**PLAN 7012: Analysis for Community Planning**

**Fall 2016**

**Mapping Census Data**

**15 points**

Due Monday, October 3

The purpose of this assignment is for you to analyze census data for the Memphis MSA by mapping the data to observe geographic distributions and concentrations of certain population groups.

* Create the three maps described below.
* In 500 words, summarize the most important observations made apparent by these maps. Compare your 25-34 population map and your black 25-34 year old map to those produced from the 2000 census. (provided here <http://www.memphis.edu/planning/people/santo_syllabi.php>)
* Submit your maps and write up to me via email. Also attach the excel tables used to create the maps.

Map 1.

Map “excess” 25-34 year olds by block group to show geographic distribution and illustrate areas of high concentration.

*Collect the 2010 SF1 data for age using the American FactFinder2. The variable you will need is “sex by age” P12.*

*In FactFinder 2, go to “Topics,” expand “datasets,” and select “2010 SF1 100% Data.”*

*The go to “Geographies,” type Memphis into the search box, select “Memphis-TN-AR-MS MSA,” and click “go”*

*Check “all block groups within Memphis TN-MS-AR Metro Area” and click “add”*

*Close the “select geographies” window*

*Find the variable p12 “sex by age”, and download the data for the MSA by block group*

*Download the data as a CSV file. Select “data and annotations in a single file,” and “include descriptive data element names.”*

*Open and edit the downloaded table*

*You will need to keep the column labeled “id2” (which is the identifier for the block group,) the column labeled “total” (which is the total population in the each block group), and the 25-29 and 30-34 columns for both male and female.*

*You will need to format the block group ID field as a number field with no decimal places (in order to properly join your data table the GIS block group shapefile).*

*Aggregate the 25-29 and 30-34 columns to get a total 25-34 age group. Use “paste special > values” to lock in the calculations and then delete the columns you used in the aggregation.*

*Your table should now have three columns: a block group ID, total population, and 25\_34*

*Create 3 new columns to show 1) the percent of the total population in each block group, 2) the expected 25-34 population in each block group, and 3) the “excess” 25-34 population in each block group*

*Populate the percent of total field by dividing each block group’s total population by the MSA’s total population. (You can get the MSA total population by summing the population of each block group.)*

*Populate the expected 25-34 field by multiplying the new “percent of total” field by the MSA’s total 25-34 population. (If a block group has 1 percent of the MSA’s total population, it would be expected have 1 percent of the MSA’s 25-34 year old population.)*

*Populate the excess 25-34 field by subtracting the expected 25-34 year olds from the actual 25-34 year olds.*

*To make sure your calculations are correct, the sum of the percent of total column should be 1, the sum of the “expected” column should be the same as the sum of the 25-34 column, and the sum of the “excess” column should be 0.*

*Make sure that your column headers have no spaces or special symbols. Make sure your columns are formatted as numbers. Save the table as an excel (not csv) file.*

*For your reference, a template table is provided with formulas (but without data):* <http://www.memphis.edu/planning/people/santo_syllabi.php>

*Map the data*

*Copy the MSA\_Basemap folder from the server “data” drive to your desktop.*

*Open the MSA basemap ArcMap project that is stored in the folder.*

*Add your new excel file to the ArcMap project.*

*Join your data to the block group shapefile – use the field “NewID” from the block group shapefile and whatever you called your block group ID field in your excel table.*

*Create a dot density map to show the distribution of excess 25-34 year olds by block group throughout the MSA. Set the dot value so that each dot represents 50 people, and use a dot size of 5.*

*Format the map and export it as a pdf or jpeg*

Map 2.

Map concentrations of black population (“excess”) by block group to show geographic distribution.

 *The process is identical to that used in map 1, except that you will be using variable P3 “race.”*

*Format the map and export it as a pdf or jpeg*

Map 3.

Map concentration of black 25-34 year old population (“excess”) by block group to show geographic distribution.

*You will need the variable P12B “sex by age (black alone)”, as well as data collected for previous maps (total population by block group, 25-34 population by block group, and black population by block group).*

*Calculating expected and excess is a little different here.*

*To calculate “expected” black 25-34 population for each block group, multiply the total black 25-34 population for the MSA by the share of the block group that is 25-34. (If the block group has 1 percent of the MSA 25-34 year olds, it should have 1 percent of the MSA black 25-34 year olds)*

*To calculate “Excess” black 25-34 year olds for each block group, just subtract expected from actual.*

*For your reference, a template table is provided with formulas (but without data)*