5. CASE STUDIES USING PRCS DATA

Case Study #1: Analyzing Child Poverty Rates Across Municipios

Skill Level: Introductory/Intermediate
Subject: Child poverty
Type of Analysis: Analysis of Puerto Rico Community Survey (PRCS) data across municipios in Puerto Rico
Tools Used: Data.census.gov, spreadsheet
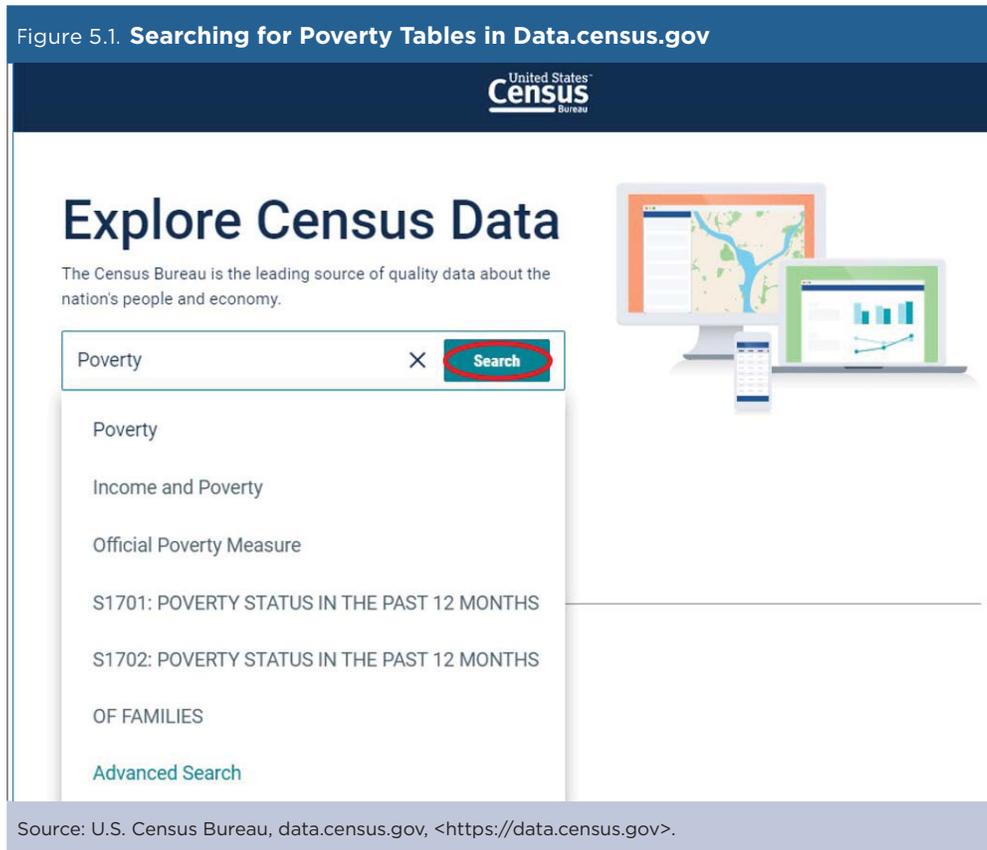**Author**: José Caraballo Cueto, Census Information Center, University of Puerto Rico

Dr. José Caraballo Cueto is the director of the Census Information Center (CIC) at the University of Puerto Rico (UPR) in Cayey. The CIC Program was established in 1988 through a joint agreement between the National Urban League and the U.S. Census Bureau to support the dissemination of census data to underserved communities.

Since then, the CIC Network has become an official Census Bureau Program with a total of 59 organizations in 22 states, including the District of Columbia and Puerto Rico. The CIC at UPR in Cayey provides the university, and the 11 municipios it serves, technical training in the use of census data. For this case study, Dr. Cueto analyzes child poverty estimates in Puerto Rico across municipios, using Puerto Rico Community Survey (PRCS) data.
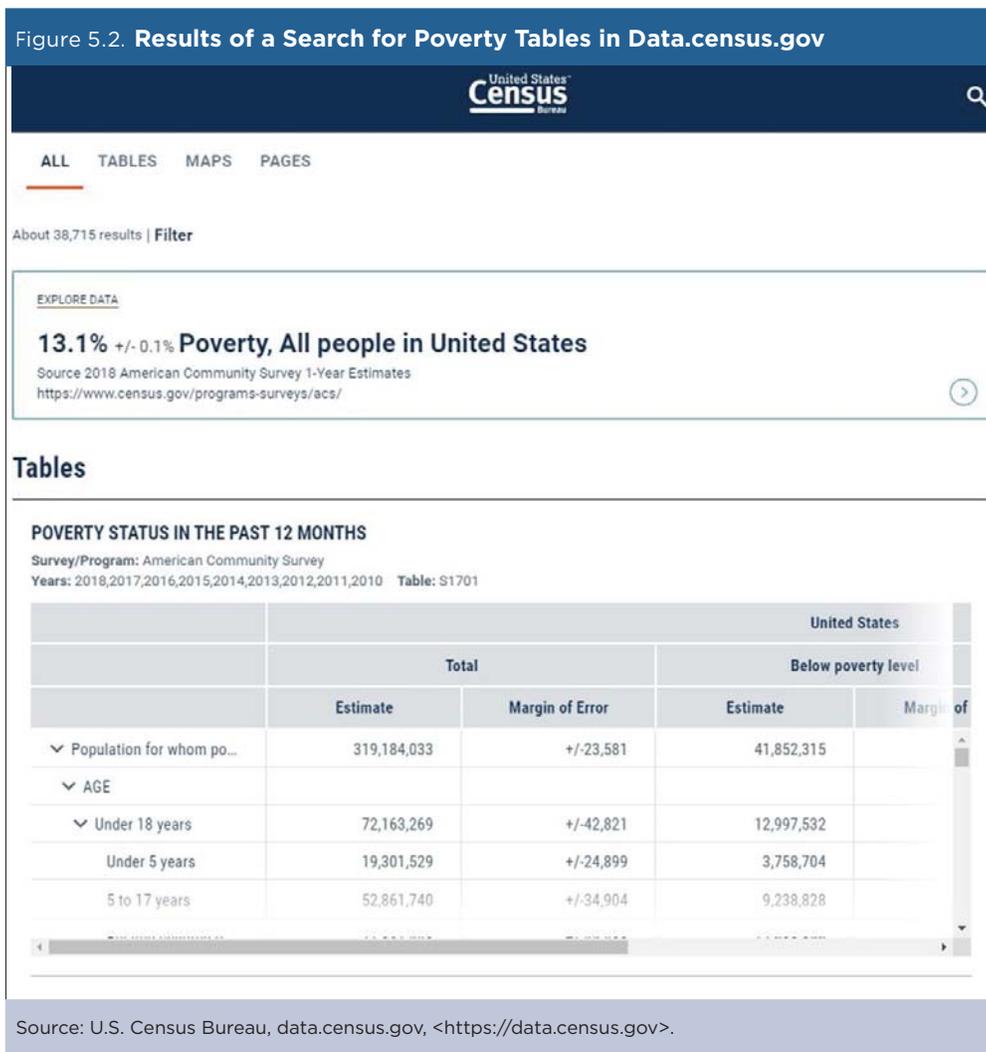
His first step is to select the appropriate PRCS data set. While single-year data are available for many municipios, he needs to use a 5-year ACS data set (for example, 2011–2015) if he wants data for every municipio in the Commonwealth. He also knows that there is uncertainty—margin of error—associated with all the PRCS esti-mates, particularly for smaller geographic areas and small population groups. The 5-year estimates are more reli-able than 1-year estimates because they are based on larger sample sizes.

Dr. Cueto starts his analysis by going to the data.census.gov Web site at <https://data.census.gov>.

- He types "Poverty" into the search bar on the data.census.gov home page and then clicks on the "Search" button (see Figure 5.1).

Figure 5.1. **Searching for Poverty Tables in Data.census.gov**

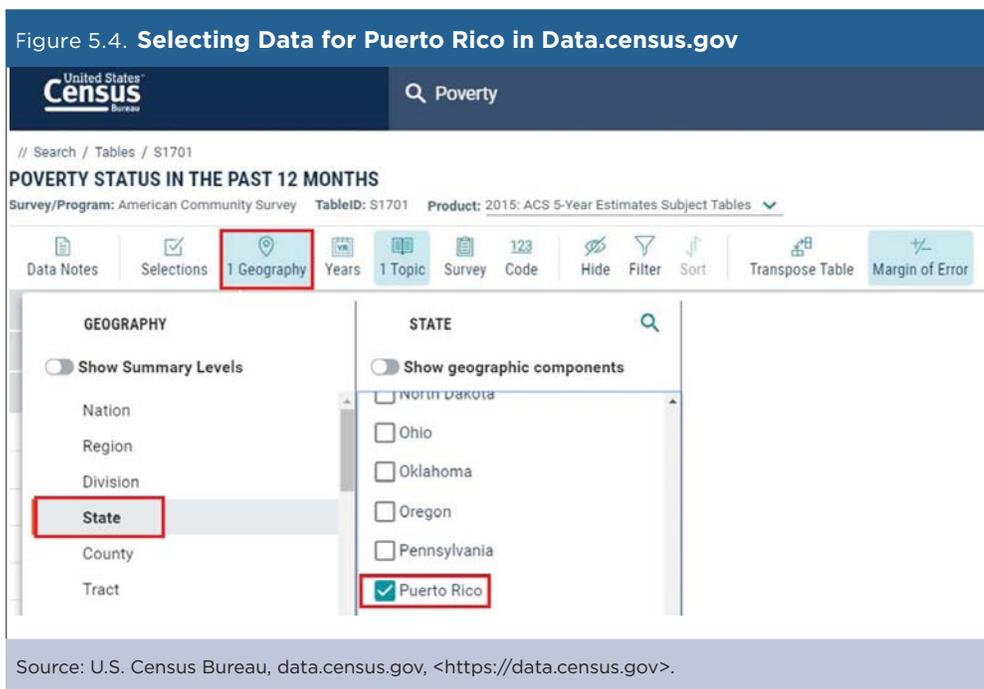Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

- On the next page, he clicks on the first table on "Poverty Status in the Past 12 Months," which includes poverty estimates for the population under age 18 (see Figure 5.2).

Figure 5.2. **Results of a Search for Poverty Tables in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.
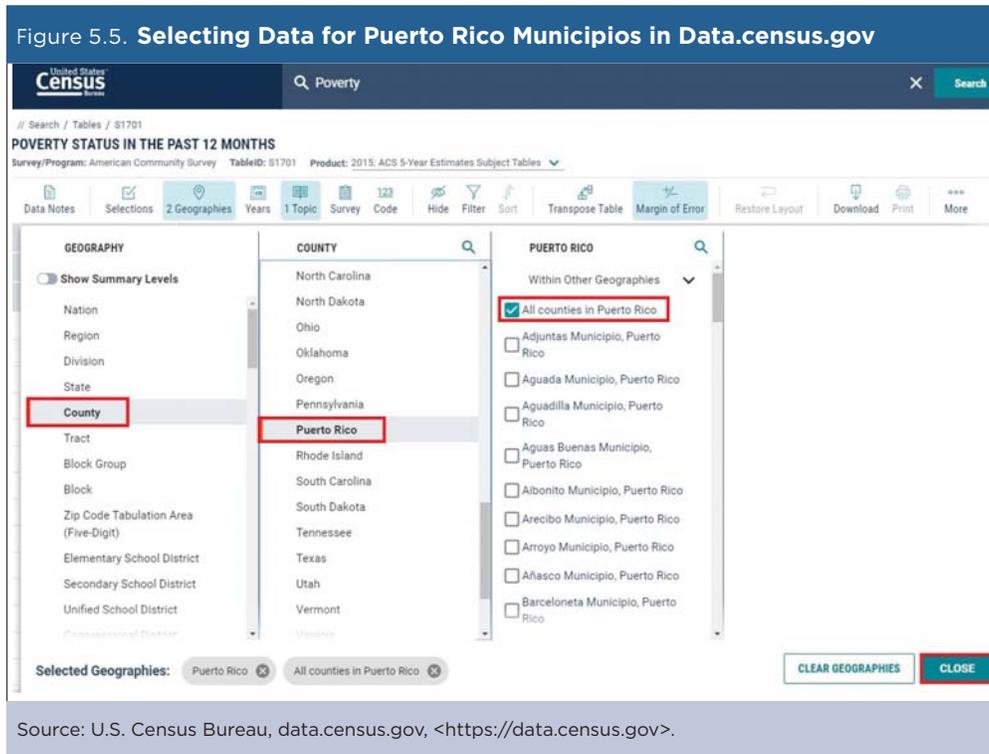
- Next, he selects the desired survey year by clicking on the current "Product" selection at the top of the page. (For the purposes of this case study, he used 2015 ACS 5-year estimates because they were the most recent data available at the time.)

- The header should read "2015 ACS 5-Year Estimates Subject Tables."

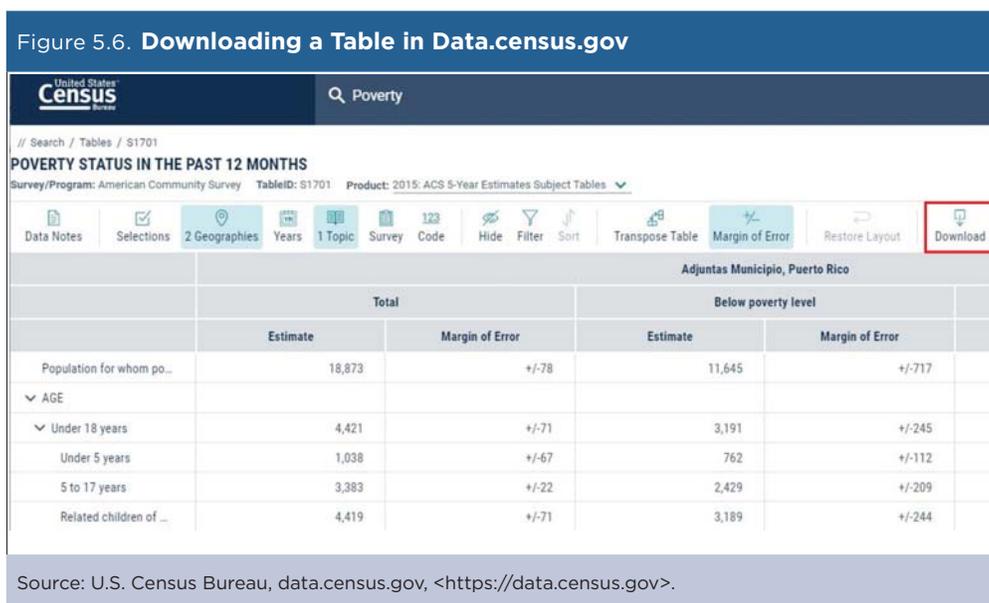- Next, he clicks on the "Customize Table" button to select geographic areas of interest (see Figure 5.3).

Figure 5.3. **Customizing a Table in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

- On the next page, he scrolls to the top of the table and selects the Geography filter.

- He clicks on "State" and then selects "Puerto Rico" (see Figure 5.4). Puerto Rico is a territory of the United States, but in data.census.gov, Puerto Rico is listed under the "State" category, and its municipios are listed under the "County" category.
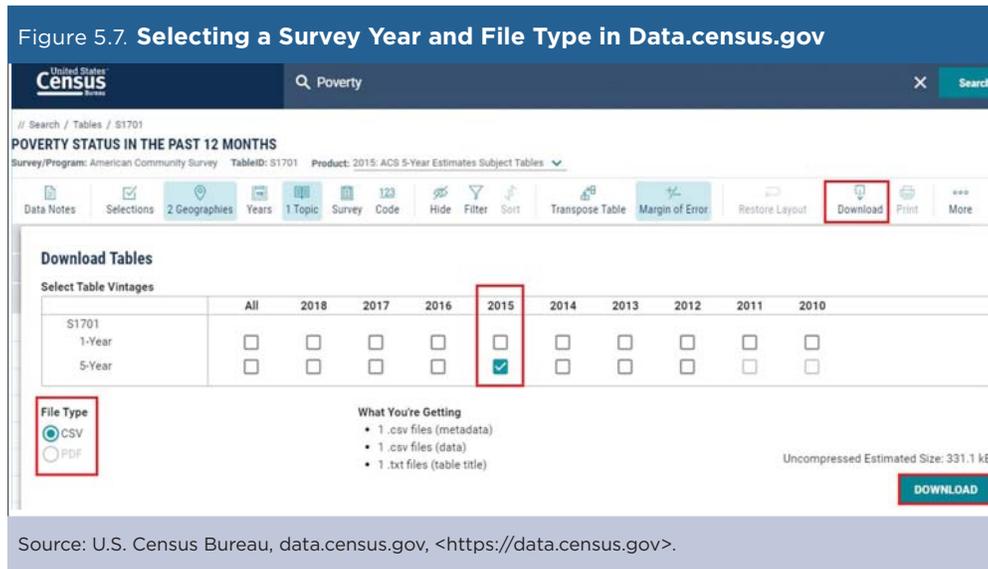
Figure 5.4. **Selecting Data for Puerto Rico in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

- Next, he clicks on "County" and then "Puerto Rico" to display a list of municipios.

- He checks the box labeled "All counties in Puerto Rico." He confirms that the "Selected Geographies" at the bottom of the page list the geographies that he needs for his analysis.

- He then clicks on the "Close" button in the lower right corner to view the table with his updated geography selections (see Figure 5.5).

Figure 5.5. **Selecting Data for Puerto Rico Municipios in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

- The online table displays data on children living in families below the poverty level. However, he decides to export the full table into a spreadsheet.

- He clicks on the "Download" button at the top of the page (see Figure 5.6).

Figure 5.6. **Downloading a Table in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

- He then uses the checkboxes to select the 2015 ACS 5-year data.

- He chooses the File Type (CSV).

- Finally, he clicks "Download" at the bottom of the screen.

- When the file is ready, he clicks "Download Now" to save the file to his computer (see Figures 5.7 and 5.8).

Figure 5.7. **Selecting a Survey Year and File Type in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

Figure 5.8. **Downloading Selected Files From Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

- Dr. Cueto opens the zipped CSV file (with prefix ACSST5Y2015.S1701_data_with_overlays) and sees that the child poverty rate in Puerto Rico in 2011–2015 was 57.4 percent.

- Here, the results for municipios are presented in a map to show areas with the highest and lowest child poverty rates in the Commonwealth (see Figure 5.9). This map is featured in the CIC's Poverty by Age and Sex in Puerto Rico publication.[24]

Figure 5.9. **Map of Child Poverty Rates in Puerto Rico: 2011–2015**
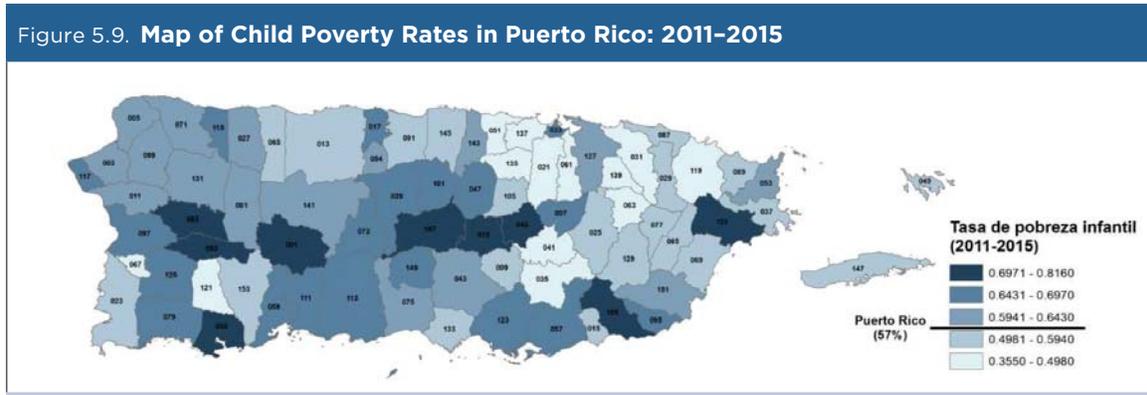
Source: Author's analysis of data from the U.S. Census Bureau, American Community Survey.

---

[24] University of Puerto Rico, Census Information Center, Poverty by Age Group and Sex in Puerto Rico, <www.upr.edu/iii-cayey/notas-del-centro-de-informacion-censal-cic-24-pobreza-por-grupo-de-edad-y-sexo-en-puerto-rico/>.

Case Study #2: Youth Development Institute's Child and Youth Well-Being Index

Skill Level: Introductory/Intermediate
Subject: Child and youth well-being
Type of Analysis: Creation of well-being index by combining Puerto Rico Community Survey (PRCS) estimates with data from other sources
Tools Used: Data.census.gov and spreadsheet
Author: Caridad Arroyo, Youth Development Institute (Instituto del Desarrollo de la Juventud)

About Our Institute

The Youth Development Institute of Puerto Rico (Instituto del Desarrollo de la Juventud, IDJ) is a nonprofit organization working to advance public policies—at both the federal and commonwealth level—to improve the lives of children and youth in Puerto Rico.[25] Our work includes the collection and dissemination of data, development of research-driven public policy recommendations, and advocacy work that is driven by both data and people. We are the only organization focused on policy and advocacy around children's issues in Puerto Rico.

The Child and Youth Well-Being Index

Policymakers in Puerto Rico are hindered by a lack of up-to-date, reliable, and accessible data that provide information about the local context. Reliable data for local areas are needed to promote conversation, citizen participation, and public policy recommendations. Here is where the IDJ, in a strategic planning session, saw the opportunity to raise awareness about the living conditions of children and youth in Puerto Rico through the Child and Youth Well-Being Index.

The Child and Youth Well-Being Index is a tool developed by the IDJ with the assistance of Puerto Rico's Institute of Statistics to examine the living conditions of children and youth in Puerto Rico. Data are from the Puerto Rico Community Survey (PRCS) and several other federal data sources. After a process of validation with local experts, we settled on an index with 27 indicators in five core areas of children's development. The areas are economy, education, family, health, and security. The criteria to include indicators in the Index were:

1. Accessible and current data available every 1 or 2 years.

2. From a valid source of information—mainly from federal reports and the U.S. Census Bureau.

3. Consistent in their methodology over time to ensure valid comparisons across different years.

The method used to construct the index is similar to the method used by the World Bank in their Knowledge Economy Index.[26] This method allows us to normalize all data points in a uniform scale ranging from zero to 10. Standardization is important because the indicators are not available in the same unit of measurement. At the end of the process, we calculate the mean of these normalized values and establish a grade, from A to F, to describe the living conditions of children in the Commonwealth.

---

[25] Youth Development Institute of Puerto Rico, <www.juventudpr.org/>.
[26] World Bank, The knowledge economy, the KAM methodology and World Bank operations (English), <http://documents.worldbank.org /curated/en/695211468153873436/The-knowledge-economy-the-KAM-methodology-and-World-Bank-operations>.
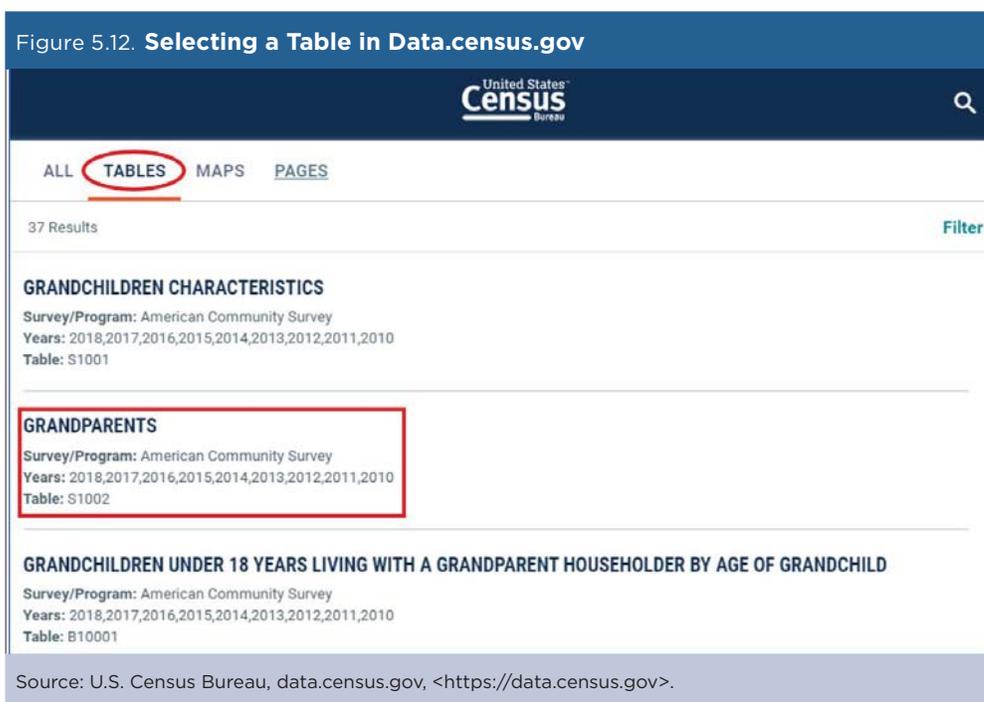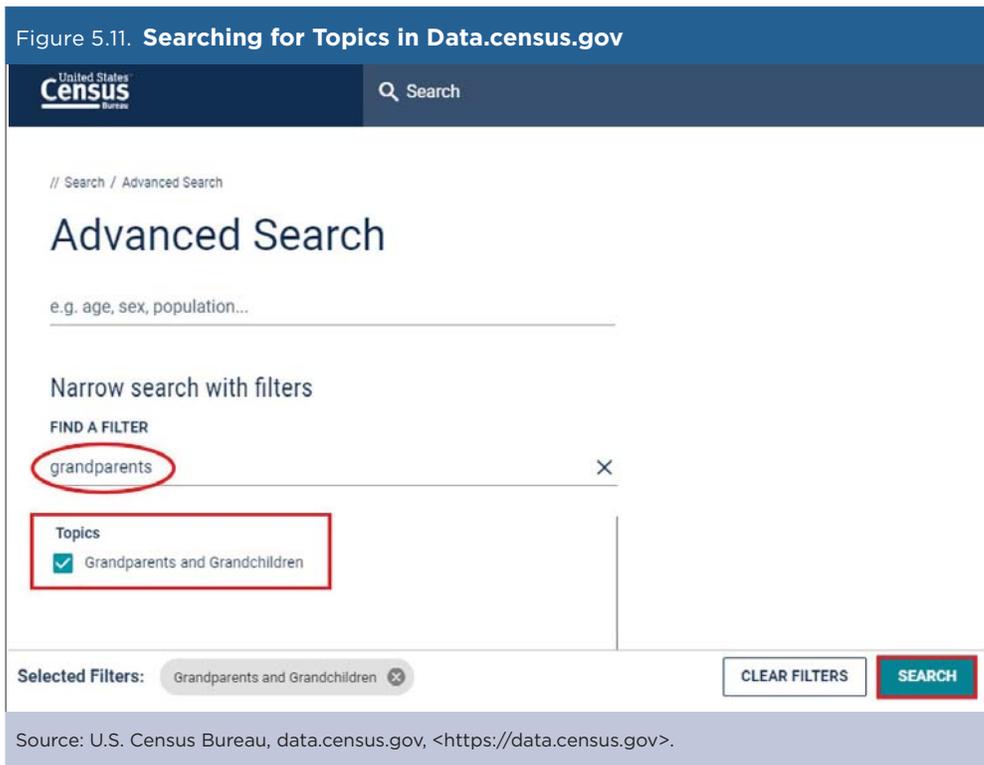
Accessing PRCS Data for the Index

Of the 27 indicators in the Child and Youth Well-Being Index, 12 are drawn from the 2016 PRCS 1-year estimates. Our first step to access these PRCS data is to identify the relevant tables that we need in data.census.gov.

- We navigate to the Census Bureau's data.census.gov Web site <https://data.census.gov>.
- We select the "Advanced Search" option, which allows users to conduct keyword searches or search by using predefined topics, geographies, years, surveys, or codes (see Figure 5.10).

Figure 5.10. **Selecting Advanced Search in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.
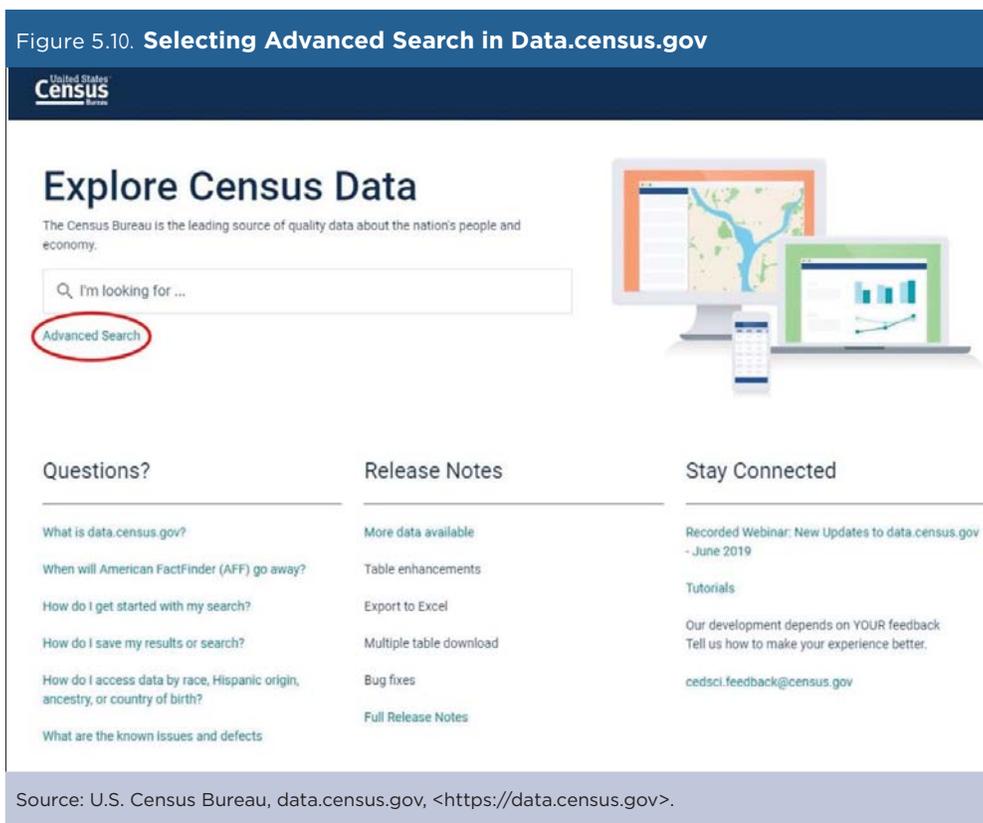
- Next, we click on the Topic filter to display a list of available topics. For example, to find data on grandparents responsible for their grandchildren under 18 years, we type "grandparents" into the search box and then click on the "Grandparents and Grandchildren" box.
- After making our selection, we click on the "Search" box in the lower right corner (see Figure 5.11).
- Next, we click on "Tables" at the top of the page to display a list of potential tables on grandparents and grandchildren.
- From this list, we can identify those that are best suited for our analysis. For the measure of grandparents responsible for grandchildren, we select Table S1002 "Grandparents" (see Figure 5.12).

Figure 5.11. **Searching for Topics in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

Figure 5.12. **Selecting a Table in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

By repeating this process for different topics, we identify the PRCS tables that we need for our analysis. Table 5.1 provides a list of each measure and the source of the data in data.census.gov.

Table 5.1. **Indicators and Source Tables From the PRCS**		
Indicator	Table ID	Table name
Children under 18 years below the poverty level	DP03	Selected Economic Characteristics
Median family income with children under 18 years	S1903	Median Income in the Past 12 Months (In 2016 Inflation-Adjusted Dollars)
Unemployed teenagers between 16 and 19 years not enrolled in school	B14005	Sex by School Enrollment by Educational Attainment by Employment Status for the Population 16 To 19 Years
Families with children whose parents are unemployed or not in the labor force	B23007	Presence of Own Children Under 18 Years by Family Type by Employment Status: Opposite-Sex Married-Couple Families and Families Maintained by Women and Men with No Spouse Present
Children under 18 years not enrolled in school	B14003	Sex by School Enrollment by Type of School by Age for the Population 3 Years and Over
Children between 3 to 4 years not enrolled in school	S1401	School Enrollment
Teenagers between 16 and 19 years not enrolled school and without high school diploma	B14005	Sex by School Enrollment by Educational Attainment by Employment Status for the Population 16 to 19 Years
Households with children living in single-parent families	B09002	Own Children Under 18 Years by Family Type and Age
Households with children under 18 years receiving food stamps	S2201	Food Stamps/Supplemental Nutrition Assistance Program (SNAP)
Women 15 to 50 years who had a birth in the last 12 months and have less than a high school diploma	B13014	Women 15 to 50 Years Who Had a Birth in the Past 12 Months by Marital Status and Educational Attainment
Grandparents responsible for their grandchildren under 18 years	S1002	Grandparents
Children under 18 years without health insurance	S2701	Selected Characteristics of Health Insurance Coverage in the United States
Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.		

- Now that we know the relevant table identifiers, we can use the search box to quickly find the data that we need. For example, to get data on grandparents responsible for grandchildren, we can type "S1002" into the search box and click "Search" (see Figure 5.13).

Figure 5.13. **Searching for Tables in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

- American Community Survey (ACS) estimates for Table S1002 are displayed on the data.census.gov Web site. However, the default geography in data.census.gov is the United States, so we need to filter the results to get data for Puerto Rico.
- We click on the "Geographies" filter at the top of the page (see Figure 5.14). If the filters are not being displayed, try expanding the size of the browser window, or click on the "Customize Table" button to view the available filters.

Figure 5.14. **Selecting Geographies in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.
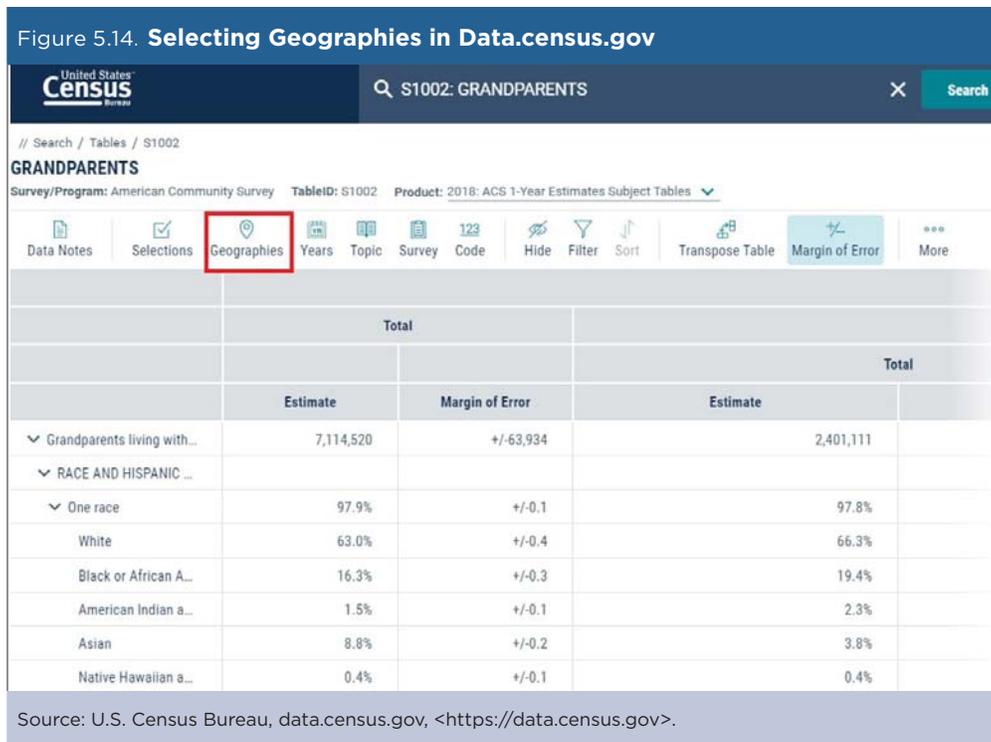
- We click on "State" and then select "Puerto Rico." (Puerto Rico is a territory of the United States, but in data.census.gov, Puerto Rico is listed under the "State" category.)
- Then we click "Close" in the lower right corner to view the results (see Figure 5.15)

Figure 5.15. **Selecting Data for Puerto Rico in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

- Next, we select the desired survey year by clicking on the current "Product" selection at the top of the page (see Figure 5.16). For the purposes of this case study, we used 2016 ACS 1-year estimates because they were the most recent data available at the time.

Figure 5.16. **Customizing a Table in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

- Next, we right click on the table and select "Export Table" and then "Export to CSV" to download the data to our computer (see Figure 5.17).

Figure 5.17. **Exporting a Table in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

What All Data Users Need to Know   U.S. Census Bureau

Now that we have the data in a spreadsheet format, we can manipulate it to produce the estimates we need. From Table S1002, we calculate the share of grandparents responsible for grandchildren (40.5 percent) by dividing the number of grandparents responsible for grandchildren (39,093) by the total number of grandparents living with grandchildren (96,568) (see Table 5.2).[27]
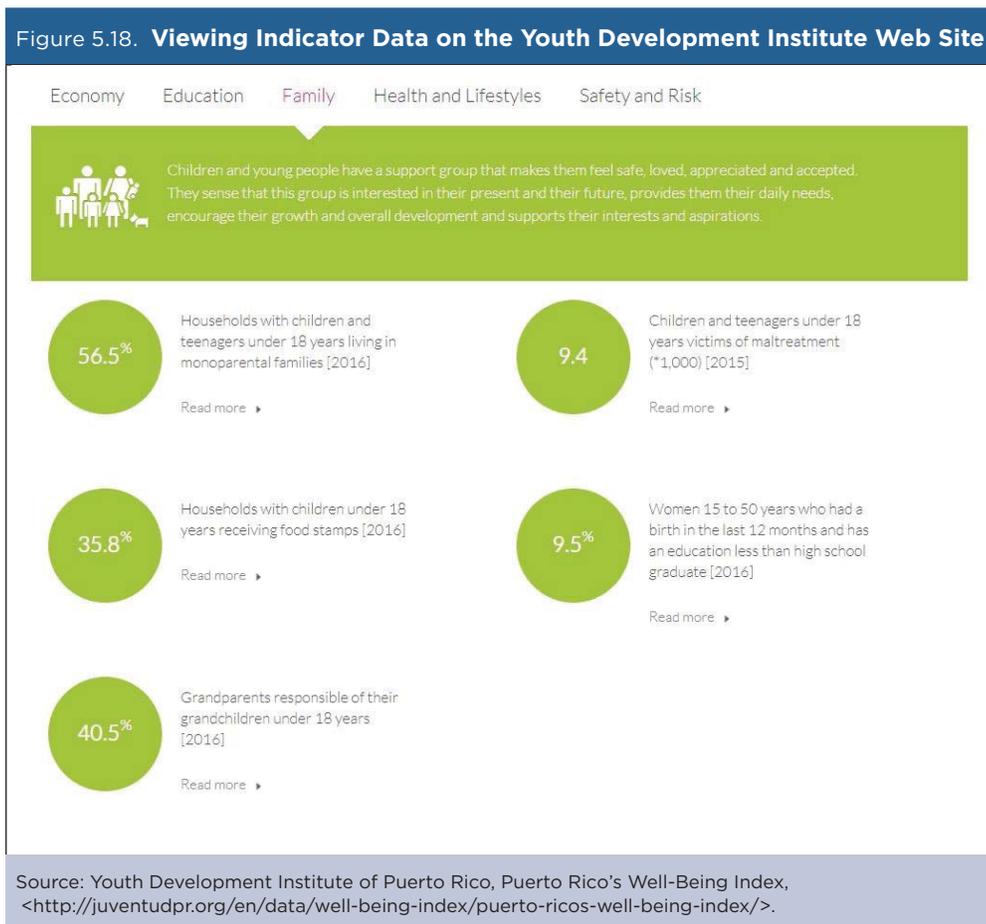
Table 5.2. **Portion of Table S1002 for Puerto Rico**								
	Puerto Rico							
Subject	Total		Percent distribution of grandparents responsible for grandchildren					
			Total		30 to 59 years		60 years and over	
	Estimate	Margin of error	Estimate	Margin of error	Estimate	Margin of error	Estimate	Margin of error
Grandparents living with own grandchildren under 18 years	96,568	±5,605	39,093	±3,548	19,490	±2,406	19,603	±2,583
Race and Hispanic or Latino Origin								
One race	N	N	N	N	N	N	N	N
White	67.8%	±3.1	62.5%	±4.1	60.9%	±5.3	64.1%	±6.2
Black or African American	11.3%	±1.6	16.2%	±2.8	18.5%	±4.3	14.0%	±3.9
American Indian and Alaska Native	N	N	N	N	N	N	N	N
Asian	N	N	N	N	N	N	N	N
Native Hawaiian and Other Pacific Islander	N	N	N	N	N	N	N	N
Some other race	16.3%	±2.2	16.2%	±3.1	16.2%	±4.5	16.3%	±4.4
Two or more races	4.4%	±1.2	4.9%	±2.0	4.4%	±2.5	5.4%	±4.1
Hispanic or Latino origin (of any race)	98.8%	±0.7	99.5%	±0.5	99.4%	±0.8	99.6%	±0.7
White alone, not Hispanic or Latino	N	N	N	N	N	N	N	N

N The estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.
Source: U.S. Census Bureau, data.census.gov, Table S1002: Grandparents.

[27] U.S. Census Bureau, data.census.gov, Table S1002: Grandparents.

The results are presented on our Puerto Rico's Well-Being Index Web page.[28] Data are available for each of the 27 indicators across five social dimensions: Education, Family, Safety and Risk, Economy, and Health and Lifestyles (see Figure 5.18). Users can also click the "Read More" option to get definitions and source information or to compare the data for Puerto Rico with data for the 50 states and the District of Columbia.

Figure 5.18. **Viewing Indicator Data on the Youth Development Institute Web Site**

Source: Youth Development Institute of Puerto Rico, Puerto Rico's Well-Being Index, <http://juventudpr.org/en/data/well-being-index/puerto-ricos-well-being-index/>.

---

[28] Youth Development Institute of Puerto Rico, Puerto Rico's Well-Being Index, <http://juventudpr.org/en/data/well-being-index/puerto-ricos-well-being-index/>.

The 27 individual indicator values are combined into a single summary measure to create the Child and Youth Well-Being Index. These index values are presented for Puerto Rico and for each state and the District of Columbia on the Youth Development Institute's Web site (see Figure 5.19).[29] Massachusetts and Minnesota have among the highest (best) index values, scoring a "B," while Puerto Rico ranks toward the bottom, scoring a "D."

Figure 5.19. **Visualizing the Well-Being Index for Children and Youth**

Source: Youth Development Institute of Puerto Rico, Puerto Rico's Well-Being Index, <http://juventudpr.org/en/data/well-being-index/puerto-ricos-well-being-index/>.

---
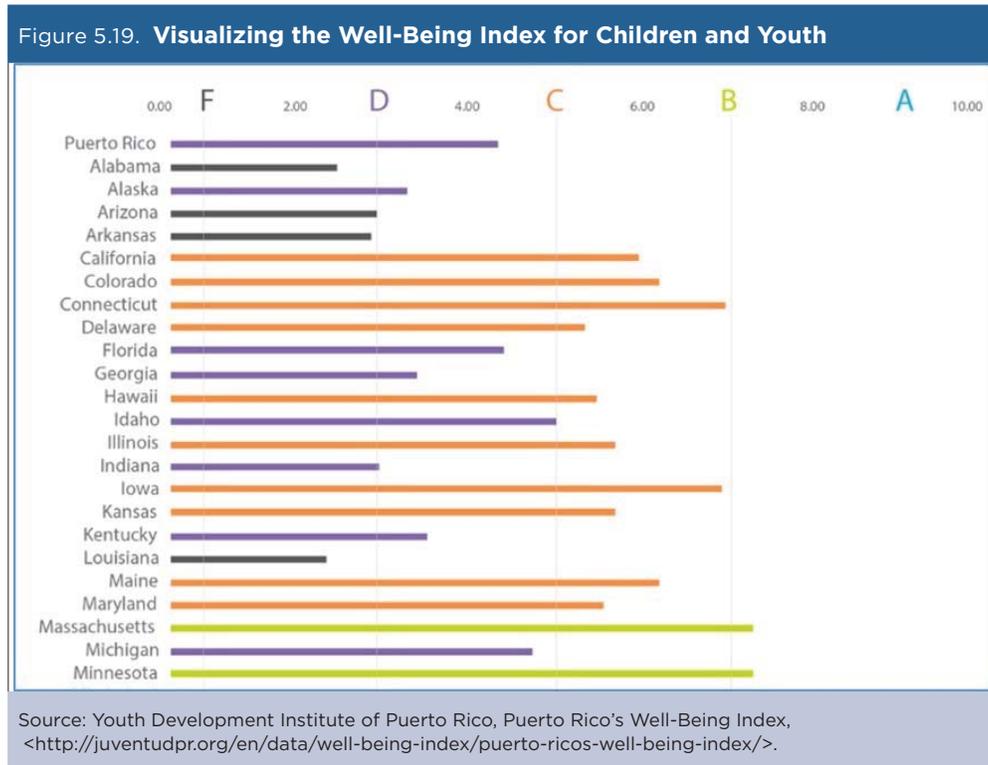
[29] Youth Development Institute of Puerto Rico, Well-Being Index for Children and Youth, <http://juventudpr.org/en/data/well-being-index /tabla-comparativa-con-eeuu/>.

Case Study #3: U.S. Migrants to Puerto Rico

Skill Level: Introductory/Intermediate
Subject: Characteristics of Immigrants to Puerto Rico
Type of Analysis: Comparison of immigrants to total population in Puerto Rico by age and income over time
Tools Used: Data.census.gov and spreadsheet
Author: Alberto Velázquez, Puerto Rico Institute of Statistics (PRIS)

At the Puerto Rico Institute of Statistics (PRIS), we keep track of migration flows in order to inform policymakers and the public in general about the diverse characteristics of this dynamic population.[30] The Puerto Rico Community Survey (PRCS) collects data on multiple variables, such as age, sex, race, family and relationships, income, education, health insurance, and disabilities (among other characteristics) of the Puerto Rican population. The PRCS is the equivalent of the American Community Survey (ACS) for Puerto Rico.

The PRCS 1-year estimates allow us to access data about the island's population that migrated from the United States from 2010 to 2016. Using these data, we compared the changing characteristics of the immigrant and total populations in Puerto Rico, focusing on two variables: median age and median income.

We accessed PRCS estimates for this analysis from data.census.gov, which consolidates data from the multiple surveys and censuses published by the U.S. Census Bureau.[31] Data.census.gov provides an interactive platform for data users seeking population, housing, and economic information at the national, state, and county geographic levels, among others.

Accessing PRCS Data on U.S. Migrants to Puerto Rico

• Go to the data.census.gov Web site at <https://data.census.gov>.

• Click on "Advanced Search" under the search bar. This will bring you to the Advanced Search page (see Figure 5.20).

Figure 5.20. **Advanced Search in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

---

[30] Puerto Rico Institute of Statistics, <https://estadisticas.pr/>.
[31] U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

- Begin with the Geography filter. Select "Geography" in the navigation pane on the left side of the screen to display a list of available geographies.

- Select "State" and then select "Puerto Rico" from the "State" filter (see Figure 5.21).
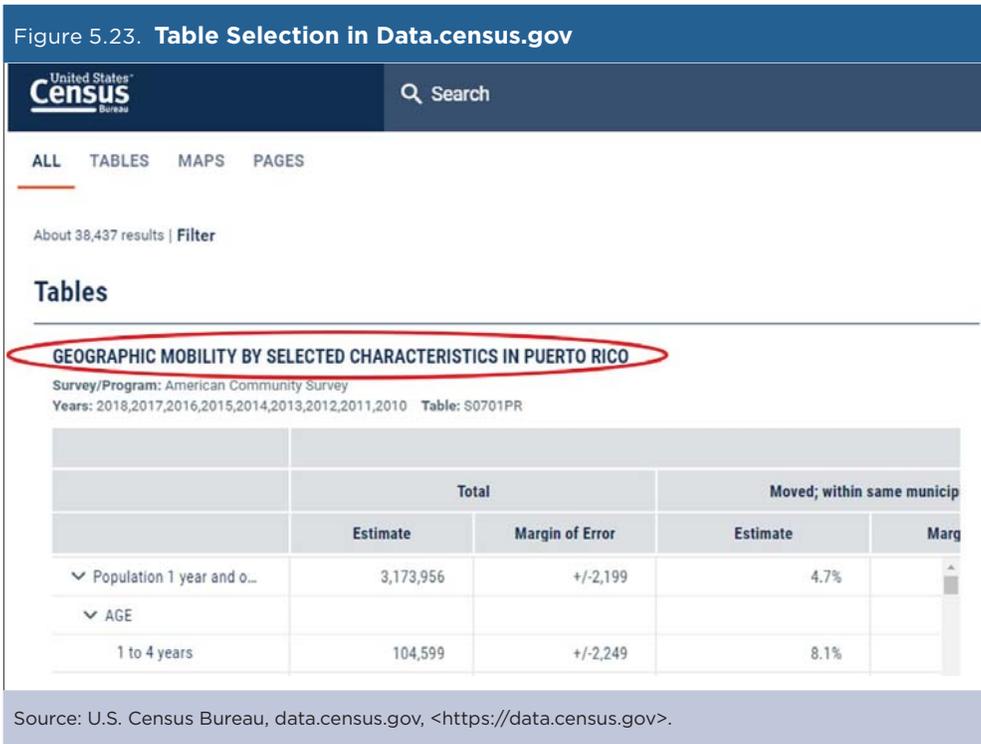
Figure 5.21. **Geography Filter Selection in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.
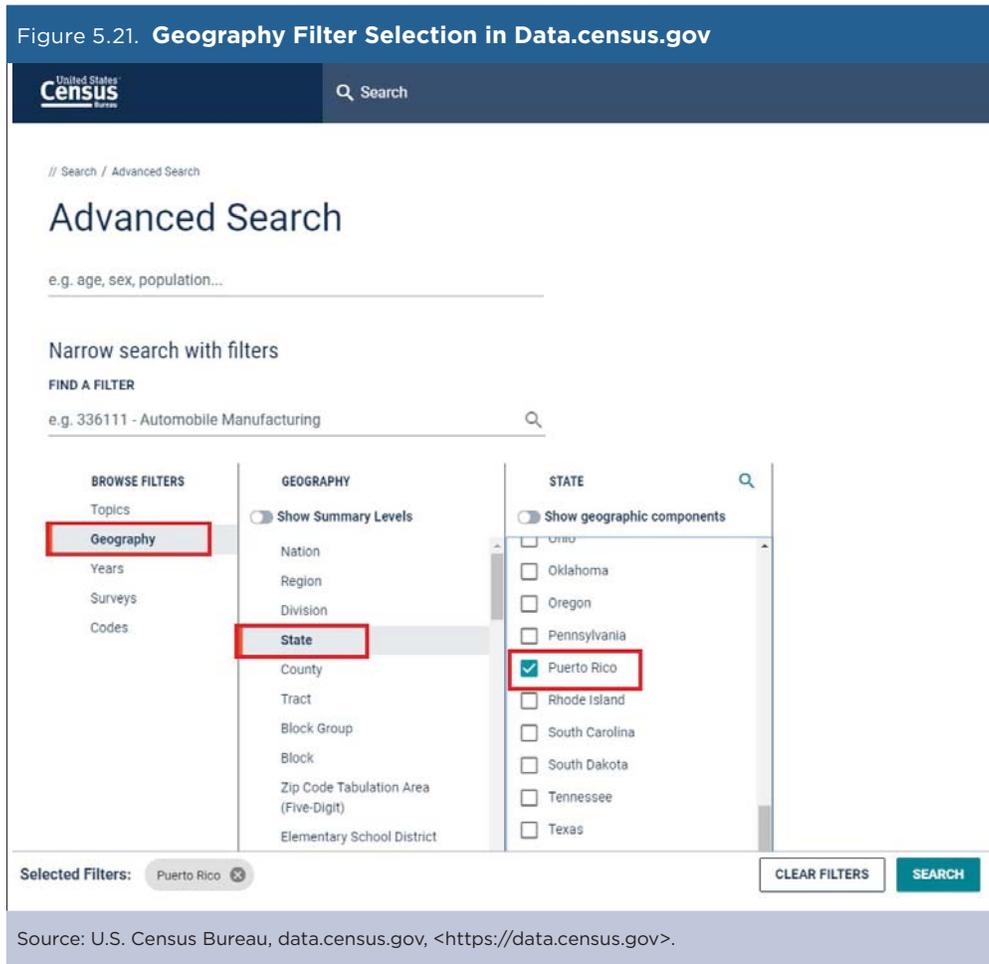
- Next, choose the "Topics" filter, select "Populations and People," and select "Residential Mobility."

- Both filters should appear in the "Selected Filters" at the bottom of the page.

- Next, click on "Search" in the lower right corner of the page (see Figure 5.22).

**Figure 5.22. Residential Mobility Filter Selection in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

- To find PRCS data on U.S. migrants to Puerto Rico, click on Table S0701PR "Geographic Mobility by Selected Characteristics in Puerto Rico" (see Figure 5.23).

Figure 5.23. **Table Selection in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

- Next, select "Customize Table" (see Figure 5.24).

Figure 5.24. **Customize Table in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.
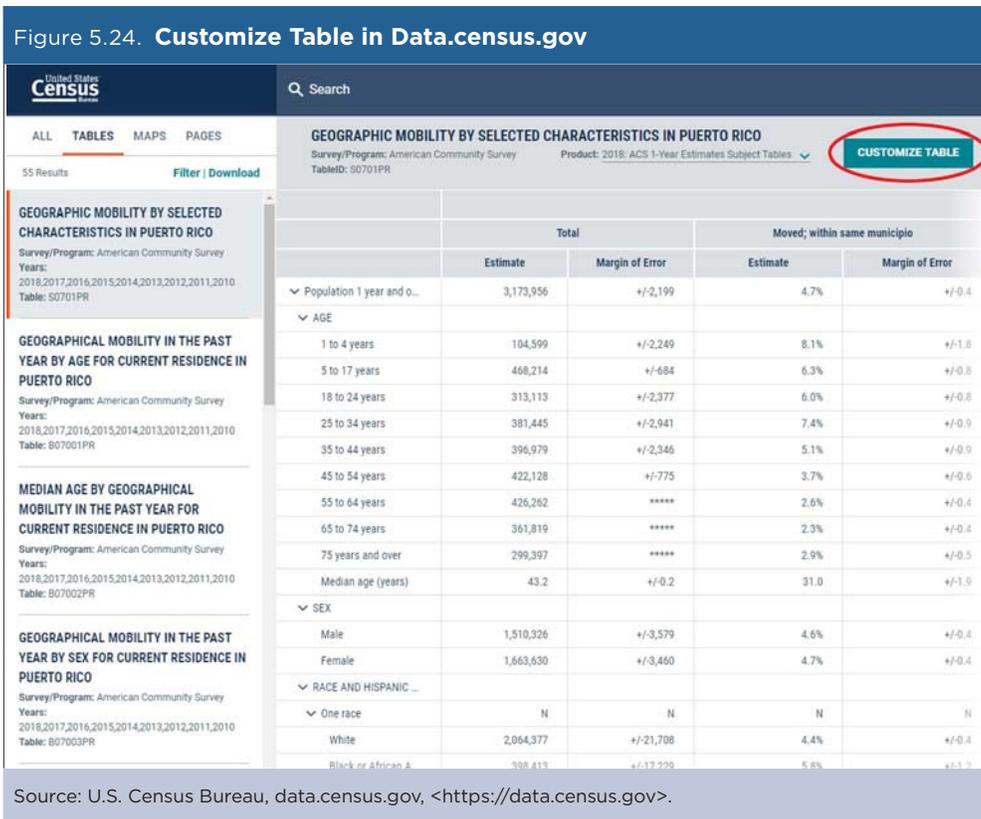
- Select the desired survey year by clicking on the current "Product" selection. Make sure you select the most recent data set available. When this analysis was initially conducted, the 2016 AC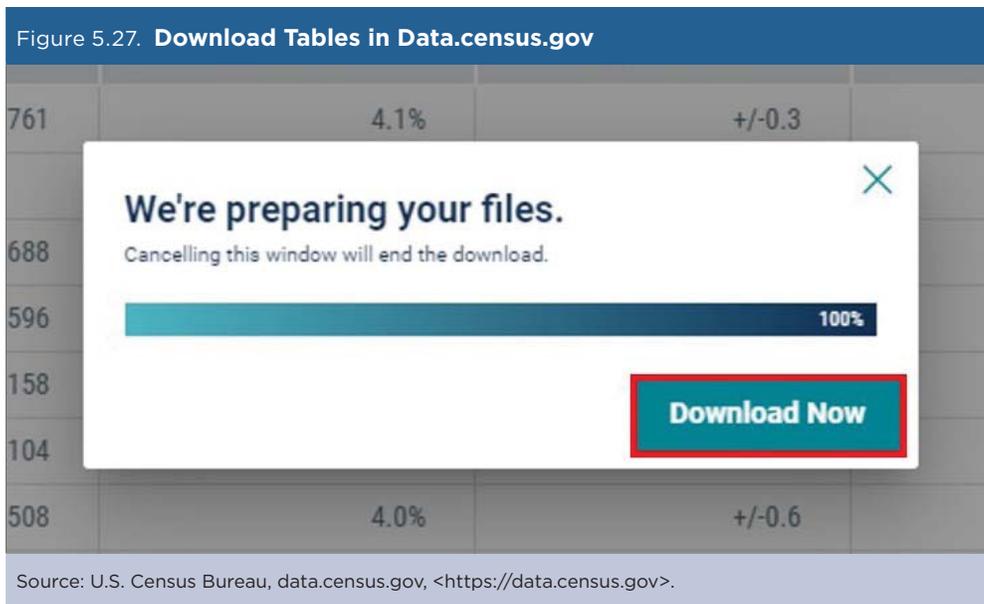S 1-year estimates were the most current. The header should read "2016 American Community Survey 1-Year Estimates" and the geography—"Puerto Rico" (see Figure 5.25).

Figure 5.25. **Selecting the Survey Year in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.
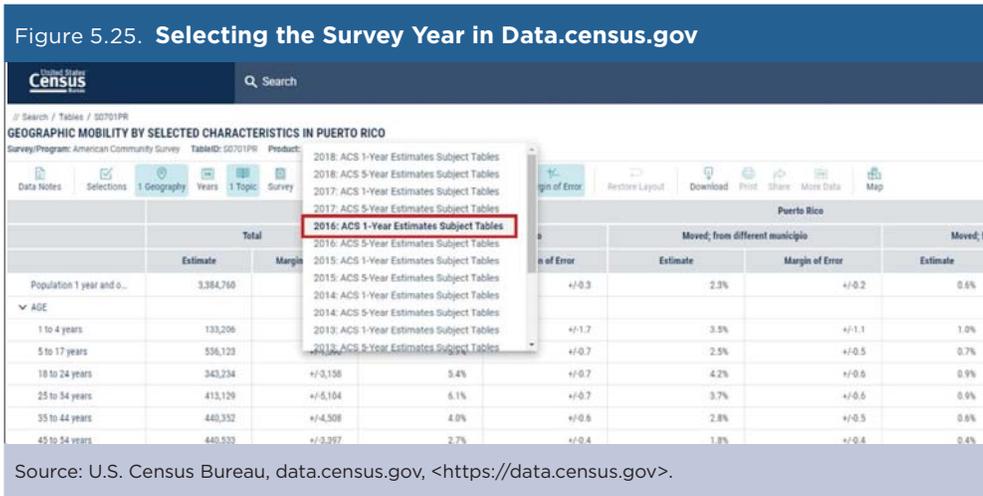
- Select "Download" at the top of the window. Then, use the Download Tables window to check the boxes for the 2010 to 2016 PRCS 1-year data. Select "CSV" as the file type and click on "Download" (see Figure 5.26).

Figure 5.26. **Survey Year and File Type Selection in Data.census.gov**

Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.
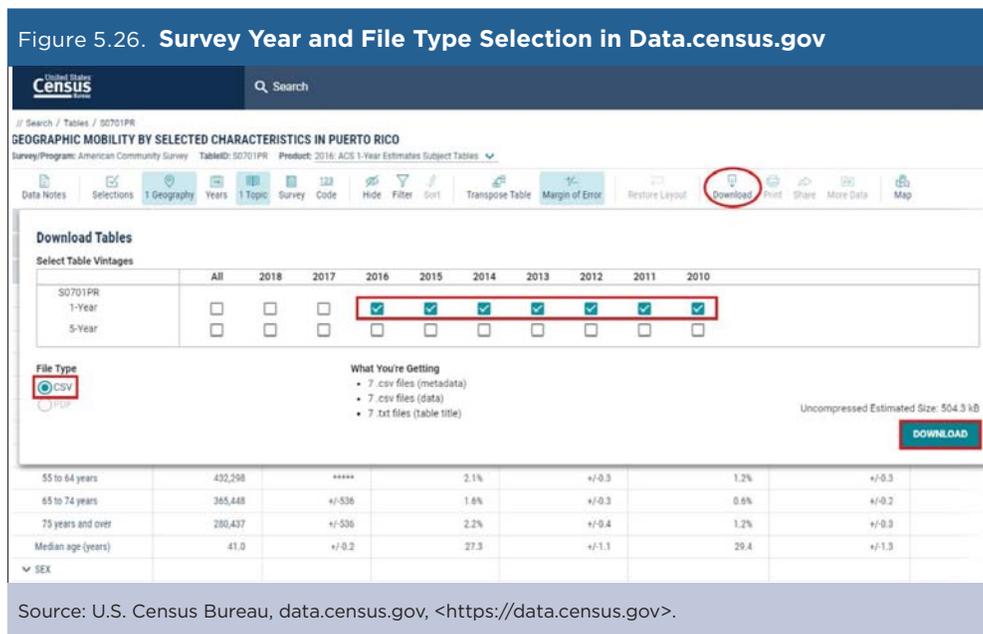
- After the files are prepared, click the "Download Now" button (see Figure 5.27).

Figure 5.27. **Download Tables in Data.census.gov**

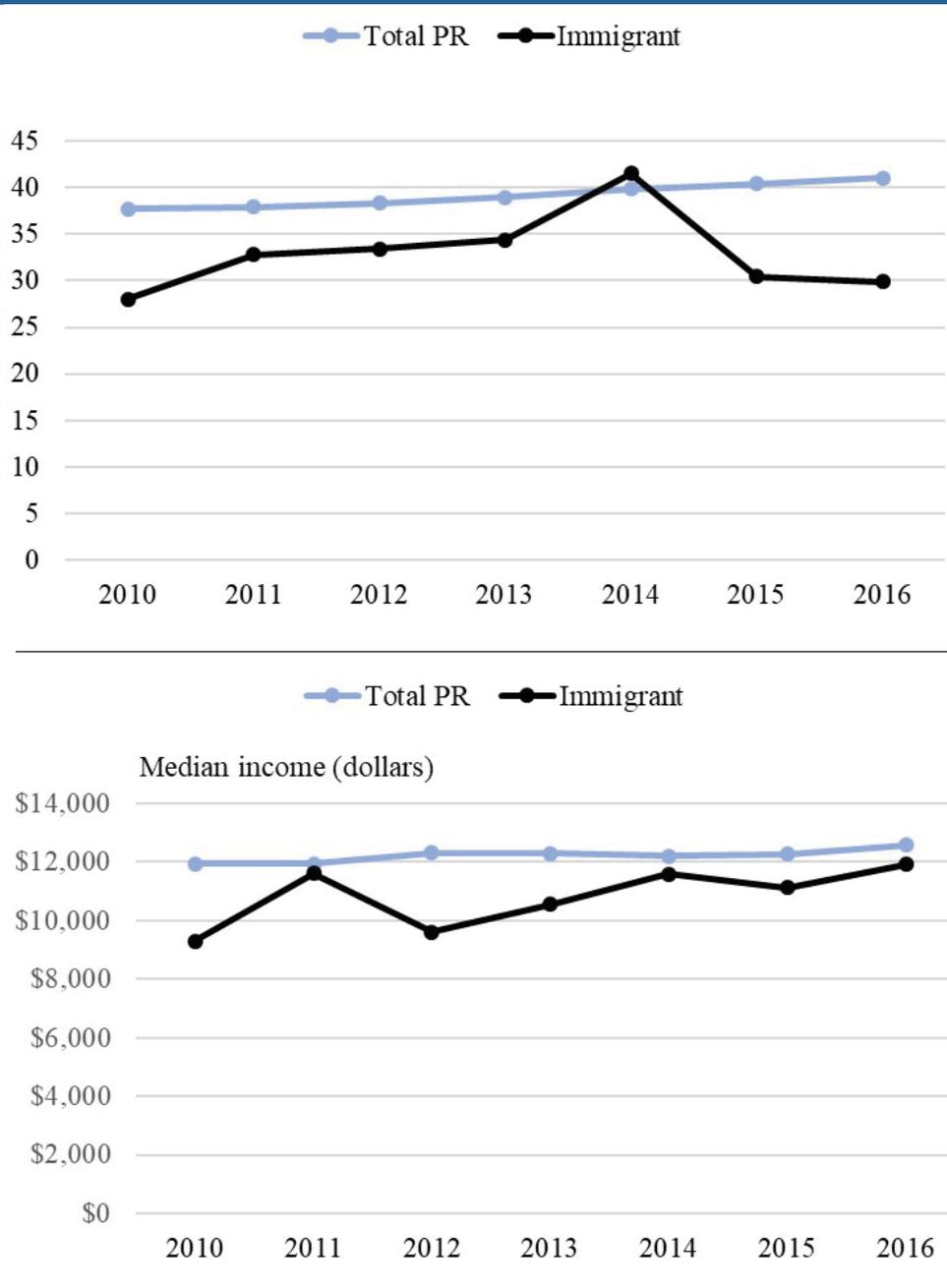Source: U.S. Census Bureau, data.census.gov, <https://data.census.gov>.

This will produce the zip file. Open the zip file to extract your tables. The data are located in a series of CSV files—one file for each year—with the following prefixes:

- ACSST1Y2010.S0701PR_data_with_overlays
- ACSST1Y2011.S0701PR_data_with_overlays
- ACSST1Y2012.S0701PR_data_with_overlays
- ACSST1Y2013.S0701PR_data_with_overlays
- ACSST1Y2014.S0701PR_data_with_overlays
- ACSST1Y2015.S0701PR_data_with_overlays
- ACSST1Y2016.S0701PR_data_with_overlays

To analyze the selected characteristics over time, we created charts to display trends in median age and median income during the period (see Figure 5.28).

Figure 5.28. **Median Age and Median Income Among the Immigrant and Total Population in Puerto Rico: 2010 to 2016**

Source: Author's analysis of data from the U.S. Census Bureau, American Community Survey.

We do not include the margins of error (MOEs) in the graphical representations of the data, because we want to present a basic comparison of the point estimates between the immigrant population and the total population of Puerto Rico. However, respective MOEs for the point estimates are included in Table 5.3.

Table 5.3. **Median Age and Median Income for the Immigrant and Total Puerto Rico Population: 2010 to 2016**							
	Median Age				**Median Income**		
Year	Total PR	MOE	Immigrant	MOE	Total PR	MOE	Immigrant	MOE
2010	37.7	±0.2	28.0	±3.3	$11,931	±124	$9,300	±1,243
2011	37.9	±0.2	32.8	±5.2	$11,937	±159	$11,611	±1,454
2012	38.3	±0.2	33.4	±2.5	$12,317	±152	$9,598	±1,537
2013	38.9	±0.2	34.4	±4.1	$12,283	±141	$10,560	±1,309
2014	39.8	±0.2	41.5	±4.8	$12,212	±151	$11,577	±2,829
2015	40.4	±0.2	30.4	±3.5	$12,259	±135	$11,114	±1,218
2016	41.0	±0.2	29.9	±4.4	$12,581	±220	$11,913	±2,550

Source: Author's analysis of data from the U.S. Census Bureau, American Community Survey.

The results allow a comparison of age and income between recent immigrants to Puerto Rico and the total population on the island, and how these characteristics have changed over time. This analysis helps the PRIS advise policymakers and the public about changes in the characteristics of the Commonwealth's dynamic immigrant population. These analyses are included in PRIS's annual report, "Migrant Population Profile," available in the publications section of our Web site[32]

---

[32] Puerto Rico Institute of Statistics, Publications, Perfil del Migrante, <https://estadisticas.pr/en/publicaciones/perfil-del-migrante>.