

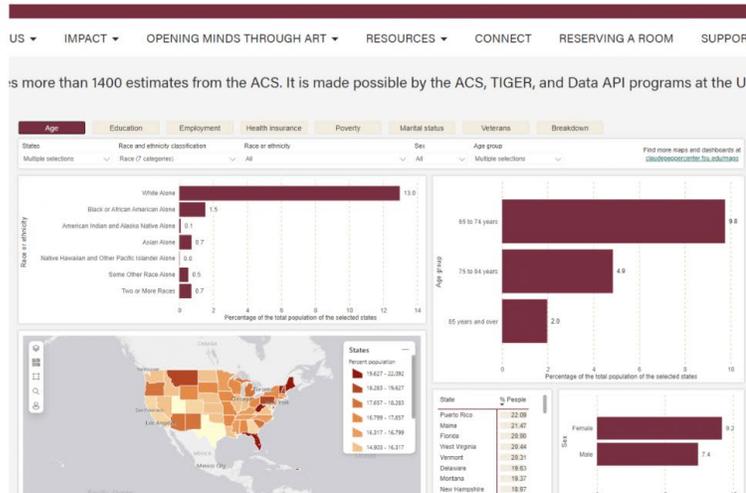
# Spec files as tools to maintain and extend ACS API queries

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Please ask about the PowerPoint version of this presentation  
so that the animations can assist you in understanding these tools  
[fac23d@fsu.edu](mailto:fac23d@fsu.edu)

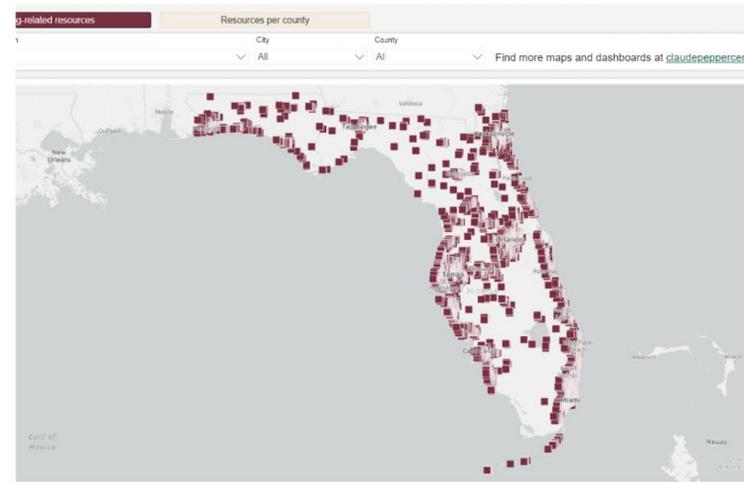


# Translational Data Platform



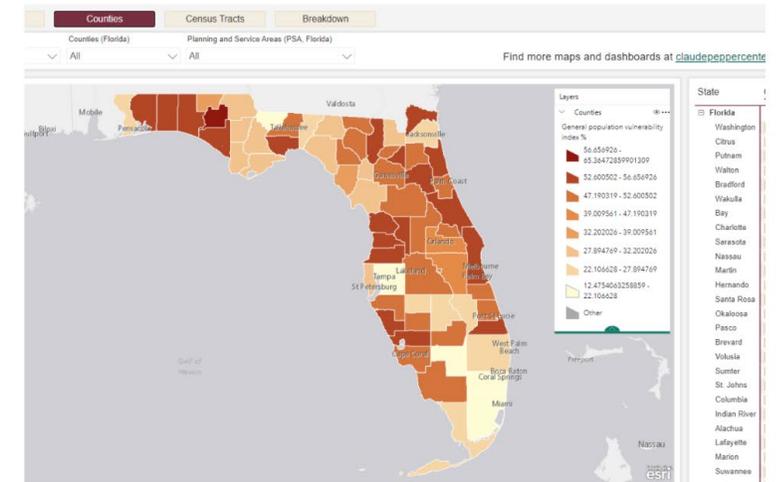
## American Community Survey

Explore select variables from 2018-2022 ACS related to age, education, employment, and poverty.



## Aging and health resources in Florida

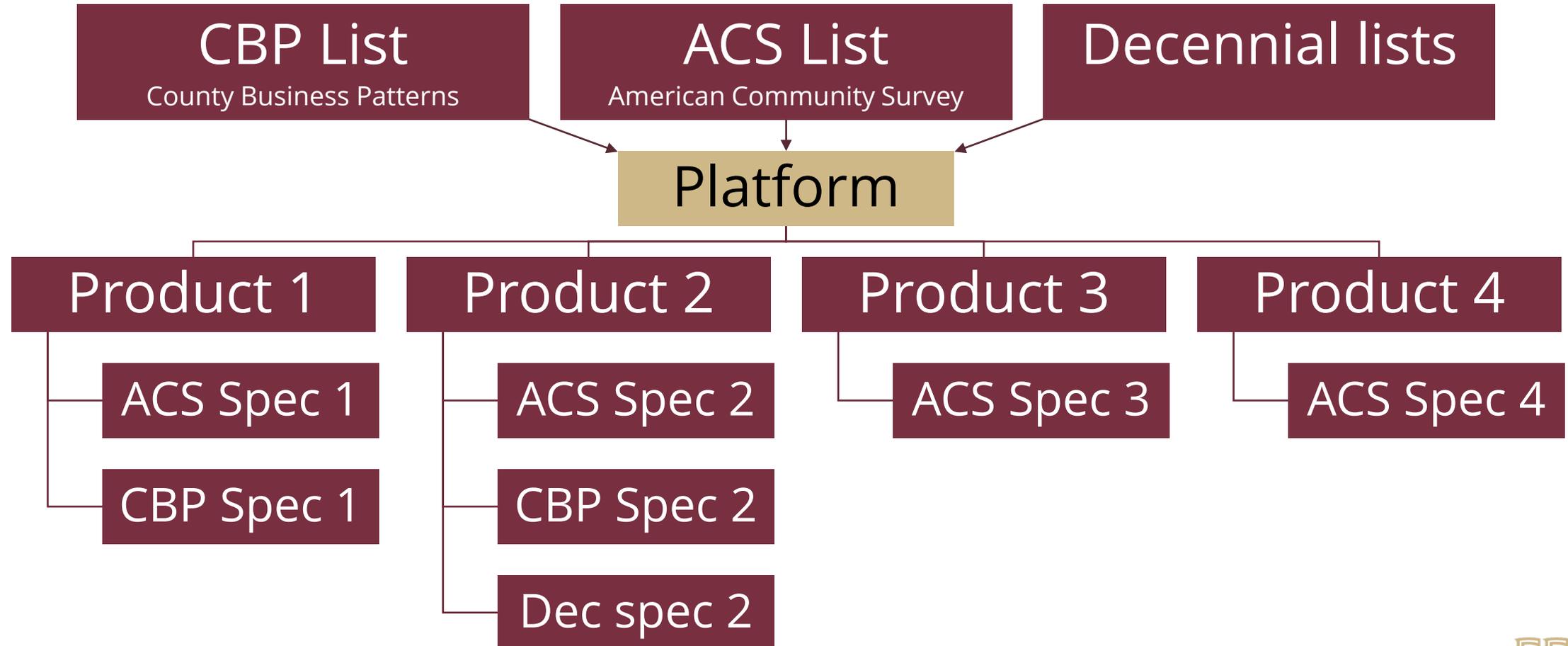
Discover institutions and private companies related to aging and healthcare in Florida for year 2023



## General Population Vulnerability Index

Estimate the needs of people of all ages based on poverty, minority, living alone, and lacking services.

# Translational Data Platform

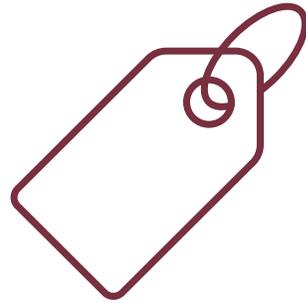


# Objectives of this presentation



## Efficient team communication

- Surveys
- Variables
- Universe



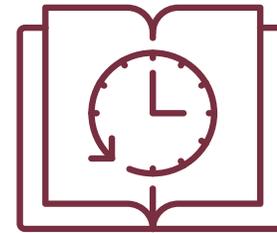
## Accurate labels, grouping

- Age groups,
- Race
- Income



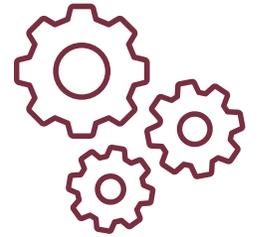
## Accurate upgrades

- Add variables
- Relabel
- Remove



## Versioning

- New ACS releases
- New product releases
- Corrections
- Errata



## Automation

- Reuse
- Low maintenance

# Tools

ACS List

ACS Spec



# ACS List

<https://api.census.gov/data/2023/acs/acs5/variables.html>

Census Data API: Variables in /data/2023/acs/acs5/variables

Name	Label	Concept	Required	Attributes	Limit	Predicate Type	Group
<a href="#">AIANHH</a>	American Indian Area/Alaska Native Area/Hawaiian Home Land		not required		0	(not a predicate)	N/A
<a href="#">AIHHTL</a>	American Indian Area (Off-Reservation Trust Land Only)/Hawaiian Home Land						
<a href="#">AIRES</a>	American Indian Area/Alaska Native Area (Reservation or Statistical Entity Only)						
<a href="#">ANRC</a>	Alaska Native Regional Corporation						
<a href="#">B01001_001E</a>	Estimate!!Total:	Sex by Age					
<a href="#">B01001_002E</a>	Estimate!!Total!!Male:	Sex by Age					
<a href="#">B01001_003E</a>	Estimate!!Total!!Male!!Under 5 years	Sex by Age					
<a href="#">B01001_004E</a>	Estimate!!Total!!Male!!5 to 9 years	Sex by Age					
<a href="#">B01001_005E</a>	Estimate!!Total!!Male!!10 to 14 years	Sex by Age					
<a href="#">B01001_006E</a>	Estimate!!Total!!Male!!15 to 17 years	Sex by Age					
<a href="#">B01001_007E</a>	Estimate!!Total!!Male!!18 and 19 years	Sex by Age					

```

Ac5> F Ac5yr2023_acs_variables.html
Name Label Concept Required Attributes Limit Predicate Type Group
AIANHH American Indian Area/Alaska Native Area/Hawaiian Home Land not required 0 (not a predicate) N/A
AIHHTL American Indian Area (Off-Reservation Trust Land Only)/Hawaiian Home Land not required 0 (not a predicate) N/A
AIRES American Indian Area/Alaska Native Area (Reservation or Statistical Entity Only) not required 0 (not a predicate) N/A
ANRC Alaska Native Regional Corporation not required 0 (not a predicate) N/A
B01001_001E Estimate!!Total: Sex by Age
B01001_002E Estimate!!Total!!Male: Sex by Age
B01001_003E Estimate!!Total!!Male!!Under 5 years Sex by Age
B01001_004E Estimate!!Total!!Male!!5 to 9 years Sex by Age
B01001_005E Estimate!!Total!!Male!!10 to 14 years Sex by Age
B01001_006E Estimate!!Total!!Male!!15 to 17 years Sex by Age
B01001_007E Estimate!!Total!!Male!!18 and 19 years Sex by Age
B01001_008E Estimate!!Total!!Male!!20 years Sex by Age
B01001_009E Estimate!!Total!!Male!!21 year Sex by Age
B01001_010E Estimate!!Total!!Male!!22 to 24 years Sex by Age
B01001_011E Estimate!!Total!!Male!!25 to 29 years Sex by Age
B01001_012E Estimate!!Total!!Male!!30 to 34 years Sex by Age
B01001_013E Estimate!!Total!!Male!!35 to 39 years Sex by Age
B01001_014E Estimate!!Total!!Male!!40 to 44 years Sex by Age
B01001_015E Estimate!!Total!!Male!!45 to 49 years Sex by Age
B01001_016E Estimate!!Total!!Male!!50 to 54 years Sex by Age
B01001_017E Estimate!!Total!!Male!!55 to 59 years Sex by Age
B01001_018E Estimate!!Total!!Male!!60 and 64 years Sex by Age
B01001_019E Estimate!!Total!!Male!!65 and 69 years Sex by Age
B01001_020E Estimate!!Total!!Male!!70 years and over Sex by Age
B01001_021E Estimate!!Total!!Female: Sex by Age
B01001_022E Estimate!!Total!!Female!!Under 5 years Sex by Age
B01001_023E Estimate!!Total!!Female!!5 to 9 years Sex by Age
B01001_024E Estimate!!Total!!Female!!10 to 14 years Sex by Age
B01001_025E Estimate!!Total!!Female!!15 to 17 years Sex by Age
B01001_026E Estimate!!Total!!Female!!18 and 19 years Sex by Age
B01001_027E Estimate!!Total!!Female!!20 years Sex by Age
B01001_028E Estimate!!Total!!Female!!21 year Sex by Age
B01001_029E Estimate!!Total!!Female!!22 to 24 years Sex by Age
B01001_030E Estimate!!Total!!Female!!25 to 29 years Sex by Age
B01001_031E Estimate!!Total!!Female!!30 to 34 years Sex by Age
B01001_032E Estimate!!Total!!Female!!35 to 39 years Sex by Age
B01001_033E Estimate!!Total!!Female!!40 to 44 years Sex by Age
B01001_034E Estimate!!Total!!Female!!45 to 49 years Sex by Age
B01001_035E Estimate!!Total!!Female!!50 to 54 years Sex by Age
B01001_036E Estimate!!Total!!Female!!55 to 59 years Sex by Age
B01001_037E Estimate!!Total!!Female!!60 and 64 years Sex by Age
B01001_038E Estimate!!Total!!Female!!65 and 69 years Sex by Age
B01001_039E Estimate!!Total!!Female!!70 years and over Sex by Age
  
```

Name	Label	Concept	Required	Attributes	Limit	Predicate Type	Group
B01001_001E	Estimate!!Total:	Sex by Age	not required	B01001_001E	0 int		B01001
B01001_002E	Estimate!!Total!!Male:	Sex by Age	not required	B01001_002E	0 int		B01001
B01001_003E	Estimate!!Total!!Male!!Under 5 years	Sex by Age	not required	B01001_003E	0 int		B01001
B01001_004E	Estimate!!Total!!Male!!5 to 9 years	Sex by Age	not required	B01001_004E	0 int		B01001
B01001_005E	Estimate!!Total!!Male!!10 to 14 years	Sex by Age	not required	B01001_005E	0 int		B01001
B01001_006E	Estimate!!Total!!Male!!15 to 17 years	Sex by Age	not required	B01001_006E	0 int		B01001
B01001_007E	Estimate!!Total!!Male!!18 and 19 years	Sex by Age	not required	B01001_007E	0 int		B01001
B01001_008E	Estimate!!Total!!Male!!20 years	Sex by Age	not required	B01001_008E	0 int		B01001
B01001_009E	Estimate!!Total!!Male!!21 year	Sex by Age	not required	B01001_009E	0 int		B01001
B01001_010E	Estimate!!Total!!Male!!22 to 24 years	Sex by Age	not required	B01001_010E	0 int		B01001
B01001_011E	Estimate!!Total!!Male!!25 to 29 years	Sex by Age	not required	B01001_011E	0 int		B01001
B01001_012E	Estimate!!Total!!Male!!30 to 34 years	Sex by Age	not required	B01001_012E	0 int		B01001
B01001_013E	Estimate!!Total!!Male!!35 to 39 years	Sex by Age	not required	B01001_013E	0 int		B01001
B01001_014E	Estimate!!Total!!Male!!40 to 44 years	Sex by Age	not required	B01001_014E	0 int		B01001
B01001_015E	Estimate!!Total!!Male!!45 to 49 years	Sex by Age	not required	B01001_015E	0 int		B01001
B01001_016E	Estimate!!Total!!Male!!50 to 54 years	Sex by Age	not required	B01001_016E	0 int		B01001
B01001_017E	Estimate!!Total!!Male!!55 to 59 years	Sex by Age	not required	B01001_017E	0 int		B01001
B01001_018E	Estimate!!Total!!Male!!60 and 64 years	Sex by Age	not required	B01001_018E	0 int		B01001
B01001_019E	Estimate!!Total!!Male!!65 and 69 years	Sex by Age	not required	B01001_019E	0 int		B01001
B01001_020E	Estimate!!Total!!Male!!70 years and over	Sex by Age	not required	B01001_020E	0 int		B01001

# ACS List

<https://www.census.gov/programs-surveys/acs/technical-documentation/table-shells.html>

## 2023 ACS Table List

Name	Label	Concept	Required	Attributes	Limit	Predicate Type	Group
American Indian							
Concept	Required	Attributes	Limit	Predicate Type	Group		
Sex by Age	not required	B01001_001E	0	int	B01001		
Sex by Age	not required	B01001_002E	0	int	B01001		
Sex by Age	not required	B01001_003E	0	int	B01001		
Sex by Age	not required	B01001_004E	0	int	B01001		
Sex by Age	not required	B01001_005E	0	int	B01001		

Table ID	Table Universe
B05002	Total population
B05003	Total population
B05003A	People who are White alone
B05003B	People who are Black or African American alone
B05003C	People who are American Indian and Alaska Native alone
B05003D	People who are Asian alone
B05003E	People who are Native Hawaiian and Other Pacific Islander alone
B05003F	People who are Some Other Race alone
B05003G	People who are Two or More Races

Join: **VLOOKUP()**

Variable name	Label	Concept	Universe
B01001_042E	Estimate!!Total!!!Female!!!60 and 61 years	Sex by Age	Total population
B01001_043E	Estimate!!Total!!!Female!!!62 to 64 years	Sex by Age	Total population
B01001_044E	Estimate!!Total!!!Female!!!65 and 66 years	Sex by Age	Total population
B01001_045E	Estimate!!Total!!!Female!!!67 to 69 years	Sex by Age	Total population
B01001_046E	Estimate!!Total!!!Female!!!70 to 74 years	Sex by Age	Total population
B01001_047E	Estimate!!Total!!!Female!!!75 to 79 years	Sex by Age	Total population
B01001_048E	Estimate!!Total!!!Female!!!80 to 84 years	Sex by Age	Total population
B01001_049E	Estimate!!Total!!!Female!!!85 years and over	Sex by Age	Total population
B01001A_001E	Estimate!!Total:	Sex by Age (White Alone)	People who are White alone
B01001A_002E	Estimate!!Total!!!Male:	Sex by Age (White Alone)	People who are White alone
B01001A_003E	Estimate!!Total!!!Male!!!Under 5 years	Sex by Age (White Alone)	People who are White alone
B01001A_004E	Estimate!!Total!!!Male!!!5 to 9 years	Sex by Age (White Alone)	People who are White alone



# Summary: ACS List

- List of variables in the ACS, each variable listed with:
  - Table from which the variable comes from,
  - Universe for the variable,
  - Labels ready to use
- List is ready to use in all products

Indicator Type	Group	Universe	Label 0	Label 1	Label 2	Label 3	Label 4	Label 5
ht	B01001G	People who are Two or More Races	Estimate	Total	Female	45 to 54 years		
ht	B01001G	People who are Two or More Races	Estimate	Total	Female	55 to 64 years		
ht	B01001G	People who are Two or More Races	Estimate	Total	Female	65 to 74 years		
ht	B01001G	People who are Two or More Races	Estimate	Total	Female	75 to 84 years		
ht	B01001G	People who are Two or More Races	Estimate	Total	Female	85 years and over		
ht	B01001H	White alone, not Hispanic or Latino population	Estimate	Total	Male			
ht	B01001H	White alone, not Hispanic or Latino population	Estimate	Total	Male	Under 5 years		
ht	B01001H	White alone, not Hispanic or Latino population	Estimate	Total	Male	5 to 9 years		
ht	B01001H	White alone, not Hispanic or Latino population	Estimate	Total	Male	10 to 14 years		
ht	B01001H	White alone, not Hispanic or Latino population	Estimate	Total	Male	15 to 17 years		
ht	B01001H	White alone, not Hispanic or Latino population	Estimate	Total	Male	18 and 19 years		
ht	B01001H	White alone, not Hispanic or Latino population	Estimate	Total	Male	20 to 24 years		
ht	B01001H	White alone, not Hispanic or Latino population	Estimate	Total	Male	25 to 29 years		
ht	B01001H	White alone, not Hispanic or Latino population	Estimate	Total	Male	30 to 34 years		
ht	B01001H	White alone, not Hispanic or Latino population	Estimate	Total	Male	35 to 44 years		
ht	B01001H	White alone, not Hispanic or Latino population	Estimate	Total	Male	45 to 54 years		
ht	B01001H	White alone, not Hispanic or Latino population	Estimate	Total	Male	55 to 64 years		
ht	B01001H	White alone, not Hispanic or Latino population	Estimate	Total	Male	65 to 74 years		
ht	B01001H	White alone, not Hispanic or Latino population	Estimate	Total	Male	75 to 84 years		
ht	B01001H	White alone, not Hispanic or Latino population	Estimate	Total	Male	85 years and over		
ht	B01001H	White alone, not Hispanic or Latino population	Estimate	Total	Female			
ht	B01001H	White alone, not Hispanic or Latino population	Estimate	Total	Female	Under 5 years		

Tools

ACS List

ACS Spec





# Spec-based Automation

Instead of

[https://api.census.gov/data/2023/acs/acs5?get=B01001\\_001E,B01001\\_017E,B01001\\_018E,B01001\\_019E,.....](https://api.census.gov/data/2023/acs/acs5?get=B01001_001E,B01001_017E,B01001_018E,B01001_019E,.....)

- Build query URL:  
**Text.Combine(Table.Column(Spec, "Variable name"))**
- Apply labels to the downloaded data:  
**Table.Join(Dataset.Long, Spec, "Variable name")**
- Group data:  
**Table.Group(Labeled.Data, "Age group")**

Age group	Variable name	Universe
All Ages	B01001_001E	Total population
60 years and over	B01001_018E	Total population
60 years and over	B01001_019E	Total population
60 years and over	B01001_020E	Total population
60 years and over	B01001_021E	Total population
60 years and over	B01001_022E	Total population
60 years and over	B01001_023E	Total population
60 years and over	B01001_024E	Total population
60 years and over	B01001_025E	Total population
60 years and over	B01001_042E	Total population
60 years and over	B01001_043E	Total population
60 years and over	B01001_044E	Total population
60 years and over	B01001_045E	Total population
60 years and over	B01001_046E	Total population
60 years and over	B01001_047E	Total population
60 years and over	B01001_048E	Total population
60 years and over	B01001_049E	Total population

# Add, regroup, relabel, remove variables

## ACS List

Variable name	Label	Concept	Required	Attributes	Limit	Predicate Type	Group	Universe
B01001_014E	Estimate!!Total!!Male!!140 to 44 years	Sex by Age	not required	B01001_014EA, B01001_014M, B01001_014MA	0 int	0 int	B01001	Total population
B01001_015E	Estimate!!Total!!Male!!145 to 49 years	Sex by Age	not required	B01001_015EA, B01001_015M, B01001_015MA	0 int	0 int	B01001	Total population
B01001_016E	Estimate!!Total!!Male!!150 to 54 years	Sex by Age	not required	B01001_016EA, B01001_016M, B01001_016MA	0 int	0 int	B01001	Total population
B01001_017E	Estimate!!Total!!Male!!155 to 59 years	Sex by Age	not required	B01001_017EA, B01001_017M, B01001_017MA	0 int	0 int	B01001	Total population
B01001_018E	Estimate!!Total!!Male!!160 and 61 years	Sex by Age	not required	B01001_018EA, B01001_018M, B01001_018MA	0 int	0 int	B01001	Total population
B01001_019E	Estimate!!Total!!Male!!162 to 64 years	Sex by Age	not required	B01001_019EA, B01001_019M, B01001_019MA	0 int	0 int	B01001	Total population
B01001_020E	Estimate!!Total!!Male!!165 and 66 years	Sex by Age	not required	B01001_020EA, B01001_020M, B01001_020MA	0 int	0 int	B01001	Total population
B01001_021E	Estimate!!Total!!Male!!167 to 69 years	Sex by Age	not required	B01001_021EA, B01001_021M, B01001_021MA	0 int	0 int	B01001	Total population
B01001_022E	Estimate!!Total!!Male!!170 to 74 years	Sex by Age	not required	B01001_022EA, B01001_022M, B01001_022MA	0 int	0 int	B01001	Total population
B01001_023E	Estimate!!Total!!Male!!175 to 79 years	Sex by Age	not required	B01001_023EA, B01001_023M, B01001_023MA	0 int	0 int	B01001	Total population
B01001_024E	Estimate!!Total!!Male!!180 to 84 years	Sex by Age	not required	B01001_024EA, B01001_024M, B01001_024MA	0 int	0 int	B01001	Total population
B01001_025E	Estimate!!Total!!Male!!185 years and over	Sex by Age	not required	B01001_025EA, B01001_025M, B01001_025MA	0 int	0 int	B01001	Total population
B01001_026E	Estimate!!Total!!Female!!Under 5 years	Sex by Age	not required	B01001_026EA, B01001_026M, B01001_026MA	0 int	0 int	B01001	Total population
B01001_027E	Estimate!!Total!!Female!!5 to 9 years	Sex by Age	not required	B01001_027EA, B01001_027M, B01001_027MA	0 int	0 int	B01001	Total population
B01001_028E	Estimate!!Total!!Female!!10 to 14 years	Sex by Age	not required	B01001_028EA, B01001_028M, B01001_028MA	0 int	0 int	B01001	Total population
B01001_029E	Estimate!!Total!!Female!!15 to 17 years	Sex by Age	not required	B01001_029EA, B01001_029M, B01001_029MA	0 int	0 int	B01001	Total population
B01001_030E	Estimate!!Total!!Female!!18 and 19 years	Sex by Age	not required	B01001_030EA, B01001_030M, B01001_030MA	0 int	0 int	B01001	Total population
B01001_031E	Estimate!!Total!!Female!!20 years	Sex by Age	not required	B01001_031EA, B01001_031M, B01001_031MA	0 int	0 int	B01001	Total population
B01001_032E	Estimate!!Total!!Female!!21 years	Sex by Age	not required	B01001_032EA, B01001_032M, B01001_032MA	0 int	0 int	B01001	Total population
B01001_033E	Estimate!!Total!!Female!!22 to 24 years	Sex by Age	not required	B01001_033EA, B01001_033M, B01001_033MA	0 int	0 int	B01001	Total population
B01001_034E	Estimate!!Total!!Female!!25 to 29 years	Sex by Age	not required	B01001_034EA, B01001_034M, B01001_034MA	0 int	0 int	B01001	Total population
B01001_035E	Estimate!!Total!!Female!!30 to 34 years	Sex by Age	not required	B01001_035EA, B01001_035M, B01001_035MA	0 int	0 int	B01001	Total population
B01001_036E	Estimate!!Total!!Female!!35 to 39 years	Sex by Age	not required	B01001_036EA, B01001_036M, B01001_036MA	0 int	0 int	B01001	Total population
B01001_037E	Estimate!!Total!!Female!!40 to 44 years	Sex by Age	not required	B01001_037EA, B01001_037M, B01001_037MA	0 int	0 int	B01001	Total population
B01001_038E	Estimate!!Total!!Female!!45 to 49 years	Sex by Age	not required	B01001_038EA, B01001_038M, B01001_038MA	0 int	0 int	B01001	Total population
B01001_039E	Estimate!!Total!!Female!!50 to 54 years	Sex by Age	not required	B01001_039EA, B01001_039M, B01001_039MA	0 int	0 int	B01001	Total population
B01001_040E	Estimate!!Total!!Female!!55 to 59 years	Sex by Age	not required	B01001_040EA, B01001_040M, B01001_040MA	0 int	0 int	B01001	Total population
B01001_041E	Estimate!!Total!!Female!!60 and 61 years	Sex by Age	not required	B01001_041EA, B01001_041M, B01001_041MA	0 int	0 int	B01001	Total population
B01001_042E	Estimate!!Total!!Female!!62 to 64 years	Sex by Age	not required	B01001_042EA, B01001_042M, B01001_042MA	0 int	0 int	B01001	Total population
B01001_043E	Estimate!!Total!!Female!!65 and 66 years	Sex by Age	not required	B01001_043EA, B01001_043M, B01001_043MA	0 int	0 int	B01001	Total population
B01001_044E	Estimate!!Total!!Female!!67 to 69 years	Sex by Age	not required	B01001_044EA, B01001_044M, B01001_044MA	0 int	0 int	B01001	Total population
B01001_045E	Estimate!!Total!!Female!!70 to 74 years	Sex by Age	not required	B01001_045EA, B01001_045M, B01001_045MA	0 int	0 int	B01001	Total population
B01001_046E	Estimate!!Total!!Female!!75 to 79 years	Sex by Age	not required	B01001_046EA, B01001_046M, B01001_046MA	0 int	0 int	B01001	Total population
B01001_047E	Estimate!!Total!!Female!!80 to 84 years	Sex by Age	not required	B01001_047EA, B01001_047M, B01001_047MA	0 int	0 int	B01001	Total population
B01001_048E	Estimate!!Total!!Female!!85 years and over	Sex by Age	not required	B01001_048EA, B01001_048M, B01001_048MA	0 int	0 int	B01001	Total population
B01001A_001E	Estimate!!Total!!Male!!Under 5 years	Sex by Age (White Alone)	not required	B01001A_001EA, B01001A_001M, B01001A_001MA	0 int	0 int	B01001	Total population
B01001A_002E	Estimate!!Total!!Male!!5 to 9 years	Sex by Age (White Alone)	not required	B01001A_002EA, B01001A_002M, B01001A_002MA	0 int	0 int	B01001	Total population
B01001A_003E	Estimate!!Total!!Male!!10 to 14 years	Sex by Age (White Alone)	not required	B01001A_003EA, B01001A_003M, B01001A_003MA	0 int	0 int	B01001	Total population
B01001A_004E	Estimate!!Total!!Male!!15 to 17 years	Sex by Age (White Alone)	not required	B01001A_004EA, B01001A_004M, B01001A_004MA	0 int	0 int	B01001	Total population
B01001A_005E	Estimate!!Total!!Male!!18 and 19 years	Sex by Age (White Alone)	not required	B01001A_005EA, B01001A_005M, B01001A_005MA	0 int	0 int	B01001	Total population
B01001A_006E	Estimate!!Total!!Male!!20 years	Sex by Age (White Alone)	not required	B01001A_006EA, B01001A_006M, B01001A_006MA	0 int	0 int	B01001	Total population
B01001A_007E	Estimate!!Total!!Male!!21 years	Sex by Age (White Alone)	not required	B01001A_007EA, B01001A_007M, B01001A_007MA	0 int	0 int	B01001	Total population
B01001A_008E	Estimate!!Total!!Male!!22 to 24 years	Sex by Age (White Alone)	not required	B01001A_008EA, B01001A_008M, B01001A_008MA	0 int	0 int	B01001	Total population
B01001A_009E	Estimate!!Total!!Male!!25 to 29 years	Sex by Age (White Alone)	not required	B01001A_009EA, B01001A_009M, B01001A_009MA	0 int	0 int	B01001	Total population
B01001A_010E	Estimate!!Total!!Male!!30 to 34 years	Sex by Age (White Alone)	not required	B01001A_010EA, B01001A_010M, B01001A_010MA	0 int	0 int	B01001	Total population
B01001A_011E	Estimate!!Total!!Male!!35 to 44 years	Sex by Age (White Alone)	not required	B01001A_011EA, B01001A_011M, B01001A_011MA	0 int	0 int	B01001	Total population

## ACS Spec

Age group	Variable name	Label	Universe	Label 0	Label 1	Label 2	Label 3	La
All Ages	B01001_001E	Estimate!!Total:	Total population	Estimate	Total			
55 to 59 years	B01001_017E	Estimate!!Total!!Male!!55 to 59 years	Total population	Estimate	Total	Male	55 to 59 years	
60 years and over	B01001_018E	Estimate!!Total!!Male!!60 and 61 years	Total population	Estimate	Total	Male	60 and 61 years	
60 years and over	B01001_019E	Estimate!!Total!!Male!!62 to 64 years	Total population	Estimate	Total	Male	62 to 64 years	
60 years and over	B01001_020E	Estimate!!Total!!Male!!65 and 66 years	Total population	Estimate	Total	Male	65 and 66 years	
60 years and over	B01001_021E	Estimate!!Total!!Male!!67 to 69 years	Total population	Estimate	Total	Male	67 to 69 years	
60 years and over	B01001_022E	Estimate!!Total!!Male!!70 to 74 years	Total population	Estimate	Total	Male	70 to 74 years	
60 years and over	B01001_023E	Estimate!!Total!!Male!!75 to 79 years	Total population	Estimate	Total	Male	75 to 79 years	
60 years and over	B01001_024E	Estimate!!Total!!Male!!80 to 84 years	Total population	Estimate	Total	Male	80 to 84 years	
60 years and over	B01001_025E	Estimate!!Total!!Male!!85 years and over	Total population	Estimate	Total	Male	85 years and over	
55 to 59 years	B01001_041E	Estimate!!Total!!Female!!55 to 59 years	Total population	Estimate	Total	Female	55 to 59 years	
60 years and over	B01001_042E	Estimate!!Total!!Female!!60 and 61 years	Total population	Estimate	Total	Female	60 and 61 years	
60 years and over	B01001_043E	Estimate!!Total!!Female!!62 to 64 years	Total population	Estimate	Total	Female	62 to 64 years	
60 years and over	B01001_044E	Estimate!!Total!!Female!!65 and 66 years	Total population	Estimate	Total	Female	65 and 66 years	
60 years and over	B01001_045E	Estimate!!Total!!Female!!67 to 69 years	Total population	Estimate	Total	Female	67 to 69 years	
60 years and over	B01001_046E	Estimate!!Total!!Female!!70 to 74 years	Total population	Estimate	Total	Female	70 to 74 years	
60 years and over	B01001_047E	Estimate!!Total!!Female!!75 to 79 years	Total population	Estimate	Total	Female	75 to 79 years	
60 years and over	B01001_048E	Estimate!!Total!!Female!!80 to 84 years	Total population	Estimate	Total	Female	80 to 84 years	
60 years and over	B01001_049E	Estimate!!Total!!Female!!85 years and over	Total population	Estimate	Total	Female	85 years and over	



# Automation

Instead of `https://api.census.gov/data/2023/acs/acs5?get=B01001_001E,B01001_001E,.....`

- Debug the code: Inspect the query URL
- Combine with other datasets into the product
- Reuse the code in future versions of the product

## Advantages

- No guesswork in choosing, labeling, or reviewing variables
- Automated labeling, grouping, consolidation of datasets after any change is introduced
- Code can be replicated from product to product
- Same code for states, counties, places, tracts, ucgid
- Your API work can be audited, shared, interpreted by your team

## Disadvantages

- Code that consolidates datasets needs to be custom-built and maintained
- Errors in grouping or labeling can become too obscure
- Manual intervention is still required to address differences between ACS versions.

**Thank You**

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# Example download joined with ACS spec

fx = Fun\_join\_careful(Acs\_county\_state\_api\_raw, Acs\_variable\_spec\_prune, Cst\_variable\_name, "Join spec verification")

1.2 COUNTYID	A <sup>B</sup> <sub>C</sub> Variable name	1 <sup>2</sup> <sub>3</sub> People in this group	A <sup>B</sup> <sub>C</sub> BYAGEGROUP age group	A <sup>B</sup> <sub>C</sub> Output table	A <sup>B</sup> <sub>C</sub> Concept	A <sup>B</sup> <sub>C</sub> Group	A <sup>B</sup> <sub>C</sub> Universe
1	12001 B01001_001E	281751	All Ages	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
2	12003 B01001_001E	28186	All Ages	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
3	12005 B01001_001E	181368	All Ages	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
4	12001 B01001_017E	5900		BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
5	12003 B01001_017E	674		BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
6	12001 B01001_018E	3218	60 to 64 years	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
7	12003 B01001_018E	393	60 to 64 years	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
8	12001 B01001_019E	4329	60 to 64 years	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
9	12003 B01001_019E	601	60 to 64 years	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
10	12001 B01001_020E	2279	65 to 69 years	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
11	12003 B01001_020E	239	65 to 69 years	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
12	12001 B01001_021E	4029	65 to 69 years	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
13	12003 B01001_021E	547	65 to 69 years	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
14	12001 B01001_022E	5267	70 to 74 years	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
15	12003 B01001_022E	483	70 to 74 years	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
16	12001 B01001_023E	3172	75 to 79 years	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
17	12003 B01001_023E	301	75 to 79 years	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
18	12001 B01001_024E	2136	80 to 84 years	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
19	12003 B01001_024E	304	80 to 84 years	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
20	12001 B01001_025E	1820	85 years and over	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
21	12003 B01001_025E	62	85 years and over	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
22	12001 B01001_041E	7244		BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
23	12003 B01001_041E	1026		BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
24	12001 B01001_042E	3171	60 to 64 years	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
25	12003 B01001_042E	222	60 to 64 years	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
26	12001 B01001_043E	4817	60 to 64 years	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
27	12003 B01001_043E	364	60 to 64 years	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
28	12001 B01001_044E	3111	65 to 69 years	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population
29	12003 B01001_044E	232	65 to 69 years	BYAGEGROUP MINORITY	Sex by Age	B01001	Total population

**PROPERTIES**

Name  
Acs\_county\_state\_byagegroup

All Properties

**APPLIED STEPS**

- Acs\_variable\_spec\_prune
- Acs\_county\_state\_join** ✖
- Acs\_county\_state\_select\_rows ✖
- Acs\_county\_state\_group\_cols ✖
- Acs\_byagegroup\_add\_county... ✖
- Acs\_byagegroup\_add\_acs\_age ✖
- Acs\_byagegroup\_prune ✖
- AcsAgid\_byagegroup\_combine ✖
- AcsAgid\_byagegroup\_output ✖

**Thank You**

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