Using Census Data in Research

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Slides adapted from *American Community Survey & the Decennial Census*, created by Lynda Kellam

"The figures for the last quarter are in. We made significant gains in the fifteen-to-twenty-six-year-old age group, but we lost our immortal souls."

Goals for today:

- What is the US Census?
- What data should I use?
- What is the ACS?
- How do I find & access census population data?

"What is the US Census?"

Origin of the U.S. Census

- How old is it?

- Why does it exist?

Origin of the U.S. Census

- U.S. Constitution: Article 1, Section 2
- Current version (after the 14th Amendment):

"Representatives shall be apportioned among the several states according to their respective numbers, counting the whole number of persons in each state, excluding Indians not taxed. The actual **Enumeration** shall be made within three years after the first meeting of the Congress of the United States [1787], and within every subsequent term of **ten years**, in such manner as they [Congress] shall by law direct."

- *Original* beginning of Article 1, Section 2:

"Representatives and direct taxes shall be apportioned among the several states which may be included within this union, according to their respective numbers, which shall be determined by adding to the whole number of **free** persons, including those **bound to service** for a term of years, and excluding Indians not taxed, **three fifths of all other Persons**. The actual Enumeration…"

Decennial Census (2010, 2020)

- Everyone counted -- 100% of the population (ideally)
- Focused on **coverage**
- Questions about the basic demographic characteristics
- Ex. age, race, number of people in a housing unit

- 2000 and prior: also included a "long form" covering more detailed topics
- Since 2010, detailed topics covered by the **American Community Survey**

American Community Survey (ACS)

- A nationwide, continuous monthly survey
- Annual sample size = around 3 million **addresses**
- Data released annually

- Profiles available every year for communities of 65,000 or more people
- Profiles available in 5 year estimates for all communities (all sizes)
- (Once also had 3 year estimates)
- Public Use Microdata Sample (PUMS) available for more detailed data

"Which data do I use?"

ACS estimates

Decennial census

Something else???

Benefits of the ACS…

- Provides timely data between the decennial censuses
  - Why would this matter? Especially in the past decade?

- Provides ability to monitor trends in local communities between censuses
  - How could this be useful?

- Permanent, professional interviewers
  - Why is this important?

But keep in mind …

- Currency & Time Span

- Margins of Error

- Sample Size & Confidence

- Geographies

Currency & Time Span

Census

- **Point in time** data
- Data is collected once every ten years
- Reference point is April 1

American Community Survey

- **Period** data
- Data is collected continuously throughout the year, every year
- Reference period is past 12 months

But keep in mind …

- Currency & Time Span

- Margins of Error
  - ACS figures are a weighted **estimate** with a confidence interval of 90%

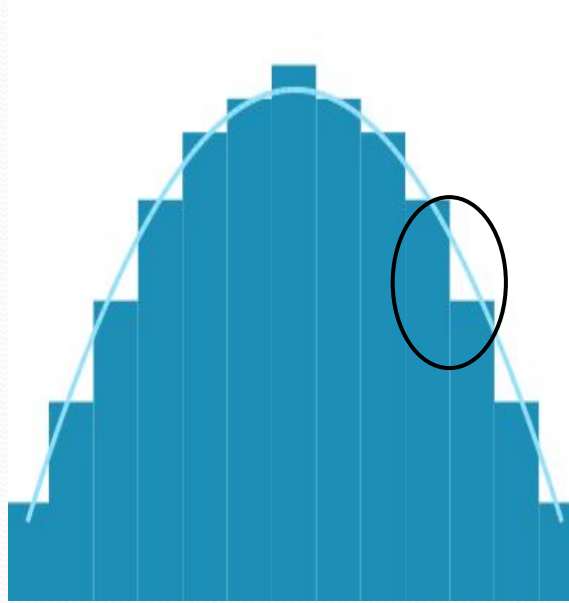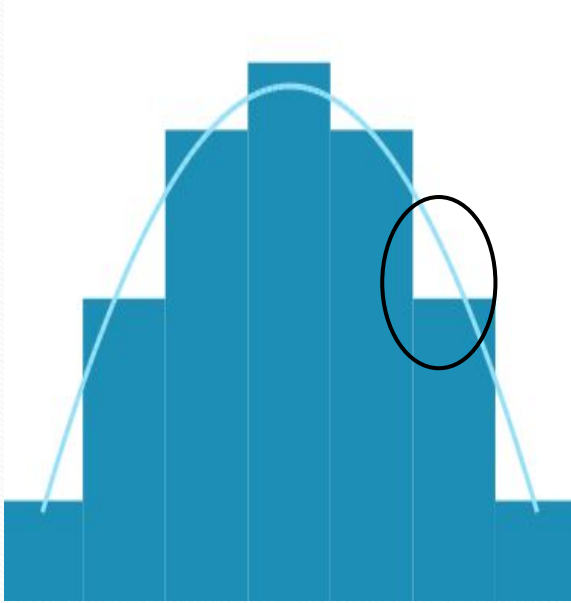- Sample Size & Confidence

- Geographies

Margins of Error

- Census data has margins of error built in; ACS data publishes the MoE

- Census Bureau data has a confidence interval of 90%

- How would we interpret this?

  - Albany County population estimate = 258,649 +/-2,191

  - We are **90% confident** that the true value is **between** 256,458 and 260,840. There is a 10% probability that the true value would be outside this range.

But keep in mind …

- Currency & Time Span

- Margins of Error

- Sample Size & Confidence
  - Sample is smaller for ACS, and requires aggregation of data over time for smaller locations
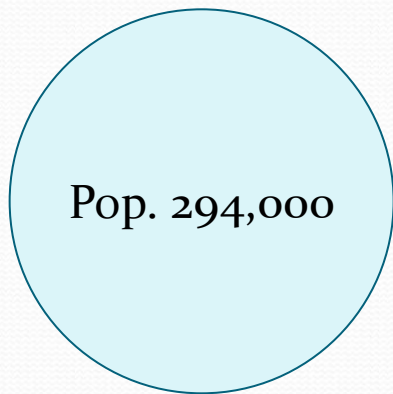
- Geographies

Sample Size & Confidence

Sample size ⬆
# of Data points ⬆
Error ⬇
Confidence ⬆

Sample Size & Confidence

Pop. 294,000

Pop. 14,450

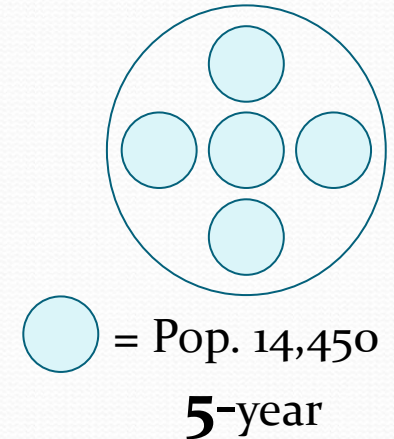**Greensboro, NC**

Reidsville, NC

Sample Size & Confidence

	1-year	3-year*	5-year
65,000+ people	✔	✔	✔
20,000+ people		✔	✔
<20,000 people			✔

*3-year estimates discontinued after 2010-2013

Greensboro, NC

Pop. 294,000

1-year

Reidsville, NC

◯ = Pop. 14,450

5-year

But keep in mind …

- Currency & Time Span

- Margins of Error

- Sample Size & Confidence

- Geographies
  - Estimates for different geography levels aren't comparable
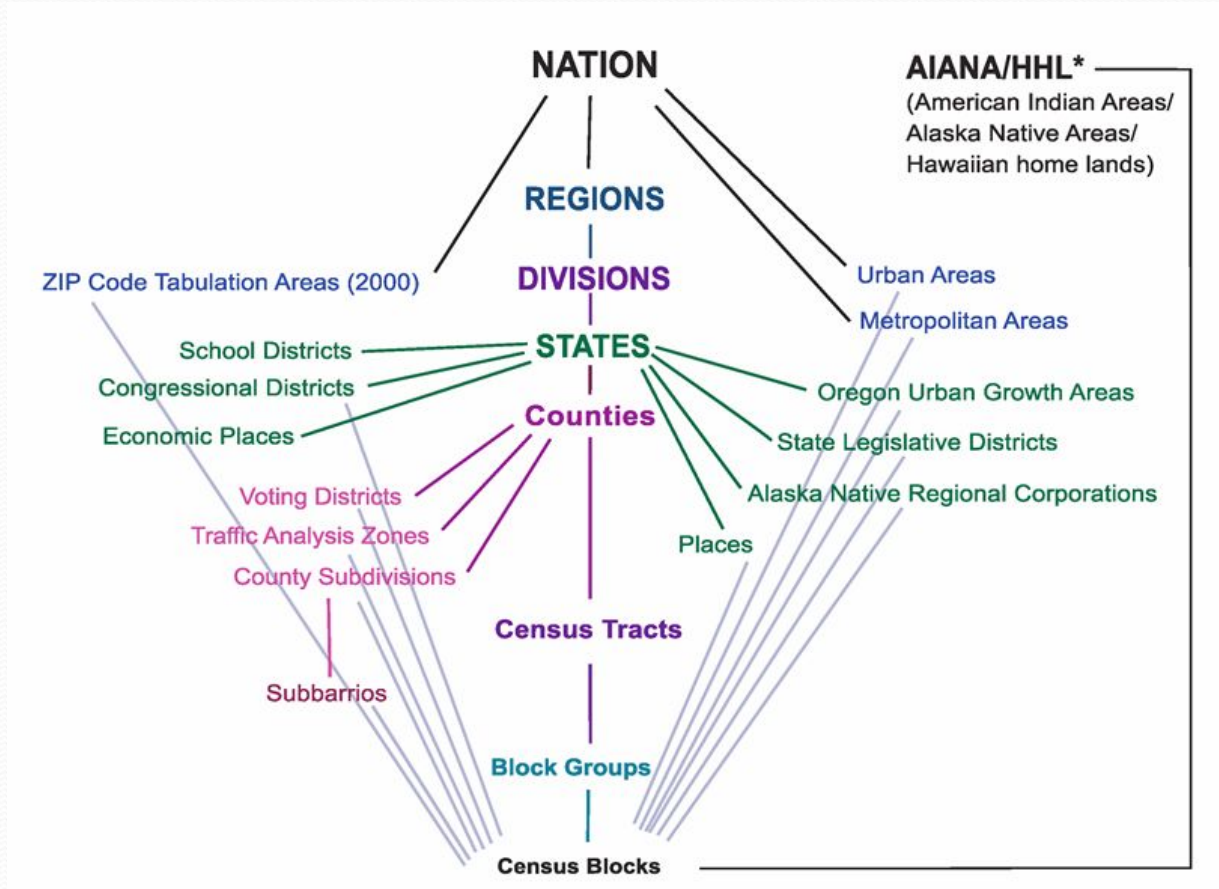
Census Geographies

State in the nation

Block group in the tract

Block in the block group

County in the state

Tract in the county

Block centroid in the block
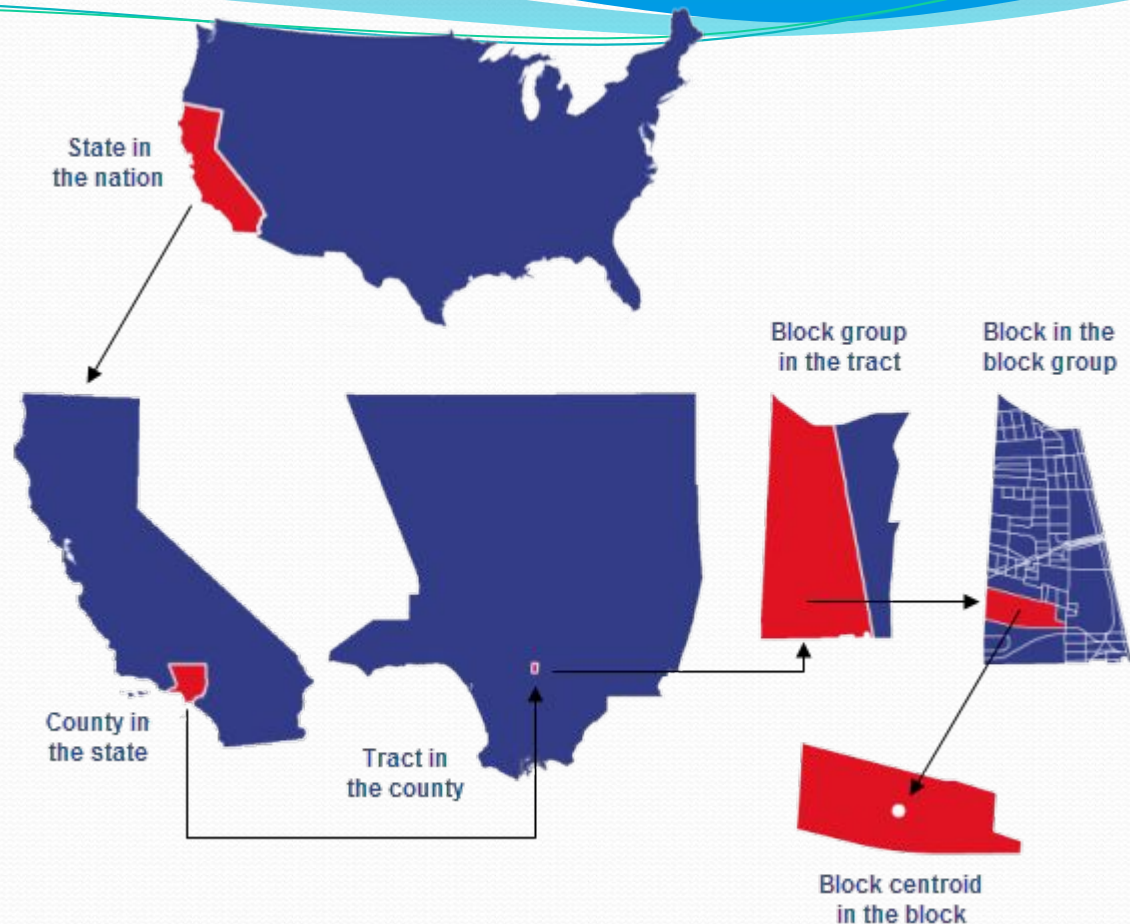
Census Geographies

Diagram from US Census Bureau

In Summary: ACS vs. Decennial Census

	ACS	2010 and 2020 Census
purpose	Sample estimates	Official counts
produces	Population characteristics	Population totals
new data every	Year	10 years
data reflect	Period of time	Point in time
Collects	Information previously on the census "long form"	"Short form" information

From US Census presentation: "Your Business by the Numbers" by Eric Coyle, 2019

Question

- I'm looking for recent information on number of people by age and race for census tracts in Greensboro, NC.

Questions to ask

- Time?
  - What is recent? 2000 or 2005-2009 data?
- Geography?
  - Census tracts
- Topic of question?
  - Age and race of people

Question

- I'm working on a business plan for a K-8 private school in Philadelphia.

  I would like to know about:

  - Expected tuition costs

  - What neighborhoods have above-average income

  - What neighborhoods are spending the most on education.

Questions to ask

- What do you need to do first?
- Time?
  - ?
- Geography?
  - ?
- Topic of question?
  - ?

"How do I find & access Census data?"

Sources of Data

- Variety of tools and sites available:
  - Data.census.gov
  - US EPA EnviroAtlas and other gov't agency data portals
  - Databases including:
    - PolicyMap
    - DemographicsNow
    - Social Explorer
    - SimplyAnalytics

    And more on the UNCG Libraries databases page

"What happened to American Fact Finder?!"

factfinder.census.gov ▾

American FactFinder

American FactFinder is your source for population, housing, economic and geographic information.

Community Facts
Community Facts - Find popular facts (population, income, etc ...

American FactFinder - Search
AFF will be offline permanently March 31, 2020. Go to data ...

Guided Search
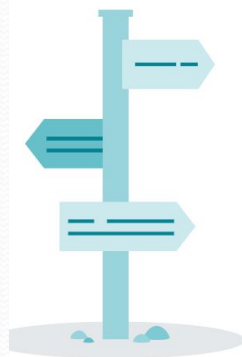Main Community Facts Guided Search Advanced Search ...

US Census Bureau
American FactFinder is your source for population, housing ...

Select Geographies on a Map
Advanced Filters. clear. Map Table. clear. Selected Filters. clear ...

More results from census.gov »

Please Update Your Bookmark

American FactFinder has been decommissioned and is no longer available. Data are now available at:

data.census.gov

Questions? Read the deep linking guide .

Finding data on US Census Bureau Site

- Census data portal (data.census.gov)

- QuickFacts
  - QuickLinks for places

- "Guidance for Data Users" by topic
  - Including "which should I use" (ex: Income/Poverty)

- "Data" by survey/program
  - Data, Narrative, and Subject Profiles (ex: ACS)

- "Which Data Table or Tool Should I Use?"

Exercise
Getting to know the census data table interface

1. Data.census.gov (i.e. "census data portal")

2. Alternative access using Census ACS Data Profiles

Adkins, D., & Sturges, D. K. (2004, May). Library service planning with GIS and census data. Public Libraries, 43, 165-170

"The more you know about a population, the easier it will be to design services to meet its needs."

- Age distribution
  - Percentage of children
  - Percentage of older adults, senior citizens
- Languages spoken at home
- Educational attainment
- Occupation
- Internet access at home

Circulation & Collection

Staffing & Hours

Branch Policies & Services Impacted by Data

Outreach

Exercise
Finding data

You're planning programming for a library with the same community characteristics as **Reidsville, NC.**

- (Using QuickFacts) You can plan programs for children and teens **or** older adults and senior citizens. Which do you choose?

Exercise
Finding data

You're planning programming for a library with the same community characteristics as **Reidsville, NC.**

- (Using ACS Data Profile)Your library uses school enrollment to determine collection size by reading level. A recent look at the collection shows that 60% of the materials for 3-18 year olds is at the high-school reading level, and only 10% is at the elementary-school reading level. Does this reflect school enrollment?

Exercise
Finding data

You're planning programming for a library with the same community characteristics as **Reidsville, NC.**

- (Using ACS Narrative Profile) An acquaintance tells you they think your library should get rid of its computers because "everyone has a computer at home these days." Is this true for your library's community?

Manjarrez, C. A., Ray, J., & Bisher, K. (2010). A demographic overview of the current and projected library workforce and the impact of federal funding. Library Trends, 59(1), 6-29.

IMLS Laura Bush 21st Century Librarian Program:

- "This program supports **training initiatives**…"

"At the present time, there is no single source of data that provides a comprehensive portrait of the library workforce…"
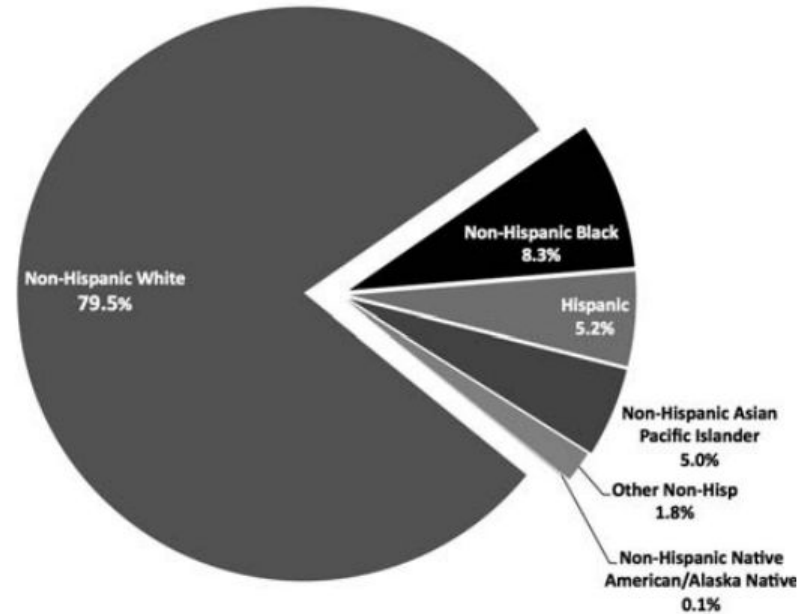

Figure 2. Percentage of Librarians by Race/Ethnicity, Circa 2007. Source: IMLS Analysis of American Community Survey, 2006–2008 U.S. Census Bureau

Sources

- [2017 ACS Information Guide (PDF)](#)
- [The US Census ACS page](#)
- [2020 data.census.gov release notes (PDF)](#)
- [US Census 2020 website](#)
- [ACS Data User Guidance](#)

Icons made by Freepik from Flaticon