

## Getting Started With the Peer Area Analysis Tools ---

Before you start, you may want to print these instructions.

### 1. Download the files.

There are two files you will need to get started, they are named “Peer Area Spreadsheet “ and “Peer Area Add-in.” **Right-click** on each link and **save** the files to their own folder. Do not open them from the Web link.

#### Peer Area Spreadsheet

- The “DemoVarDefine” page has all the definitions for the demographic variables we examined in Utah.
- The “DemoVar” page has the values of these demographic variables for each of the small areas in Utah.
- The pages for Stroke, Cancer, et cetera contain the yearly rates for these measures in the small areas.

#### Peer Area Add-in

This is a program that contains all the code that is used in converting demographic data into demographic distances and smoothing health variables.

### 2. Load the Peer Area Add-in.

Open up the Excel spreadsheet “Peer Area Spreadsheet.”

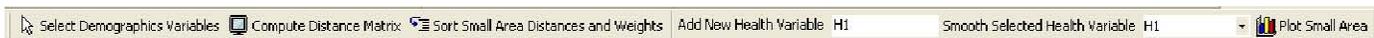
From the menu go to “Tools” and then select “Add-in” and choose “Browse.”

At the bottom of the Browse dialog box, in the “Files of type” box, select “All Files.”

Go to the folder where you saved the “Peer Area Add-in” and select this file, click “OK.”

The “Peer Area Add-in” should now appear in the add-ins dialog window, make sure it is checked and click “OK.”

Once the Peer Area Add-in has loaded successfully, you will see the Peer Area Toolbar in the Peer Area Spreadsheet that looks like this:



Save “Peer Area Spreadsheet” under a new name. This will preserve the original spreadsheet as a blank template for you to use later. You are now ready to do some smoothing. Here is a step-by-step example.

- 1) Go to the “DemoVar” worksheet and select the columns for “Small Area Name,” “Small Area #,” “per\_hisp,” “per65+,” “per\_BA,” “pov17,” and “Own\_Occ” (hold down the Ctrl key and select the columns by clicking at the top of each one). The selected demographic variables will be used to determine the demographic distance between small areas.

2) With the columns selected, go to the Peer Area Toolbar and click on the “Select Demographic Variables” button (you may have to click on the “>>” symbol to access some buttons). This will produce a new spreadsheet named “Demo’s Used” that contains the values of the selected variables. Try it now.

3) Now go to the toolbar and click on the “Compute Distance Matrix” button. This will produce a spreadsheet with the name “Distance Matrix” and it contains the distances from each small area to all other small areas, a 61x61 matrix for Utah.

4) Next, sort those values and calculate the weights for smoothing. Click on the button “Sort Small Area Distances and Weights.” There will be a prompt asking “Enter a smoothing value between 0 and 1, 0 being very smooth”, here you will input a value that will be used in the smoothing function. The range of values between zero and one will create weights that will correspond with high smoothing to low smoothing. Choose 0.5 for this example.

A popup will appear asking you to select and sort the small areas you wish to analyze, the program can accommodate up to 254 different areas. Ignore the message “Too many counties to display at once.” For this example we will select all 61 areas by clicking and dragging, now click on the “Sort” button. This will produce two new spreadsheets, “Sorted Distances” and “Sorted Weights”. The “Sorted Distances” sheet displays the demographic distance from each small area to every other small area in ascending order. The first entry is always zero since every area has zero distance from itself. The “Sorted Weights” sheet displays the ratio of each area’s individual weight relative to the sum of weights from all 61 areas. This roughly indicates the amount of influence each area’s rate has upon the smoothed rate. The values are in descending order since as the distance increases the weight will decrease.

5) Now you will need to choose the health variable that you wish to analyze. Go to the “Heart” spreadsheet and choose “Small Area Name,” “Small Area #,” and some of the yearly data columns, say 2000 to 2004. Click on the “Add New Health Variable” button, it will prompt you to give it a name. Name it “H1;” the new name must be different than the selected “Heart” spreadsheet name. Hit Enter. This will produce the new spreadsheet “H1” which contains the yearly rates that will be used in the smoothing procedure.

6) Now click on the “Smooth Selected Health Variable” button, it will prompt you with “Enter number of closest areas to use” for the least squares smoothing algorithm, for this example choose 15. Hit “Enter”. The sheet “Smoothed H1” contains smoothed rates produced by a method of weighted averages. The sheet “Least Squares Smoothing H1” uses a regression method to smooth the rates.

7) We can now plot these rates across years. Click on the “Plot Small Area” button. It will prompt you for the health measure and small area you wish to see. **Highlight “H1,”** and enter the value “18” for the Avenues and then hit return. Examine the plot. Look at plots for other areas.

Play with the program, the smoothed values will change when we manipulate the smoothing coefficient “a” in step 4, the number of closest neighbors “p” in step 6, or if we make changes in the demographic variables we use for the distance matrix.

To use the tool with your own state’s data, create a spreadsheet that is formatted like the Peer Area Spreadsheet, with a worksheet named DemoVarValues that has labels in Column A, numeric labels in Column B, and demographic variables in the columns that follow. There should be no missing values in the data. Your health variables may be named anything you wish, but must also be formatted like the DemoVarValues worksheet.

To hide the Peer Area Toolbar, from the menu go to “View” and then select “Toolbars” and uncheck “Peer Area Toolbar.”

Technical assistance with this tool is available through the Mason Statistical Group,

<http://www.masonstatgroup.com>

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