

# ANALYSIS REPORT OF GDP AND CLIMATE INDICATORS

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## ABSTRACT

We would aim to identify the indicators from wbgapi and then analyse the trends of these indicators related to GDP and the climate(WBGAPI, 2022). The figures would be gathered on an annual basis to understand the trends.

## INTRODUCTION

From wbgapi we have identified the below indicators for analysis:

- NY.GDP.MKTP.CD: GDP current in USD
- SL.UEM.1524.FE.ZS Unemployment, youth female (%)
- #SL.UEM.1524.MA.ZS Unemployment, youth male (%)
- NE.IMP.GNFS.ZS: Total import
- EN.ATM.CO2E.PC: CO2 emissions measured on the basis of metric tons per capita
- EN.ATM.GHGT.KT.CE: Greenhouse emissions
- EG.ELC.ACCS.ZS Electricity access (% of population)
- EG.ELC.NGAS.ZS Electricity production from natural gas sources (% of total)

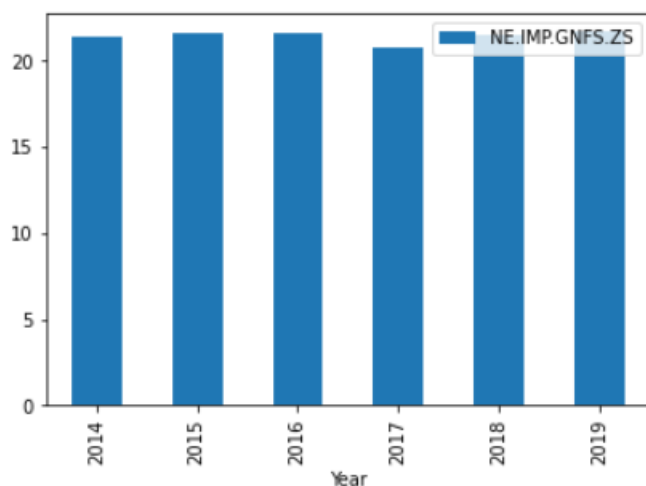
We would be analysing the above indicators for Australia, France, Bulgaria, Bangladesh, Argentina, China, Brazil, Great Britain, India, and Pakistan.

## ANALYSIS

The analysis for Australia is as follows:

series	NE.IMP.GNFS.ZS	NY.GDP.MKTP.CD	SL.UEM.1524.FE.ZS	SL.UEM.1524.MA.ZS	EG.ELC.ACCS.ZS	EG.ELC.NGAS.ZS	EN.ATM.CO2E.PC	EN.ATM.GHGT.KT.CE
count	6.000000	6.000000e+00	6.000000	6.000000	6.0	6.000000	6.000000	6.000000
mean	21.397076	1.362015e+12	11.428500	13.627333	100.0	7.117537	13.104761	499440.000000
std	0.347935	9.158821e+10	0.686188	0.543367	0.0	11.032069	6.421379	245248.455816
min	20.714438	1.206685e+12	10.630000	12.949000	100.0	0.000000	0.000000	0.000000
25%	21.410096	1.332796e+12	10.889250	13.163250	100.0	0.000000	15.541299	578417.500000
50%	21.530206	1.371243e+12	11.454000	13.773500	100.0	0.000000	15.747262	594040.000000
75%	21.554229	1.419385e+12	11.793000	14.005750	100.0	15.596608	15.778806	610180.000000
max	21.675312	1.467505e+12	12.426000	14.225000	100.0	21.909741	15.872080	619790.000000

The average access to electricity as a total population is 100% in Australia. The Bar graph for Imports in Australia is as follows:

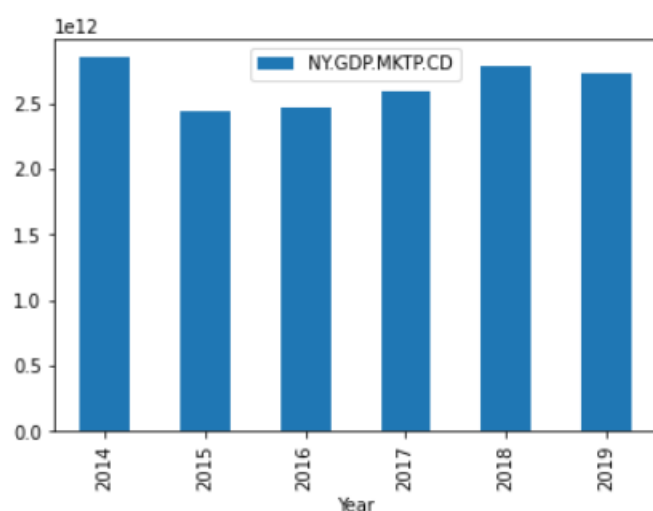


We can see that the import had reduced a little during 2017.

The analysis for France is as follows:

series	NE.IMP.GNFS.ZS	NY.GDP.MKTP.CD	SL.UEM.1524.FE.ZS	SL.UEM.1524.MA.ZS	EG.ELC.ACCS.ZS	EG.ELC.NGAS.ZS	EN.ATM.CO2E.PC	EN.ATM.GHGT.KT.CE
count	6.000000	6.000000e+00	6.000000	6.000000	6.0	6.000000	6.000000	6.000000
mean	31.685118	2.644811e+12	21.600667	23.429834	100.0	0.967365	3.881982	356670.000000
std	0.856326	1.714432e+11	2.290855	2.071180	0.0	1.547597	1.902381	174768.778905
min	30.812112	2.438208e+12	18.111000	20.674999	100.0	0.000000	0.000000	0.000000
25%	30.929222	2.500649e+12	20.211000	21.806251	100.0	0.000000	4.599093	423545.000000
50%	31.586143	2.658806e+12	22.129000	23.875501	100.0	0.000000	4.642664	427075.000000
75%	32.415367	2.774413e+12	23.313500	24.994501	100.0	1.718597	4.681481	430110.000000
max	32.724285	2.852166e+12	23.955000	25.669001	100.0	3.512726	4.727576	432380.000000

France has a net import whose average is greater compared to Australia. The average greenhouse gas emission in Australia is higher than that of France. The Bar graph for GDP in France is as follows:

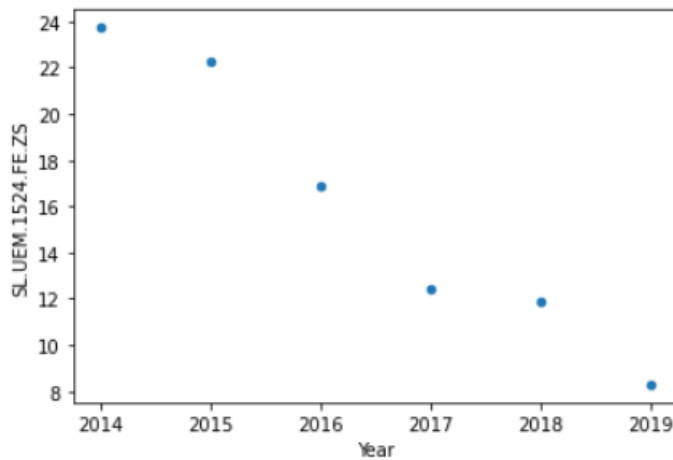


We can see that the GDP of France has reduce a little during the year 2015 and then it has increased from 2015 to 2018.

The analysis for Bulgaria is as follows:

series	NE.IMP.GNFS.ZS	NY.GDP.MKTP.CD	SL.UEM.1524.FE.ZS	SL.UEM.1524.MA.ZS	EG.ELC.ACCS.ZS	EG.ELC.NGAS.ZS	EN.ATM.CO2E.PC	EN.ATM.GHGT.KT.CE
count	6.000000	6.000000e+00	6.000000	6.000000	6.0	6.000000	6.000000	6.000000
mean	62.349101	5.938270e+10	15.925333	16.368333	100.0	1.398126	5.001070	46003.333333
std	2.296373	7.048034e+09	6.145012	5.473284	0.0	2.178582	2.456813	22584.224287
min	58.963344	5.078200e+10	8.293000	9.304000	100.0	0.000000	0.000000	0.000000
25%	61.200065	5.473593e+10	12.030500	13.207250	100.0	0.000000	5.848075	53565.000000
50%	62.791428	5.814073e+10	14.682500	15.336501	100.0	0.000000	5.855350	54465.000000
75%	63.092150	6.457243e+10	20.929249	20.288751	100.0	2.868163	6.131908	56002.500000
max	65.686403	6.891542e+10	23.736000	23.796000	100.0	4.564536	6.225976	57310.000000

In Bulgaria, the average electricity production from natural gas sources as a % of total is lower than that of Australia and France. The average total import is higher than that of Australia and France. The Scatter Plot for Unemployment of Youth Female for Bulgaria is as below:

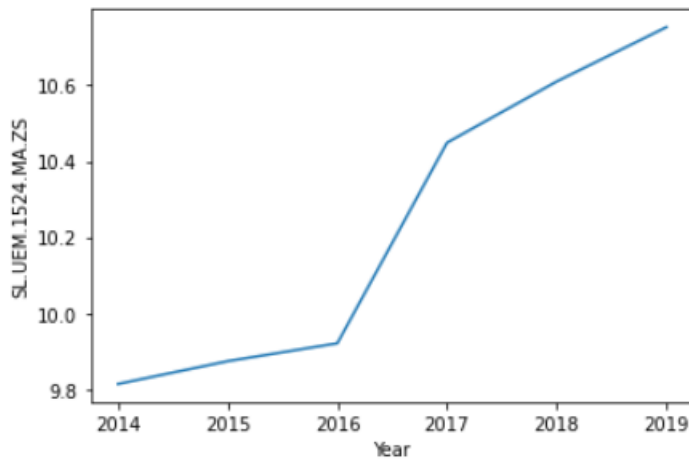


We can visualise that the unemployment of youth female for Bulgaria has reduced from 2014 to 2019.

The analysis for Bangladesh is as follows:

series	NE.IMP.GNFS.ZS	NY.GDP.MKTP.CD	SL.UEM.1524.FE.ZS	SL.UEM.1524.MA.ZS	EG.ELC.ACCS.ZS	EG.ELC.NGAS.ZS	EN.ATM.CO2E.PC	EN.ATM.GHGT.KT.CE
count	6.000000	6.000000e+00	6.000000	6.000000	6.000000	6.000000	6.000000	6.000000
mean	22.787701	2.359501e+11	14.845833	10.236833	80.793346	27.119087	0.390703	155166.666667
std	2.104484	4.886184e+10	2.200410	0.414942	11.879585	42.014743	0.194385	76518.077254
min	20.267892	1.728855e+11	11.744000	9.814000	62.400000	0.000000	0.000000	0.000000
25%	21.337449	2.016628e+11	13.279000	9.885750	74.810059	0.000000	0.424373	175782.500000
50%	22.439994	2.355631e+11	15.375500	10.185000	81.960000	0.000000	0.462787	183050.000000
75%	24.422976	2.679570e+11	16.692750	10.569750	90.850000	60.527698	0.486374	190190.000000
max	25.524420	3.025713e+11	16.868000	10.753000	92.200000	82.010923	0.512837	198970.000000

In Bangladesh, the average electricity access to total population is less than 100%. Emission of gases which cause greenhouse effect is greater than that of Australia, France and Bulgaria. The Line Graph of Unemployment of Youth male for Bangladesh is as follows:



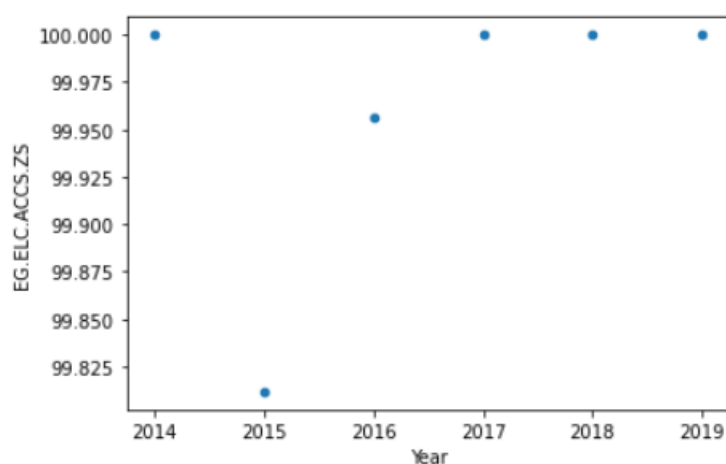
The above picture shows that unemployment of male who are youth has risen from the year 2014 to 2019 in Bangladesh.

The analysis for Argentina is as follows:

series	NE.IMP.GNFS.ZS	NY.GDP.MKTP.CD	SL.UEM.1524.FE.ZS	SL.UEM.1524.MA.ZS	EG.ELC.ACCS.ZS	EG.ELC.NGAS.ZS	EN.ATM.CO2E.PC	EN.ATM.GHGT.KT.CE
count	6.000000	6.000000e+00	6.000000	6.000000	6.000000	6.000000	6.000000	6.000000
mean	14.027059	5.498302e+11	25.826000	19.838833	99.961283	16.280323	3.472507	303000.000000
std	1.468911	6.578365e+10	2.434253	2.423533	0.075371	25.224629	1.705059	148495.013654
min	11.780574	4.519324e+11	22.327000	17.039000	99.811684	0.000000	0.000000	0.000000
25%	13.667424	5.251947e+11	24.145499	18.204500	99.967012	0.000000	4.012794	357715.000000
50%	13.985316	5.419255e+11	26.315000	19.679500	100.000000	0.000000	4.152916	364105.000000
75%	14.389206	5.854448e+11	27.642251	20.739000	100.000000	36.149759	4.224745	366190.000000
max	16.325850	6.436287e+11	28.492001	23.830000	100.000000	49.482260	4.314434	367320.000000

Total average import for Argentina has been smaller compared to Australia, France, Bulgaria and Bangladesh. The average electricity access is also lower than that of Australia, France and Bulgaria.

The Scatter Plot for Electricity access for Argentina is as follows:

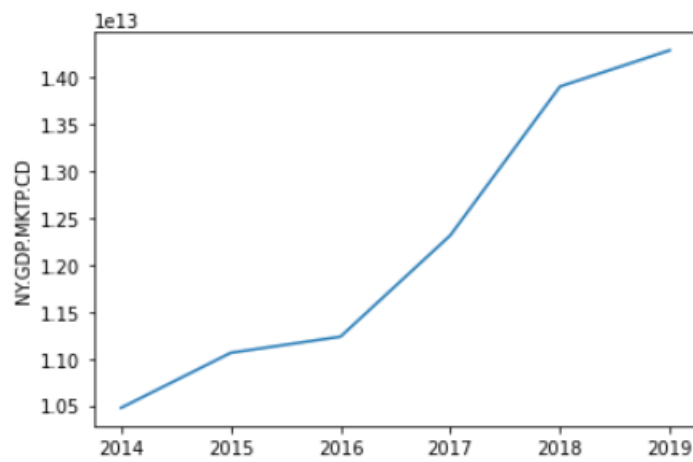


The scatter plot above shows that in the year 2015 the electricity access rate was lower compared to the other years in Argentina.

The analysis for China is as follows:

series	NE.IMP.GNFS.ZS	NY.GDP.MKTP.CD	SL.UEM.1524.FE.ZS	SL.UEM.1524.MA.ZS	EG.ELC.ACCS.ZS	EG.ELC.NGAS.ZS	EN.ATM.CO2E.PC	EN.ATM.GHGT.KT.CE
count	6.000000	6.000000e+00	6.000000	6.000000	6.0	6.000000	6.000000	6.000000e+00
mean	18.448200	1.220928e+13	9.390667	11.342000	100.0	0.751339	5.989354	9.999178e+06
std	1.502641	1.575697e+12	0.196475	0.255705	0.0	1.173262	2.935716	4.902411e+06
min	17.310035	1.047568e+13	9.054000	10.876000	100.0	0.000000	0.000000	0.000000e+00
25%	17.595112	1.110448e+13	9.338750	11.283000	100.0	0.000000	7.084980	1.185771e+07
50%	18.025113	1.177184e+13	9.403000	11.418000	100.0	0.000000	7.149585	1.186230e+07
75%	18.367783	1.349872e+13	9.512250	11.496750	100.0	1.515754	7.203331	1.200986e+07
max	21.395155	1.427994e+13	9.618000	11.579000	100.0	2.487031	7.352263	1.235524e+07

The average unemployment of youth female as a % of female labour force between the age of 15-24 is smaller compared to that of Bulgaria, Bangladesh and France. The average current GDP is higher than that of Australia, France, Bangladesh and Argentina. The Line Graph for GDP of China is as follows:

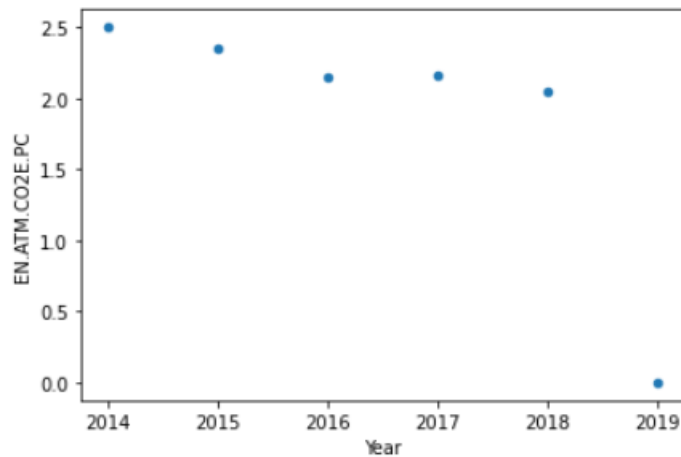


We can see that the GDP of China has risen from the year 2014 to the year 2019.

The analysis for Brazil is as follows:

series	NE.IMP.GNFS.ZS	NY.GDP.MKTP.CD	SL.UEM.1524.FE.ZS	SL.UEM.1524.MA.ZS	EG.ELC.ACCS.ZS	EG.ELC.NGAS.ZS	EN.ATM.CO2E.PC	EN.ATM.GHGT.KT.CE
count	6.000000	6.000000e+00	6.000000	6.000000	6.000000	6.000000	6.000000	6.000000e+00
mean	13.364408	1.985370e+12	28.307500	21.337834	99.726858	4.565438	1.866087	8.896417e+05
std	1.134884	2.503654e+11	5.840282	5.142729	0.060442	7.072771	0.928634	4.365621e+05
min	11.800767	1.795693e+12	18.701000	13.179000	99.650247	0.000000	0.000000	0.000000e+00
25%	12.468618	1.821115e+12	25.311999	18.421000	99.700000	0.000000	2.067280	1.037402e+06
50%	13.863449	1.897379e+12	31.324500	23.768001	99.705451	0.000000	2.153960	1.058305e+06
75%	14.194262	2.026869e+12	31.949001	24.741001	99.777726	10.249685	2.301630	1.078255e+06
max	14.350575	2.456044e+12	33.029999	25.608000	99.800000	13.726380	2.499362	1.105900e+06

The unemployment of youth male as a % of male labour force between 15 and 24 years of age is greater than that of China, Argentina, Bangladesh and Bulgaria. The average carbon dioxide emissions on the basis of metric tons per capita is smaller than that of China, Argentina, Bulgaria and France. The Scatter Plot for carbon dioxide emissions on the basis of metric tons per capita in Brazil is as follows:

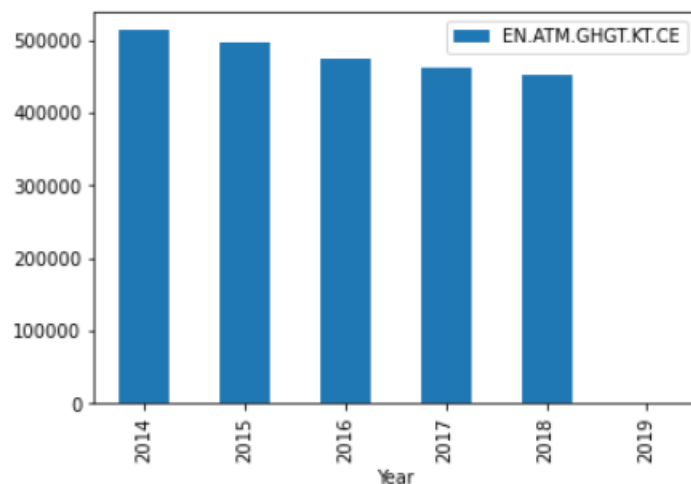


We can see that the carbon dioxide emissions on the basis of metric tons per capita has reduced from 2014 to 2018 in Brazil.

The analysis for Great Britain is as follows:

series	NE.IMP.GNFS.ZS	NY.GDP.MKTP.CD	SL.UEM.1524.FE.ZS	SL.UEM.1524.MA.ZS	EG.ELC.ACCS.ZS	EG.ELC.NGAS.ZS	EN.ATM.CO2E.PC	EN.ATM.GHGT.KT.CE
count	6.000000	6.000000e+00	6.000000	6.000000	6.0	6.000000	6.000000	6.000000
mean	30.583865	2.874179e+12	11.422667	14.691833	100.0	9.971968	4.881643	400008.333333
std	1.286604	1.459194e+11	2.040710	2.461128	0.0	15.448906	2.421307	197292.243782
min	28.731477	2.699017e+12	9.121000	12.165000	100.0	0.000000	0.000000	0.000000
25%	29.862385	2.761807e+12	10.287250	13.044000	100.0	0.000000	5.435598	454357.500000
50%	30.591545	2.889733e+12	10.796500	14.060500	100.0	0.000000	5.660504	468215.000000
75%	31.683137	2.942628e+12	12.424750	15.764750	100.0	22.305162	6.055094	492115.000000
max	31.922291	3.087166e+12	14.737000	18.827000	100.0	30.091592	6.421598	513800.000000

The total import average for Great Britain is higher than that of Brazil, China, Argentina and Bangladesh. The electricity average production from natural gas sources as a % of total is higher than that of Brazil, Argentina, Bangladesh and France. The Bar graph for Greenhouse emission of Great Britain is as follows:

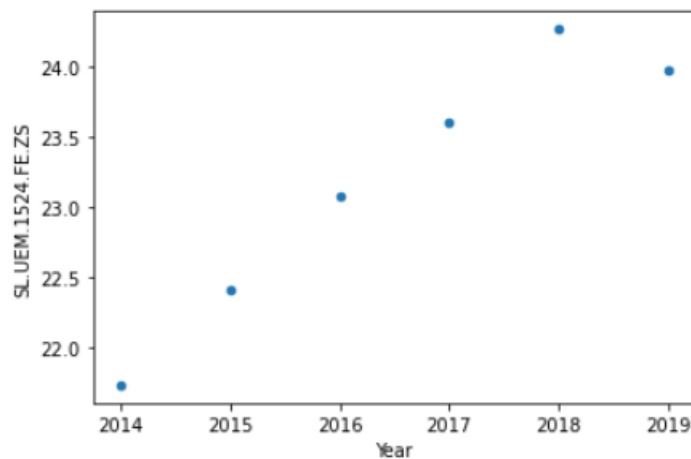


We can observe that the greenhouse gas emission in Great Britain has declined from the year 2014 to the year 2018.

The analysis for the country India is below:

series	NE.IMP.GNFS.ZS	NY.GDP.MKTP.CD	SL.UEM.1524.FE.ZS	SL.UEM.1524.MA.ZS	EG.ELC.ACCS.ZS	EG.ELC.NGAS.ZS	EN.ATM.CO2E.PC	EN.ATM.GHGT.KT.CE
count	6.000000	6.000000e+00	6.000000	6.000000	6.000000	6.000000	6.000000	6.000000e+00
mean	22.592289	2.443434e+12	23.176833	22.053167	91.097585	1.593288	1.409650	2.636743e+06
std	1.925452	3.444180e+11	0.964430	0.625229	5.142426	2.469976	0.693283	1.297599e+06
min	20.924251	2.039127e+12	21.739000	21.093000	83.585213	0.000000	0.000000	0.000000e+00
25%	21.205721	2.151390e+12	22.577500	21.691750	88.383720	0.000000	1.642989	3.052505e+06
50%	22.030228	2.473135e+12	23.340000	22.192500	90.995857	0.000000	1.648843	3.083380e+06
75%	23.270494	2.688702e+12	23.877501	22.445001	94.509182	3.477400	1.701725	3.198218e+06
max	25.954223	2.870504e+12	24.261999	22.787001	97.815285	4.923196	1.799825	3.374990e+06

The average current GDP of India is greater than that of Bulgaria, Argentina, Brazil, Bulgaria and Bangladesh. The average access to electricity is less than that of 100% as a % of population. The Scatter Plot for Youth female unemployment in India is as follows:



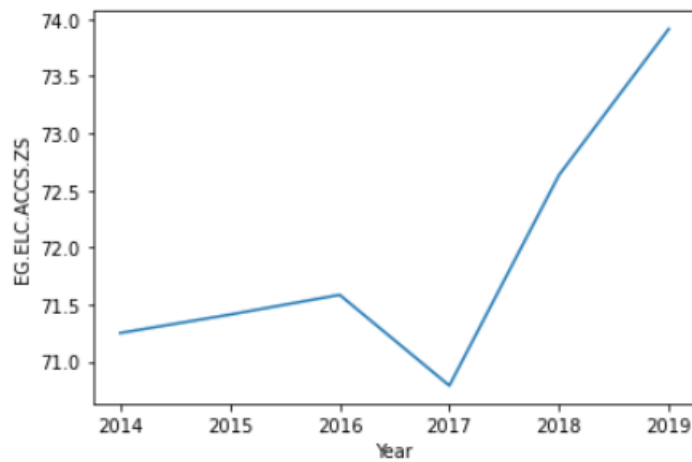
We can see that the unemployment of youth female has increased from 2015 to 2018 but decreased slightly in 2019 in India.

The analysis for Pakistan is as follows:

series	NE.IMP.GNFS.ZS	NY.GDP.MKTP.CD	SL.UEM.1524.FE.ZS	SL.UEM.1524.MA.ZS	EG.ELC.ACCS.ZS	EG.ELC.NGAS.ZS	EN.ATM.CO2E.PC	EN.ATM.GHGT.KT.CE
count	6.000000	6.000000e+00	6.000000	6.000000	6.000000	6.000000	6.000000	6.000000
mean	18.299119	2.819605e+11	7.281667	6.807333	71.931295	8.704196	0.737767	325340.00000
std	1.657546	2.504970e+10	1.986406	1.598734	1.147374	13.486710	0.368973	162125.63326
min	16.160505	2.443609e+11	3.990000	4.187000	70.790000	0.000000	0.000000	0.000000
25%	17.186575	2.725808e+11	6.660750	6.055500	71.291269	0.000000	0.795191	354725.00000
50%	18.127089	2.788556e+11	7.318000	7.108000	71.498722	0.000000	0.853525	377590.00000
75%	19.718182	2.981896e+11	8.555000	8.060000	72.372564	19.293755	0.934870	408300.00000
max	20.258413	3.145675e+11	9.655000	8.359000	73.914360	26.500168	0.981820	431220.00000

The average electricity access is smaller than all the countries considered for comparison. The carbon dioxide emissions average calculated in metric tons per capita is smaller than that of India, Great Britain, China and Brazil. The Line Graph for Electricity access in Pakistan is as follows:

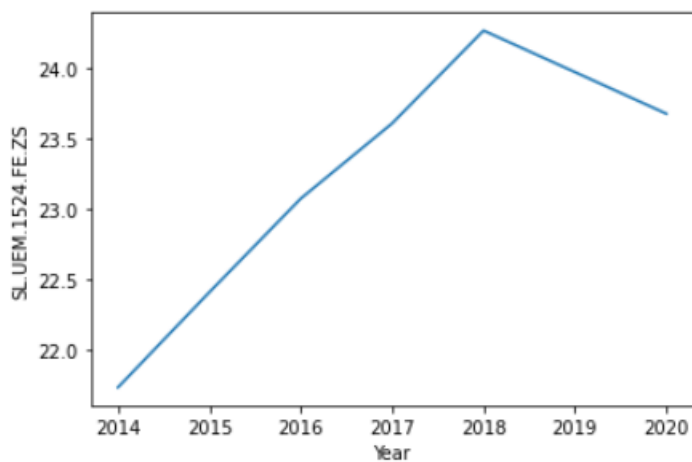
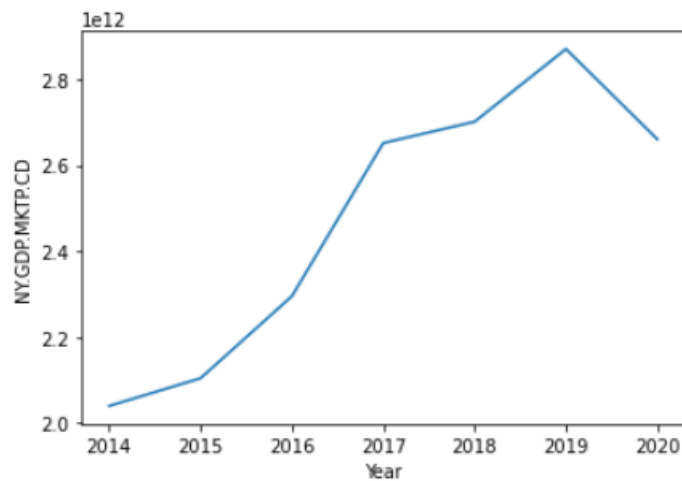


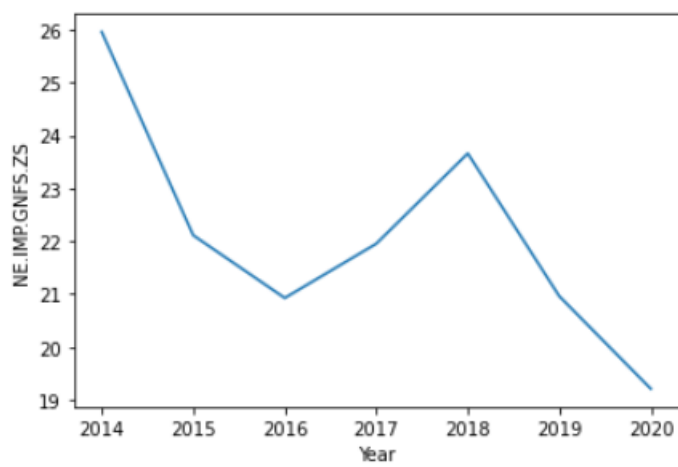
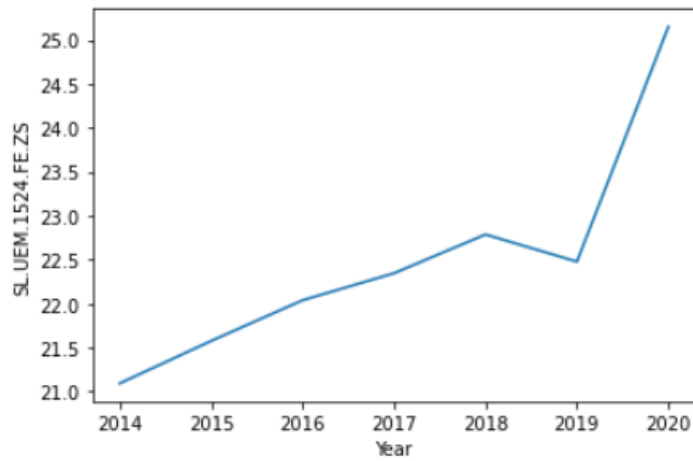


The access to electricity percentage in Pakistan has gradually increased from 2014 to 2016 and then again it increased from 2017 to 2019.

## CORRELATION ANALYSIS

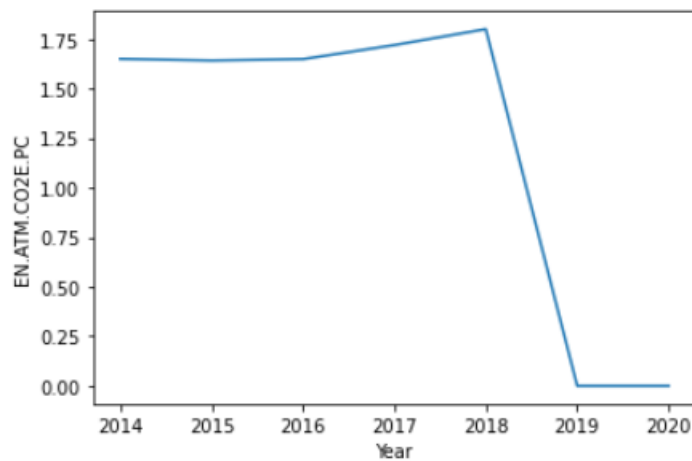
The visualizations of the indicators related to economy are as below for India:

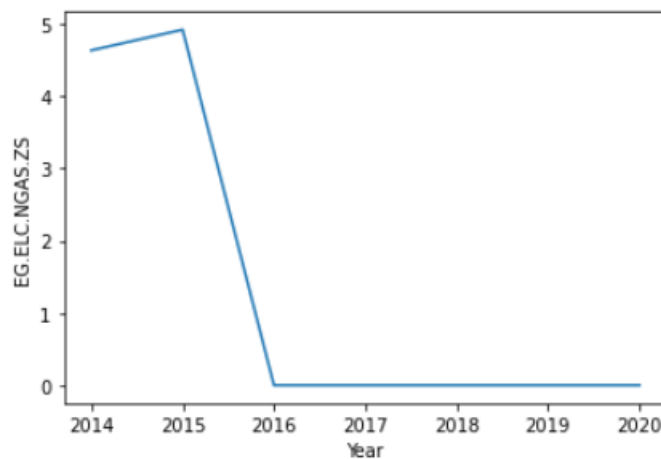
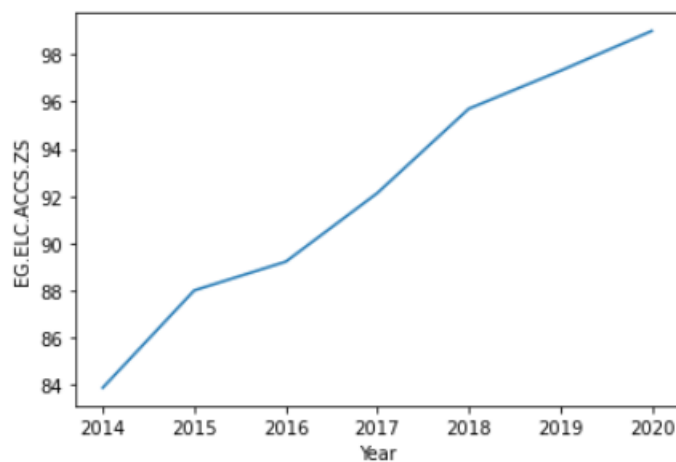
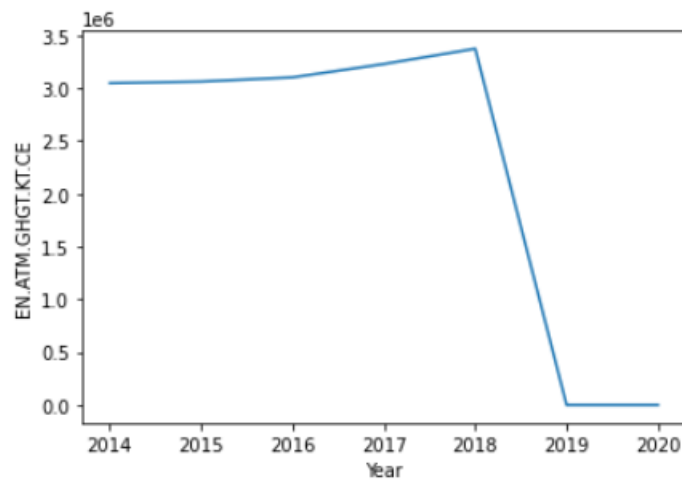




We see that the GDP has a strong correlation with female unemployment percentage. There exists a weak correlation with male unemployment percentage and import with GDP.

The visualizations of the indicators related to climate are as below for India:





There exists a strong correlation between carbon dioxide emission and the emission of greenhouse gases. There is no correlation with carbon dioxide emission or emission of greenhouse gases with electricity access percentage. There is a weak correlation between emission of greenhouse gases and production of electricity from natural gas sources.

## CONCLUSION

We have got the data of the indicators related to GDP and climate from wbgapi. From the visualisations, we have observed the trends of different countries based on the indicators related to GDP and climate. The imports have been consistent for Australia. The GDP of France has increased from the previous years. The youth female unemployment % of Bulgaria has reduced. Youth male unemployment of Bangladesh has increased. Electricity access % in Argentina has been close to 100%. The GDP for China has increased. Carbon dioxide emission of Brazil has reduced. Greenhouse gas emission has reduced for Great Britain. The youth female unemployment % of India has increased. Electricity access % in Pakistan has increased.

## REFERENCES

WBGAPI, 2022. *Wbgapi 1.0.7*. [Online] Available at: <https://pypi.org/project/wbgapi/> [Accessed 28 April 2022].