How to Use American Community Survey (ACS) Geodatabase Files and ArcMap

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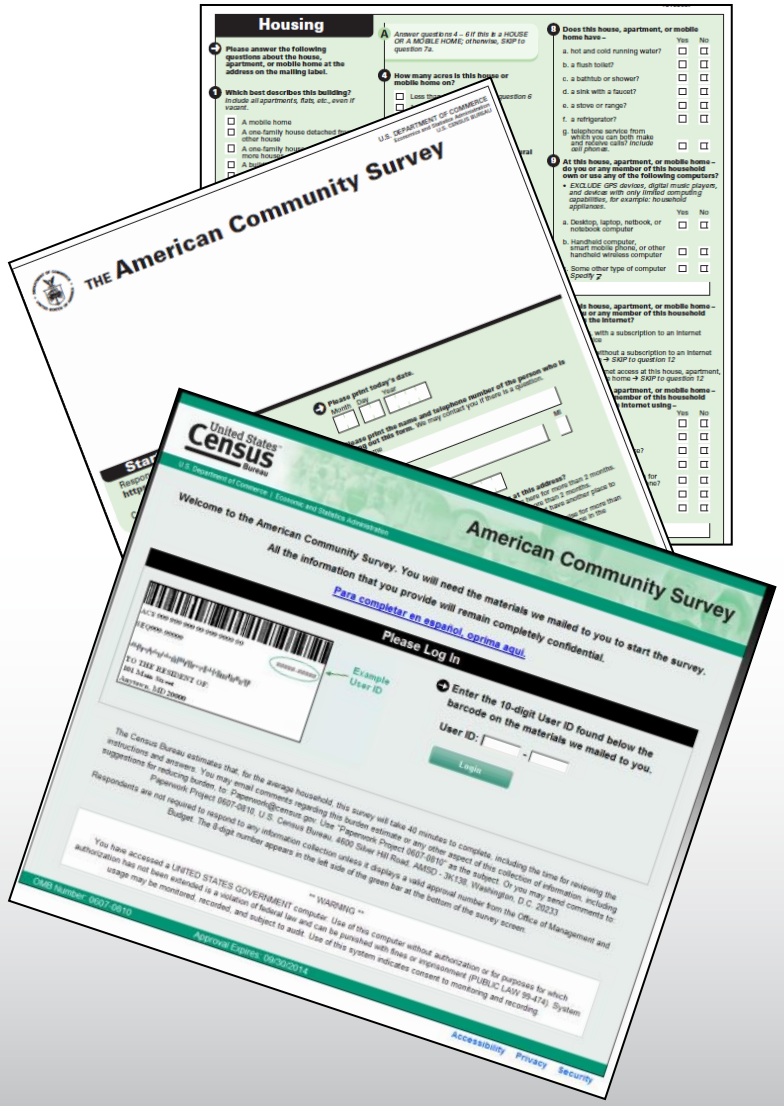
United States Census Bureau
U.S. Department of Commerce
Economics and Statistics Administration
U.S. CENSUS BUREAU
census.gov

Outline

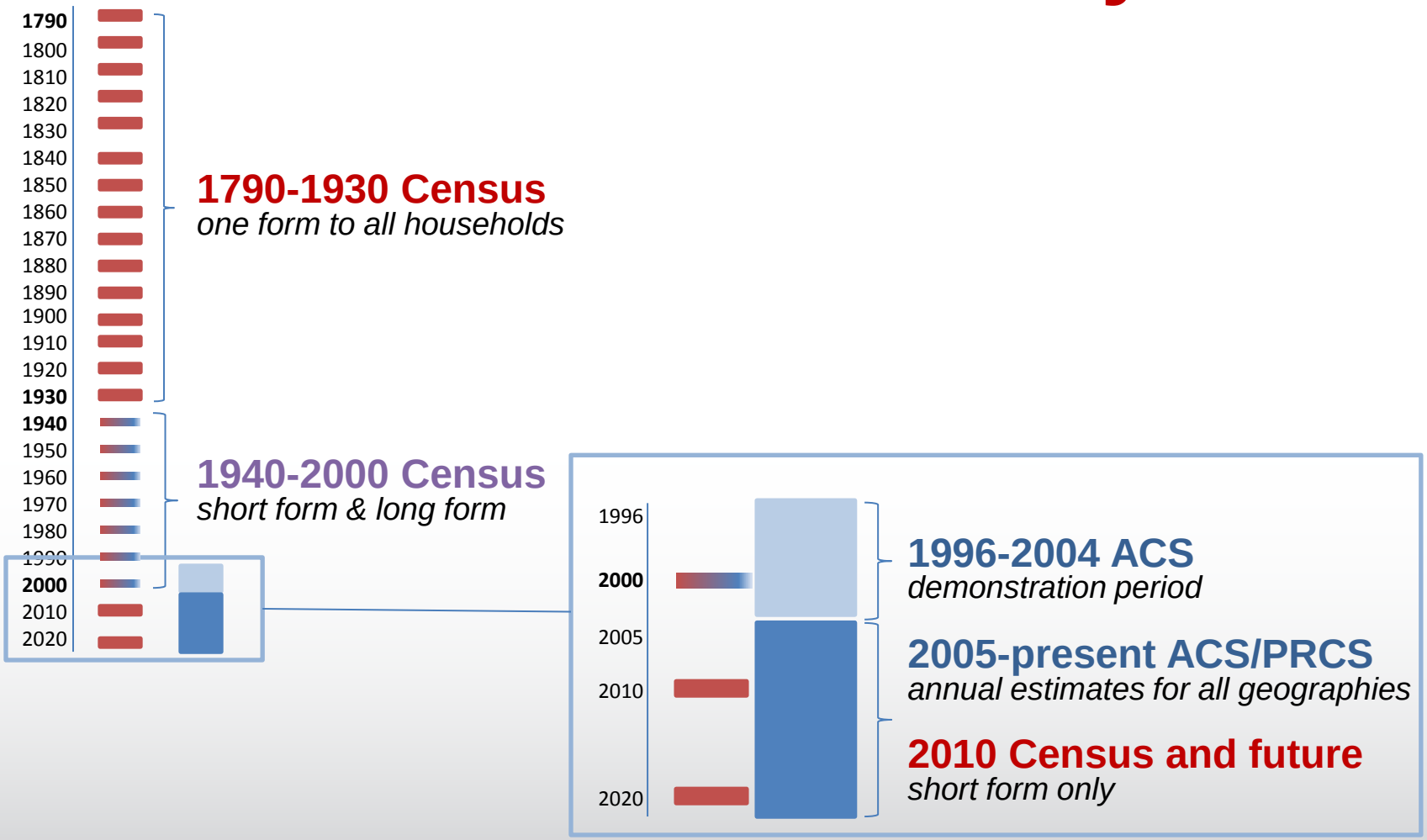
- **American Community Survey (ACS) basics**
- Location of Census Geodatabases
- Downloading Geodatabase
- Joining feature class to tables
- Using Metadata tables to identify full descriptions
- Stay in touch
- Questions

ACS Basics

- Ongoing monthly survey sent to 3.5 million addresses per year to produce detailed population and housing estimates each year
  - Visit 20,000 Group Quarter facilities and sample approximately 194,000 residents each year
- Designed to produce *critical information on small areas and small population groups* previously collected on the decennial long form
- Covers 35+ topics and supports over 300 known Federal Government uses
- Data released twice annually
  - 1-year estimates (12 months of data)
  - 5-year estimates (60 months of data)



Census / ACS History



How is the ACS Different from a Census?

	ACS	2010 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

ACS Content

Social

Ancestry
Citizenship Status
Disability Status
Educational Attainment
Fertility
Grandparents
Language Spoken at Home
Marital Status
Migration
Place of Birth
School Enrollment
Veteran Status
Year of Entry

Demographic

Age
Hispanic Origin
Race
Relationship
Sex

Economic

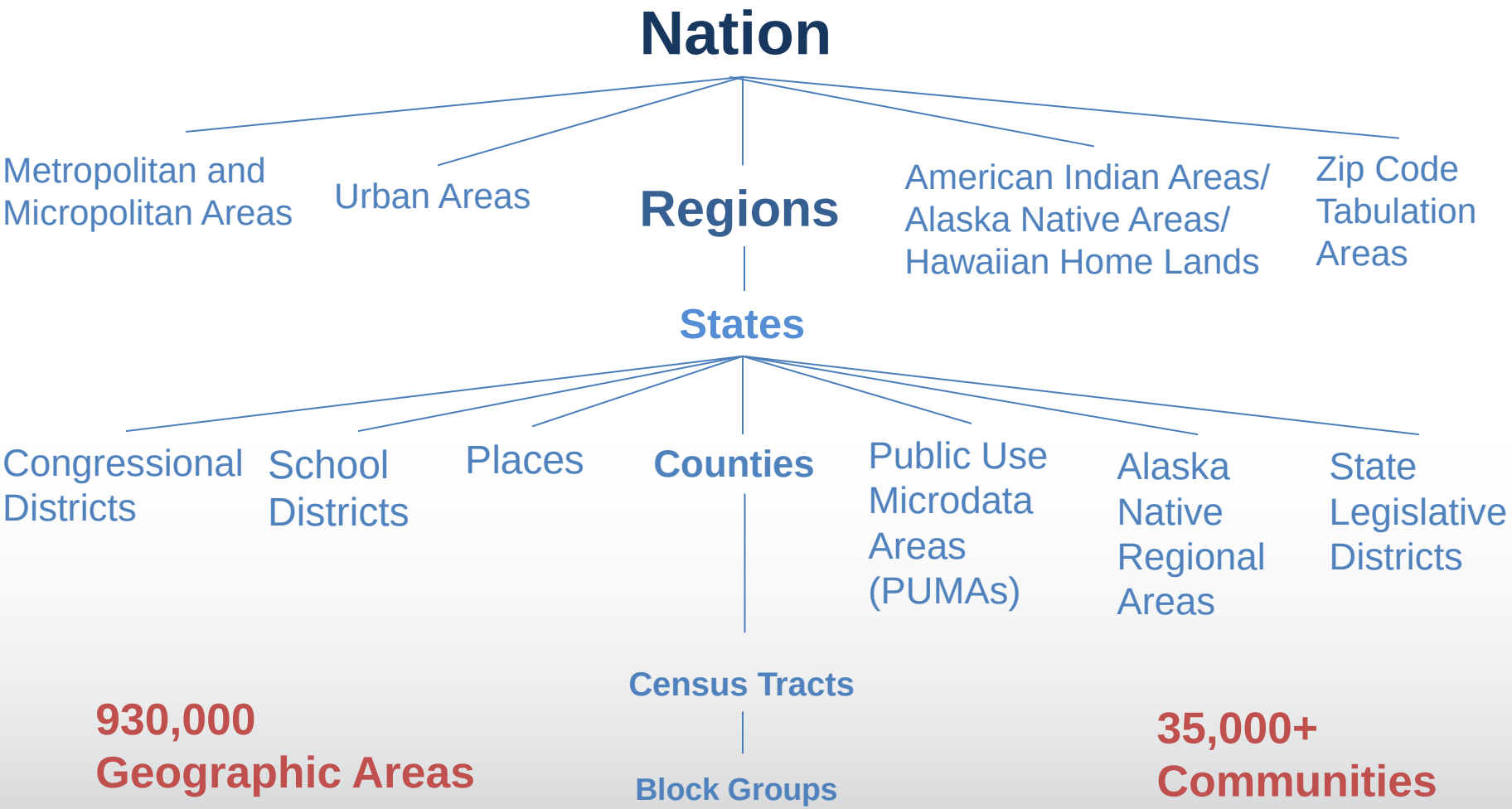
Class of Worker
Commuting to Work
Employment Status
Food Stamps (SNAP)
Health Insurance
Hours/Week, Weeks/Year
Income
Industry & Occupation

Housing

Computer & Internet Use
Costs (Mortgage, Taxes, Insurance)
Heating Fuel
Home Value
Occupancy Status
Plumbing/Kitchen Facilities
Structure Type
Tenure (Own/Rent)
Utilities
Vehicles
Year Built/ Year Moved In

35+ Topics ➡ 1000+ Tables ➡ 11 Billion Estimates

Selected Census Geographic Concepts



Availability of ACS Data Products

Estimated Population of Geographic Area	1-Year Estimates	5-Year Estimates
65,000 or more	X	X
Less than 65,000		X
Release Date	September 2016	December 2016

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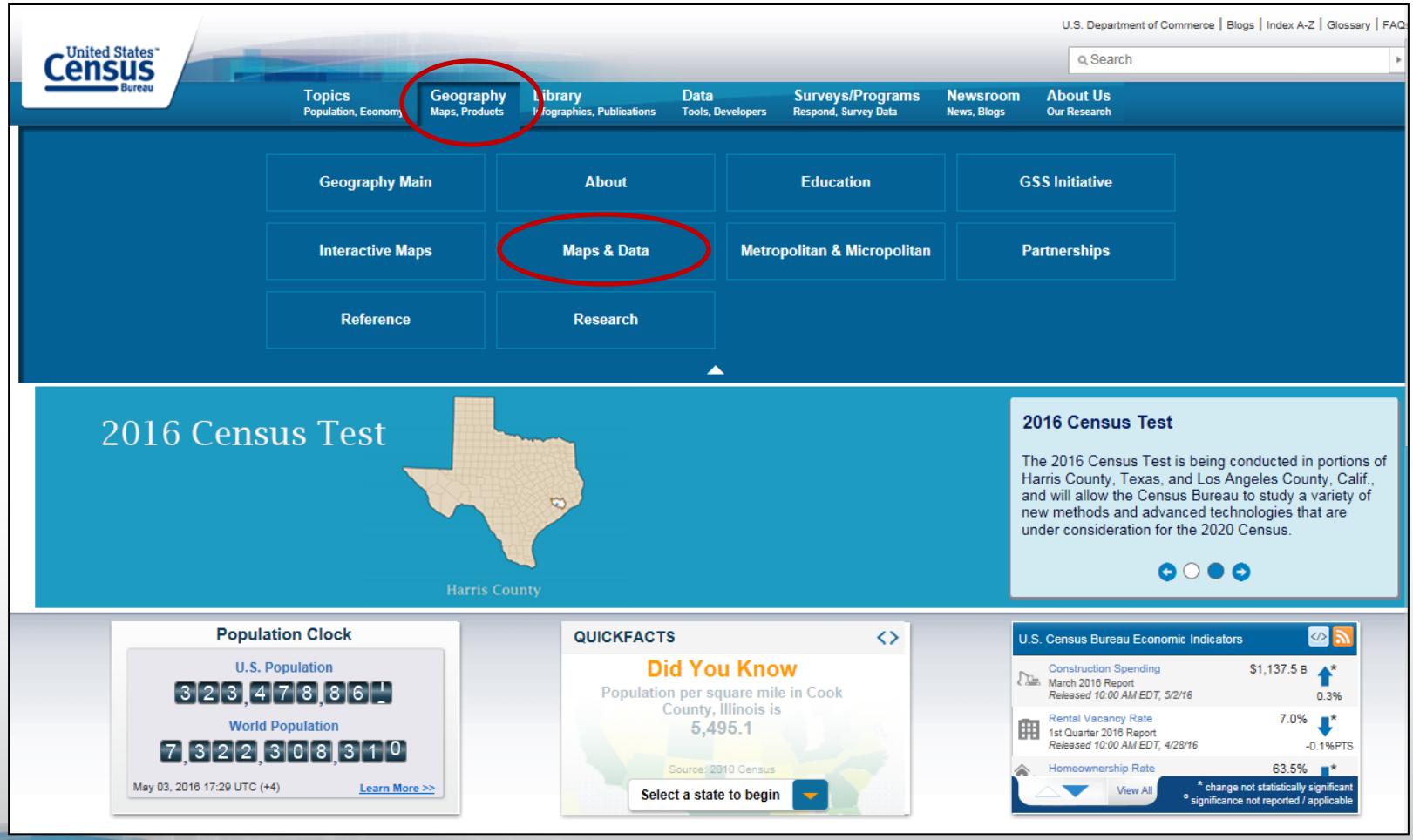
Background Information

- Geodatabases bring together geography from the 2014 TIGER/Line Shapefiles and data from the 2010-2014 American Community Survey (ACS) 5-year estimates.
- The public and Census partners wanted an easier way to join ACS data to geographic boundaries
- 2010-2014 Geodatabases were created using ArcGIS 10.3
- The Census Bureau doesn't provide the ArcGIS software

Census.gov


United States Census Bureau
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About
Education
GSS Initiative
Interactive Maps
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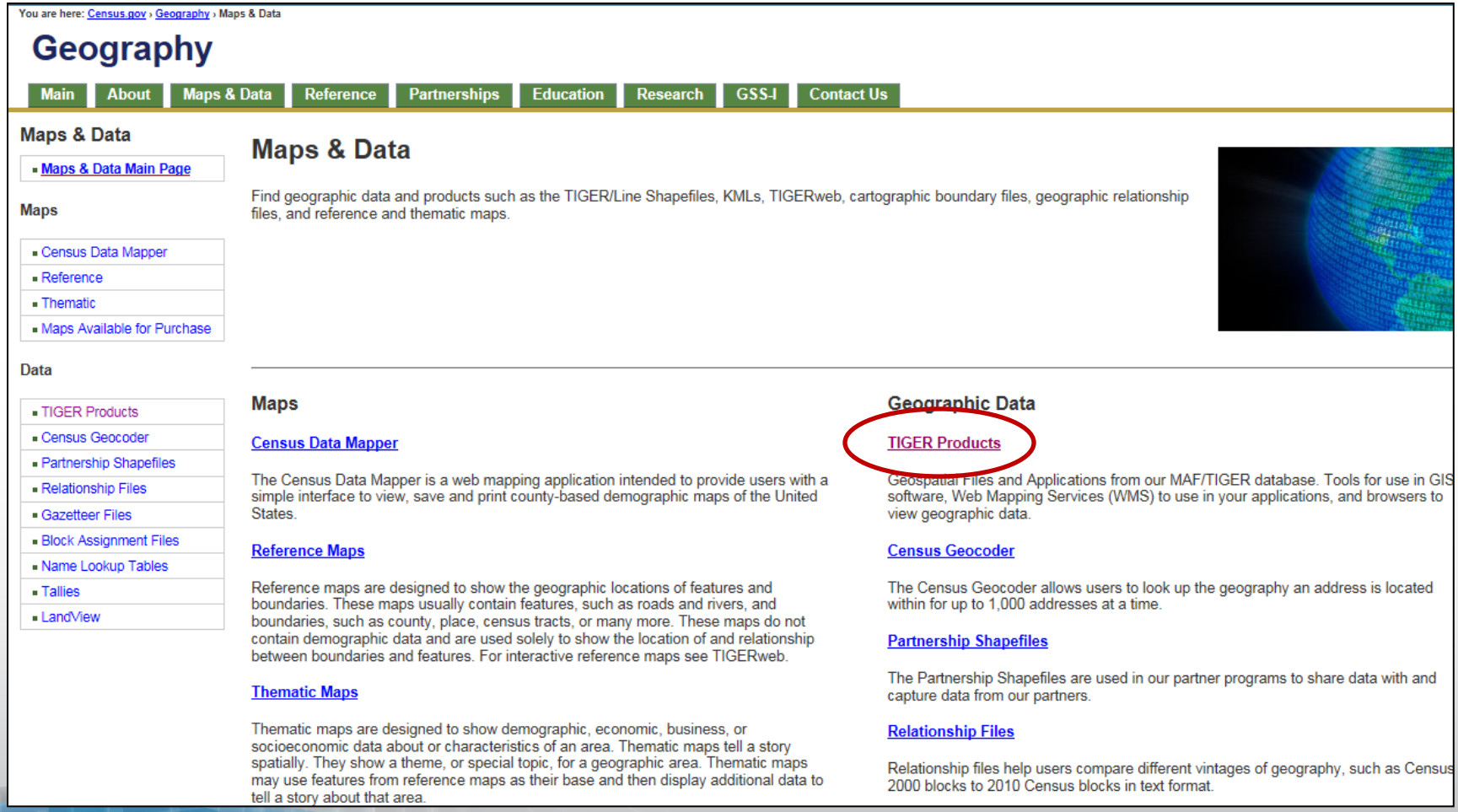
2016 Census Test
Harris County
2016 Census Test
The 2016 Census Test is being conducted in portions of Harris County, Texas, and Los Angeles County, Calif., and will allow the Census Bureau to study a variety of new methods and advanced technologies that are under consideration for the 2020 Census.
Population Clock
U.S. Population
323,478,861
World Population
7,322,308,310
May 03, 2016 17:29 UTC (+4)
Learn More >>
QUICKFACTS
Did You Know
Population per square mile in Cook County, Illinois is
5,495.1
Source: 2010 Census
Select a state to begin
U.S. Census Bureau Economic Indicators
Construction Spending
March 2016 Report
Released 10:00 AM EDT, 5/2/16
$1,137.5 B
0.3%
Rental Vacancy Rate
1st Quarter 2016 Report
Released 10:00 AM EDT, 4/28/16
7.0%
-0.1%PTS
Homeownership Rate
63.5%
View All
* change not statistically significant
° significance not reported / applicable

TIGER Products

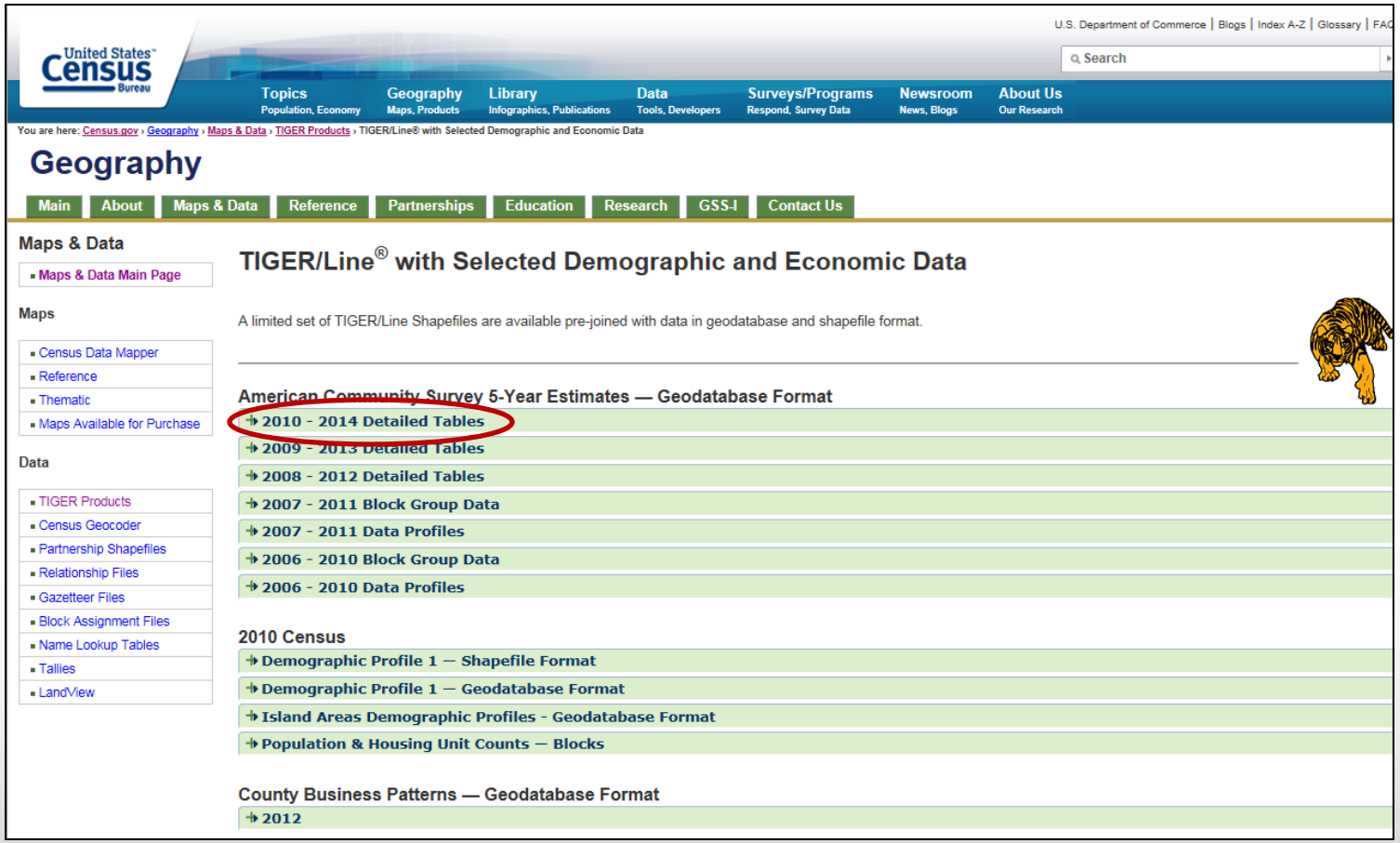


TIGER/Line with Selected Demographic and Economic Data

Which product should I use?

Product	Best For...	File Format	Type of Data	Level of Detail	Descriptive Attributes	Vintages Available
TIGER/Line Shapefiles	Most mapping projects--this is our ***most comprehensive dataset***. Designed for use with GIS (geographic information systems).	Shapefiles (.shp) and database files (.dbf)	Boundaries, roads, address information, water features, and more	Full detail (not generalized)	Extensive	2006 - 2015, CD 113
TIGER Geodatabases	Useful for users needing national datasets or all major boundaries for by state. Designed for use in ArcGIS. Files are extremely large.	Geodatabase (.gdb)	Boundaries, roads, address information, water features, and more	Full detail (not generalized)	Limited	2013-2014
TIGER/Line with Selected Demographic and Economic Data	Data from selected attributes from the 2010 Census, 2006-2010 ACS 5- year estimates, 2007-2011 ACS 5-year estimates, 2008-2012 ACS 5-year estimates and County Business Patterns (CBP) for selected geographies. Designed for use with GIS.	Shapefiles (.shp) and Geodatabases	Boundaries, Population Counts, Housing Unit Counts, 2010 Census Demographic Profile 1 attributes, 2006-2010 ACS 5-year estimates data profiles, 2007-2011 ACS 5-year estimates data profiles, CBP data.	Full detail (not generalized)	Limited	2012 CBP, 2010, 2006-2010 ACS, 2007-2011 ACS, 2008-2012 ACS
Cartographic Boundary Shapefiles	Small scale (limited detail) mapping projects clipped to shoreline. Designed for thematic mapping using GIS.	Shapefiles (.shp)	Selected boundaries	Less detail (generalized)	Limited	2014, 2013, 2010, 2000, 1990
KML - Cartographic Boundary Files	Viewing data or creating maps using Google Earth, Google Maps, or other platforms that use KML.	KML (.kml)	Selected boundaries	Less detail (generalized)	Limited	2014, 2013
TIGERweb	Viewing spatial data online or streaming to your mapping application.	Interactive viewer, HTML data files, plus REST and WMS map services	Boundaries, roads, address information, water features, and more	Detailed	Extensive	2012, 2010, 2012 ACS and 2011 ACS

2010 – 2014 Detailed Tables



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

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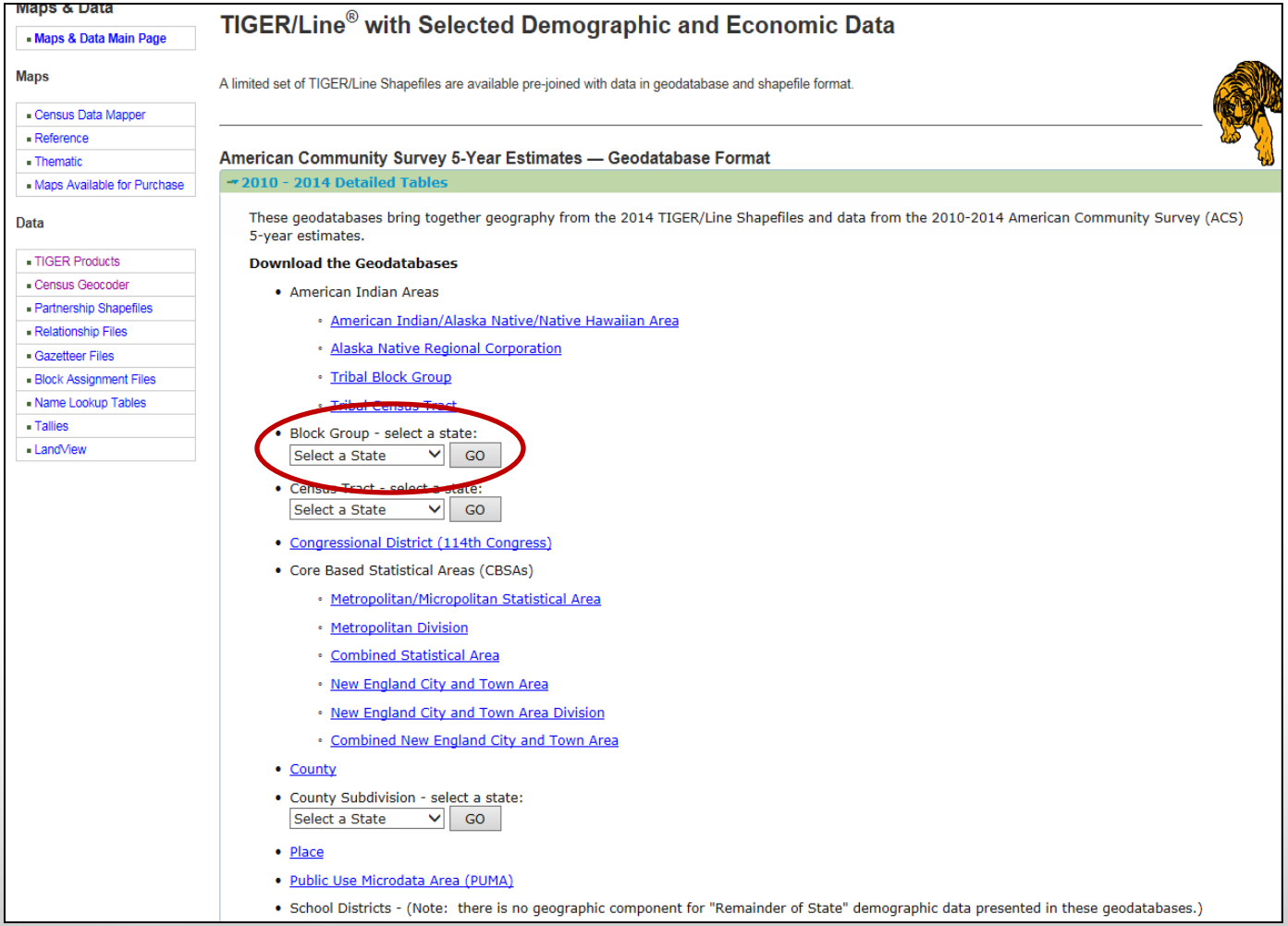
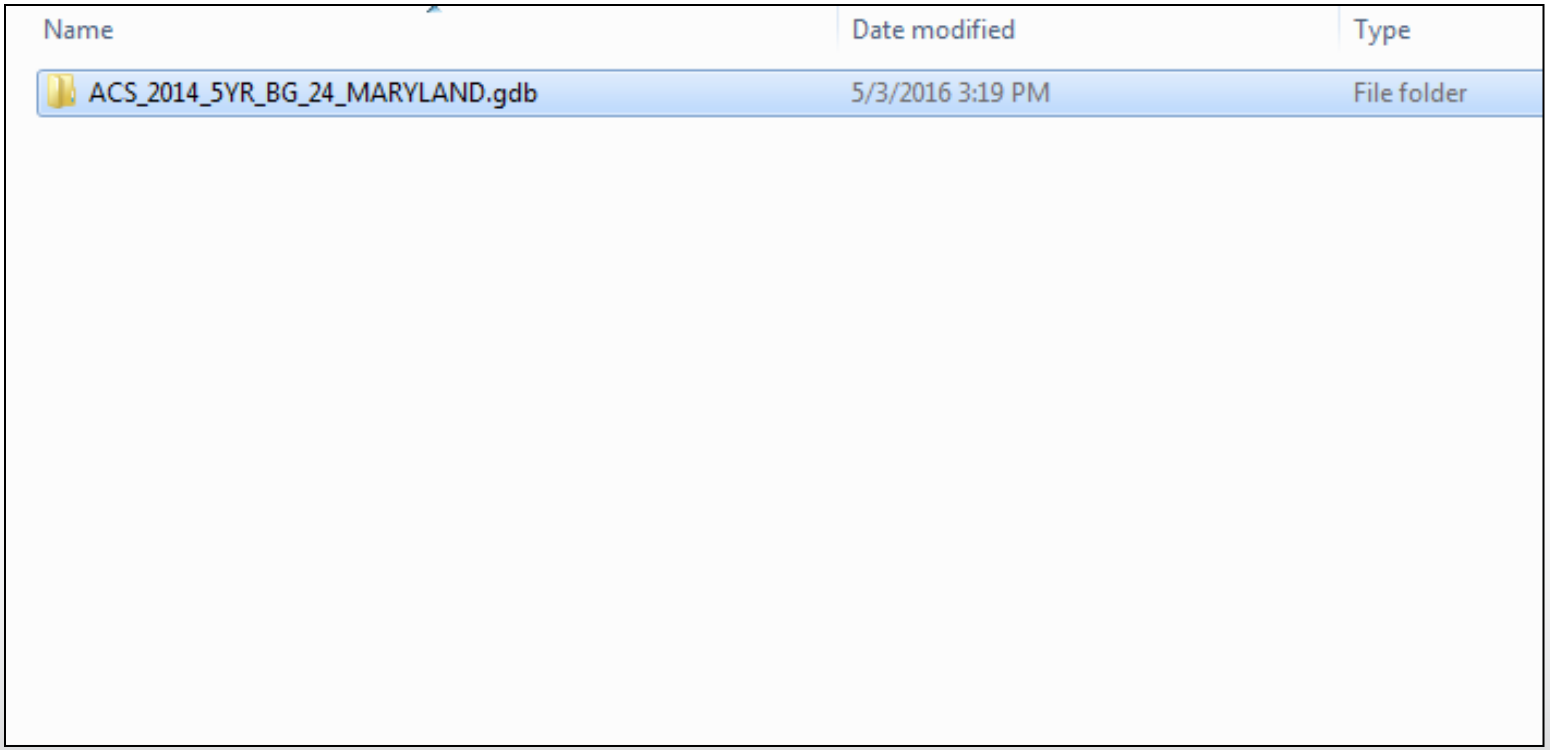
Choose Census Geography of Your Choice



Zipped Files Once Download is Complete



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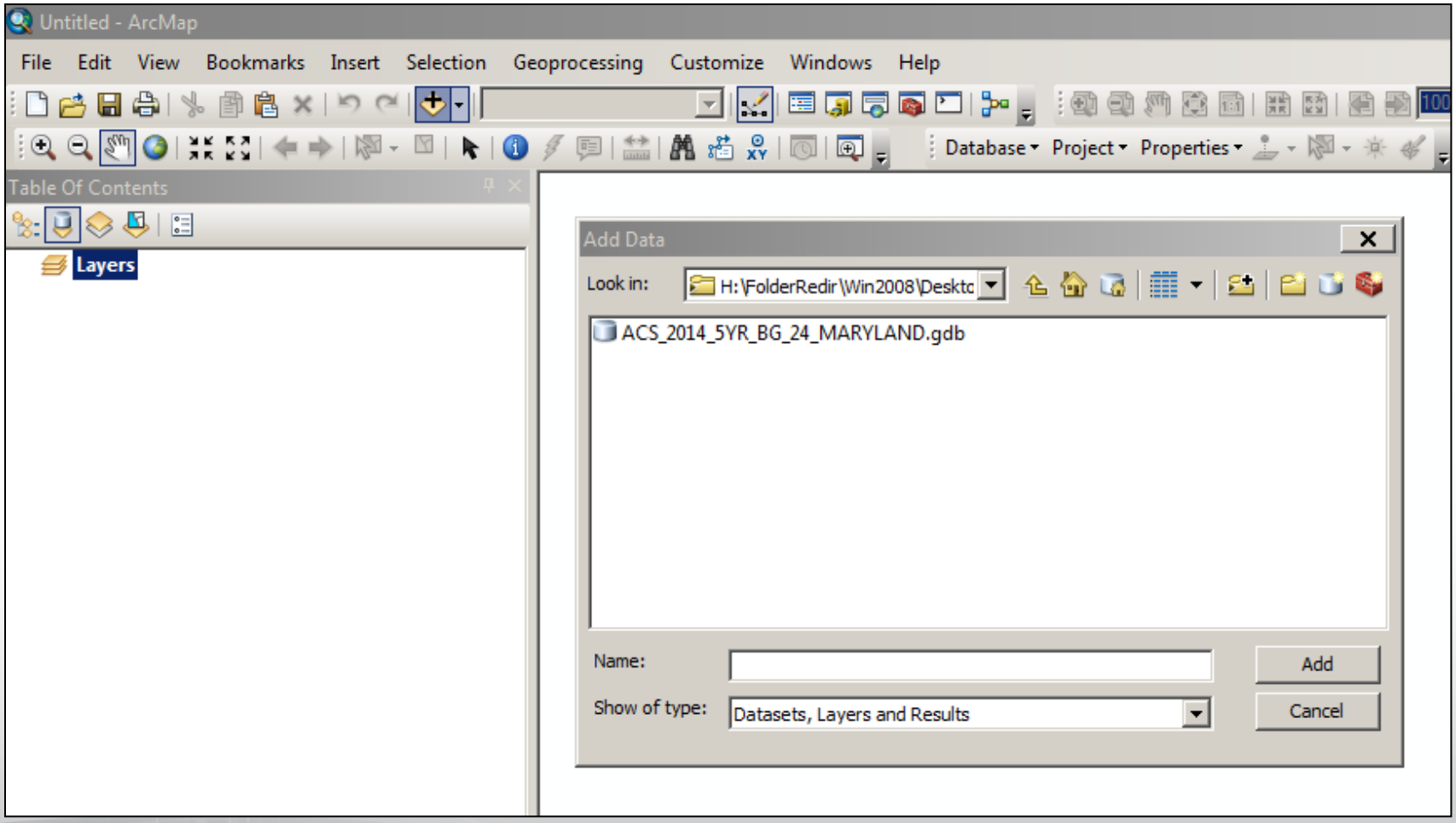
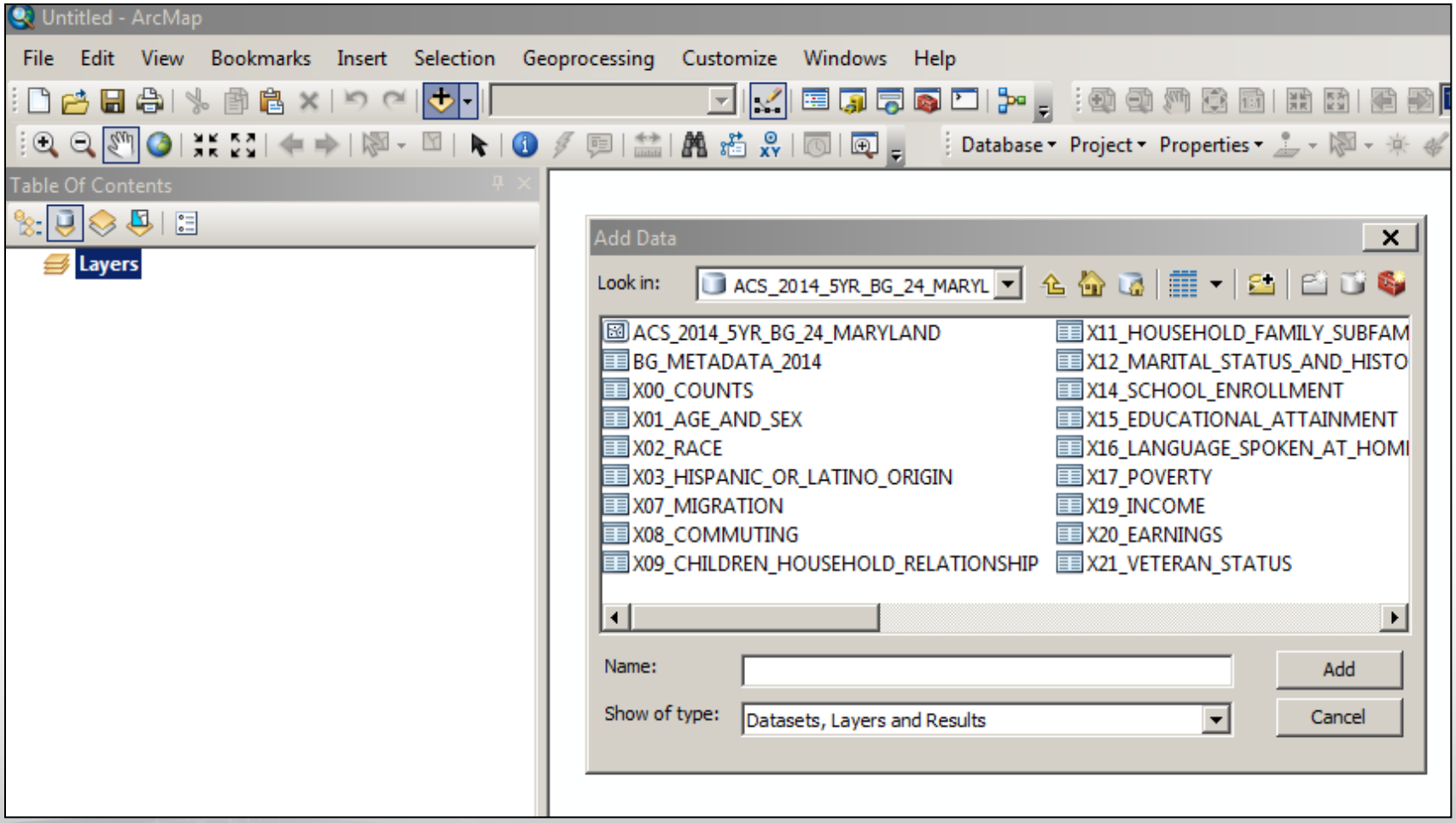
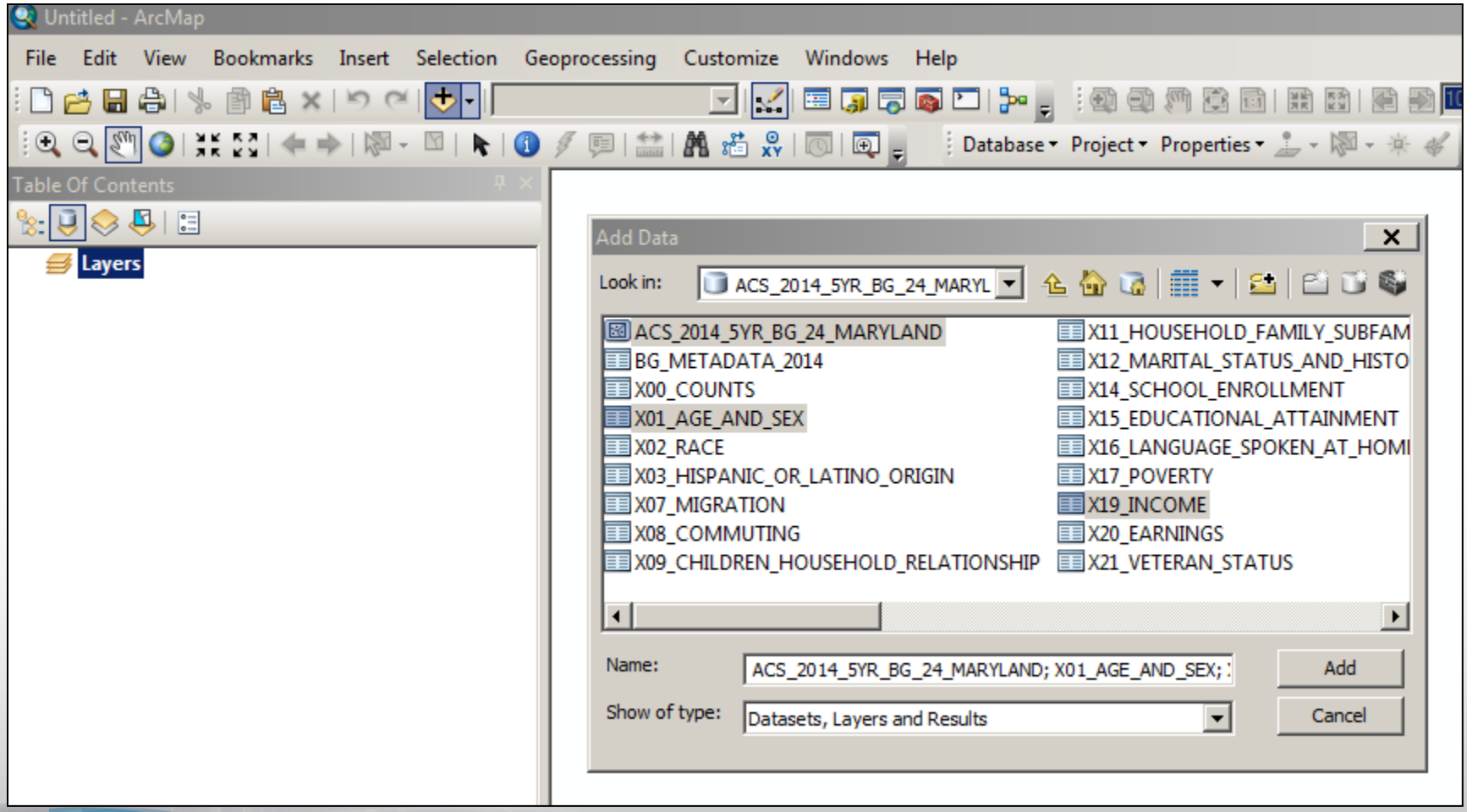
Add Data Button to Upload GDB



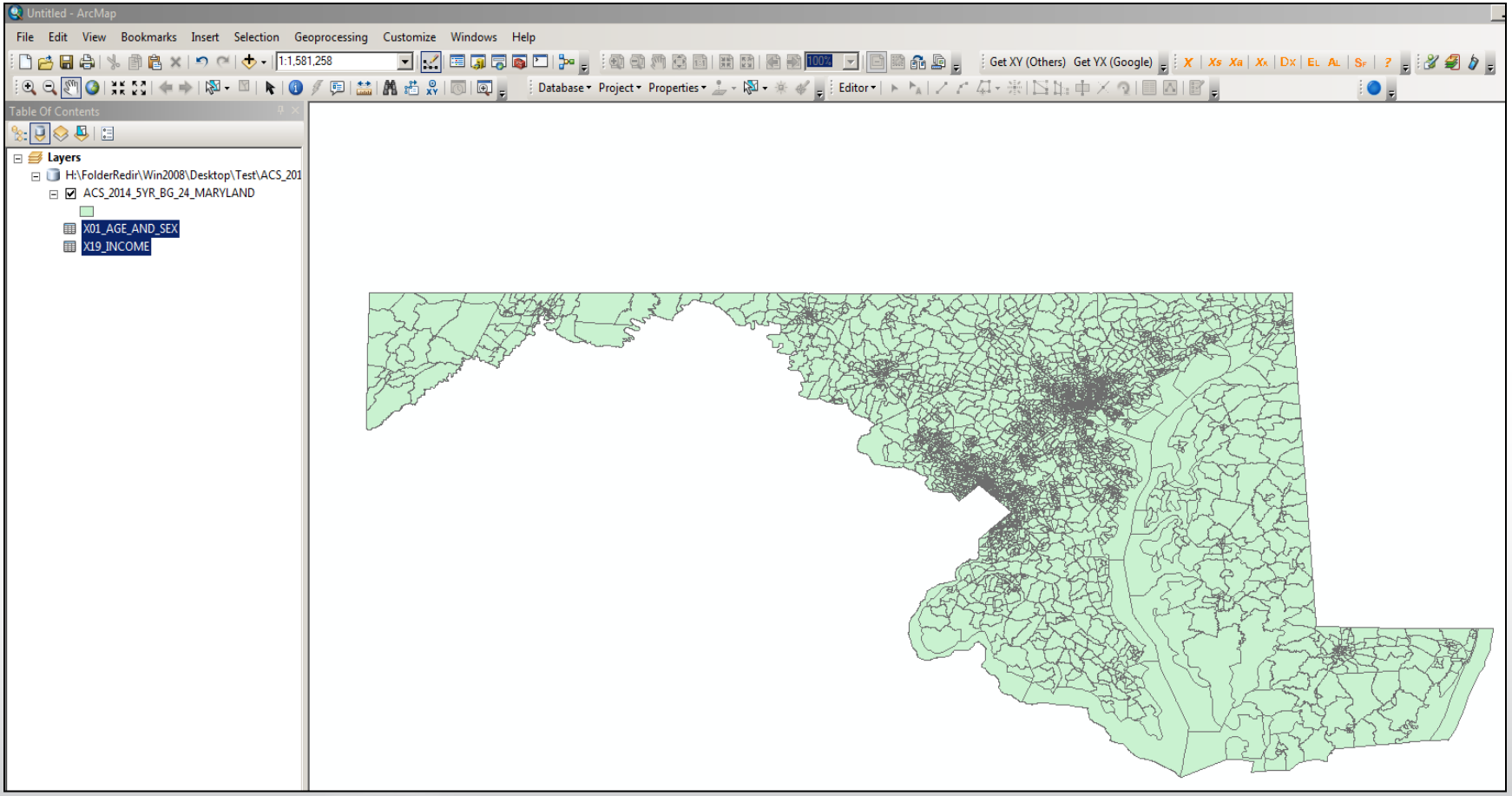
Choose Feature Class and Tables



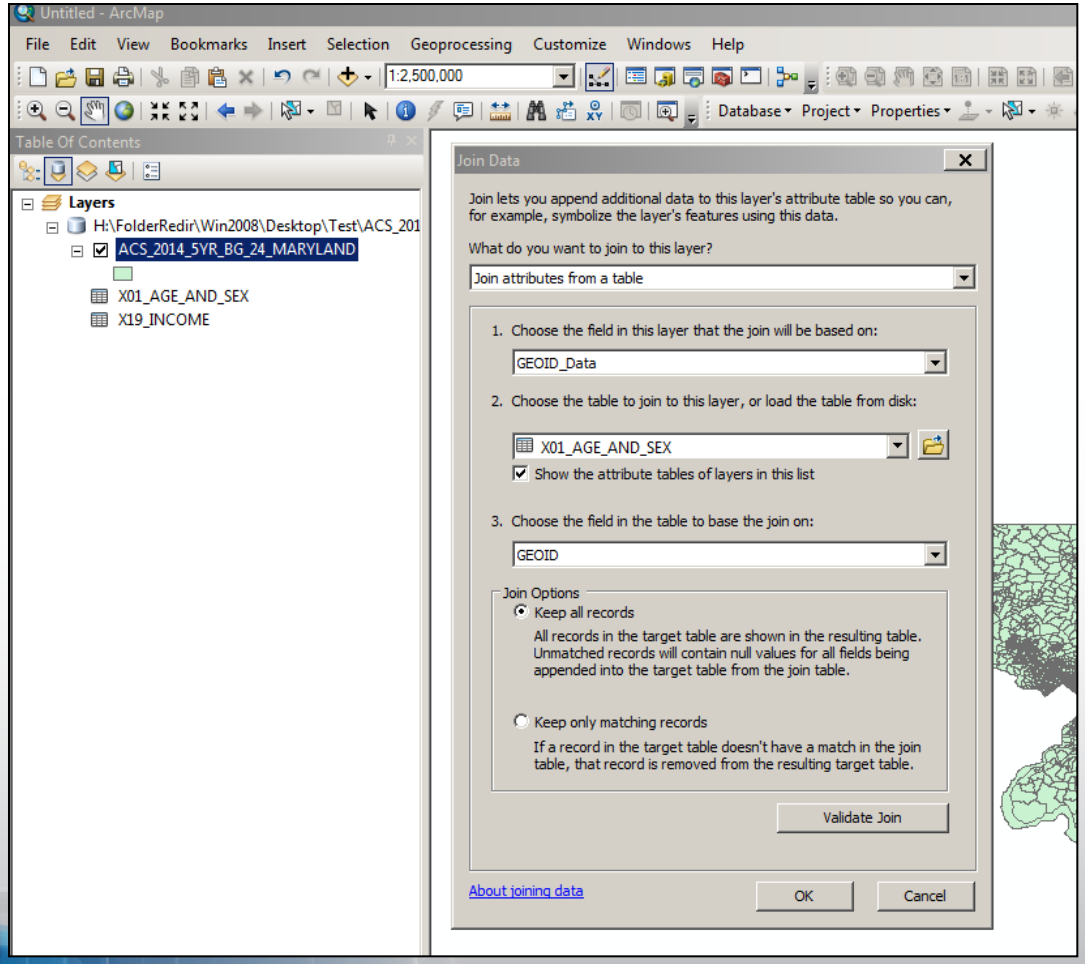
Feature Class, Age and Sex, & Income



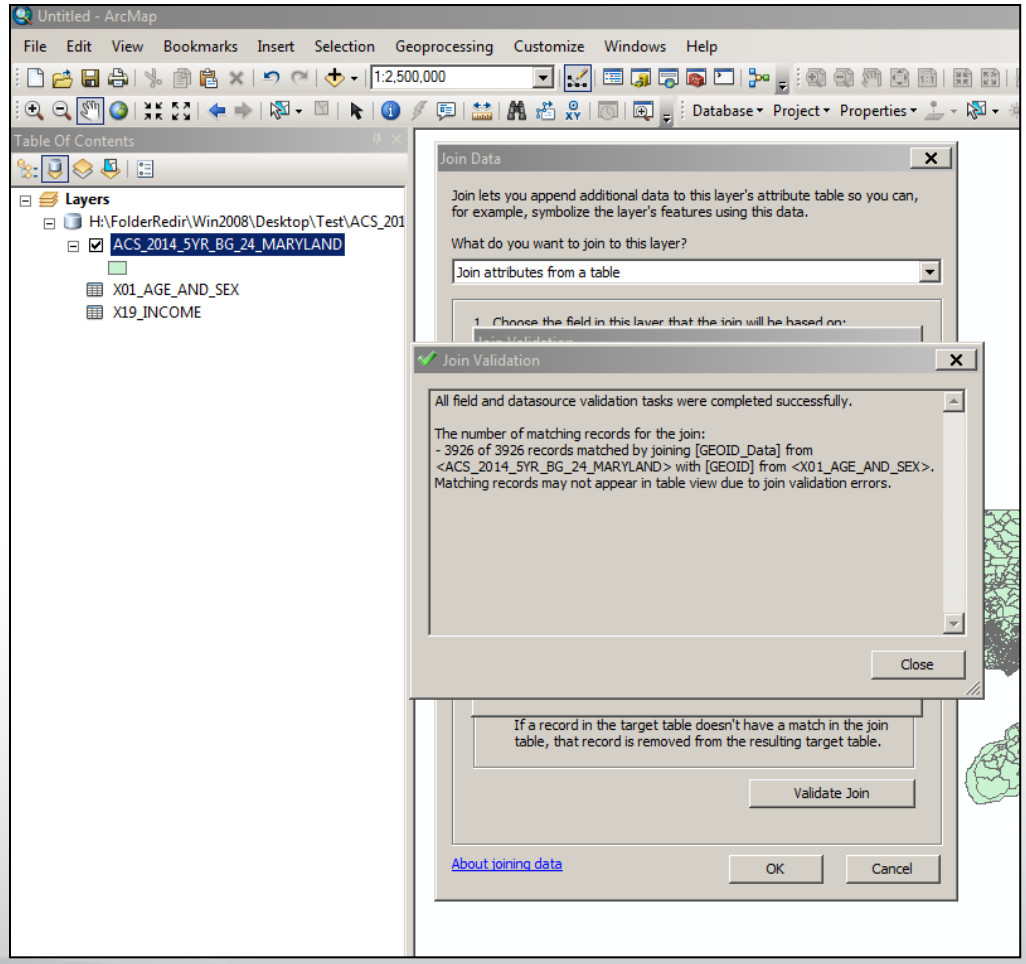
View in ArcMap



Joining the Table to the Feature Class



Validation Check



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Attribute Table When Join Successfully Occurs

ACS_2014_5YR_BG_24_MARYLAND

GEOID *	B01001e1	B01001m1	B01001e2	B01001m2	B01001e3	B01001m3
15000US240054112023	863	226	454	156	12	18
15000US240054111011	2320	203	1106	114	11	12
15000US240054025033	1725	514	777	268	188	178
15000US240054082001	1199	232	600	134	3	6
15000US240054514022	690	299	276	113	33	39
15000US240054401003	1054	255	525	145	28	30
15000US240054208003	1234	345	573	199	10	17
15000US240054906022	1950	264	891	209	16	24
15000US240054060003	1666	318	925	212	24	28
15000US240054060004	1674	336	899	217	20	32
15000US240054111022	573	179	273	92	0	12
15000US240054015031	1659	321	808	179	37	40
15000US240253037002	1043	228	480	106	34	38
15000US240253017022	2521	528	1304	321	82	95
15000US240253042021	2303	355	1168	209	0	12
15000US240054405002	462	133	252	89	13	19
15000US240317010011	3125	344	1488	245	132	61
15000US240317010013	762	124	363	70	0	12
15000US240317010022	1797	234	829	127	62	53
15000US240317010023	823	155	413	96	26	39

Metadata – Example 1

BG_METADATA_2014

OBJECTID *	Short_Name	
1	B00001e1	UNWEIGHTED SAMPLE COUNT OF THE POPULATION: Total: Total population -- (Estimate)
2	B00001m1	UNWEIGHTED SAMPLE COUNT OF THE POPULATION: Total: Total population -- (Margin of Error)
3	B00002e1	UNWEIGHTED SAMPLE HOUSING UNITS: Total: Housing units -- (Estimate)
4	B00002m1	UNWEIGHTED SAMPLE HOUSING UNITS: Total: Housing units -- (Margin of Error)
5	B01001e1	SEX BY AGE: Total: Total population -- (Estimate)
6	B01001m1	SEX BY AGE: Total: Total population -- (Margin of Error)
7	B01001e2	SEX BY AGE: Male: Total population -- (Estimate)
8	B01001m2	SEX BY AGE: Male: Total population -- (Margin of Error)
9	B01001e3	SEX BY AGE: Male: Under 5 years: Total population -- (Estimate)
10	B01001m3	SEX BY AGE: Male: Under 5 years: Total population -- (Margin of Error)
11	B01001e4	SEX BY AGE: Male: 5 to 9 years: Total population -- (Estimate)
12	B01001m4	SEX BY AGE: Male: 5 to 9 years: Total population -- (Margin of Error)
13	B01001e5	SEX BY AGE: Male: 10 to 14 years: Total population -- (Estimate)
14	B01001m5	SEX BY AGE: Male: 10 to 14 years: Total population -- (Margin of Error)
15	B01001e6	SEX BY AGE: Male: 15 to 17 years: Total population -- (Estimate)
16	B01001m6	SEX BY AGE: Male: 15 to 17 years: Total population -- (Margin of Error)
17	B01001e7	SEX BY AGE: Male: 18 and 19 years: Total population -- (Estimate)
18	B01001m7	SEX BY AGE: Male: 18 and 19 years: Total population -- (Margin of Error)
19	B01001e8	SEX BY AGE: Male: 20 years: Total population -- (Estimate)
20	B01001m8	SEX BY AGE: Male: 20 years: Total population -- (Margin of Error)
21	B01001e9	SEX BY AGE: Male: 21 years: Total population -- (Estimate)
22	B01001m9	SEX BY AGE: Male: 21 years: Total population -- (Margin of Error)
23	B01001e10	SEX BY AGE: Male: 22 to 24 years: Total population -- (Estimate)
24	B01001m10	SEX BY AGE: Male: 22 to 24 years: Total population -- (Margin of Error)
25	B01001e11	SEX BY AGE: Male: 25 to 29 years: Total population -- (Estimate)
26	B01001m11	SEX BY AGE: Male: 25 to 29 years: Total population -- (Margin of Error)
27	B01001e12	SEX BY AGE: Male: 30 to 34 years: Total population -- (Estimate)
28	B01001m12	SEX BY AGE: Male: 30 to 34 years: Total population -- (Margin of Error)
29	B01001e13	SEX BY AGE: Male: 35 to 39 years: Total population -- (Estimate)
30	B01001m13	SEX BY AGE: Male: 35 to 39 years: Total population -- (Margin of Error)
31	B01001e14	SEX BY AGE: Male: 40 to 44 years: Total population -- (Estimate)

Metadata – Example 2

Short_Name	Full_Name
B00001e1	UNWEIGHTED SAMPLE COUNT OF THE POPULATION: Total: Total population -- (Estimate)
B00001m1	UNWEIGHTED SAMPLE COUNT OF THE POPULATION: Total: Total population -- (Margin of Error)
B00002e1	UNWEIGHTED SAMPLE HOUSING UNITS: Total: Housing units -- (Estimate)
B00002m1	UNWEIGHTED SAMPLE HOUSING UNITS: Total: Housing units -- (Margin of Error)
B01001e1	SEX BY AGE: Total: Total population -- (Estimate)
B01001m1	SEX BY AGE: Total: Total population -- (Margin of Error)
B01001e2	SEX BY AGE: Male: Total population -- (Estimate)
B01001m2	SEX BY AGE: Male: Total population -- (Margin of Error)
B01001e3	SEX BY AGE: Male: Under 5 years: Total population -- (Estimate)
B01001m3	SEX BY AGE: Male: Under 5 years: Total population -- (Margin of Error)
B01001e4	SEX BY AGE: Male: 5 to 9 years: Total population -- (Estimate)
B01001m4	SEX BY AGE: Male: 5 to 9 years: Total population -- (Margin of Error)
B01001e5	SEX BY AGE: Male: 10 to 14 years: Total population -- (Estimate)
B01001m5	SEX BY AGE: Male: 10 to 14 years: Total population -- (Margin of Error)
B01001e6	SEX BY AGE: Male: 15 to 17 years: Total population -- (Estimate)
B01001m6	SEX BY AGE: Male: 15 to 17 years: Total population -- (Margin of Error)
B01001e7	SEX BY AGE: Male: 18 and 19 years: Total population -- (Estimate)
B01001m7	SEX BY AGE: Male: 18 and 19 years: Total population -- (Margin of Error)
B01001e8	SEX BY AGE: Male: 20 years: Total population -- (Estimate)
B01001m8	SEX BY AGE: Male: 20 years: Total population -- (Margin of Error)
B01001e9	SEX BY AGE: Male: 21 years: Total population -- (Estimate)
B01001m9	SEX BY AGE: Male: 21 years: Total population -- (Margin of Error)
B01001e10	SEX BY AGE: Male: 22 to 24 years: Total population -- (Estimate)
B01001m10	SEX BY AGE: Male: 22 to 24 years: Total population -- (Margin of Error)
B01001e11	SEX BY AGE: Male: 25 to 29 years: Total population -- (Estimate)
B01001m11	SEX BY AGE: Male: 25 to 29 years: Total population -- (Margin of Error)
B01001e12	SEX BY AGE: Male: 30 to 34 years: Total population -- (Estimate)
B01001m12	SEX BY AGE: Male: 30 to 34 years: Total population -- (Margin of Error)
B01001e13	SEX BY AGE: Male: 35 to 39 years: Total population -- (Estimate)
B01001m13	SEX BY AGE: Male: 35 to 39 years: Total population -- (Margin of Error)
B01001e14	SEX BY AGE: Male: 40 to 44 years: Total population -- (Estimate)
B01001m14	SEX BY AGE: Male: 40 to 44 years: Total population -- (Margin of Error)
B01001e15	SEX BY AGE: Male: 45 to 49 years: Total population -- (Estimate)
B01001m15	SEX BY AGE: Male: 45 to 49 years: Total population -- (Margin of Error)
B01001e16	SEX BY AGE: Male: 50 to 54 years: Total population -- (Estimate)
B01001m16	SEX BY AGE: Male: 50 to 54 years: Total population -- (Margin of Error)
B01001e17	SEX BY AGE: Male: 55 to 59 years: Total population -- (Estimate)
B01001m17	SEX BY AGE: Male: 55 to 59 years: Total population -- (Margin of Error)
B01001e18	SEX BY AGE: Male: 60 and 61 years: Total population -- (Estimate)
B01001m18	SEX BY AGE: Male: 60 and 61 years: Total population -- (Margin of Error)

Common Mistakes

- When joining tables to the feature class, use the GEOID_Data field NOT the GEOID field

- Metadata can be viewed as a table or text document

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Source Us!

U.S. Census Bureau's *[YYYY-YYYY]* American Community Survey *[1/3/5]*-year *[estimates/statistics/data release]*

College Destinations: How We Rank Them
American Institute for Economic Research - Apr 7, 2014
Sources: **U.S. Census Bureau**; **American Community Survey**, **2011 American Community Survey 1-Year Estimates**, Table B01003; using ...

NMSU Valencia County Extension providing youth develo…
New Mexico State University NewsCenter - Apr 14, 2015
... Mexico and $53,046 for the United States, according to the **U.S. Census Bureau's 2009-2013 American Community Survey 5-Year Estimate**.

Census Estimates Show Progress Toward ACA Coverag…
Health Affairs (blog) - Sep 28, 2015
Source: **U.S. Census Bureau**, 2013 and **2014 American Community Survey 1-year estimates** from Table S2701 in American Fact Finder.

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More information online:
https://www.census.gov/geography.html
http://www.census.gov/acs

(800) 923-8282 (Census)
(301) 763-1128 (Geography questions)
(301) 763-1405 (ACS questions)

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AMERICAN COMMUNITY SURVEY DATA USERS GROUP

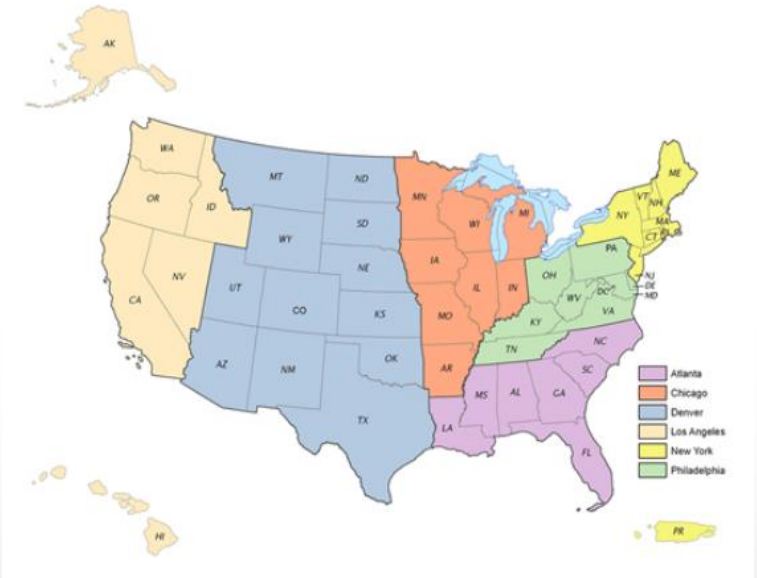
- Purpose:
  - Improve understanding of the value and utility of ACS data.
  - Promote information sharing among data users about key ACS data issues and applications
- Membership is free and open to all interested ACS data users
- Webinars and special sessions at professional meetings planned
- Users group website and online community

http://www.acsdatausers.org/

Need Local Stats?

- Assistance Near You!

  Our regional data staff can help you access local statistics from the ACS or offer training to help build your skills.
- Contact us at: clmso.ddb.questions@census.gov



Questions?