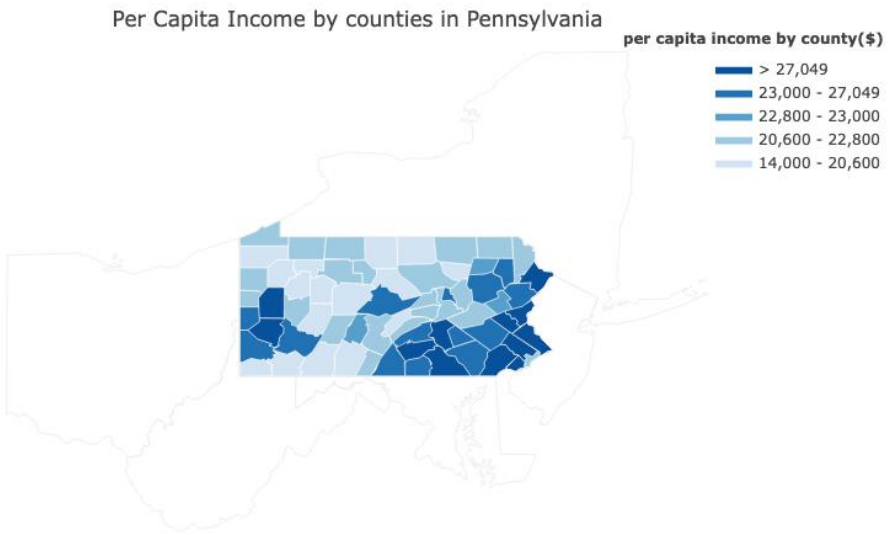
(1)title and my figure:



(2) the legend explaining the visualization components in the figure (e.g., what points, lines, and colors stand for:

In my figure, the white lines are the boundary of the counties in Pennsylvania and the boundary between the states that are next to Pennsylvania.

Surrounding states are filled with white color as background.

The color inside the Penn state represent the per capita income value of the county. Dark blue represents higher values while light blue represents lower values.

The color scale and binning endpoints are listed in the right side of the figure. The values are measured in dollar and I classy the into five classes. The 27049 is the average value of the state and others are classified with almost the same value.

(3) findings text introducing highlights of the produced figure in bulletin points:

Only small parts in the map has the darkest color, which means in Pennsylvania only a small proportion of counties have higher capita per income value than the average of the state value.

The east part of the state has higher average income than the west part while the south part has higher average income than the north part. It agrees with the common sense that places around the sea are richer than other places and plain areas are richer than mountain areas.

Overall, the distribution of level of economy in the state is really uneven. Some places are far beyond the average while many parts are much less than the average level.

(4) data and method text describing the data and method used in this process

The data i used is from https://archive.ph/20200212213253/http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_5YR_DP03&prodType=table. it is from the 2010 United States Census Data and the 2006–2010 American Community Survey 5–Year Estimates.

In the dataset i choose the county name and the per capita income to show on the figure.

For the figure, I use python dash for the plot. It needs the following packages:

!pip install plotly–geo==1.0.0!pip install geopandas==0.3.0!pip install pyshp==1.2.10!pip install shapely==1.6.3

Every US state and county has an assigned ID regulated by the US Federal Government under the term FIPS (Federal Information Processing Standards) codes. There are state codes and county codes. So I write a code to match the county name to the FIPS.

And here is the code of plot:

```
fig = ff.create_choropleth(
    fips=fips1, values=values1, scope=['PA', 'OH', 'WV', 'NY', 'NJ','MD'],
    binning_endpoints=[14000,20600,22800,23000, 27049], colorscale=colorscale,
    county_outline={'color': 'rgb(255,255,255)', 'width': 0.5}, round_legend_values=True,
    legend_title='per capita income by county($)', title='Per Capita Income by counties in Pennsylvania'
)
print(fips)
fig.layout.template = None
fig.show()
```

(5) a significance statement on why the presented figure is an important topic.

I would like know more about the income level in Penn state and how different places in the state have different levels of income.

It can be used for government to make more plans and policy to improve the whole level.

Github link: https://github.com/JalenYang1998/infsci2415