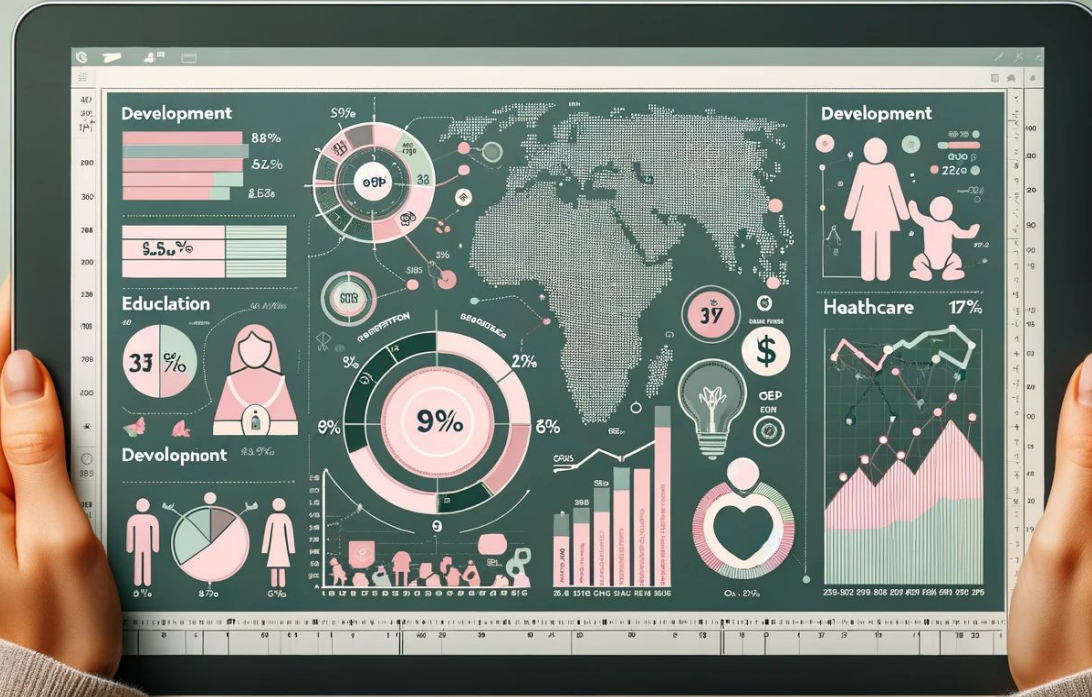


The Impact of Economic Development of a Country on Fertility



Praveen S., Sipeng Z., Yuchen B., Shanchuan H, Anqi H.



Problem we are facing

1. How do the levels of economic development of a country directly affect its fertility rate, in a span of 25 years?

2. How can we relate positive or negative differences in fertility rate to the living situations of various samples of people?

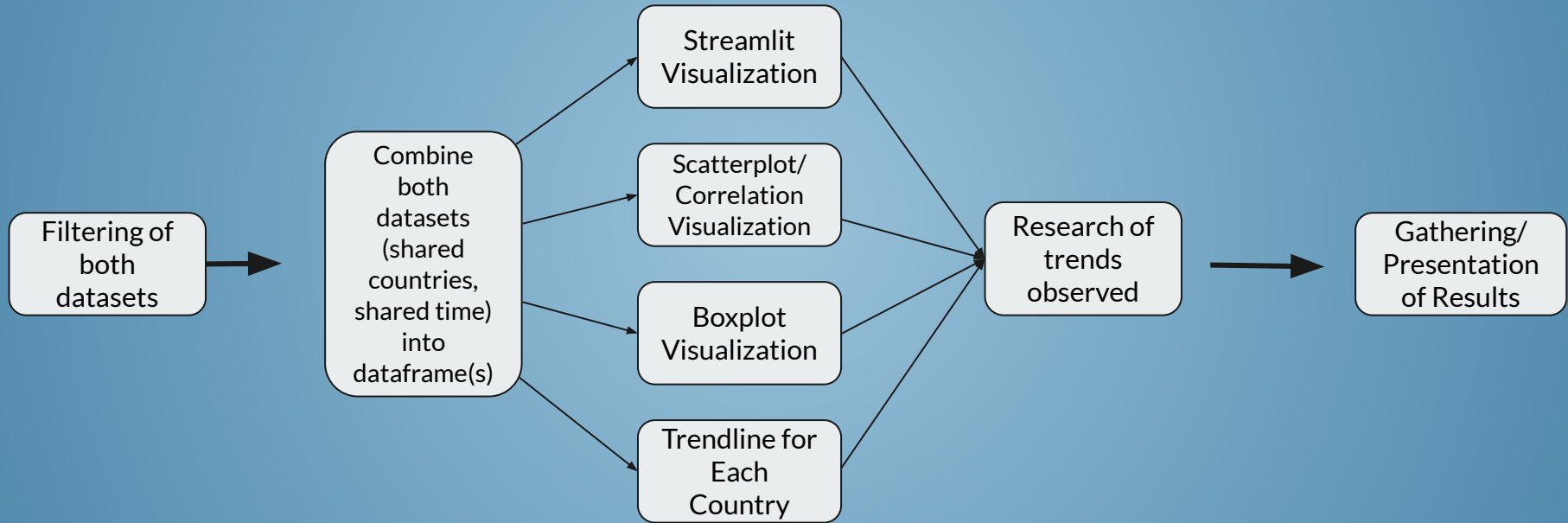


Additional Questions

3. Can we find any other trends from this analysis, that align with what we already know about population growth or economic development?

4. Are there extraneous factors that determine fertility rate of a country, and how do they impact the country?

Methodology



Datasets Introduction - Data Preprocessing

Country Development Indicators Database:

Country	Year	GDP	GDP Per Capita	GDP PPP	GDP PPP Per Capita	Access to electricity (% of population)
Afghanistan	1990	3621600882	291.7749066			0.01
Afghanistan	1991	3340099754	251.1539015			0.01
Afghanistan	1992	3474599287	239.8666924			0.01
Afghanistan	1993	2664399655	168.4558936			0.01

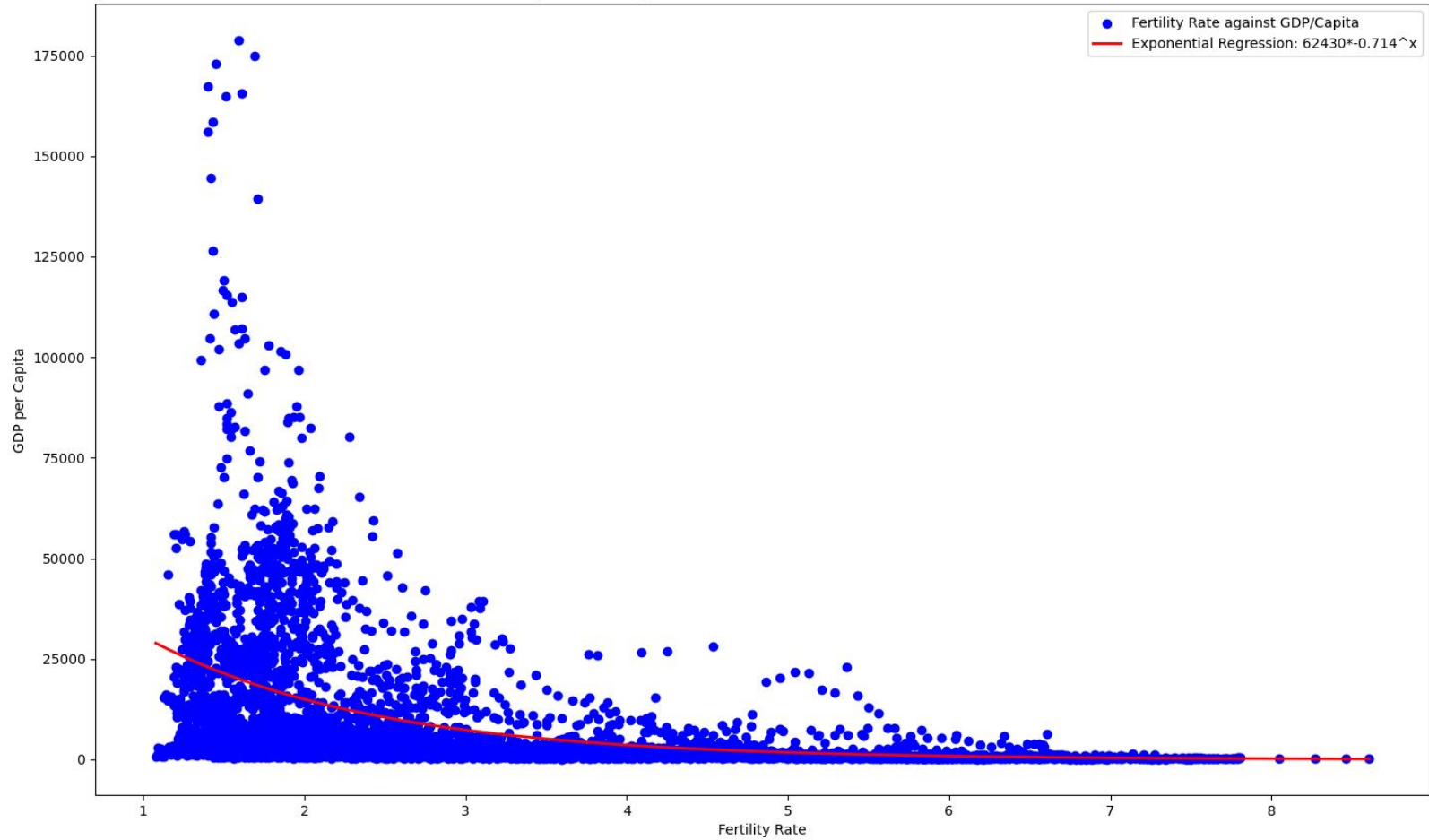
Country	1990	1991	1992
Afghanistan	291.7749066	251.1539015	239.8666924
Albania	652.9905213	486.8794305	467.0987152
Algeria	2397.285997	1763.793877	1816.818163

Fertility Rate Database:

Country Name	Country Code	1960	1961
Aruba	ABW	4.82	4.655
Africa Eastern and Southern	AFE	6.724125011	6.7427521
Afghanistan	AFG	7.282	7.284

Country	1990	1991	1992
Afghanistan	7.565	7.606	7.665
Albania	2.900	2.826	2.767
Algeria	4.556	4.386	4.257

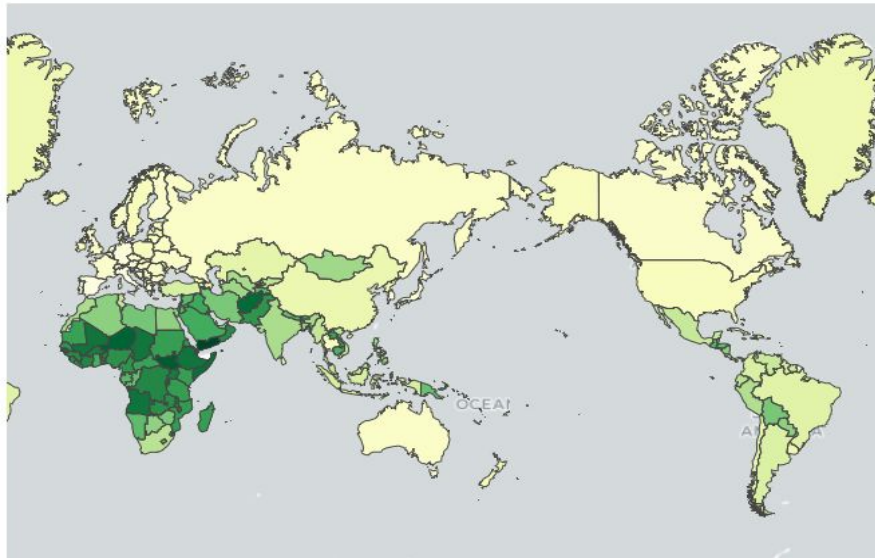
Exponential Regression For All Data Points from 1990-2016



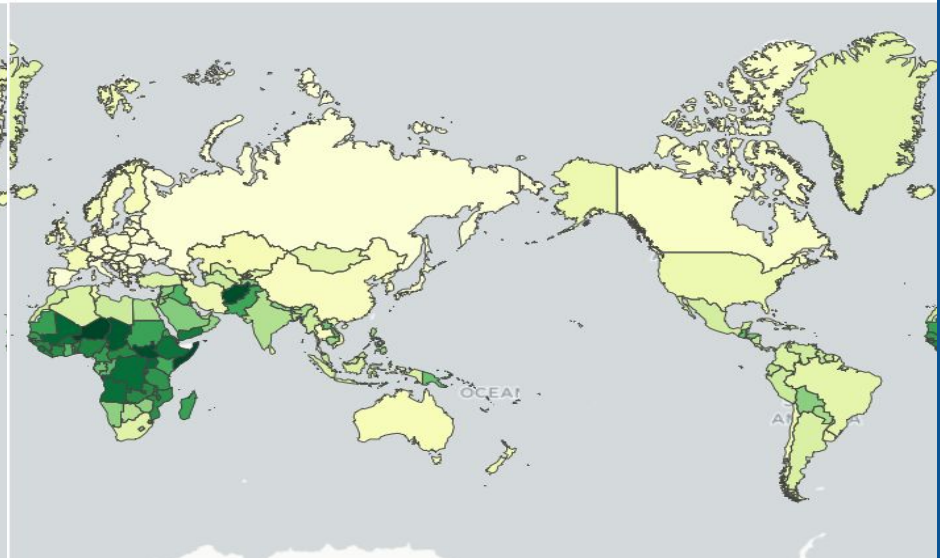
Dataset Visualization

<https://fertility-rate-map.streamlit.app/>

Fertility Rates in 1990



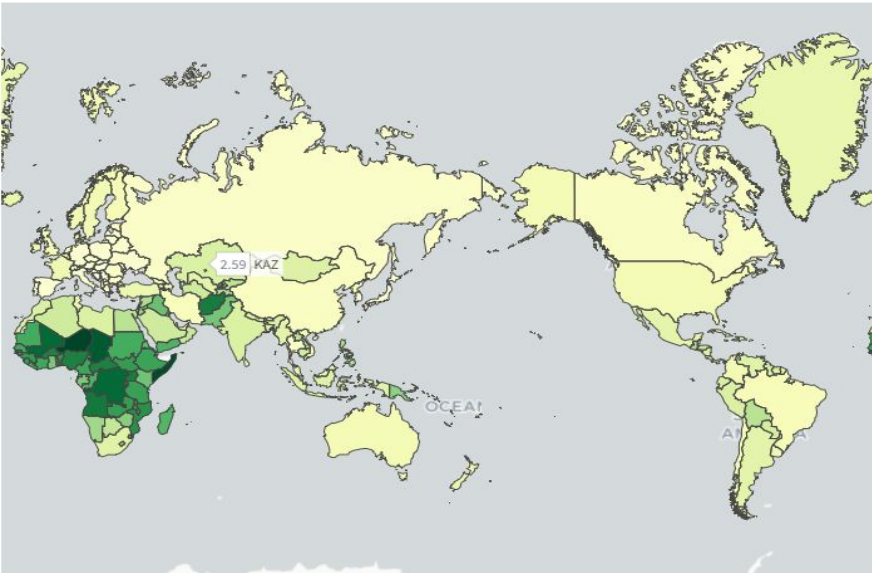
Fertility Rates in 2000



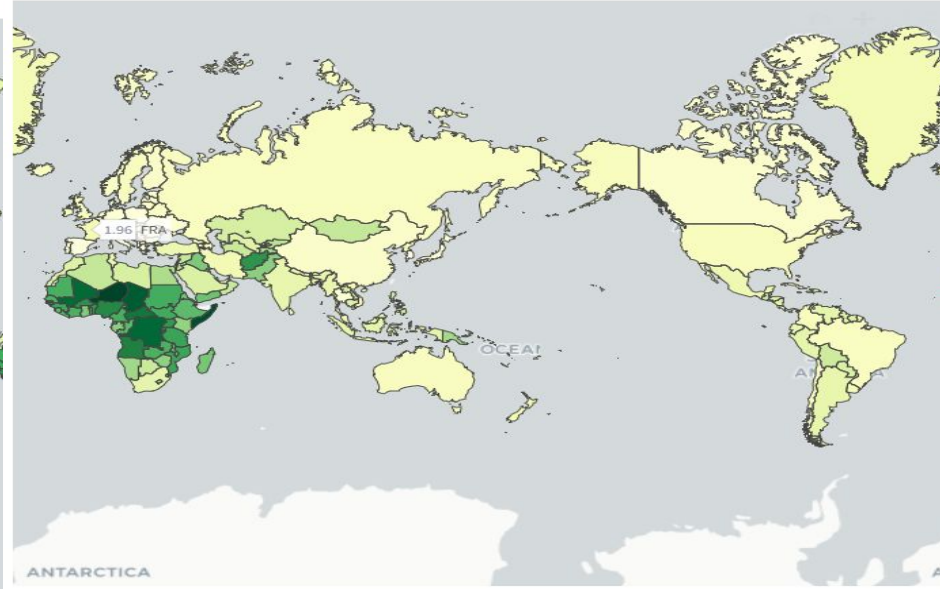
Dataset Visualization

<https://fertility-rate-map.streamlit.app/>

Fertility Rates in 2010

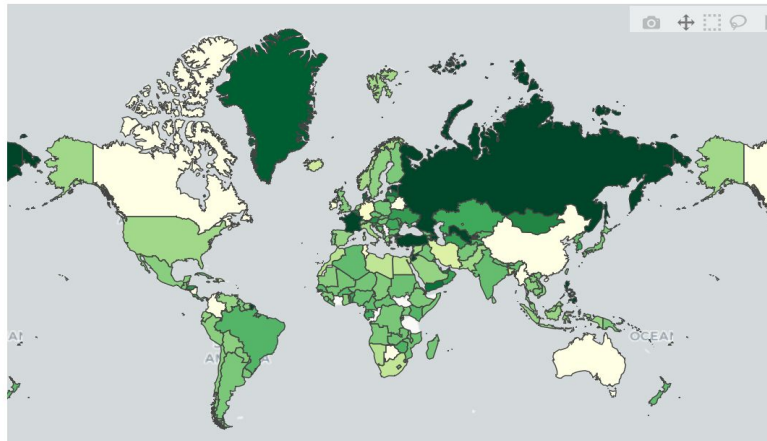


Fertility Rates in 2015

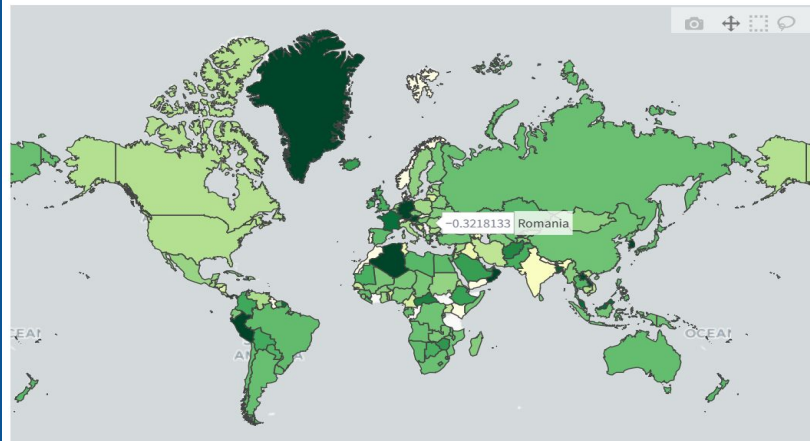


Fertility / GDP

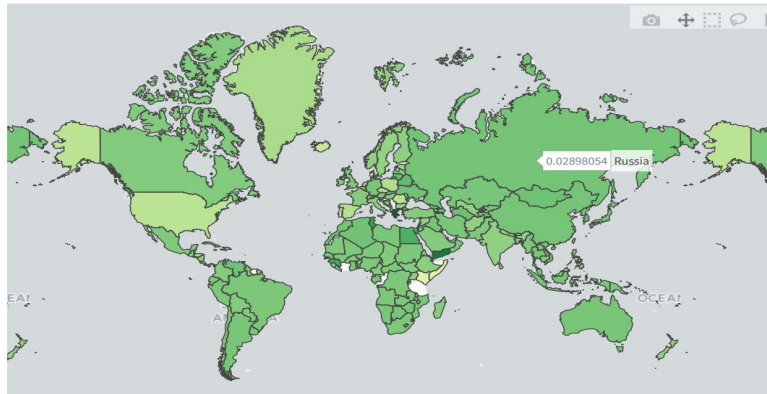
Fertility Rates in 1990



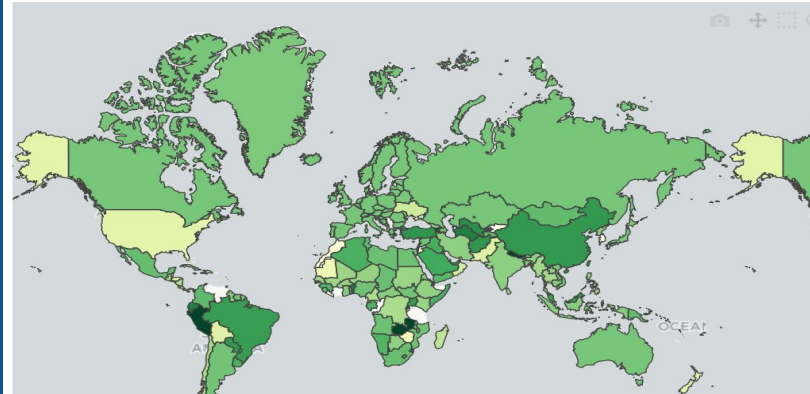
Fertility Rates in 2000



Fertility Rates in 2010

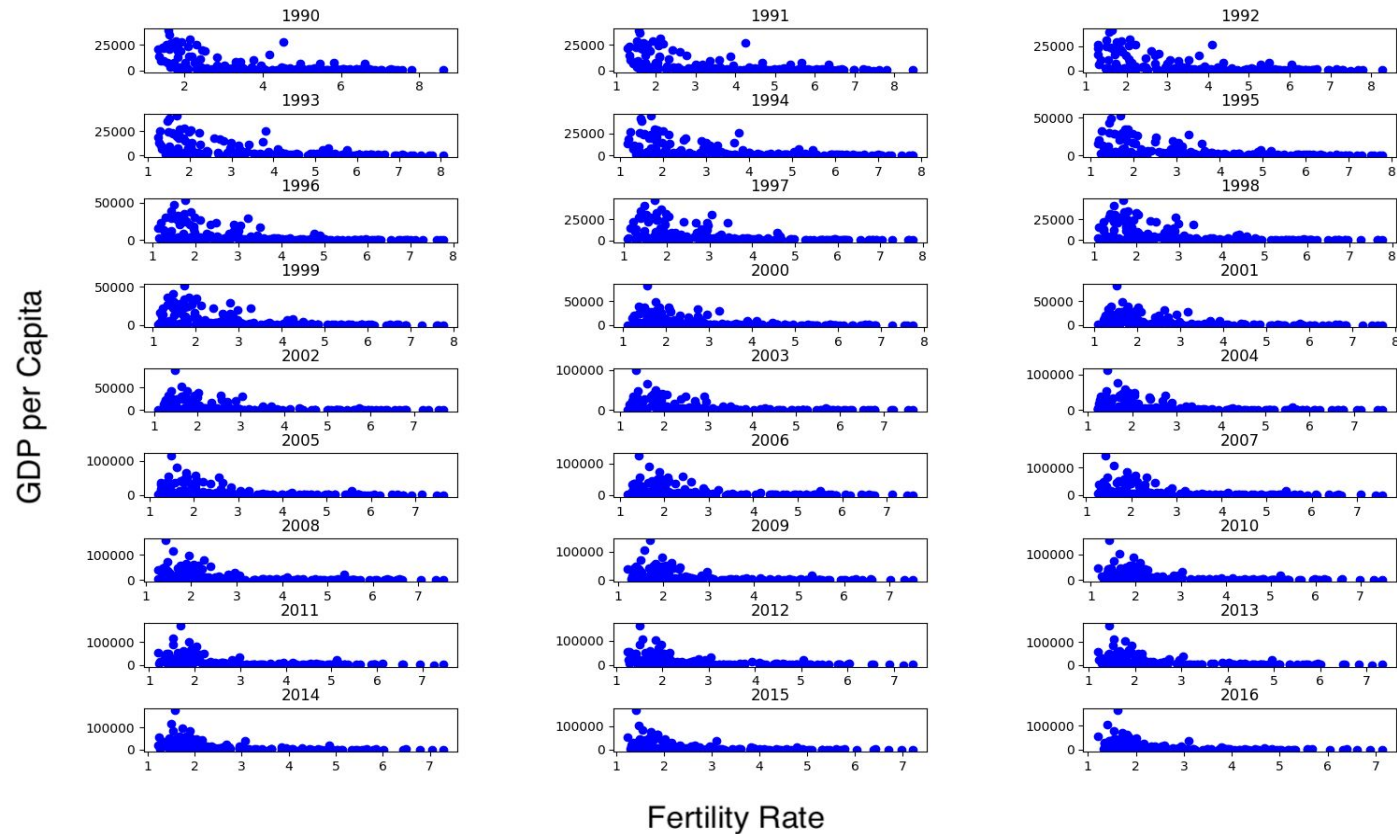


Fertility Rates in 2015

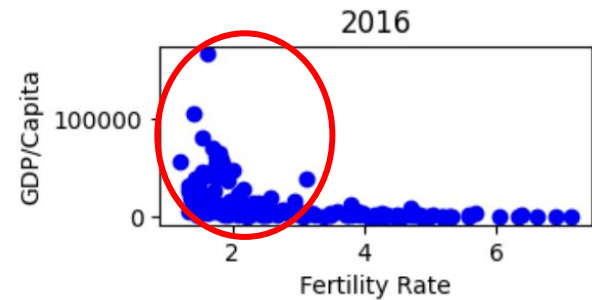
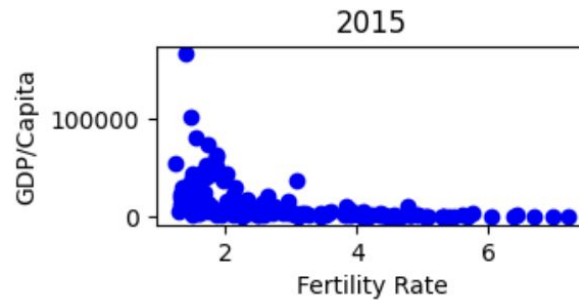
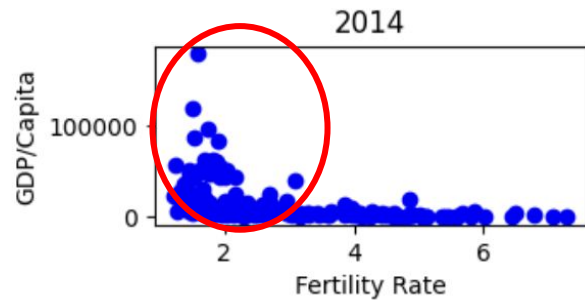
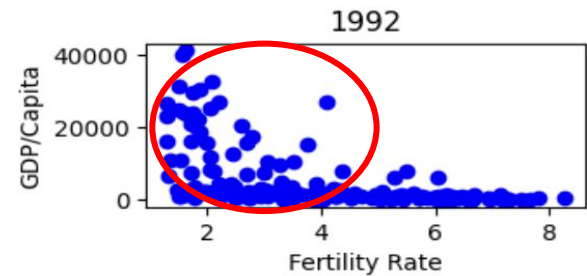
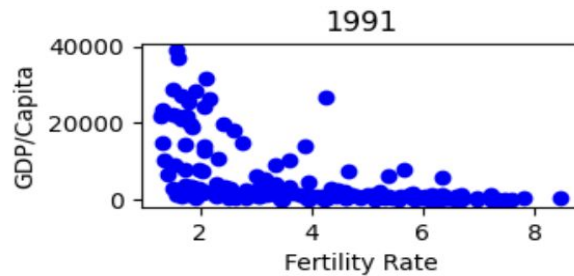
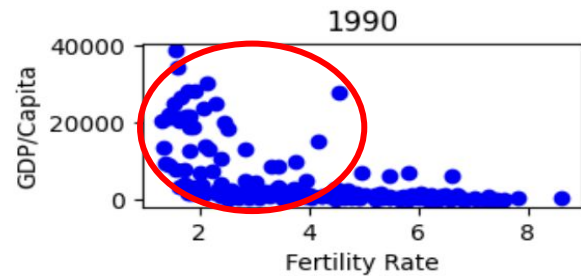


25 Years of Fertility Rate vs GDP/Capita

Scatterplots of Fertility vs GDP per Capita from 1990-2016

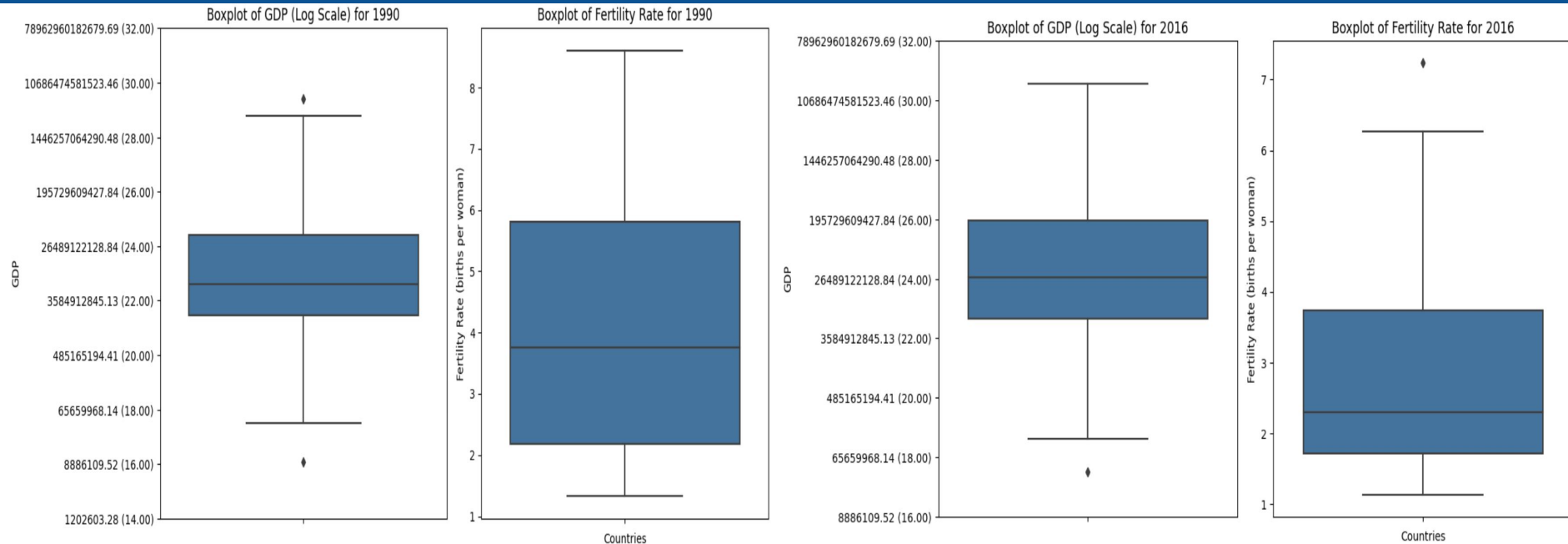


25 Years of Fertility Rate vs GDP/Capita



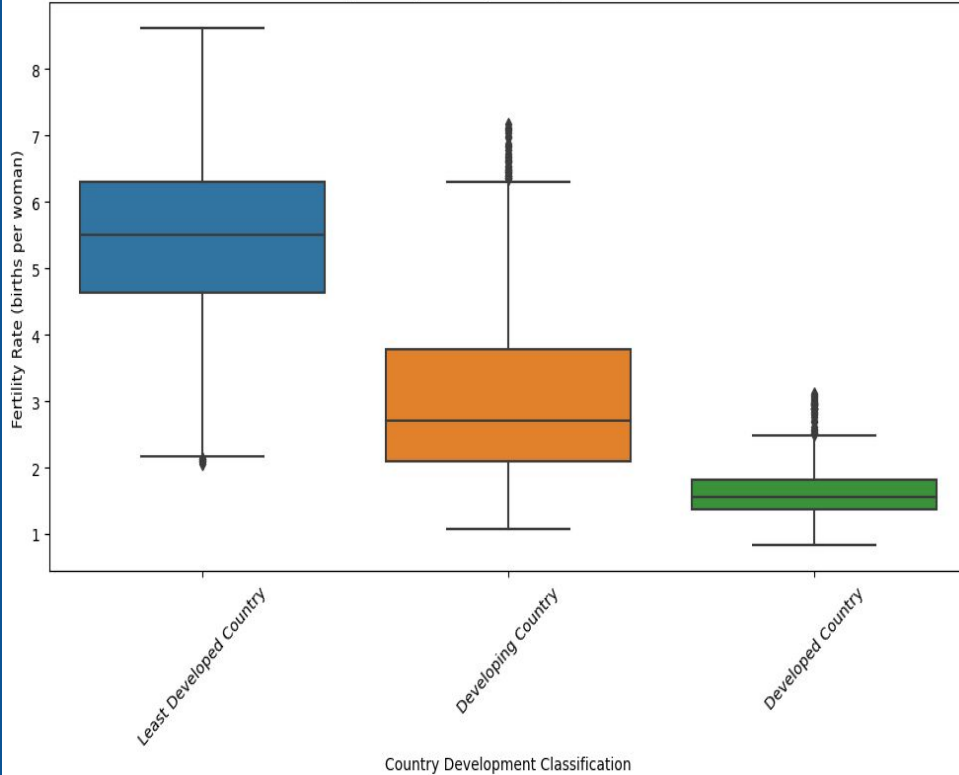
Dataset Visualization - Boxplots

- Boxplots of 1990, 2016
- 3 aspects to look at here: Mean, Min/Max Values, Outliers
- Decrease of all values across the plots

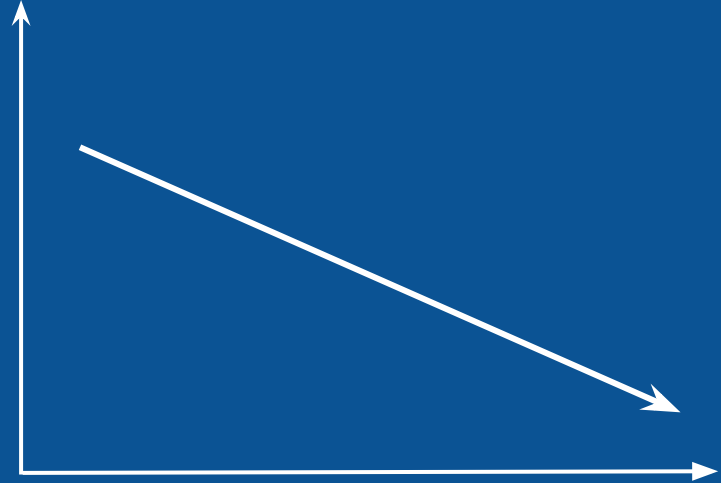


Comparing the Least Developed , Developing, Developed

Fertility Rate by Country Development Classification

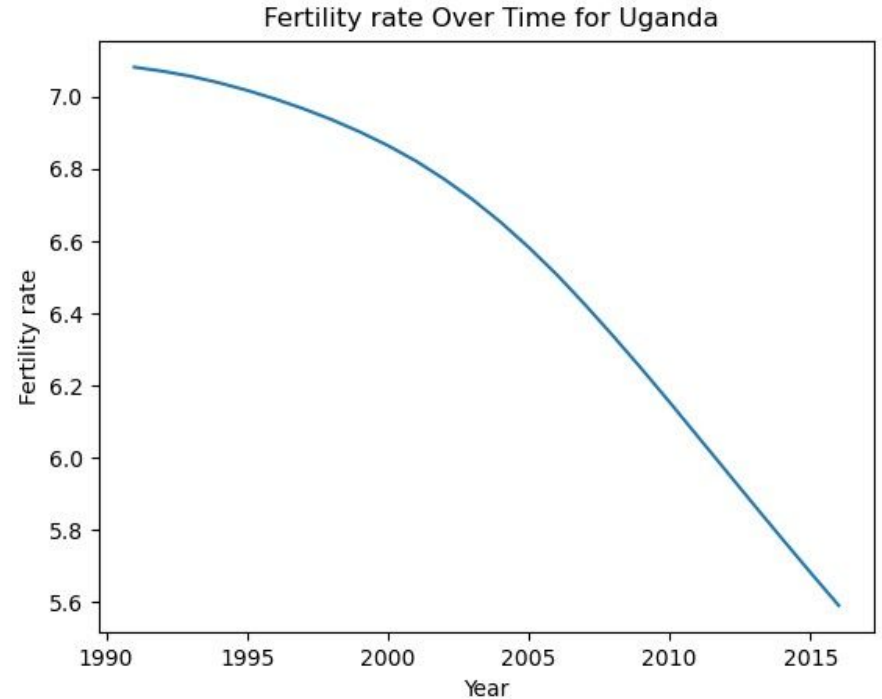
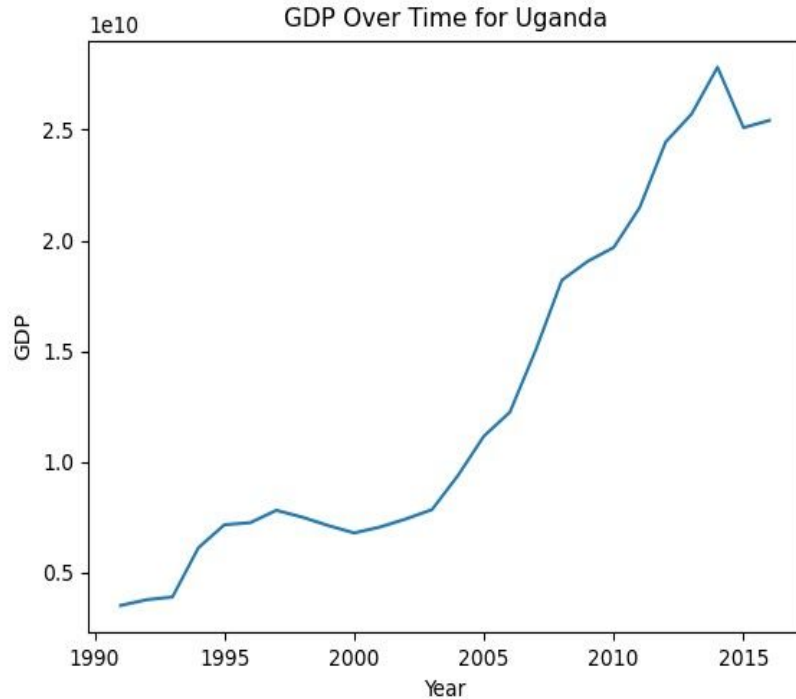


Fertility Rate

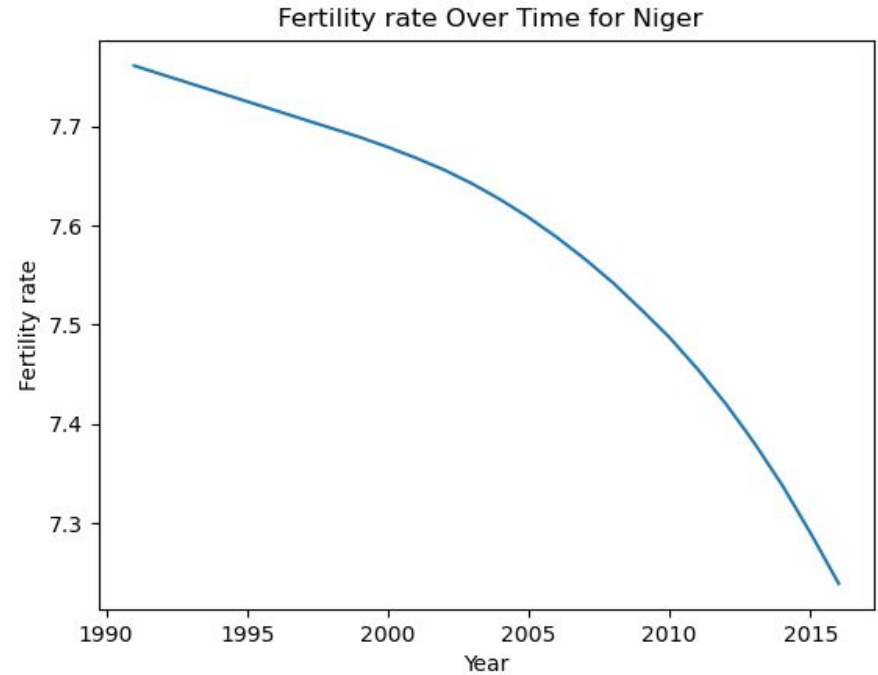
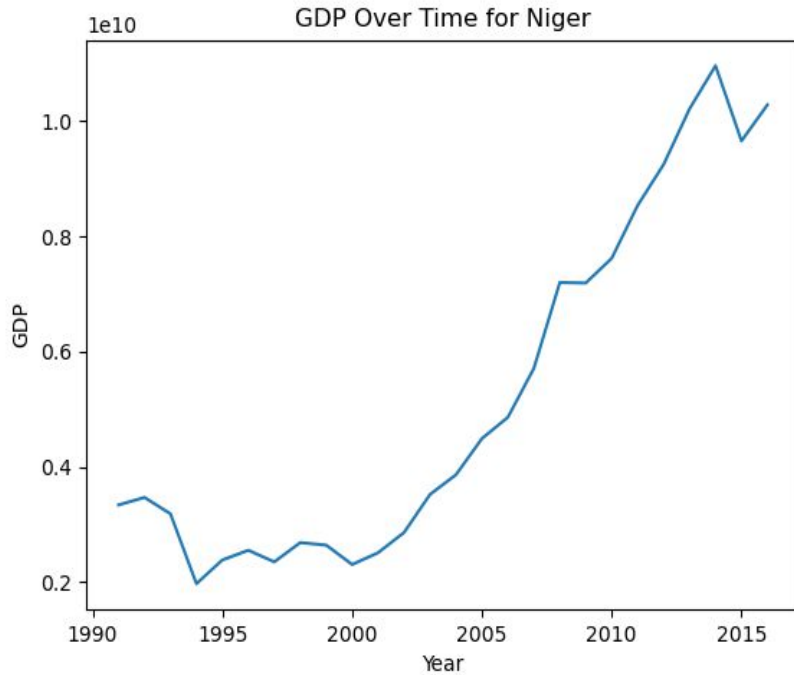


Development Degree

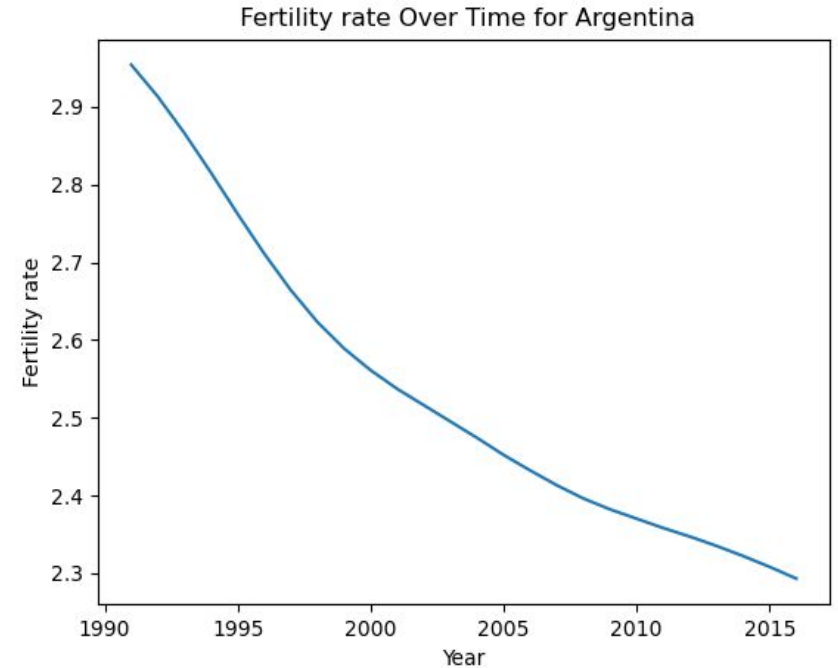
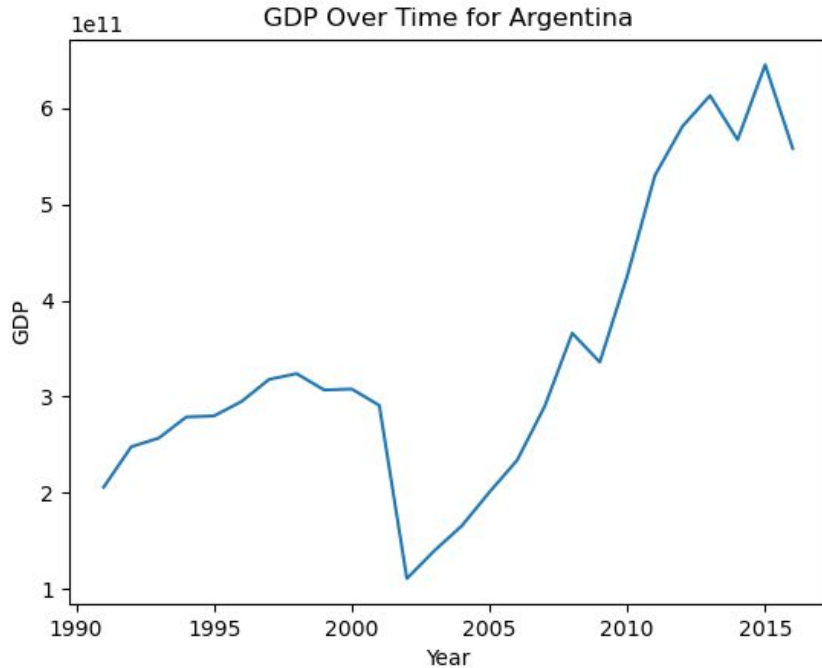
Least Developed Country : Uganda



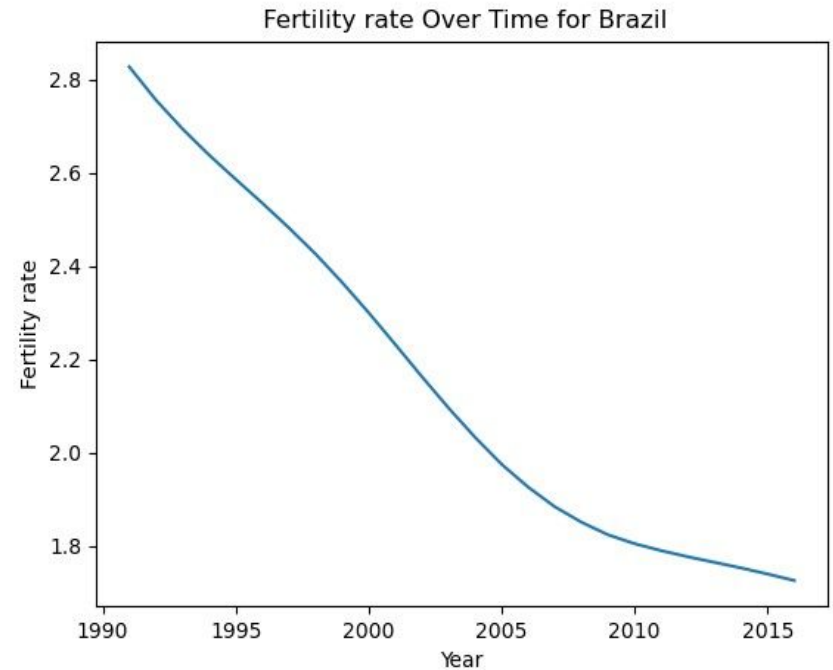
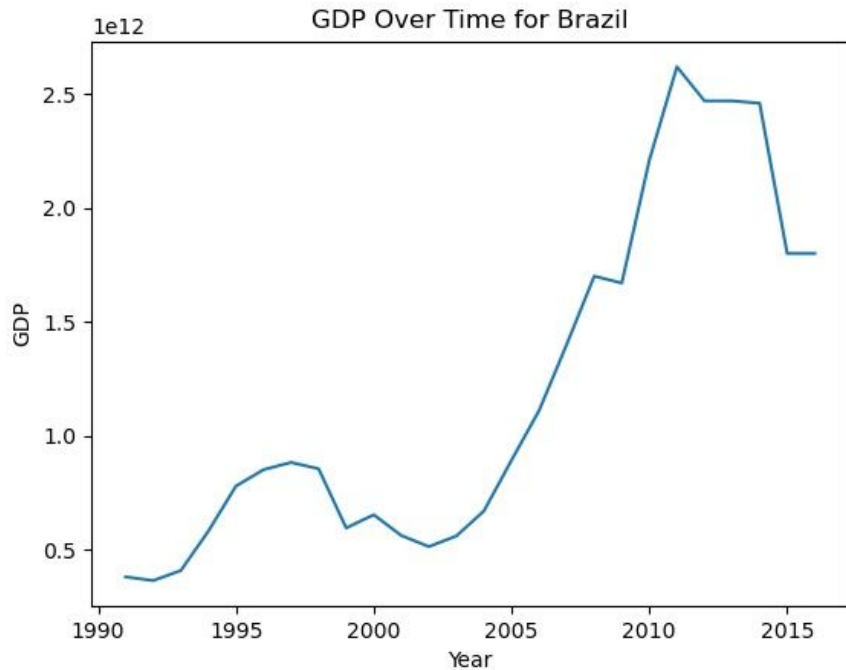
Least Developed Country : Niger



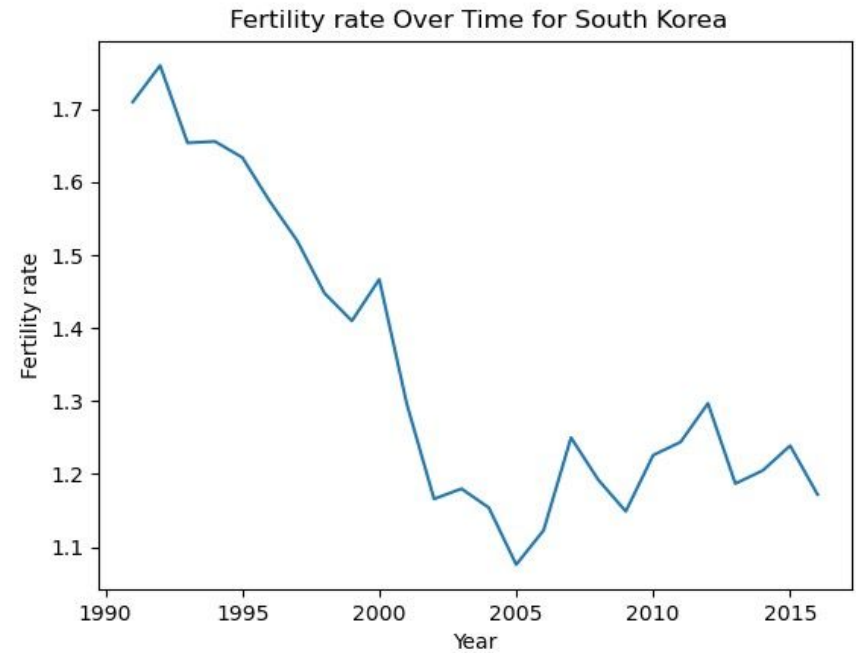
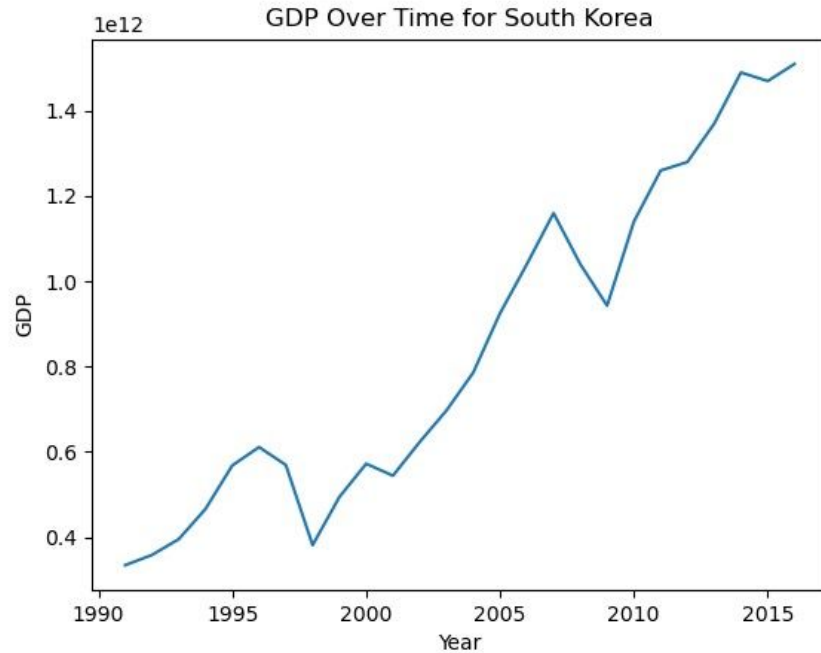
Developing Country : Argentina



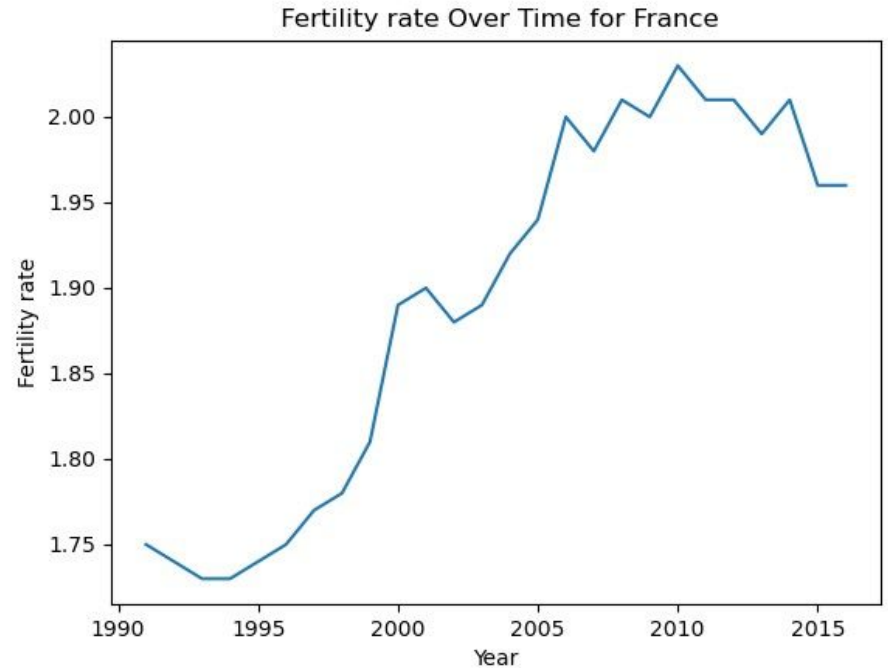
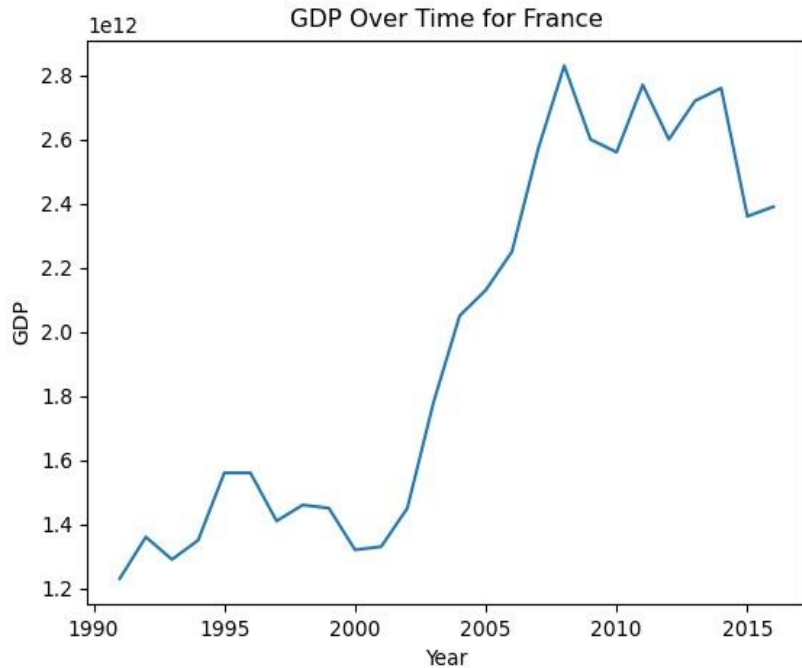
Developing Country : Brazil



Developed Country : South Korea

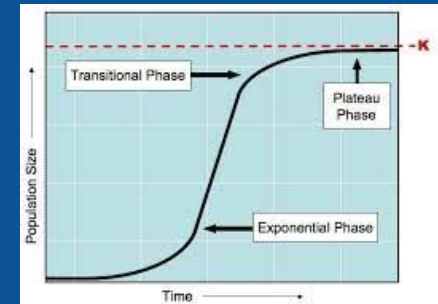
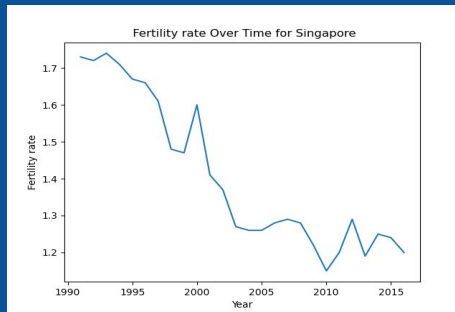
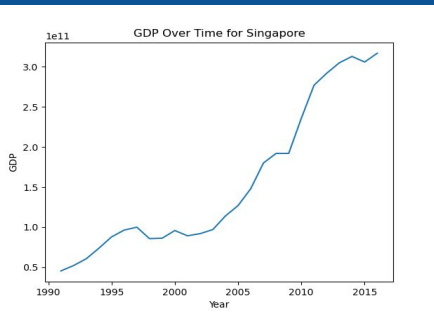


Developed Country : France



Summary

- Data analysis shows that in general, fertility rate decreases along with increase of economic growth
- As time progresses and as countries develop, we can see that the fertility rate is also decreasing, at larger rates amongst less developed and developing countries
- Developed countries do not necessarily imply unchanging fertility rate (policies/culture)
- Outliers still remain, in the poorest of countries, as shown in map
- High fertility rate shows implications of higher mortality rates and/or disease
- Analysis also gives proof to the plateauing effect of population growth in the near future





References

- <https://www.kaggle.com/datasets/virajkulkarni952/country-development-indicators?select=Country+Development+Indicators.csv>
- <https://www.kaggle.com/datasets/omarsobhy14/fertility-rate-per-country>



THE END

Thanks for listening !