Getting to Know Maps with MapUSA

Introduction

MapUSA is a map-based information system developed with ArcIMS. ArcIMS is ESRI's (company that makes ArcView) web-based mapping software and its functionality is similar to ArcView.

The MapUSA project is designed to meet the demographic data needs of a variety of potential users, from planners and public officials to community organizations. Census data at the county and tract level are available for the entire country on a variety of social and economic indicators. The objective of this exercise is to familiarize you with the basic functionality of ESRI's mapping products, as well as the various components that make up a thematic map (e.g. data table, polygons, legends, and map tools). On the next page, there is a list of the variable names and descriptions that you will come across during this exercise.

- Using Internet Explorer, log on to <u>http://maps.s4.brown.edu/mapusa</u> and request to see the State of New York. A county map of New York State will appear. Use the **Zoom In** tool (magnifying glass with the plus sign in it) to look more closely at the area around **New York City.** This tool is turned "on" by default. Generally you have to click on a tool to select it, then apply it with your cursor.
- 2. Use the menu on the upper right to select a category, then a variable to map. Start with "population and immigration" and map "percent foreign born."
- 3. It will take a moment for the program to retrieve the data. Once the data are retrieved a thematic map will appear. Now zoom in until you can see the census tracts in NYC clearly.
- 4. Review the map and the map legend. Where are the highest concentrations of foreign-born? You can use the **Hand tool** to move the map area to see different boroughs. Test what the other map tools do.
- 5. Use the **Identify** tool to see the underlying data for any tract. Choose a highimmigration tract and click on it. The **FIPS** variable in the data table is a code number and it is the variable supplied by the Census Bureau uniquely identifying each census tract. This is an important variable you'll become very familiar with if you work with census data. Once we start using ArcGIS, you will use the FIPS code to join census data to boundary files supplied by the Census. The first two digits are the state code, second three identify the county and the rest are tract and block codes. The variable names are all abbreviations. Look on the bottom left for a link to what they stand for.

Note: For this exercise it is valuable to know that the NY State code is 36, and county codes in NYC are: 005 Bronx, 047 Kings (Brooklyn), 061 New York (Manhattan), 081 Queens, 085 Richmond (StatenIsland). A full list for the U.S. is here: <u>http://www.census.gov/datamap/fipslist/AllSt.txt</u>.

- 6. Using the Query tool, select tracts that are 60% or more foreign-born. When you click on the Query tool a menu will appear at the bottom of the map. In order to limit the search, choose New York State. In the Variable drop down menu choose Top For (Operator >, Value= 60). Now click on "Add to Query String" and then "Execute".
- 7. After a moment you'll see that the tracts that meet this criterion are now highlighted in yellow. You'll also see a data table of these tracts. In mapping software every shape file consists of the polygons and lines that comprise the geographic boundaries, as well as a data table that stores the attributes of each tract.
- 8. Now use the **Clear Selection** tool to deselect these tracts. Use the "**Square Selection**" tool to choose a single neighborhood that appears to have a high percent foreign born. Select a group of adjacent tracts within your rectangle. Again you will see a data table. Highlight the data in the table, and copy and paste it into an Excel spreadsheet. Use Excel functions to calculate the total number of foreign born persons in this set of tracts, and the overall foreign-born percent in the entire selected area.
- **9. Print** the map. You won't actually print it, but rather you will prepare and save an image that can be used in reports or other applications. Click the "print" icon, and type in a title to display on the map in the box at the bottom of the page. Then "**create print page**." Follow the directions. The image will show up in a new window. Use the "select all" and "copy" functions, and then "paste" the map into a Word document. Notice the title can still be edited, and other parts are actually pictures that you can cut and paste, or resize, or move around on the page.

Some Questions to Explore:

These are the available functions on the MapUSA system. Now use them to answer the following questions.

- a. How many census tracts in New York State have more than 70% foreign born? Which of these tracts are in New York City (one of the five boroughs or counties)? What is the total number of immigrants in these NYC tracts? What percent of the population in these tracts are immigrants? To do this, you need to inspect closely the FIPS codes of the tracts. Figure out which tracts are in which counties.
- b. Most areas with many immigrants also have many non-English speakers. Identify an area of more than five adjacent tracts where there is a <u>high</u> percentage of foreign born but also a <u>high</u> percentage of people who speak only English.
- c. What other characteristics of this neighborhood can help you interpret this combination? Browse maps of other population characteristics to help you confirm your idea.

- d. Create a map of percent foreign born, and save it in a Word document. Create another map showing socioeconomic status, and place it next to the other map in your document. Compare them. What seems to be the relationship of immigration to SES? (To see these details, you should concentrate on a small enough area that you can actually see the results, perhaps just one borough.)
- e. Find a census tract with many immigrants but that also has a high SES level. You can't use the query tool for this. What else about the population in this tract helps you to understand this rather unusual combination?