COSI 116A F24 Assignment 2—Who Lives in the South End? (Tableau)

Due date: F 2023.09.27 5:00 PM.

Aim of the assignment:
You will practice using Tableau for visual exploratory data analysis and for communicating your insights, building upon what you learned during the in-class activity. You'll be working on data related to the city of Boston. Your high level goal is to understand the demographics of a particular neighborhood of interest - the South End.

Background info:
The census tract for the South End begins just on the SE side of Columbus Avenue, as shown in this map:

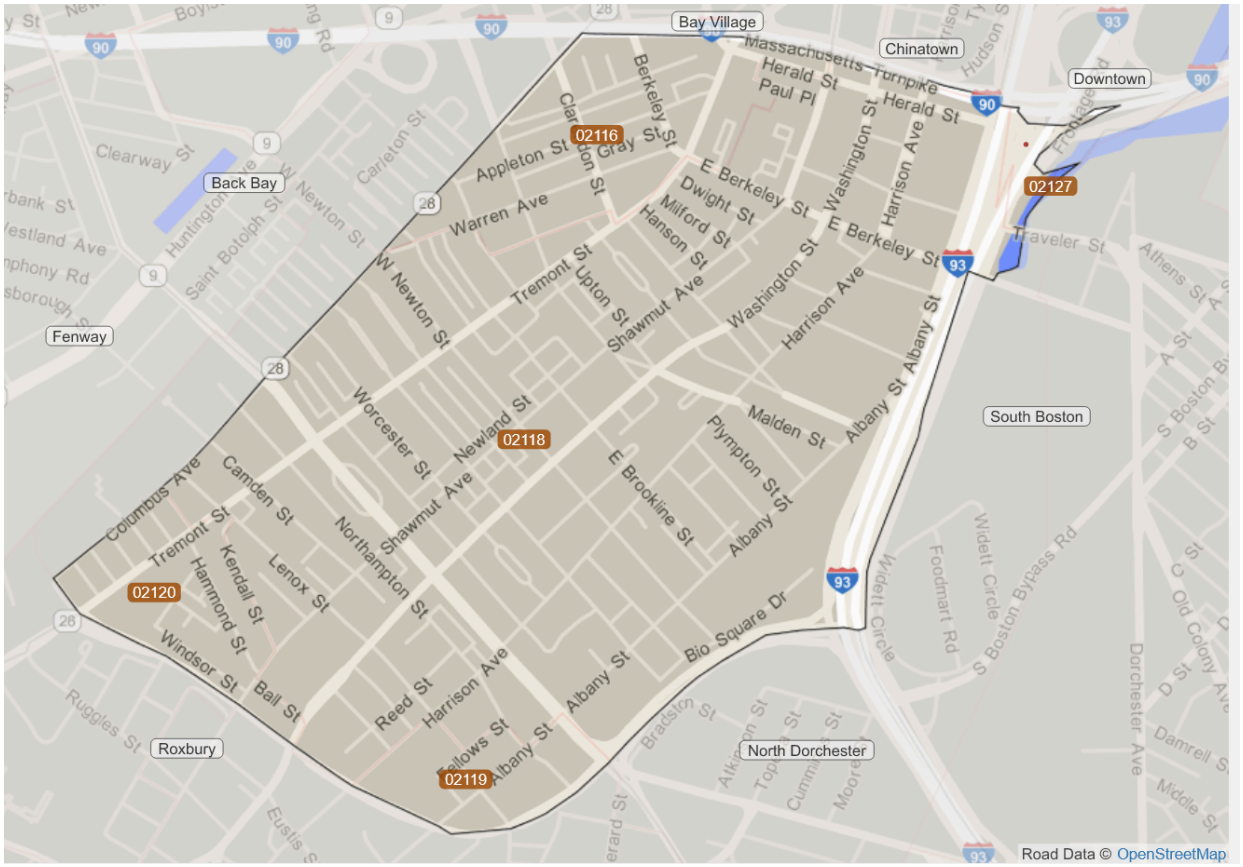

Image credit: [Statistical Atlas]

Here is a view from the top of the Prudential Tower. The south end begins just on the other side of Union Church in the center:

Image credit: Richard Schneider

Note that the Chester Square Neighborhood includes both Roxbury and the South End. Although the Census tract data lists the cut-off between the South End and Roxbury as Melnea Cass Boulevard, the City of Boston identifies Massachusetts Avenue as the boundary between the two neighborhoods. And many residents on the west side of Massachusetts Avenue identify as Roxbury residents, not South End residents. (The City Council districts map makes matters even more complicated, as currently parts of the South End—including the eastern portion of Chester Square—are included in District 7, which is currently represented by Tania Fernandes Anderson, who represents most of Roxbury but only parts of the South End.) This article gives some more context on the South End/Roxbury divide and the neighborhood profile document from the BPDA's research team shows some of the inequalities that exist between the two neighborhoods. It is a neighborhood that has been experiencing rapid change due to gentrification as well as the opioid crisis. In this assignment, you will be looking at recent census data and trying to confirm or deny hypotheses using visualization. You will also get experience exploring a dataset in Tableau.

Instructions:

1. Download the compiled Census Data for the south end from the assignment Moodle page
   All data is from the 2010 Census with the exception of the sheet called "decades" which is compiled over multiple Census datasets. **You will likely have to manipulate this data to be in the format that Tableau expects it. Play around with it, cut it up into new sheets. Part of the point of the assignment is to gain experience manipulating data so that it is read appropriately by Tableau. You can do this manipulation in Tableau, or you can do it yourself in Excel or Google Sheets.**
2. We will be conducting "hypothesis driven" exploration in this step of the assignment. Instead of just diving into the data with free form exploration, we will have guiding questions to help us explore the data. Below are two hypotheses to answer with the dataset. Please generate two additional hypotheses to investigate (i.e., what other insights can you gain from this data?):
   a. The population in the South End has steadily declined over time.
   b. The dominant age group in the South End is aged 20-54.
   c. <YOU CREATE>
   d. <YOU CREATE>
3. With Tableau, generate a visualization to confirm or disprove each of the above hypotheses. Use a different visualization for each hypothesis - i.e. at least one of the marks or channels should be different. ***Feel free to reshape the Excel spreadsheet as necessary to answer these questions.***
4. Put screenshots of these visualizations into a document and write a few sentences for each to **justify your choice of visual encoding and visualization design choices** (i.e., marks, channels, perceptual ordering, etc.), as well as **explain your data insights** in **support or contradiction of the hypotheses**.

Submission instructions:

- Ensure all visualization and prose required above is present in your submission.
- Submit a PDF version of your submission, including screenshots, on Moodle.

Grading:

- In order to get full credit, you need to present four hypotheses (the two above and two that you created). For each hypothesis, you need to include a visualization from Tableau using the data provided.
- The four visualizations must be different visualizations.
- You must include a writeup as described above for each of the four hypotheses.

Further reading:

- Tableau official tutorials (require registration)
- Introduction to Tableau by Alper Sarikaya