

# Vis\_Project

Sulagna Barat

2022-11-02

## ABSTRACT

The main goal of this project is to provide a Visual representation of Human Development Index and Inequality-Adjusted HDI scenario to comparatively gauge a country's spectrum of progress or on the other hand sole triggers of lagging behind, so as to initiate preventive measures to address the burning issues of today's human civilization. We will be visualizing various Uni-variate and Multivariate plots to understand the relationship between the variables. Also, we will draw some Time series based charts to witness how the HDI has changed over time.

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## INTRODUCTION

My project comprises three parts. It revolves around providing a comparative study:-

1. Among different components of HDI such that Life Expectancy at Birth, Expected & Mean Years of Schooling, GNI Per Capita.
2. Among different components of IHDI such that Inequality adjusted Life Expectancy at Birth, Education & Income.
3. Lastly, a 30 year Trend Analysis of HDI among different countries.

## ABOUT THE DATA SET

The data sets I am working on are:-

1. Human Development Index and its components
2. Inequality-adjusted Human Development Index Source: <https://hdr.undp.org/data-center/documentation-and-downloads>

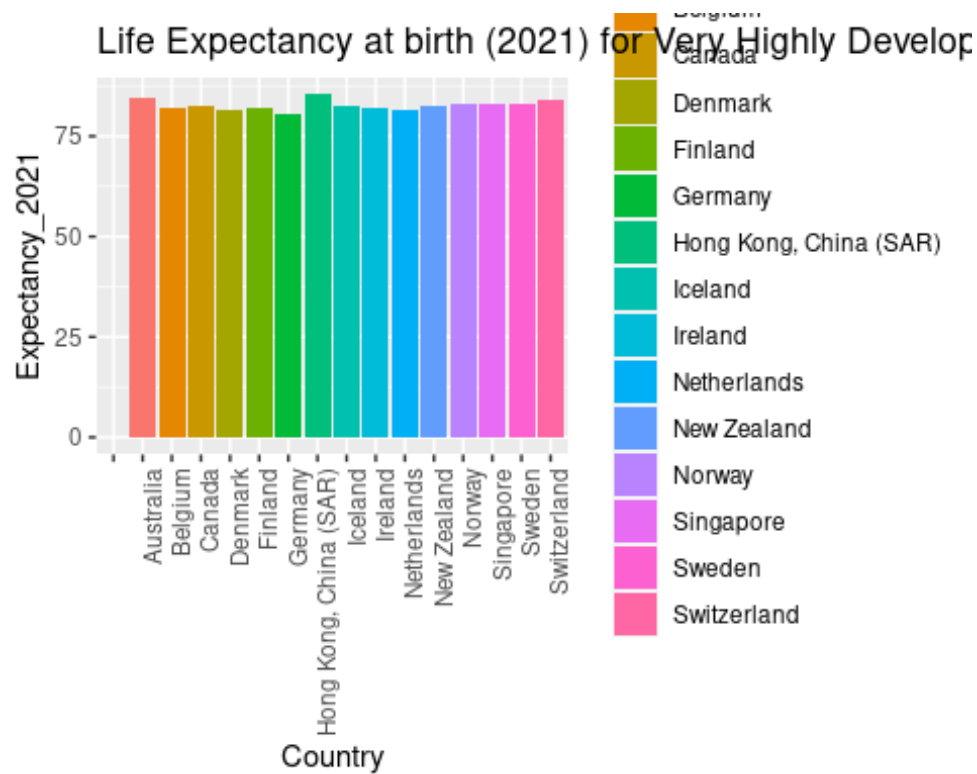
## WORKING VARIABLE

Variable Name	Type	Description
Country	Categorical (Nominal)	Country name
Life Expectancy (at birth)	Numeric(Continuous)	Assumed longevity(2021)
Expected Years of Schooling	Numeric(Continuous)	
GNI per capita	Numeric(Discrete)	Individual gross national income (2017 PPP\$)
HDI Value	Numeric(Continuous)	Human Development Index
Inequality-adjusted Life Expectancy	Numeric(Continuous)	Inequality discounted assumed longevity (2021)
Inequality-adjusted Education	Numeric(Continuous)	
Inequality-adjusted Income	Numeric(Continuous)	
Gini Coefficient	Numeric(Continuous)	Wealth inequality reflector (2010- 2021)

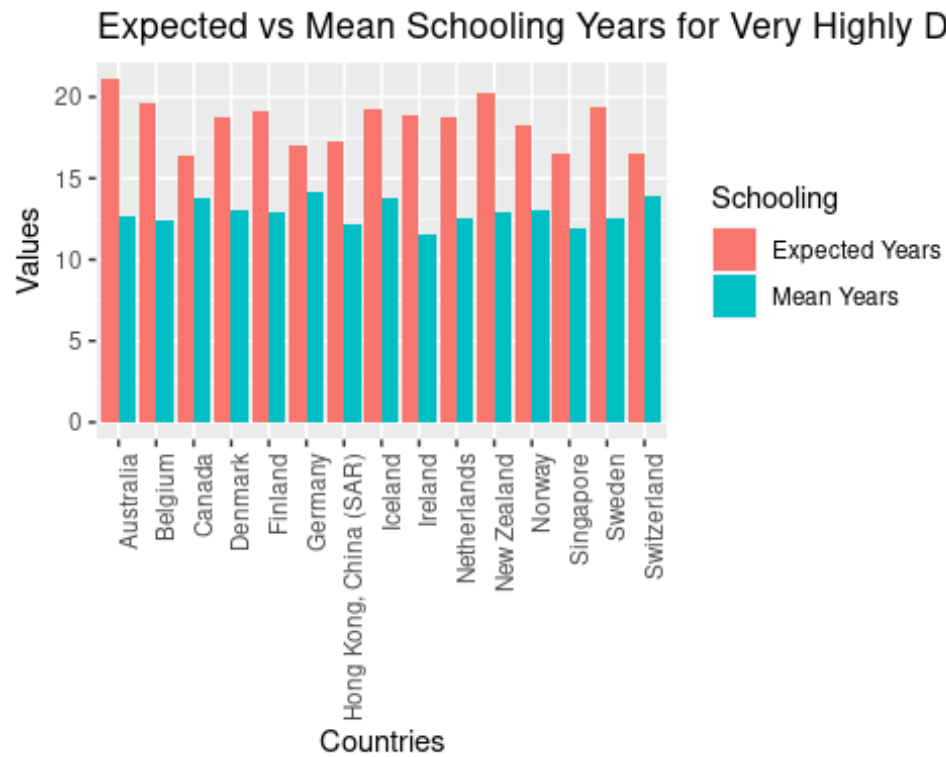
## THE OBJECTIVE OF THE PROJECT

- *Extractions from HDI*
  1. Among the groups of very high, high, medium & low developed nations, which are the respective best and worst in terms of life expectancy, excepted schooling year & per capita GNI?
  2. Changes in HDI rankings for two consecutive years.
  3. Trend of change over years.
- *Extractions from IHDI*
  1. Among the groups of very high, high, medium & low developed nations, which are the respective best & worst in terms of inequality-adjusted life expectancy, education & income?
  2. Among the aforementioned, where does the wealth inequality prevail the most?
  3. Income shareholding scenario.

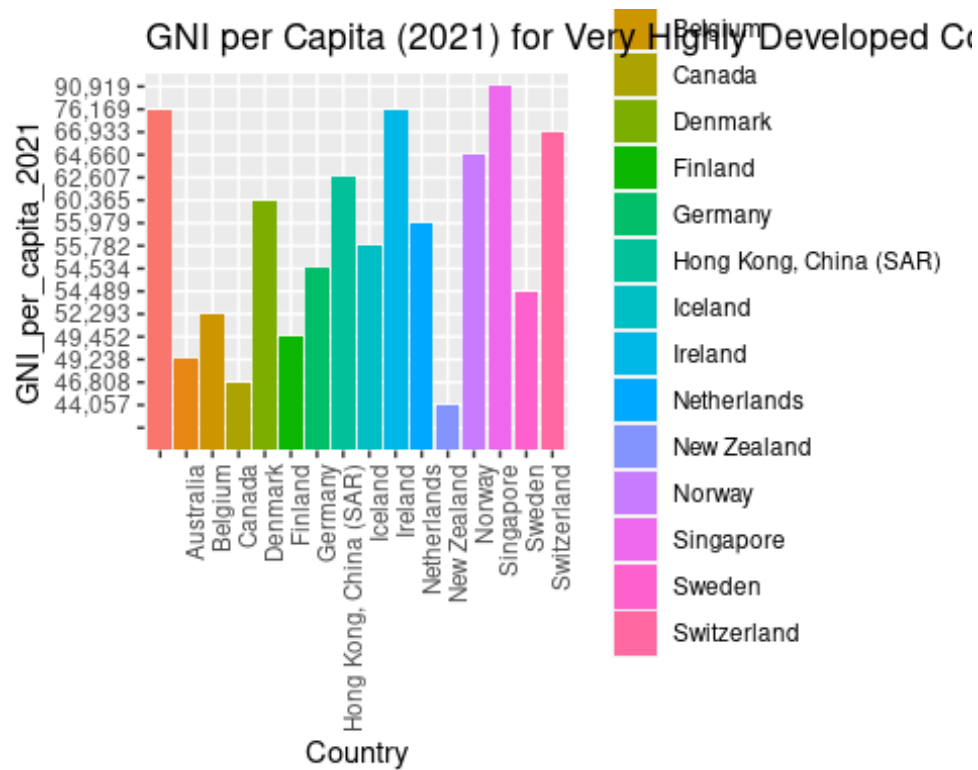
```
data=read.csv("VHD_HDI.csv")
library(ggplot2)
ggplot(data,aes(x=Country,y=Expectancy_2021,fill=Country))+
  geom_bar(stat="identity")+
  theme(axis.text.x=element_text(angle=90,hjust=1))+labs(title="Life
Expectancy at birth (2021) for Very Highly Developed Countries")
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```



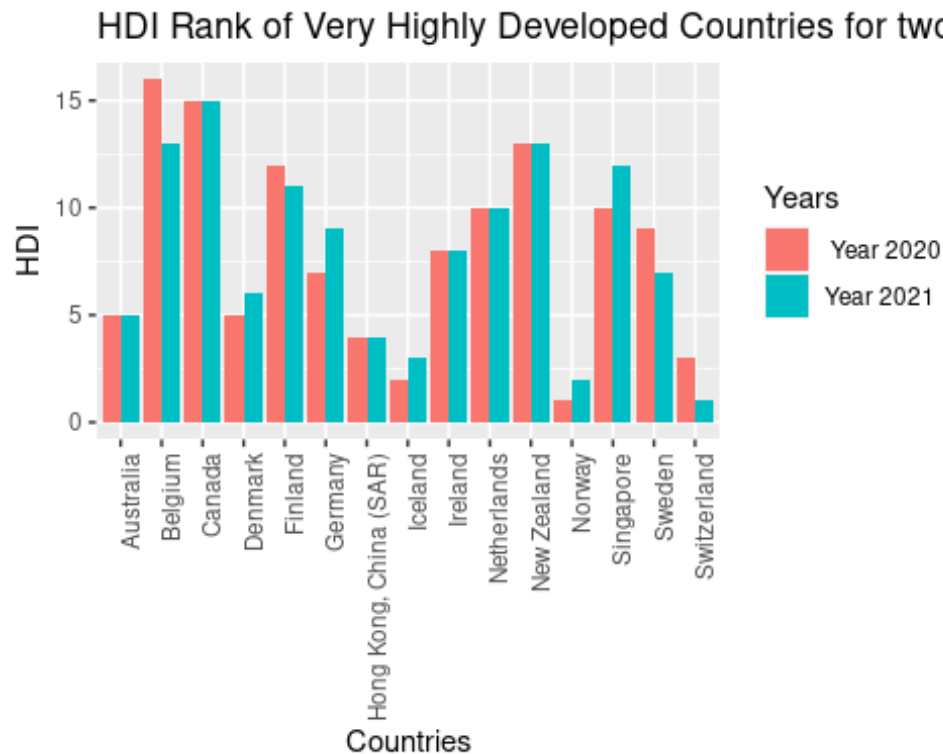
```
data=read.csv("VHD_HDI.csv")
ggplot(data,aes(x=Countries,y=Values,fill=Schooling))+
  geom_bar(stat="identity", position="dodge")+
  theme(axis.text.x=element_text(angle=90,hjust=1))+labs(title="Expected vs
Mean Schooling Years for Very Highly Developed Countries")
```



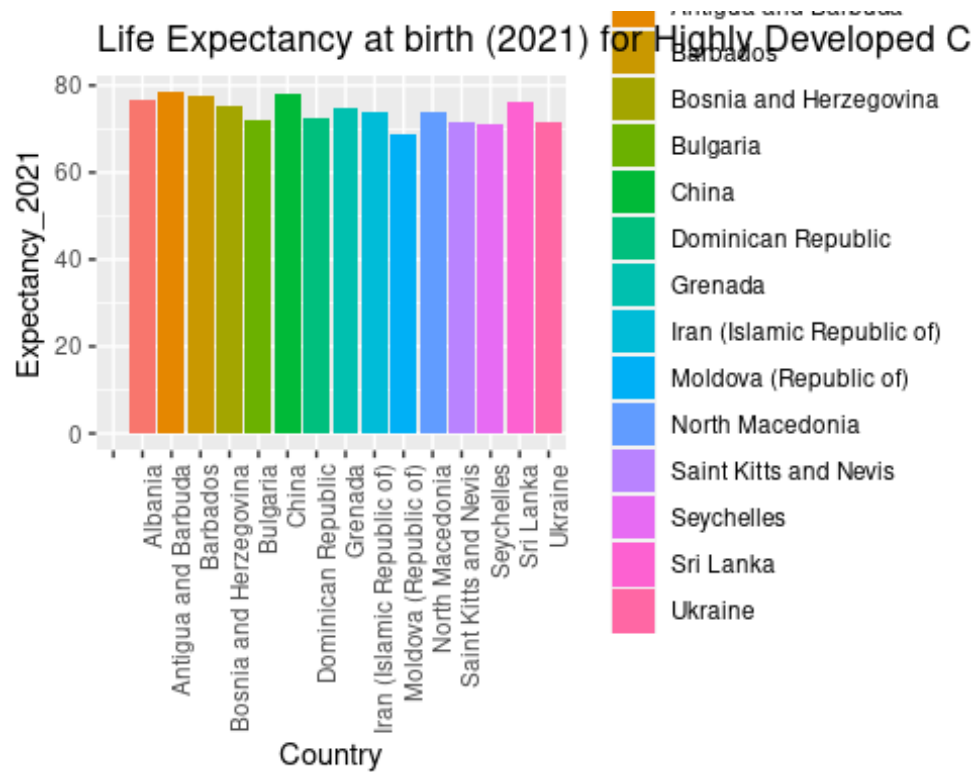
```
data=read.csv("VHD_HDI.csv")
ggplot(data,aes(x=Country,y=GNI_per_capita_2021,fill=Country))+
  geom_bar(stat="identity")+
  theme(axis.text.x=element_text(angle=90,hjust=1))+labs(title="GNI per
Capita (2021) for Very Highly Developed Countries")
```



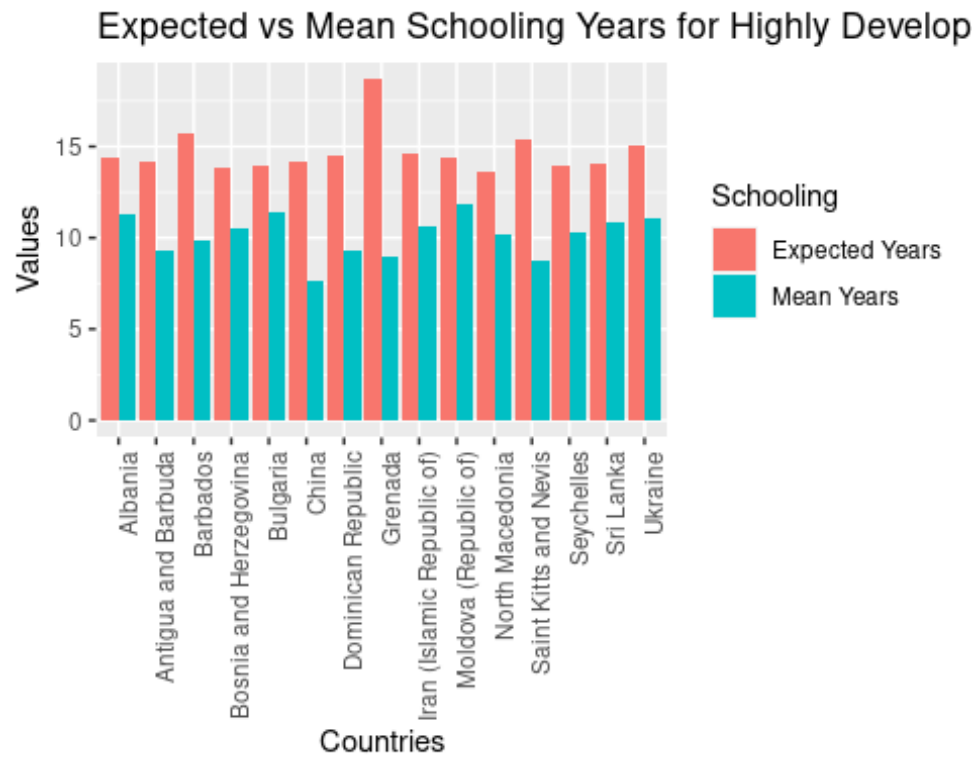
```
data=read.csv("VHD_HDI.csv")
ggplot(data,aes(x=Countries,y=HDI,fill=Years))+
  geom_bar(stat="identity", position="dodge")+
  theme(axis.text.x=element_text(angle=90,hjust=1))+labs(title="HDI Rank of
Very Highly Developed Countries for two consecutive years")
```



```
data=read.csv("HD_HDI.csv")
library(ggplot2)
ggplot(data,aes(x=Country,y=Expectancy_2021,fill=Country))+
  geom_bar(stat="identity")+
  theme(axis.text.x=element_text(angle=90,hjust=1))+labs(title="Life
Expectancy at birth (2021) for Highly Developed Countries")
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```

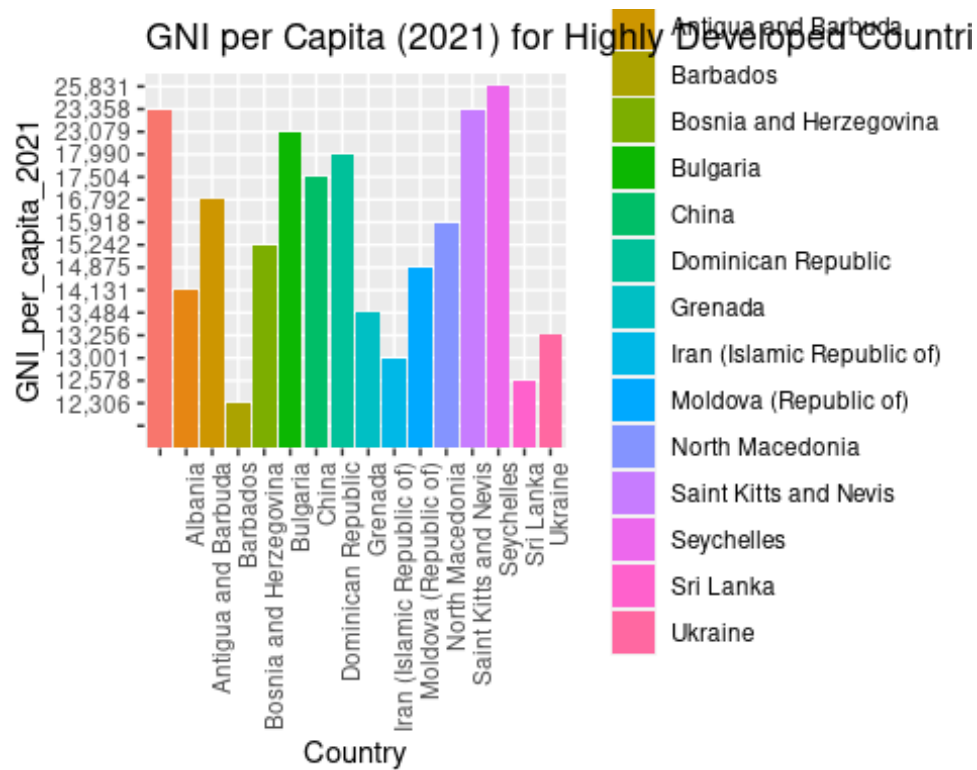


```
data=read.csv("HD_HDI.csv")
ggplot(data,aes(x=Countries,y=Values,fill=Schooling))+
geom_bar(stat="identity", position="dodge")+
theme(axis.text.x=element_text(angle=90,hjust=1))+labs(title="Expected vs
Mean Schooling Years for Highly Developed Countries")
```

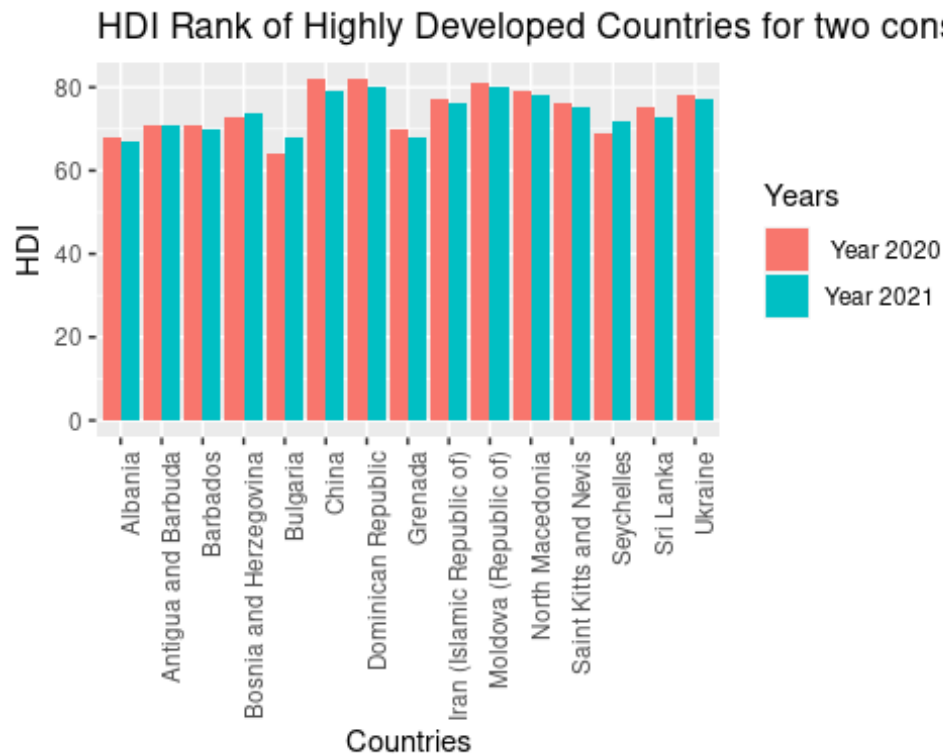


```
data=read.csv("HD_HDI.csv")
ggplot(data,aes(x=Country,y=GNI_per_capita_2021,fill=Country))+
  geom_bar(stat="identity")+
  theme(axis.text.x=element_text(angle=90,hjust=1))+labs(title="GNI per
Capita (2021) for Highly Developed Countries")
```



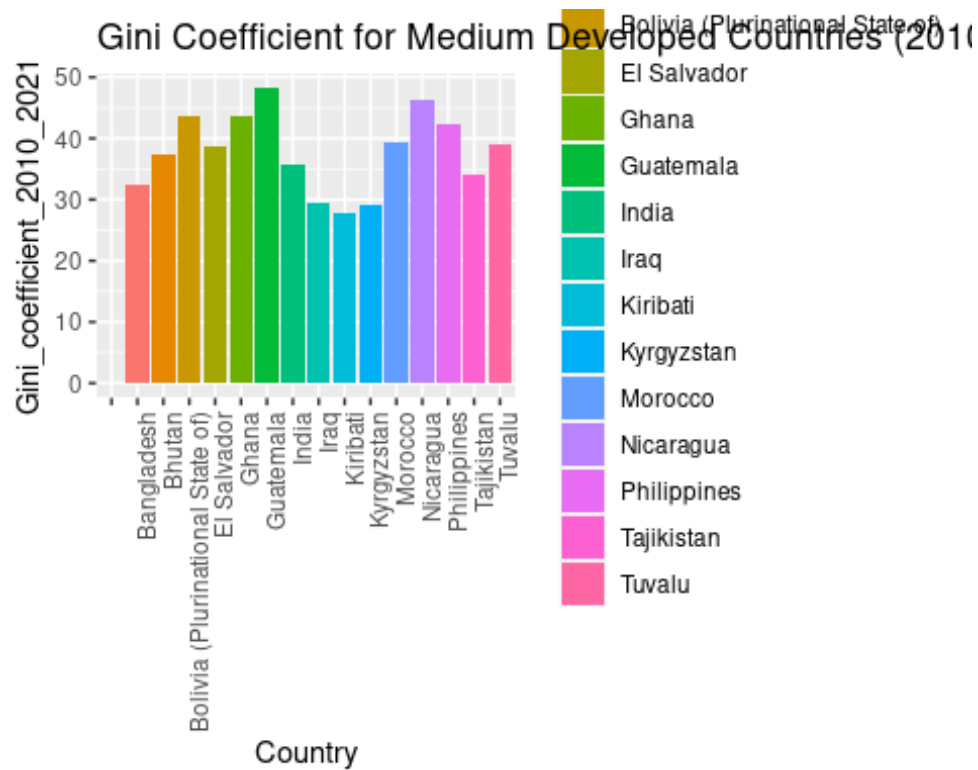


```
data=read.csv("HD_HDI.csv")
ggplot(data,aes(x=Countries,y=HDI,fill=Years))+
  geom_bar(stat="identity", position="dodge")+
  theme(axis.text.x=element_text(angle=90,hjust=1))+labs(title="HDI Rank of
Highly Developed Countries for two consecutive years")
```



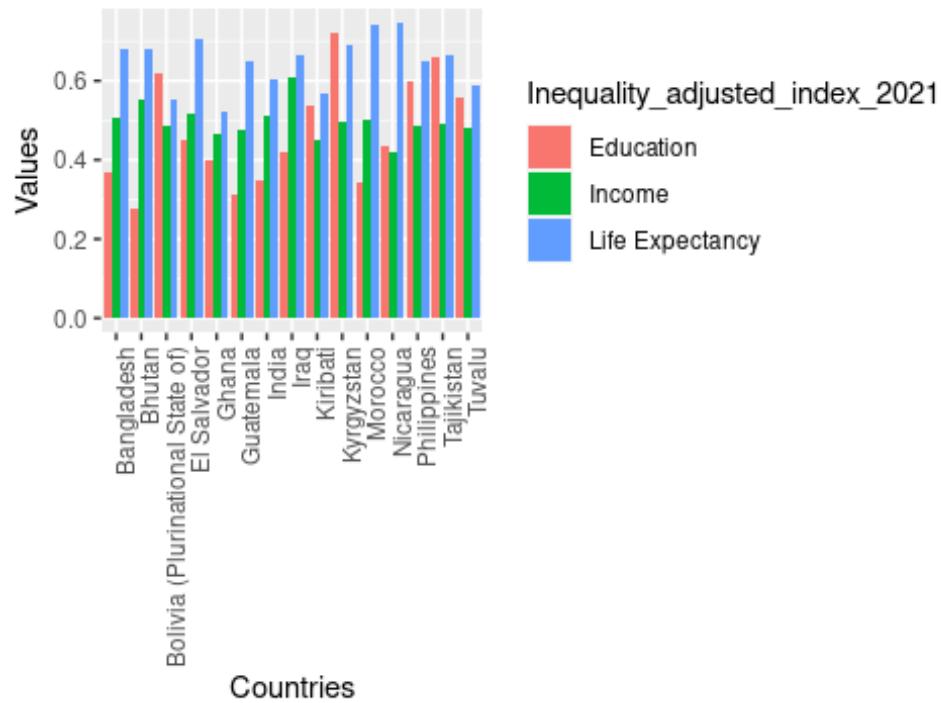
```
data=read.csv("3MD.csv")
library(ggplot2)
ggplot(data,aes(x=Country,y=Gini_coefficient_2010_2021,fill=Country))+
  geom_bar(stat="identity")+
  theme(axis.text.x=element_text(angle=90,hjust=1))+labs(title="Gini
Coefficient for Medium Developed Countries (2010-2021)")

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```



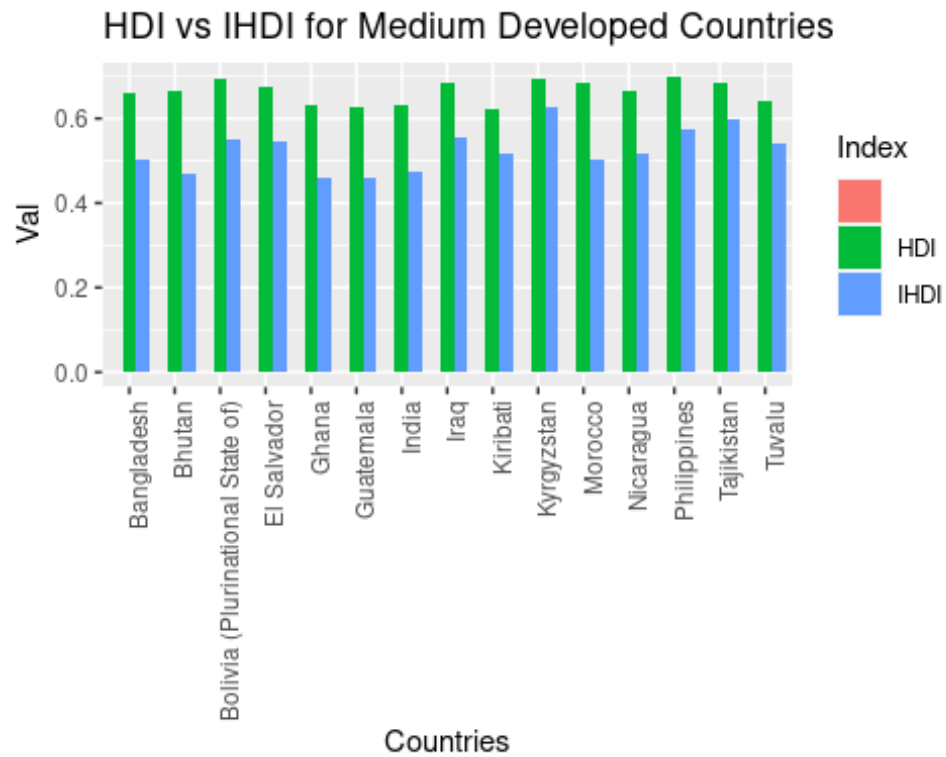
```
data=read.csv("3MD.csv")
ggplot(data,aes(x=Countries,y=Values,fill=Inequality_adjusted_index_2021))+
  geom_bar(stat="identity", position="dodge")+
  theme(axis.text.x=element_text(angle=90,hjust=1))+labs(title="Categorical
IHDl for Medium Developed Countries")
```

## Categorical IHDI for Medium Developed Countries

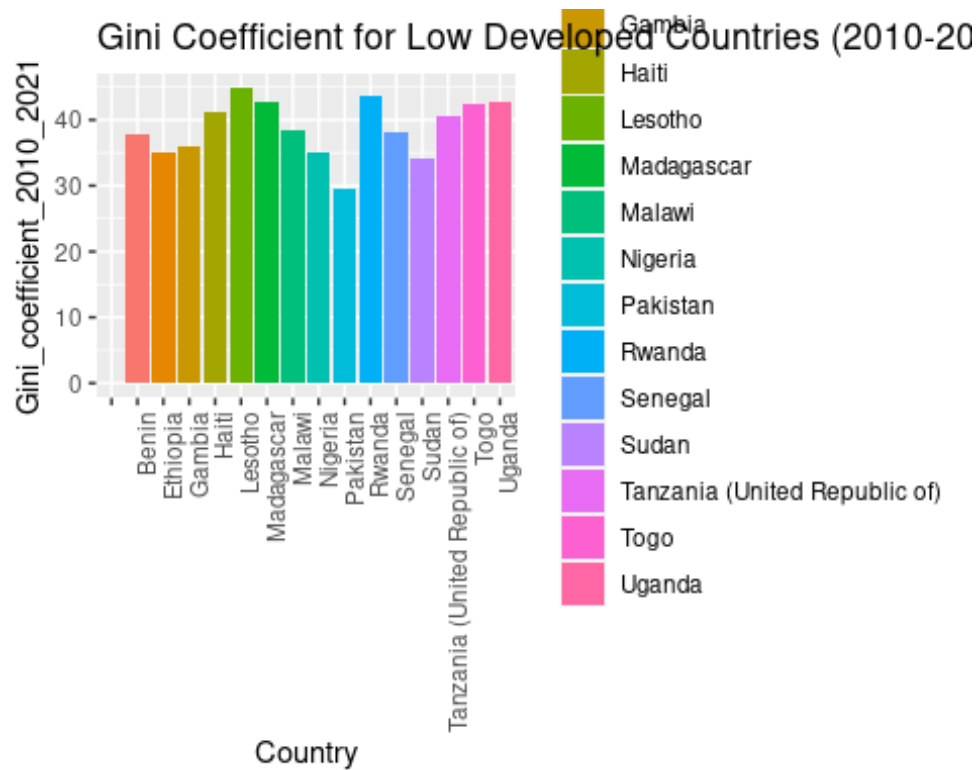


```
data=read.csv("3MD.csv")
ggplot(data,aes(x=Countries,y=Val,fill=Index))+
  geom_bar(stat="identity", position="dodge")+
  theme(axis.text.x=element_text(angle=90,hjust=1))+labs(title="HDI vs IHDI
for Medium Developed Countries")

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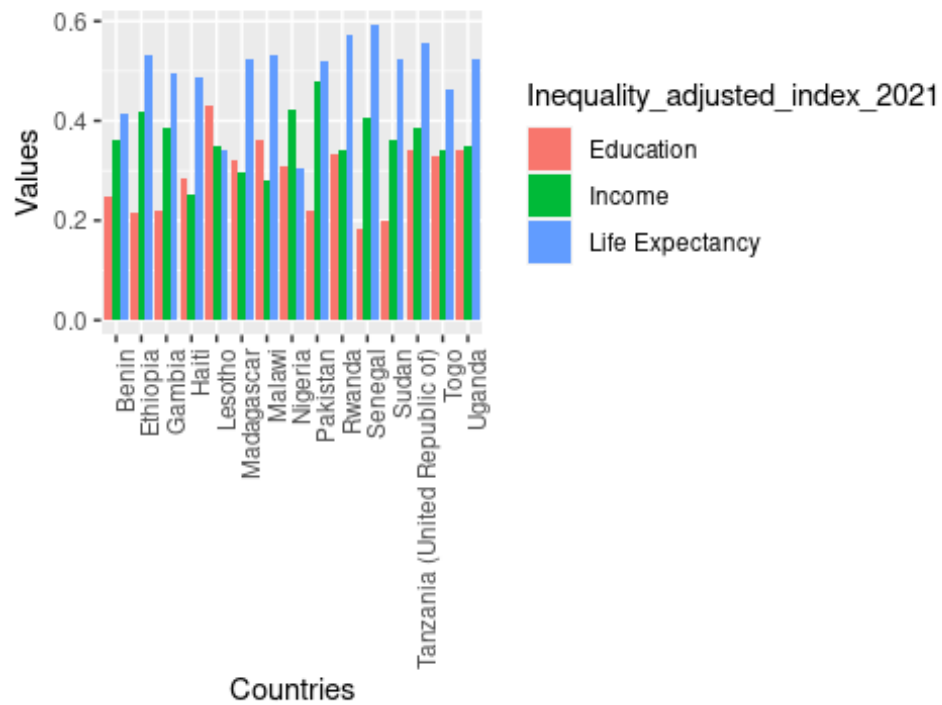


```
data=read.csv("4LD.csv")
library(ggplot2)
ggplot(data,aes(x=Country,y=Gini_coefficient_2010_2021,fill=Country))+
  geom_bar(stat="identity")+
  theme(axis.text.x=element_text(angle=90,hjust=1))+labs(title="Gini
Coefficient for Low Developed Countries (2010-2021)")
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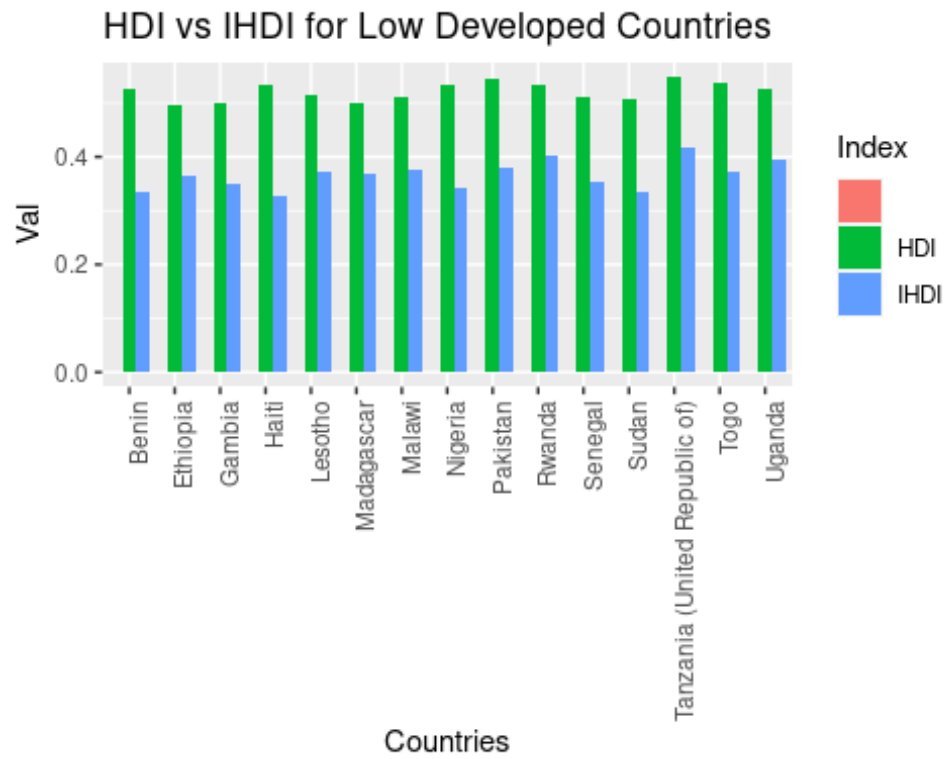
```
data=read.csv("4LD.csv")
ggplot(data,aes(x=Countries,y=Values,fill=Inequality_adjusted_index_2021))+
  geom_bar(stat="identity", position="dodge")+
  theme(axis.text.x=element_text(angle=90,hjust=1))+labs(title="Categorical
IHDI for Low Developed Countries")
```

### Categorical IHDI for Low Developed Countries



```
data=read.csv("4LD.csv")
ggplot(data,aes(x=Countries,y=Val,fill=Index))+
  geom_bar(stat="identity", position="dodge")+
  theme(axis.text.x=element_text(angle=90,hjust=1))+labs(title="HDI vs IHDI
for Low Developed Countries")

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```



Hence the conclusion follows.