webex.com/census/ldr.php?RCID=b046e401364091a4c5d99c106524aba9. Speaker notes of the webinar follow.

Slide 1—Title Slide

Accessing American Community Survey Block Group Data

Slide 2—Outline

Today, we will discuss basics about the American Community Survey, including content and availability of data products.

I will cover exactly what tracts and block groups are, as well as a tool called TIGERweb to help you find a tract or block group of interest.

Next, I will discuss various ways to access block group data in order of ease of use starting with the American FactFinder (AFF) Download Center.

Then I will talk about what the ACS Summary File (ACS SF) is and three ways to access it, including the Summary File Retrieval Tool, DataFerrett, the FTP site, and some other tools, such as the TIGER/Line shapefiles and API.

We'll end by recapping what I covered, discussing ways to stay in touch, then I'll take questions.

Slide 3—ACS Basics

The American Community Survey is an ongoing national survey that samples approximately 3.5 million addresses annually, which comes out to about 290,000 addresses per month. These data are collected continuously throughout the year, to produce detailed population and housing estimates each year.

The survey covers the resident population of the United States and Puerto Rico for those people living in housing units and group quarters. Housing units include living arrangements such as a typical house, apartment, or mobile home. Group quarters are group living arrangements that are owned or managed by an entity or organization (for example, dorms, correctional facilities, or barracks). We visit 20,000 group quarter facilities and sample approximately 194,000 residents each year.

The survey produces critical information for small areas and small population groups – the ACS is the only source of information for many of its topics in these small areas.

These estimates are designed to produce critical information that was previously collected in the decennial census. Our estimates, covering more than 35 topics support more than 300 known federal uses and countless nonfederal uses.

We release two different sets of estimates each fall (annual 1-year and 5-year period datasets).

Slide 4—ACS Content

The content collected by the American Community Survey can be grouped into four main types of characteristics – social, economic, housing, and demographic. Let's take a closer look at the type of information each of these categories contain.

Social characteristics include topics such as education, marital status, fertility, veterans, disability status, place of birth, citizenship status, year of entry, language spoken at home, migration, and others.

The American Community Survey also collects basic demographic characteristics such as sex, age, race and Hispanic origin. This is the same information that was collected by the 2010 Census.

Economic characteristics include such topics as employment status, income, commuting to work, occupation, industry, health insurance and others.

Housing characteristics include topics such as tenure (whether you own or rent your home), information about occupancy and the structure itself, home value, housing costs (incl. mortgages, taxes and insurance, utilities, and plumbing/kitchen facilities and others.

These topics are used to produce more than 1,000 tables for local communities resulting in more than 11 billion estimates each year.

Slide 5—Availability of ACS Data Products

ACS data products are released only one year after the data are collected, and the first year of data collection with a full sample was in 2005.

Thus, ACS data collected in 2014 were released in 2015 as 1-year estimates.

ACS 1-year estimates, pooling data collected over 12 months, are available for geographic areas with a population of 65,000 or more. We plan to release the 2015 ACS 1-year estimates in September 2016.

ACS 5-year estimates, pooling data collected over 60 months, are available for geographic areas of all sizes down to the census tract and block group level. We plan to release the 2011-2015 ACS 5-year estimates in December 2016.

Thus, ACS data are available for geographic areas with a population of 65,000 or more in the form of 1-year and 5-year estimates. ACS data are only available for geographic areas with a population less than 64,999 in the form of 5-year estimates.

In 2015, the U.S. Census Bureau discontinued the 3-year estimates in order to prioritize activities that would preserve the integrity of the sample, enhance the quality of the entire data set, and ensure a better experience for the respondent (reinstating an operation that collects data left incomplete by respondents,

additional training for field representatives, continued review of the survey questions, and expanded outreach and partnership with stakeholders).

Although the Census Bureau would discontinue the 3-year product, every community in the nation will continue to receive detailed social, economic, housing and demographic characteristics through the 1-year and 5-year products. (Additionally, past 3-year data products, for populations of 20,000+ are still available to the public.)

Slide 6—Outline

Now, I will cover exactly what tracts and block groups are, as well as a tool called TIGERweb to help you find a tract or block group of interest.

Slide 7—Selected Census Geographic Concepts

These are some of the geographies for which ACS data are produced and the relationship between them. Lower geographic areas fit neatly within the larger areas directly connected with lines. For example, school, congressional, and state legislative districts fit neatly within states and do not cross state boundaries. However, they may cross boundaries of counties or metropolitan areas.

It is important to note the difference between Legal and Administrative areas and Statistical areas.

First, Legal/administrative areas have legally described boundaries; they may provide governmental services or may be used to administer programs. (Examples are Counties, Incorporated Places, Congressional Districts, and School Districts)

Statistical geographic areas are defined primarily for data tabulation and presentation purposes.

(Examples are Public Use Microdata Areas, Census Tracts, and Block Groups).

Census tracts are small, relatively permanent of a county or county equivalent. Census tracts generally have a minimum population of 1,200, or 480 housing units, and a maximum population of 8,000 people or 3,200 housing units. Tracts have an optimum size of 4,000 people or 1,600 housing units.

Block groups are statistical divisions of census tracts and are defined to contain a minimum of 600 persons or 240 housing units and a maximum of 3,000 people or 1,200 housing units. In the American Community Survey, block groups are the lowest level of geography published.

These statistical areas are designed to have stable boundaries. Boundary changes to existing census tracts, as well as newly defined census tracts, may occur at the time of each decennial census.

Slide 8—Tracts and Block Groups

Recent years of block group estimates (2009-2013 ACS 5-year to present) are available in American FactFinder. Block group estimates for all years are available in the ACS Summary File. I will discuss how to access estimates from AFF and the ACS Summary File shortly.

Block groups and tracts are only available in the ACS 5-year estimates, not the 1-year estimates.

Slide 9—Kalamazoo County, MI Census Tract 30.04

The county in yellow is Kalamazoo County, Michigan. The dark lines you see are tract boundaries within the county. In this example, we're looking at census tract 30.04 which is highlighted in green.

Slide 10—Kalamazoo County, MI Census Tract 30.04, Block Groups 1, 2, & 3

In this slide, we're looking at block groups in Kalamazoo County, Michigan. Tract 30.04 from the previous slide splits into 3 block groups—Block Group 1, Block Group 2, and Block Group 3. Because the block groups nest within tract 30.04, their combined populations equal that of tract 30.04, as shown on the slide.

Slide 11—TIGERweb Map Layers

In this slide, we're looking at block groups in Kalamazoo County, Michigan. Tract 30.04 from the previous slide splits into 3 block groups—Block Group 1, Block Group 2, and Block Group 3. Because the block groups nest within tract 30.04, their combined populations equal that of tract 30.04, as shown on the slide.

Slide 12—TIGERweb Block Groups

You can see the same block groups within Census Tract 30.04 for Kalamazoo County, Michigan that I displayed on a previous slide.

Slide 13—Outline

Let's take a look at the American FactFinder Download Center as a way to access block group data.

Slide 14—AFF Download Center

American FactFinder (AFF) has block group data for the 2009-2013 ACS 5-year estimates to present. If you're looking for older years, you still need to use the ACS Summary File, and I will discuss that next.

Access American FactFinder at http://factfinder.census.gov. Then click on "Download Center" from the blue toolbar.

Use the default selection "I know the **dataset** or **table(s)** that I want to download." Then click "Next."

Slide 15—2 Dataset

In Step 2—Dataset, select "American Community Survey" from the Program drop down menu. After selecting your program, you will then need to select the specific dataset you are looking for.

Select "2014 ACS 5-year estimates." Click "Add to Your Selections." Then click "Next."

Slide 16—3 Geographies

In Step 3—Geographies, click on the drop down menu under "Select a geographic type." Then select "Block Group-150." The grayed out geographies are not available for your dataset.

Under "Select a state," use the drop down menu to pick your state of interest. In this example, I used Michigan.

Next, under "Select a county," use the drop down menu to pick your county of interest. Here, I did not choose a county because I wanted all block groups for the state so I selected "All Block Groups within Michigan." Click on "Add to Your Selections." Then click "Next."

Note: the AFF Download Center is the only place you can download All Blocks Groups within a **State**. In Advanced Search, the largest geography you can download is All Block Groups within a **County.**

Slide 17—4 Search Results

In Step 4—Search Results, you will see tables from the 2010-2014 ACS 5-year estimates for the block group(s) you selected. I typed "B23025" into the yellow search results box to narrow down my search to one table.

You can download a table by checking the box to the left of the "Table, File or Document Title" column. Then click "Download" or click "Next."

Note: You can select and download up to 40 tables at a time in Download Center.

Slide 18—Table B23025

A "Download" pop up screen will appear to confirm your selection. Click "OK." I opened the ZIP file using WinZip, then opened it in Excel.

I then opened the ACS_14_5YR_B23025_with_ann.csv file. The exact process will vary depending on your computer.

Slide 19—Complete Instructions

You can find a complete set of instructions about "How to Access ACS Estimates Using the AFF Download Center" on our website at census.gov/programs-surveys/acs/technical-documentation/summary-file-documentation.html.

Slide 20—Outline

Now I am going to talk about the ACS Summary File (ACS SF).

Slide 21—What is the ACS Summary File?

The ACS Summary File is a set of comma-delimited text files that contain all of the Detailed Tables. By comma-delimited text files, I mean that the file contains estimates (or margins of error) separated by commas. I will show you what I mean on the next slide. By Detailed Tables, I mean the pre-tabulated tables that start with B (base) or C (collapsed).

The ACS Summary File is stored in a series of files on the file transfer protocol (or FTP) site.

The files contain only the estimates or margins of error from the tables. It does not include information such as table title, description of the rows, etc that you are used to seeing in American FactFinder. The file becomes more useful as you add in the identifying information.

Finally, the data are already tabulated for specific geographic areas, similar to the pre-tabulated tables in American FactFinder. You cannot create your own tables of interest like you would with the PUMS files.

Slide 22—AFF vs. Summary File

In the upper left corner, you see Table B23025 from American FactFinder for Block Group 1, Census Tract 1, Alcona County, Michigan. AFF displays descriptive information, such as the table title, universe, dataset, and geography. You also see a description corresponding to each estimate and margin of error. For example, Total corresponds to an estimate of 595 with a margin of error of 74.

In the lower right corner, you see the same estimates separated by commas from the ACS Summary File. The ACS Summary File does not include the descriptive information that you see in AFF. I'll discuss how to interpret the Summary File in a future slide.

Slide 23—How to Use the ACS SF

In the upper left corner, you see Table B23025 from American FactFinder for Block Group 1, Census Tract 1, Alcona County, Michigan. AFF displays descriptive information, such as the table title, universe, dataset, and geography. You also see a description corresponding to each estimate and margin of error. For example, Total corresponds to an estimate of 595 with a margin of error of 74.

In the lower right corner, you see the same estimates separated by commas from the ACS Summary File. The ACS Summary File does not include the descriptive information that you see in AFF. I'll discuss how to interpret the Summary File in a future slide.

Slide 24—Summary File Page

In order to verify that your table is available at the block group level, visit the Summary File Documentation page at census.gov/programs-surveys/acs/technical-documentation/summary-file-documentation.html, then choose your year of interest.

The information is in Appendix A (outlined in red on the slide) for the 2009-2013 ACS 5-year release and future, and it's in Appendix E of the ACS 5-year Summary File Tech Doc for older releases.

Slide 25—Check Appendix for Table

Looking at Appendix A from the 2010-2014 ACS 5-year Summary File Tech Doc, we see that column A corresponds to Table Number, column B corresponds to Table Title, column C indicates if there are any geographic restrictions, column D indicates what sequence number the table is in, and column E indicates the starting and ending position of your table.

Table B23025 Employment Status for the Population 16 Years and Over has no geographic restrictions (meaning that it's available at the block group level). It's located in sequence 78 with starting position 38 and ending position 44. Make sure to jot down the sequence number and starting/ending position, and I'll explain what this means later in the presentation.

Slide 26—Outline

Let's talk about one way to access the ACS Summary File, and that's the Summary File Retrieval Tool. It is generally considered to be the easiest tool to use among the options listed on the slide.

Slide 27—Summary File Retrieval Tool

The Summary File Retrieval Tool includes datasets through 2012, such as the 2008-2012 ACS 5-year estimates. It is no longer being updated with more recent releases. If you're looking for newer years, you

may want to use the American FactFinder Download Center that I discussed earlier. It has block group data for the 2009-2013 ACS 5-year estimates to present.

The Summary File Retrieval Tool allows users to load tables from the ACS Summary File into an Excel spreadsheet, and you must have Excel 2007 or newer to run the tool.

With this tool, you can access all tracts and block groups per table per state.

Slide 28—Summary File Page

To access the tool, go to the Summary File Documentation page and click on the 2012 or older tab (URL is on the slide). Click on the link for the Summary File Retrieval Tool (outlined in red on the slide). Click on file, then open it with your zip program (here we're using WinZip). Double click on file to open it.

Slide 29—SF Retrieval Tool

In the Summary File Retrieval Tool, make sure to enable content. Next, click on the yellow icon that looks like a sign in the top left corner of the screen (outlined in red on the slide).

Slide 30—Step 1 of 2

In Step 1, select your state, then select your data product. Here, I picked Michigan as my state, and 2007-2011 ACS 5-year estimates as my data product. Click the green "Next" button. It will take awhile to move from step 1 to step 2 as lookup tables are being created.

Slide 31—Step 2 of 2

If you know your table ID, choose the radio button "Select by Table ID." Here, I picked Table B23025. You can also "Select by Table Description."

Check the box next to "Tracts and Block Groups ONLY." If you don't check it, you will see all geographies not including tracts and block groups. Click "Next." The program takes awhile to run as its merging geography names with estimates. You will see a box "Operation complete for product year 2011 for selected 5 year data product" when program is finished running. Click OK.

Slide 32—Results Estimates

In your results, you will see estimates for Table B23025 displayed for block groups and tracts in Michigan. Looking at Block Group 1, Census Tract 1, Alcona County, Michigan (outlined in red on the slide), the estimate for total is 651, the estimate for in labor force is 203, etc. You can switch to the Margin of Error tab at the bottom of the screen to view the corresponding MoEs.

Slide 33—Video on Using SF Retrieval Tool

We also have a video on the Census Bureau YouTube page at youtube.com/user/uscensusbureau about using the Summary File Retreival Tool.

Slide 34—Outline

Now let's talk about DataFerrett as a tool to access the ACS Summary File.

Slide 35—DataFerrett

DataFerrett is the Census Bureau's data analysis and extraction tool. It includes the 5-year ACS Summary File (and other surveys), and it is useful if you do not have access to statistical software. From dataferrett.census.gov, click "Launch DataFerrett," enter your e-mail address, then click "Get Data Now."

Slide 36—Finding Summary Data

In Step 1, look on the left side of the page under "Search All Dataset(s)." Click on the + signs next to "American Community Survey," "Summarized Data," "2010-2014," "5-Year Summary File." You will then see a list of all the Table IDs, similar to the table IDs you see in American FactFinder. For this example, I selected Table B23025.

Looking at the screenshot on the right side of the page, I clicked on Table B23025. Next, I selected "Add all to data basket." A message pops up to say "You have modified 7 variables for your DataBasket." Click "OK." Now you need to select geographies.

Slide 37—Select Geographies

Double click on "Needs to be selected" (outlined in red on the slide) in order to select your geography.

Slide 38—Select Geographies

The Ferrett Geography Codebook overlay appears. Click "Block Group" on left side, then double click on "State>County>Census Tract>Block Group" (outlined in red on the slide).

Slide 39—Next Level State

Drag "Michigan" from the left box to the middle box (or double click on it), then click "Next Level" (outlined in red on the slide) to select Michigan as your state.

Slide 40—Next Level County

Drag "Michigan" from the left box to the middle box (or double click on it), then click "Next Level" (outlined in red on the slide) to select Michigan as your state.

Slide 41—Next Level Census Tract

Double click "Select All" from the left side of the screen, then click "Next Level" (outlined in red on the slide) to select all Census Tracts in Michigan.

Slide 42—Next Level Block Group

Double click on "Select All" on left side of the screen. Block groups for Michigan appear on right side of the screen (or you can drag Select All from left panel to right panel). Click "Finish" (outlined in red on the slide).

Slide 43—Step 2

Click on the "Step 2" tab to start making your table. You can see your variables and geography selections below. Click on "Make a Table" icon (outlined in red on the slide).

Slide 44—Make Table

The Ferrett Tabulation screen opens. Drag your geography, Block Group, from right side of screen to row one (or R1). Drag your other variables to column two, column three, etc (C2, C3, etc). Then click the green "GO Get Data" button.

Slide 45—Results

In your results, you will see estimates for Table B23025 from the 2010-2014 ACS 5-year data release displayed for block groups and tracts in Michigan. Looking at Block Group 1, Census Tract 1, Alcona County, Michigan (outlined in red on the slide), the estimate for total is 595, the estimate for in labor force is 174, etc.

Slide 46—Outline

Now let's take a look at how the ACS Summary File is stored on the file transfer protocol (or FTP) site.

Slide 47—Summary File Organization

Data and documentation for the ACS Summary File are available on the file transfer protocol (or FTP) site. Start by finding the ACS Summary File on our FTP site at www2.census.gov/programs-surveys/acs/summary_file. Pick your year of interest, then choose the data folder. The organization of the FTP site changed in 2015, so the URL on the screen is different from past years.

The Summary File is organized in three folders as shown in the above left screenshot. As an example, the three folders for the 5-year Summary File (outlined in red on the slide) are 5_year_by_state, 5_year_entire_sf, and 5_year_seq_by_state. These three directories contain the same combination of files; they are simply arranged differently to accommodate various user needs.

I picked 2010-2014 ACS Summary File Sequence by State Table Subset, then I picked Michigan. After you pick your state, you have two folders: All Geographies Not Tracts Block Groups and Tracts Block Groups Only (as seen in the lower right screenshot). If you want information for larger geographies, such as counties or places, pick the first folder. If you're looking for tracts and block groups for your state, pick the second folder.

Slide 48—File Naming

After I picked the Tracts Block Groups Only folder, I see the following file naming convention:

2014 is the reference year. Multiyear files go by the last year in the period, so 2010-2014 ACS 5-year Summary File goes by 2014.

5 is the period covered. If this was the 1-year Summary File, you would see 1.

MI corresponds to the state you select. Here, MI equals Michigan. It's worth noting that the US files include geographies that cross state boundaries (such as Metropolitan Statistical Areas). US does not include the entire country.

0078 is the sequence number. On slide 25, we saw that Table B23025 was in sequence 78, and I recommended that you jot down that information. Basically, there are too many tables in the ACS to fit

into one zip file, so groups of tables are stored in different sequences. For example, Tables B00001 and B00002 are in sequence 1, Tables B01001 and B01001A-F are in sequence 2, and so on.

000 is the iteration ID. This is always 000 for the standard 1-year and 5-year products.

Slide 49—Estimate, MOE, Geography Files

Once you unzip your sequence file, you will see an estimate text file, a margin of error text file, and a geography file in csv or text format.

Slide 50—Starting and Ending Position

On slide 25, I also noted the starting and ending positions of 38 and 44 for Table B23025. Since there are multiple tables in sequence 78, you need to know where your table of interest starts and ends. In the screenshot, I highlighted the first six fields of metadata corresponding to my specific geography (Block Group 1, Census Tract 1, Alcona County, Michigan), as well as the estimates in positions 38-44 for Table B23025. These are the same estimates you saw using DataFerrett.

Slide 51—Templates

You can also use the templates (available at the URL on the screen) for an easier to view layout of your estimate or margin of error file. There's one template per sequence. Use the text to column feature in Excel to insert your estimate or margin of error text file into the Excel template.

Slide 52—Outline

Finally, I will briefly talk about the TIGER/Line shapefiles and Census API as other ways to access the ACS Summary File.

Slide 53—TIGER/Line Shapefiles Pre-joined with Demographic Data

If you are interested in mapping ACS data, a limited set of TIGER/Line Shapefiles are available pre-joined with ACS data in geodatabase format. Learn more at census.gov/geo/maps-data/data/tiger-data.html.

Slide 54—Census API

The Census Bureau also offers an API (or application programming interface). It is the Census Bureau's source for developers to access data to create software applications. The API includes 2008-2012 ACS 5-year Data Profiles and 2006-2010 ACS 5-year Summary File to present in html, xml, and json formats. Learn more at census.gov/developers.

Slide 55—Outline

It's time to wrap up with a recap of what you've learned, as well as information on staying in touch with the Census Bureau.

Slide 56—Recap

To recap, tracts and block groups are only available as 5-year estimates, not 1-year or 3-year estimates.

2009-2013 ACS 5-year to future block group level estimates are available in American FactFinder.

All years of block group level estimates are available in the ACS Summary File. You can access the ACS Summary File using the Summary File Retrieval Tool, DataFerrett, or the FTP site.

Slide 57—Availability of Block Groups

Here's a chart showing the availability of block groups by dataset and tool to summarize what we discussed today.

Slide 58—Continue the Conversation #ACSdata

I encourage you to continue the conversation with the Census Bureau. You can sign up for and manage alerts on the ACS via GovDelivery, visit our website, or connect on the various social media platforms. We also have a number of other webinars coming up; information is available on our website.

Slide 59—American Community Survey Data Users Group

We want to remind you that there is a users group specifically for users of ACS Data.

The ACS Data User Group or "DUG" was formed in partnership with Population Reference Bureau and Sabre Systems. It's a great way to learn from your peers about how to use ACS data for all kinds of applications.

Go to acsdatausers.org to learn more, including how to sign up to be one of the over 1,400 users in the ACS online community. There's even a group specifically for Using ACS Summary Files.

Slide 60—Need Local Stats?

As a reminder, we have Data Dissemination Specialists throughout the country who can provide data workshops locally. If you're interested in a workshop, please contact clmso.ddb.questions@census.gov. Data Dissemination Specialists are based in the following areas:

Atlanta, Miami, Charlotte
Chicago, Minneapolis, Little Rock
Denver, Albuquerque, Dallas, Houston
Los Angeles, Seattle, San Francisco, Nevada
NYC, Boston, CT/RI, NJ/PR
Philadelphia, Columbus, Richmond, Nashville, DC

Slide 61—Questions?

While I open the phone line for questions, please take time to complete the evaluation and thank you for participating in today's webinar.