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GEOG 4165

Wed, Feb 5

Statistical Mapping

For a long time now, statistics have been mapped to show connections between geography and numbers. This is done in a variety of ways, but today I am focusing on representing statistics through classes and graduated colors. To demonstrate how this is accomplished, I began with data that combined counties in the western U.S. with respective leukemia death rates in men. Once acquired, I determined where natural groups existed within the data, as shown in the following tables. A graph with a line drawn on it

Description automatically generated

A graph with numbers and a bar

Description automatically generated

Both tables depict visually the natural groupings and outliers within each county. Most of the counties had a male leukemia death rate of about 5.6-9.8 per 100,000 people, with some extreme outliers. A graph with a line

Description automatically generated

To find calculated classes, I used Classit to classify the data. Using this software, I created up to 10 classes, along with their variances. I found 5 classes to be the best fit for the data, as it had lower in-class variance, with high between-class variance.

A table with numbers and a few black text

Description automatically generated with medium confidence

With the created classes, I used ArcGIS Pro to map the leukemia death rates using five graduated colors. Alongside this map, I created three more group classification maps using classifiers within the software, equal interval, geometric, and quantile. Equal interval divided the data range into equal-sized intervals, which was good for creating evenly spaced intervals. This first method created classes very similar to the ones created using Classit. Geometric created class intervals by multiplying each class boundary by a consistent ratio. I didn’t find this classification method as useful since it’s usually used for exponential data. Finally, the quantile method divided the data, so each class contained the same number of data points.

I found that either the Classit classes, or the equal interval classes were most accurate displays of the groups within the data. Both methods were very similar and created maps that represented the ratios of leukemia deaths well, unlike the other two methods which were far less intuitive.

A map of the state of the united states

Description automatically generated