Applied Data Science-1

Assignment-2

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Title:

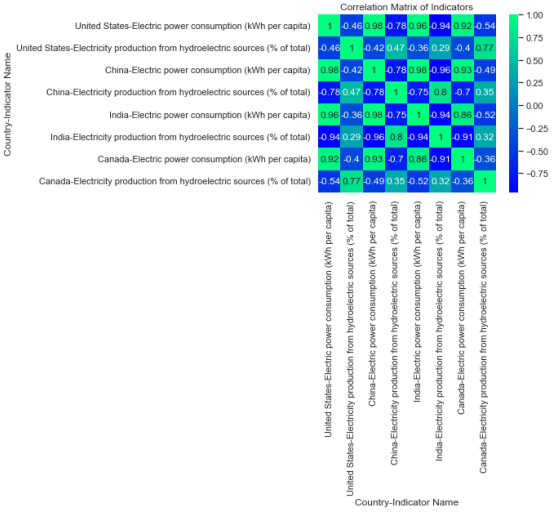
Comprehensive Analysis of Energy, Environmental, and Urbanization Statistics: A Comparative Study of Selected Countries

Abstract:
This report delves into key statistical indicators, offering a thorough examination of electric power

consumption, hydroelectric electricity production, forest area, agricultural land, electricity production sources, and urbanization trends for the United States, China, India, Canada, and the global landscape. Noteworthy findings include the United States' high power consumption, Canada's significant reliance on hydroelectric power, and India's leadership in renewable energy adoption. The analysis also explores the diverse trajectories of urbanization, highlighting China's dynamic demographic changes. This comprehensive study provides valuable insights into the complex interplay of energy practices, environmental sustainability, and urban development strategies across nations.

Statistics related to electric power consumption, electricity production from hydroelectric sources, forest area and agricultural land

The presented data offers a comprehensive comparison of key statistics related to electric power consumption, electricity production from hydroelectric sources, forest area (% of land area), and agricultural land (% of land area) for the United States, China, India, Canada, and the world.

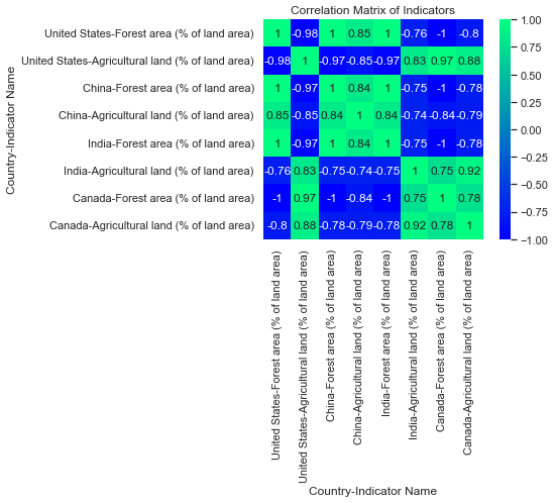


Electric Power Consumption (kWh per capita):

The United States exhibits the highest average consumption at 10,318.04 kWh, with considerable variability.China shows diverse consumption patterns, with a mean of 1,080.46 kWh. India and Canada demonstrate distinct consumption levels at 334.25 kWh and 13,266.02 kWh, respectively. Globally, the average consumption is 2,104.55 kWh, showcasing a wide spectrum of energy practices.

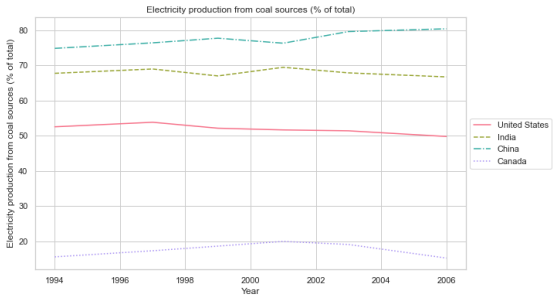
Electricity Production from Hydroelectric Sources (% of Total): Canada stands out with the highest reliance on hydroelectric power, contributing an average of 66.71%. China and the United States follow with 18.97% and 10.77%, respectively, reflecting diverse contributions to the energy mix. India's average hydroelectric contribution is 23.20%, demonstrating a significant reliance on this renewable energy source.

Forest Area (% of Land Area) and Agricultural Land (% of Land Area): The United States maintains a stable forest area at an average of

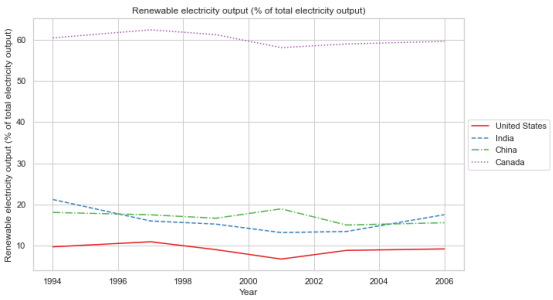


33.45% and agricultural land at 46.12%. China's forest area averages 20.03%, while agricultural land averages 49.77%. India shows a forest area of 22.99% and agricultural land at 60.44%. Canada maintains a consistent forest area at 38.77% and agricultural land at 6.82%. Globally, the forest area averages 31.13%, and agricultural land averages 36.36%. These statistics provide valuable insights into the energy landscape and environmental practices, highlighting variations and trends across nations.

Trends in Electricity Production Sources

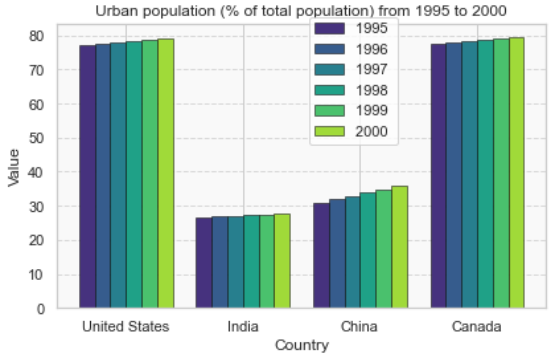


The presented data reveals distinct trends in electricity production sources across the United States, India, China, and Canada, emphasizing the percentage contribution from coal and renewable sources during selected years. In the United States, coal-based electricity production remained relatively stable, ranging from 52.52% in 1994 to 49.77% in 2006, showcasing a slight decline. India displayed moderate fluctuations in coal reliance, with values ranging from 66.69% (2006) to a peak of 67.71% (1994). China exhibited a noteworthy upward trend, reaching 80.34% in 2006 from 74.79% in 1994. Canada's pattern fluctuated between 15.25% (2006) and 15.59% (1994).



In terms of renewable electricity output, India experienced the highest peak at 21.22% in 1994, while the lowest was in 2001 at 13.20%. Conversely, Canada demonstrated the lowest fluctuation in renewable output (58.03% in 2001 to 59.54% in 2006). These findings underscore the dynamic energy landscapes and diverse strategies adopted by nations, with India leading in renewable energy adoption and China prominently relying on coal.

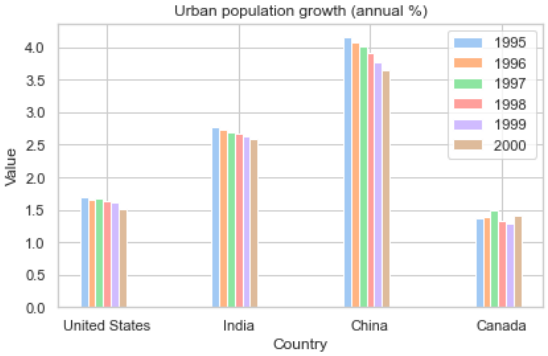
The Urban Population of the total population:



The output presents the urban population as a percentage of the total population for the years 1995 to 2000 in the United States, India, China, and Canada. Notably, the United States consistently maintains a high urbanization rate, ranging from 77.257% in 1995 to 79.057% in 2000. In contrast, India demonstrates lower urbanization levels, varying from 26.607% to 27.667%. China's urbanization rate falls in between, showing a steady increase from 30.961% to 35.877%. Canada consistently records high urbanization, ranging from 77.675% to 79.478%. These insights highlight the diverse

urbanization trajectories across the specified countries.

The urban population growth (annual %)



The urban population growth (annual %) for the selected years (1995-2000) reveals varied trends among the studied countries. In 1995, China experienced the highest growth at 4.16%, followed by India (2.78%), the United States (1.69%), and Canada (1.37%). Over subsequent years, the rates fluctuated, with China consistently leading in growth. The United States maintained relatively stable growth, while India and Canada showed moderate variations. By 2000, China still held the highest growth rate at 3.65%, followed by India (2.60%), the United States (1.51%), and Canada (1.40%). This data offers insights into urbanization patterns, emphasizing China's dynamic demographic changes.