due 27 April, 2021

To: All GIS Students (Team *ENTIRE*, a group project involving all ten students)
From: Kris Wernstedt
Date: 13 April, 2021
Re: Philly Policing (UAP 5114, Memo #3)

Background

How do the spatial distributions of pedestrian police stops and post-stop actions in the City of Philadelphia differ among different types of individuals and over time? I want your crack ENTIRE team of GIS experts to analyze the visual spatial evidence for differential police stops and post-stop actions across races, ethnicities, ages, gender, and time in the City of Philadelphia.

Stephen Sherman (2019, p. 1),[1] who recently completed a dissertation on policing and urban planning at the U. of Illinois-Urbana Champaign, aptly observed that "planners and planning scholars maintain a peculiar silence about police" in light of our profession's concern with social justice. I've developed this memo assignment partly to encourage those of you entering the profession (and me at the other end of a career) to think about this in a spatial context.

Your Charge

First, use **GIS spatial analysis** to examine the spatial distribution of police stop and post-stop actions in Philadelphia from 2014-2017 across different races/ethnicities, ages, gender, and seasons/years ("post stop "refers to actions taken after police stop a subject, such as frisking, searching, and/or arresting).[2] Second, extend your analysis to discuss whether there is evidence consistent with racial and ethnic bias in police stops and post-stop actions.

You must use at least five GIS tools from the Spatial Statistics and other related sections of the ArcGIS Toolbox in your analysis. The main tools reside in the "Analyzing Patterns," "Mapping Clusters," and "Measuring Geographic Distributions" shelves of the toolbox, but feel free to use anything in the "Modeling Spatial Relationships" shelf (for example, the "Colocation Analysis" tool). Tools in the Analysis Tools/Statistics portion of the Toolbox also may be relevant. I covered many of these in the "VideoSupplementNotes-Week11-GIS-2021-3-30.pdf" and accompany video posted on Canvas, so look there for how-to guidance. .

In addition, in your analysis on possible biases, you must account for underlying socioeconomic conditions in which the stops occur. By this, I mean bring in census variables at the scale (likely census tract or block group) at which you do your analysis. Neither police stops nor crime occur on a socioeconomic even playing field, so you need to include socioeconomic variables to account for that. As a simple example, you likely would draw a different conclusion on the association between race and police stops if a census tract's population were 95% percent BIPOC and 95% of the police stops were of BIPOC individuals than if it were a tract with a 10% BIPOC population.

---

[1] I've included parts of the 1st and 2nd chapters, and the reference list, from Sherman's dissertation in the zipped file for this memo (Sherman, Stephen. 2019: *Governing Bodies through Space, Governing Space through Bodies: Police Power, Planning, and Race In Central Atlanta*. University of Illinois at Urbana-Champaign). His dissertation won the 2020 Barclay Gibbs Jones Award for Best Dissertation in Planning (our own Ralph Buehler won this same award in 2008). Stephen hasn't published his dissertation anywhere, as far as I know, so please don't cite it or use excerpts from it without his permission (except for our internal class purposes).

[2] The Stanford Open Policing Project has pulled together a fantastic resource for those interested in the kind of police stop data we're using in this exercise. In addition to our Philly data, they have nearly 90 other datasets for other cities and states.

Note that I do **NOT** expect you to do a rigorous statistical analysis using regression in your analysis of either the distribution or possible bias. I know it may be hard to believe from the papers we've read, but this is not a statistic class. Most of the tools you'll use yield visual evidence, although a few do furnish simple summary statistical measures.

Sound complicated? I'm not asking for analyses that prove anything. Rather, I want a **GIS spatial analysis** that 1) documents the distribution of stops and post-stop actions across space and different individual characteristics and 2) examines whether the evidence is consistent with bias, even after accounting for simpler explanations (such as a basic socioeconomic features).

Materials[3]

The Memo #3 zip file contains, in addition to this 2-page PDF of the assignment:

- ✓ Excel file (*PhillyPoliceStops.xlsx*) with over 600,000 stops of pedestrians that Philadelphia police made from 2014 through 2017, with information on:
  - race/ethnicity, age, and gender of person stopped
  - date and location of stop
  - whether the stop resulted in a frisk, search, and/or arrest
- ✓ PDF of an excerpt from Sherman's dissertation
- ✓ PDF of a 2006 analysis of police stops in Los Angeles that examined evidence of potential racial and ethnic bias in vehicle and pedestrian stops in LA in 2003-2004. The report may provide useful hints for your bias analysis, particularly the addition of socioeconomic and other variables discussed on pp. 15-18. However, the LA analysis used a series of regression models and ignored space, so many details are not relevant. I find the report suggestive, but don't get bogged down in its 150+ pages.

Output

Write a 3-page memo summarizing your **GIS spatial analysis** of the distribution of police stops and post-stop actions and the evidence for possible racial/ethnic bias in these. You can include up to 5 additional pages of maps, tables, or other figures. Also, prepare a 15-minute oral presentation to give in class about your distribution and bias analyses.

Please upload these products once for the whole group to Canvas by class on Tuesday, 27 April.

Final Notes

This memo assignment provides only minimal guiderails, asking you to figure out a lot on your own. So, run with it and be creative.

Group projects typically present the need for coordination, overall visioning among a smaller group of students, breaking down tasks, communication, etc. Organize the work as you collectively see fit, but I require you to include a table at the end of your memo that lists each student and the role they played in the project (not part of the 3-page limitation).

Finally, I'll point you to one other possible ArcGIS resource that I've not yet played around with. It may provide a vehicle for the memo, although the analysis I envision is entirely possible without it. Check if out, however, and feel free to use the tool if you can and find it helpful.

---

[3] In addition, I'll expect you'll use the US Census site for socioeconomic data and OpenDataPhilly for Philly-based geospatial and other files. Also, note that Excel 97-2003 won't work for the police stop data since it doesn't allow that many rows of info. You must use Excel 2007 or a later version to read the data in Excel.