

Accessing and Interpreting Census Products for use in Environmental Justice Reports

Sarah Ehresman

Research Coordinator

Kentucky State Data Center

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Decennial Census

- Conducted every 10 years
 - COUNTS the population to support apportionment and redistricting
- Summary File 1
 - 100% count
- Summary File 2
 - Tables from SF1 cross-tabbed by race
 - 100 population threshold
- Summary File 3
 - Sample data
 - Characteristics of the population
- Summary File 4
 - Tables from SF3 cross-tabbed by race

Summary File 1 (SF1) 100%

- Demographics

- Total population
- Sex
- Age
- Race
- Hispanic or Latino origin
- Household relationship
- Household type
- Household size
- Family type
- Family size
- Group quarters

- Housing

- Number of housing units
- Occupancy status
- Vacancy status
- Tenure
 - Owner-occupied
 - Renter-occupied
- Urban/Rural designations

Summary File 3 (SF3) Sample data

- Characteristics of the population
 - Educational attainment
 - Marital status
 - Income
 - Language
 - Journey to work (commuting)
 - Employment status
 - Poverty status
- Characteristics of Housing
 - Number of rooms
 - Year structure built
 - Heating fuel
 - Vehicles available
 - Plumbing and kitchen facilities
 - Value of home
 - Monthly rent

Discontinued after 2000 Census!!

American Community Survey

- Rolling annual survey produces ESTIMATES on characteristics of the population
 - 1 in 40 households annually
- Updates every year!
- Smaller sample size than Census Sample data
- Larger standard error

American Community Survey

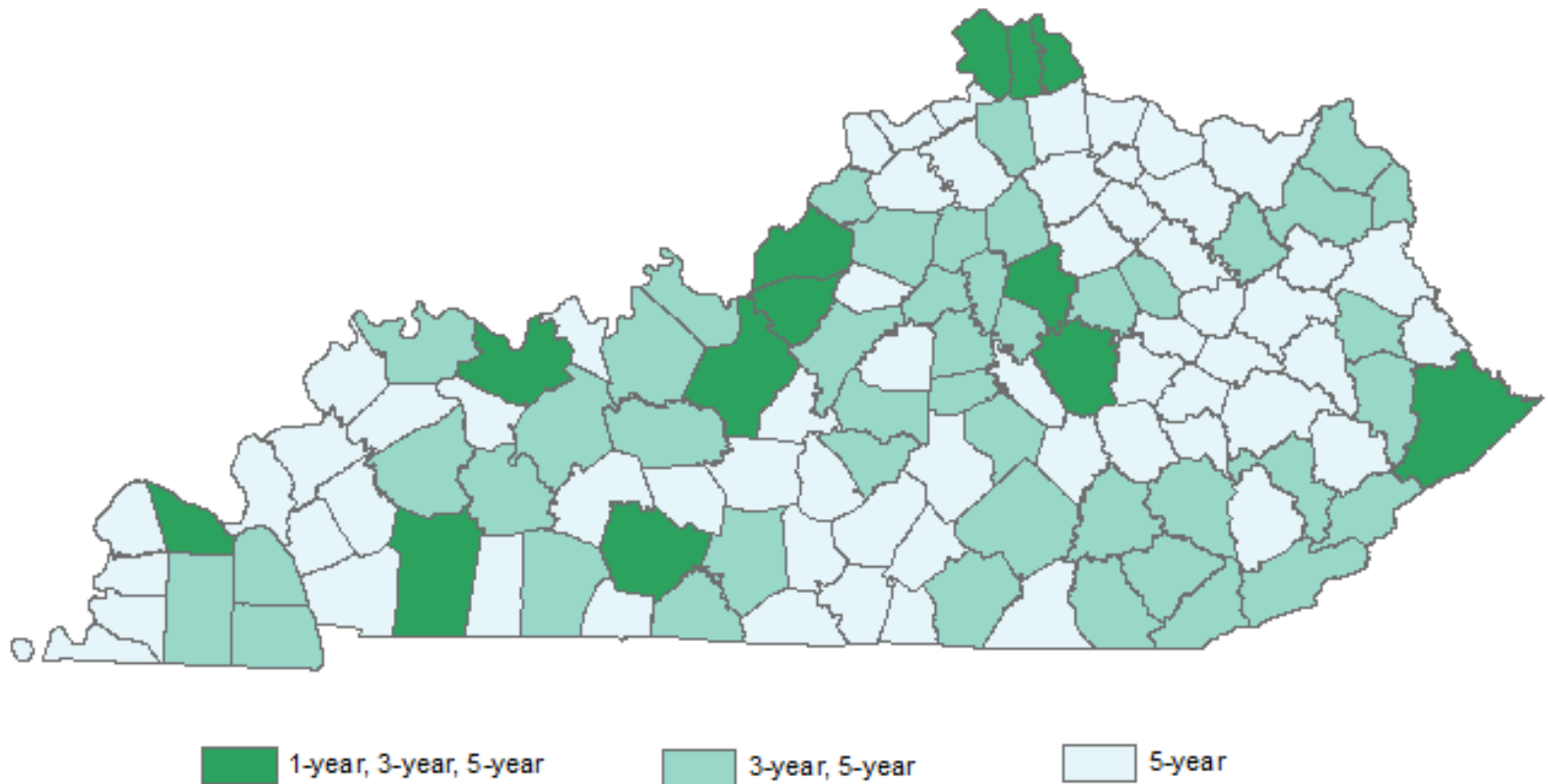
- 1-year, 3-year, 5-year estimates
 - Average survey data to reduce margin of error
 - Data pertain to period of time, not specific point-in-time

Data collected between...	Data pooled to produce	Data published for areas with
January 1, 2012 and December 31, 2012	2012 ACS 1-year estimates	populations of 65,000+
January 1, 2010 and December 31, 2012	2010-2012 ACS 3-year estimates	populations of 20,000+
January 1, 2008 and December 31, 2012	2008-2012 ACS 5-year estimates	populations of almost any size

American Community Survey

1-year estimates	3-year estimates	5-year estimates
12 months of collected data	36 months of collected data	60 months of collected data
Data for areas with populations of 65,000+	Data for areas with populations of 20,000+	Data for all areas
Smallest sample size	Larger sample size than 1-year	Largest sample size
Less reliable than 3-year or 5-year	More reliable than 1-year; less reliable than 5-year	Most reliable
Most current data	Less current than 1-year estimates; more current than 5-year	Least current
Best used when	Best used when	Best used when
Currency is more important than precision Analyzing large populations	More precise than 1-year, more current than 5-year Analyzing smaller populations Examining smaller geographies because 1-year estimates are not available	Precision is more important than currency Analyzing very small populations Examining tracts and other smaller geographies because 1-year estimates are not available

American Community Survey



American Community Survey

Table 1. **Subjects Included in the American Community Survey**

Demographic Characteristics

Age
Sex
Hispanic Origin
Race
Relationship to Householder
(e.g., spouse)

Economic Characteristics

Income ★
Food Stamps Benefit
Labor Force Status
Industry, Occupation, and Class
of Worker
Place of Work and Journey to
Work ★
Work Status Last Year
Vehicles Available ★
Health Insurance Coverage*

Social Characteristics

Marital Status and Marital History*
Fertility
Grandparents as Caregivers
Ancestry
Place of Birth, Citizenship, and
Year of Entry
Language Spoken at Home ★
Educational Attainment and
School Enrollment ★
Residence One Year Ago
Veteran Status, Period of Military
Service, and VA Service-
Connected Disability Rating*
Disability ★

Housing Characteristics

Year Structure Built
Units in Structure
Year Moved Into Unit
Rooms
Bedrooms
Kitchen Facilities
Plumbing Facilities
House Heating Fuel
Telephone Service Available
Farm Residence

Financial Characteristics

Tenure (Owner/Renter)
Housing Value
Rent
Selected Monthly Owner Costs

*Marital History, VA Service-Connected Disability Rating, and Health Insurance Coverage are new for 2008.
Source: U.S. Census Bureau.

Content Changes: New and Modified Questions

- 2008
 - Marital history
 - Health insurance coverage
 - Service connected disability status and rating
 - Disability
- 2009
 - Bachelor's field of degree
- 2013
 - Computer ownership
 - Internet access

2012 ACS Release Schedule

- 2012 ACS 1-year estimates on **Sept. 19, 2013**
 - Areas with population 65,000+
- 2010-2012 ACS 3-year estimates on **Nov. 14, 2013**
 - Areas with population 20,000+
- 2008-2012 ACS 5-year estimates on **Dec. 17, 2013**
 - All areas, including sub-county geographies

Data Comparisons

- Only compare the same type of estimate
 - 5-year estimates to other 5-year estimates
- Non-overlapping periods
 - 2007-2009 estimate to 2010-2012 estimate
- 2000 SF3
 - Some differences in phrasing of questions
 - Period estimates vs. point in time
 - Income, Vacancy rate, college students
 - For most population and housing subjects, comparisons can be made

http://www.census.gov/acs/www/guidance_for_data_users/comparing_data/

Data Limitations

- American Community SURVEY
 - Sampling and Non-Sampling Error
- Margins of Error reported for 90% confidence levels
- Test for reliability
 - Standard Error = Margin of Error / 1.645
 - Coefficient of Variation = (Standard Error / Estimate) * 100
- Census says use caution when $CV > 15\%$

Data Limitations

- Estimates with overlapping confidence intervals
 - Cannot say with accuracy that one is larger than the other
- Difference in two estimates statistically significant?
 - Have to make sure difference is not due to sampling error

Accessing Data

- American Fact Finder <http://factfinder2.census.gov>
- Guided search is useful for new users
- Advanced search for experienced users
- Download
 - CSV ← Best for GIS
 - Excel
 - PDF
 - RTF



▼ Community Facts

Find popular facts (population, income, etc.) and frequently requested data about your community.

Enter a state, county, city, town, or zip code:

▶ Guided Search

▶ Advanced Search

▶ Download Options

U.S. Department of Commerce

United States[™]
Census
Bureau

AMERICAN
FactFinder



MAIN

COMMUNITY FACTS

GUIDED SEARCH

ADVANCED SEARCH

DOWNLOAD OPTIONS

Search - Use the options on the left (topics, geographies, ...) to narrow your search results

Your Selections

"Your Selections" is empty

Search using the options below:

Topics
(age, income, year, dataset, ...)

Geographies
(states, counties, places, ...)

Race and Ethnic Groups
(race, ancestry, tribe)

Industry Codes
(NAICS industry, ...)

EEO Occupation Codes
(executives, analysts, ...)

Begin with the menus on the left

I would like to use the latest ACS 3-year estimates but am not sure which counties are available...

I need data for Adair County but am not sure of the most recent data available...

American Fact Finder

Enter search terms and an optional geography and click GO

Select Topics CLOSE X

Select Topics to add to 'Your Selections' ?

- + People
- + Housing
- + Business and Industry
- + Governments
- + Year
- + Product Type
- + Program
- + Dataset

☐ Include archived products in your search ?

Enter search terms and an optional geography and click GO

Select Geographies CLOSE X

List | Name | Address | Map

Select geographies to add to Your Selections ?

Select from: ☒ most requested geographic types ☐ all geographic types

Select a geographic type:
..... County - 050

Select a state:
Kentucky

Select one or more geographic areas and click Add to Your Selections:

- All Counties within Kentucky
- Statewide, Kentucky, Kentucky
- Adair County, Kentucky
- Allen County, Kentucky
- Anderson County, Kentucky
- Ballard County, Kentucky
- Barren County, Kentucky
- Bath County, Kentucky
- Bell County, Kentucky
- Boone County, Kentucky

ADD TO YOUR SELECTIONS

Didn't find your geographic type? Click the 'all geographic types' radio button above, or try the Name, Address or Map geography search options instead.

American Fact Finder

- American Community Survey summary tables
 - DP02 : Social Characteristics
 - DP03: Economic Characteristics
 - DP04: Housing Characteristics
- Comparison Tables
 - 2007-2009 and 2010-2012 with statistical significance
 - Single year estimate comparisons with statistical significance

American Fact Finder

Download up to 10 tables at the same time in CSV format using check boxes

Download in different formats using the Table View screen

U.S. Department of Commerce
United States Census Bureau

AMERICAN FactFinder

MAIN COMMUNITY FACTS GUIDED SEARCH **ADVANCED SEARCH** DOWNLOAD OPTIONS

Search - Use the options on the left (topics, geographies, ...) to narrow your search results

Your Selections

Search using...
County
Jefferson County, Kentucky

clear all selections and start a new search

Search using the options below:

- Topics (age, income, year, dataset, ...)
- Geographies (states, counties, places, ...)
- Race and Ethnic Groups (race, ancestry, tribe)
- Industry Codes (NAICS industry, ...)
- EEO Occupation Codes (executives, analysts, ...)

Search Results: 1-25 of 24,283 topics and other products match "Your Selections"

Refine your search results: topic or table name state, county or place (optional) GO

selected: View Download Compare Clear All

ID	Table, File or Document Title	Dataset	About
<input checked="" type="checkbox"/>	DP02 SELECTED SOCIAL CHARACTERISTICS IN THE UNITED STATES	2012 ACS 1-year estimates	
<input type="checkbox"/>	DP02 SELECTED SOCIAL CHARACTERISTICS IN THE UNITED STATES	2012 ACS 3-year estimates	
<input checked="" type="checkbox"/>	DP03 SELECTED ECONOMIC CHARACTERISTICS	2012 ACS 1-year estimates	
<input type="checkbox"/>	DP03 SELECTED ECONOMIC CHARACTERISTICS	2012 ACS 3-year estimates	
<input checked="" type="checkbox"/>	DP04 SELECTED HOUSING CHARACTERISTICS	2012 ACS 1-year estimates	
<input type="checkbox"/>	DP04 SELECTED HOUSING CHARACTERISTICS	2012 ACS 3-year estimates	
<input type="checkbox"/>	DP05 ACS DEMOGRAPHIC AND HOUSING ESTIMATES	2012 ACS 1-year estimates	
<input type="checkbox"/>	DP05 ACS DEMOGRAPHIC AND HOUSING ESTIMATES	2012 ACS 3-year estimates	
<input type="checkbox"/>	CP02 SELECTED SOCIAL CHARACTERISTICS IN THE UNITED STATES	2012 ACS 3-year estimates	
<input type="checkbox"/>	CP02 SELECTED SOCIAL CHARACTERISTICS IN THE UNITED STATES	2012 ACS 3-year estimates	
<input type="checkbox"/>	CP03 SELECTED ECONOMIC CHARACTERISTICS	2012 ACS 1-year estimates	
<input type="checkbox"/>	CP03 SELECTED ECONOMIC CHARACTERISTICS	2012 ACS 3-year estimates	
<input type="checkbox"/>	CP04 SELECTED HOUSING CHARACTERISTICS	2012 ACS 1-year estimates	
<input type="checkbox"/>	CP04 SELECTED HOUSING CHARACTERISTICS	2012 ACS 3-year estimates	
<input type="checkbox"/>	CP05 ACS DEMOGRAPHIC AND HOUSING ESTIMATES	2012 ACS 1-year estimates	
<input type="checkbox"/>	NP01 Population and Housing Narrative Profile: 2012	2012 ACS 1-year estimates	
<input type="checkbox"/>	NP01 Population and Housing Narrative Profile: 2010-2012	2012 ACS 3-year estimates	
<input type="checkbox"/>	S0101 AGE AND SEX	2012 ACS 1-year estimates	
<input type="checkbox"/>	S0101 AGE AND SEX	2012 ACS 3-year estimates	
<input checked="" type="checkbox"/>	S0102 POPULATION 60 YEARS AND OVER IN THE UNITED STATES	2012 ACS 1-year estimates	
<input type="checkbox"/>	S0102 POPULATION 60 YEARS AND OVER IN THE UNITED STATES	2012 ACS 3-year estimates	
<input type="checkbox"/>	S0103 POPULATION 65 YEARS AND OVER IN THE UNITED STATES	2012 ACS 1-year estimates	
<input type="checkbox"/>	S0103 POPULATION 65 YEARS AND OVER IN THE UNITED STATES	2012 ACS 3-year estimates	

U.S. Department of Commerce
United States Census Bureau

AMERICAN FactFinder

MAIN COMMUNITY FACTS GUIDED SEARCH **ADVANCED SEARCH** DOWNLOAD OPTIONS

Advanced Search - Search all data in American FactFinder

1 Advanced Search 2 Table Viewer

Result 1 of 4

DP02 SELECTED SOCIAL CHARACTERISTICS IN THE UNITED STATES
2012 American Community Survey 1-Year Estimates

Table View

Actions: Modify Table Bookmark Print Download Create a Map

View Geography Notes View Table

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

Subject	Jefferson County, Kentucky			
	Estimate	Margin of Error	Percent	Percent Margin of Error
HOUSEHOLDS BY TYPE				
Total households	307,870	+/-3,374	307,870	(X)
Family households (families)	189,254	+/-4,327	61.5%	+/-1.3
With own children under 18 years	82,300	+/-3,800	26.7%	+/-1.2
Married-couple family	126,688	+/-4,153	41.1%	+/-1.4
With own children under 18 years	46,654	+/-3,170	15.2%	+/-1.0
Male householder, no wife present, family	15,259	+/-1,822	5.0%	+/-0.6
With own children under 18 years	8,277	+/-1,433	2.7%	+/-0.5
Female householder, no husband present, family	47,307	+/-2,889	15.4%	+/-0.9
With own children under 18 years	27,369	+/-2,219	8.9%	+/-0.7
Nonfamily households	118,616	+/-4,497	38.5%	+/-1.3
Householder living alone	97,747	+/-3,740	31.7%	+/-1.1
65 years and over	31,931	+/-2,012	10.4%	+/-0.7
Households with one or more people under 18 years	92,131	+/-3,606	29.9%	+/-1.2
Households with one or more people 65 years and over	74,974	+/-1,341	24.4%	+/-0.4
Average household size	2.39	+/-0.03	(X)	(X)
Average family size	3.04	+/-0.05	(X)	(X)
RELATIONSHIP				
Population in households	736,080	+/-1,970	736,080	(X)
Householder	307,870	+/-3,374	41.8%	+/-0.5
Spouse	126,671	+/-4,204	17.2%	+/-0.6

AFF Exercise

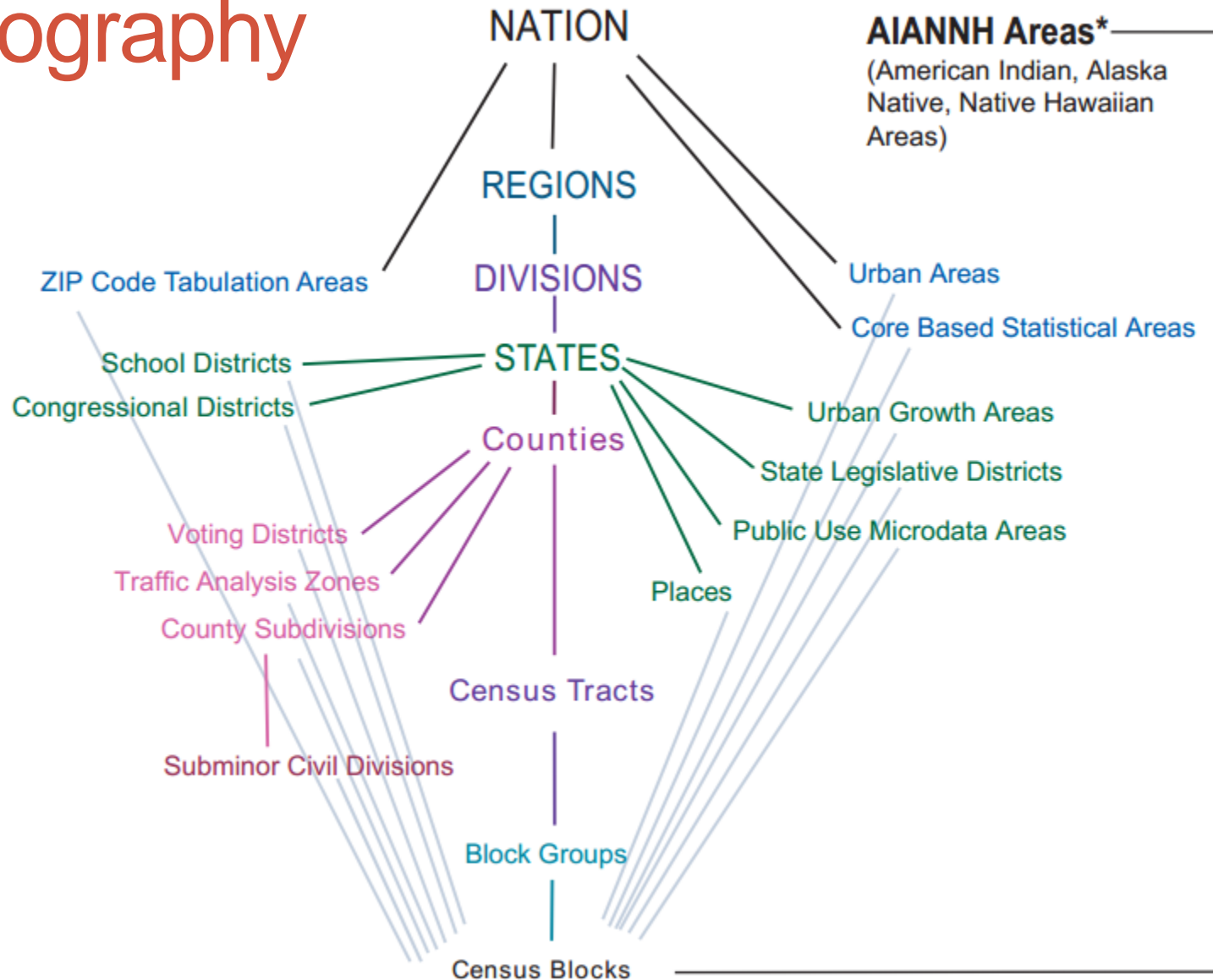
- Using the most recent data available, what percent of the population 25 and over have less than a 9th grade education in Rowan County?
- Is this rate higher or lower than the percent of the population 25 and over who have less than a 9th grade education in Pulaski County?

AFF Exercise

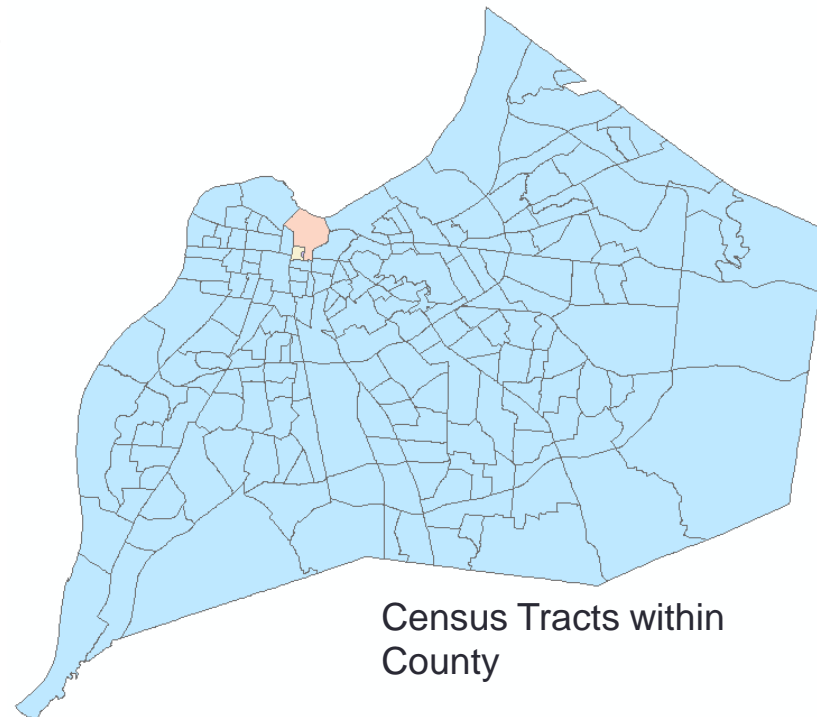
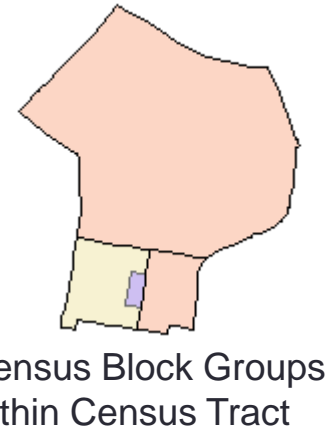
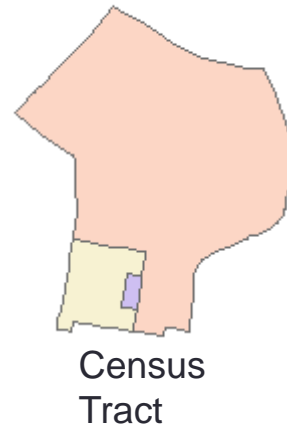
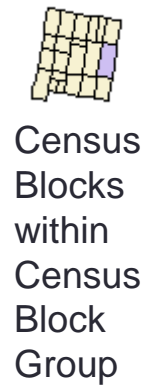
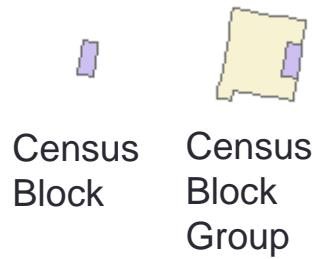
- Using the most recent data available, what percent of the population 25 and over have less than a 9th grade education in Rowan County?
 - 11.6% from the 2010-2012 ACS 3-Year Estimates
- Is this rate higher or lower than the percent of the population 25 and over who have less than a 9th grade education in Pulaski County?
 - $11.6\% \pm 2.5 = 9.1\% - 14.1\%$
 - $9.4\% \pm 1.1 = 8.3\% - 10.5\%$
 - Overlapping confidence intervals
 - Cannot say with accuracy that the rate is higher in Rowan County than in Pulaski County

Subject	Pulaski County, Kentucky				Rowan County, Kentucky			
	Estimate	Margin of Error	Percent	Percent Margin of Error	Estimate	Margin of Error	Percent	Percent Margin of Error
EDUCATIONAL ATTAINMENT								
Population 25 years and over	44,147	+/-222	44,147	(X)	13,747	+/-165	13,747	(X)
Less than 9th grade	4,140	+/-499	9.4%	+/-1.1	1,597	+/-339	11.6%	+/-2.5
9th to 12th grade, no diploma	4,335	+/-608	9.8%	+/-1.4	1,704	+/-427	12.4%	+/-3.1
High school graduate (includes equivalency)	17,328	+/-876	39.3%	+/-2.0	4,121	+/-487	30.0%	+/-3.6
Some college, no degree	7,863	+/-661	17.8%	+/-1.5	2,493	+/-451	18.1%	+/-3.3
Associate's degree	3,592	+/-548	8.1%	+/-1.2	852	+/-216	6.2%	+/-1.6
Bachelor's degree	4,030	+/-745	9.1%	+/-1.7	1,428	+/-336	10.4%	+/-2.4
Graduate or professional degree	2,859	+/-483	6.5%	+/-1.1	1,552	+/-313	11.3%	+/-2.3
Percent high school graduate or higher	(X)	(X)	80.8%	+/-1.8	(X)	(X)	76.0%	+/-3.9
Percent bachelor's degree or higher	(X)	(X)	15.6%	+/-2.0	(X)	(X)	21.7%	+/-3.2

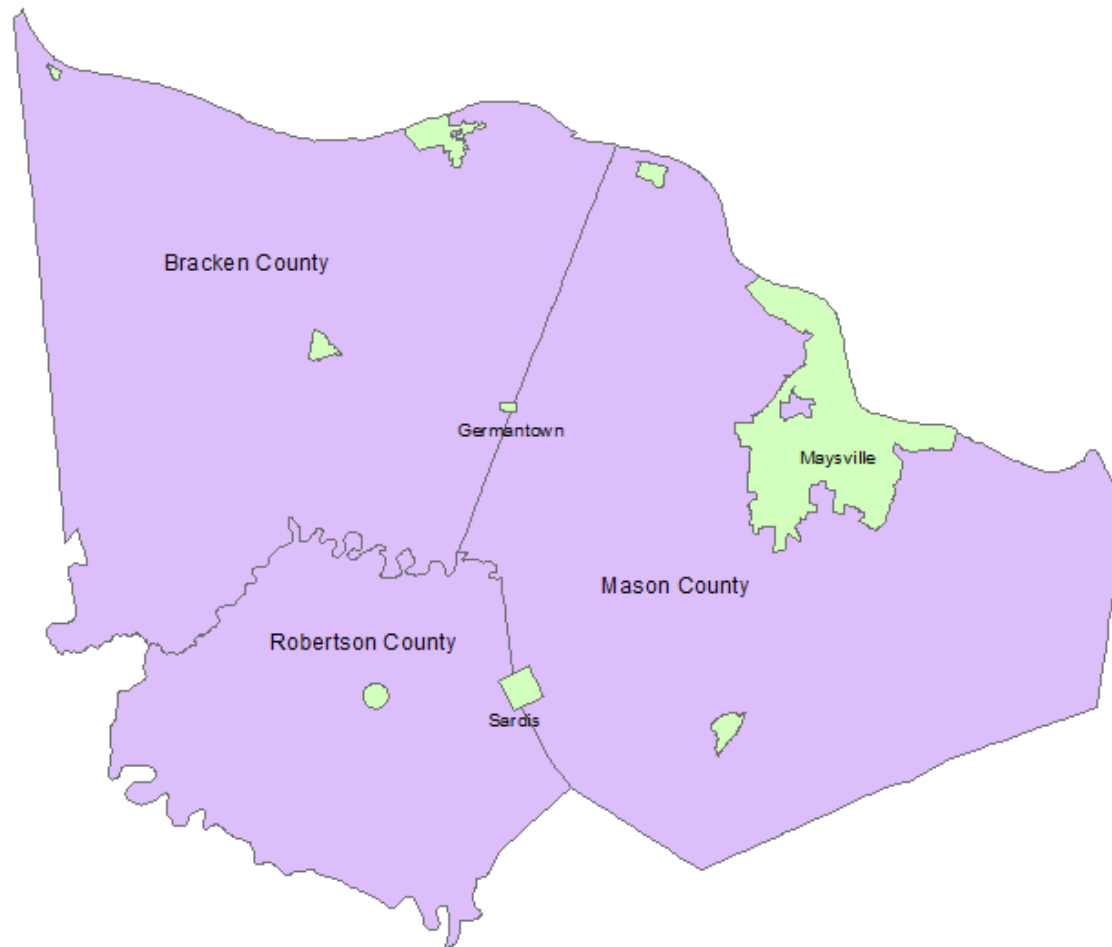
Geography



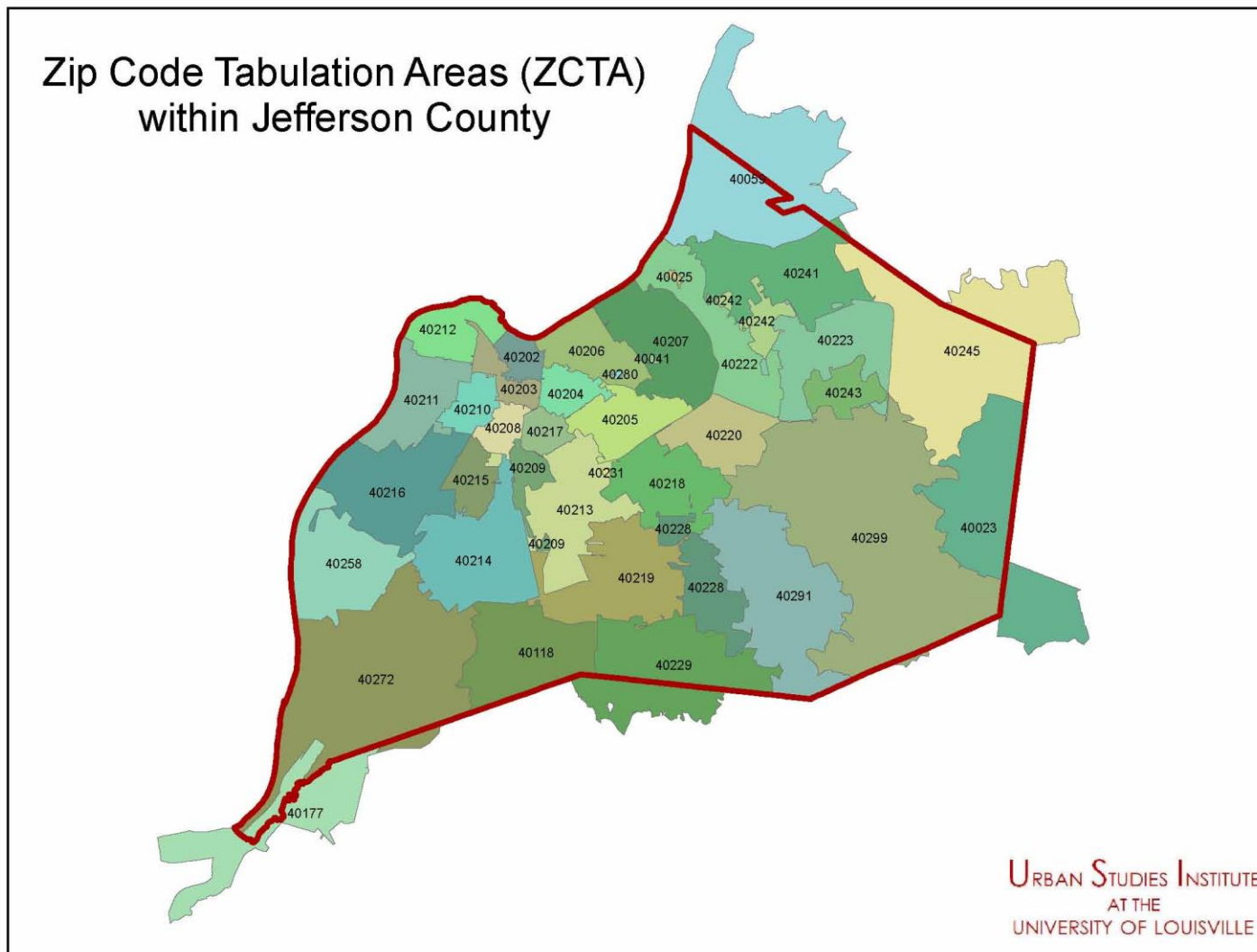
Geography



Geography



Geography



Geography

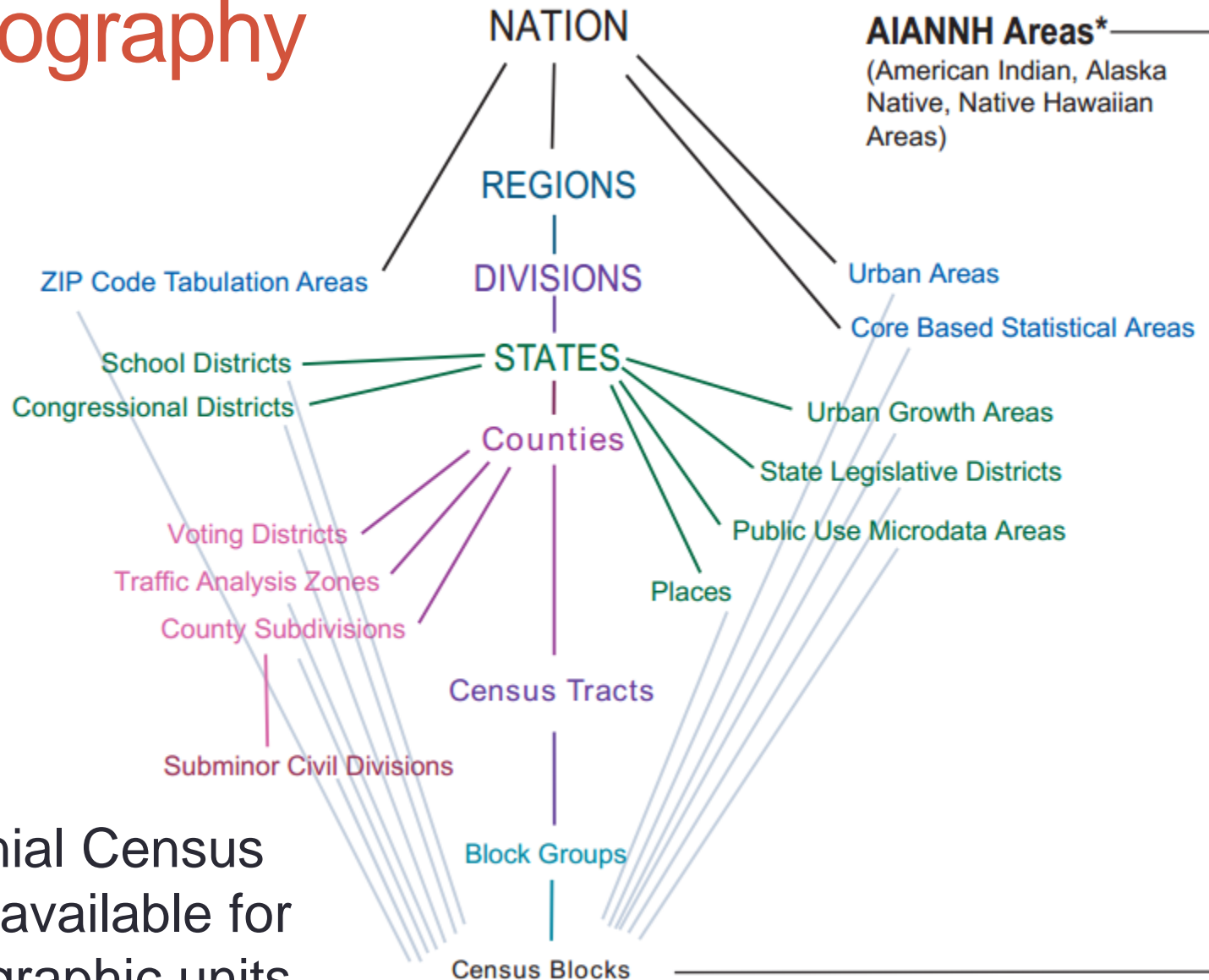


Table 1. **Major Geographic Areas and Type of ACS Estimates Published**

Type of geographic area	Total number of areas	Percent of total areas receiving . . .		
		1-year, 3-year, & 5-year estimates	3-year & 5-year estimates only	5-year estimates only
States and District of Columbia	51	100.0	0.0	0.0
Congressional districts	435	100.0	0.0	0.0
Public Use Microdata Areas*	2,071	99.9	0.1	0.0
Metropolitan statistical areas	363	99.4	0.6	0.0
Micropolitan statistical areas	576	24.3	71.2	4.5
Counties and county equivalents	3,141	25.0	32.8	42.2
Urban areas	3,607	10.4	12.9	76.7
School districts (elementary, secondary, and unified)	14,120	6.6	17.0	76.4
American Indian areas, Alaska Native areas, and Hawaiian homelands	607	2.5	3.5	94.1
Places (cities, towns, and census designated places)	25,081	2.0	6.2	91.8
Townships and villages (minor civil divisions)	21,171	0.9	3.8	95.3
ZIP Code tabulation areas	32,154	0.0	0.0	100.0
Census tracts	65,442	0.0	0.0	100.0
Census block groups	208,801	0.0	0.0	100.0

* When originally designed, each PUMA contained a population of about 100,000. Over time, some of these PUMAs have gained or lost population. However, due to the population displacement in the greater New Orleans areas caused by Hurricane Katrina in 2005, Louisiana PUMAs 1801, 1802, and 1805 no longer meet the 65,000-population threshold for 1-year estimates. With reference to Public Use Microdata Sample (PUMS) data, records for these PUMAs were combined to ensure ACS PUMS data for Louisiana remain complete and additive.

Source: U.S. Census Bureau, 2008. This tabulation is restricted to geographic areas in the United States. It was based on the population sizes of geographic areas from the July 1, 2007, Census Bureau Population Estimates and geographic boundaries as of January 1, 2007. Because of the potential for changes in population size and geographic boundaries, the actual number of areas receiving 1-year, 3-year, and 5-year estimates may differ from the numbers in this table.

American Fact Finder

- All geographies available for 2010 Census
 - Down to block
- Geographies down to Census Tract available from American Community Survey
- Block Group ACS data IS available
 - Limited tables available
 - Need statistical package or GIS software
 - Will discuss GIS data later
 - Can always contact KSDC for retrieval of block group ACS data

Race and Hispanic or Latino Origin

- Persons of Hispanic or Latino Origin also identify separate race category
- Adding White, alone and Hispanic (of any race) will double count!
- Use Non-Hispanic races to avoid double counting

Figure 1.

Reproduction of the Questions on Hispanic Origin and Race From the 2010 Census

→ NOTE: Please answer BOTH Question 5 about Hispanic origin and Question 6 about race. For this census, Hispanic origins are not races.

5. Is this person of Hispanic, Latino, or Spanish origin?

- ☐ No, not of Hispanic, Latino, or Spanish origin
☐ Yes, Mexican, Mexican Am., Chicano
☐ Yes, Puerto Rican
☐ Yes, Cuban
☐ Yes, another Hispanic, Latino, or Spanish origin — Print origin, for example, Argentinean, Colombian, Dominican, Nicaraguan, Salvadoran, Spaniard, and so on. ↗

6. What is this person's race? Mark ☒ one or more boxes.

- ☐ White
☐ Black, African Am., or Negro
☐ American Indian or Alaska Native — Print name of enrolled or principal tribe. ↗

- | | | |
|--|-------------------------------------|---|
| <input type="checkbox"/> Asian Indian | <input type="checkbox"/> Japanese | <input type="checkbox"/> Native Hawaiian |
| <input type="checkbox"/> Chinese | <input type="checkbox"/> Korean | <input type="checkbox"/> Guamanian or Chamorro |
| <input type="checkbox"/> Filipino | <input type="checkbox"/> Vietnamese | <input type="checkbox"/> Samoan |
| <input type="checkbox"/> Other Asian — Print race, for example, Hmong, Laotian, Thai, Pakistani, Cambodian, and so on. ↗ | | <input type="checkbox"/> Other Pacific Islander — Print race, for example, Fijian, Tongan, and so on. ↗ |

☐ Some other race — Print race. ↗

Source: U.S. Census Bureau, 2010 Census questionnaire.

Race and Hispanic or Latino Origin

RACE	
Total population	4,339,367
One race	4,264,159
White	3,809,537
Black or African American	337,520
American Indian and Alaska Native	10,120
Asian	48,930
Native Hawaiian and Other Pacific Islander	2,501
Some Other Race	55,551
Two or More Races	75,208
HISPANIC OR LATINO	
Total population	4,339,367
Hispanic or Latino (of any race)	132,836
Mexican	82,110
Puerto Rican	11,454
Cuban	9,323
Other Hispanic or Latino [2]	29,949
Not Hispanic or Latino	4,206,531

Total:	4,339,367
Not Hispanic or Latino:	4,206,531
White alone	3,745,655
Black or African American alone	333,075
American Indian and Alaska Native alone	8,642
Asian alone	48,338
Native Hawaiian and Other Pacific Islander alone	2,074
Some Other Race alone	4,634
Two or More Races	64,113
Hispanic or Latino:	132,836
White alone	63,882
Black or African American alone	4,445
American Indian and Alaska Native alone	1,478
Asian alone	592
Native Hawaiian and Other Pacific Islander alone	427
Some Other Race alone	50,917
Two or More Races	11,095

How many minorities live in Kentucky?

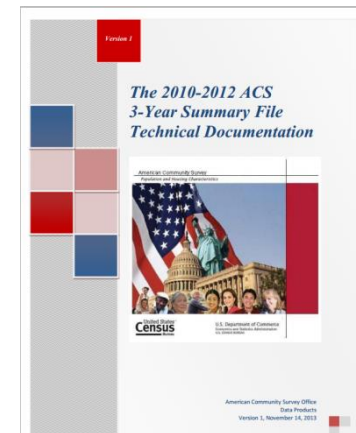
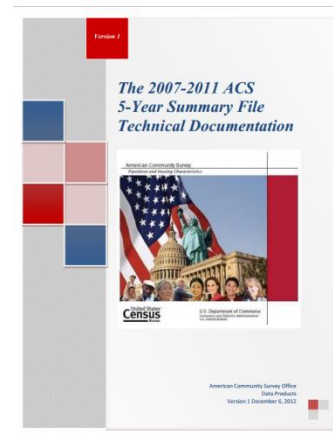
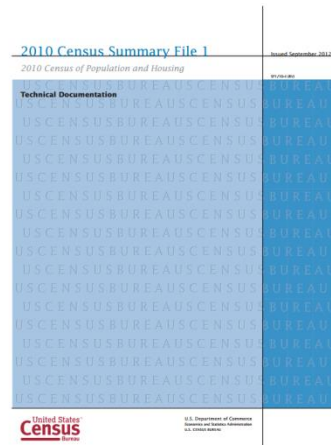
Pay Attention to the Universe!

B17001	POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE Universe: Population for whom poverty status is determined 2012 American Community Survey 1-Year Estimates
B17019	POVERTY STATUS IN THE PAST 12 MONTHS OF FAMILIES BY HOUSEHOLD TYPE BY TENURE Universe: Families ⓘ 2012 American Community Survey 1-Year Estimates
B17017	POVERTY STATUS IN THE PAST 12 MONTHS BY HOUSEHOLD TYPE BY AGE OF HOUSEHOLDER Universe: Households ⓘ 2012 American Community Survey 1-Year Estimates
B17006	POVERTY STATUS IN THE PAST 12 MONTHS OF RELATED CHILDREN UNDER 18 YEARS BY FAMILY TYPE BY AGE OF RELATED CHILDREN UNDER 18 YEARS Universe: Related children under 18 years ⓘ 2012 American Community Survey 1-Year Estimates

P16	POPULATION IN HOUSEHOLDS BY AGE Universe: Population in households ⓘ 2010 Census Summary File 1
P22	HOUSEHOLD TYPE BY AGE OF HOUSEHOLDER Universe: Households ⓘ 2010 Census Summary File 1

Technical Documentations

- Table subjects and corresponding table numbers
- ACS data, shows which tables are available at block group level
- 2010 Census SF1
<http://www.census.gov/prod/cen2010/doc/sf1.pdf>
- ACS different for every release
- http://www.census.gov/acs/www/data_documentation/summary_file/



Additional Data Sources

- EPA's EJView
 - Interactive map, define area of interest
 - Reports with environmental, health, and demographic data
 - 2006-2010 ACS
 - <http://epamap14.epa.gov/ejmap/entry.html>
- Census Population Estimates
 - Annual estimates of the population by age, sex, race
 - Smallest geography available: County
 - Available on American Fact Finder
- Small Area Income and Poverty Estimates
 - Annual estimates of poverty by special age groups and median household income
 - Smallest geography available: County
 - <http://www.census.gov/did/www/saipe/data/interactive/#>

Additional Data Sources



Kentucky State Data Center

426 W.Bloom St. Louisville-40208 | Ph.[502] 852-7990 | Email: ksdcc@louisville.edu

UNIVERSITY OF
LOUISVILLE

<http://ksdc.louisville.edu/>

- Census Profiles
 - State, ADDs, County, Cities
 - 1980 – 2010
- Population Estimates
- Projections
- Vital Statistics
- Descriptions of all kinds of Census databases
- Other useful links
 - Kids Count, Kentucky Health Facts
- Data Requests

TIGER

- Topologically Integrated Geographic Encoding and Referencing
- Shapefiles available for download
 - State
 - County
 - Census tracts, block groups, blocks
 - Places
 - School districts
 - ZCTAs
 - Roads
 - Rail
 - Water

<http://www.census.gov/geo/maps-data/data/tiger.html>

TIGER

- Shapefiles are comprised of four files ending with
 - .dbf
 - .prj
 - .shp
 - .shx
- TIGER files also come with XML file
 - Metadata

TIGER

- Different vintages available
- Use the vintage that matches the dataset
- Geographies change over time!!

2013	113th CD	2012	2011	2010	2009	2008	2007	2006SE	Census 2000	1992
------	----------	------	------	------	------	------	------	--------	-------------	------

2013 TIGER/Line Shapefiles

All legal boundaries and names are as of January 1, 2013. Released August 22, 2013.

► [Download](#)

► [Technical Documentation](#)

► [File Availability](#)

► [User Notes](#)

The boundaries shown are for Census Bureau statistical data collection and tabulation purposes only; their depiction and designation for statistical purposes does not constitute a determination of jurisdictional authority or rights of ownership or entitlement.

TIGER prejoined with Data

- 2007-2011 ACS
 - Including block group data!
- 2006-2010 ACS
- 2010 Census Demographic Profile
- Downloads with metadata table describing coded field names

GIS Exercise

- County data prejoined with 2010 Census Demographic Profile
- Prejoined data files are for entire nation
- Use state of Kentucky shapefile to select counties within the state
- Export shapefile of Kentucky counties
- Metadata table

Joining Data

- FIPS: Federal Information Processing Standards
 - Unique identifier for every geographic unit
- Length of FIPS code determined by scale of geographic unit
- State: 2 digits
 - Kentucky: 21
- County: 3 additional digits, 5 digits total
 - Franklin County: 21073
- Census Tract: 6 additional digits, 11 digits total
 - Tract 704.01 in Franklin County: 21073070401
 - Tract 705 in Franklin County: 21073070500
 - Tract 9081 in Jefferson County: 21111980100
- Block Group: 1 additional digit, 12 digits total
- Block: 3 additional digits, 15 digits total

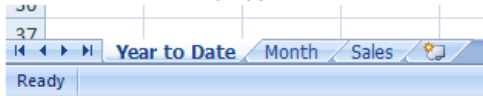
Joining Data

- Modifications need to be made to data downloaded from American Fact Finder
- Import into Excel using “Get External Data from Text” function
- Select Delimited, Next, Check Comma, Next
- **FORMAT FIPS as TEXT**
 - Prevents loss of leading zeros
 - Join will not work if not formatted correctly
- Data labels cannot have characters other than underscore
 - Remove hyphens and periods
- Save as Excel workbook

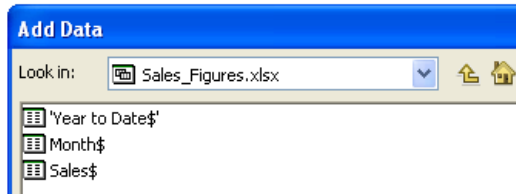
Excel and ArcGIS

- Import using Add Data
- Each worksheet in Excel workbook is separate table in ArcGIS
- If using Office 2010 must have 2007 Office System Driver installed for ArcGIS to read .xlsx files


- Three worksheets as they appear on the Sheet tab bar at the bottom of the Excel window



- Available worksheets inside the sales_figures workbook on the ArcMap **Add Data** dialog box



- Tables are read-only
 - Make all modifications in Excel before adding to ArcGIS
 - Export table to .dbf format to make modifications to table in ArcGIS

 2007 Office System Driver: Data Connectivity Components

Select Language:

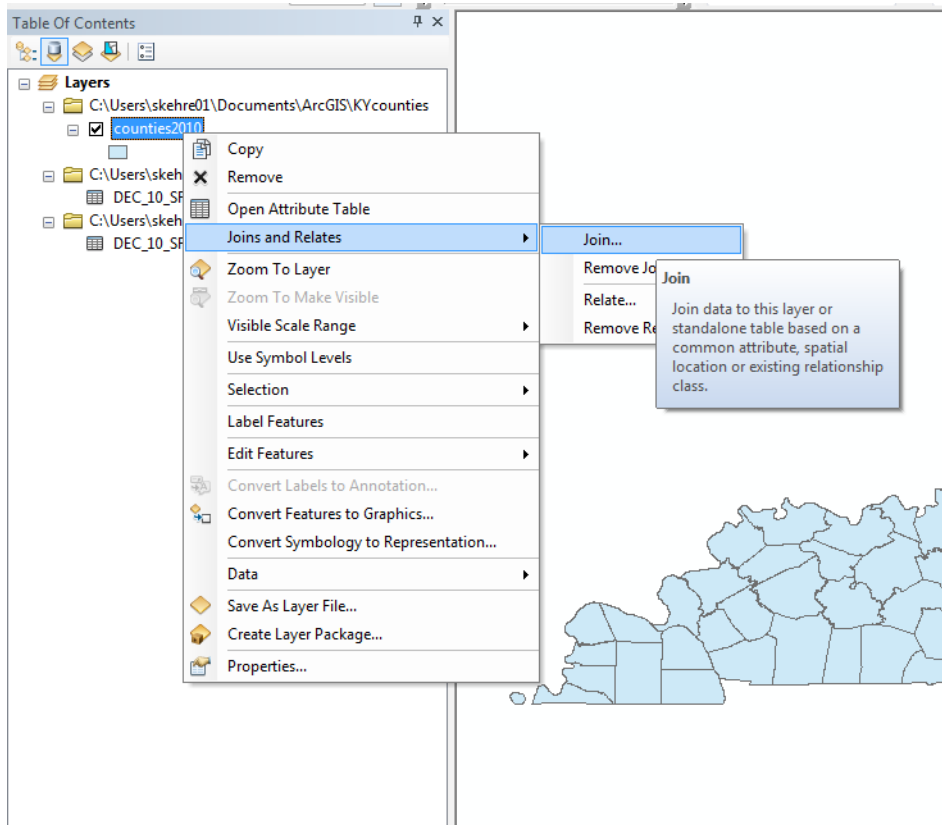
English

Download

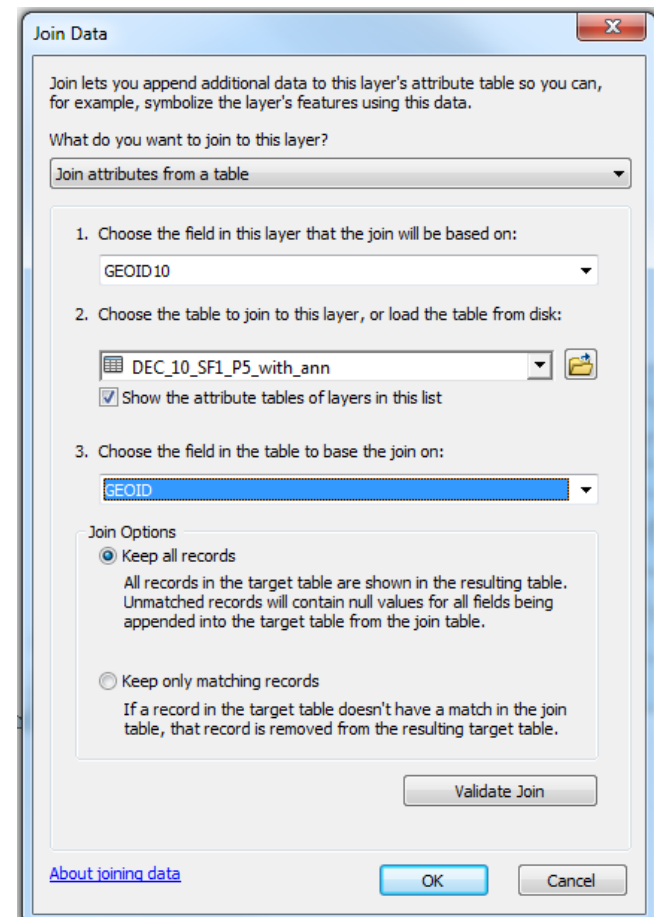
This download will install a set of components that can be used to facilitate transfer of data between 2007 Microsoft Office System files and non-Microsoft Office applications.

Joining Data

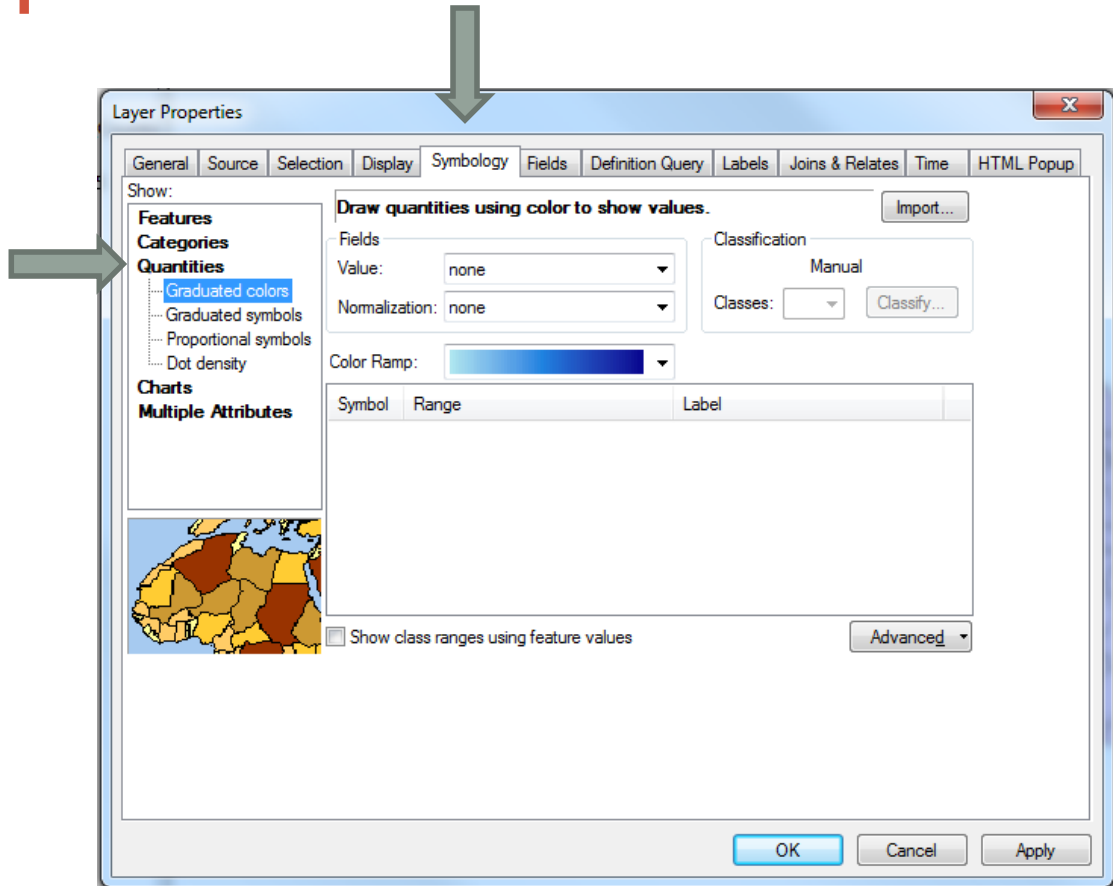
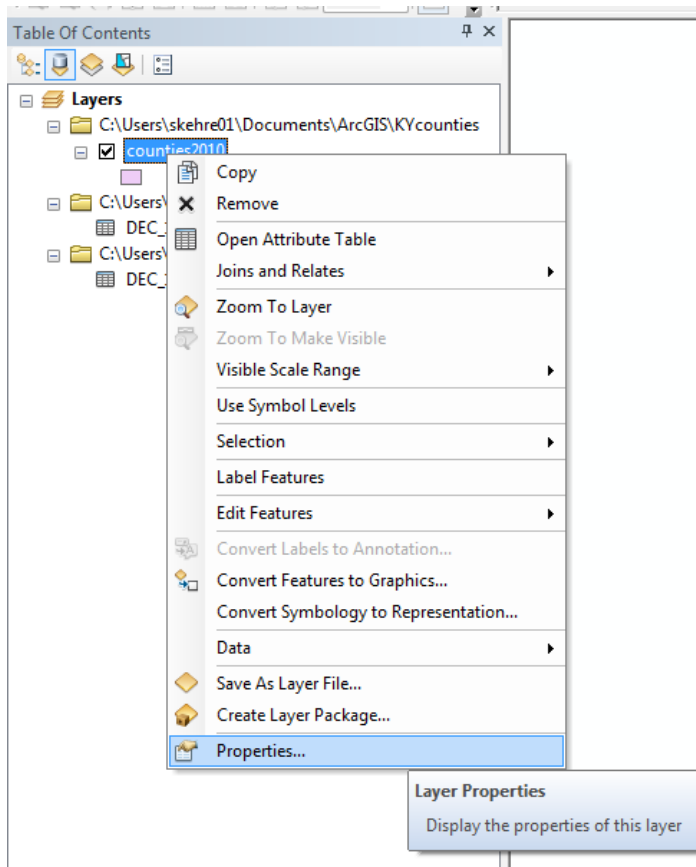
Right click shapefile name in table of contents → Joins and Relates → Join



Choose field with FIPS code from shapefile and table.
Note: If fields are formatted differently (e.g. one string (text) and one double (number)) the join will not work.



Choropleth Map

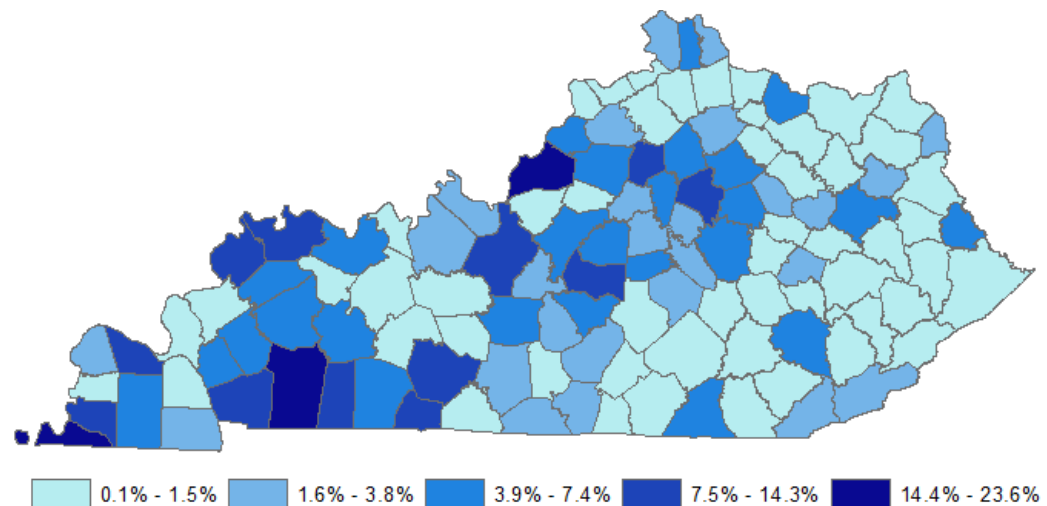
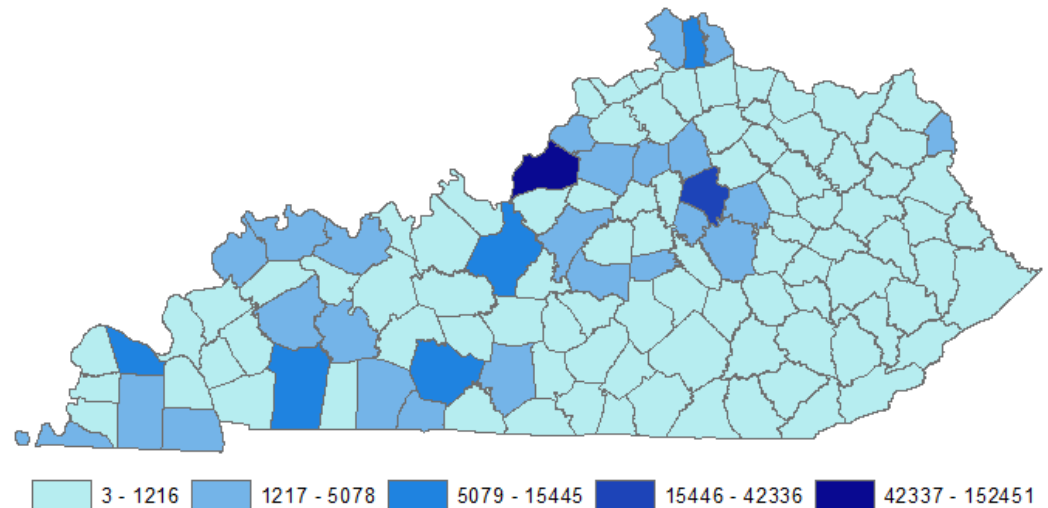


Choropleth Map

- Classification Methods
 - Natural Breaks
 - Quantile
 - Equal Interval
 - Standard Deviation
 - Manual
- Number of classes
 - Between 3 and 10
- Logical color scheme
- Important Elements
 - Legend
 - Data source
 - Scale
 - North arrow

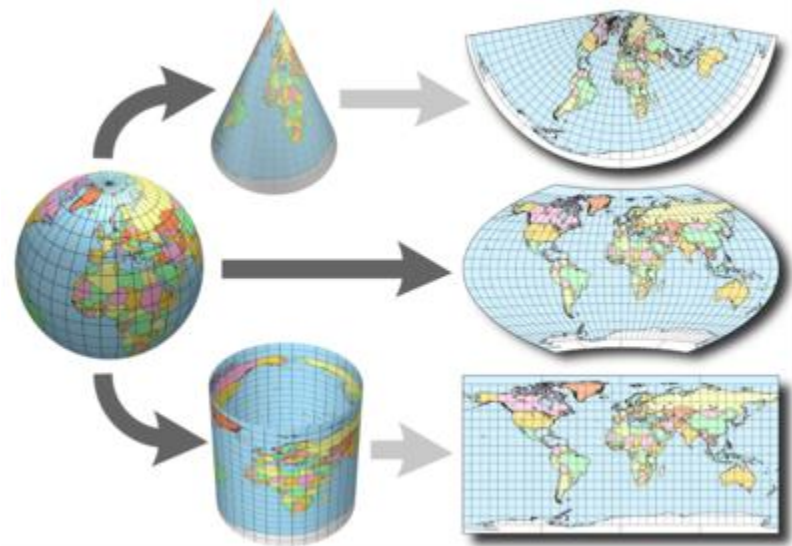
Displaying Spatial Data

- Both maps show the Black population by county using Natural Breaks classification
- Which displays data in a more meaningful way?

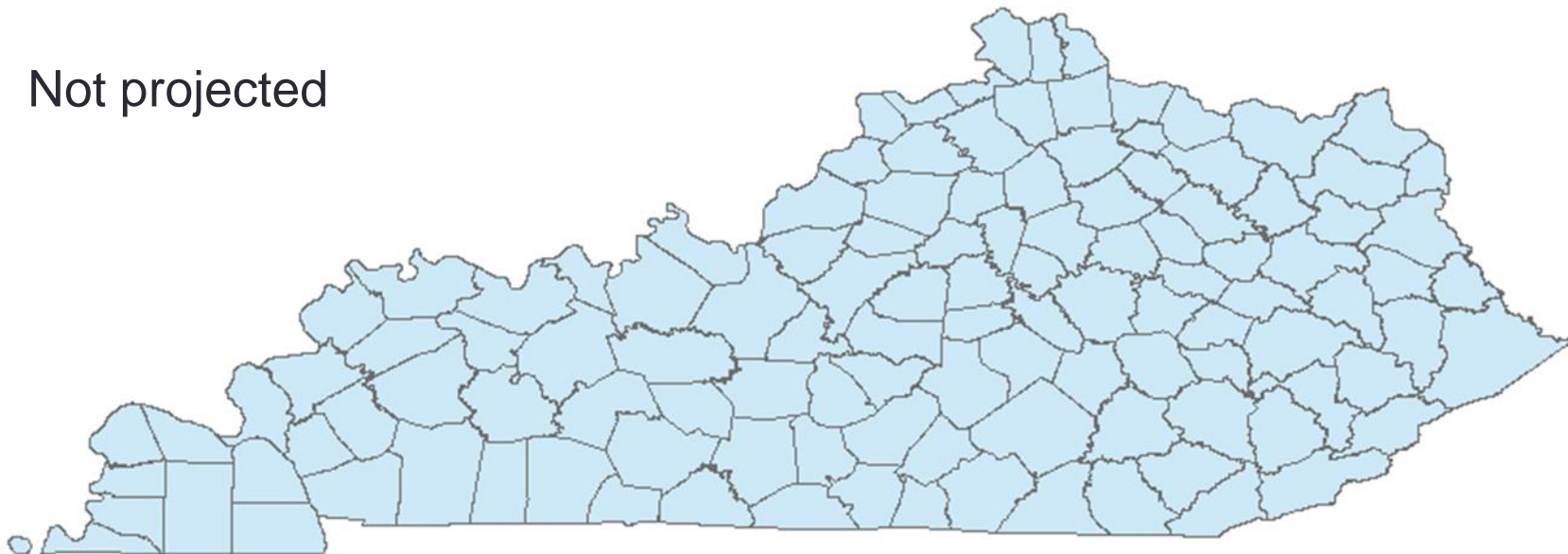


Projections

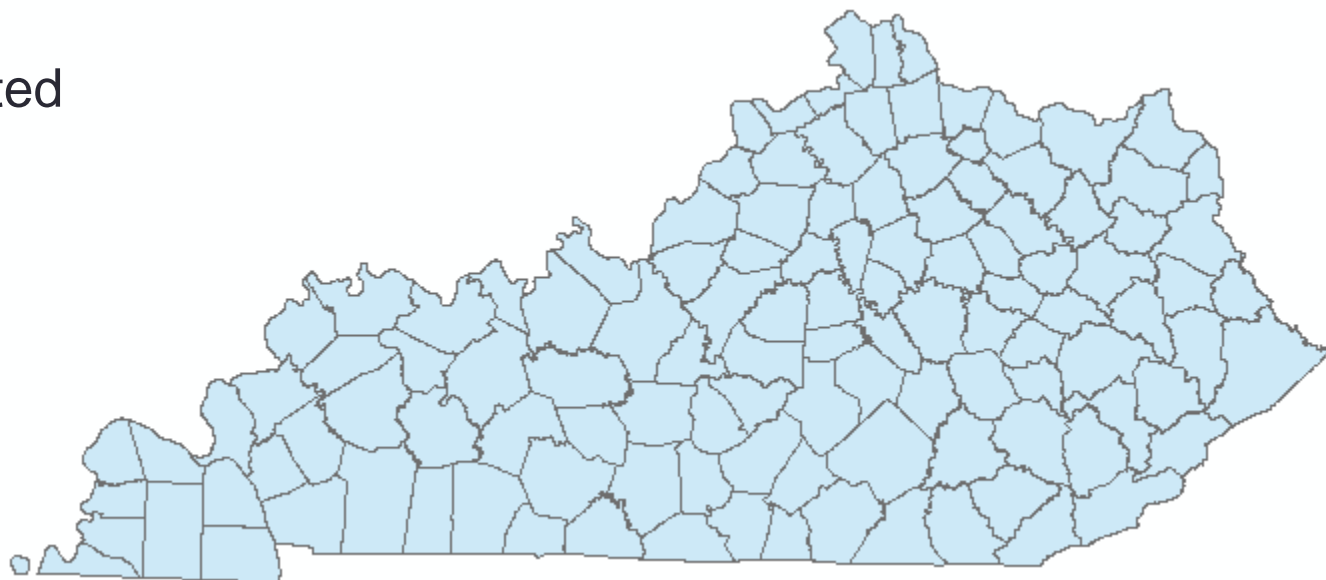
- Defined geographic coordinate system
 - North American Datum 1983
- No defined projected coordinate system
- Projections display objects in 3-dimensional space (latitude/longitude) on a 2-dimensional surface
- Required for distance to be displayed correctly



Not projected



Projected



Projections

- State Plane Projected Coordinate System
- Multiple zones for each state
- 3 options in Kentucky
 - Kentucky FIPS 1600
 - State scale
 - Kentucky North FIPS 1601
 - Kentucky South FIPS 1602



Projections

Right click Layers in
Table of Contents to
open Data Frame
Properties

Select Coordinate System
tab

Open Projected
Coordinate System
folder

The image displays three sequential screenshots from the ArcGIS Desktop interface, illustrating the process of changing a data frame's coordinate system.

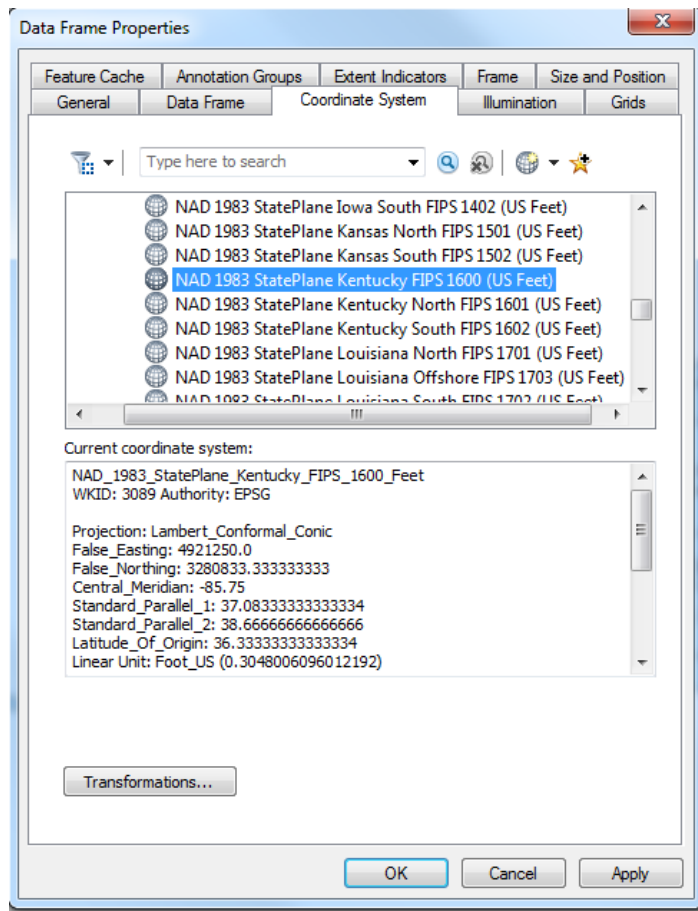
Left Screenshot: The 'Table of Contents' window is shown. A right-click context menu is open over the 'Layers' pane. The 'Properties...' option at the bottom of the menu is highlighted.

Middle Screenshot: The 'Data Frame Properties' dialog box is open, with the 'Coordinate System' tab selected. A green arrow points to this tab. The 'Current coordinate system' section displays the following information:
GCS_North_American_1983
WKID: 4269 Authority: EPSG
Angular Unit: Degree (0.0174532925199433)
Prime Meridian: Greenwich (0.0)
Datum: D_North_American_1983
Spheroid: GRS_1980
Semimajor Axis: 6378137.0
Semiminor Axis: 6356752.314140356
Inverse Flattening: 298.257222101

Right Screenshot: The 'Data Frame Properties' dialog box is shown again, but with the 'Projected Coordinate Systems' folder expanded in the left-hand tree view. This folder contains sub-folders for various projection types: ARC (equal arc-second), Continental, County Systems, Gauss Kruger, National Grids, Polar, State Plane, and State Systems.

Projections

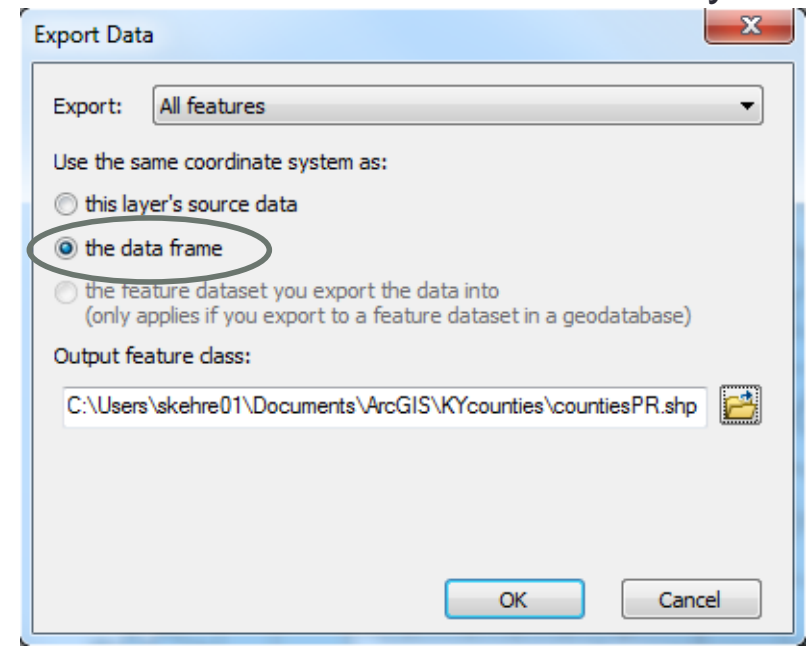
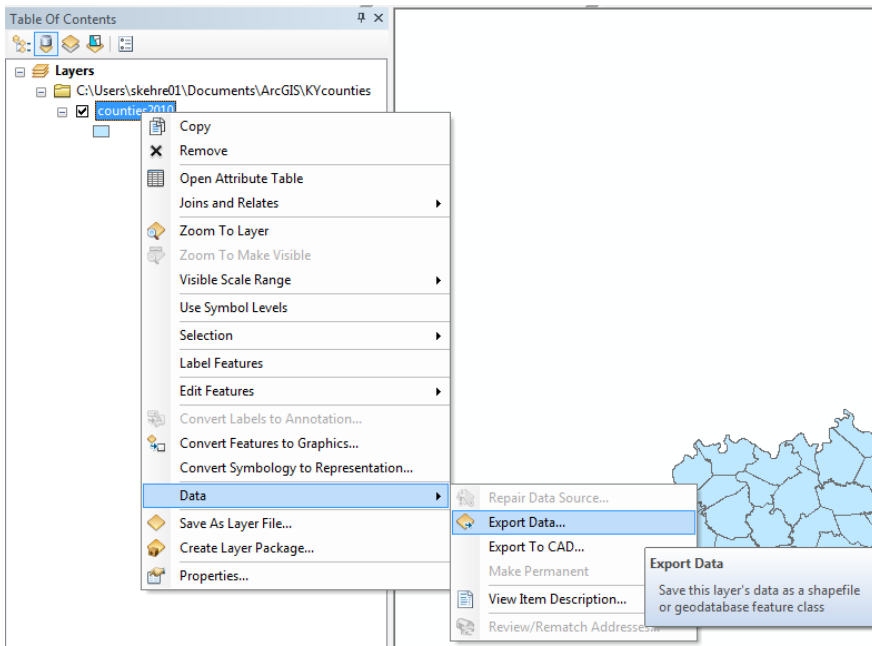
- Projected Coordinate Systems → State Plane → NAD 1983 (US Feet) → NAD 1983 StatePlane Kentucky



Projections

- The previous steps project “on-the-fly”
 - Data Frame is projected
 - Underlying shapefile is not
- To avoid these steps every time you start a new ArcMap session, save Projected shapefiles

Right click file name → Data → Export Data Select the data frame coordinate system



Final Exercise

- Create a choropleth map displaying the percent of **occupied housing units** with no vehicles available for all **census tracts** in McCracken County