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Subject: Applied Data Science 1

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

Repository Link: https://github.com/SaqibMaqbool/Assignment_Data_Science_2.git

Applied Data Science Assignment 2: Statistics and trend

Exploring Statistics and Trends in World Bank Data

Abstract - This utilizes World Bank data to explore economic, environmental, and societal trends. This report aims to analyze key economic indicators for selected countries, including GDP growth, agriculture's contribution to GDP, urban population growth, electricity production, and more. The data spans from 2014 to 2022, offering insights into the economic performance and sustainability practices of Brazil, Nigeria, Australia, Canada, South Africa, China, India, the United States, Germany, France, the United Kingdom, Japan, Mexico, Indonesia, and Argentina.

GDP Data Analysis: The GDP data provides a comprehensive overview of the annual percentage growth in GDP for each country. Noteworthy observations include Brazil's varying growth rates, China's consistent positive trend, and the contrasting performance of developed nations like the United States and Germany compared to emerging economies. The data underscores the complex dynamics of global economic growth and the influence of diverse factors on different nations.

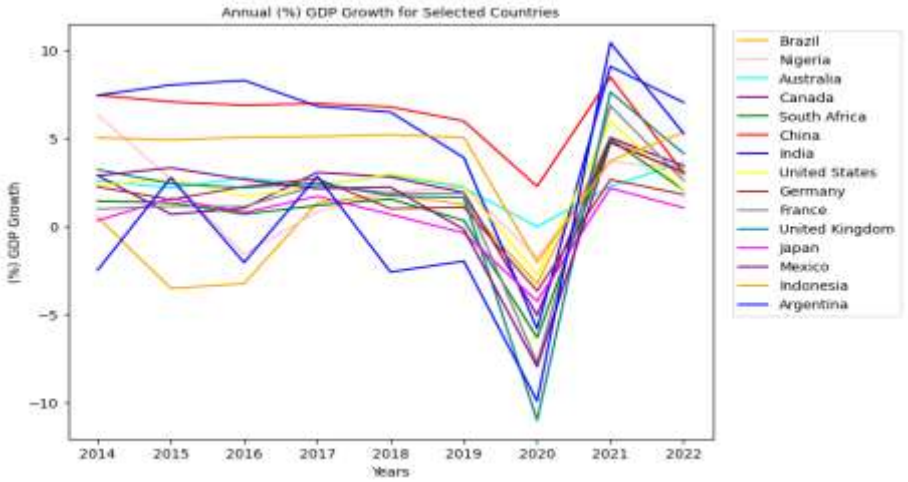

Figure 1: Annual GDP Growth of Selected Countries

Agriculture, Forestry, and Fishing Contribution to GDP: Analyzing the contribution of agriculture, forestry, and fishing to GDP reveals interesting trends. For instance, Nigeria consistently maintains a high percentage, reflecting the significance of these sectors in its economy. In contrast, developed nations like the United States and Germany exhibit a lower contribution, indicative of a more diversified economic structure. The analysis sheds light on the economic reliance on traditional sectors in certain countries.

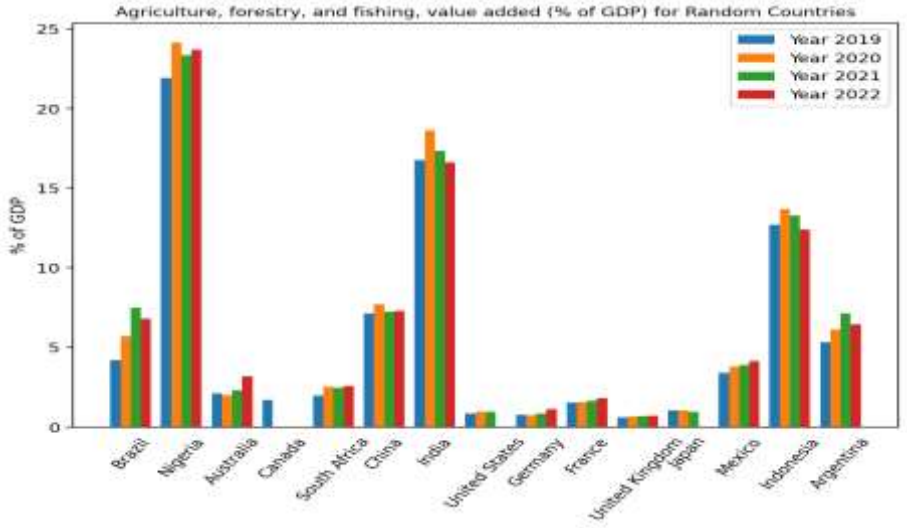

Figure 2: ***Agriculture, Forestry, & Fishing Contribution to GDP***

Urban Population Growth: The data on urban population growth showcases the changing demographic landscape. Australia exhibits a steady increase, while Canada's growth fluctuates. The analysis points towards potential correlations between urbanization trends and economic development, with higher growth rates often associated with increased economic activity.

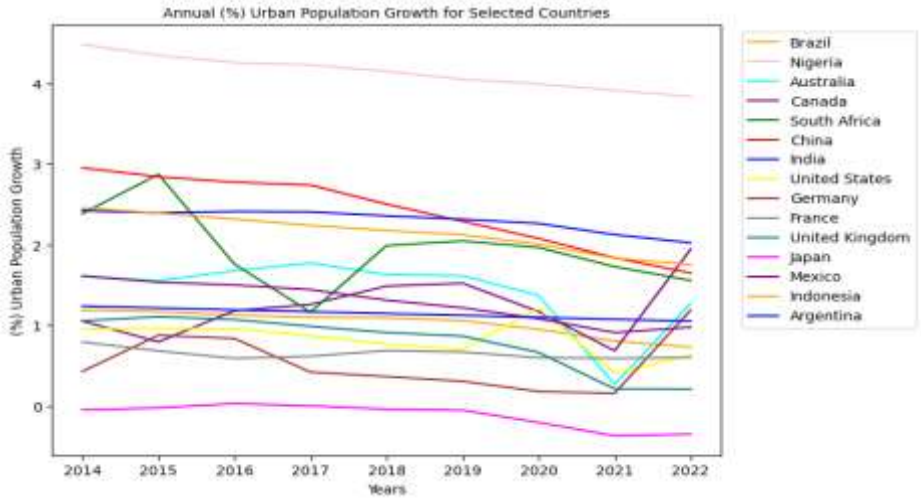

Figure 3: ***Urban Population Growth***

Electricity Production Trends: Examining electricity production trends provides insights into a country's energy landscape. China and India show substantial growth, aligning with their rapid industrialization. In contrast, developed nations display more stable patterns. The analysis suggests a correlation between electricity production and economic development, emphasizing the role of energy as a key economic driver.

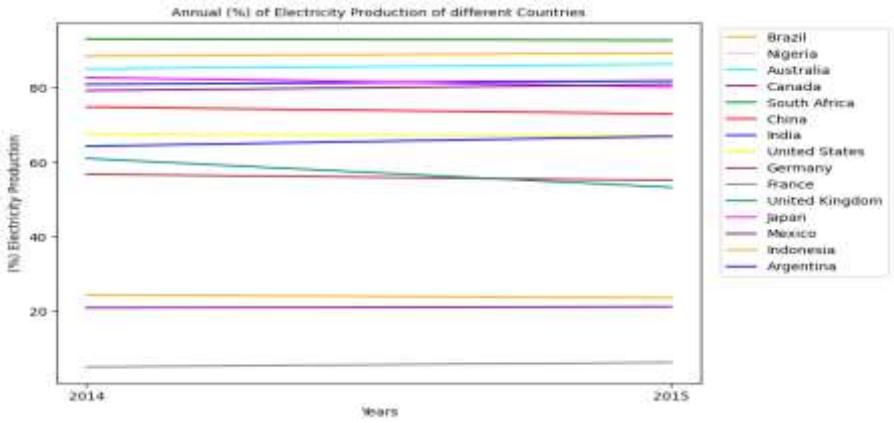

Figure 4: ***Electricity Production Trends***

Correlation Analysis for Australia and Canada: Correlation matrices for Australia and Canada offer a deeper understanding of the relationships between various indicators. For Australia, positive correlations between GDP growth and CO2 emissions raise questions about sustainability practices.

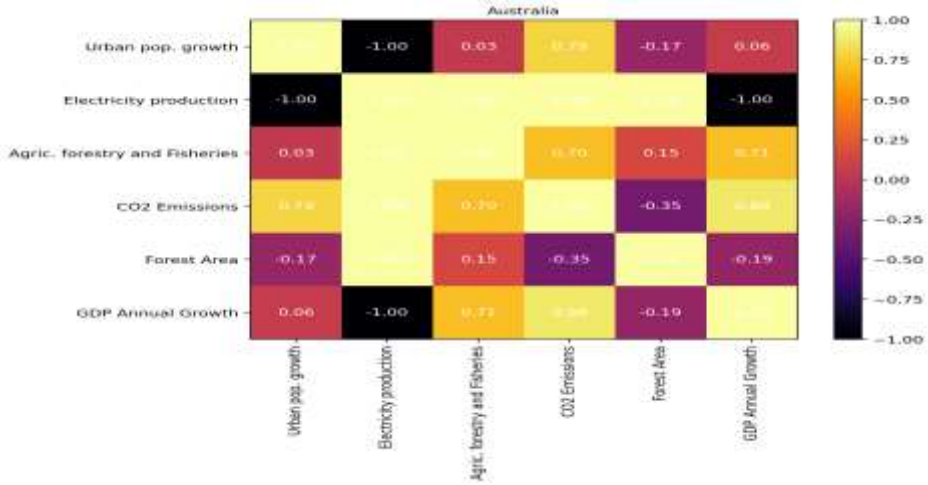

Figure 5: ***Australia Correlation Analysis***

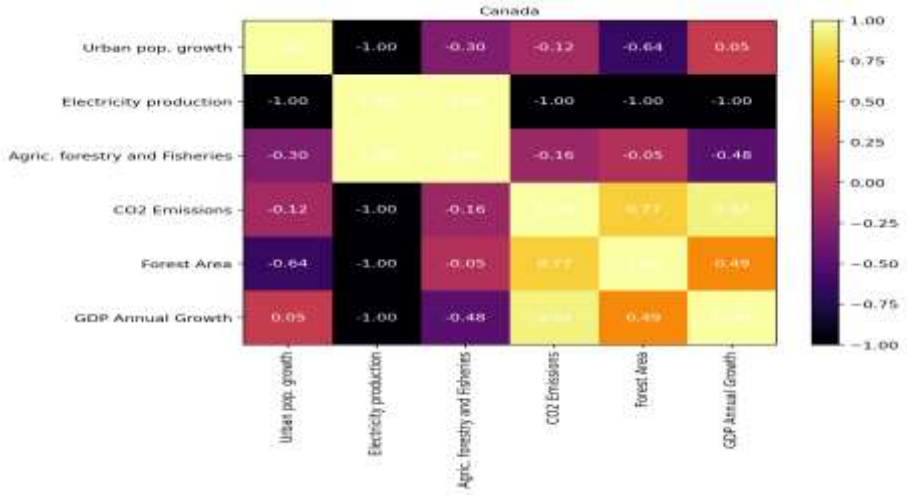

Figure 6: ***Canada Correlation Analysis***

In Canada, the negative correlation between electricity production and GDP growth prompts further investigation into energy efficiency and economic performance.

Agriculture Land (% of Land Area) Comparison: The comparison of agriculture land as a percentage of the total land area provides insights into land use patterns. Brazil and Nigeria allocate a significant portion of their land to agriculture, reflecting the importance of these sectors. In contrast, developed nations like Germany and the United Kingdom exhibit lower percentages, emphasizing the shift towards urbanization and industrialization.

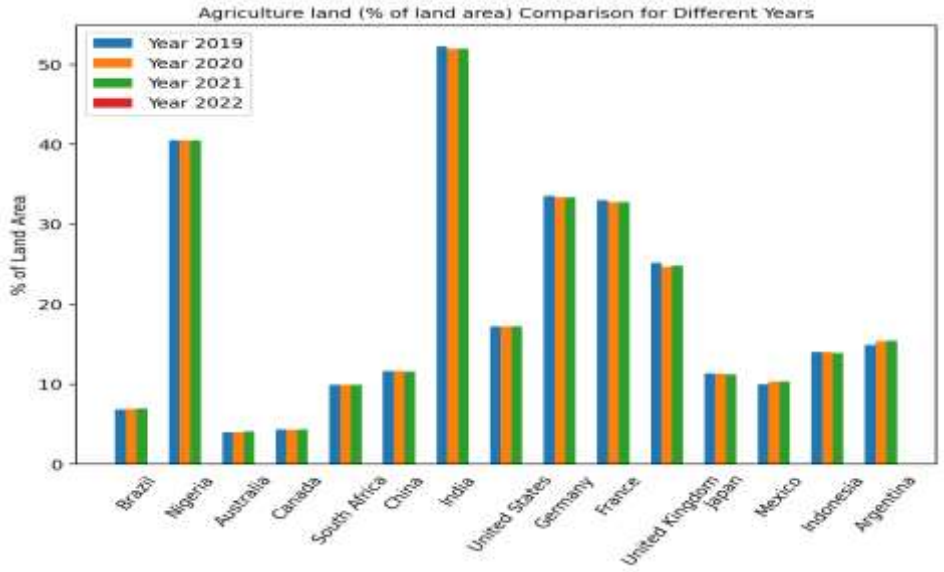

Figure 7: ***Agriculture Land (% of Land Area) Comparison***