

geoda basics and visualization

adam okulicz-kozaryn

`adam.okulicz.kozaryn@gmail.com`

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outline

geoda basics and visualizations

presentations

◇ volunteers?

reference

- ◇ <https://geodacenter.github.io>
- ◇ there are tutorials and data for practice:
 - <https://geodacenter.github.io/documentation.html>
 - <https://geodacenter.github.io/data-and-lab/>

why another software?

- ◇ because geoda is unique!
- ◇ it's not full-fledged gis software like qgis
 - but can have multiple maps/figures and they're linked
- ◇ and it can do spatial statistics
- ◇ let's start with visualizations

outline

geoda basics and visualizations

let's fire it up

- ◇ start-search for-"geoda"
- ◇ the main visual difference with qgis are:
 - geoda has only top menu/icons
 - can do many maps and figures at the same time

first, let's get some data

- `https://s3.amazonaws.com/geoda/data/columbus.zip`

◇ and unzip somewhere

and load to geoda

- ◇ File-New Project-Input file-'open file icon'-ESRI Shapefile
- ◇ and navigate to wherever you have unzipped columbus data
- ◇ so we have neighborhoods in columbus
- ◇ there is 'Open Table' icon, just below of 'Table' menu
- ◇ like in qgis, can select u/a either in table or in map

Table menu

- ◇ again, typical things that you have already seen in qgis
- ◇ merging, variable calculator, etc
 - can use those instead of those in qgis if you like...
- ◇ but typical gis (what we have done so far) works little better in qgis
- ◇ here, we'll focus on what qgis cannot do:
 - visualization
 - spatial stats

histogram (again, always have it for your key var!)

◇ Explore-Histogram

- and select INC (income)
- ◇ okay, we got a histogram
 - but it is a super histogram!
- ◇ can right-click and save-as, change num of int, etc
- ◇ we've got a range for each bin
 - num of obs for each bin
- ◇ really cool: click bar to highlight features in the map!
 - and can rectangle select more than one bin
- ◇ typical city: poor in the middle; rich on the fringe

thematic map—quick and easy

- ◇ Map-Themeless Map is just another map
 - note: can have several maps at the same time
- ◇ Map-Quantile Map, do '5', 'INC'; just like qgis
- ◇ again, note: everything is linked—click class in quantile map and it will highlight in both thematic and themeless map
- ◇ Map-Percentile Map: good for detecting outliers/extremes
 - compare it with quintile map
 - even though none in top/bottom 1%, there are 5 in each top/bottom 10%

more about thematic maps

- ◇ Map-Unique Values Map would be good for categorical var
- ◇ yet, it does some clustering into bins
- ◇ kind of like 'categorized' (not 'graduated') ramp in qgis

more about thematic maps

- ◇ Map-Cartogram
- ◇ circle size=CRIME; circle color=INC
- ◇ in general hi income is low crime;
- ◇ but note little blue circle in top left: low inc, low crime
- ◇ i don't like it, i'm old fashioned
- ◇ try other things in map menu
 - explore, use them—convince me to nonstandard maps!
 - as long as it makes sense, and you can explain it, it's great!

Explore-Scatter Plot

- ◇ like in regular, non-GIS stats package
- ◇ do INC against CRIME, as expected negative relationship
- ◇ note that obs with low income and crime
 - rectangle-select it
 - aha same place as we identified in cartogram
- ◇ very interesting to both correlate and map
- ◇ a great addition to your final project
- ◇ rectangle selecting a subset gives you an idea of slope change!
 - say lets just select in map western columbus—slope is flat