



The Story of Suicide Rates

By Jing Zhu



Introduction

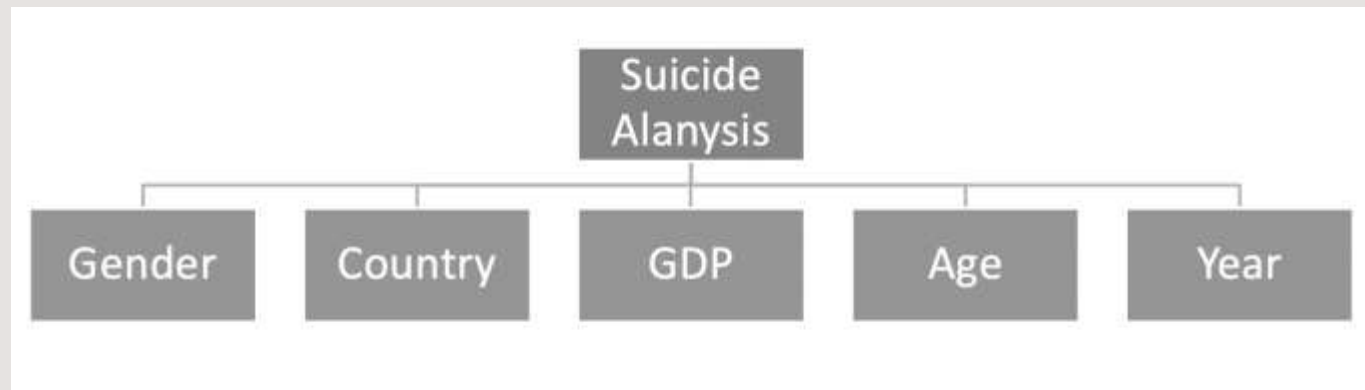
- Suicide is one of the major concern all over the world.
- As per World Health Organization, every 40 seconds a person dies by suicide. Although, with the exploratory data analysis, we can see a decreasing trend in the number of suicides over time.
- I have used various tools to analyze the dataset such as R, Python, and Tableau.
- It analyzes the correlation between variables and suicide rates.
- Although the results are not perfect, the project gives an insightful view into the statistics behind suicides.



Data Source and Preparation

I selected suicide dataset from Kaggle:

- Suicide data from 1985 to 2016
- To analyze the suicide rate and other attributes associated with the suicides such as gender, age, suicide year, country, GDP rate, and suicide per 100k population, among others.



country	year	sex	age	suicides_no	population	suicides/100k pop	country-year	HDI for year	gdp_for_year (\$)	gdp_per_capita (\$)	generation
Albania	1987	male	15-24 years	21	312900	6.71	Albania1987		2,156,624,900	796	Generation X
Albania	1987	male	35-54 years	16	308000	5.19	Albania1987		2,156,624,900	796	Silent
Albania	1987	female	15-24 years	14	289700	4.83	Albania1987		2,156,624,900	796	Generation X
Albania	1987	male	75+ years	1	21800	4.59	Albania1987		2,156,624,900	796	G.I. Generation
Albania	1987	male	25-34 years	9	274300	3.28	Albania1987		2,156,624,900	796	Boomers
Albania	1987	female	75+ years	1	35600	2.81	Albania1987		2,156,624,900	796	G.I. Generation
Albania	1987	female	35-54 years	6	278800	2.15	Albania1987		2,156,624,900	796	Silent
Albania	1987	female	25-34 years	4	257200	1.56	Albania1987		2,156,624,900	796	Boomers

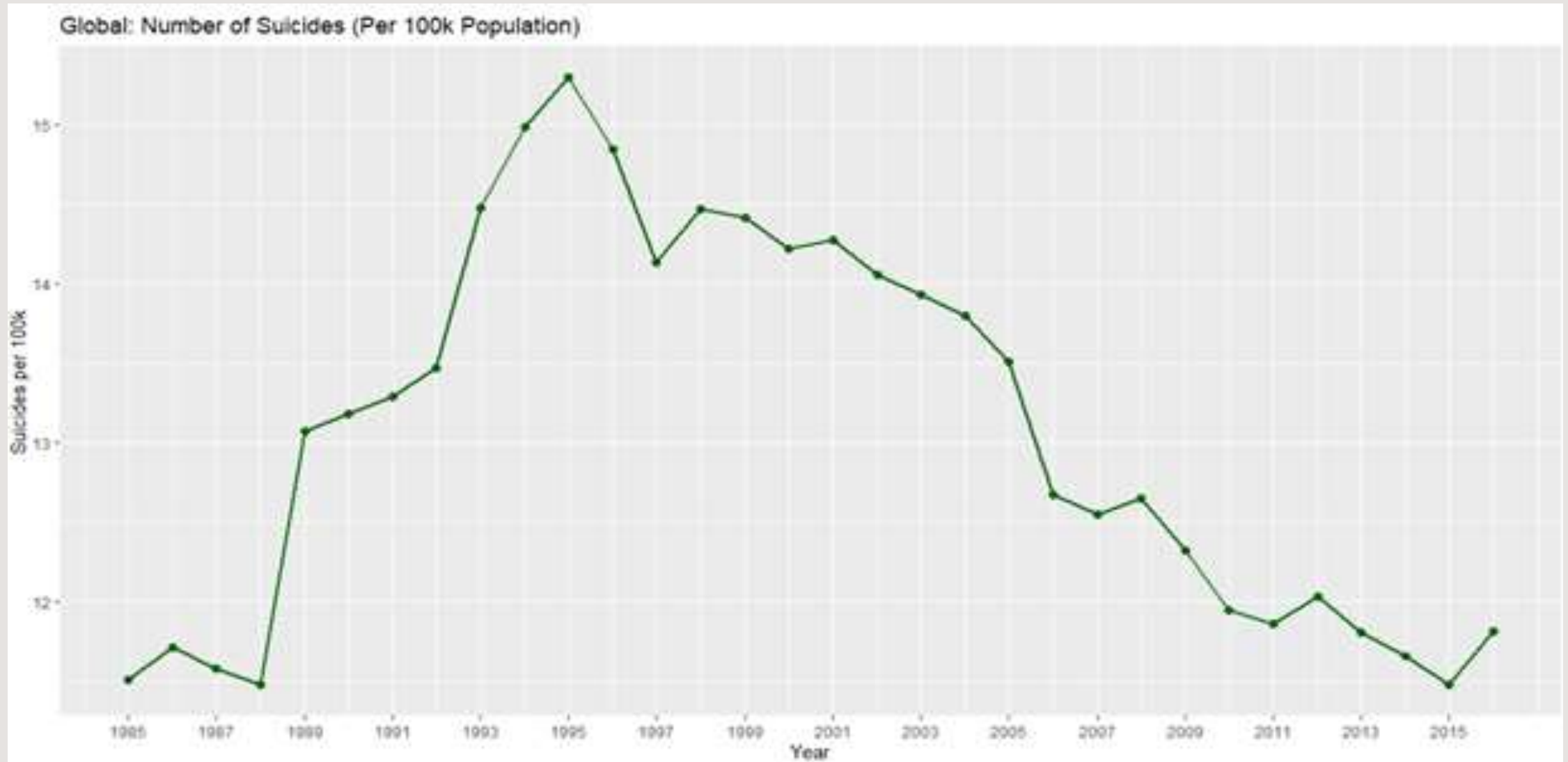
Data source: <https://www.kaggle.com/russellyates88/suicide-rates-overview-1985-to-2016>



Overview

Suicides Per 100k Population, Trend over Time: 1985-2015

- We can see a decreasing trend in the number of suicides from 1985 to 2016

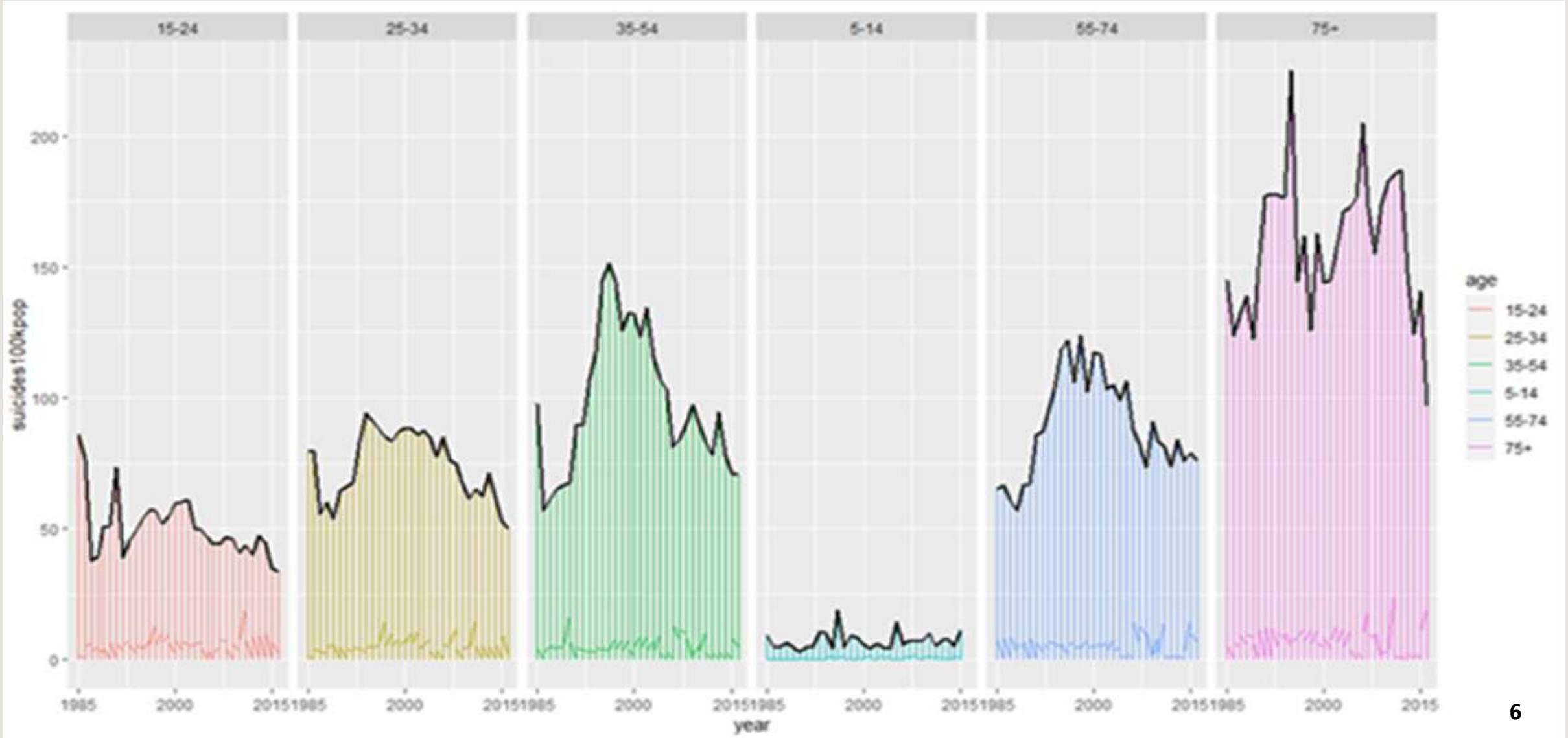




Age & Gender

Age

Number of Suicide Per 100k Population: By Age Factor

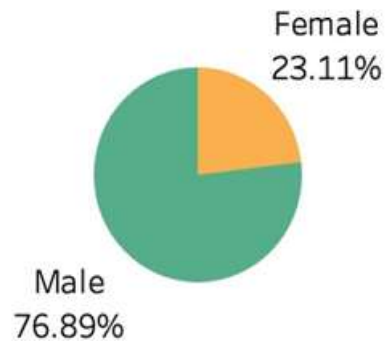


● Female vs. Male, Who is more likely to suicide?

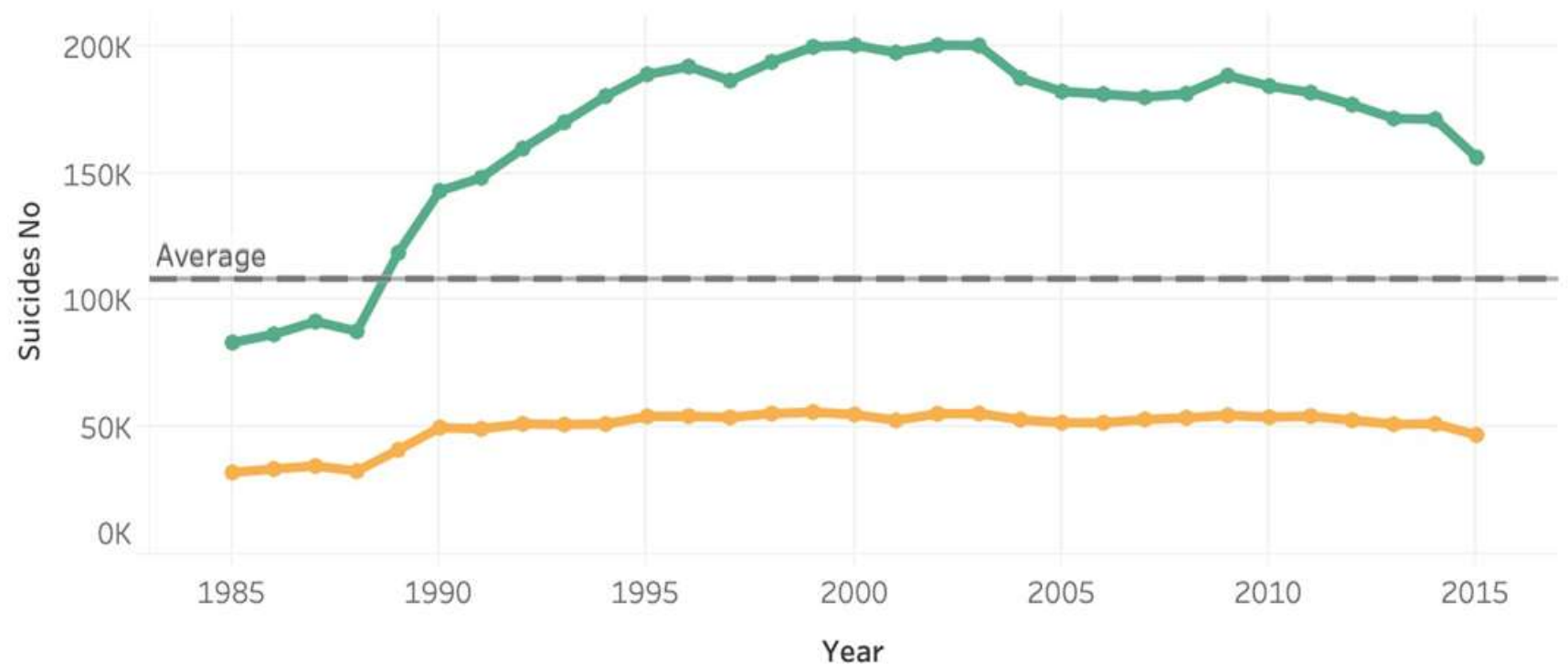
Globally, the number of male suicides is more than three times of female.

In terms of time, the number of global male suicides is always higher than female, and higher than the average.

Female
Male



Suicide Number in different year: Female vs. Male





Country



Countries & Continents

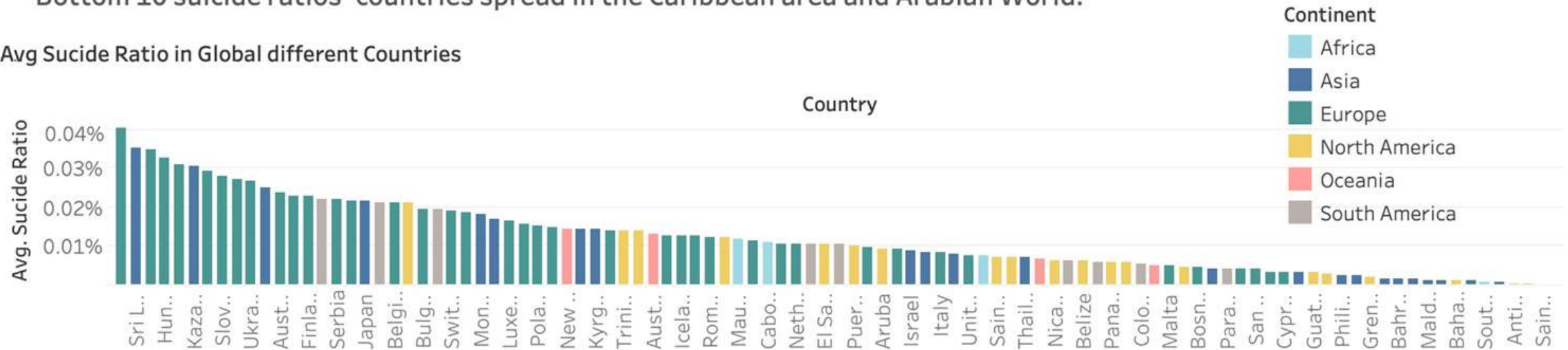
● Global Suicide Ratio | Countries and Continents

European countries have higher suicide ratio. Asia and North America are close.

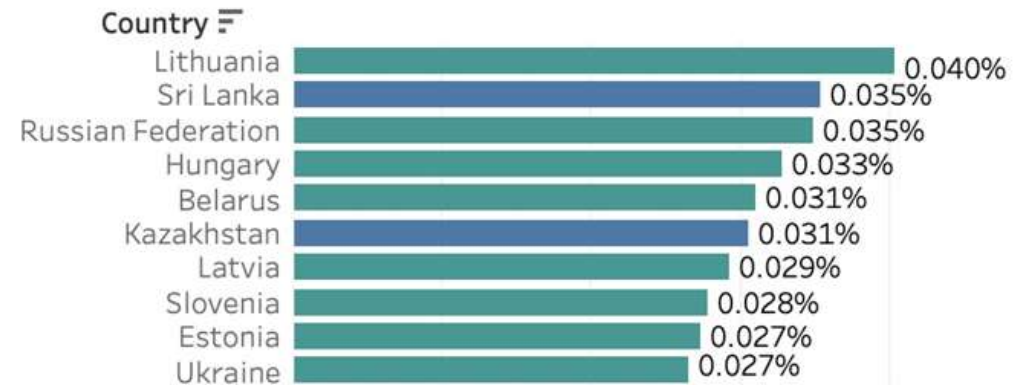
Top 10 suicide ratios' countries mainly located in East Europe.

Bottom 10 suicide ratios' countries spread in the Caribbean area and Arabian World.

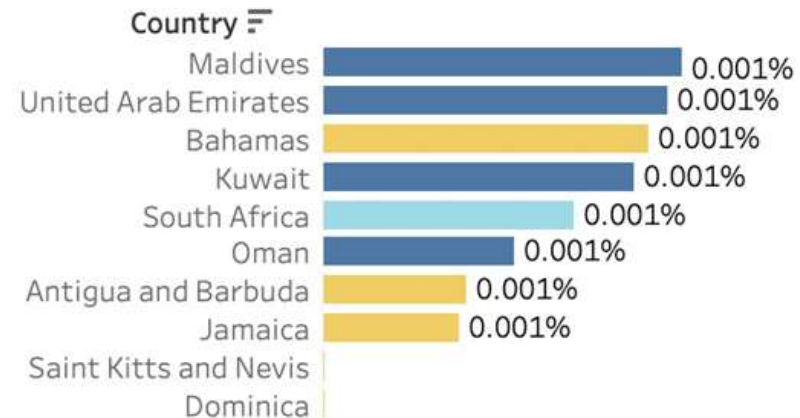
Avg Sucide Ratio in Global different Countries



Avg Sucide Ratio: Top 10 countries

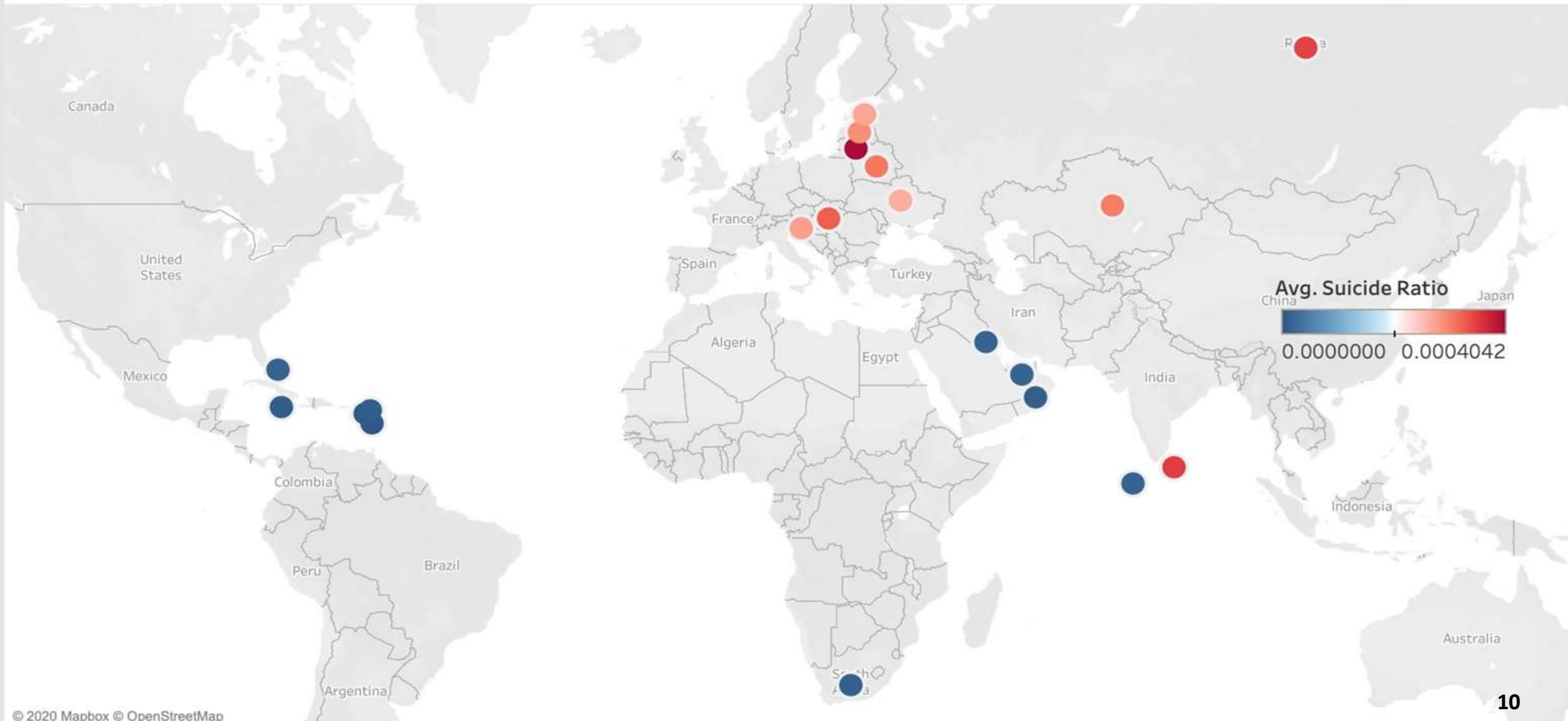


Avg Sucide Ratio: Bottom 10 countries

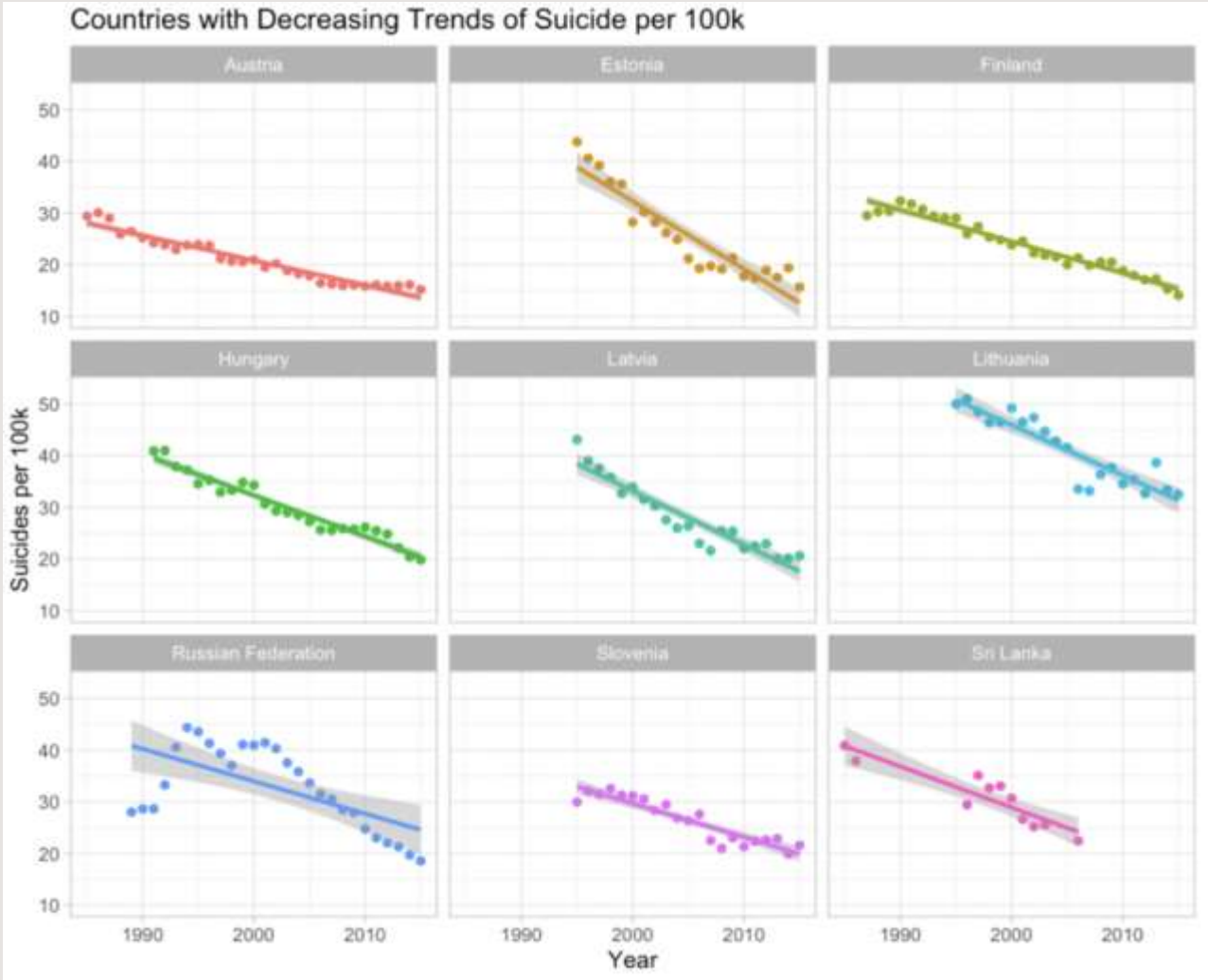
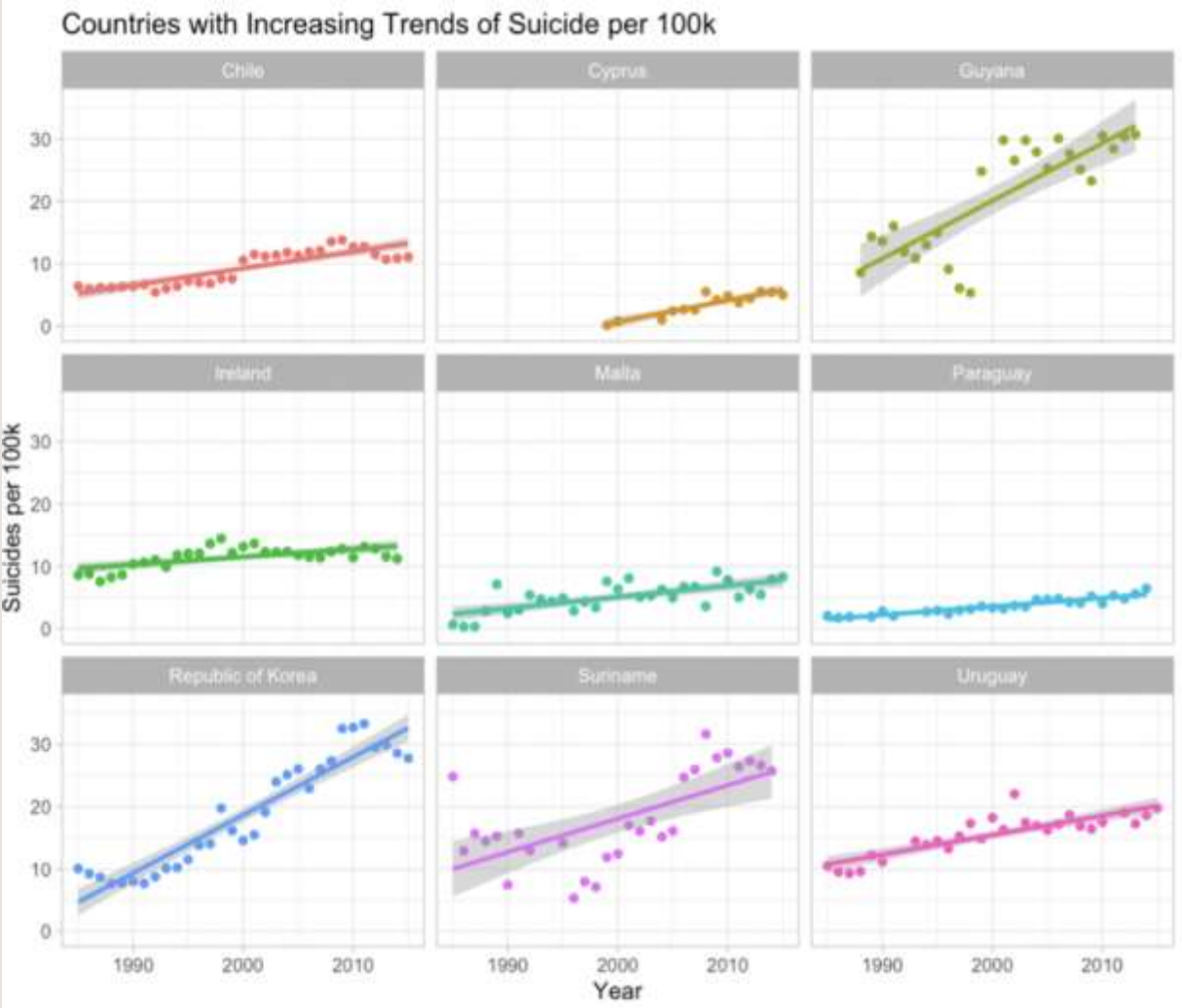


Suicide Ratio: Top 10 and Bottom 10

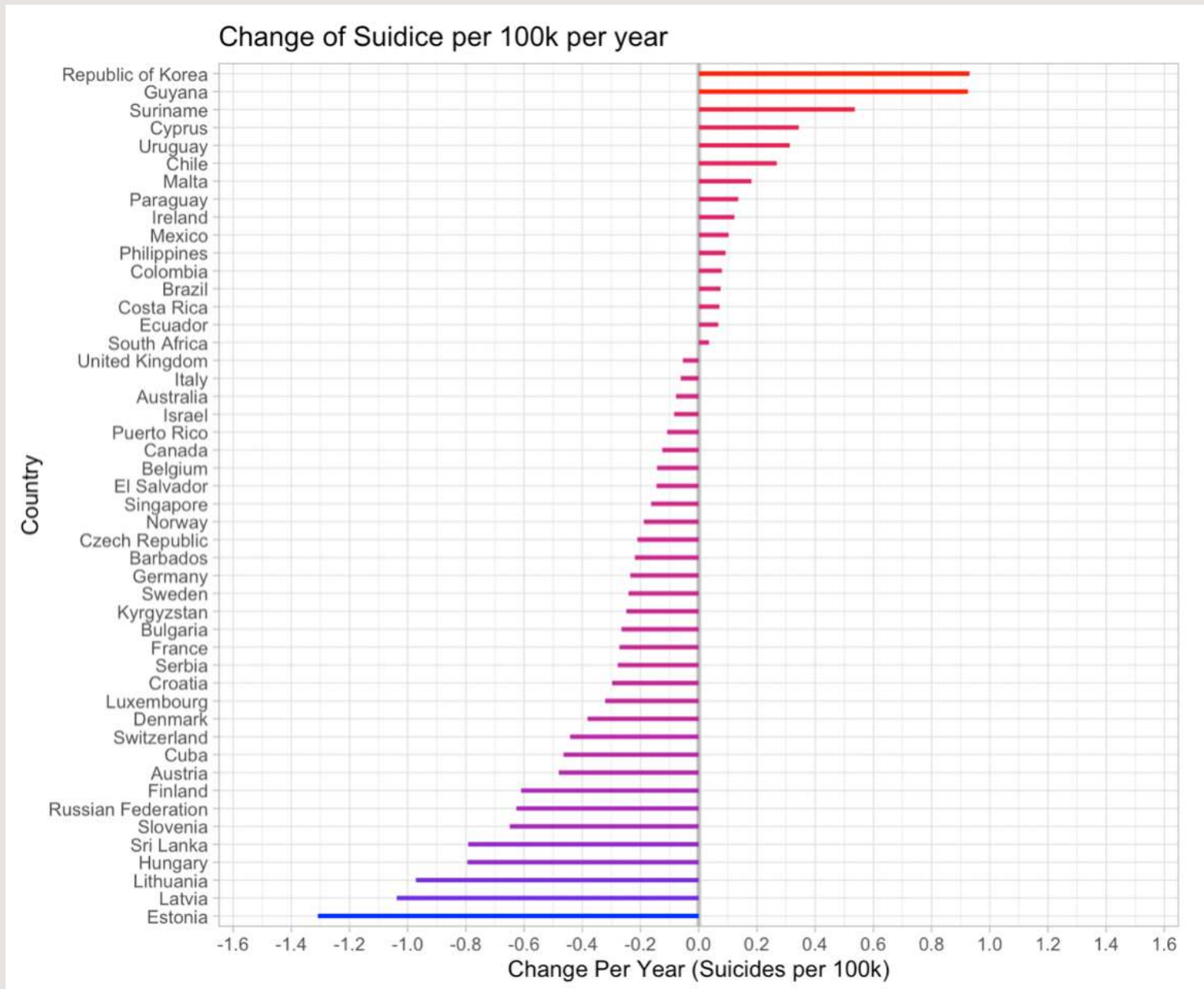
World Map: Top 10 and Bottom 10



Trend & Year



Rank of countries with linear changes of suicide rate

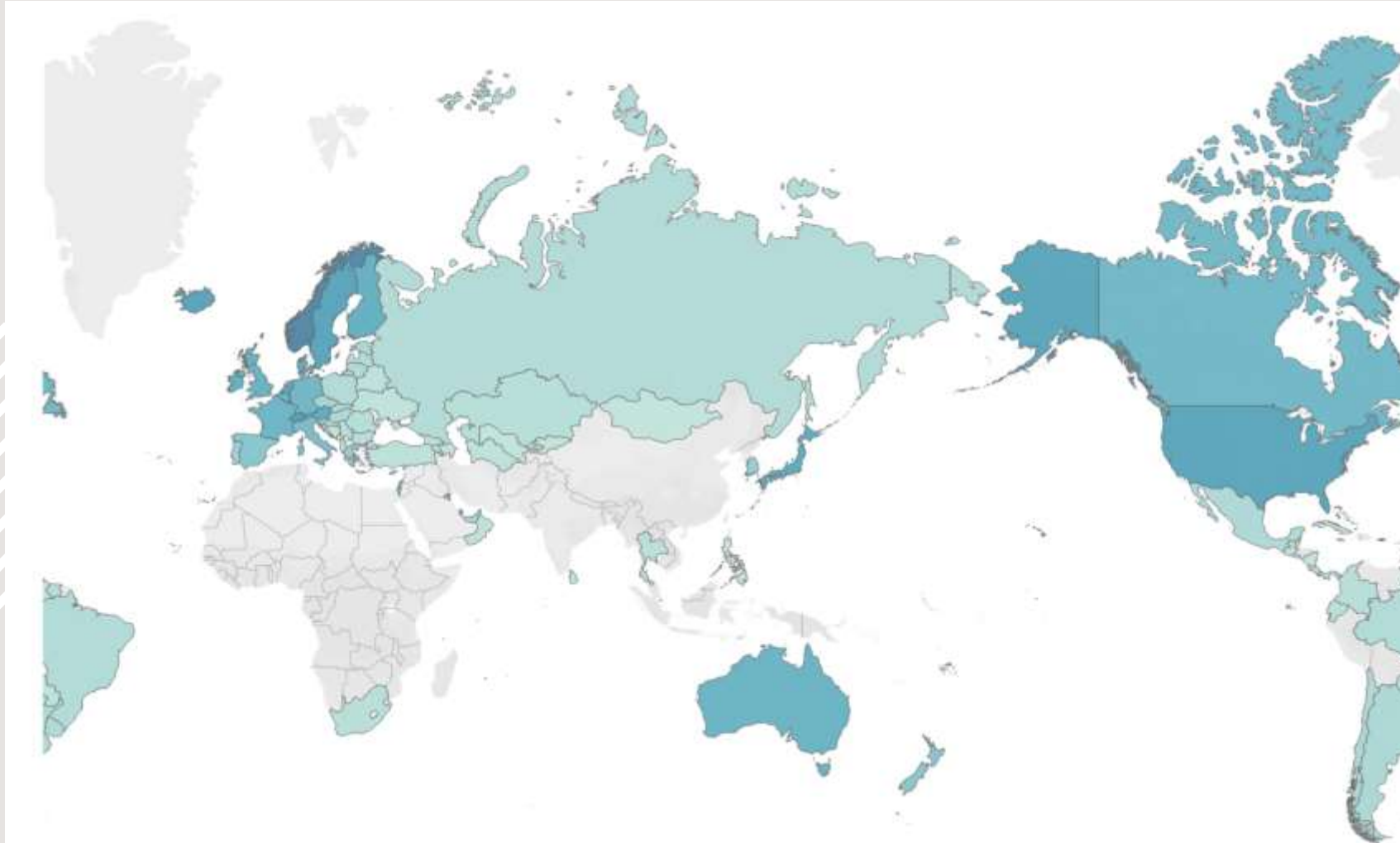


GDP Per Capita



GDP

World Map -- GDP Per Capita



SUM(Gdp Per Capita (\$))



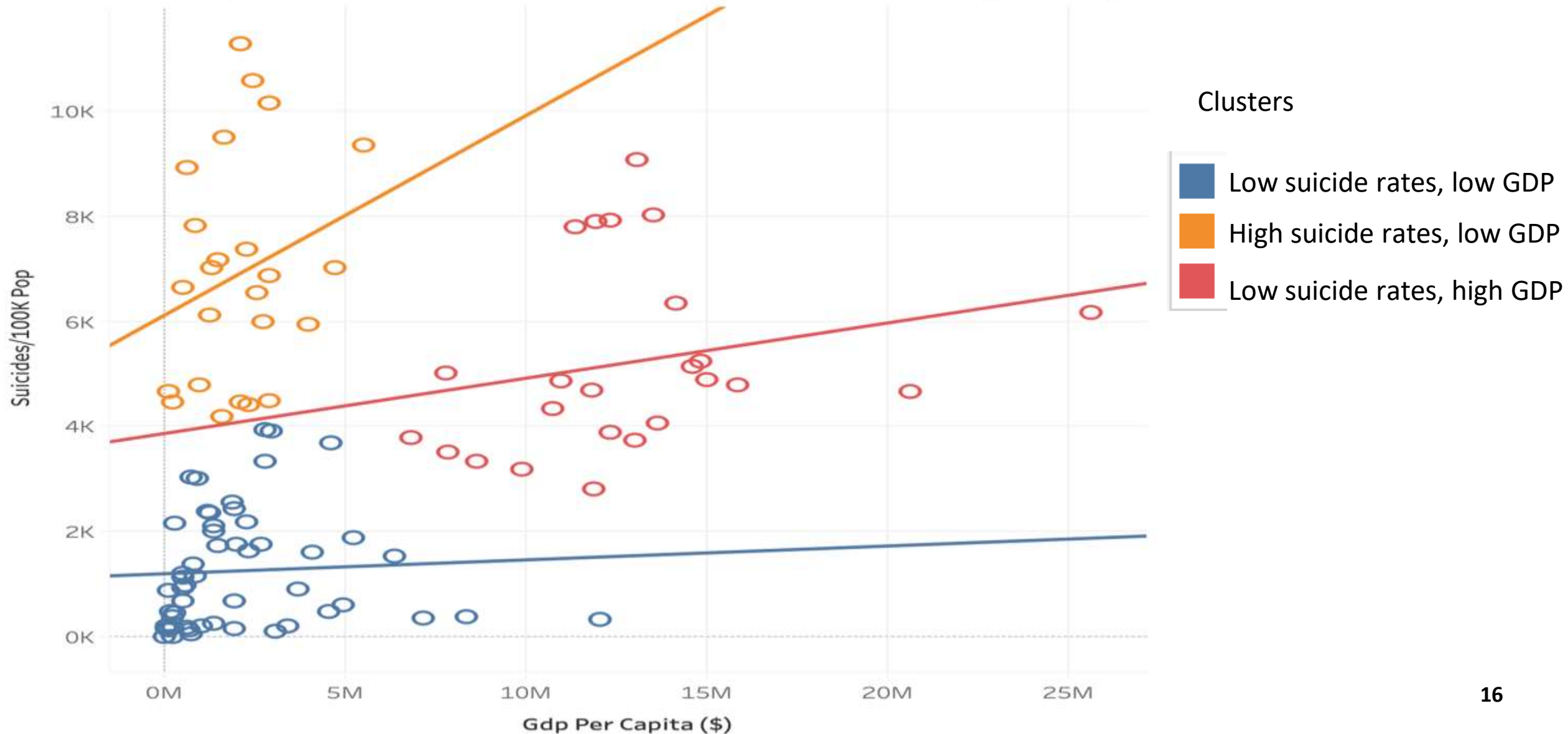
17,820

25,593,000



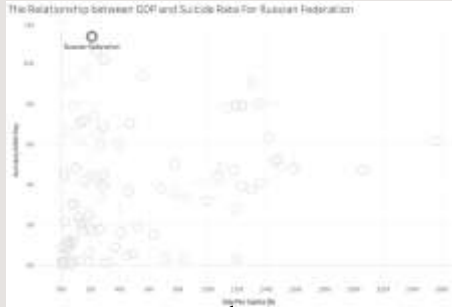
More Rich, Less Suicides?

Cluster Analysis about different level between GDP per Capital and Suicides rate

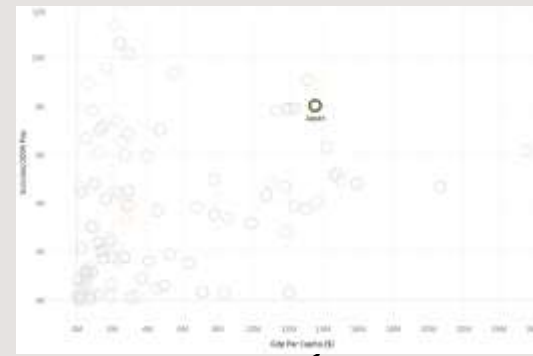


GDP

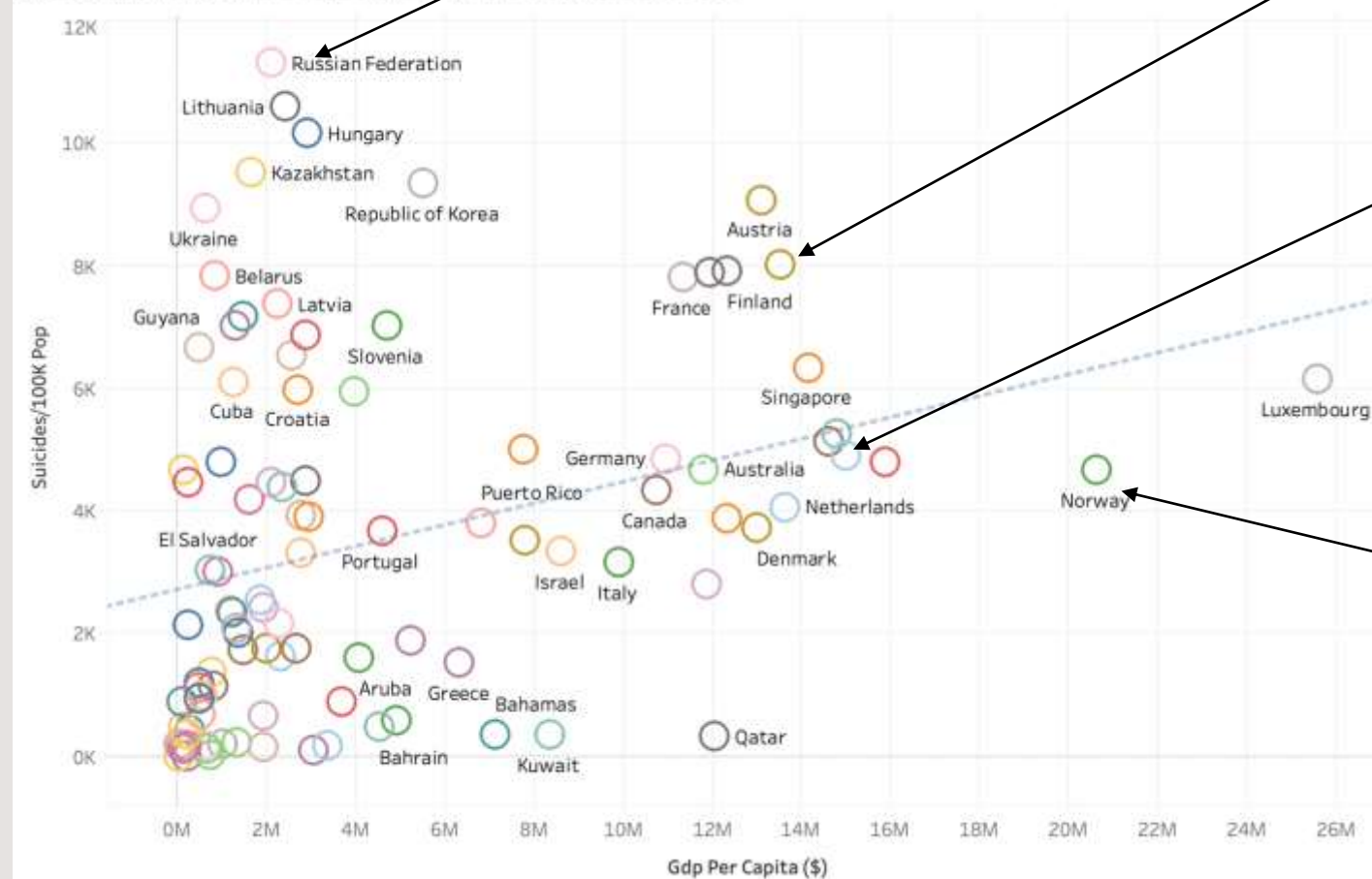
Russian



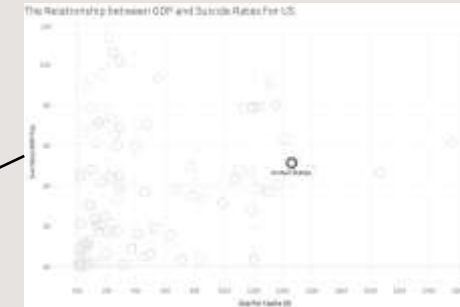
Japan



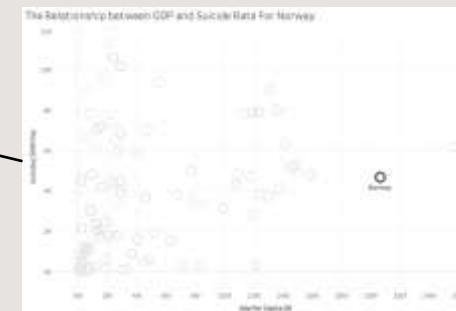
The Relationship between GDP and Suicide Rates



United States



Norway



Analysis

- Global suicide per 100k population is increases with age, the highest number of suicides are above age 75+, the reason could be that people get lonely at this age with loss of the loved ones.
- The number of male suicides is more than three times of female.
- Europe countries has the highest suicides ratio, especially in East Europe.
- 2/3 of countries with linear change of suicide rate are decreasing which shows the positive result of the world.

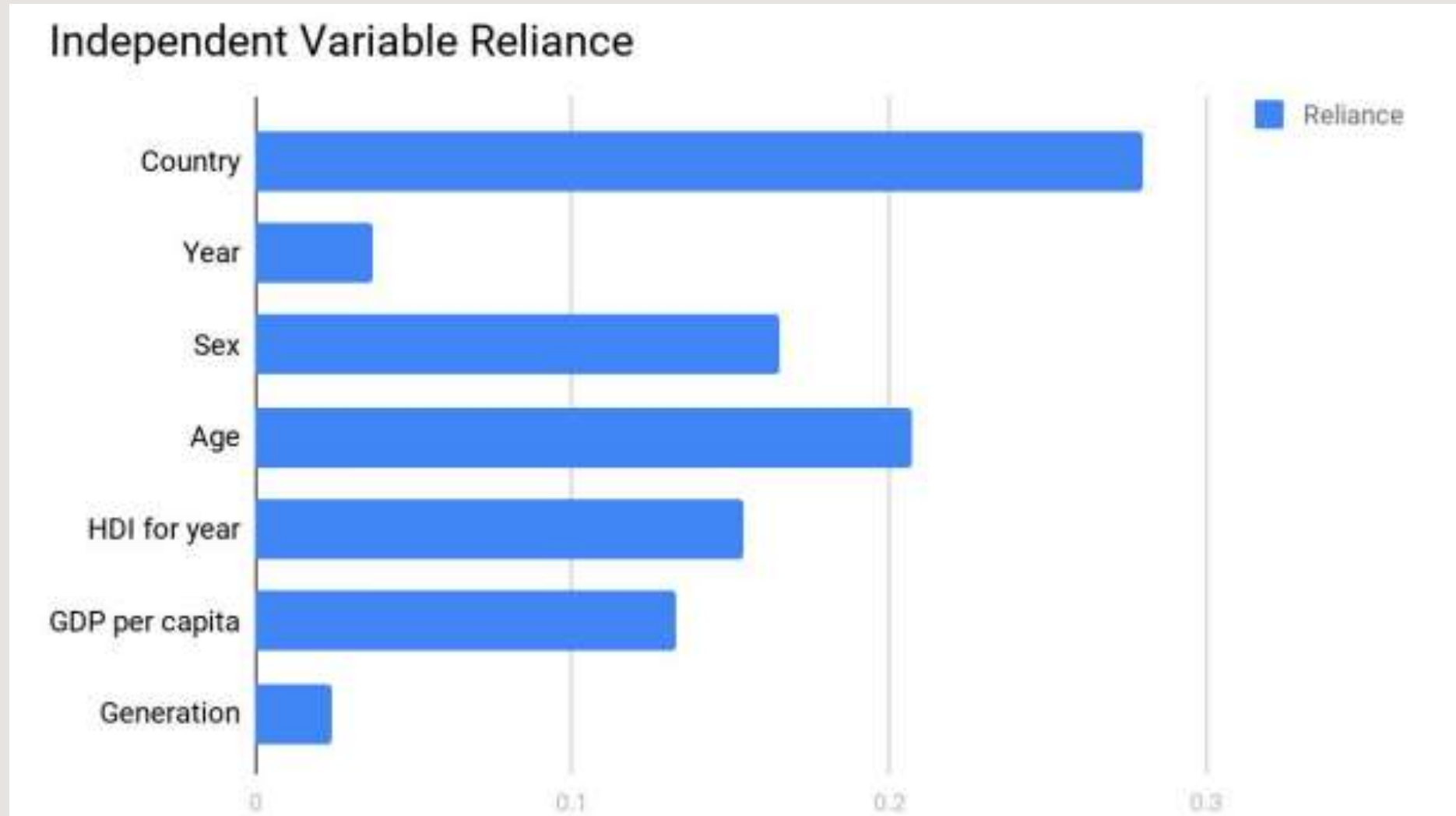


ML Result



Result

Regression Prediction Score : 0.9502331822986496



Conclusion & Future Work

Conclusions

- We can find that the age of the victim, human development index, and GDP per capita played an expectedly high role in determining the dependent variable, the sex of the victim was unexpectedly attributed to over fifteen percent of potential suicide rates.
- In addition, Regression Prediction Score : 0.95, which shows that this is relatively close to the real suicide rates per 100 thousand people for the demographics of the victim.



Future Work

- Find other factors that might impact the suicide rates.
- Having data until 2020 or at least 2019 may have been better since it would allow us to relate the findings better with more recent social events.





Thank You!