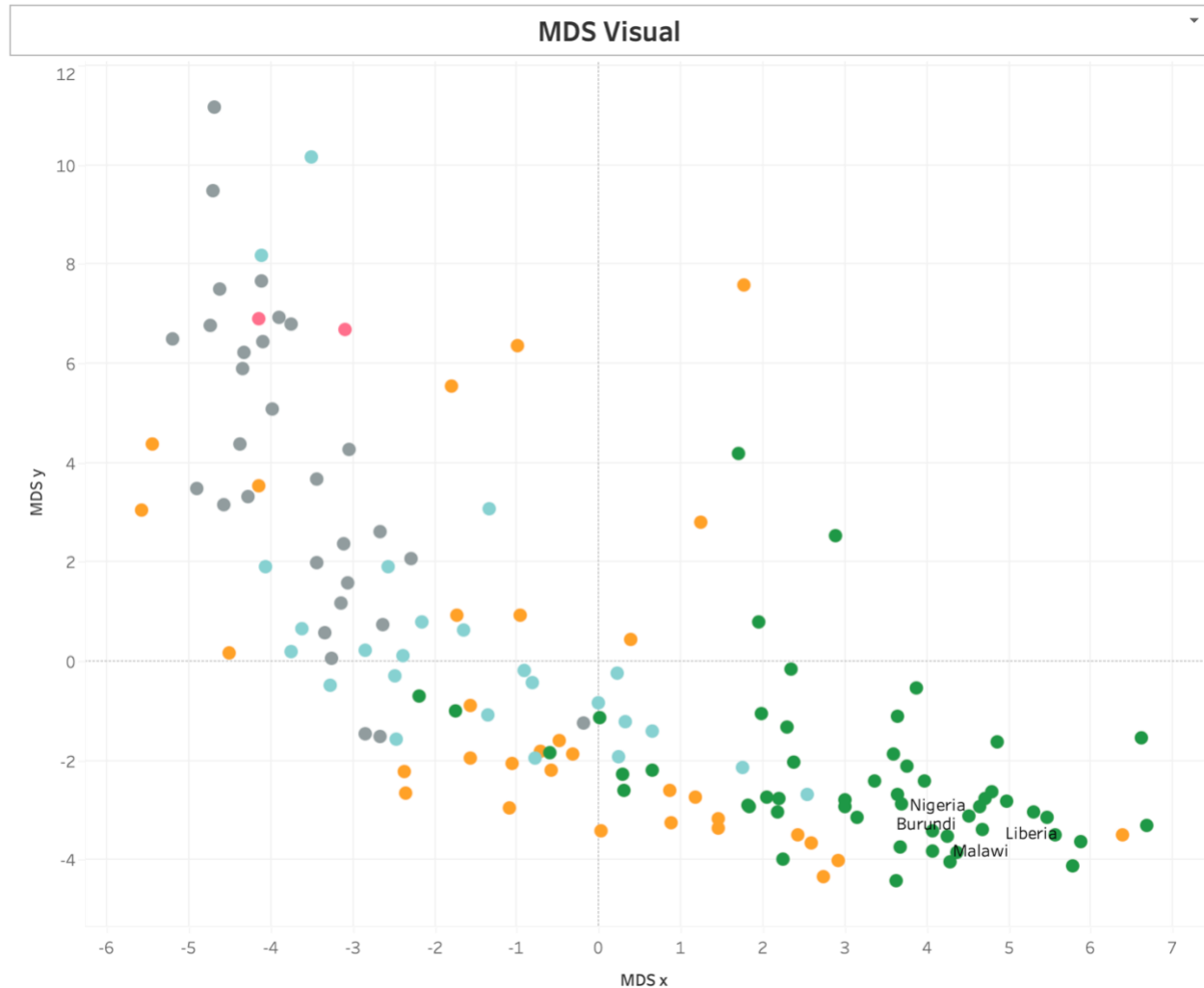# DAV Homework-4
Kireeti Mantrala – sm2594

- **MDS Visual:**

Here, we have taken the MDS Visual of the given dataset. We can observe on the basis of similarity, the countries have been clustered. The colors represent the continents here. I will be taking the marked countries in the map(Nigeria, Liberis,Burundi,Malwi), which have GDP to Life expectancy similarities.
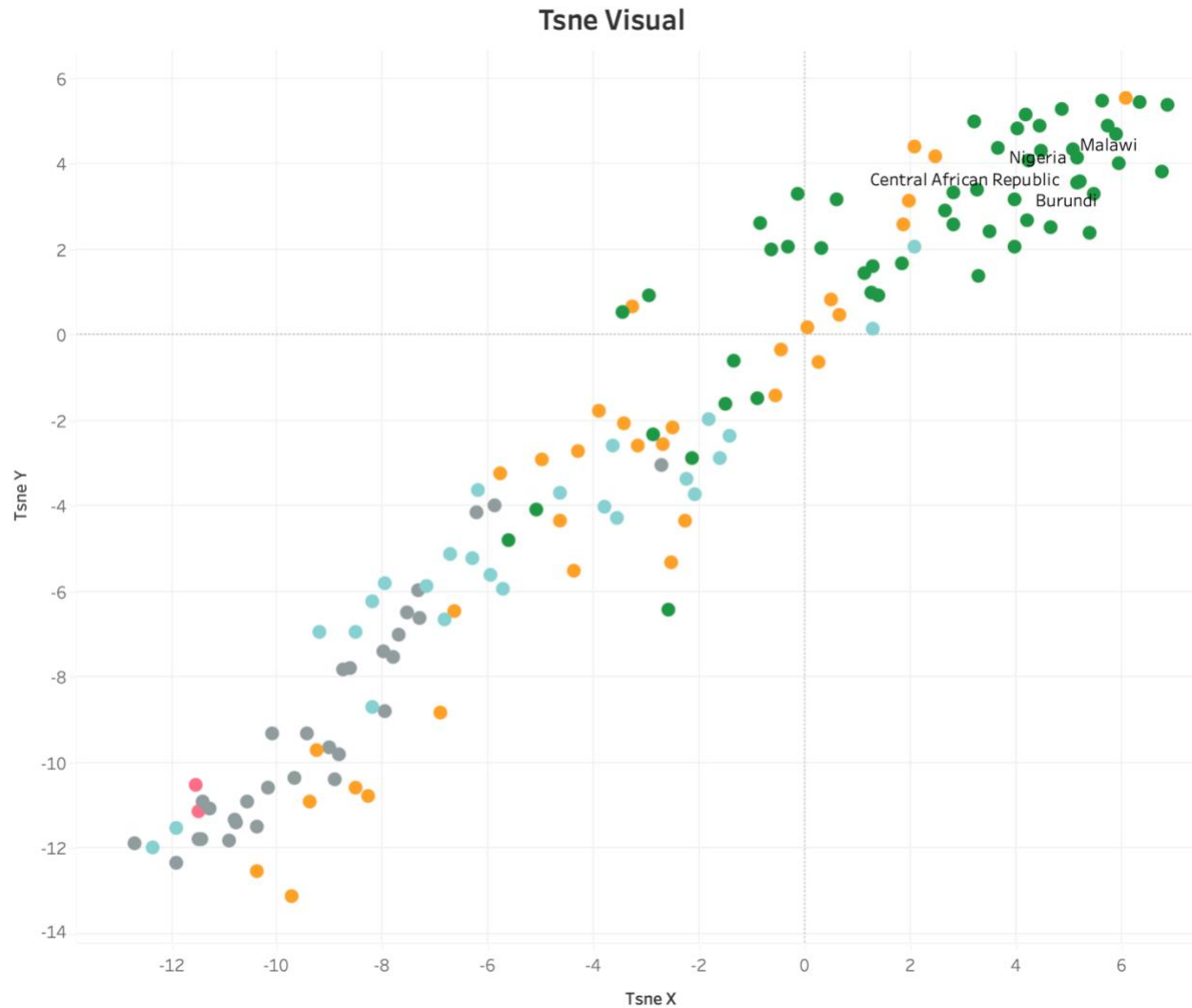

Continent

- Africa
- Americas
- Asia
- Europe
- Oceania

- **Tsne Visual:**

In the Tsne visual also, we have taken the same countries that have been clustered. The colors represent the continents here.
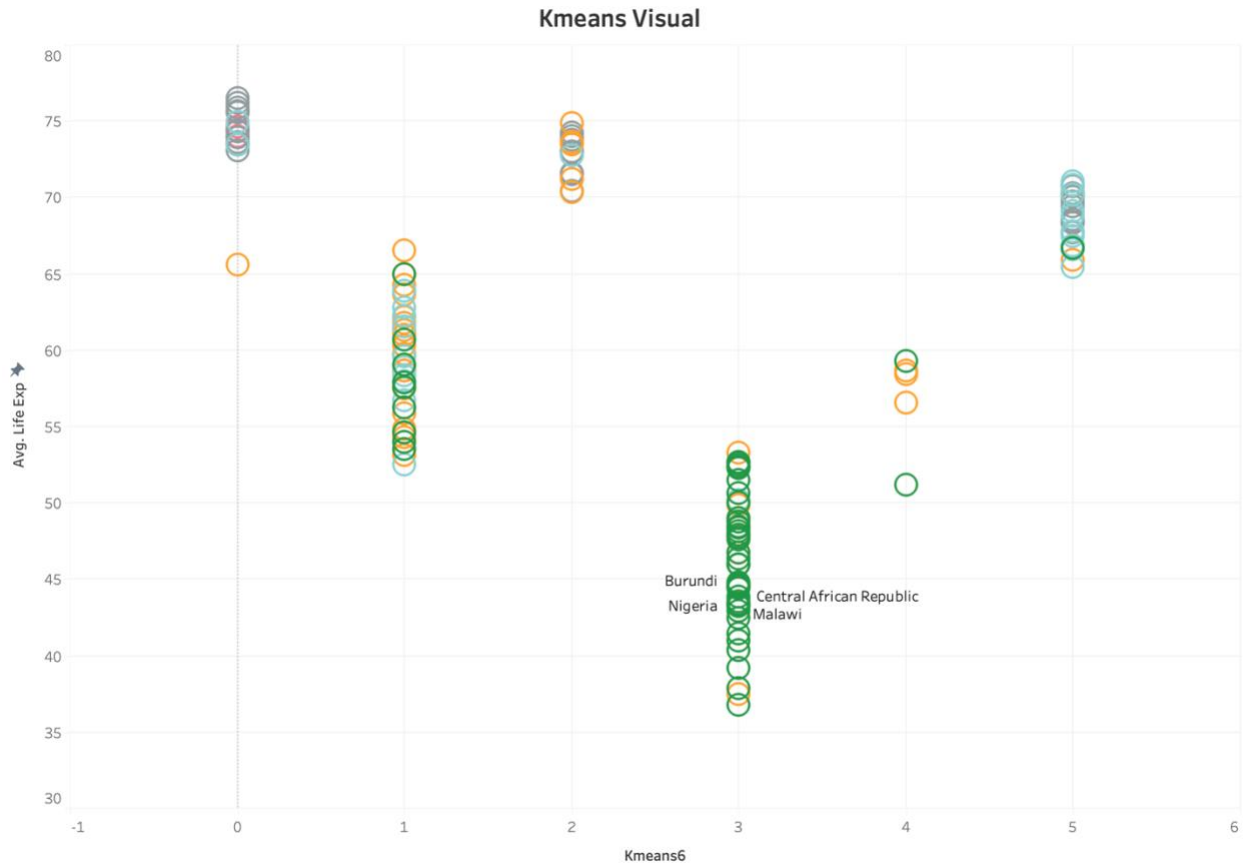
Tsne Visual

Continent

- Africa
- Americas
- Asia
- Europe
- Oceania

- **Kmeans Visual:**

In the Kmeans visual, we have taken the Avg. Life Expectancy on the y-axis and we can see the clusters shown in the similar pattern with similarities in the countries attributes. We again see that, Nigeria, Liberis,Burundi,Malwi have been clustered in the same area.


Kmeans Visual

- **GDP Percap vs Avg. Life Expectancy visual:**

The plot here shows the various countries and their population size. The colours represent the continent the counries belong to. Nigeria, Liberis,Burundi,Malwi lie under in the plot where, these countries have average life expectancy of around 45 years and all these countries lie under the GDP quotient of below 20,000.
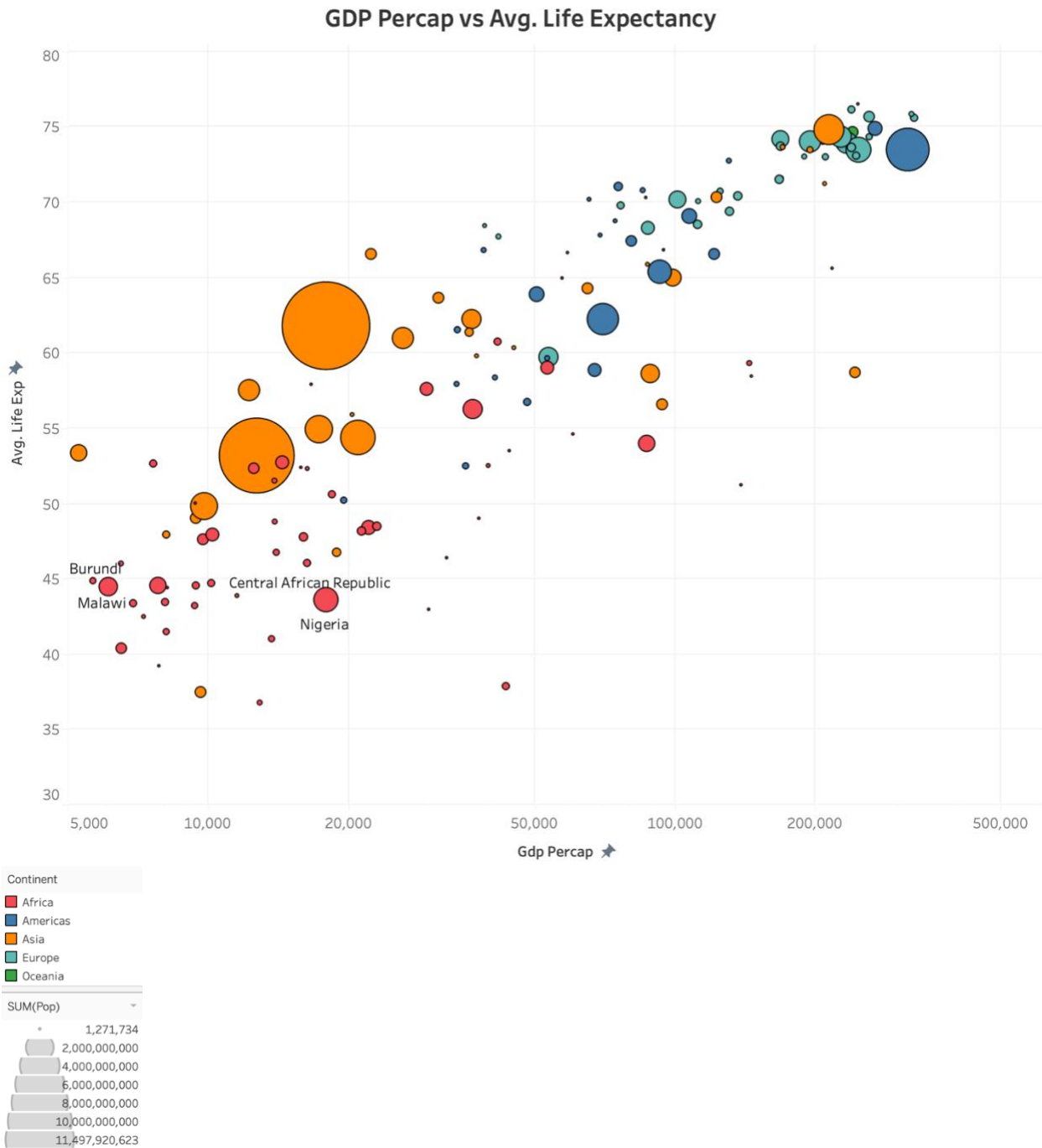

Before we conclude that the GDP and Avg. Life Expectancy are interlinked, We shall also check the world map plot of the same data with all the countries and their life expectancy shown in the next visual.

- **Average Life Expectancy visual over the world:**

Below we can see the world map visual of the avg. life expectancy of all the given countries and compare each continent with other. The darker burgundy represents the countries with high avg. life expectancy and then the palette yellows down to the least avg. life expectancy. We can observe that the four countries we have taken lie in the African continent and lie in the least life expectancy range marked in yellow and are labelled below.

Life Expectancy over the Continents
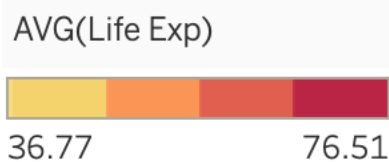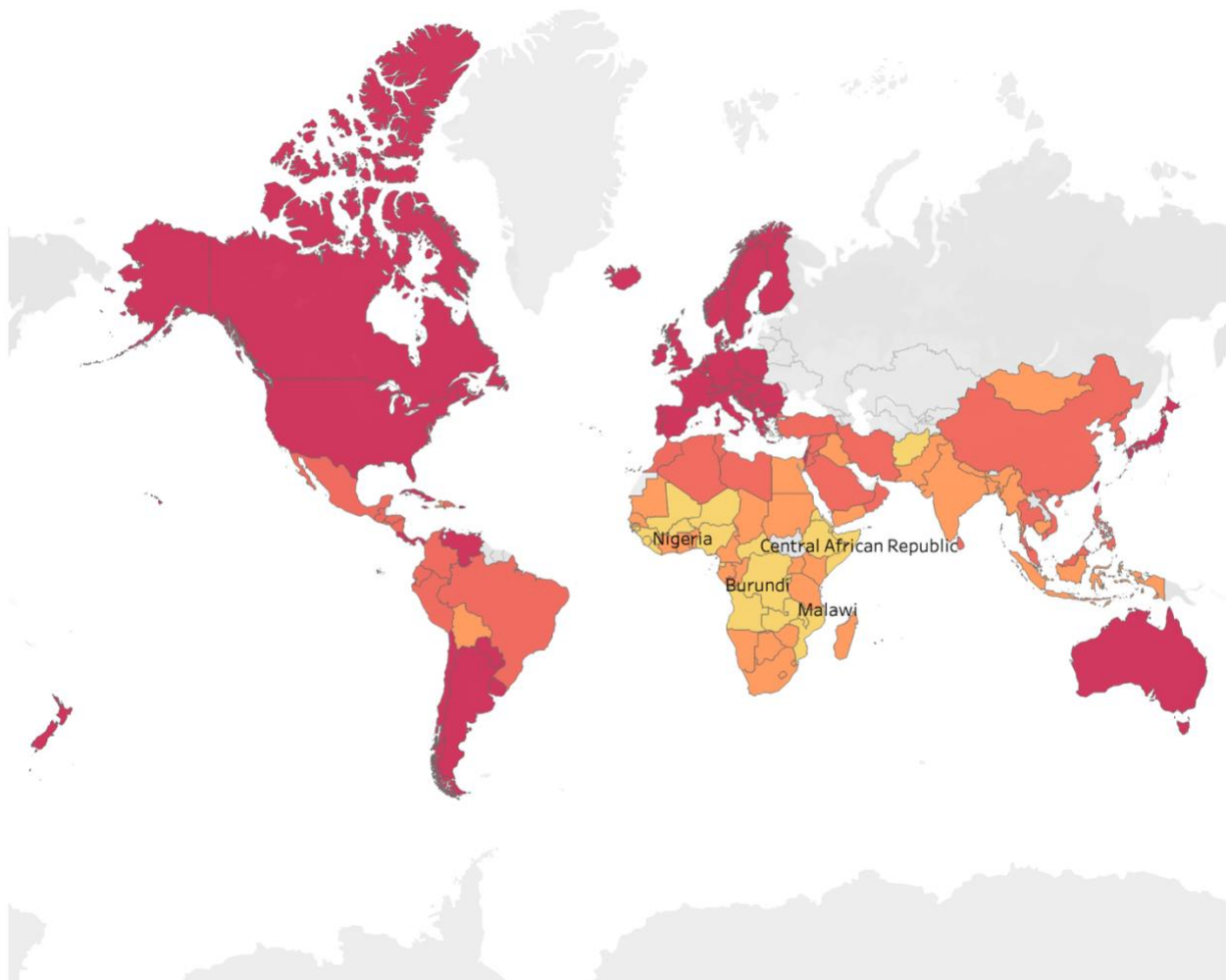
- **Population over the years:**

In the final visual here, we have taken the population over the years from 1950-2005 continent wise. We can see that there is an upward trend with all the continent, but few have drastically changed.

Population over the years Continents wise

Continent
- Africa
- Americas
- Asia
- Europe
- Oceania
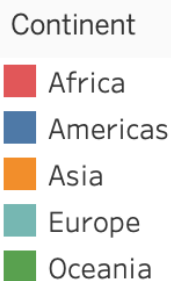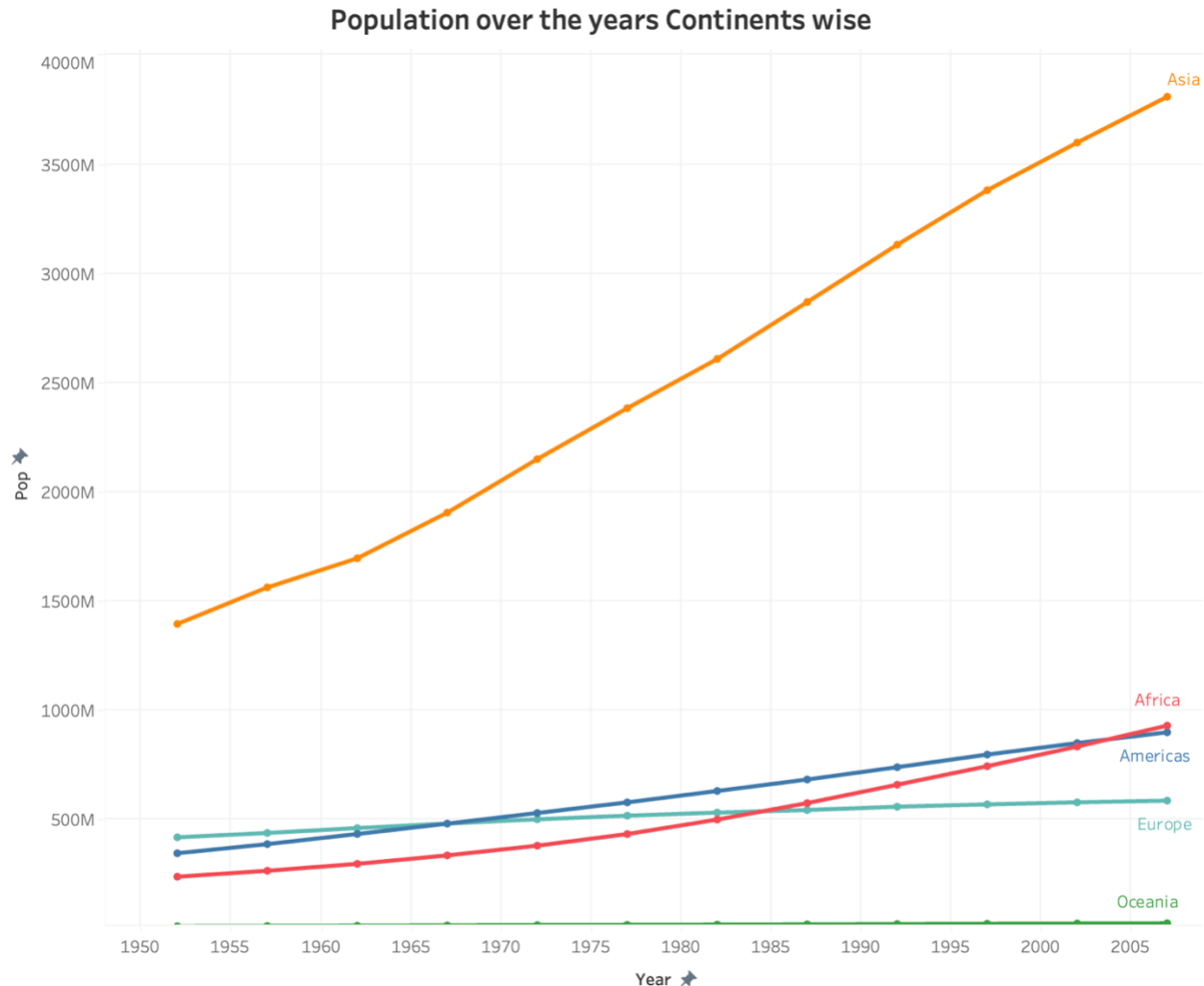
Asia has taken a leap in the last 50 years from around 1400M to reaching 4000M. The GDP per capita for the Asian countries also has taken the same leap for a few exceptions. The rest of the continents have started below 500M had a trend only below 1000M, but the Americas and Europe have seen great GDP per capita raises which in turn lead to good avg. life expectancy

too. Coming to African countries there has been highest raise compared to the countries under 4000M, but their life expectancy and GDP per capita have not really taken a great leap over the years. The four countries we have considered here are a great example of the same. Hence, we can conclude that both the factors are inter dependent. Oceania had been constant over the years since there is not much life supporting resources in these countries and the population raise or Avg. life expectancy cannot be certainly expected here.