Chicago is comprised of 77 Community Areas, which each may contain as few as a handful of Census Tracts to a few dozen. For this assignment you will compile selected statistics for your Community Area (CA) in 1990 and 2012 to gauge how the CA has changed during this time. You will obtain the 1990 data from the Local Community Fact Book available in the NEIU library, and the 2012 data from the U.S. Census website.

Navigating the Instruction Guides

Before getting into the details of finding and downloading data, I will map out the various guides that I have provided to help you through this assignment. In addition to this step-by-step instruction manual, you will also find the following guides in the D2L module titled “Community Area Project”:

1. **MS Excel “workbook” file titled “SOC 314 Data Table Fall 2014.”** Note that the workbook contains several “spreadsheets,” which are visible as tabs along the bottom of the screen once you have opened the file. The tabs have titles such as “Main Table,” “CA Numbers & Census Tracts,” and others. Clicking on a tab will view the corresponding spreadsheet. You may need to use the right and left arrows in order to find and view all of the tabs and spreadsheets. Each spreadsheet offers a different resource, which are explained as follows:
   a. **Main Table:** this is the main spreadsheet where you will enter the data that you download from the 2012 Census website and calculate some basic descriptive statistics (see below).
   b. **CA Numbers & Census Tracts:** This spreadsheet provides you with the number of each of the 77 Community Areas as well as their Census Tract numbers. You will need the Census Tract numbers (101, 102, etc.) to find the correct data on the Census website.
   c. **Education sample1:** This spreadsheet shows an example of what the data that you will download from the Census website looks like and how to sum categories of data to create the statistic that you need (see below).
   d. **Sample Presentation Tables:** This spreadsheet provides you with simpler data tables into which you can paste selected figures from your “Main Table” in order to more easily display in a PowerPoint presentation or Word document.
   e. **1990 Hispanic Origin:** Needed data that is not available in the 1990 Community Fact Book.
   f. **1990 Ancestry:** Needed data that is not available in the 1990 Community Fact Book.

2. **Navigating the “Main Table” spreadsheet:** The first four columns in the Main Table (columns A – D) provide directions on how to find the needed data in the Census website and the Local Community Fact Book:
   a. Column D tells you the “constructed variable name,” which is simply the type of data that you are collecting (educational attainment, household income, etc.). “Constructed” refers to the process of adding categories of data together to create the resulting statistic.
   b. Column C tells you the technical name of the 2012 data as (or similar to how) it will appear on the Census website.
   c. Column B tells you the specific table number in the Census website corresponding to the 2012 “constructed variable name.” Typing the table number into the Census website search box is the quickest way to find the data. (See below; we will discuss this.)
   d. Column A tells you the corresponding name for the variable as (or similar to how) it will appear in the 1990 Local Community Fact Book. In short, it is how you will look up the same (2012) data in the 1990 Local Community Fact Book.
Working with the 1990 Census Data from the Local Community Fact Book

The 1990 data is based on the Decennial Census, which, prior to 2010, was the standard form for collecting Census data (the Decennial Census was conducted every ten years). The 1990 Census Data in the Fact Book is summarized for your entire CA, so you will not need to add up the data from various Census Tracts, as will be the case with the 2012 figures. However, for some of the Constructed Variables (see instructions below), you will need to add up other categories of data (not Census Tracts) to “construct” the needed statistics for both 1990 and 2012.

Below, when I refer to variables, I mean measures such as “Bachelor's Degree or Higher” or “Foreign Born.” These variables are listed in Column D of your Main Table spreadsheet. Your task is to use the 1990 Fact Book to find the numbers for different variables and type them into the corresponding cells in your Main Table.

How to Access and Use the 1990 Data

1. Consult the 1990 Local Community Fact Book available on reserve at the NEIU Ronald Williams library circulation desk on the first floor. There is only one copy of this book on reserve so you will need to scan or copy the pages relevant to your CA and return the book for other students to use.
2. Look up your CA's number in the Excel file for this project (“SOC 314 Data Table Fall 2014”) or in Map 8 on page xv of the Fact Book. You will be using this number later on, so take note of it.
3. Scan or copy the below-listed sections from the Fact Book that correspond to your CA. (These sections are identified in the Table of Contents) (see below on how to scan).
   a. The 2-3 pages from Part II: Histories and Census Tract Statistics with a basic historical overview and summary statistics for your area.
   b. The 13 pages from Part IV: Detailed Census Statistics for Chicago Community Areas (starting on page 377). This section has 13 tables corresponding to different statistics spanning pages 378 to 486. The row across the top of these pages lists the Community Area numbers. (Logan Square is #22 so I scanned the corresponding 13 pages and uploaded my example in the CA Project Module on D2L.)
   c. SCANNING: On the 3rd floor of the library there are copiers/scanners you can use to scan to email. (I was told by librarians that those scanners are free, but there are only two. If they're being used you can scan anywhere else on campus for 4 cents per scan that comes out of your pre-loaded copy budget on your ID card.) To scan, type your email into the machine's console and the trick is not to press send after every page because you will have to re-type your email each time. Instead, scan all of the pages first, then press send to email. Of course, you can also use your ID card to make paper copies.

Finding and Calculating the 1990 Data Variables

Next you will use these Fact Book pages to find, calculate and copy the various statistics needed for this assignment into your Main Table using the following steps:

1. To find the statistic for the number of people with a “Bachelor's Degree or Higher,” for example, recall that Column A in your Main Table indicates the name of the “variable” as it is appears in the 1990 Fact Book. This will make it easier to find.
2. In the Detailed Census Statistics from Part IV (see above), you will find the heading Educational Attainment above a list of education categories along the left side of the page.
3. To the right will be the data corresponding to your CA (in the column under your CA number).
4. To construct the statistic for “Bachelor's Degree or Higher” you will add up the numbers in the corresponding categories. In this case there are two categories to add:
   a. Bachelor's Degree + Graduate or Professional Degree.
5. In class we will go over how to use MS Excel to make calculations such as addition, subtraction and division (for percentages). You may also use a calculator or calculate by hand (take care for accuracy!). Since there is no table grid in the Fact Book page, take care to ensure that the numbers you select line up with the correct education sub-category (I suggest you use a ruler).

6. Most variables will not require making these calculations. You will only need to make these calculations for 5 of the variables you will be working with. These 5 are:
   a. Bachelor's Degree or Higher
   b. Households with Income of $100,000 or more
   c. Persons with Incomes Below 150% of the Poverty Line
   d. Gross Rent of $599 or Less
   e. Gross Rent of $1,000 or More

7. Once you find and/or construct the statistic for the given variable, copy the resulting number into the corresponding cell in your Main Table.

8. Calculate the percentage by dividing the number for “Bachelor's Degree or Higher” by the corresponding population total, in this case “Persons 25 years of age or older.” (Note that different variables have different corresponding population totals, for example: household income figures correspond to the total of households, whereas race group figures correspond to the total of people.)

9. In class we will go over how to do these calculations but you may also follow the instructions for making the calculations using the 2012 data, provided below.
Working with the 2012 Census Data

We are working with a part of the U.S. Census data known as the American Community Survey (ACS), which has replaced the old Decennial Census. The ACS is a smaller sample collected every year and compiled into either 1-, 3-, or 5-year segments used to compute estimates.¹ We will be downloading data from the 5-year sample, known as the 2012 ACS 5-year sample.

Your task is to find the data for the same variables that you researched for the 1990 part of this project (Foreign-born, Households with Incomes of $100,000 or more, etc.). However, unlike the 1990 Fact Book which compiles the data for the entire Community Area (CA), in 2012 we do not have a comparable resource and so you must find the data for each of the Census Tracts that makes up your CA. The Census Tract data will be used to compare the CA’s socioeconomic characteristics over time as well as study the differences within the CA. You will type these statistics into the Main Table.

How to find your CA's Census Tracts for 2012
1. In the Excel file for this assignment, consult the spreadsheet (the tabs along the bottom) titled, CA Numbers and Census Tracts.
2. Match the Census Tracts to the CA number and take note of all of the Census Tract numbers corresponding to your CA. I suggest you copy and paste them into another document to keep handy.
3. In order to see the location of the Census Tracts within your CA (which you will need for later parts of this project): Consult the following map of Chicago Community Areas with 2010 Census Tracts that I have posted to the D2L module for this assignment. Older maps are available online, e.g.: [http://www.csu.edu/cerc/documents/ChicagoCommunityAreasMapWithCensusTracts2000-NIPC.pdf](http://www.csu.edu/cerc/documents/ChicagoCommunityAreasMapWithCensusTracts2000-NIPC.pdf) (We will discuss changes to the tract boundaries since 2000)

How to Access the 2012 data
1. Go to www.census.gov
2. Click on the Data tab along the top, scroll down to and click on American FactFinder.
3. Click on Advanced Search
4. In the advanced search page, you will notice various filters along the left side.
5. There are two filters you always need to have selected when searching for specific variables.
   a. The Topics Filter, where you will select the 2012 5-Year ACS dataset.
      i. Click on the arrow next to topics filter
      ii. Click on "Dataset"
      iii. Select the 2012 ACS 5-year estimates.
   b. The Geographies Filter, where you will choose all of your CA's Census Tracts and the City of Chicago.
      To add the Census Tracts:
      i. Click on the arrow next to geographies filter
      ii. Select "Census Tract" from drop down list of geographic types.
      iii. Select "Illinois" from the drop down list of states.
      iv. Select "Cook" from the drop down list of counties.
      v. Select ALL of the Census Tracts corresponding to your Community Area by holding down the control button as you select multiple census tracts.
      vi. Finally, click on "Add To Your Selections" below the drop down lists.
      You will also add the City of Chicago to your Geography Filter.
      i. Again, click on the arrow next to geographies filter.
      ii. This time select “Place” from the drop down list of geographic types.

¹ You can learn more about the ACS here: [http://www.census.gov/acs/www/about_the_survey/american_community_survey/](http://www.census.gov/acs/www/about_the_survey/american_community_survey/)
iii. Select “Illinois” from the drop down list of states.
iv. Select “Chicago City” from the drop down list of places.

6. Click the "X" at the top right to close out of the filtering Geographies or Topics window and return to the main Advanced Search page, which should now have a list of different data variable options. (The screenshot further below shows what it looks when the filters have been selected)

7. **Warning:** The filters will be cleared after a period of inactivity and you will have to select them again. Periodically click somewhere on the screen to remain active.

**Finding and Calculating the 2012 Data Variables**

8. **To find data for a specific variable,** you will use the 2012 Census table number located in column B of your Main Table spreadsheet in Excel. These instructions will use the variable “Bachelor's Degree or Higher” as an example.
   a. In the case of the “Bachelor's Degree or Higher” variable, the table number is **B15003**.
   b. Enter this table number into the text box next to “Refine your search results” and under “topic or table name”. Glick GO or press ENTER. The resulting screen is shown below.
   c. You should see a link for “Educational Attainment For The Population 25 Years And Over.” Click on it.
   d. Now you should see the **Table View screen** with the Educational Attainment data for your Census Tracts and the City of Chicago Overall. The rows are educational categories and the columns are the geographic units - Census Tracts and the City of Chicago. If you have more than 8 or 9 Census Tracts the columns will spill onto another page and you will have to click the arrows to the right "->" to see them.
9. You should click on that rightward arrow (shown above) to notice how the totals for the City of Chicago are included in your dataset as the last column all the way to the right.

10. To construct the variable for “Bachelor's Degree or Higher”:
   a. You will need to add the four categories: Bachelor's Degree, Master's Degree, Professional school degree, and Doctorate Degree.
   b. You will need to repeat this addition for each of your Census Tracts as well as for the City of Chicago Overall. In the case of Logan Square, I would be making these calculations 27 times (for 27 Census Tracts) + 1 for the City of Chicago. (Thankfully, Excel allows us to make these calculations for the tracts + City of Chicago, all at once.)
      i. (Only five of the required variables need to be constructed by making these calculations.)
   c. You have several options for making the calculations to construct the variable “Bachelor's Degree or Higher”. We will discuss these options in class but I will summarize them here, as well.
      i. The simplest way to make the calculations is with a calculator from the Table View Screen (shown above). This option is most plausible when you do not have many Census Tracts in your CA and you can see them all on screen. Usually you cannot see more than 8 or 9 Census Tracts on the same screen and have to click the arrows at the top right of the table "->" to scroll to the right.
      ii. If there are many Census Tracts in your CA, as is the case with Logan Square, there are two options I recommend:
1. Use the Modify Table feature at the top left of the Table View to remove many of the numbers that you don't need for your calculation and which are distracting.
   
   a. Click on Modify Table and you will see check-marked boxes next to each row and column.

   b. Uncheck every row EXCEPT for the “Total” and the four categories that you will be adding up (Bachelor's Degree, Master's Degree, Professional school degree, and Doctorate Degree).

   c. Uncheck all of the “margin of error” columns.

   d. Now you should have cleared away the unwanted data, as shown below.

   e. At this point you can either proceed to make the necessary calculations for each Census tract by hand/calculator, or you can click on “download” to open and calculate the data in Excel.
2. **Open and Calculate the Data in Excel.**
   a. Click the Download option along the top of the Table View.
   b. Choose “Microsoft Excel (.xls)” within the Presentation-ready formats and click OK.
   c. Click Download.
   d. Open the file.
   e. If you used the Modify Table feature as suggested above, the Excel spreadsheet should contain only the relevant Population Total and the Categories to be added (with no “margin of error” columns).
   f. The resulting Excel sheet will be your **scratch paper** for making the calculations needed to construct your statistic. First, we will address some formatting issues to make the sheet more user-friendly.

### Formatting Issues

- **Heading visibility:**
  - Click on the column heading cell and the information will be visible in the viewer toward the top of the screen, as shown in the below image.
ii. Or you can expand the size of the rows to make more information visible. Do this by hovering over the lower edge of the row on the left side of the screen below the row number (see arrow in below image), then using the mouse's left-click to drag down.

h. The green triangles indicate that the data in the cells is formatted as text and you will need to reformat it as numeric (see below images).
   i. When you highlight all of the relevant cells, you will see an exclamation point icon indicating that the numbers are stored as text.
Click on that exclamation point and it will show you the option to “convert to number”.

As a reminder of the point made in instruction line 9 above, notice in the below screenshot how scrolling to the right reveals that the last column has the totals for the City of Chicago.

Also note that the “Total” line above represents the total population 25 years of age and over.
i. In my example for this variable, I have also deleted rows 3 through 8 and rows 17 through 29 with distracting explanatory notes.

j. **To delete one or multiple rows:**
   
i. Hover over the cell with the row number on the left side of the screen.
   
ii. Left-click with the mouse to highlight the entire row. Or to highlight multiple rows for deletion, hold the mouse's left-click and drag the highlight over all of the rows you want to delete. Once you have highlighted the relevant rows, release the left-click.
   
iii. While still hovering over the row or one of the multiple rows you want to delete, press the mouse's right-click to open a menu with options.
   
iv. Click on Delete. (the before and after images are shown below)
Making Calculations with the 2012 ACS Data

11. These instructions presume you followed the formatting recommendations above (including using the Modify Table Feature and using Excel to make calculations, as opposed to by hand/calculator).

12. For Constructed Variables (recall the 5 listed above), you will have to add both the sub-categories for the variable as well as add the data for each Census Tract to produce the resulting statistic for the entire CA. We will cover adding sub-categories first, then move on to adding Census Tracts.

13. We will continue with the example of the variable “Bachelor's Degree or Higher” to learn how to add the variable's sub-categories of Bachelor's Degree, Master's Degree, Professional school degree, and Doctorate Degree.

Using SUM to construct a variable by adding sub-categories

14. You will now add the data for four Education sub-categories shown above.

15. If the row below the Education sub-categories is blank, as is the case in my example, then you will type a “SUM” formula into the cell below the last sub-category (Doctorate degree) for the first Census Tract (in my example it's number 2203). In this example, the cell is C10. Follow these steps.
   a. Left-click once with the mouse to select the cell.
   b. Type "=SUM(" into the cell. (type only the text that is inside the quotation marks)
   c. Once you type the first, open parentheses, the SUM formula's instructions will appear, asking you to select the cell numbers to be summed.
d. You can select the cell numbers in any one of three ways:
   i. type the cell numbers separated by commas: “=sum(C6, C7, C8, C9)”
   ii. type the range of the cell numbers separated by a colon: “=sum(C6:C9)”
   iii. highlight the cells to be summed and they will automatically be entered into the equation as a range, as in option ii. The screenshot shows the result of option iii.

e. Press enter at this point and it will automatically add the closing parentheses and compute the formula, summing the relevant cells (shown below).

f. Be sure NOT to include row 5, the Total, in your formula and calculation.
g. To apply this formula to the rest of your CA's Census Tracts (and avoid having to retype the formula in Cells D10, E10, etc.), you can copy cell C10 and paste it into all of the other cells where you will need to make the same calculation. Note that the cell numbers I refer to are specific to my example; they may not exactly match the Excel spreadsheet for your CA.

h. The below screenshots show how it looks after I highlighted and pasted the formulas across Logan Square's 27 Census Tracts as well as for the City of Chicago (the last column to the right).

i. The numbers that you have summed in these cells (in this case, in row 10) should NOT be larger than those in the Total line for the corresponding column and Census Tract. So for example, notice how the summed number in cell D10 for Census Tract 2204 is 1,108. This number is smaller than that in the Total line for this Census Tract - 1,974.

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2 How to copy and paste: either right-click on the cell and select “copy” or simply press the keys CTRL + C for the copy shortcut once you have selected the cell. Similarly, paste by right-clicking.
In this example, the cells in Row 10 show your first “result”: the statistic for the constructed variable, “Bachelor's Degree or Higher”.

Copy the SUM results into the Main Table

Next you will copy these constructed statistics for each Census Tract into the corresponding cells in the Main Table of your Excel file for this assignment. First I will show you what it looks like after I copied these statistics into my own Main Table then I will provide instructions on how to format your Main Table to accommodate the number of Census Tracts in your CA. For the purpose of illustration, I am only showing 2 of Logan Square’s tracts (below).

18. The next screenshot shows:
   a. The results of copying the numbers from the Total line (which is Total Persons 25 Years and Over) for each Census Tract into the corresponding cells in the Main Table.
   b. The results of copying the summed numbers from Row 10 (which is the total of Persons with a Bachelor's Degree or Higher) into the corresponding cells in the Main Table. (note that the totals for the City of Chicago are also copied)
To format your Main Table according to the number of Census Tracts in your particular CA, you will have to either insert or delete columns.

c. The Main Table sheet I have provided has 56 columns. Why so many?
   i. 54 for the CA’s Census Tract: Because each Census Tract requires a number and a percentage calculation (two columns per Census Tract), the 27 Census Tracts for Logan Square translate into 54 total columns.
   ii. 2 columns for the CA Overall Total (I will return to format and calculation of these two columns later)

d. If your CA has more than 27 Census Tracts (unlikely), you will have to insert more columns.

e. To insert a column:
   i. With the mouse cursor, hover over the letter of the column toward the top of the screen so that the cursor becomes a black down arrow.
   ii. Right-click with the mouse to open a window with options (like the below).
   iii. Click Insert to add a column.
   iv. To insert more than one column at the same time, repeat these steps after highlighting as many columns as you want to insert.

f. To delete a column, repeat these steps, except choose “delete” in the menu instead of insert.
Calculating Percentages

When you need to calculate a percentage, you divide by the total population that corresponds to the particular variable that you're working with. The Census calls this relevant population, the “Universe” (e.g., see screenshot on page 6). So, for example, to calculate the percentage of “Persons with a Bachelor's Degree or Higher,” you would divide by the “Universe” of Persons 25 Years of Age or Older. Recall how in the above example (see page 10), the “Total” row represents the Universe of Persons 25 Years of Age or Older. The following steps for calculating percentages continue with the example of the constructed variable, Bachelor's Degree or Higher. Of course, you can make these calculations by hand, using a calculator. To make the percentage calculation in Excel:

19. Left-click with the mouse on the cell to the right of the summed number for “Bachelor's Degree or Higher” for a given Census Tract - in this example, I begin with cell J7, show below.
   a. Type "=" into the cell. (type only the text inside the quotation marks)
   b. With your cursor blinking next to "=" sign, use the mouse's left-click to select cell J6 (which contains the summed statistic), creating the first part of the formula: "=J6"
   c. Type a "/" slash next to the "J6"
   d. Use the mouse's left-click to select the cell containing your “Universe” total (cell J5), creating the formula “=J6/J5” as shown below.

![Excel screenshot showing the formula "=J6/J5"

   e. Press enter and the formula will complete, generating a decimal or a percentage.

20. If the result is a decimal, you should convert the decimal into a percentage using the buttons in the “Number” section of the Home tab at the top of the screen (see below):
   a. While cell J7 is still selected (or left-click once to select it again)...
   b. Click on the icon with the percent "%" sign. This will convert the decimal into a percentage.
18

a. Then click twice on the icon that shows a left arrow next to decimal points to add two decimal points on to your percentage.

21. Repeat the above DIVIDE steps for the remaining Census Tracts, taking care to point the formula to the corresponding cells. So for example, in the above image, to generate a percentage in the cell M6 for Census Tract 2204, the formula would be 

```excel
"=L6/L5.
```

22. You may also simply copy and paste the formula from K6 into M6, O6 and into other cells in which the cell that you are dividing by has the exact same positional relationship to the number you are dividing with and the cell you are creating the formula in. The below image illustrates the idea of positional relationship. It shows that you could copy and paste the divide formula to apply it other variables.
Calculating the SUM Total for the entire Community Area

23. Next we will sum the “Total Persons 25 Years and Over” for each Census Tract as well as sum the totals for “Bachelor's Degree or Higher” for each Census Tract to calculate the corresponding CA Totals in column P, shown below. Then we will calculate percentages in column Q. *(reminder: the number of columns and your tract numbers will differ from these examples)*

24. In this example, to sum the numbers in row 5 ("Total Persons 25 Years and Over"), you would:
   a. Type "=SUM(“ into cell P5.
   b. With the cursor blinking next to the formula, press and hold the CTRL button.
   c. While holding CTRL: use the left-click of the mouse of the select each of the cells to be summed in this formula.
i. This means selecting each of the below-highlighted cells in Row 5. This example has only 3 Census Tracts. If working with many more tracts, you would have to pan the screen to the far left to select each one.

d. With all of the corresponding row 5 Census Tract cells selected, press enter to automatically close the parentheses and complete the formula.

e. Now cell P5 will show the Total Persons 25 Years or Older for the entire CA (or in this case, 3 sample tracts).

f. To SUM the next cell (P6), which is the total of “Bachelor's Degree or Higher” for the entire CA, you do not have to repeat the above steps.

   i. Simply copy and paste P5 into P6.

   ii. Voila! This is where Excel starts to save you time. As long as you do not significantly change the format of your Main Table, you can simply copy and paste formulas from one row to SUM the individual Census Tract numbers for your other variables.

Keep in mind the positional-relationship logic illustrated in point 22 above.

   iii. The below screenshot shows the SUM and DIVIDE results for the 2012 CA Total and the 2012 Chicago Total.

iv. The steps you will need to repeat for other variables are:

   1. Accessing, downloading and formatting the 2012 ACS data using American FactFinder.

   2. If necessary, adding the sub-categories (for the 5 variables noted below).
3. Copying from the *scratch paper* spreadsheet into the *Main Table*.
4. Making the SUM calculations needed for the CA Total, as shown above, as well as
5. Making the DIVIDE calculations for percentages.

25. The following details the sub-categories that will need to be added for the 5 constructed variables.

<table>
<thead>
<tr>
<th>Constructed Variable Name</th>
<th>Sub-Categories to be summed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bachelor's Degree or Higher</strong></td>
<td><strong>1990 Census</strong></td>
</tr>
<tr>
<td></td>
<td>Bachelor's Degree</td>
</tr>
<tr>
<td></td>
<td>Graduate or Professional school degree</td>
</tr>
<tr>
<td></td>
<td><strong>2012 Census (ACS)</strong></td>
</tr>
<tr>
<td></td>
<td>Bachelor's Degree</td>
</tr>
<tr>
<td></td>
<td>Master's Degree</td>
</tr>
<tr>
<td></td>
<td>Professional school degree</td>
</tr>
<tr>
<td></td>
<td>Doctorate Degree</td>
</tr>
<tr>
<td><strong>Households with income of $100,000 or more</strong></td>
<td>$100,000 to $124,999</td>
</tr>
<tr>
<td></td>
<td>$125,000 to $149,999</td>
</tr>
<tr>
<td></td>
<td>$150,000 or more</td>
</tr>
<tr>
<td><strong>People with incomes below 150% of the poverty line</strong></td>
<td>Under .50</td>
</tr>
<tr>
<td></td>
<td>.50 to .74</td>
</tr>
<tr>
<td></td>
<td>.75 to .99</td>
</tr>
<tr>
<td></td>
<td>1.00 to 1.24</td>
</tr>
<tr>
<td></td>
<td>1.25 to 1.49</td>
</tr>
<tr>
<td><strong>Gross Rent of $599 or less</strong></td>
<td>Less than $100</td>
</tr>
<tr>
<td></td>
<td>$100 to $149</td>
</tr>
<tr>
<td></td>
<td>$150 to $199</td>
</tr>
<tr>
<td></td>
<td>$200 to $249</td>
</tr>
<tr>
<td></td>
<td>$250 to $299</td>
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<td>$300 to $349</td>
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<td>$350 to $399</td>
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<td></td>
<td>$400 to $449</td>
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<td></td>
<td>$450 to $499</td>
</tr>
<tr>
<td></td>
<td>$500 to $549</td>
</tr>
<tr>
<td></td>
<td>$550 to $599</td>
</tr>
<tr>
<td><strong>Gross Rent of $1,000 or more</strong></td>
<td>$1,000 or more</td>
</tr>
<tr>
<td></td>
<td><em>No need to sum.</em></td>
</tr>
<tr>
<td></td>
<td>$1,000 to $1,249</td>
</tr>
<tr>
<td></td>
<td>$1,250 to $1,499</td>
</tr>
<tr>
<td></td>
<td>$1,500 to $1,999</td>
</tr>
<tr>
<td></td>
<td>$2,000 or more</td>
</tr>
</tbody>
</table>

**Calculating Change**

In your *Main Table* you will find three additional columns at the far right under the heading, “Change Statistics: 1990-2012” that need calculation. The calculation needed is subtraction.

26. Let’s take the example of the last column, “City percentage change,” (column U below) applied to the variable, “Bachelor’s Degree or Higher” (row 6).

   a. The formula you need for this is the 2012 City Percentage (of Bachelor’s Degree or Higher) minus the 1990 City Percentage (of Bachelor’s Degree or Higher).
   b. As shown below, you will start by typing “=” into the cell in which you want to create a formula.
   c. While your cursor is still blinking in the cell, slide the mouse pointer to the first number in the equation – the 2012 City Percentage (in this case, 33.6% or cell R6).
   d. Then type the minus sign (-) after Q6.
   e. Then select the cell containing the final number in the equation – the 1990 City Percentage (in this case, it’s far to the left and not visible in the screenshot: 21.09% or cell H6).
22

f. Press enter and complete the formula and calculation.

27. After practicing with the above instructions, you should be able to complete the remaining subtraction calculations using the instructions shown in columns S and T above.

28. **But what does this all mean?** (We will discuss it in class.)

**Important notes about some of the other variables.**

29. **Choosing the largest ancestry and Hispanic groups.**
   a. You must choose the same groups for your 1990 data as for your 2012 data. So do you choose based on the largest groups in 2012 or 1990? You have some flexibility in how you choose.
   b. A good rule of thumb would be to choose the two largest groups in 1990 and see how their numbers have changed by 2012. (this rule of thumb applies to ancestry and Hispanic groups)
   c. However, some ancestry categories may not be very meaningful for the CA issue that you are researching. For example, the top four ancestry groups reported may be Polish, Irish, German and Arab. But if your interest is in tensions between ethnic Whites and Arabs, you may want to include Arab as one of your two ancestry selections even if they’re not among the largest two.
   d. We will discuss other similar considerations with regards to ancestry.

30. **Gross Rent Categories.**
   a. It’s clearly not fair to compare how many apartments rented for $599 or less in 1990 versus in 2012. Surely there were many more apartments in this price range in 1990!
   b. Instead, what is important is the relative rate of change as compared to the City of Chicago overall. Did your CA lose low-priced apartments faster than the City of Chicago overall? Or did it retain affordable housing to a greater degree than city-wide? (Similar questions apply to household income and other variables) These are some of the kinds of questions needed to put the information in the context of citywide trends.