

2. HOW TO USE THE ACS TABLE-BASED SUMMARY FILE

The American Community Survey (ACS) Summary File is located on the U.S. Census Bureau's file transfer protocol server.¹⁰ The easiest way to find the file is to start at the ACS website.¹¹ From the ACS main page <www.census.gov/programs-surveys/acs>, select the "Data" navigation link on the left. From there, click on the "Summary File" navigation link on the left, as shown in Figure 2.1.

The ACS Table-Based Summary File is in pipe-delimited, Unicode Transformation Format (UTF-8), which can easily be imported into software packages. The file is divided into three components: table labels (or table shells), geography labels

(or geography files), and data files. This section describes the components of the Summary File and the next section provides information and resources to put them together.

- **Data files:** Data (including estimates, margins of error, and geographies) organized by table ID for the 1-year or 5-year release:
 - *Folder:* 1YRData, 5YRData.
 - *Example:* The file acsdt1y2021-b01001.dat, variable B01001_E003 for 0400000US06 = 1,129,355.
- **Geography labels (or geography files):** All geography labels for the 1-year or 5-year data release:
 - *File name example:* Geos20211YR.txt or Geos20215YR.txt.
 - *Variable label example:* 0400000US06 = "California."

¹⁰ U.S. Census Bureau, "American Community Survey Data via the File Transfer Protocol Server," <www.census.gov/programs-surveys/acs/data/data-via-ftp.html>.

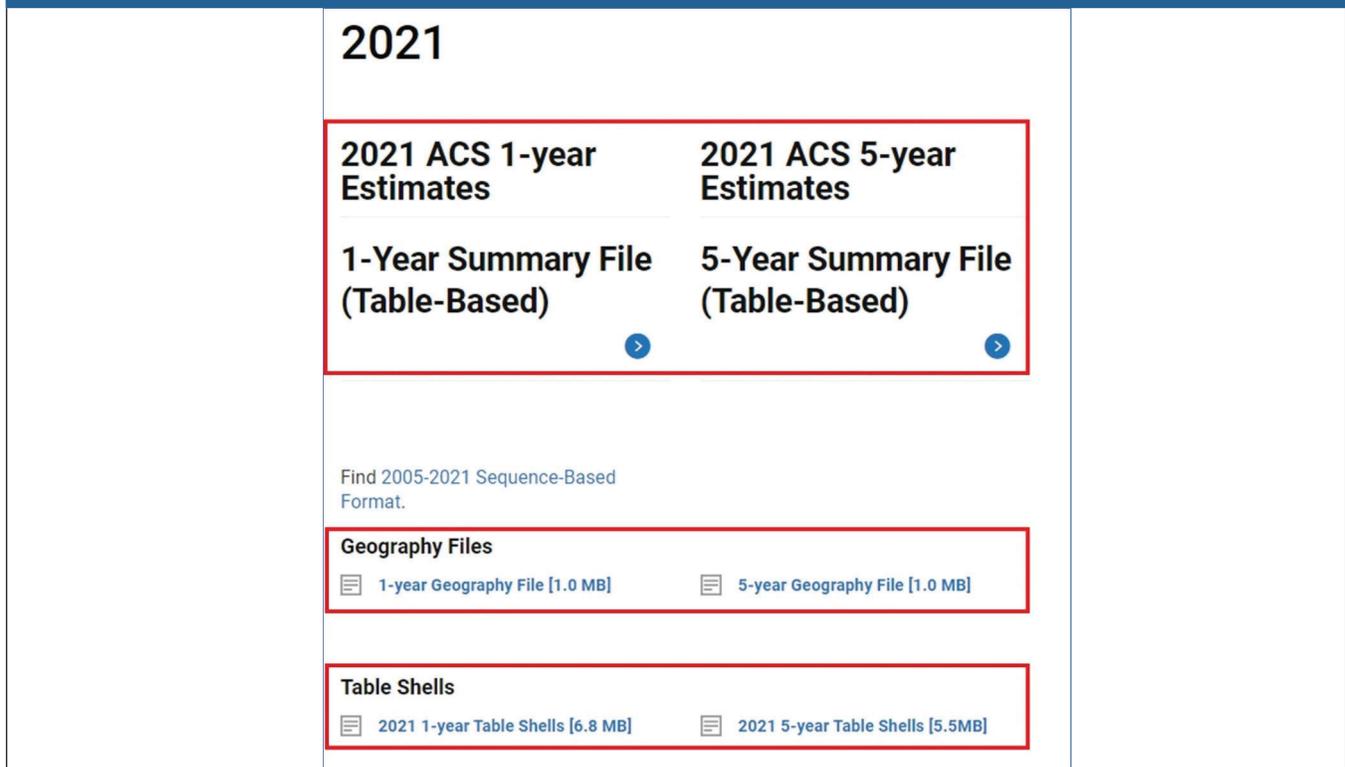
¹¹ U.S. Census Bureau, "American Community Survey," <www.census.gov/programs-surveys/acs>.

Figure 2.1. Locating the American Community Survey Summary File

The screenshot shows the United States Census Bureau website. The navigation menu includes 'Partners', 'Researchers', 'Educators', 'Survey Respondents', 'News', 'NAICS Codes', 'Jobs', 'About Us', 'Contact Us', and 'Help'. Below the menu are 'Topics', 'Data & Maps', 'Surveys & Programs', and 'Resource Library'. A search bar is located on the right. The main content area is titled 'American Community Survey Data' and includes a 'Summary File' link in the left-hand navigation menu, which is circled in red. A 'GO TO DATA.CENSUS.GOV' button is visible at the bottom of the page.

Source: U.S. Census Bureau, "American Community Survey Data," <www.census.gov/programs-surveys/acs/data.html>.

Figure 2.2. American Community Survey Summary File Components Associated With the 2021 Data Release



Source: U.S. Census Bureau, "American Community Survey Summary File," <www.census.gov/programs-surveys/acs/data/summary-file.2021.html#list-tab-1622397667>.

• **Table labels (or table shells):** A description of each line item in a table for the 1-year or 5-year data release:

- *File name example:* ACS20211YR_Table_Shells.txt or ACS20215YR_Table_Shells.txt.
- *Variable label example:* B01001_003 = "SEX BY AGE - Total Males Under 5 Years."

Figure 2.2 shows the location of each of these components on the Census Bureau's ACS Summary File website (2021 data release).

Data Files

Under the new table-based format, the ACS Summary File is organized by individual Detailed Tables that can be downloaded separately. Each data file contains estimates and margins of error (MOEs) for all available geographies. Figure 2.3 lists a compressed file of the entire dataset.

Table 2.1 lists the naming convention used for a selected file in the 1-year data directory (for 2021). The file name, "acsdt1y," refers to the ACS 1-year Detailed Tables; "2021" refers to the data collection year; and "b01001" refers to the table ID.

Figure 2.4 lists the first few rows from a 2017–2021 ACS 5-year Summary File estimate for "Table B08121: Median Earnings in the Past 12 Months (In 2021 Inflation-Adjusted Dollars) by Means of Transportation to Work." The first row of the pipe-delimited file lists the variable labels, while subsequent rows list the ACS estimates for this table. The rows highlighted in the table list the results for the United States, rural areas, and the Midwest region (spotlighted in the "Geography Files" subsection).

The directory for the ACS 1-year Summary File is organized in a similar fashion.

Figure 2.3. Summary File Directory for the 2021 American Community Survey 1-Year Data

 An official website of the United States government



<u>Name</u>	<u>Last modified</u>	<u>Size</u>	<u>Description</u>
 Parent Directory		-	
 1YRData.zip	2022-08-22 14:36	515M	
 acsdt1y2021-b01001.dat	2022-08-22 14:33	3.7M	
 acsdt1y2021-b01001a.dat	2022-08-22 14:33	2.3M	
 acsdt1y2021-b01001b.dat	2022-08-22 14:33	1.2M	
 acsdt1y2021-b01001c.dat	2022-08-22 14:33	259K	
 acsdt1y2021-b01001d.dat	2022-08-22 14:33	862K	
 acsdt1y2021-b01001e.dat	2022-08-22 14:33	63K	
 acsdt1y2021-b01001f.dat	2022-08-22 14:33	945K	
 acsdt1y2021-b01001g.dat	2022-08-22 14:33	1.7M	
 acsdt1y2021-b01001h.dat	2022-08-22 14:33	2.3M	
 acsdt1y2021-b01001i.dat	2022-08-22 14:33	1.7M	
 acsdt1y2021-b01002.dat	2022-08-22 14:33	335K	
 acsdt1y2021-b01002a.dat	2022-08-22 14:33	336K	
 acsdt1y2021-b01002b.dat	2022-08-22 14:33	330K	
 acsdt1y2021-b01002c.dat	2022-08-22 14:33	364K	
 acsdt1y2021-b01002d.dat	2022-08-22 14:33	340K	
 acsdt1y2021-b01002e.dat	2022-08-22 14:33	529K	
 acsdt1y2021-b01002f.dat	2022-08-22 14:33	327K	

Source: U.S. Census Bureau, 2021 American Community Survey, 1-year estimates, 1-year Summary File (table-based), data via file transfer protocol at <https://www2.census.gov/programs-surveys/acs/summary_file/2021/table-based-SF/data/1YRData/>.

Table 2.1. Naming Convention for Files Within Data Directory

acsdt1y2021-b01001.dat		
Example	Name	Range or Type
acs	Survey Name	American Community Survey
dt	Table Type	Detailed Table
1y	Period Covered	1y=1-year, 5y=5-year
2021	Reference Year	ACS data year (last year of the period for multiyear periods)
-	Hyphen	
b01001	Table Number	Unique table number

Source: U.S. Census Bureau.

Figure 2.4. Excerpt of 2017–2021 American Community Survey 5-Year Data File

GEO_ID	B08121	E001	B08121	M001	B08121	E002	B08121	M002	B08121	E003	B08121	M003	B08121	E004
0100000US	42296	74	42770	71	31995	93	42437	238	24723	193	33389	279	59742	232
0100001US	42471	84	42970	76	31610	101	42367	255	24077	211	33085	298	61657	243
0100043US	41575	72	41962	73	34105	204	46427	2281	27674	454	35914	828	51504	281
0100089US	34342	330	35371	392	29797	904	29331	4145	26869	1283	23701	2400	36704	1523
0100090US	44063	12926	42500	16203	-6666666666	-2222222222	-6666666666	-2222222222	42917	29464				
0100091US	37113	263	38378	269	29813	650	22741	2483	19804	1443	26974	1430	40638	1001
0100092US	42766	922	43676	1040	34631	3087	43000	22438	30054	6029	37361	8445	47415	6024
0100093US	45819	1040	50299	1035	50022	3143	32593	8648	32770	1551	38905	2934	41564	3060
0100094US	35445	454	36987	494	26517	820	19757	5698	19756	3716	29721	2112	37971	2769
0100095US	39520	1088	41034	980	34446	3116	25764	5765	37857	13791	25000	3825	41506	9997
01000A0US	42701	74	43153	71	32043	92	42525	208	24732	206	33586	291	60796	227
01000C0US	43349	75	43760	74	32232	99	42690	205	25318	148	33984	293	62296	230
01000C1US	41131	78	41642	85	30915	135	39349	238	27293	189	35077	492	60421	351
01000C2US	44699	83	44906	82	33328	156	53368	475	21941	182	32674	390	63271	195
01000E0US	35785	115	37165	117	30204	232	24214	1397	19718	520	28733	873	39000	506
01000E1US	32723	179	34596	186	26998	315	20165	976	14680	490	24911	1171	33779	1124
01000E2US	37533	108	38416	113	31740	282	30786	1665	24360	794	32115	919	40960	477
01000G0US	35061	104	36046	108	31236	233	25091	1175	24599	555	30038	610	36618	510
01000H0US	35499	95	36724	96	30615	184	24532	1038	21371	242	29252	584	38015	348
0200000US1	47697	149	48568	144	34756	254	47871	387	28574	366	37446	737	66793	407
0200000US2	41686	80	42491	81	31676	156	36776	468	20714	223	32062	425	55452	405
0200000US3	39898	85	40511	86	30098	145	32768	413	21803	218	29704	490	56786	297
0200000US4	43298	87	43724	89	34232	156	37673	420	26545	247	37616	589	61639	346
0200001US1	48265	162	49370	152	34575	301	47672	382	28476	404	37519	766	68655	444
0200001US2	41520	98	42391	105	30592	193	36975	466	18853	418	31207	488	58133	473
0200001US3	39965	90	40689	93	29432	209	32467	402	21319	232	28882	546	58102	352
0200001US4	43277	89	43679	92	33978	160	37503	423	26311	286	37373	581	62899	244
0200043US1	45004	179	45351	201	35997	579	75502	4496	29720	1014	36662	1554	55375	857
0200043US2	42184	89	42752	91	35915	330	28980	2882	29136	694	36633	1095	47276	551
0200043US3	39680	114	39981	115	32089	270	41192	1897	25738	673	33336	1271	52407	493
0200043US4	43505	183	44157	180	37788	647	46096	4518	28188	1081	41189	1705	50664	707
02000A0US1	48117	154	49027	145	34874	261	47888	388	28820	372	37599	736	67433	417
02000A0US2	42198	87	42947	84	31577	171	37059	472	20262	244	32118	453	57227	433

Source: U.S. Census Bureau, 2017–2021 American Community Survey, 5-year estimates, Table B08121 (truncated). The complete file is available on the Census Bureau’s website at <https://www2.census.gov/programs-surveys/acs/summary_file/2021/table-based-SF/data/5YRData/acsdt5y2021-b08121.dat>.

Geography Labels (or Geography Files)

The Census Bureau provides a separate file that contains labels for all geographies in both the 1-year and 5-year ACS data files. You can use the geography identifier (GEO_ID) in this geography file to match the corresponding geographic identifier in each data file. Table 2.2 lists the contents of the geography file, which is available in .TXT format. Each

row represents a different geographic area and the first four fields contain metadata such as the state postal abbreviation and summary level. Following those fields are the different geographic levels available for a particular data release. The fields in the table are left blank if the geographic level is not available for a particular data release. The GEO_ID is displayed in a red box in the table.

Table 2.2. Contents of 2017–2021 American Community Survey 5-Year Geography File

Variable Name	Description	Code Type
FILEID	Always equal to ACS Summary File identification	Record
STUSAB	State Postal Abbreviation	Record
SUMLEVEL	Summary Level	Record
COMPONENT	Geographic Component	Record
US	US	Geographic
REGION	Census Region	Geographic
DIVISION	Census Division	Geographic
STATE	State (FIPS Code)	Geographic
COUNTY	County of current residence	Geographic
COUSUB	County Subdivision (FIPS)	Geographic
PLACE	Place (FIPS Code)	Geographic
TRACT	Census Tract	Geographic
BLKGRP	Block Group	Geographic
CONCIT	Consolidated City	Geographic
AIANHH	American Indian Area/Alaska Native Area/Hawaiian Home Land (Census/FIPS)	Geographic
AIANHHFP	American Indian Area/Alaska Native Area/Hawaiian Home Land (LEFT BLANK)	Geographic
AIHHTLI	American Indian Trust Land/Hawaiian Home Land Indicator	Geographic
AIT	American Indian Tribal Subdivision (Census/FIPS)	Geographic
AITSP	American Indian Tribal Subdivision (LEFT BLANK)	Geographic
ANRC	Alaska Native Regional Corporation	Geographic
CBSA	Metropolitan and Micropolitan Statistical Area	Geographic
CSA	Combined Statistical Area	Geographic
METDIV	Metropolitan Statistical Area—Metropolitan Division	Geographic
MACC	Metropolitan Area Central City	Geographic
MEMI	Metropolitan/Micropolitan Indicator Flag	Geographic
NECTA	New England City and Town Area	Geographic
CNECTA	New England City and Town Combined Statistical Area	Geographic
NECTADIV	New England City and Town Area Division	Geographic
UA	Urban Area	Geographic
CDCURR	Current Congressional District***	Geographic
SLDU	State Legislative District Upper	Geographic
SLDL	State Legislative District Lower	Geographic
ZCTA5	5-digit ZIP Code Tabulation Area	Geographic
SUBMCD	Subminor Civil Division (FIPS)	Geographic
SDELM	State-School District (Elementary)	Geographic
SDSEC	State-School District (Secondary)	Geographic
SDUNI	State-School District (Unified)	Geographic
UR	Urban/Rural	Geographic
PCI	Principal City Indicator	Geographic
PUMA5	Public Use Microdata Area—5% File	Geographic
GEO_ID	Geographic Identifier	Geographic
NAME	Area Name	Geographic
BTTR	Tribal Tract	Geographic
BTBG	Tribal Block Group	Geographic
TL_GEO_ID	Geographic Identifier (for TIGER/Line Shapefiles)	Geographic

Source: U.S. Census Bureau, 2017–2021 American Community Survey, 5-year estimates, 5-year geography file, <https://www2.census.gov/programs-surveys/acs/summary_file/2021/table-based-SF/documentation/Geos20215YR.txt>.

Figure 2.5. Excerpt of 2017–2021 American Community Survey 5-Year Geography File

FILEID	STUSAB	SUMLEVEL	COMPONENT	US	REGION	DIVISION	STATE	COUNTY	COUSUB	PLACE	TRACT	BLKGR
ACSSF	US	010	00	1				0100000US	United States			
ACSSF	US	010	01	1			U	0100001US	United States -- Urban			
ACSSF	US	010	43	1			R	0100043US	United States -- Rural			
ACSSF	US	010	89	1				0100089US	United States -- American			
ACSSF	US	010	90	1				0100090US	United States -- American			
ACSSF	US	010	91	1				0100091US	United States -- Oklahoma			
ACSSF	US	010	92	1				0100092US	United States -- Tribal De			
ACSSF	US	010	93	1				0100093US	United States -- Alaska Na			
ACSSF	US	010	94	1				0100094US	United States -- State Des			
ACSSF	US	010	95	1				0100095US	United States -- Hawaiian I			
ACSSF	US	010	A0	1				01000A0US	United States -- In metrop			
ACSSF	US	010	C0	1				01000C0US	United States -- In metrop			
ACSSF	US	010	C1	1		1	Y	01000C1US	United States -- In metrop			
ACSSF	US	010	C2	1		1		01000C2US	United States -- In metrop			
ACSSF	US	010	E0	1		2		01000E0US	United States -- In micro			
ACSSF	US	010	E1	1		2	Y	01000E1US	United States -- In micro			
ACSSF	US	010	E2	1		2		01000E2US	United States -- In micro			
ACSSF	US	010	G0	1		9		01000G0US	United States -- Not in m			
ACSSF	US	010	H0	1				01000H0US	United States -- Not in me			
ACSSF	US	020	00	1				0200000US1	Northeast Region			
ACSSF	US	020	00	2				0200000US2	Midwest Region			
ACSSF	US	020	00	3				0200000US3	South Region			
ACSSF	US	020	00	4				0200000US4	West Region			
ACSSF	US	020	01	1			U	0200001US1	Northeast Region -- Urban			
ACSSF	US	020	01	2			U	0200001US2	Midwest Region -- Urban			
ACSSF	US	020	01	3			U	0200001US3	South Region -- Urban			
ACSSF	US	020	01	4			U	0200001US4	West Region -- Urban			
ACSSF	US	020	43	1			R	0200043US1	Northeast Region -- Rura			
ACSSF	US	020	43	2			R	0200043US2	Midwest Region -- Rural			
ACSSF	US	020	43	3			R	0200043US3	South Region -- Rural			

Source: U.S. Census Bureau, 2017–2021 American Community Survey, 5-year estimates, 5-year geography file (truncated). The complete file is available on the Census Bureau’s website at <https://www2.census.gov/programs-surveys/acs/summary_file/2021/table-based-SF/documentation/Geos20215YR.txt>.

Figure 2.5 lists the first few rows and columns in the 5-year geography file. The first row displays the variable labels and the following rows include identifiers for all the geographic areas included in the Summary File. For example:

- In Row 2, the GEO_ID is “0100000US,” representing the United States.
- In Row 4, the GEO_ID is “0100043US,” representing rural areas.
- In Row 21, the GEO_ID is “0200000US2,” representing the Midwest region.

Table Labels (or Table Shells)

Table shells provide descriptions of each line item in the ACS Summary File without the estimates or MOEs filled in. They contain the table IDs, line numbers, unique IDs, and descriptions of each data cell in the Census Bureau’s Detailed Tables. Table shells are available 1 week before ACS data are released, allowing users to preview the contents of a new data

release in advance. Figure 2.6 lists the columns and first few rows of the table shells for the 2017–2021 ACS 5-year release.

Table IDs

All ACS tables have a table ID that follows specific naming conventions. This makes it easy to identify the same table across different tools such as on data.census.gov, the Summary File, and the application programming interface. You will need to know the table ID to identify the table from the Summary File. The Census Bureau provides a spreadsheet with table shells and associated table IDs for all Detailed Tables on their website.¹²

Table IDs consist of up to five elements. The first element is a letter that indicates the table type. For example, in Figure 2.7, the first letter is “B” indicating that the data are from a detailed (or

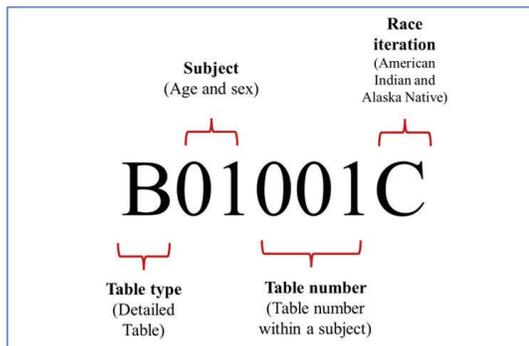
¹² U.S. Census Bureau, “Table Shells and Table List” can be found at <www.census.gov/programs-surveys/acs/technical-documentation/table-shells.html>.

Figure 2.6. Excerpt of 2017–2021 American Community Survey 5-Year Table Shells

```
Table ID|Line|Tndent|Unique ID|Label|Title|Universe|Type
B010011.0|0|B01001_001|Total:|SEX BY AGE|Total population|int
B010012.0|1|B01001_002|Male:|SEX BY AGE|Total population|int
B010013.0|2|B01001_003|Under 5 years:|SEX BY AGE|Total population|int
B010014.0|2|B01001_004|5 to 9 years:|SEX BY AGE|Total population|int
B010015.0|2|B01001_005|10 to 14 years:|SEX BY AGE|Total population|int
B010016.0|2|B01001_006|15 to 17 years:|SEX BY AGE|Total population|int
B010017.0|2|B01001_007|18 and 19 years:|SEX BY AGE|Total population|int
B010018.0|2|B01001_008|20 years:|SEX BY AGE|Total population|int
B010019.0|2|B01001_009|21 years:|SEX BY AGE|Total population|int
B0100110.0|2|B01001_010|22 to 24 years:|SEX BY AGE|Total population|int
B0100111.0|2|B01001_011|25 to 29 years:|SEX BY AGE|Total population|int
B0100112.0|2|B01001_012|30 to 34 years:|SEX BY AGE|Total population|int
B0100113.0|2|B01001_013|35 to 39 years:|SEX BY AGE|Total population|int
B0100114.0|2|B01001_014|40 to 44 years:|SEX BY AGE|Total population|int
B0100115.0|2|B01001_015|45 to 49 years:|SEX BY AGE|Total population|int
B0100116.0|2|B01001_016|50 to 54 years:|SEX BY AGE|Total population|int
B0100117.0|2|B01001_017|55 to 59 years:|SEX BY AGE|Total population|int
B0100118.0|2|B01001_018|60 and 61 years:|SEX BY AGE|Total population|int
B0100119.0|2|B01001_019|62 to 64 years:|SEX BY AGE|Total population|int
B0100120.0|2|B01001_020|65 and 66 years:|SEX BY AGE|Total population|int
B0100121.0|2|B01001_021|67 to 69 years:|SEX BY AGE|Total population|int
B0100122.0|2|B01001_022|70 to 74 years:|SEX BY AGE|Total population|int
B0100123.0|2|B01001_023|75 to 79 years:|SEX BY AGE|Total population|int
B0100124.0|2|B01001_024|80 to 84 years:|SEX BY AGE|Total population|int
B0100125.0|2|B01001_025|85 years and over:|SEX BY AGE|Total population|int
```

Source: U.S. Census Bureau, 2017–2021 American Community Survey, 5-year estimates, 5-year table shells (truncated). The complete file is available on the Census Bureau’s website at <www2.census.gov/programs-surveys/acs/summary_file/2021/table-based-SF/documentation/ACS20215YR_Table_Shells.txt>.

Figure 2.7. American Community Survey Table IDs Explained



Source: U.S. Census Bureau, American Community Survey Data Tables, “Table IDs Explained,” <www.census.gov/programs-surveys/acs/data/data-tables/table-ids-explained.html>.

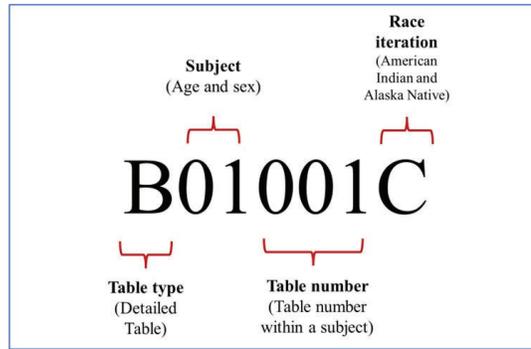
base) table. Table IDs that start with “C” refer to collapsed tables. The “B” tables have the most detail for a given topic, while “C” tables have collapsed categories.

The next two characters identify the subject of the table. Tables beginning with “01,” for example, are for tables in the age and sex subject. Each subject has a unique two-digit subject number.

The following three digits are a sequential table number that uniquely identifies a table within a given subject.

The fourth element is an alphabetic suffix that indicates the corresponding ACS table is repeated for different race and Hispanic origin groups. For example, table IDs ending in a “C” are for the American Indian and Alaska Native alone population. Those with an “H” suffix are for the non-Hispanic White population. Lastly, selected tables will have a final alphabetic suffix “PR” to indicate a table is available for Puerto Rico geographies only.

Figure 2.8. **Unique IDs for American Community Survey Variable Names Explained**



Source: U.S. Census Bureau, 2021 American Community Survey, 1-year Summary File (table-based), Table B01001, <www2.census.gov/programs-surveys/acs/summary_file/2021/table-based-SF/data/1YRData/acsdt1y2021-b01001.dat>.

Refer to the Census Bureau’s website for more details about naming conventions and subject numbers for ACS tables.¹³

Unique ID for Variable Names

In the ACS Summary File, variable names for estimates and MOEs are displayed using a unique, alpha-numeric identifier (a unique ID).

¹³ U.S. Census Bureau, American Community Survey, “Table IDs Explained,” <www.census.gov/programs-surveys/acs/data/data-tables/table-ids-explained.html>.

The unique ID includes four elements: a table ID, an underscore, a letter to indicate the variable type (E = estimate, M = margin of error), and a three-digit line number, which identifies ACS estimates within each table.¹⁴ For example, in Table B01001, “Sex by Age,” the unique ID for the estimated total number of people who are American Indian and Alaska Native alone is “B01001C_E001” (Figure 2.8).

¹⁴ The table shells for the American Community Survey Summary File provide unique IDs without the “variable type” displayed, since all rows represent estimates rather than MOEs. However, the data files include this information.