STATISTICS AND TRENDS OF ELECTRICITY PRODUCTION AND ACCESS BASED ON WORLD BANK DATA

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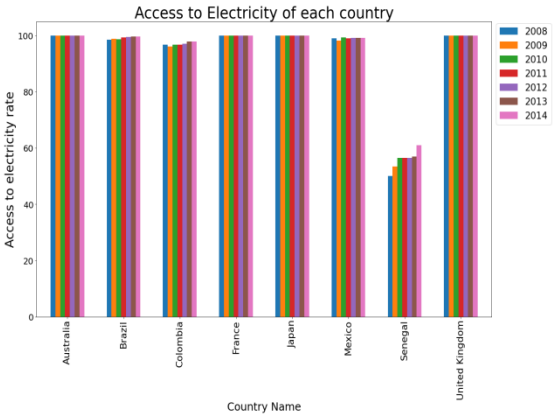
ABSTRACT

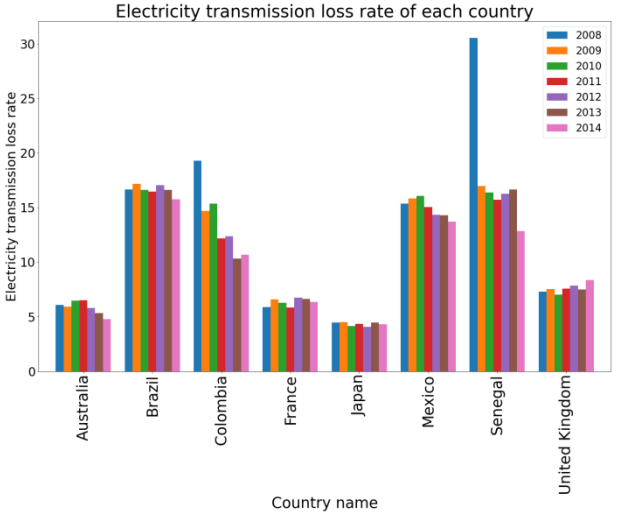
This is a data analysis for 8 selected countries from different continents and the relationship between the Access to electricity, Electric power transmission and distribution loss, Electricity production from Coal sources, Nuclear sources and Petroleum sources from 2008 - 2014. For this analysis, the following python libraries were used: Numpy, Scipy, Pandas, Matplotlib and Seaborn.

INDICATORS AND LINKS

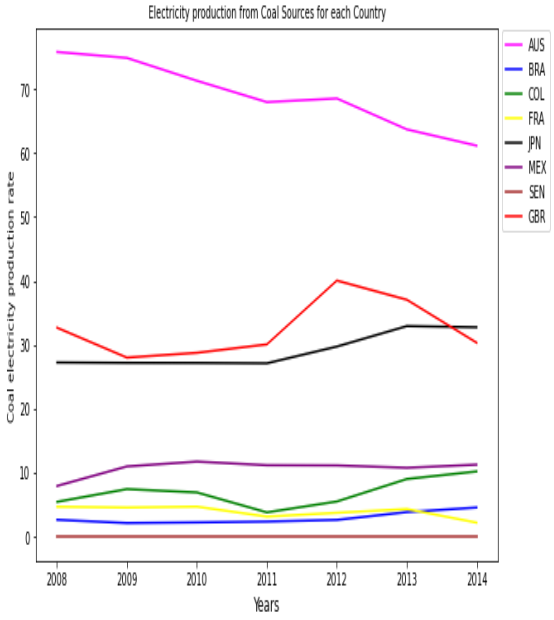
Access to Electricity:
https://api.worldbank.org/v2/en/indicator/EG.ELC.ACCS.ZS?downloadformat=excel
Electricity production from coal sources:
https://api.worldbank.org/v2/en/indicator/EG.ELC.COAL.ZS?downloadformat=excel
Electricity production from nuclear sources:
https://api.worldbank.org/v2/en/indicator/EG.ELC.NUCL.ZS?downloadformat=excel
Electricity production from petrol sources:
https://api.worldbank.org/v2/en/indicator/EG.ELC.PETR.ZS?downloadformat=excel
Electric power transmission and distribution loss:
https://api.worldbank.org/v2/en/indicator/EG.ELC.LOSS.ZS?downloadformat=excel
SHEET NAME: data
GITHUB LINK: https://github.com/Jolek15/Assignmet-2/blob/main/JOSHUA%20ADEYEMO%20ASSIGNMENT%202.py



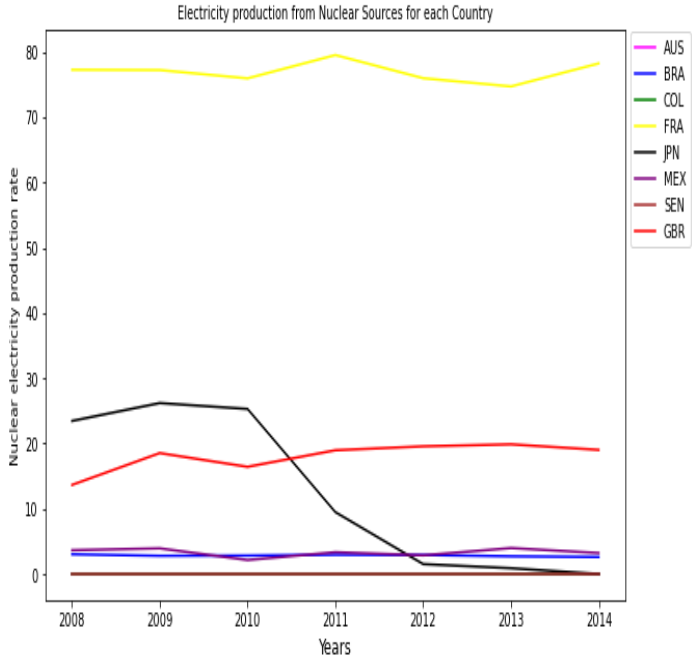
The bar graph above shows the access to electricity rate of 8 countries from 2008 to 2014. Senegal is the country with the lowest access to electricity and showing an upward trend with increase in electricity access from 2010 to 2014 which is seen in their Electric power transmission and distribution loss as shown on the Electricity transmission loss plot on the top right. The increase in electricity access is due to the decrease in electric power transmission and distribution loss over the years.



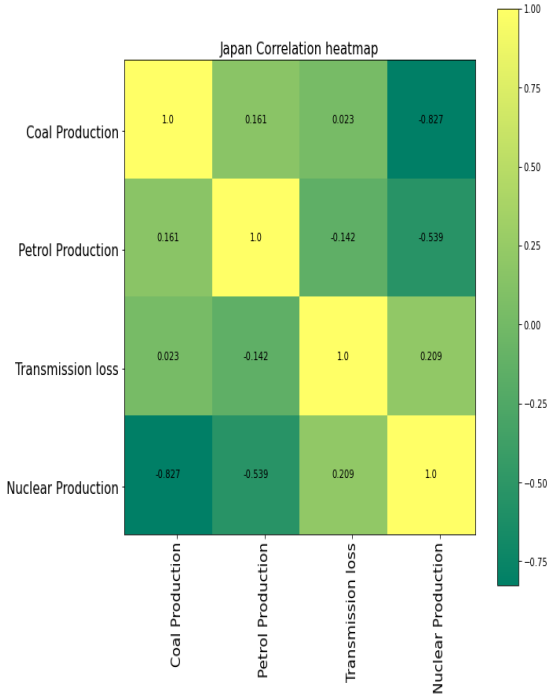
The “Access to Electricity” and “Electricity Transmission loss” Charts shows that Japan have an inverse variation which is reflected in their technology at world level.



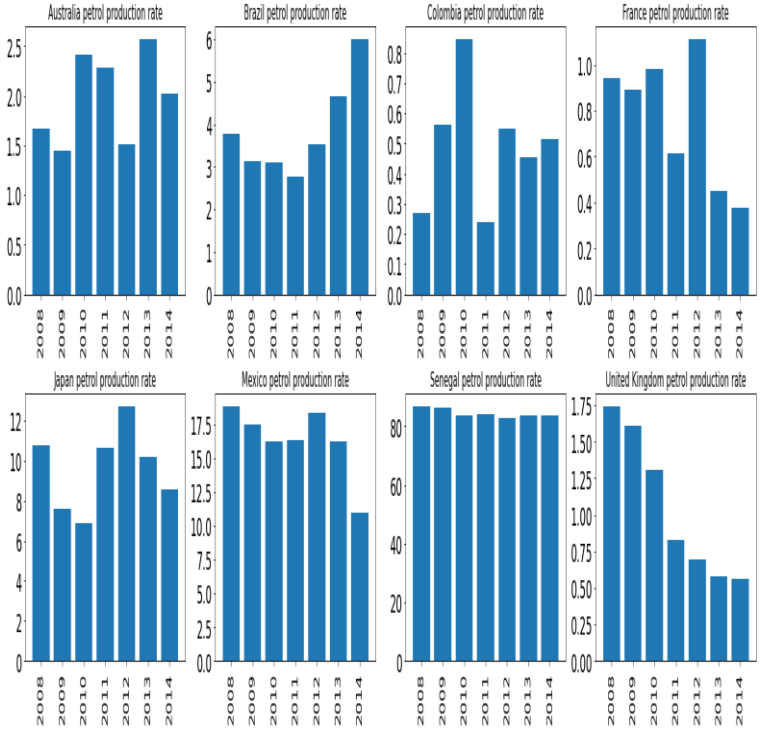
Japan experienced an upward trend in electricity production from coal sources with a 15.6% increase from 2008 to 2014. Compared to that, there has been a massive decrease in electricity production from nuclear sources as there was an 100% decrease in 6 years. It can be deduced that Japan sees the use of nuclear sources expensive or harmful to the country.



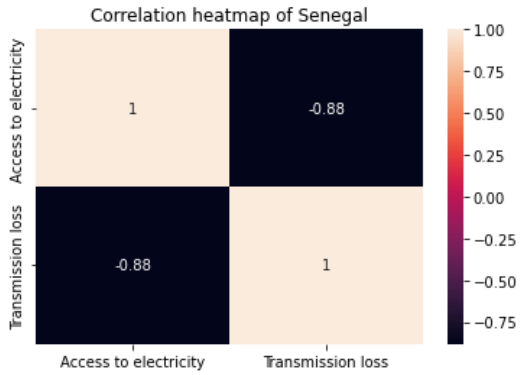
France is the leading country in electricity production from nuclear sources. This shows that France depends solely on nuclear sources for their electricity production.



The heat map on Japan shows no distinct correlation between transmission loss and any other factors. Nevertheless, the coal production and petroleum production are negatively correlated with the nuclear production in the country. That is, as the electricity production from nuclear sources reduces the electricity production from Coal and Petroleum sources in the country increase. The country is not depending solely on one production source for electricity.



The bar subplot on United Kingdom shows a down trend in the electricity production from coal sources over the years and this is closely related to the increase in electricity production from nuclear sources in the United Kingdom. There is a 45.6% increase in electricity production from nuclear sources in 6 years.



The heat map on Senegal shows a strong negative correlation between Access to Electricity and Electricity transmission and distribution loss in the country. This means that when electricity transmission and distribution loss decreases, there is an increase in Access to Electricity. Also, there has been an average of 41.5% decrease in electricity transmission and distribution loss in 6 years.