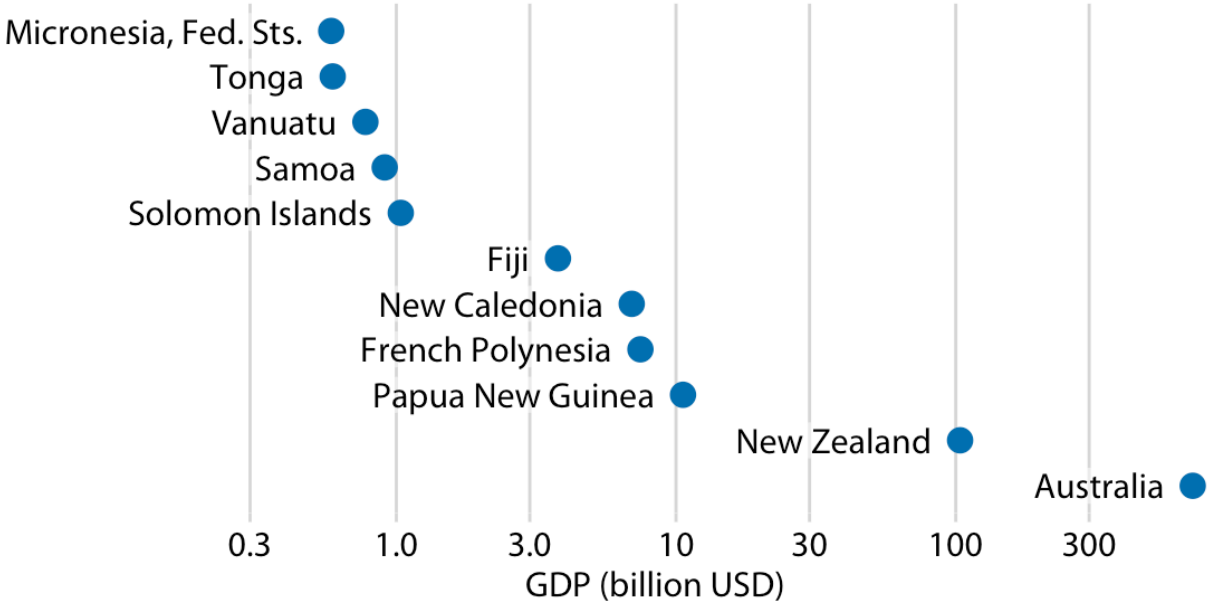
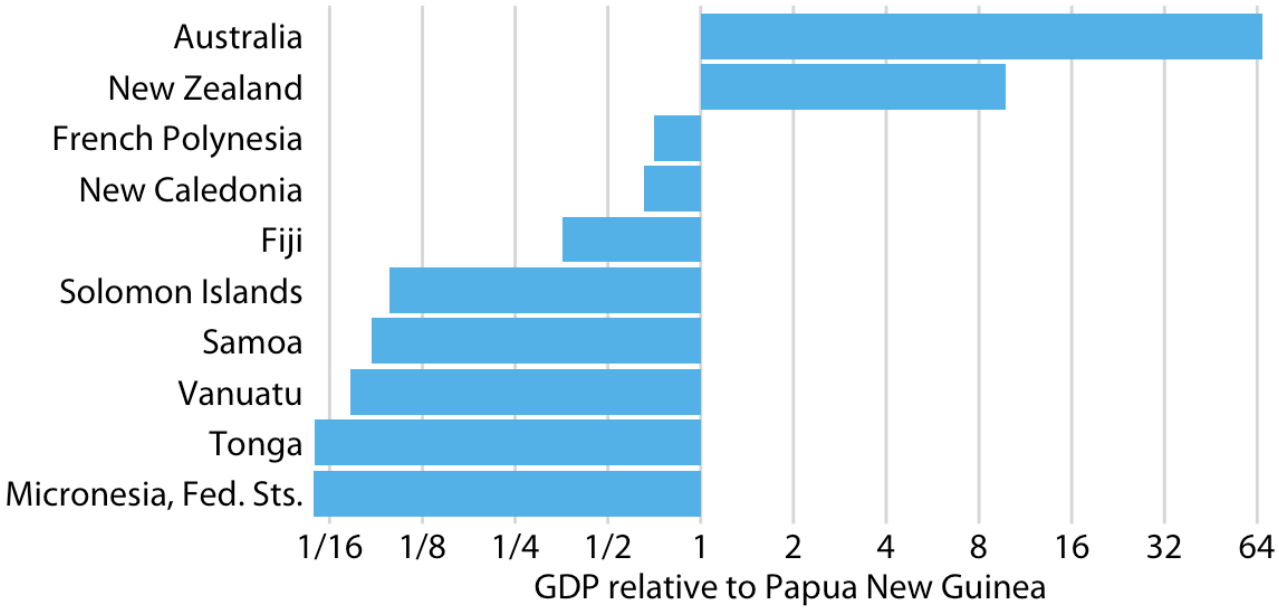
I think bars are inappropriate. Instead, we can simply place a dot at the appropriate location. Taking the same data of GDP across county.



Wait… can we plot log transformed data on bars? Yes, we can. We already know visualisation of ratios are perfectly fit on log transformed data. For the same data,

- First, find the median of data(GDP).
- Second, divide each data value with median value.

Now the start the scale from one instead of zero and plot bars according to the ratio of their corresponding value.

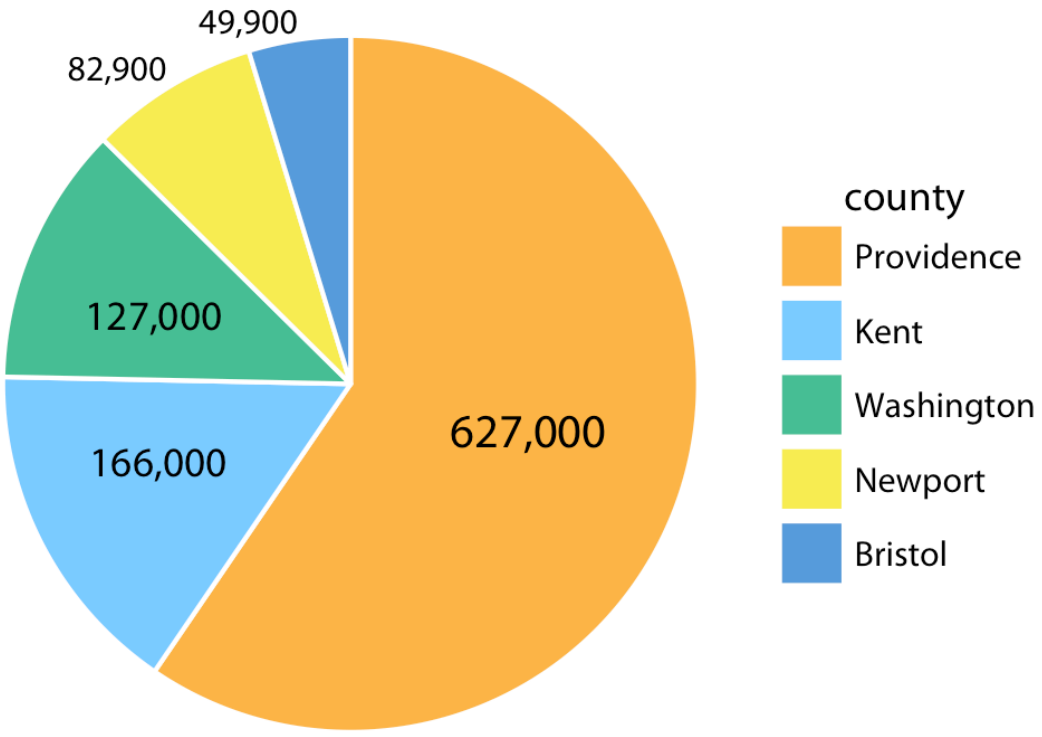


Remark - When bars are drawn on a log scale, they represent ratios and need to be drawn starting from 1, not 0.

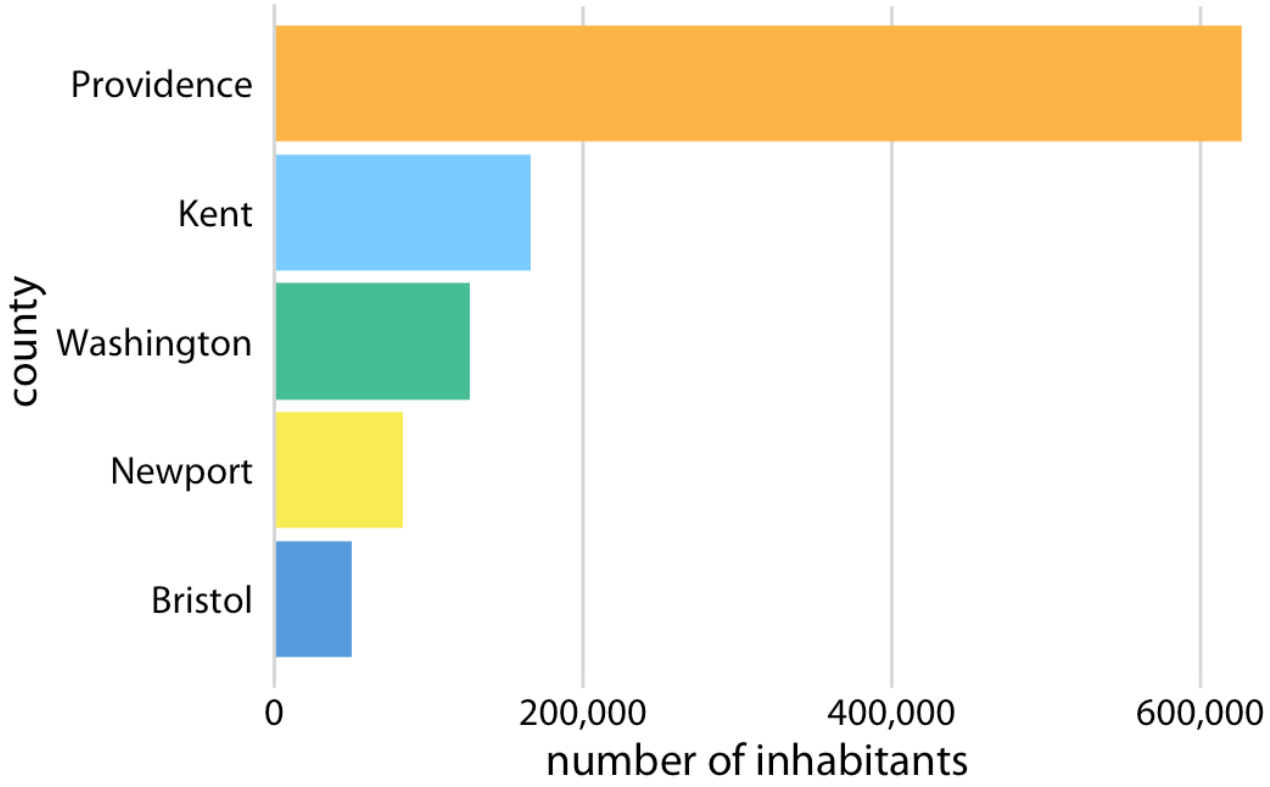
Direct area visualizations -

Pie chart are most common when we have to visualize proportion. Ethnically the data values are mapped onto angles. In practice, when we read a plot/ figure visual property dominants on the data values. In the case of pie chart first we notice the area of pie wedge/slices.

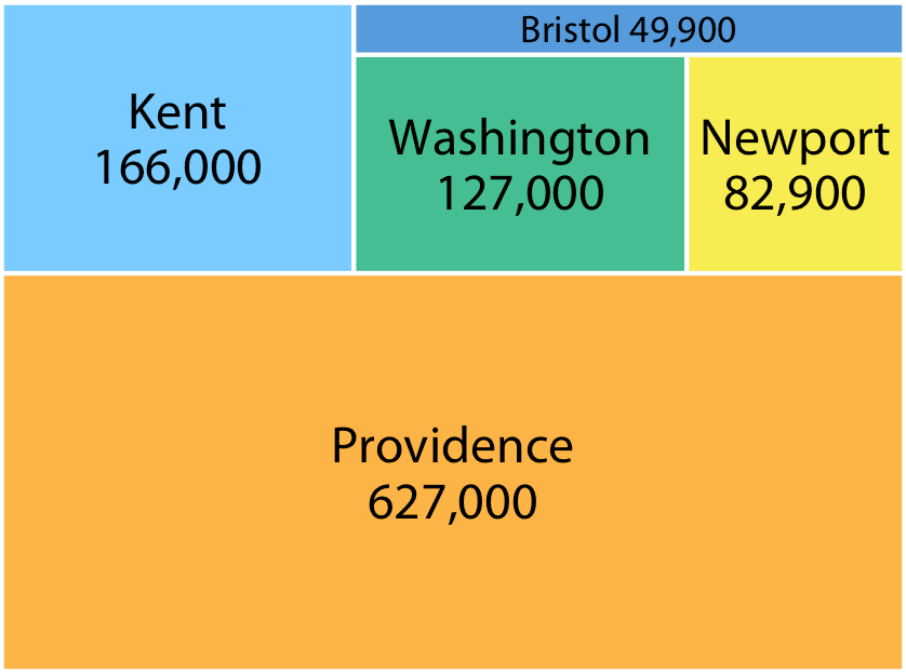
Data - number of inhabitants in Rhode island counties.



Because the are of each wedge is proportional to its angle which is proportional to the data value, pie chart satisfy the principle of proportional ink. But when we plot the same data with bars we perceive it differently because fundamentally human perception judges distance not areas. Thus, If the data values is encoded entirely as a distance, then the bar plot is better and we perceive data more accurately.



As a square version of pie chart treemap when we compare with bar plot, the number of inhabitants among the counties appears less.



In every figure area/distance is proportional to the number of inhabitants. But the key difference is the human perception that makes interpretation of graph different.