Lab 3 [Part 2]:
A – Adding Errors Bars to Charts in Excel
B – Using Social Explorer

A. Adding Error Bars to Charts [15 mins]

Download and open the **Lab 3-2 Data** workbook in Excel and select the Ages by group sheet. The data in the table and bar chart comes from the 2017 ACS 5-Year Estimates, Table S1810 (see the Ages tab for more information). Both the table and chart were formatted so they follow best practices for displaying data. Let's add error bars for the margins of error to visualize whether the differences are statistically significant.

1. Double click on the chart. This brings up the chart menu/commands.
2. Click the button at the top left of the screen labeled "Add Chart Element" and select "Error Bar" and then "More Error Bar Options" from the drop-down menu.
3. We now need to format the error bars. Choose to Display
    - "Both" error bars under **Direction**, and
    - "Cap" under **Ends Style**
4. Although there is an 'error bar' displayed, that's uses a predetermined value; not our MoE. We need to specify the error bars amount. Select "Custom" in the **Error Amount** menu, and then "Specify Value."
5. You will then be prompted to enter "Custom Error Bars" Positive Error and Negative Error values – a.k.a. Confidence interval lower and upper bound. You want to select the cells with the margins of error information for BOTH the **Positive** and **Negative Values**
6. Are there more working adults than children in the tract? What about Children vs. Senior Adults?

B. Social Explorer [20 mins]

Social Explorer is a great tool for accessing census data. Social explorer is free for Berkeley Students and is available on and off campus (off campus you simply sign in using Berkeley CalNet Login). We are going to start by opening social explorer. (We suggest routing there through the Berkeley Library Census data page, just to make sure you have access to the Berkeley License). You will need to create a login to use the system and to save your work (click login to get started). If you already have an account, click sign in.

The strength of Social Explorer is that it is fairly straightforward and that it is prepopulated with Census data (and a whole lot of other fun data!).

B.1. Interactive Maps

Let's spend five minutes exploring the web maps Social Explorer can build for us. Open in a new browser window or tab the United States map you see the screen by right-clicking on 'Explore.'

1. Now filter by census tract and zoom in into the Easy Bay
2. Click on 'Change Data' and examine other variables

B.2. Tables
Let's see how it works by downloading one of the tables we pulled from the Census Data site a few days ago: the 5-year ACS Survey estimates, Table B03002: Hispanic or Latino by Race.

3. Start by clicking on the "Tables" button.
4. Select "American Community Survey (5-Year Estimates)"
5. Select the "**Begin Report**" under the 2013-2017 survey. ("**More Info**" links to a detailed explanation of the survey.)
6. Choose a geography: census tract, then state, then county, then your tract of interest. Similar to data.census.gov, you can add multiple geographies if you want your data summarized for different geographic levels. Search for your census tract and click "Add." (or if you don't remember the number let's keep working with Tract 4004)
7. Under the **Restrict search to:** restrict your search to: American Community Survey Tables. Why? Errors are ONLY available with the ACS tables (Standard Errors can be used to calculate Margins of Error)
8. Now that you have selected a tract and restrict your search let's, search for the table. You can search for data either by Table ID and Title or by Keyword. Let's use the 'Search by Keyword' tool. Type: `hispanic latino race`.
9. When you find the table click on "Add" to make a selection and then click "Show results"
10. Download the Data => Click the "Excel" button and chose to download the data with counts and/or percentages.
11. Open the file. What do you notice?

C. Keep working on your Assignment

I advise you to use Excel for Assignment 1 (although it is not a requirement). If you are using Excel for assignment 1, create a master Excel file so that you can see, at a glance, how your census tract has changed across time. Also, add a column so that you can see how these data compare to the citywide values you downloaded from the 2018 ACS 5-Year Estimates in the previous lab.

> TIP: You may want to create one tab on your "master spreadsheet" for each of variable to keep things from getting too cluttered.

DIY Section

[on your own if interested in examining the decennial census] Exercise: Downloading Census 2000 and comparing it to 2010 Census

If you're interested in comparing the 2000 Census and the 2010 Census for your final project, this is a useful exercise for you! It is also a useful exercise to familiarize yourself with looking up tables for the Census.

Hint: For finding 2010 Census data, first clear out the filters you have for the ACS and current year you're looking at. Then, in the Browse Filters columns change the "Year" to 2010 and the "Survey" to DEC Summary File 1.

Downloading Multiple Tables using Social Explorer

One of the big benefits of Social Explorer is that you can download multiple datasets at the same time. This can reduce the total time you need downloading data. As practice, let's try to download two different data sets on housing stock at the same time. Find one dataset describing Tenure and

one describing Median Rent in your Census tract. Add each data set as a selection so that is shows up in the “Current Table Selection” box, and then download the data.

- Scroll down the page a bit and you’ll see your Tracts “Neighbors,” including “Neighboring 5-Digit ZIP Code Tabulation Area (by Population)” at the bottom. Click on “Neighboring
- Digit ZIP Code Tabulation Area on the Map.”
- You should be able to see which ZIP code(s) neighbor your Tract, as well as nearby ZIP codes. You are likely most interest in those that overlap your Tract.
- Again, is the Tract you searched in a single ZIP code? Does this result agree with what you observed using the Census Relationship file?