

Applied Data Science 1 Assignment 2: Statistics and Trend

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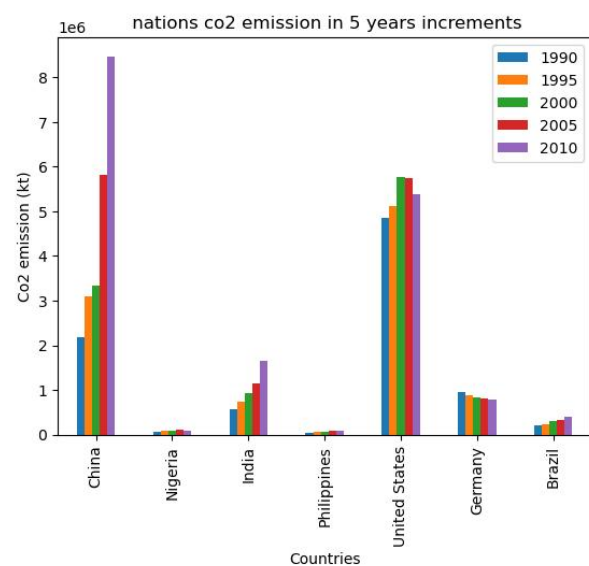
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Github Link: <https://github.com/Albertnsude/ADS2Assignment2statisticsandtrends>

SCOPE OF THE REPORT

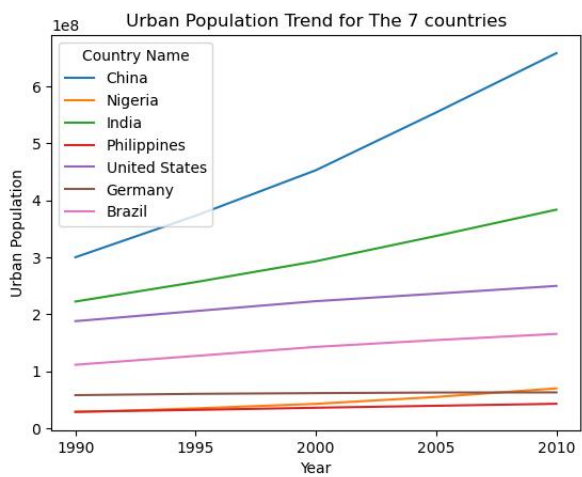
This scope of this report is to use world bank dataset on climate change and statistics properties and trends to illustrate the complex relationship between different indicators of climate change and highlight the importance of considering these factors together to understanding the overall economic growth and developmental impact of climate change across the seven countries from different continents of the world. With a range of indicators relevant to climate change, for example access to Arable land, Urban population, CO2 emissions, and Electric power consumption. i will illustrate the importance of these climate change in phases of economic growth and development in seven countries from different parts of the world across the continents and also correlate between carbon dioxide emission and urban population growth for china from 1990 to 2010. i used appropriate visualisation tools for a clearer picture of these developmental changes

VISUALIZATION 1: Developmental Trends of CO2 EMISSION FOR 7 COUNTRIES IN 5 YEARS



This grouped bar chart shows the changes in CO2 emissions over time for each of the seven countries. The chart above shows the CO2 emissions (in kilotons) for each country from 1990 to 2010. We can see that there is a significant variation in the level of CO2 emissions across the countries. China, which is in the middle phase of development, has the highest CO2 emissions, followed by the USA, which is a highly developed country. On the other hand, India, which is in the early phase of development, has relatively lower CO2 emissions.

VISUALIZATION 2: COMPARISON OF THE URBAN POPULATION AMONG THE COUNTRIES



The line plot indicates the urban population as an important indicator to assess the level of urbanization and development of a country. China has the highest urban population among the countries, followed by India and the United States. Nigeria has the lowest urban population among the countries.

VISUALIZATION 3: COMPARISON OF THE STATISTICAL PARAMETERS FOR CO2 EMISSION AND URBAN POPULATION

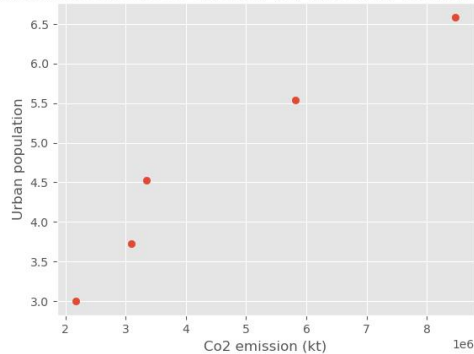
Country Name	CO2 Emissions (kilotons)	Urban Population
CHINA	Mean: 9,399.95	Mean: 467,813,280
NIGERIA	Mean: 902.94	Mean: 46,156,137
INDIA	Mean: 6,725.28	Mean: 298,677,886
PHILLIPINES	Mean: 794.92	Mean: 35,892,776
UNITED STATES	Mean:5 ,028.69	Mean: 220,560,775
GERMANY	Mean: 1,801.08	Mean: 61,137,689
BRAZIL	Mean: 4,864.86	Mean: 140,286,255

Based on the statistical mean data, we can observe the following trends and patterns:

We can observe that China has the highest mean CO2 emissions and urban population, while Nigeria has the lowest mean CO2 emissions and urban population among the seven countries.

VISUALIZATION 4: CORRELATION BETWEEN THE CO2 EMISSION AND URBAN POPULATION IN CHINA

Relationship between Co2 emission (kt) and Urban population in China



This scatter plot indicates a positive correlation between CO2 emissions and urban population of China. This correlation indicates that as urban population increases, the CO2 emissions tend to increase. China demonstrate this trend, where their urban populations increase significantly over time, leading to a significant increase in their CO2 emissions.

In conclusion, the statistical properties and visualization tools used to analyse CO2 emissions and urban population across the seven countries reveal the trends and correlation between these two indicators. We can see that different countries experience different levels of CO2 emissions and urban population growth, and that these indicators tend to be positively correlated. The analysis also demonstrates the need for effective climate change mitigation strategies to address the increasing emissions in countries with growing urban populations.