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Data Source: https://data.worldbank.org/

Repository Link: https://github.com/Azeem4567/Applied_Data_Science1_Assignment_2.git

Exploring Statistics and Trends in World Bank Data

Abstract - This report presents an analysis of key economic and environmental indicators for selected countries. The indicators under consideration include GDP growth, the percentage of Agriculture, Forestry, and Fishing in GDP, Electricity Production, Urban Land, Urban Population Growth, and their interrelationships. The analysis aims to provide insights into the economic and environmental dynamics of these countries.

Analysis of GDP Growth Selected Countries

The GDP growth rates for the selected countries reveal interesting trends. China consistently exhibits high growth rates, averaging 8.1% over the years, highlighting its robust economic performance. India follows closely with an average growth rate of 5.2%, while developed economies such as the United States and Germany maintain more modest but stable growth. This data suggests the varying economic landscapes and development stages across the analyzed nations.

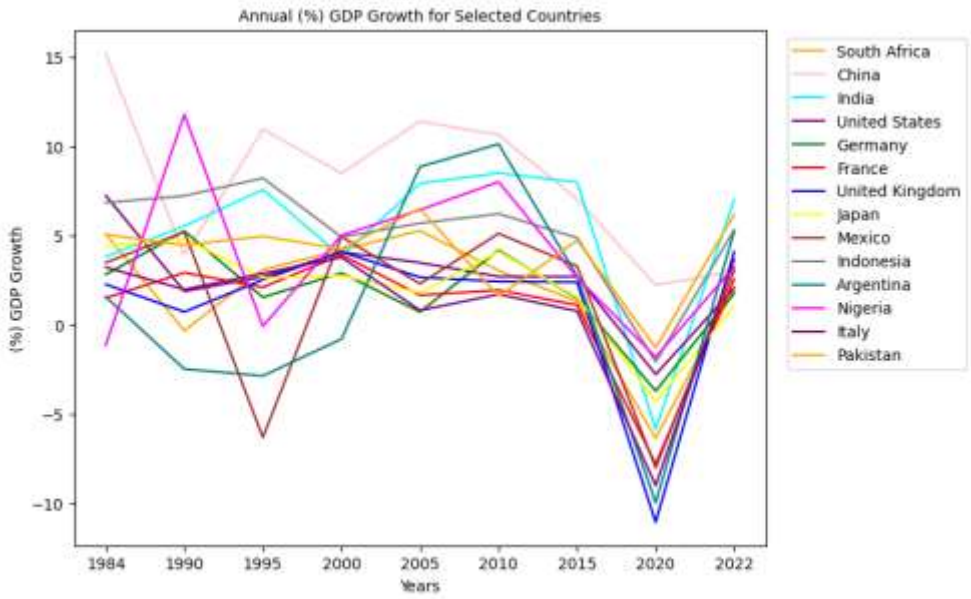

Figure 1: GDP Growth of Selected Economies

Analysis of Agriculture, Forestry, and Fishing Contribution to GDP (%): 2014-2022

The percentage contribution of Agriculture, Forestry, and Fishing to GDP reflects the economic structure and development patterns. Developed countries like the United States, Germany, France, and the United Kingdom exhibit a relatively smaller share of this sector, emphasizing the dominance of service and industrial sectors. However, some countries like Indonesia and Argentina maintain a substantial reliance on agriculture, signalling diverse economic structures.

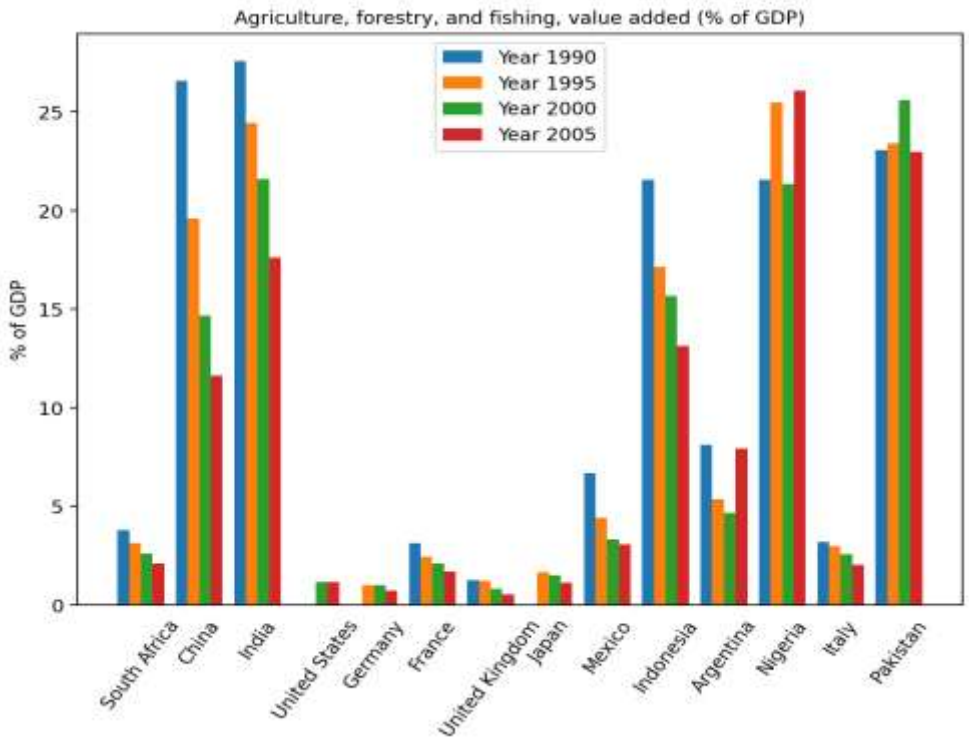

Figure 2: Analysis of Agriculture, Forestry, and Fishing Contribution to GDP (%): 1984-2022

Urban Population Growth Analysis

Urban population growth rates shed light on demographic shifts and urbanization's pace. Developed countries like Germany and France maintain relatively low but stable urban population growth, suggesting mature urban structures. The nuanced patterns highlight the need for tailored urban development strategies based on each country's unique demographic and economic context.

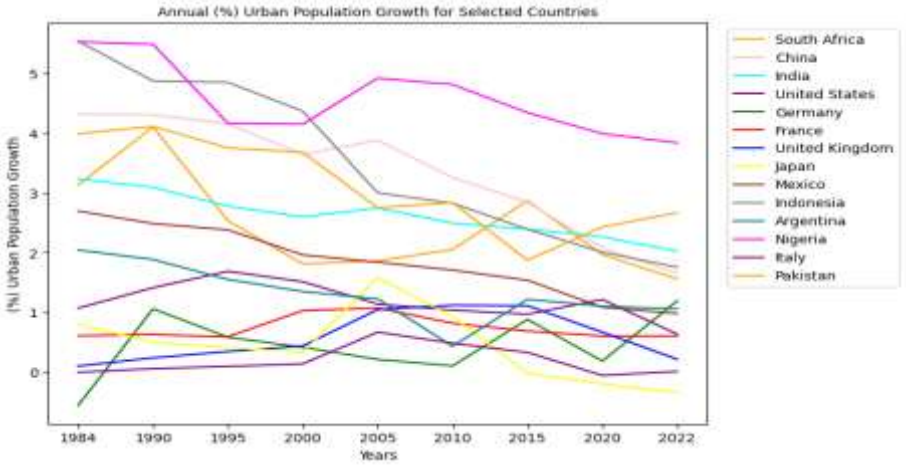

Figure 3: Urban population growth 1984-2022

Correlation of Mexico Analysis

The correlation matrices provide insights into the relationships between different indicators. For Mexico, strong negative correlations between urban population growth and electricity production suggest potential efficiency gains in energy consumption as urbanization progresses. Positive correlations between GDP growth and CO2 emissions highlight the challenges of achieving economic development while minimizing environmental impacts.

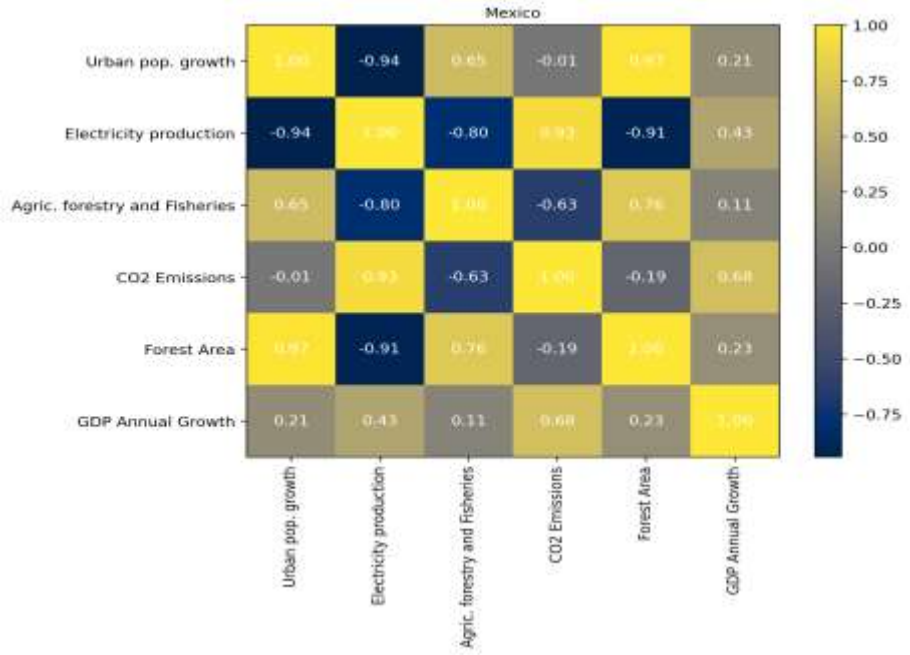

Figure 4: Analysis of Key Indicators for Japan (1984-2022)

Corelation of China Analysis

The correlation matrices provide insights into the relationships between different indicators. In China, the strong negative correlation between urban population growth and CO2 emissions suggests a potential decoupling of urbanization and environmental degradation.

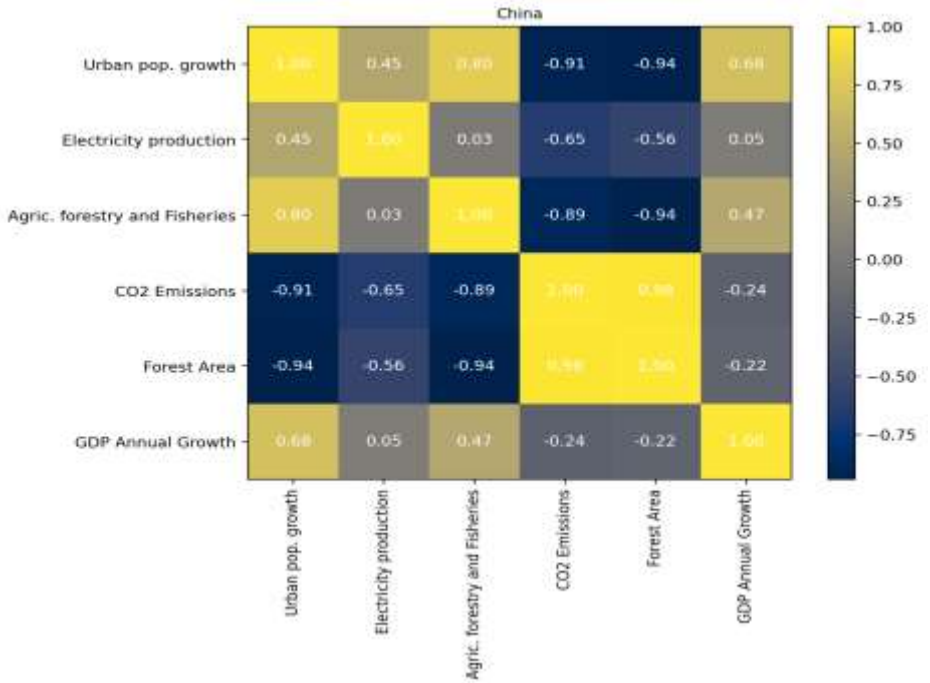

Figure 5: Analysis of Key Indicators for China (1984-2022)

Electricity Production Insights:

The trends in electricity production reveal the evolution of energy landscapes. China leads in absolute electricity production, reflecting its rapid industrialization. Interestingly, developed countries like France and Germany maintain a substantial reliance on nuclear power, contributing to lower CO2 emissions.

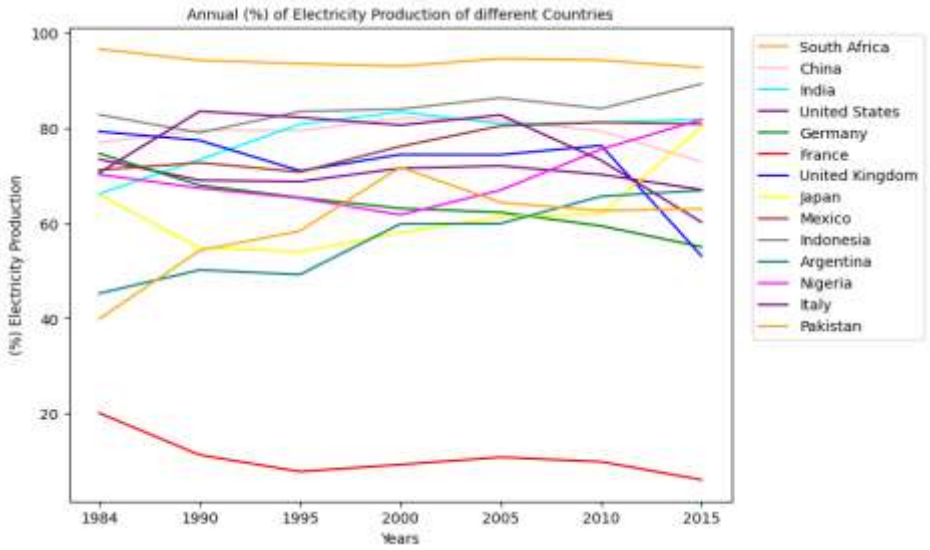

Figure 6: Electricity Production Insights 1984-2022

Greenhouse CO2 Gas Emissions:

Examining the greenhouse gas emissions is crucial in understanding a country's environmental impact. China exhibits high CO2 emissions aligned with robust industrial activities. Negative correlation with urban growth suggests efforts to mitigate environmental impact. Developed nations prioritize sustainability, reflected in lower emissions.

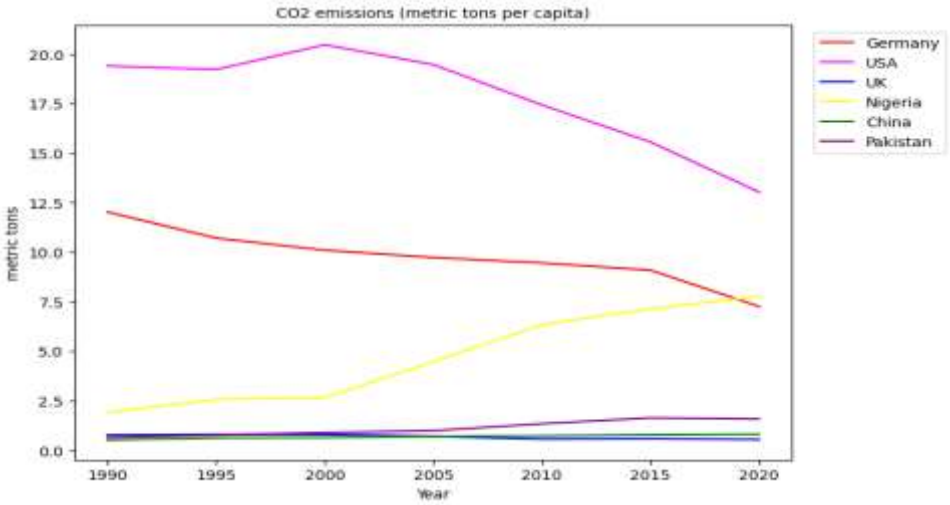

Figure 7: Greenhouse Gas Emissions by Countries 1984-2022

Urban Land Analysis:

Urbanization trends, as indicated by the percentage change in urban land, provide insights into the spatial transformations of these nations. The variations among countries underscore the importance of considering regional and developmental disparities in urbanization.

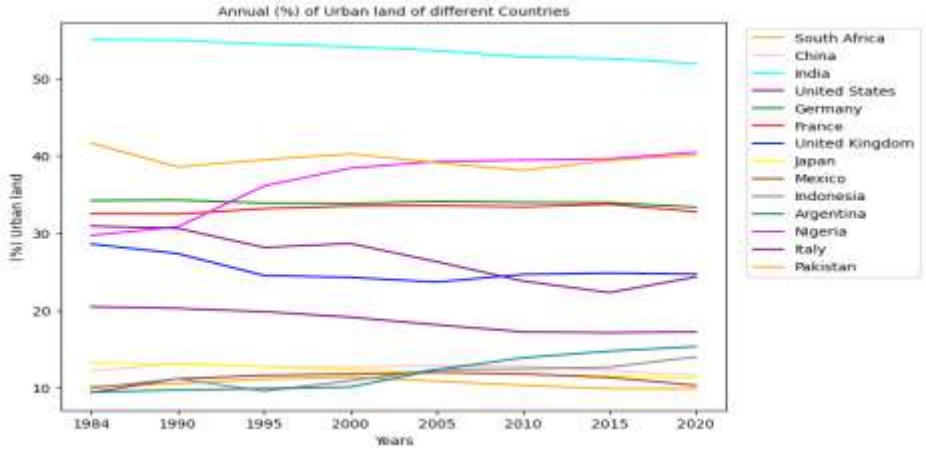

Figure 8: Urban Land Analysis (1984-2020)