
STAT 579 Project Presentation

— Human Development Index —
Pattern Discovery

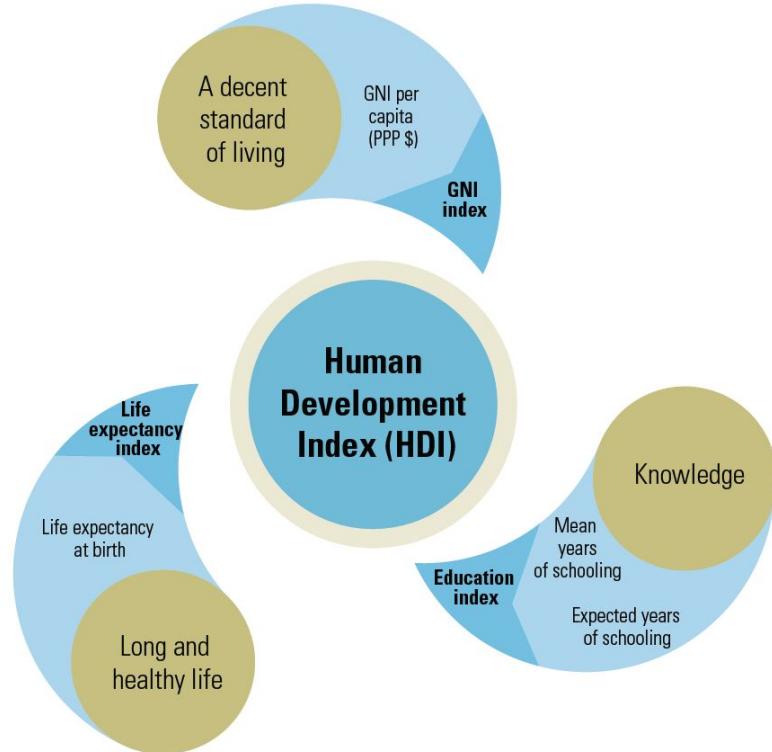
Team Members:

Nancy Manchanda, Yurui Li, Xiaoshi Guo, Farzaneh Faramarzi

Introduction

❖ What is HDI?

The Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development: a **long and healthy life**, being **knowledgeable** and have a **decent standard of living**.



HDI and Gender Inequality

In 189 Countries

Nancy Manchanda

HDI and Gender Inequality

- ❖ Gender inequality major barrier to human development
- ❖ Higher the disparity greater the loss to human development
- ❖ Women and girls are discriminated against the health, education, political representation, labour market etc -- with negative influence on development of their capabilities.
- ❖ These components highlight need of critical policy intervention to reduce gender gap

HDI and Gender Inequality

Measures of gender inequality using three dimensions: reproductive health, empowerment and the labour market.

- ❖ Reproductive health indicators:

- Maternal mortality ratio in 2015 - (deaths per 100,000 live births)
- Adolescent birth rate (2015 - 2020) - (births per 1,000 women ages 15–19)

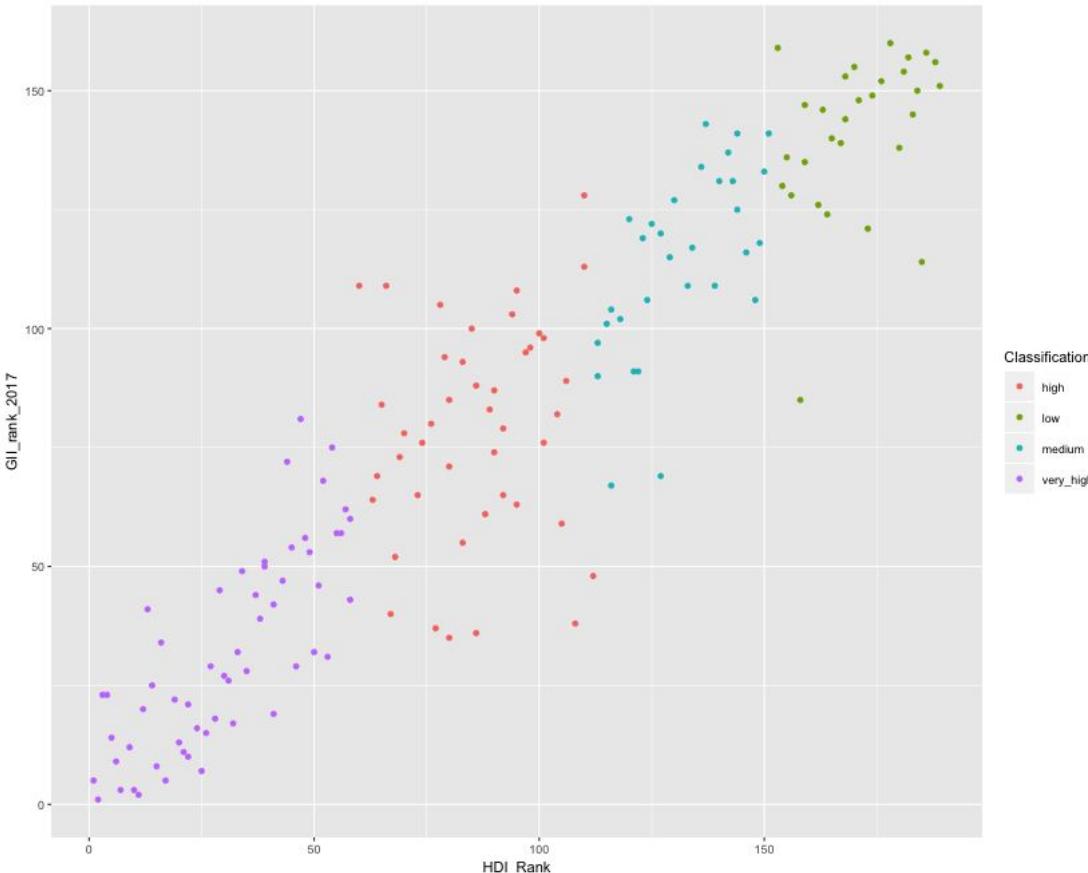
- ❖ Empowerment indicators:

- Share of seats in parliament in 2017 (% held by women)
- % Population with at least some secondary education (2010 - 2017) - Male and Female - age 25 years and older

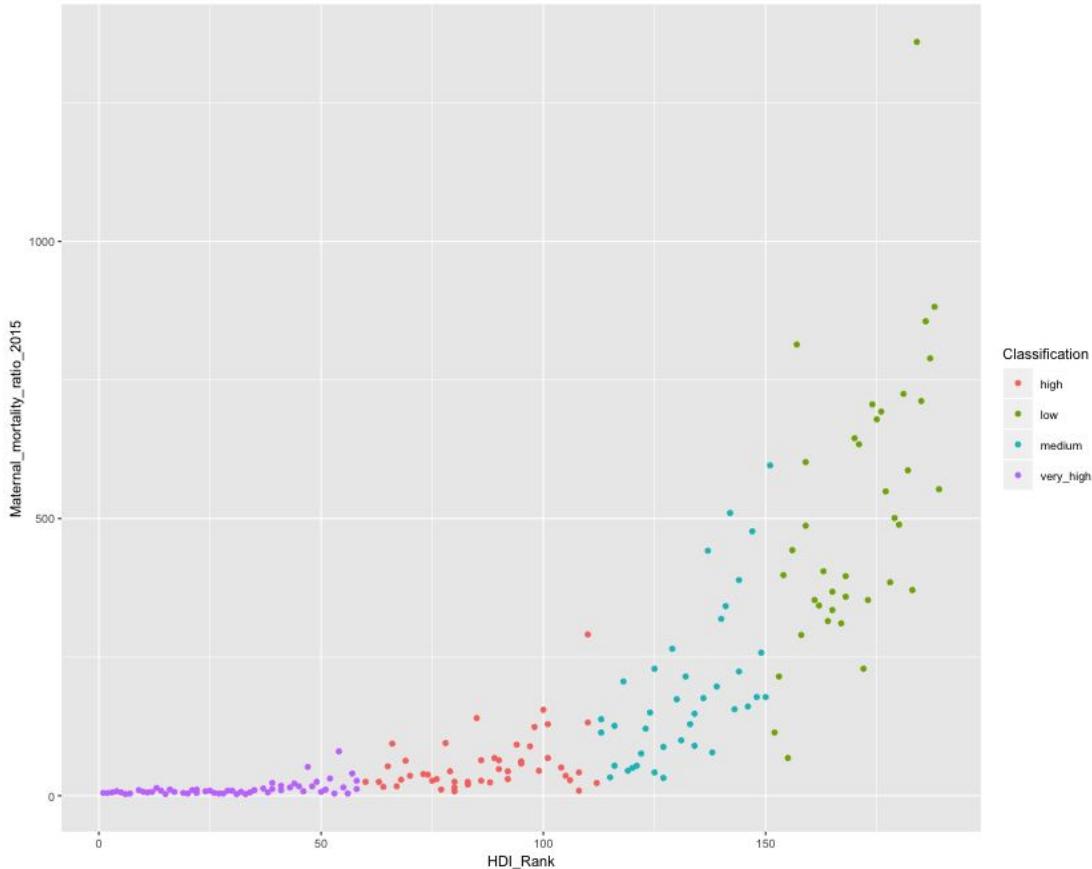
- ❖ Labour market indicator:

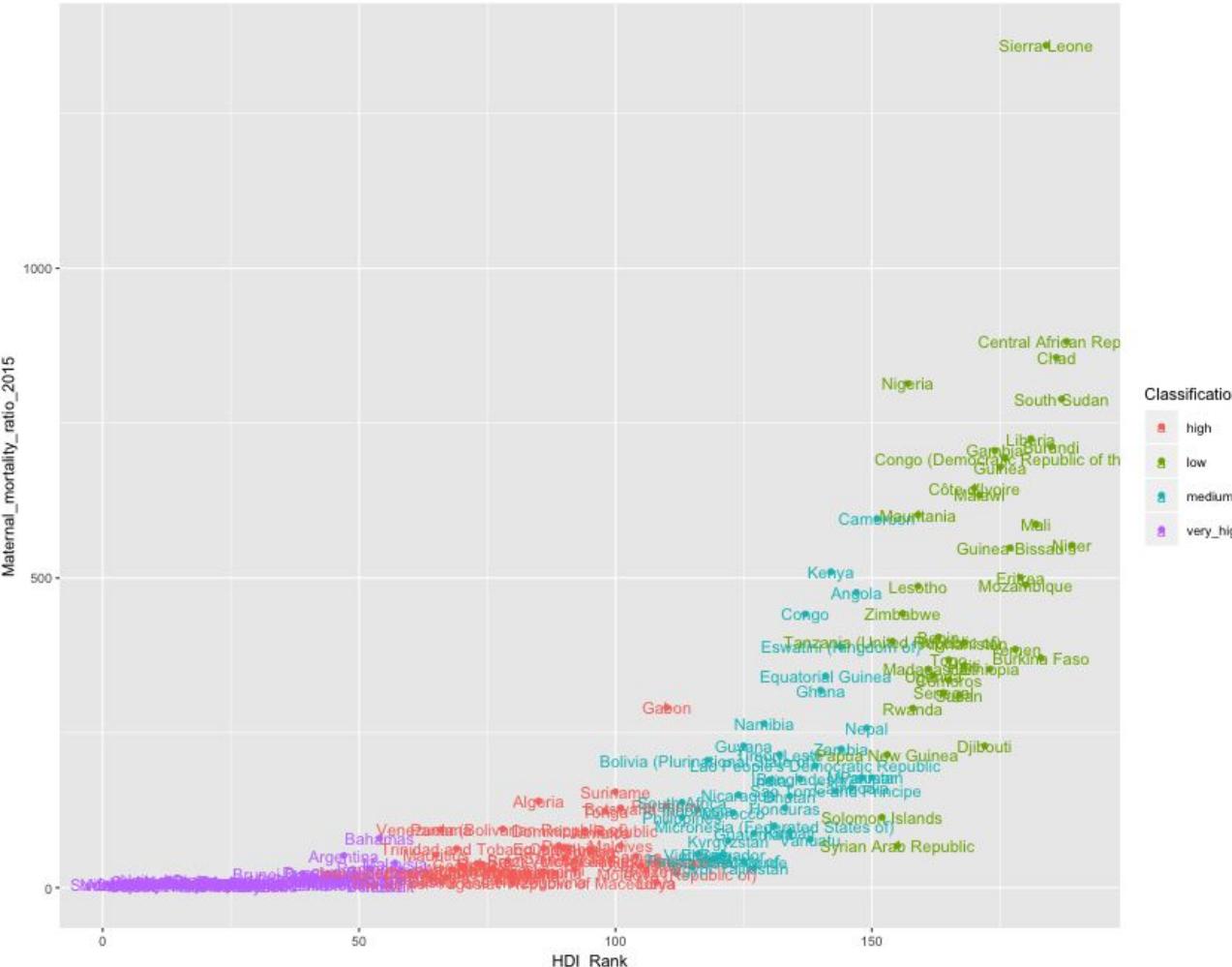
- % Labour force participation rate in 2017 - Male and Female, age 15 years and older

HDI and GII (gender inequality index)

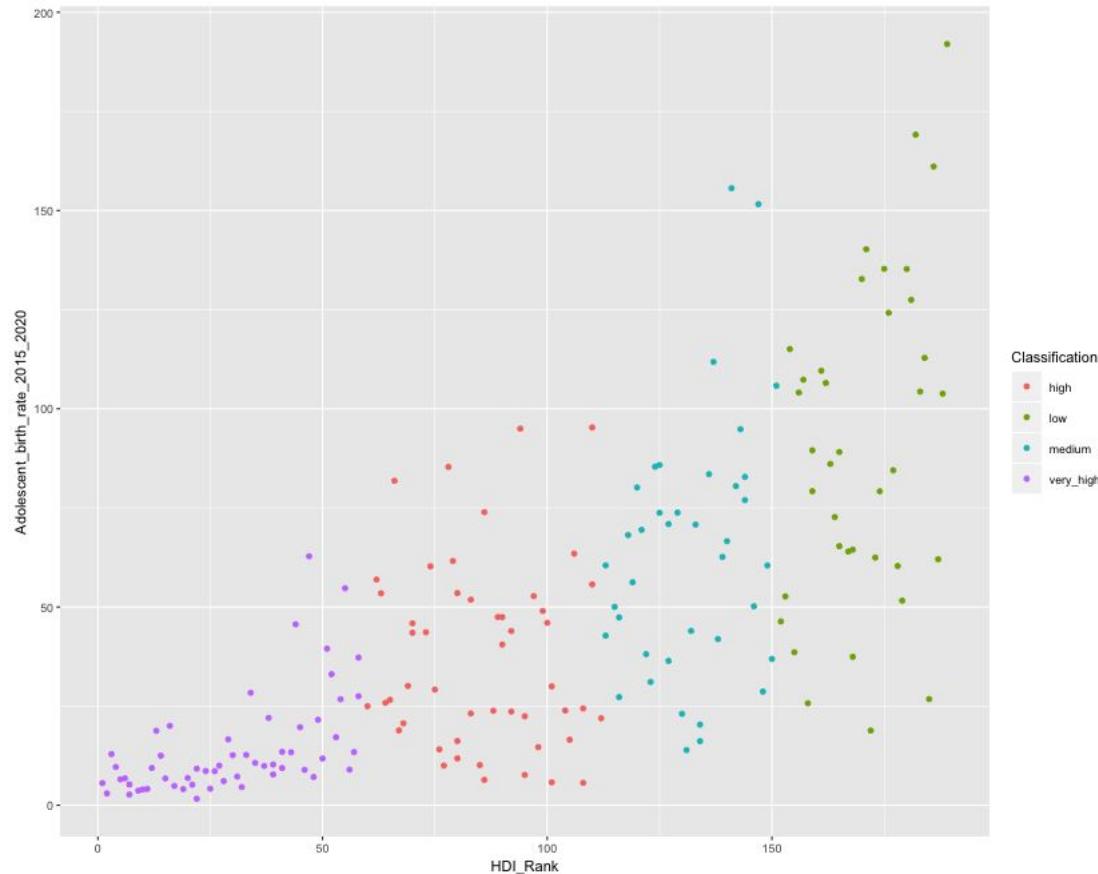


HDI and Maternal Mortality ratio (2015)

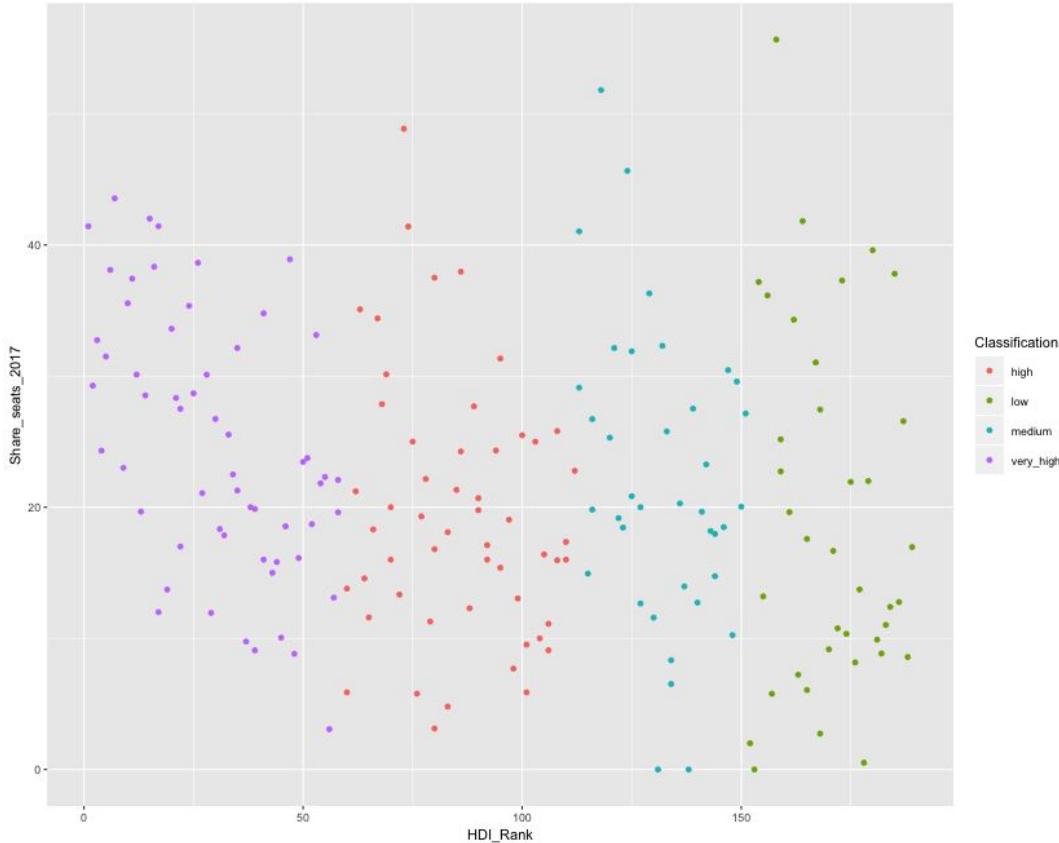




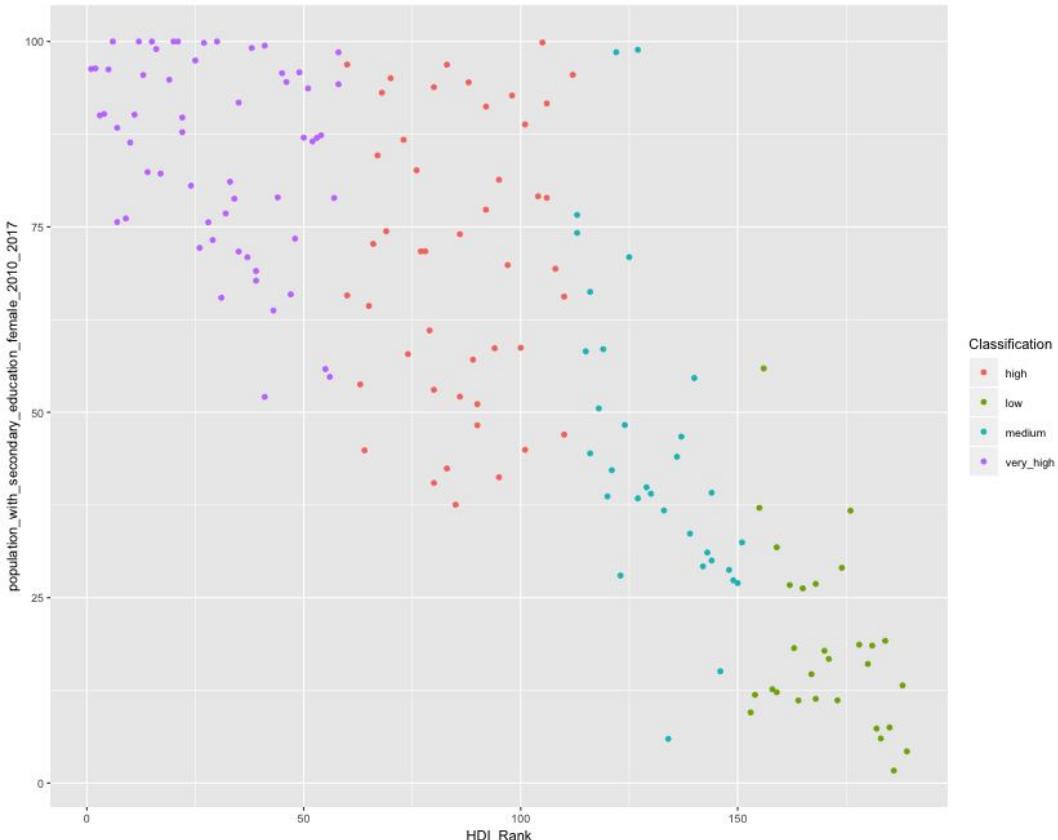
HDI and Adolescent birth rate (2015 - 2020)



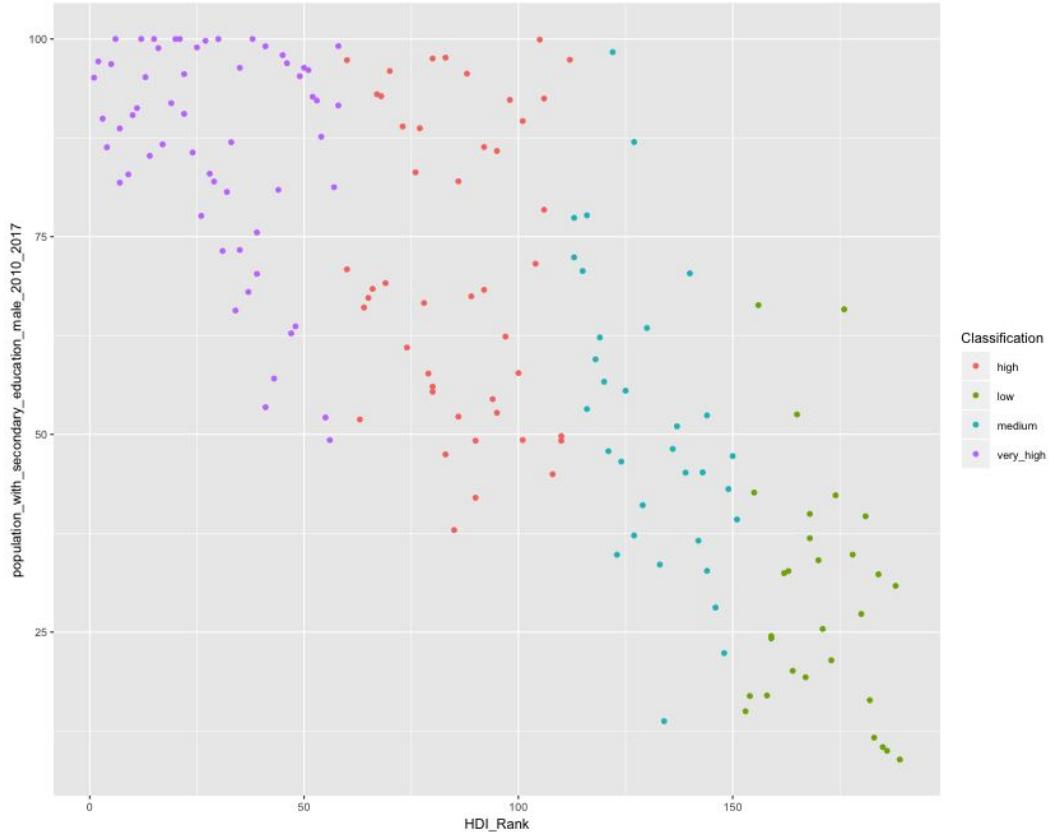
HDI and Share of seats in parliament (2017)



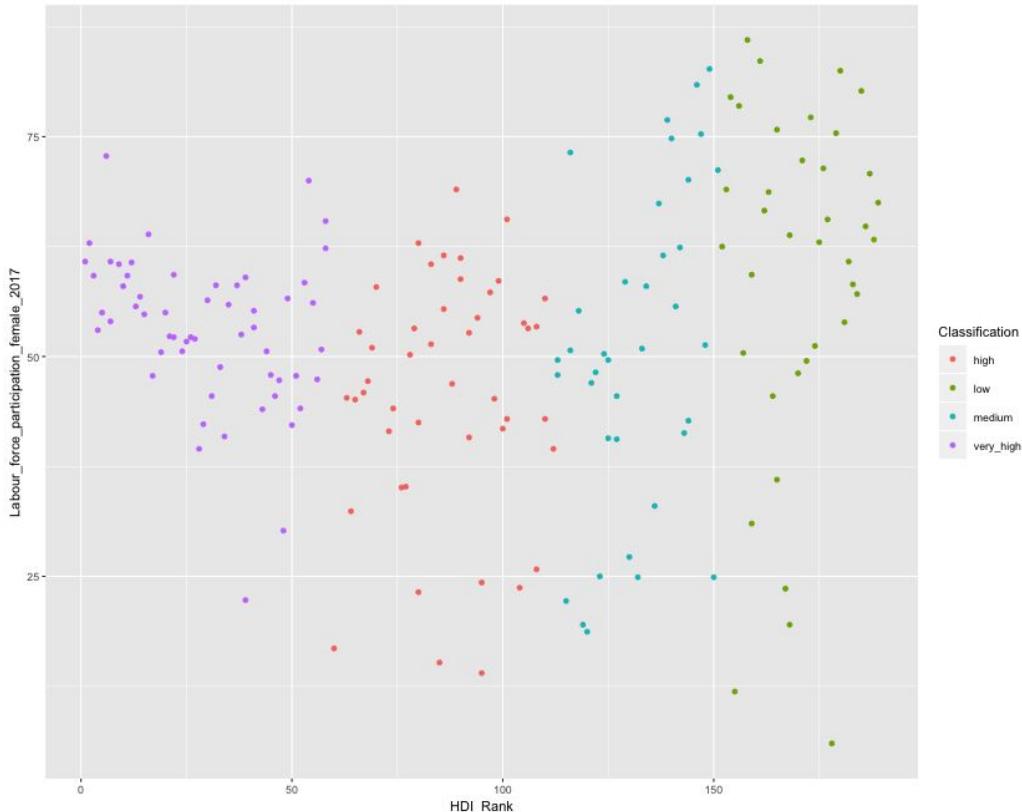
HDI and Secondary education Female (2010 - 2017)



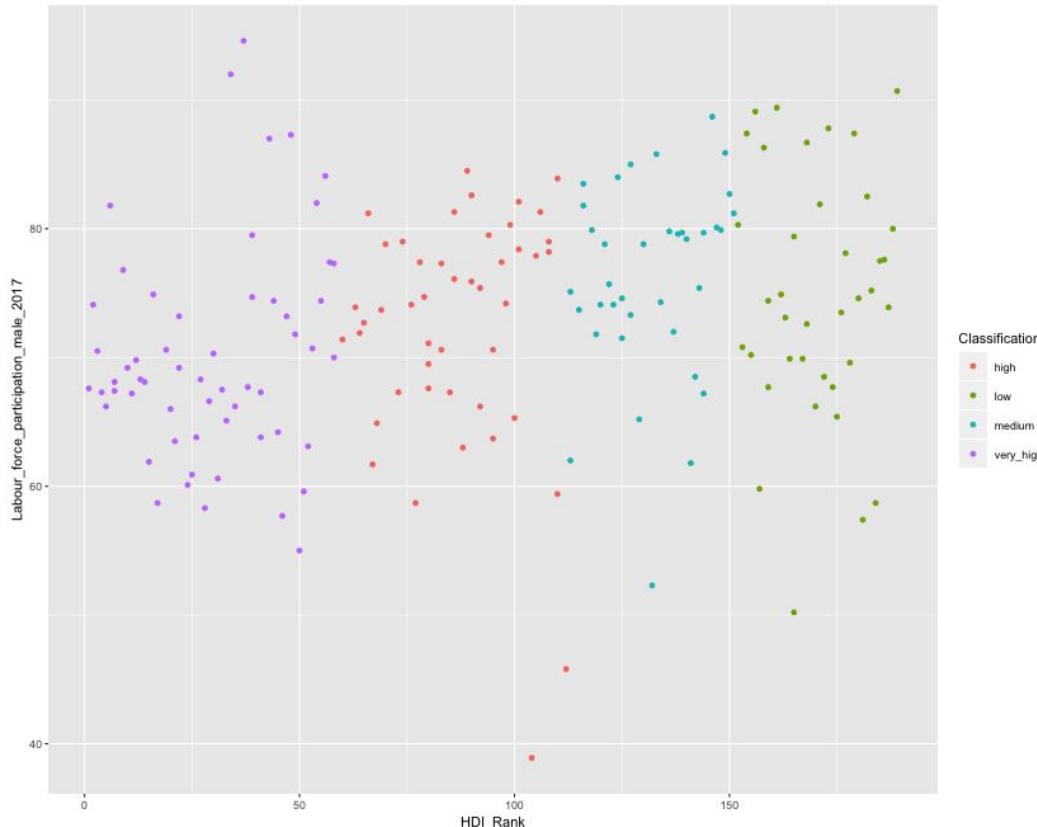
HDI and Secondary education Male (2010 - 2017)



HDI and Labour force participation Female (2017)



HDI and Labour force participation Male (2017)



HDI and Education

In 189 Countries

Yurui Li



HDI and Education

What are the key elements that uncover a country's education level?

Education Variables

- Expected years of schooling

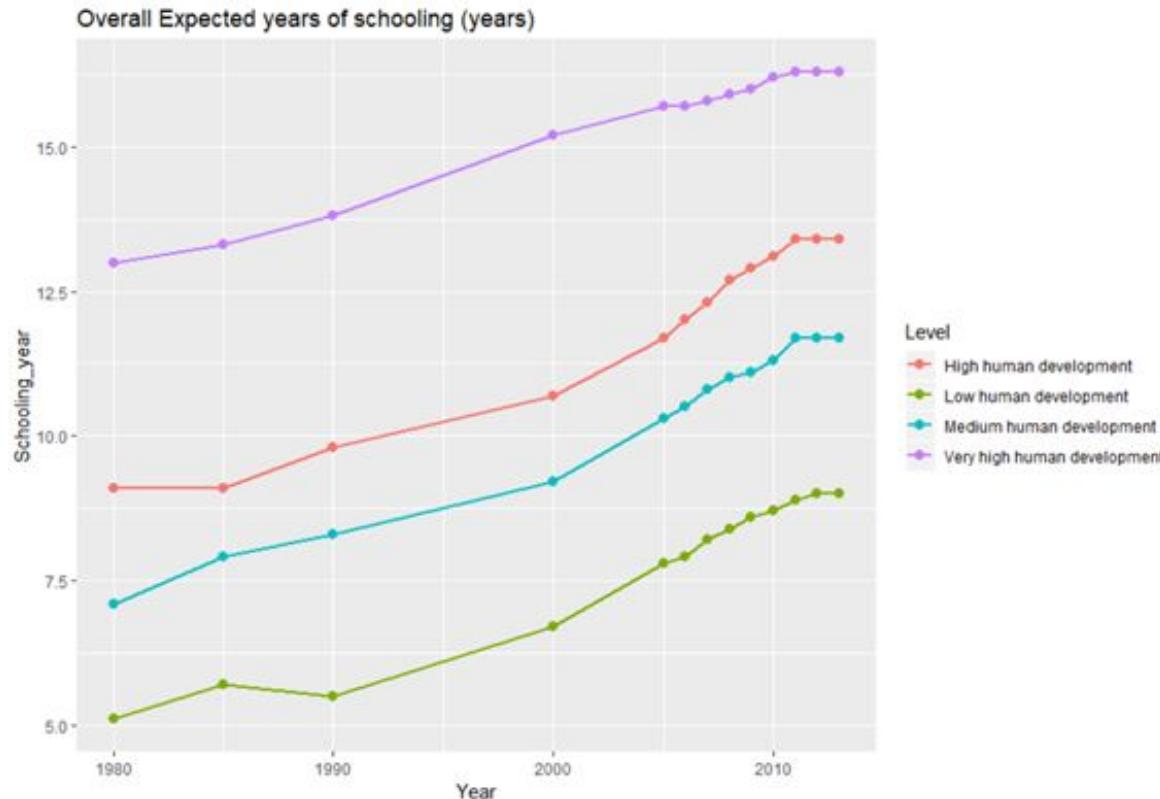
Number of years of schooling that a child of school entrance age can expect to receive.

- Mean years of schooling (Male/Female)

Average number of years of education received by people ages 25 and older.

- Population with at least some secondary education

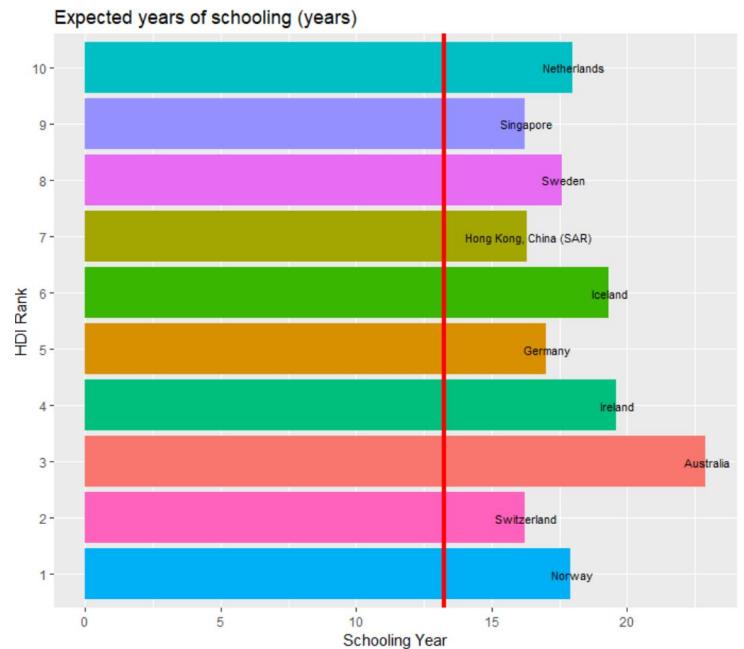
Overall expected years of schooling



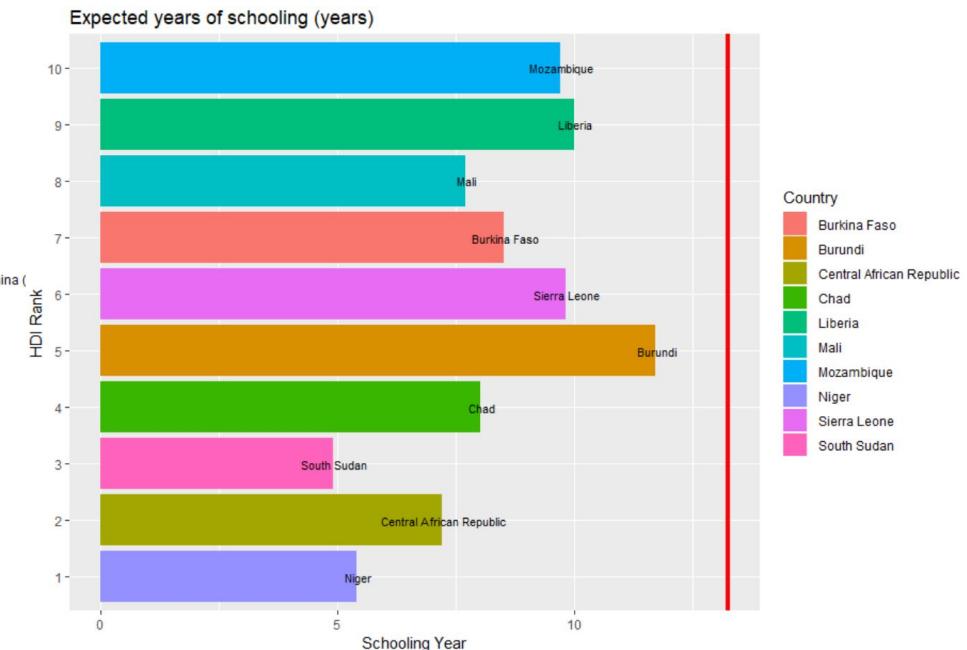
Expected years of schooling

(2017 mean = 13 years)

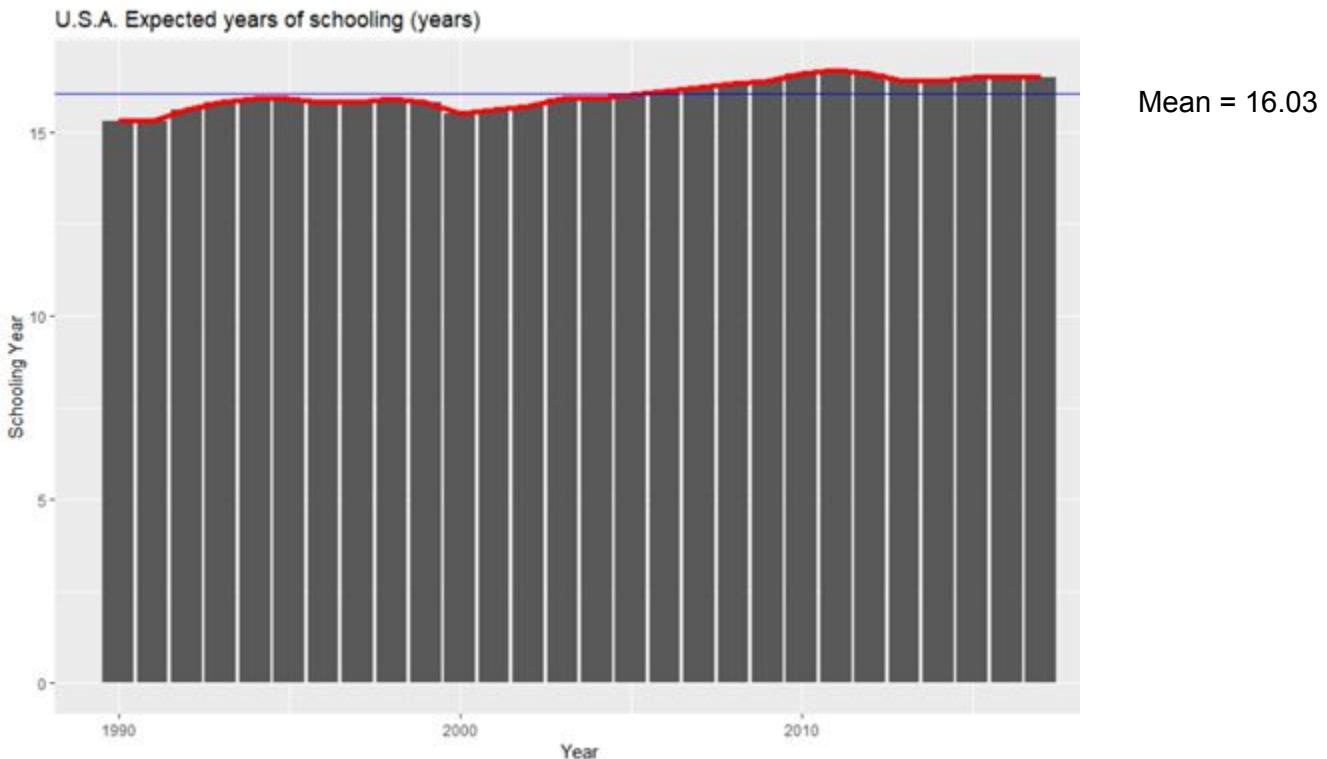
Top 10 Countries



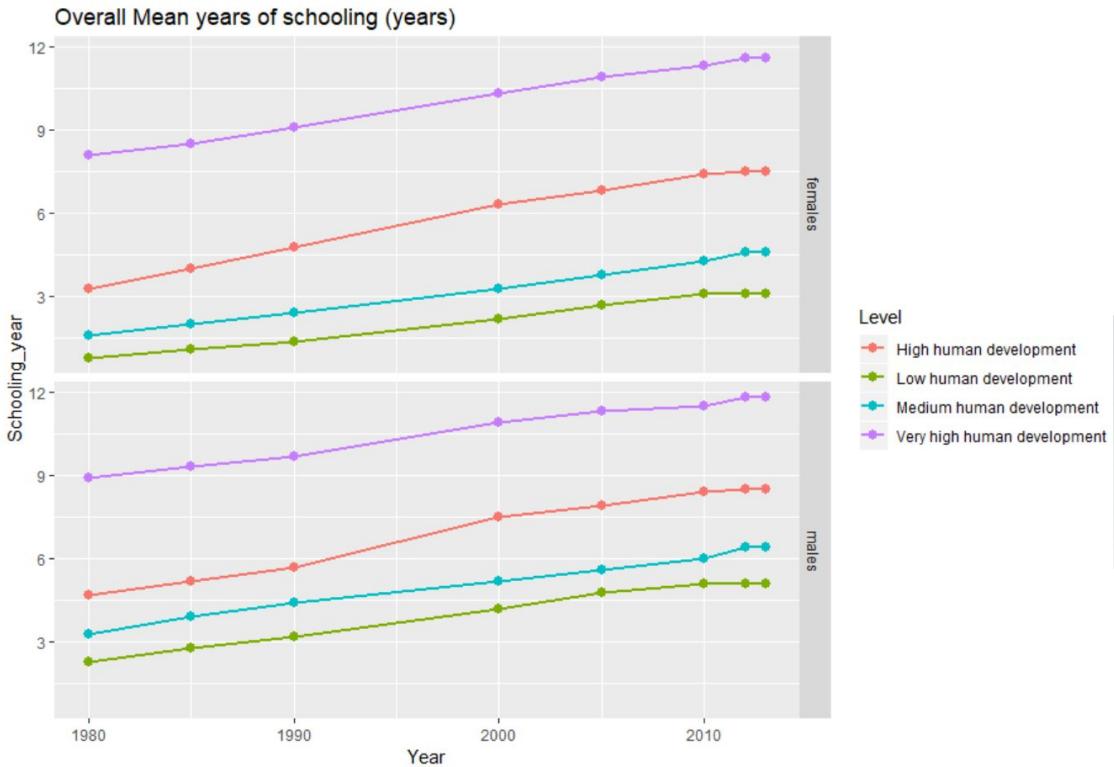
Bottom 10 Countries



How about USA? (13th)



Overall Mean Years of Schooling



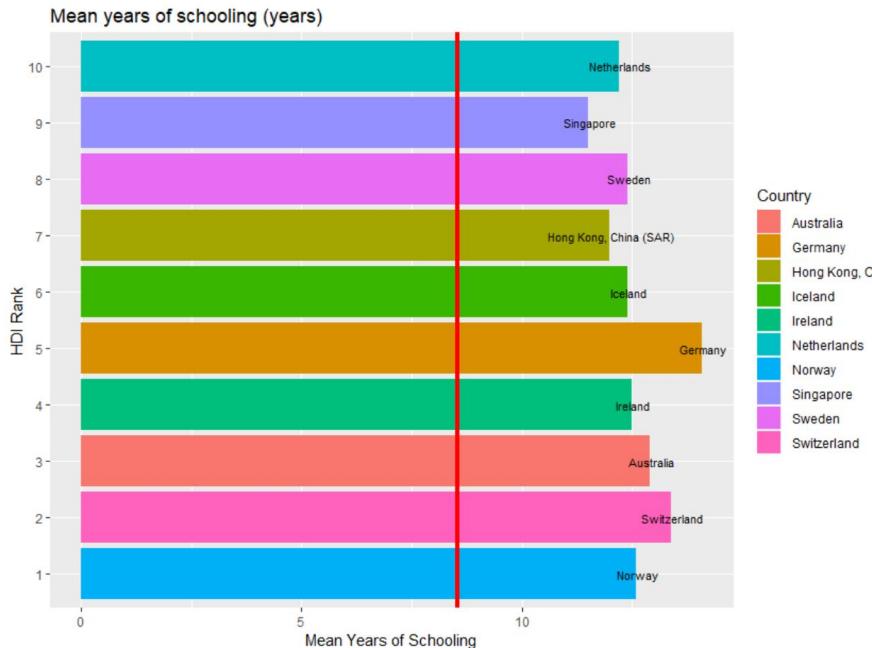
Level

- High human development
- Low human development
- Medium human development
- Very high human development

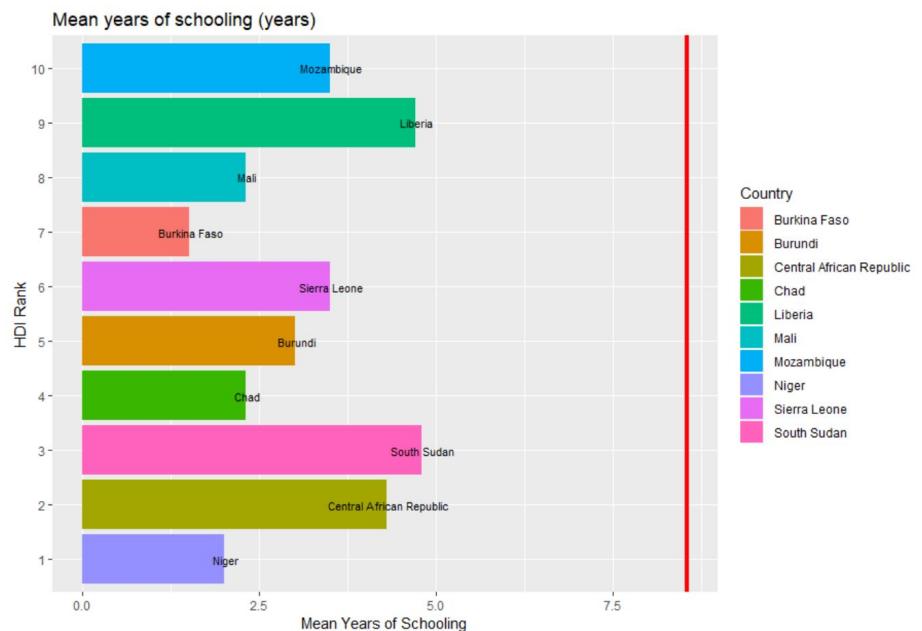


Mean years of schooling (2017 mean= 8.55 years)

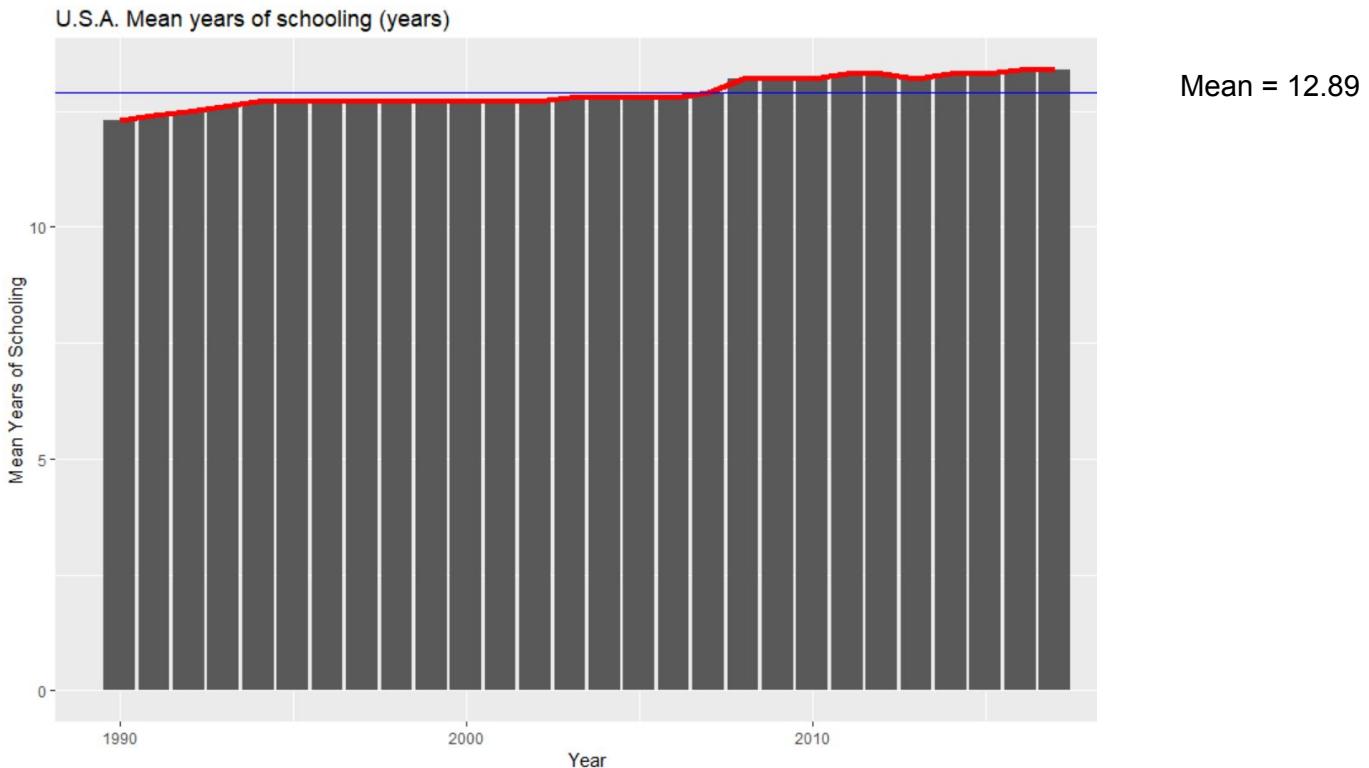
Top 10 Countries



Bottom 10 Countries

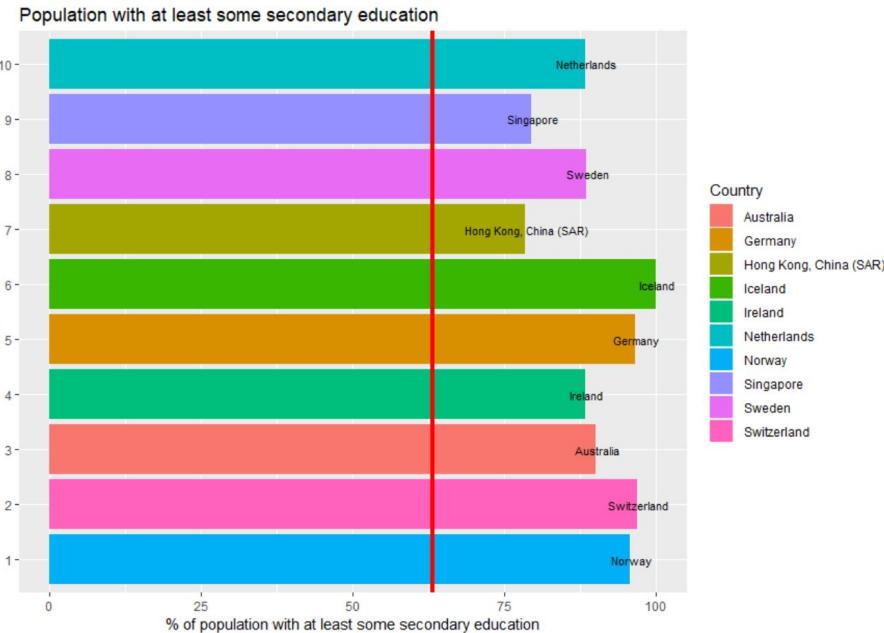


How about USA?

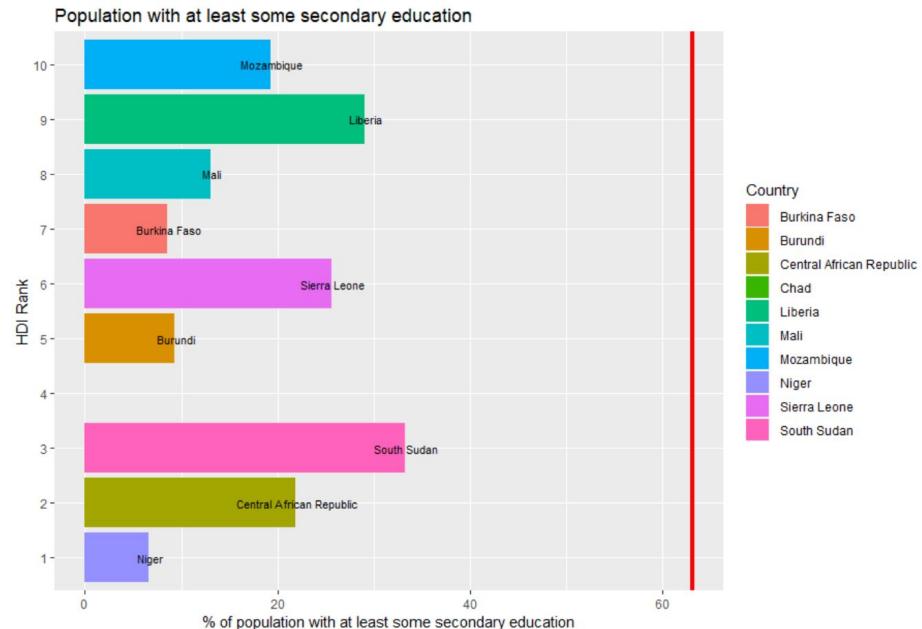


Population with at least some secondary education (2017 mean = 63.1 %)

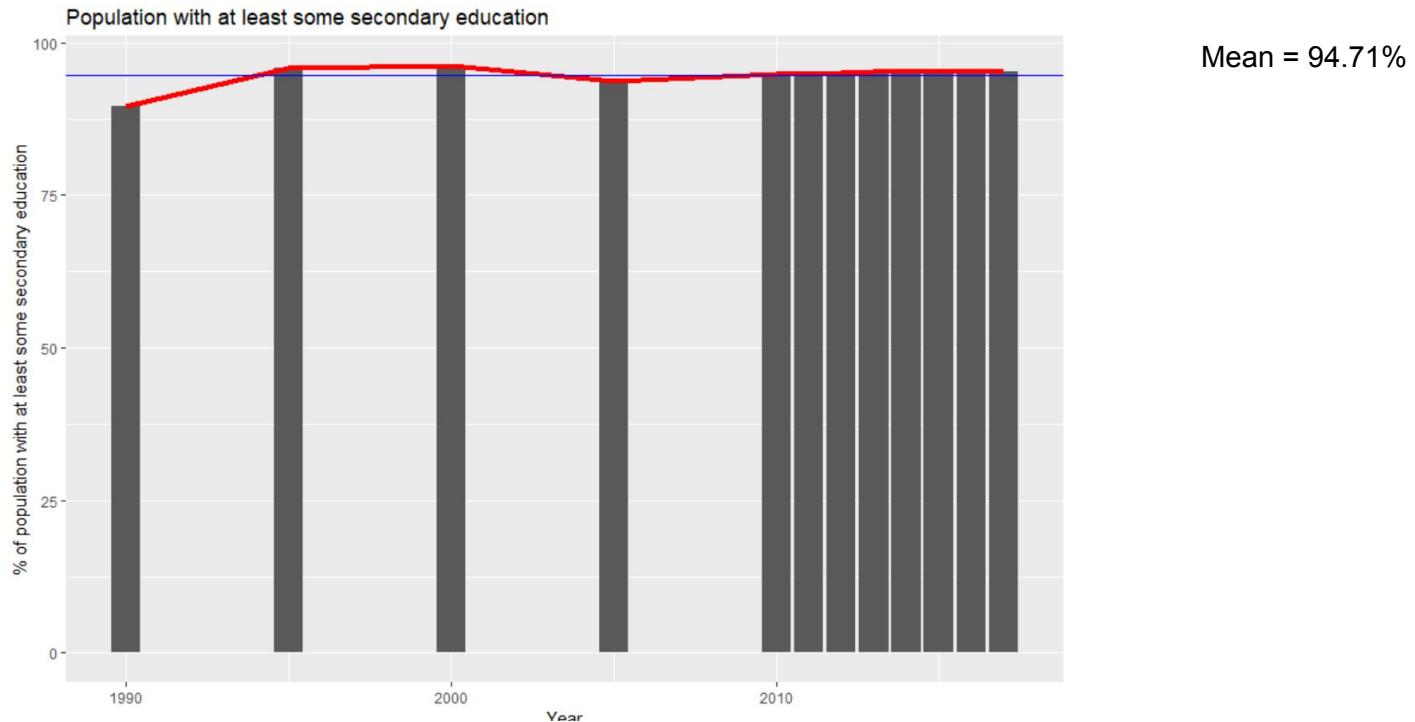
Top 10 Countries



Bottom 10 Countries



How about USA?



HDI and Health

In 189 Countries

Xiaoshi Guo

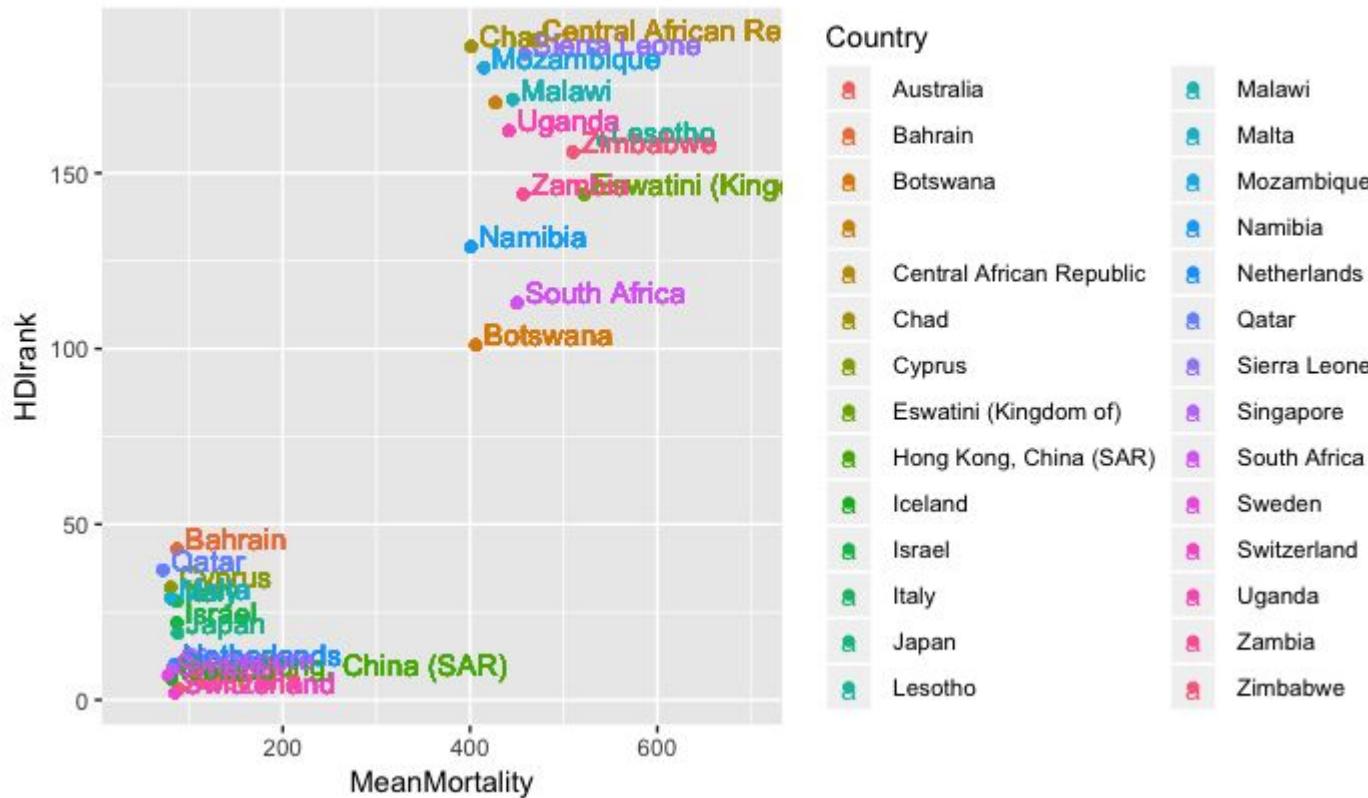
The relationship between Health and HDI rank in 2017

Health variables:

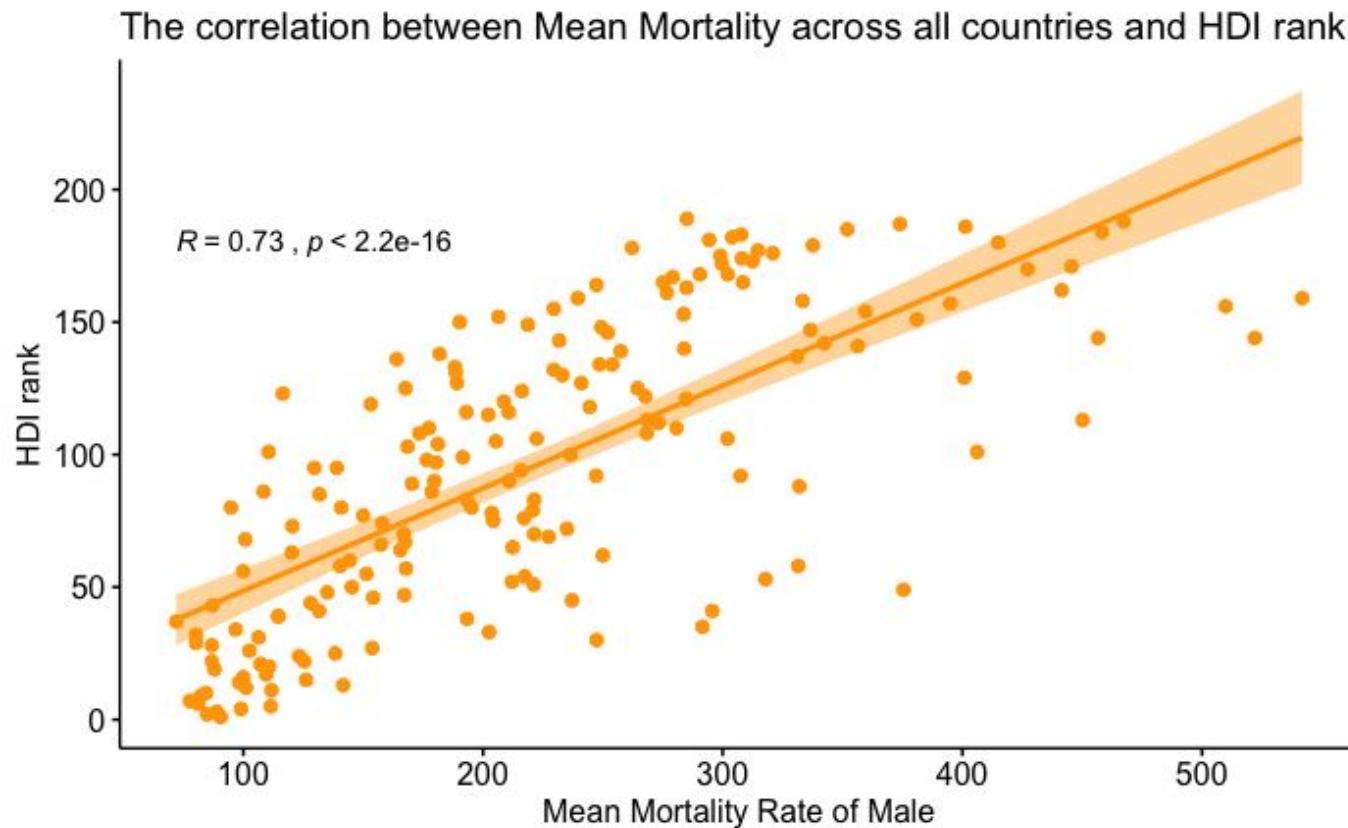
- ❖ Mortality rate, male adult (per 1000 people)
- ❖ Mortality rate, female adult (per 1000 people)
- ❖ Health expenditure (% of GDP)
- ❖ Life expectancy at birth, male (years)
- ❖ Life expectancy at birth, female (years)

Mortality rate for male and HDI rank

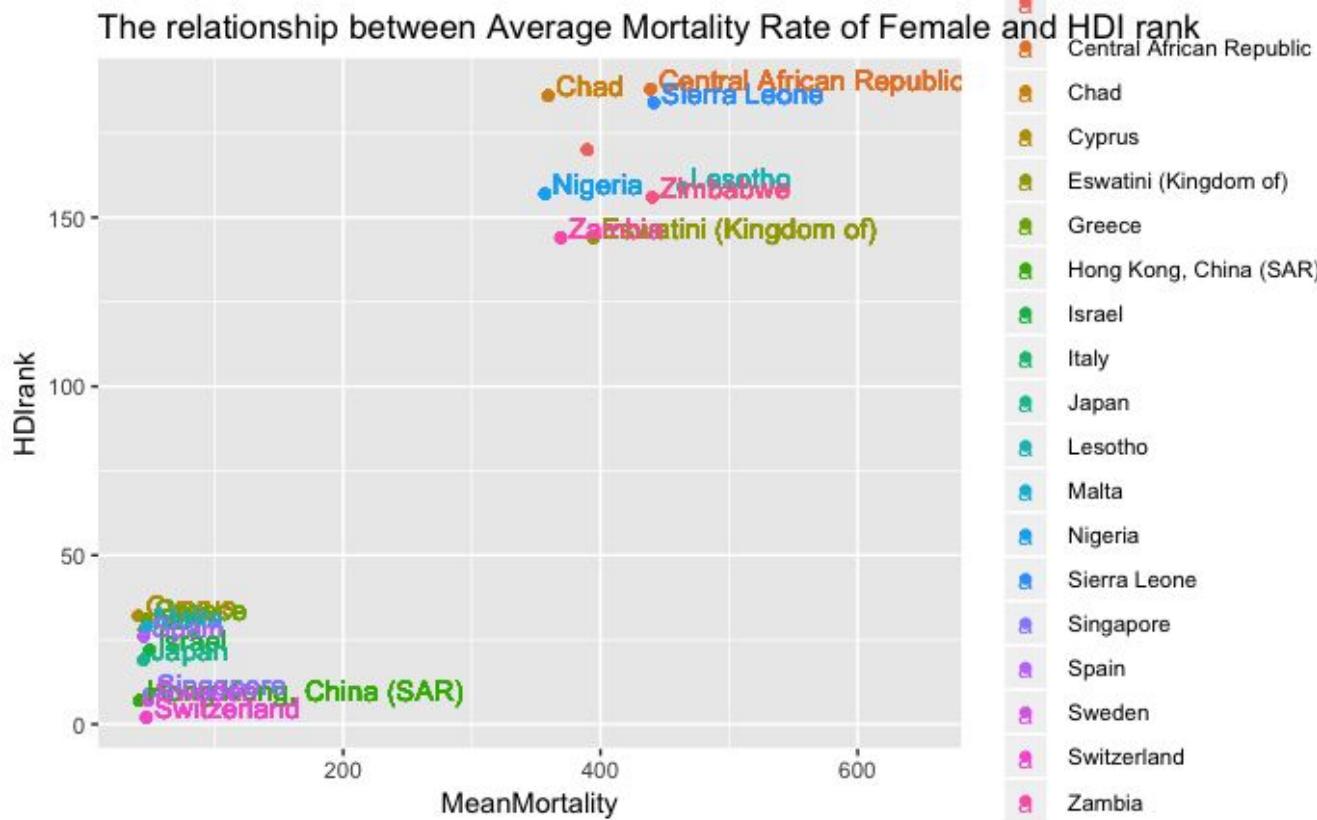
The relationship between Average Mortality Rate of Male and HDI rank



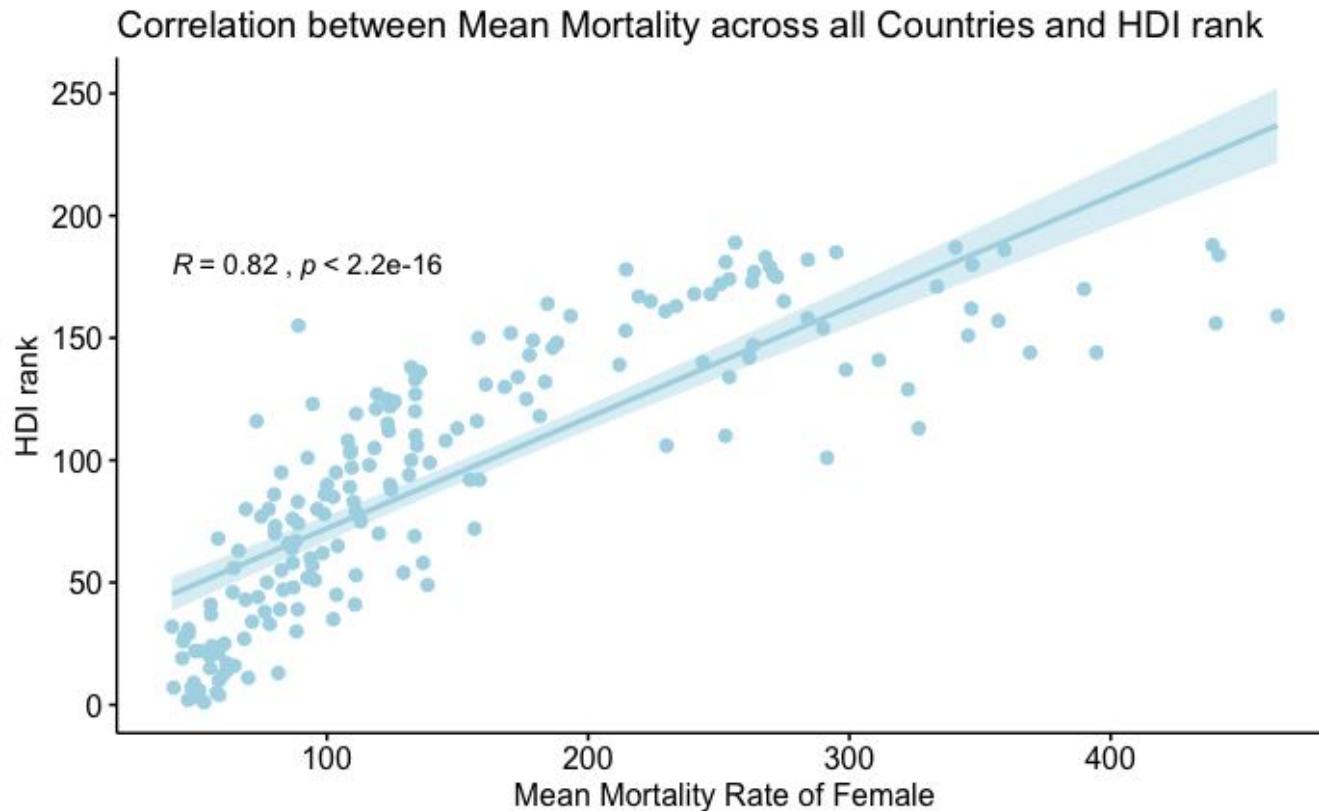
Correlation?



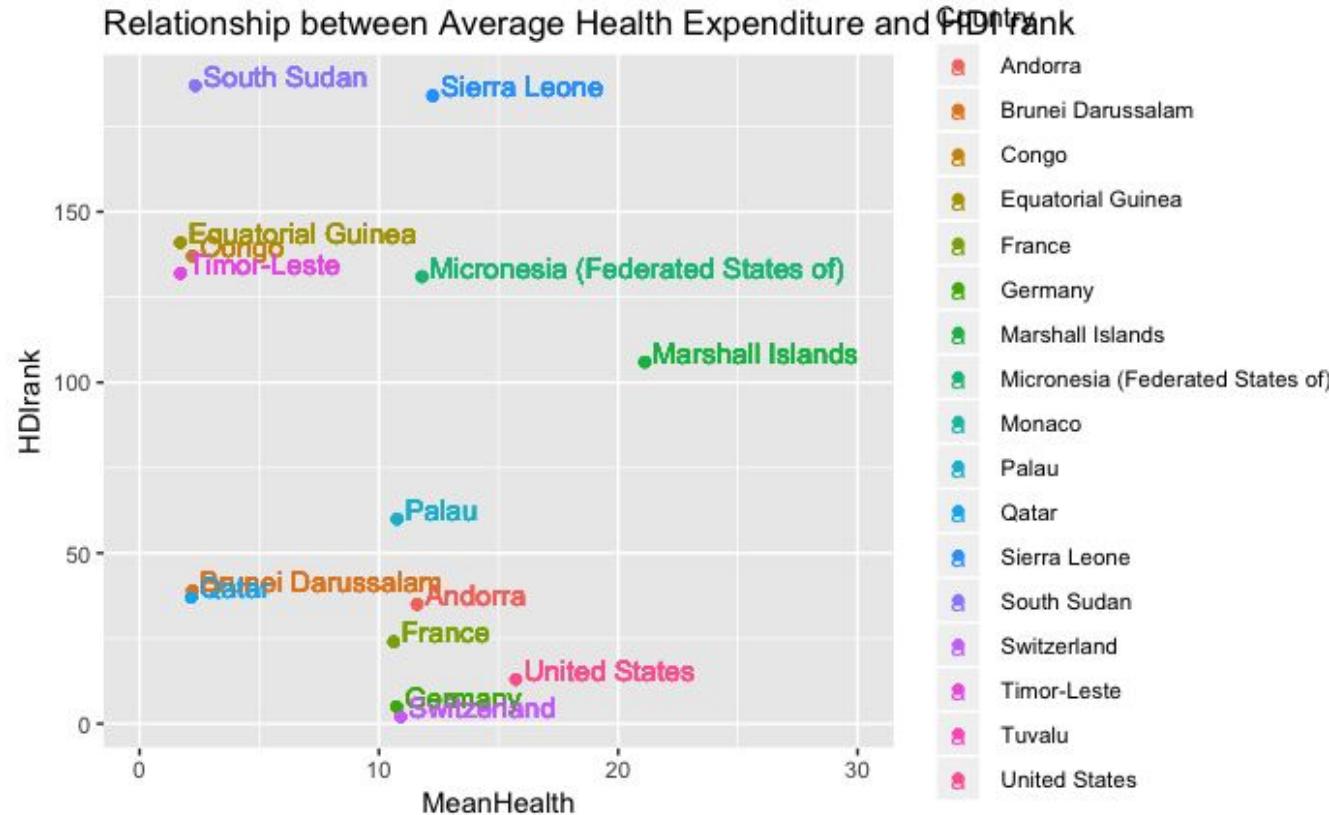
Mortality rate for female and HDI rank



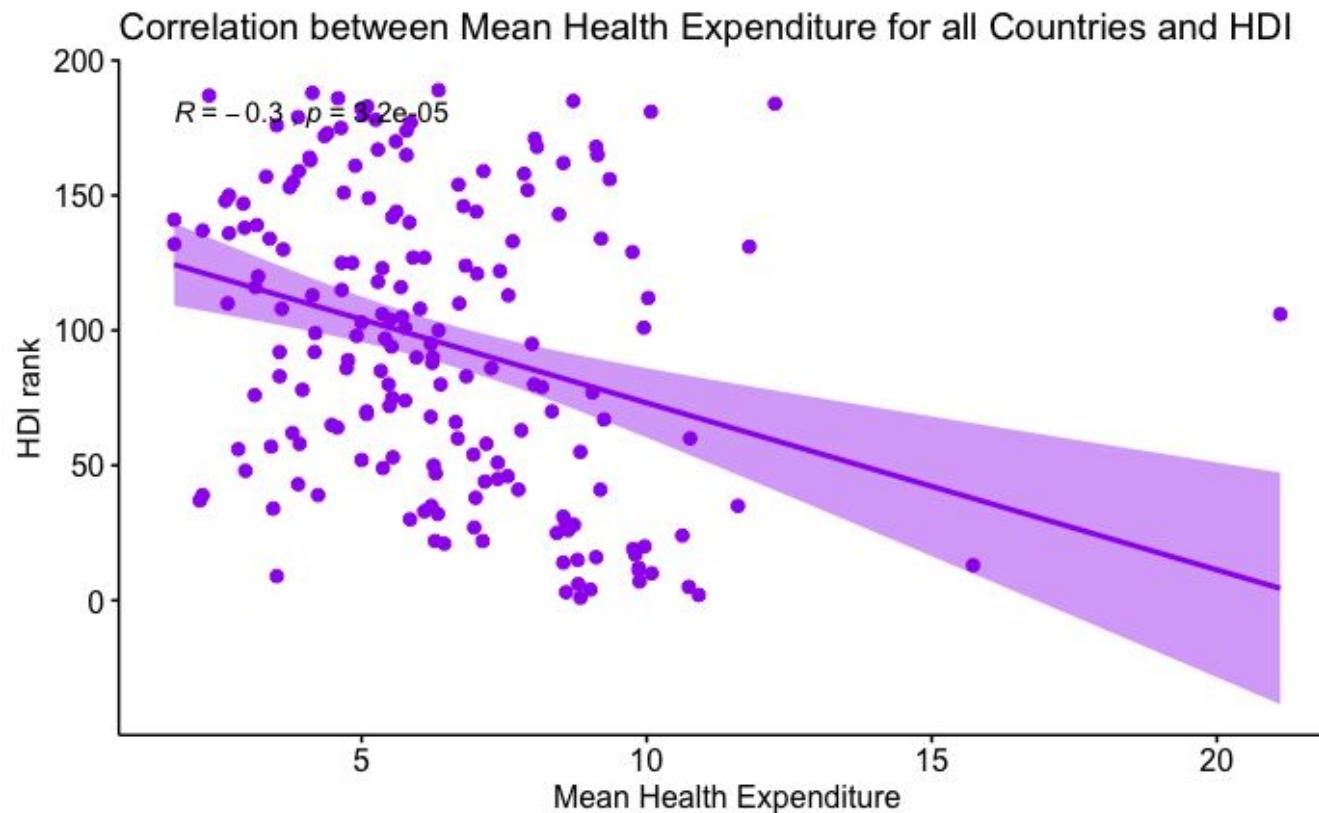
Correlation ?



Health expenditure and HDI rank

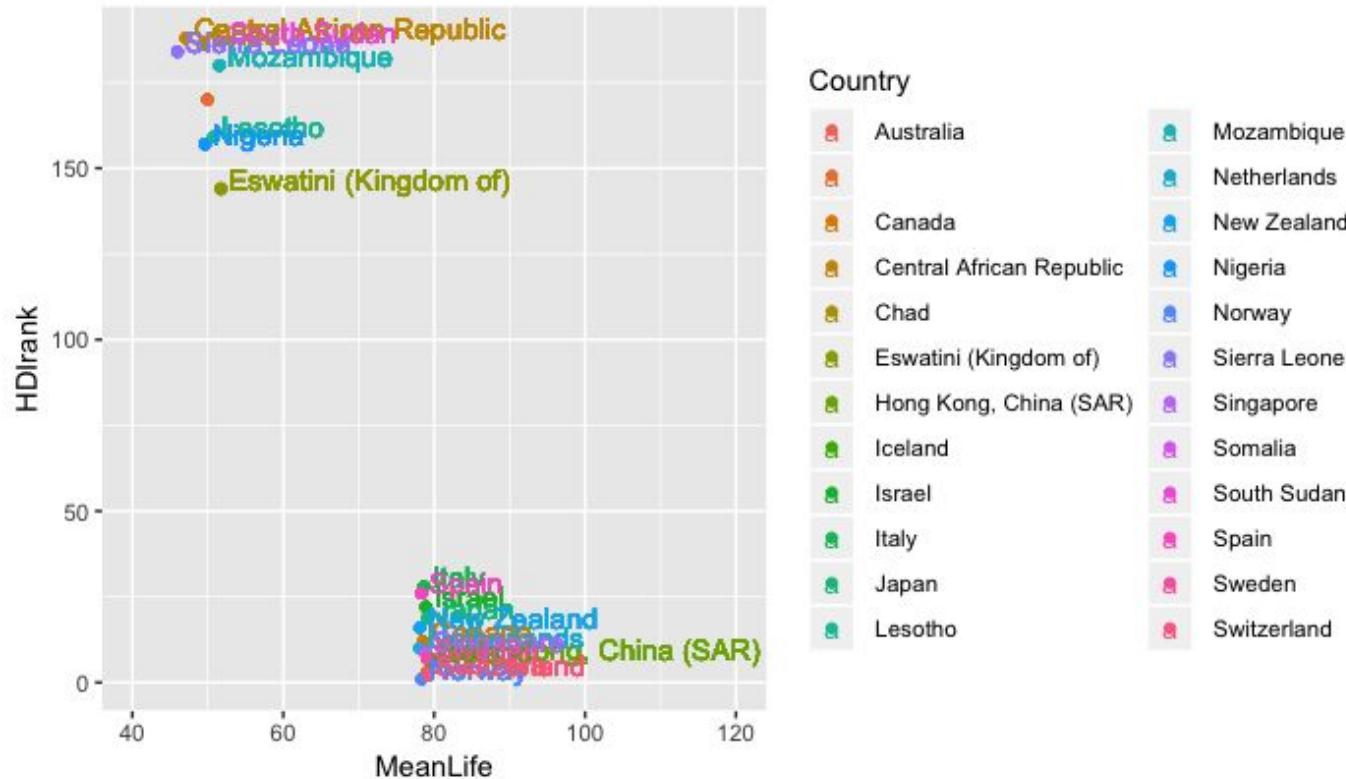


Correlation ?

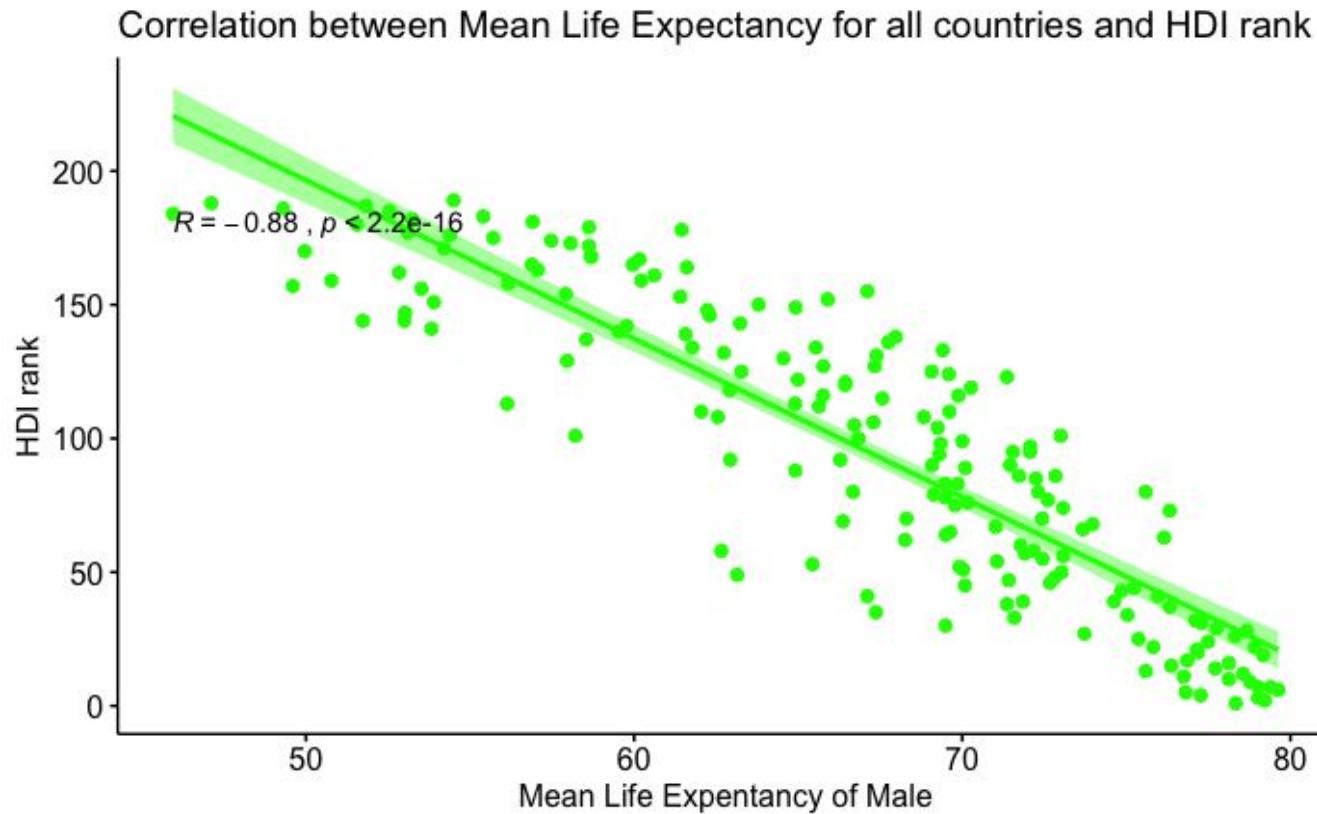


Life expectancy for male and HDI rank in 2017

The relationship between the Average Life of Male and HDI rank

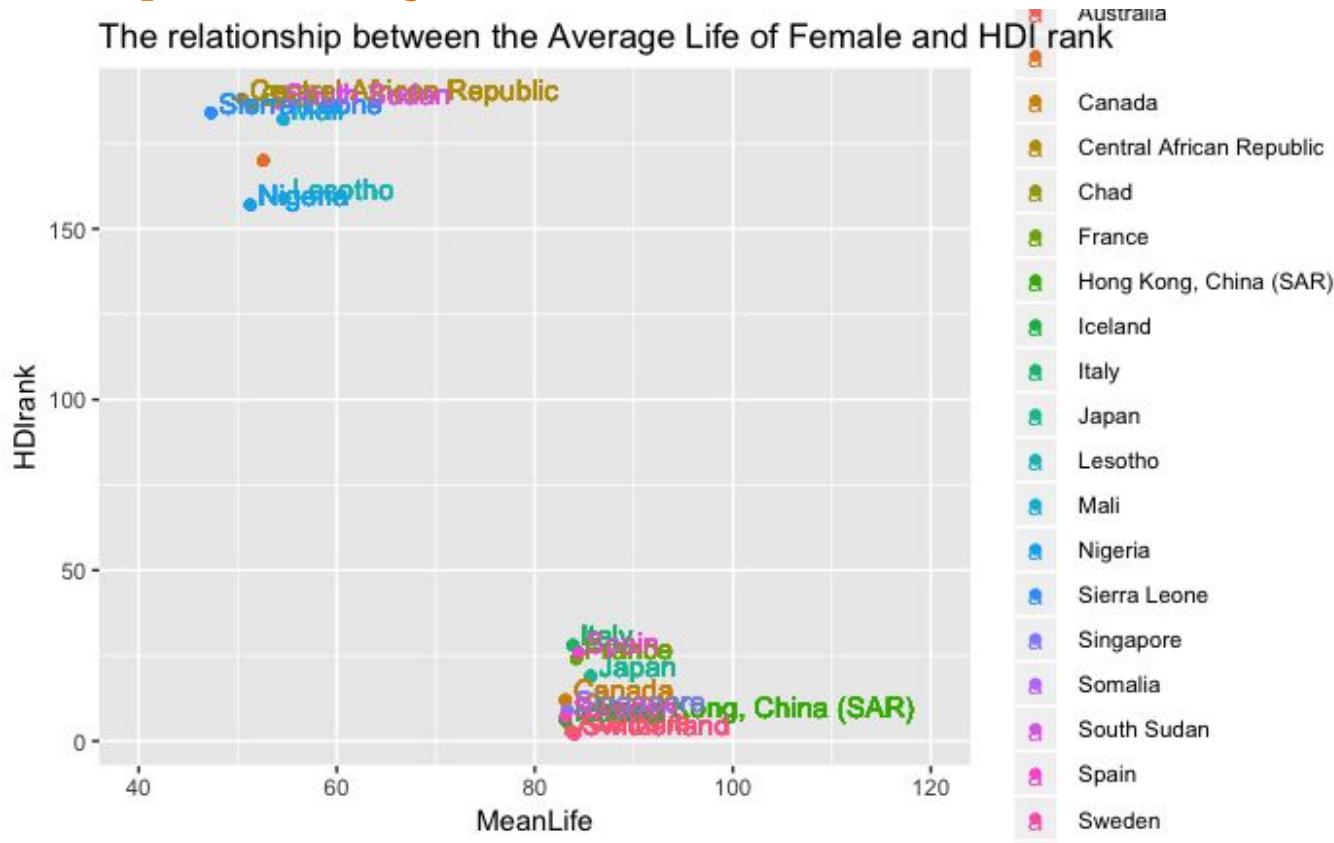


Correlation ?

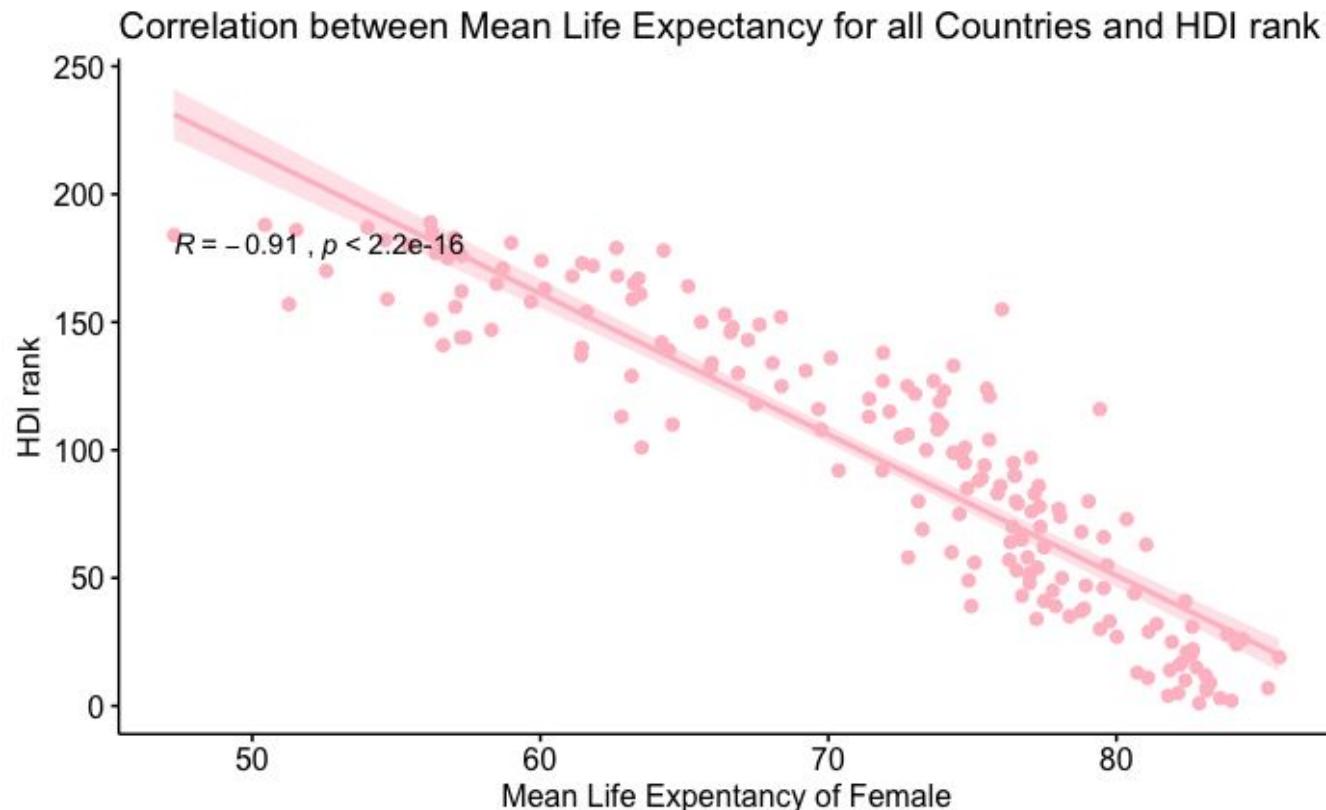


Life expectancy for female and HDI rank

The relationship between the Average Life of Female and HDI rank



Correlation ?



HDI and Gender

In 189 Countries
1995:2017

Farzaneh Faramarzi

Understanding the problems

- I was curious about Female's situation in other countries. I wanted to know is there a relationship between HDI and Gender in different aspects of life or no.



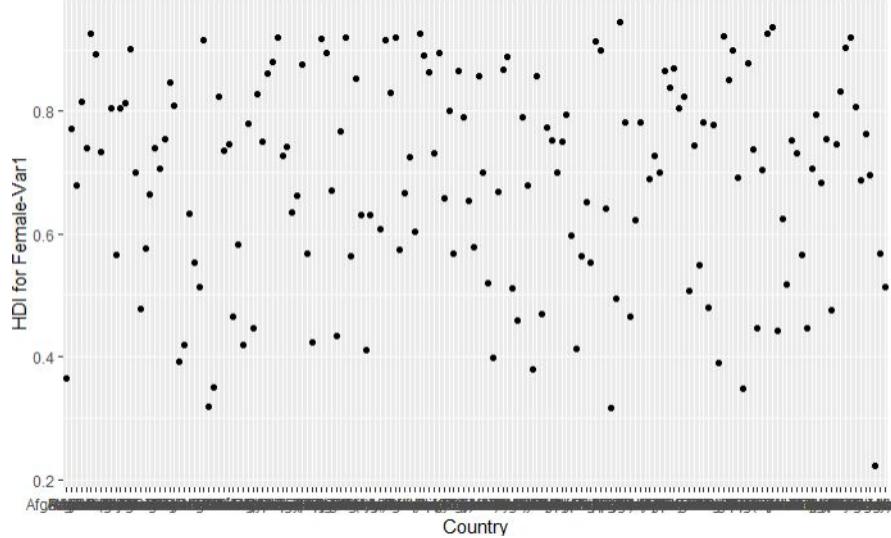
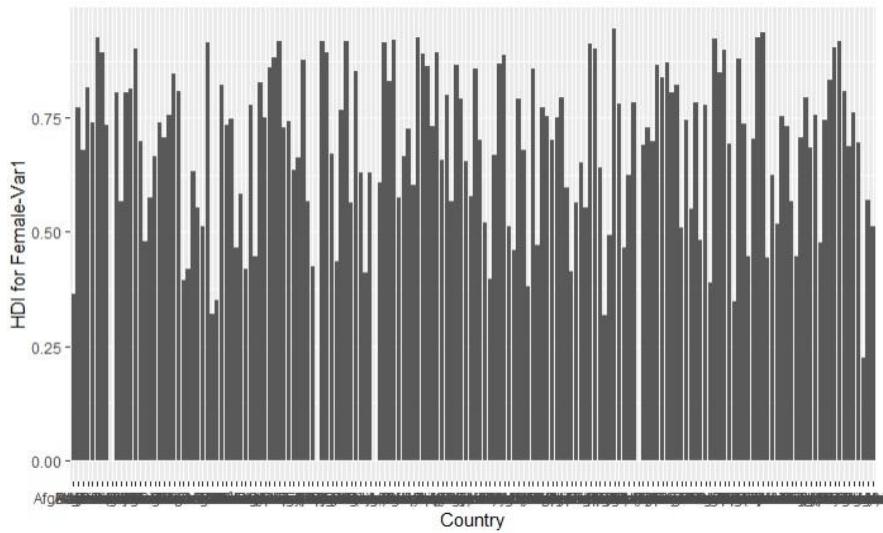
Preparing Dataset

- In my project, for every single variable I have a separate dataset.
- Also I had some questions for each variable, I decided to answer for those questions with all my selected variables. In this way, I think my result will be comparable.
- I cleaned my data before working.

Variables in Gender

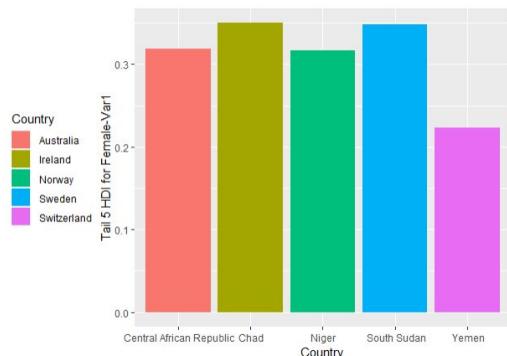
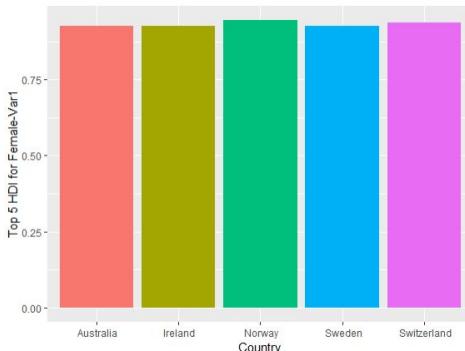
- 1) Comparing Female and Human Development Index(HDI)
- 2) Comparing Male and Human Development Index(HDI)
- 3) Comparing Child Marriage and HDI Ranking in 2017 between Countries
- 4) Estimated gross national income(GNI) per capita (Female)
- 5) Estimated gross national income(GNI) per capita (Male)
- 6) Female share of employment in senior and middle management (%)
- 7) Female share of graduates in science, mathematics, engineering, manufacturing and construction at tertiary level (%)

1)Comparing Female and Human Development Index(HDI)

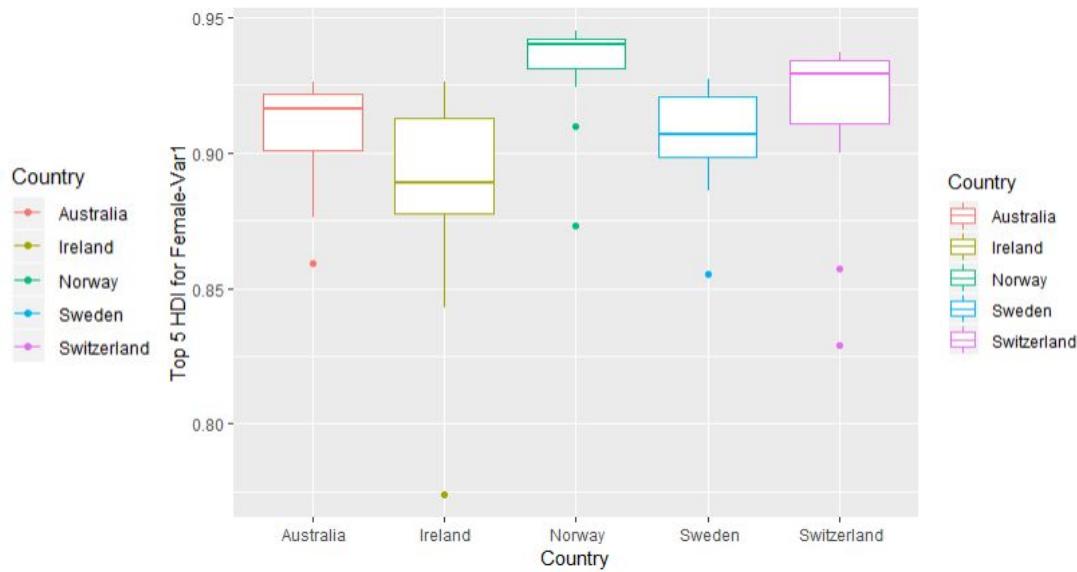
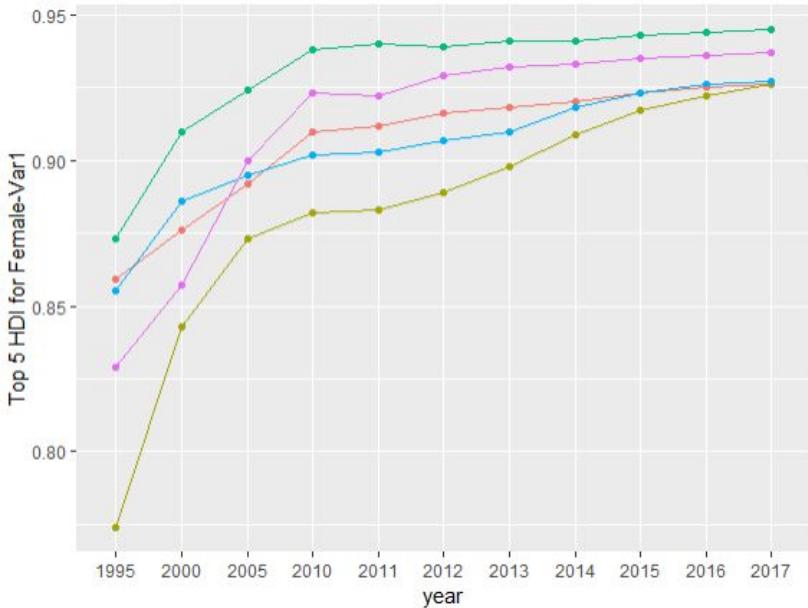


1)Comparing Female and Human Development Index(HDI)

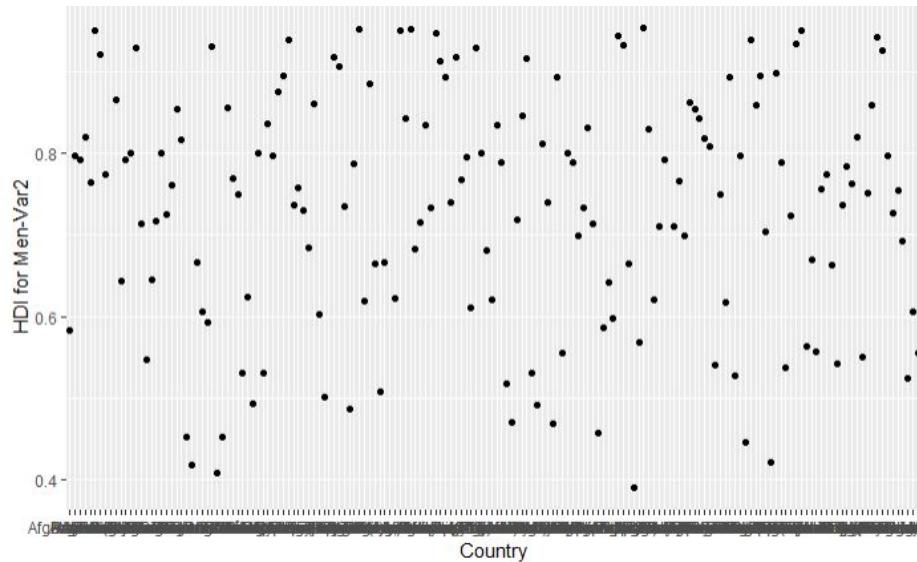
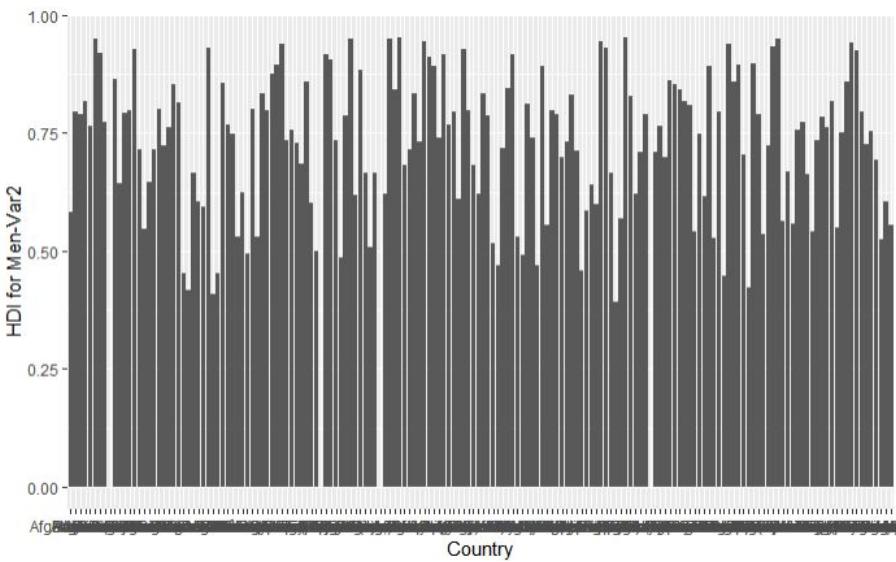
Top 5 countries	Tail 5 countries
Norway	Yemen
Switzerland	Niger
Sweden	Central African Republic
Australia	South Sudan
Ireland	Chad



5 Top countries in all years since 1995 to 2017(Var.1)

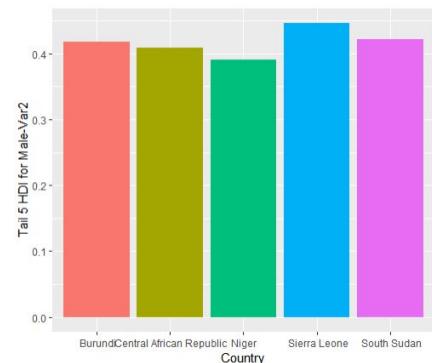
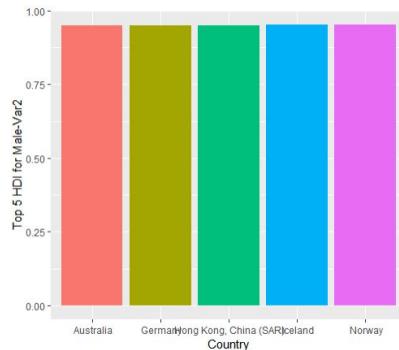


2)Comparing Male and Human Development Index(HDI)

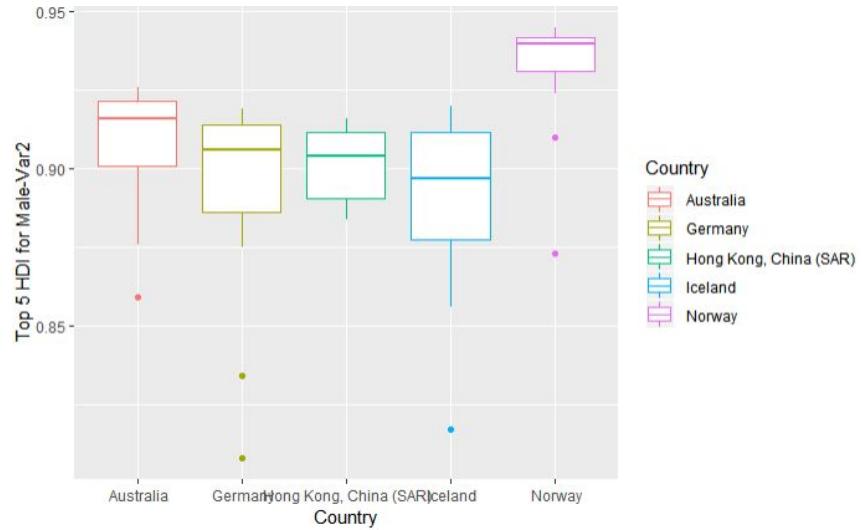
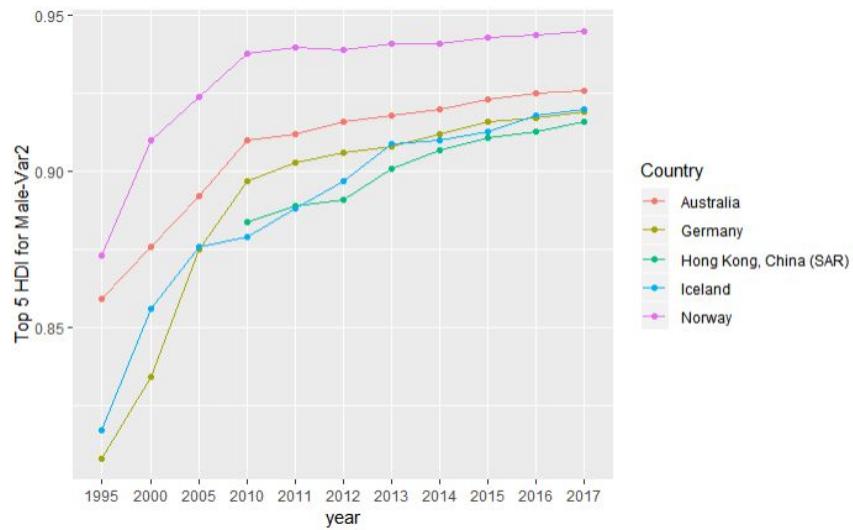


2)Comparing Male and Human Development Index(HDI)

Top 5 countries	Tail 5 countries
Norway	Niger
Iceland	Central African Republic
Germany	Burundi
Australia	South Sudan
Hong Kong, China (SAR)	Sierra Leone



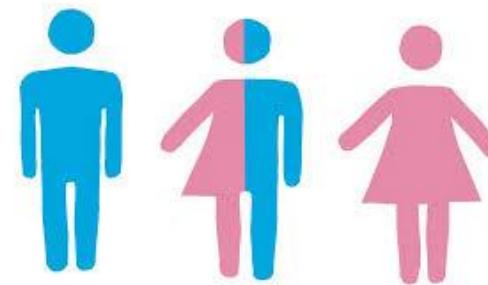
5 Top countries in all years since 1995 to 2017(Var.2)



Some compare and more info about two variables HDI (Male, Female)

United States

HDI for Male	17
HDI for Female	10



Top Countries

Same Rank

Norway

1

Australia

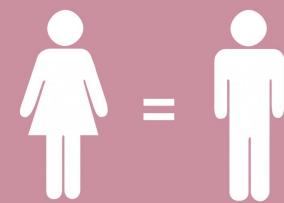
4

Tail Countries

Same Rank

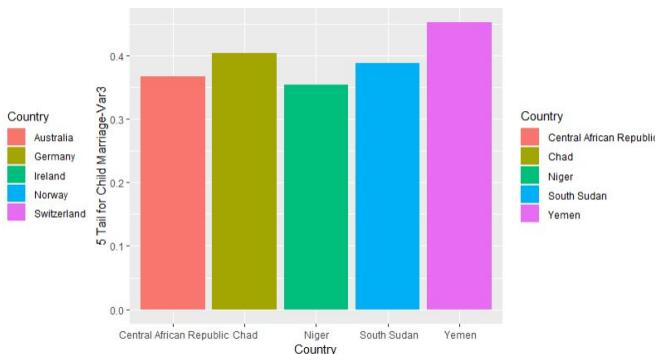
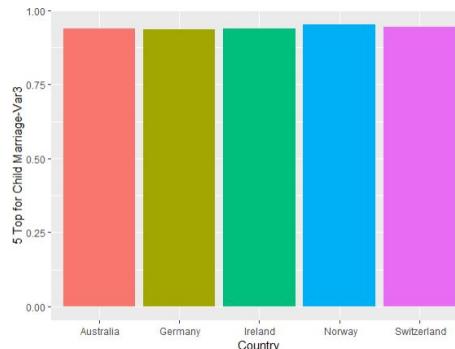
South Sudan

4

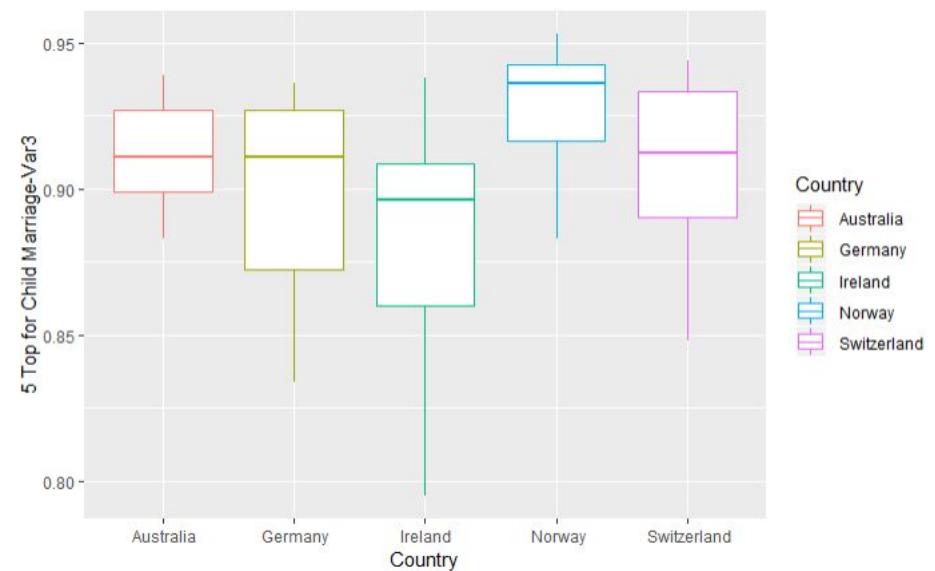
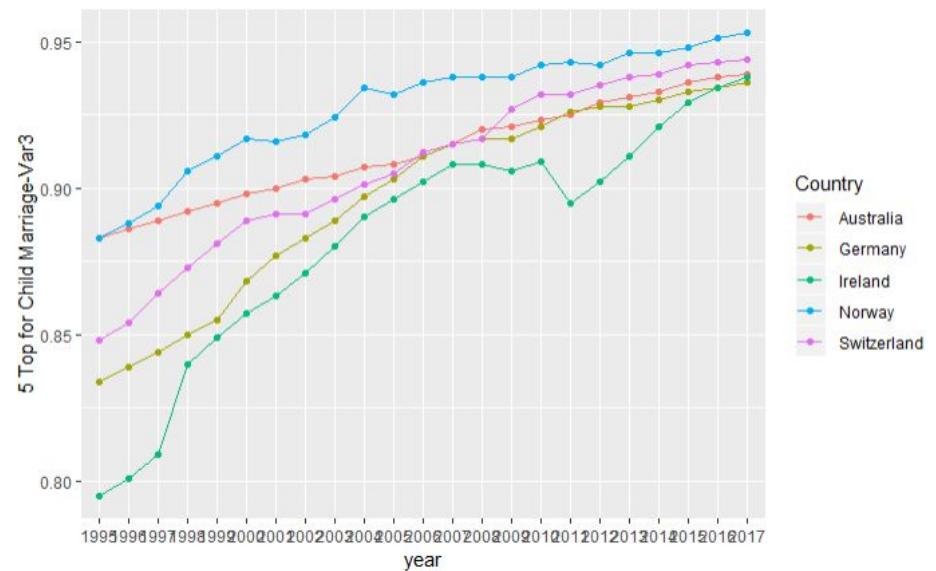


3)Comparing Child Marriage and HDI Ranking in 2017 between Countries

Top 5 countries	Tail 5 countries
Norway	Niger
Switzerland	Central African Republic
Australia	South Sudan
Ireland	Chad
Germany	Burundi

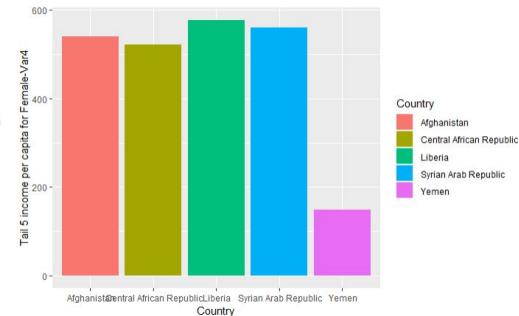
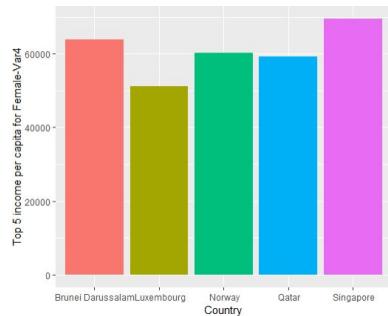


5 Top countries in all years since 1995 to 2017 (Var.3)

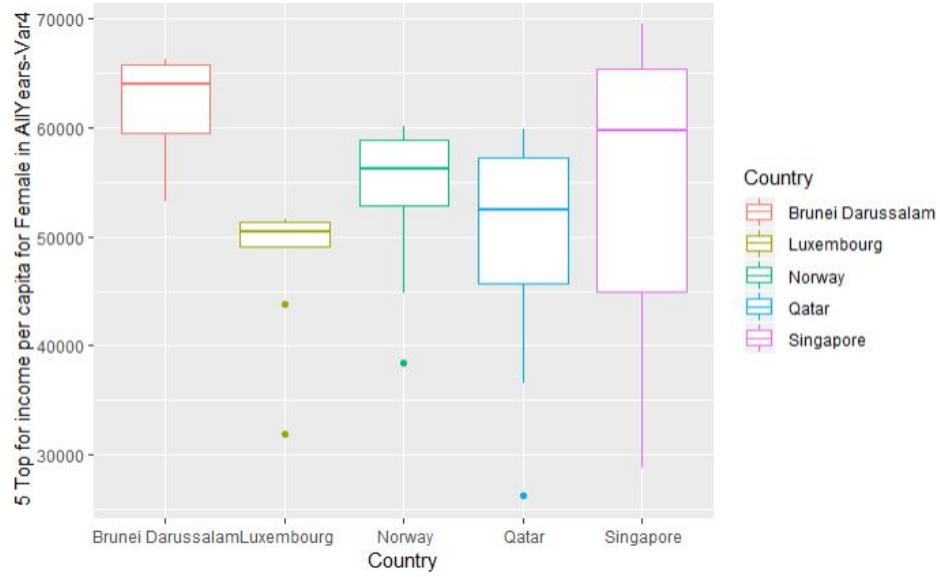
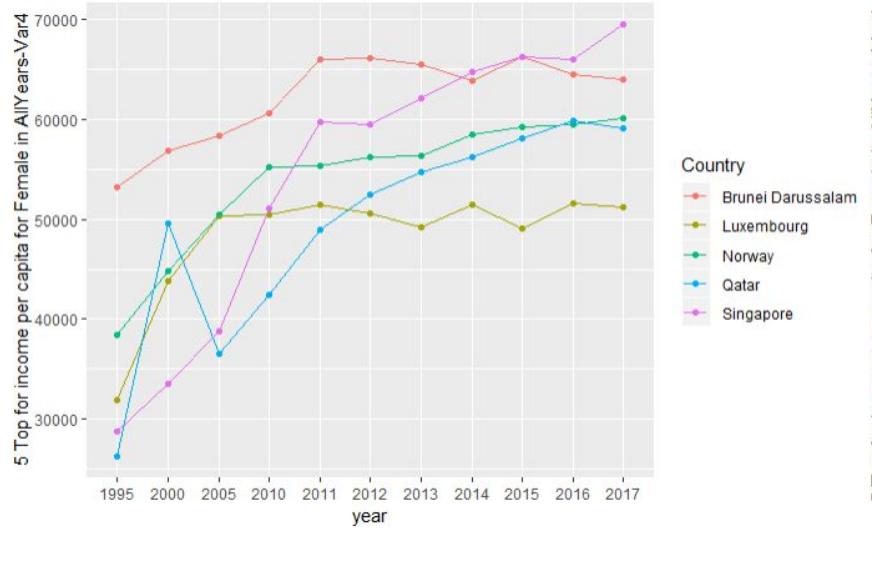


4) Estimated gross national income(GNI) per capita (Female)

Top 5 countries	Tail 5 countries
Singapore	Yemen
Brunei	Central African Republic
Norway	Afghanistan
Qatar	Syrian Arab Republic
Luxembourg	Liberia

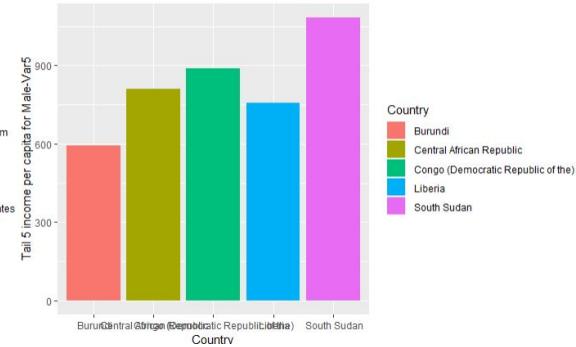
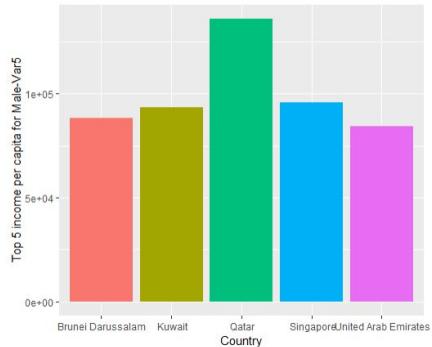


5 Top countries in all years since 1995 to 2017 (Var.4)

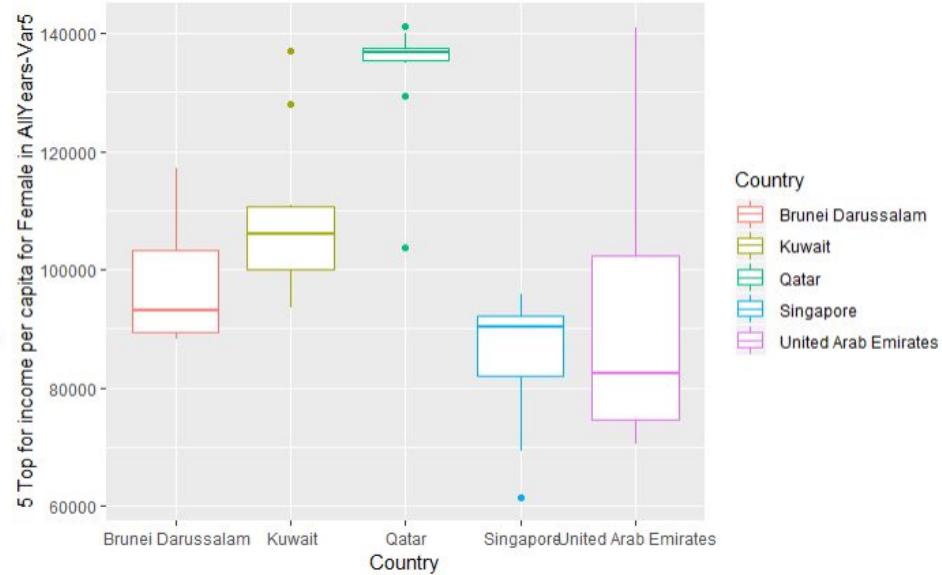
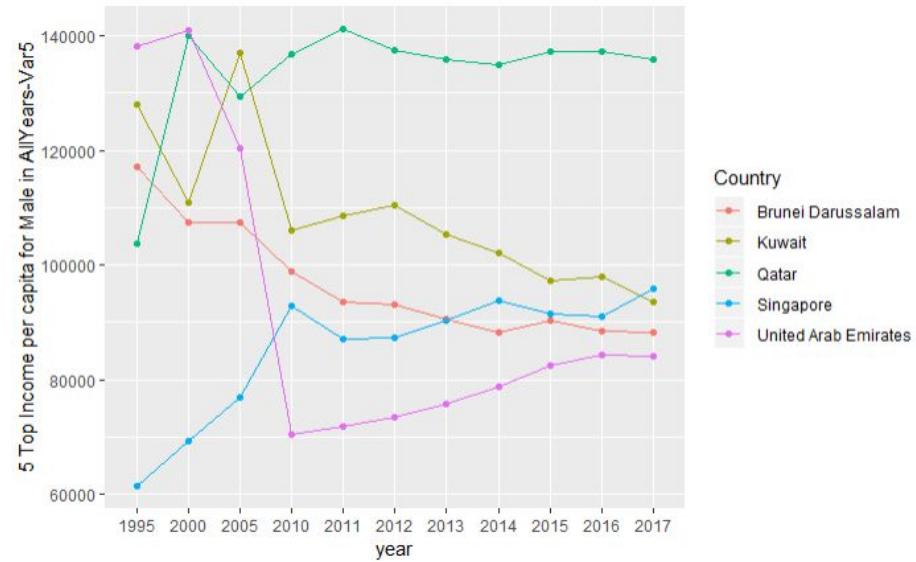


5) Estimated gross national income(GNI) per capita (Male)

Top 5 countries	Tail 5 countries
Qatar	Burundi
Singapore	Liberia
Kuwait	Central African Republic
Brunei Darussalam	Congo (Democratic Republic of the)
United Arab Emirates	South Sudan

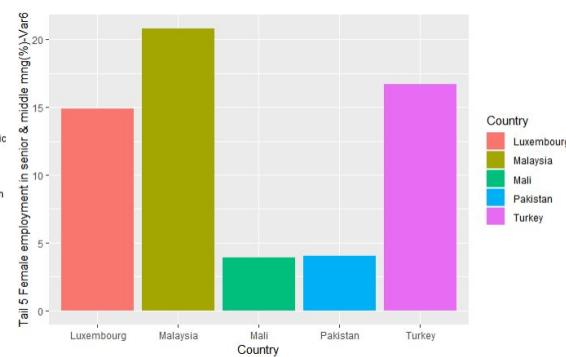
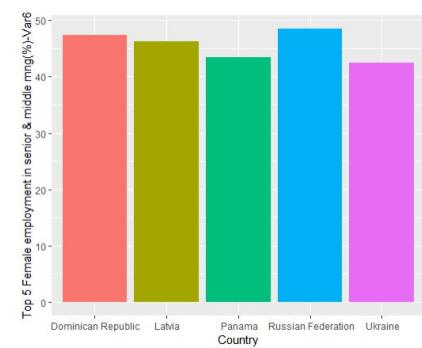


5 Top countries in all years since 1995 to 2017(Var.5)

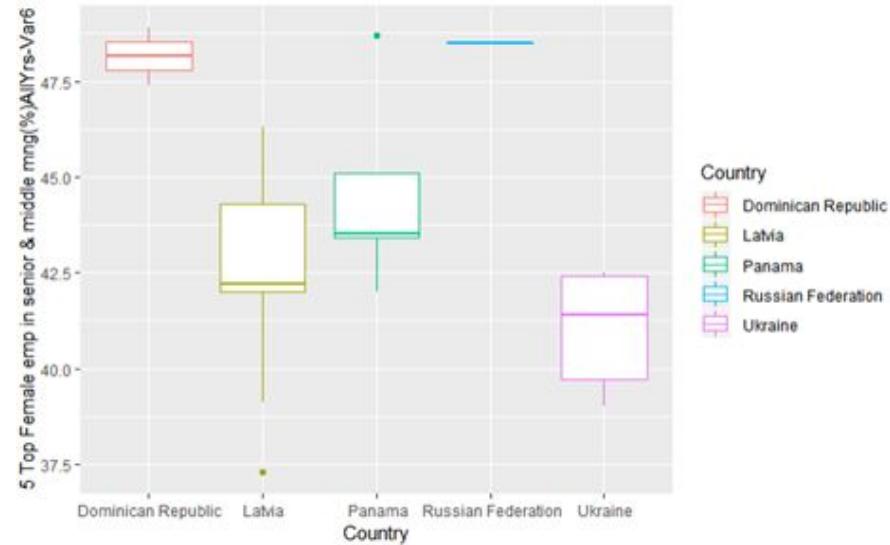
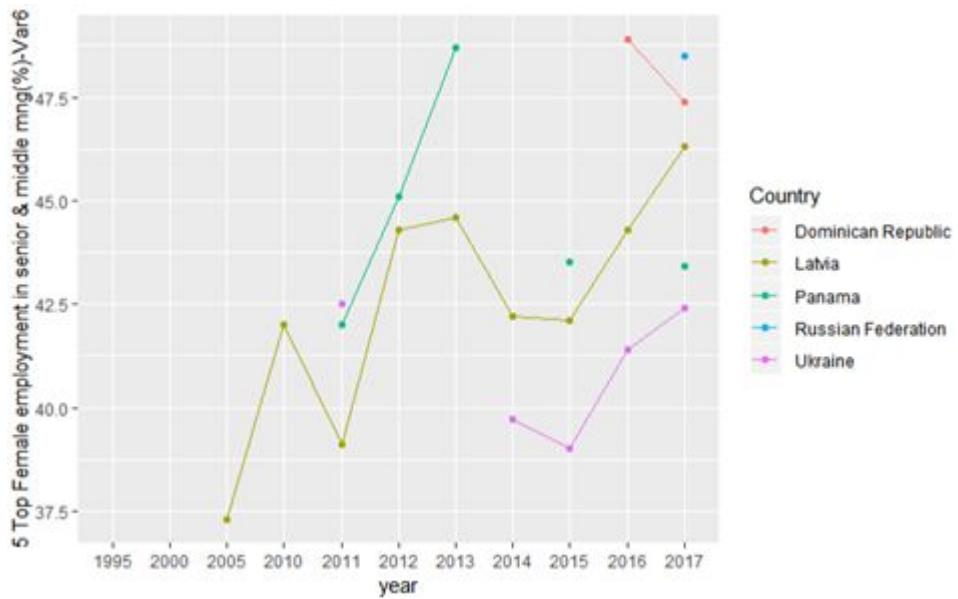


6) Female share of employment in senior and middle management (%)

Top 5 countries	Tail 5 countries
Russian Federation	Mali
Dominican Republic	Pakistan
Latvia	Luxembourg
Panama	Turkey
Ukraine	Malaysia

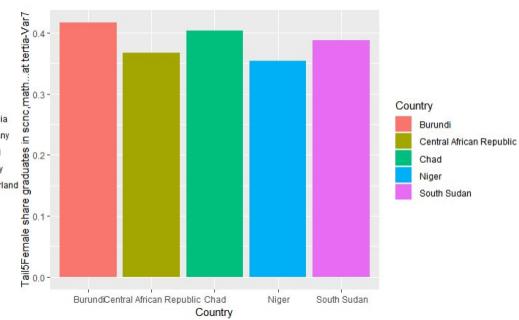
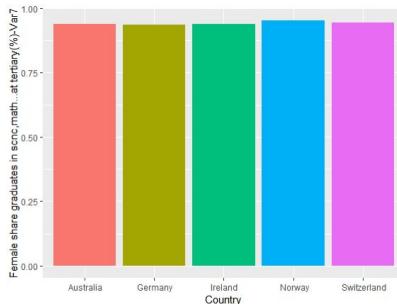


5 Top countries in all years since 1995 to 2017(Var.6)

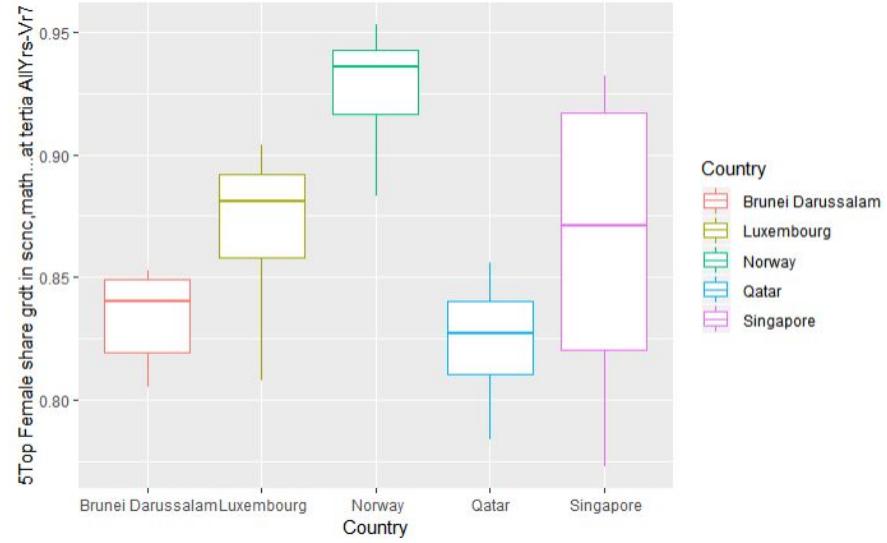
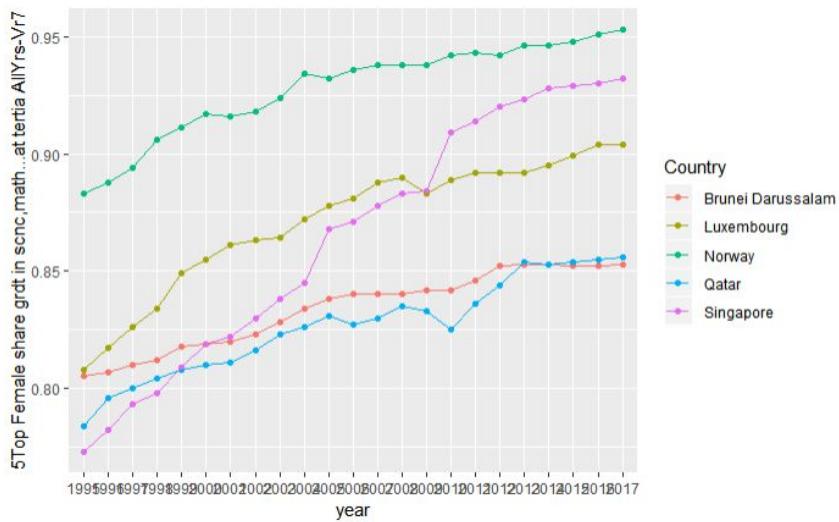


7) Female share of graduates in science, mathematics, engineering, manufacturing and construction at tertiary level (%)

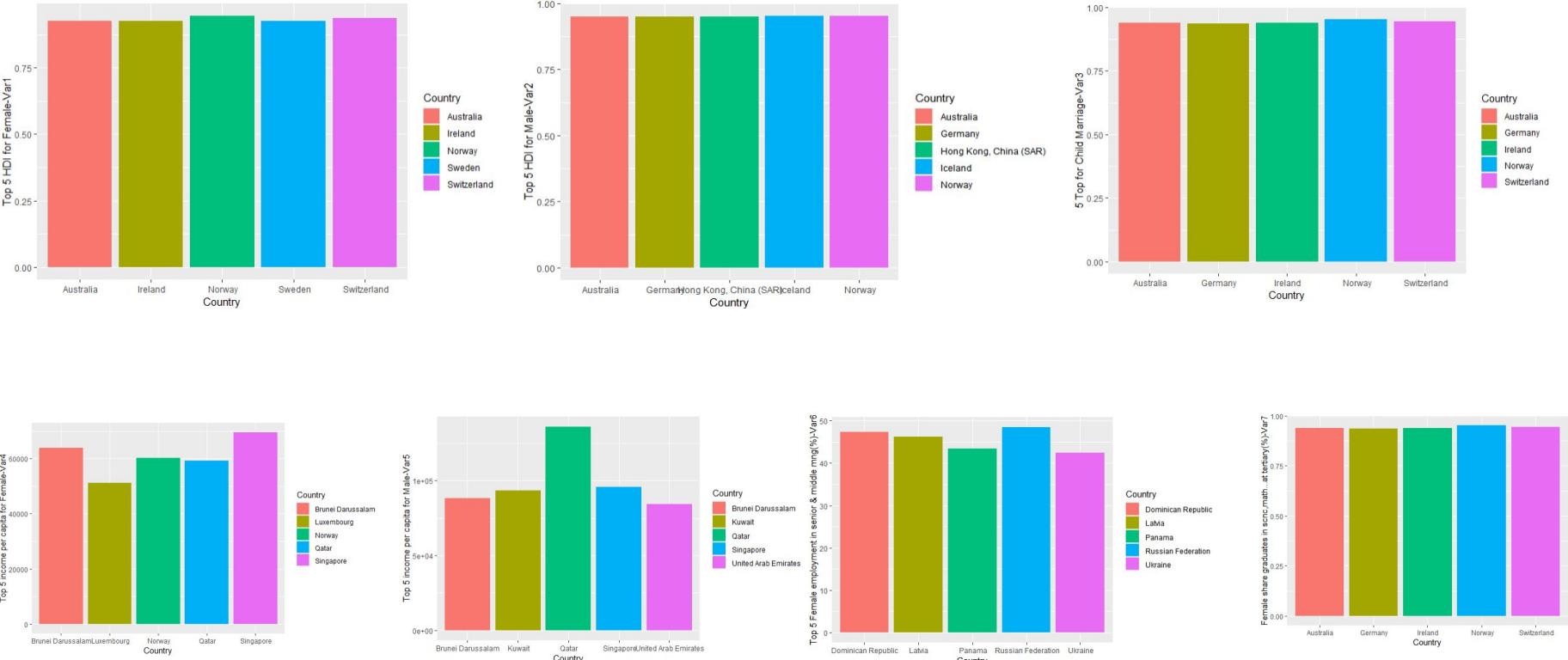
Top 5 countries	Tail 5 countries
Norway	Niger
Switzerland	Central African Republic
Australia	South Sudan
Ireland	Chad
Germany	Burundi

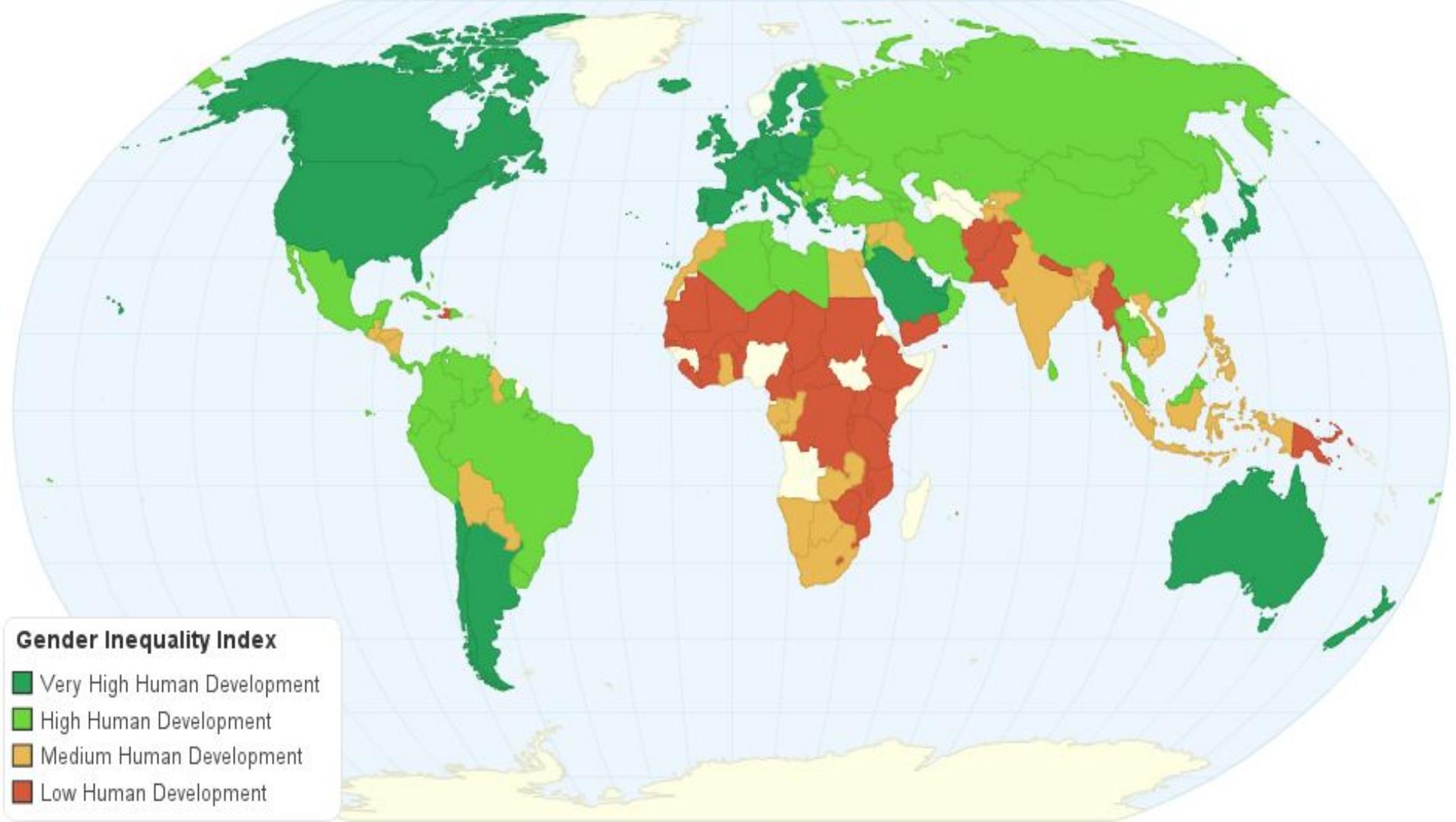


5 Top countries in all years since 1995 to 2017(Var.7)



Compare 5 Top Countries in one view





Gender Inequality Index

- Very High Human Development
- High Human Development
- Medium Human Development
- Low Human Development



Summary

