

Economic Progress and Environmental Concerns: Analyzing CO2 Emissions and GDP Trends in the United States and United Kingdom

Abstract

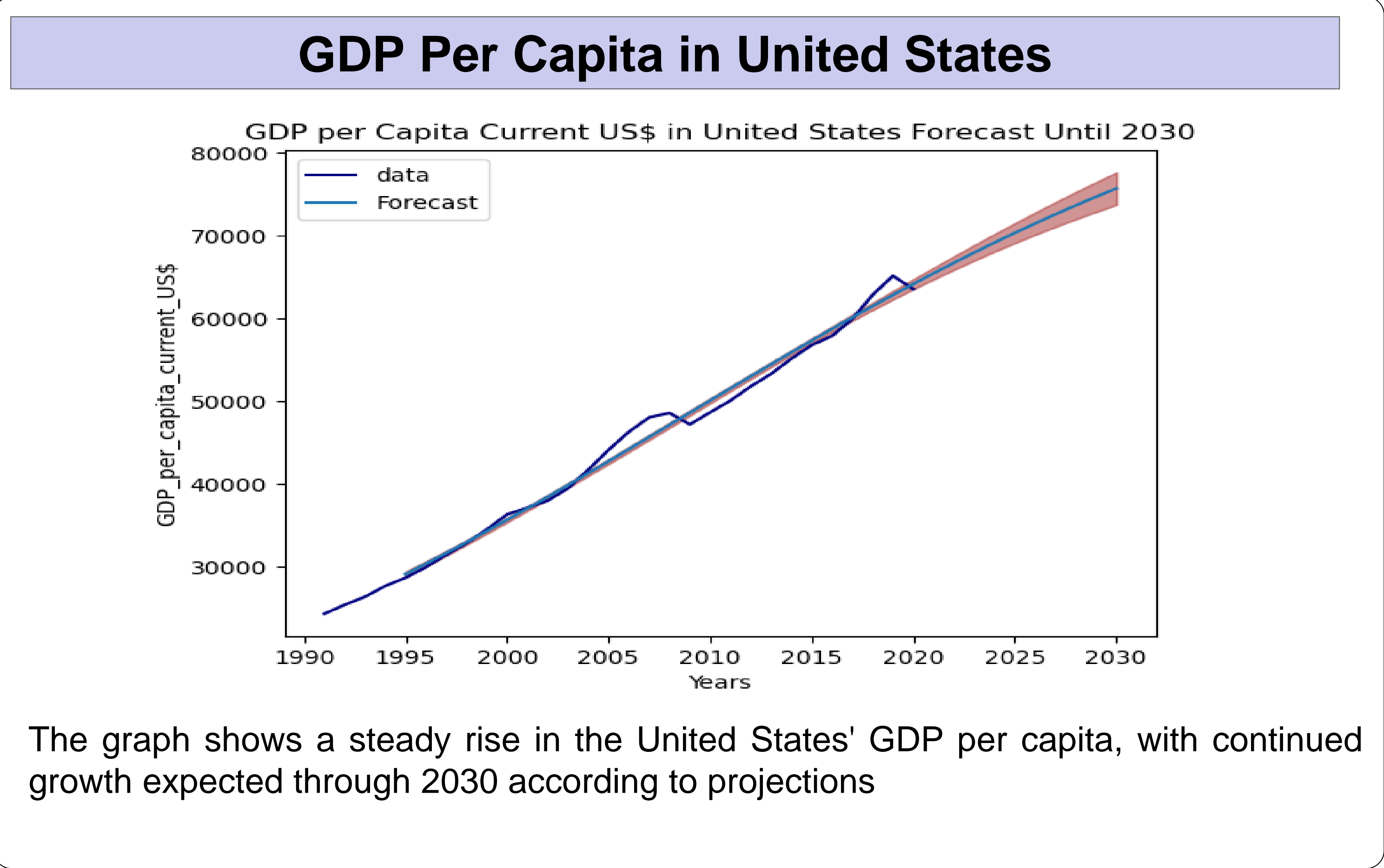
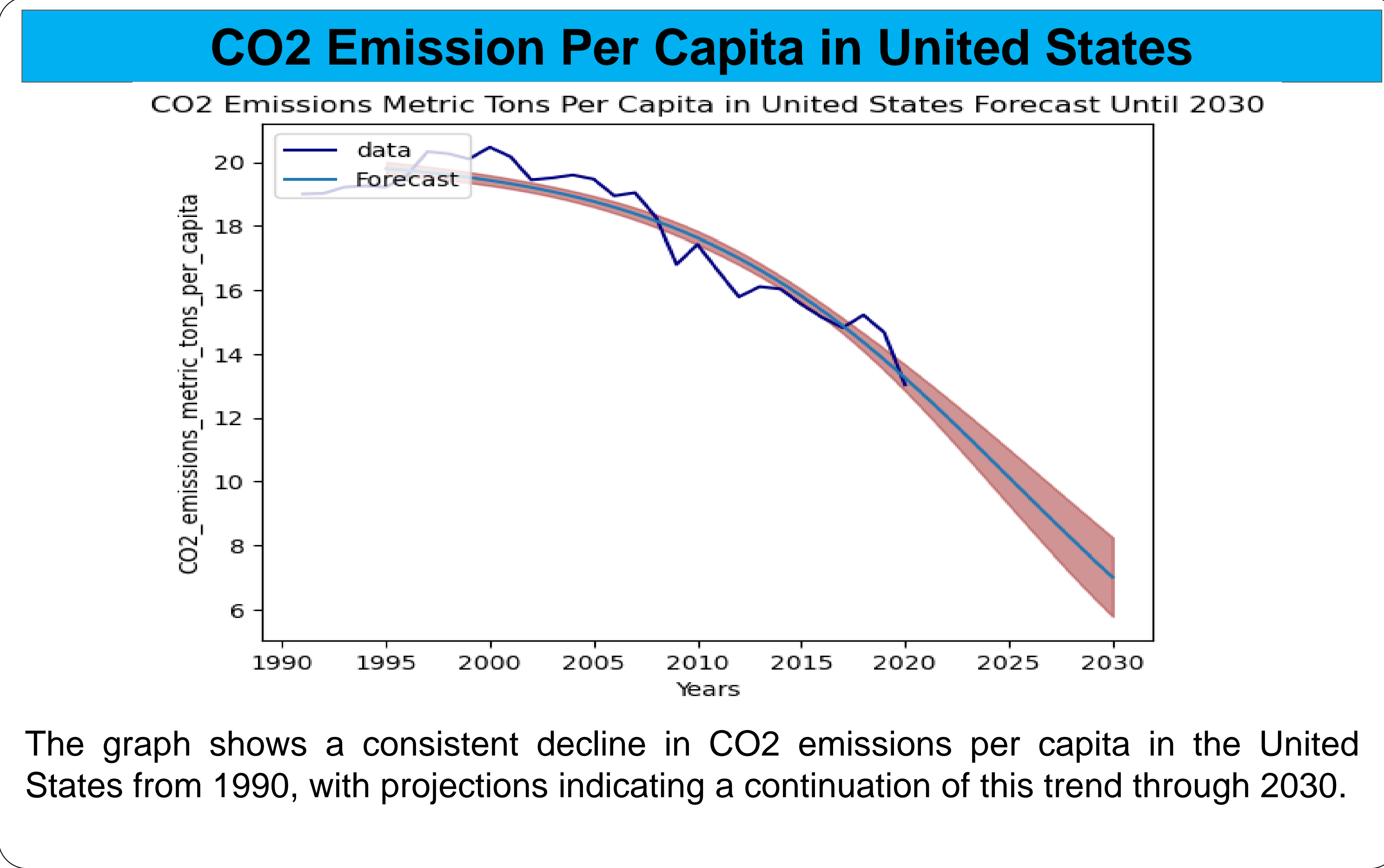
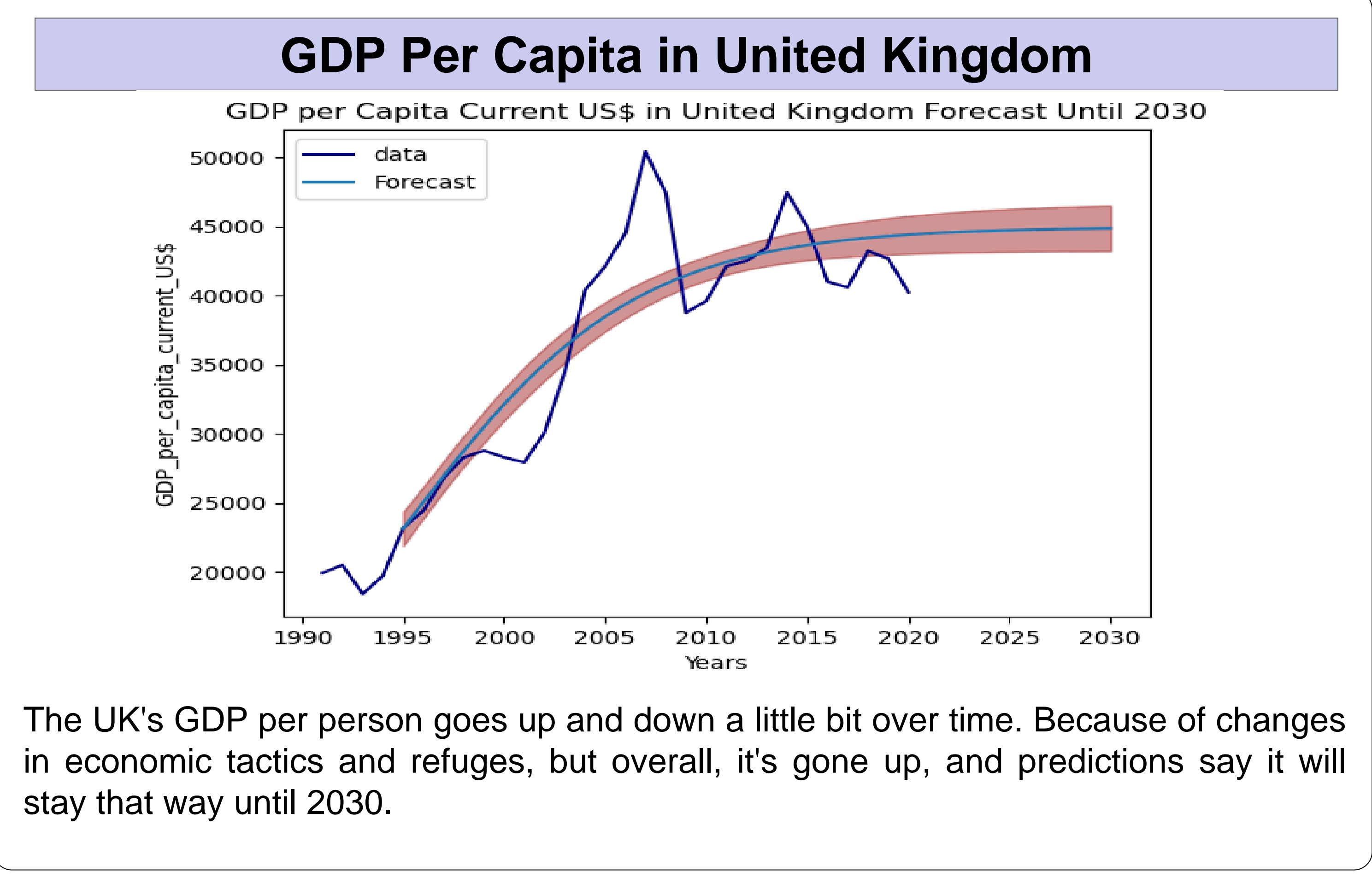
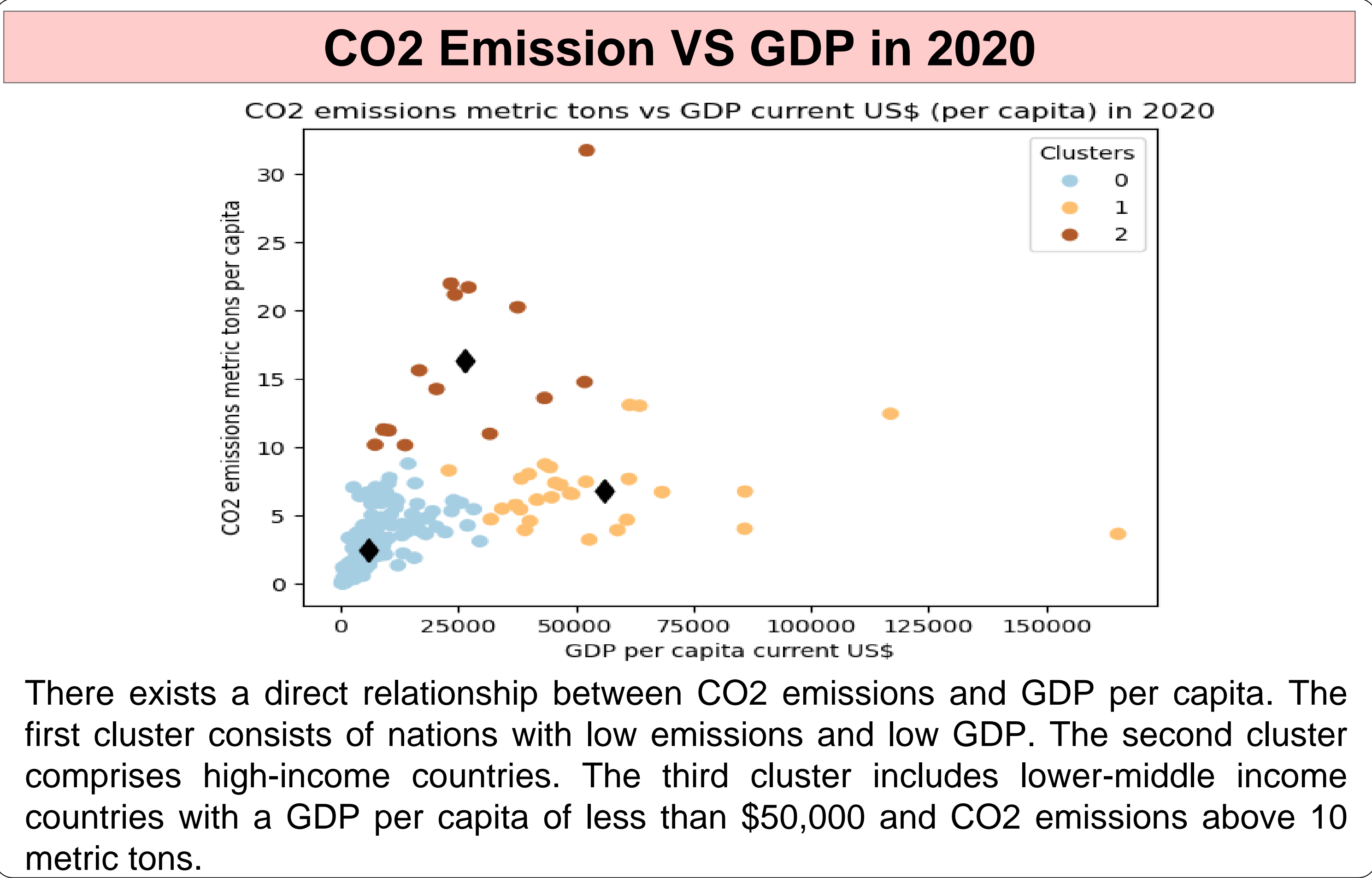
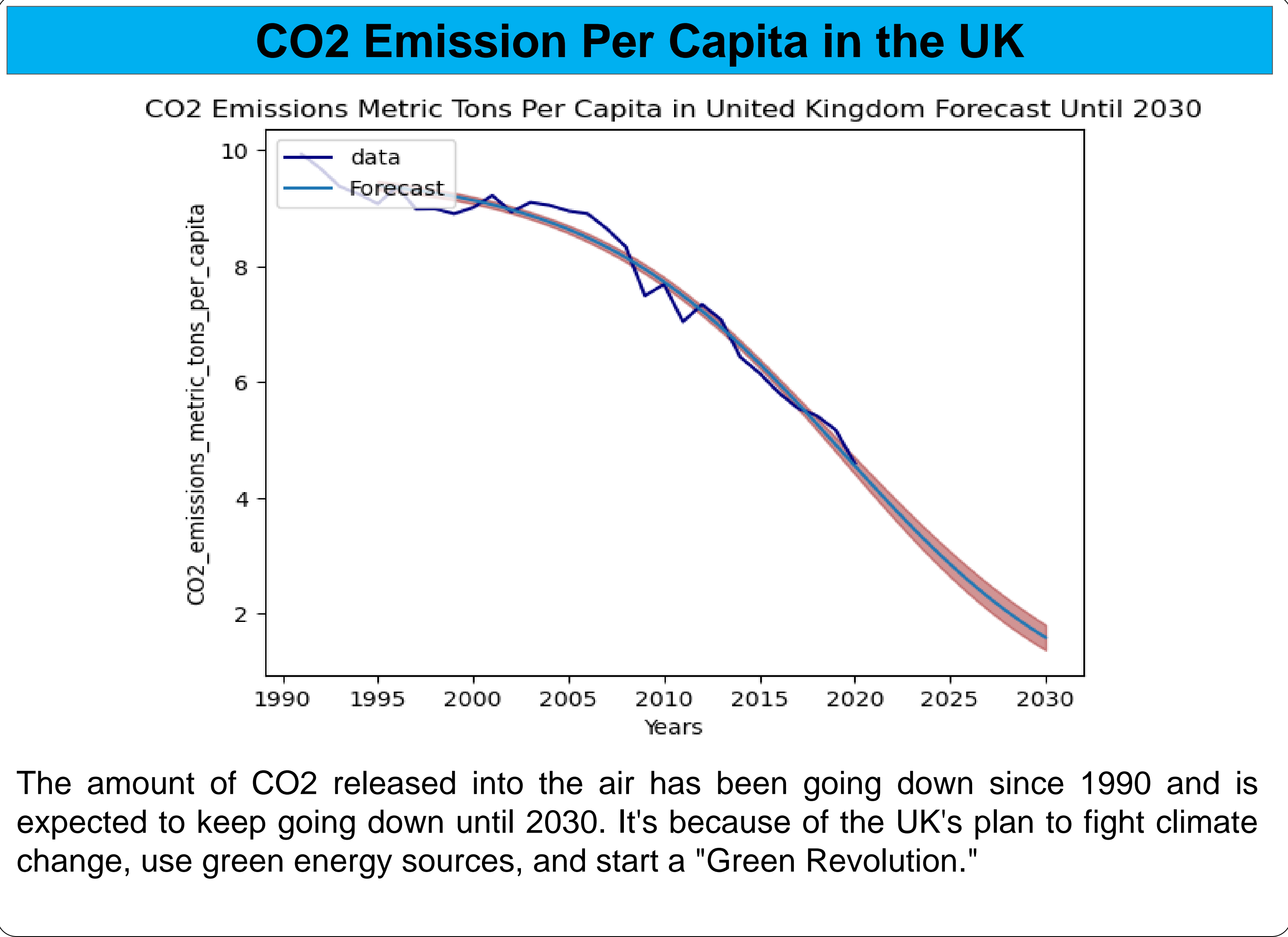
This study uses K-Means clustering to look at how CO2 pollution and GDP per capita are spread out around the world using statistics from the World Bank. There are different groups of countries, and the United States and the United Kingdom are both in Cluster One. Then, specific prediction modeling is done on these countries. We predict what the future values will be for CO2 emissions per capita and GDP per capita by using strict fitting methods. This helps us understand the complicated connection between economic growth and environmental sustainability.

Introduction

Big businesses and companies around the world are changing the climate. The amount of carbon dioxide (CO2) released can be used to measure this effect. Our main goal with this study is to find out how CO2 emissions are related to country wealth. The US, which is fully developed, and the UK, which is also fully developed, are the only countries that this study looks at. By studying these factors, we hope to learn how different economic conditions in different parts of the world affect changes in the global environment.

Clustering results

By grouping CO2 emissions per capita and GDP per capita, we may identify three distinct groups that represent three different sorts of nations. Low-income nations, lower-middle income countries, and high-income countries.



Conclusions

The K-Means grouping shows clear world trends connecting CO2 pollution and GDP per capita, putting countries into three economic groups. Considering the US's strong economic growth and big drop in CO2 emissions, the prediction points to a positive trend of separating economic wins from environmental impacts. In the meantime, the UK is also on the right track, showing how to effectively lower CO2 emissions while keeping the economy stable. This is possible thanks to stricter environmental laws, more use of green energy, and a strong dedication to environmentally friendly practices. This shows how important focused policies and actions are for leading countries to a better and more sustainable future.