

Effects of Economic Indicators on National Income

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Abstract

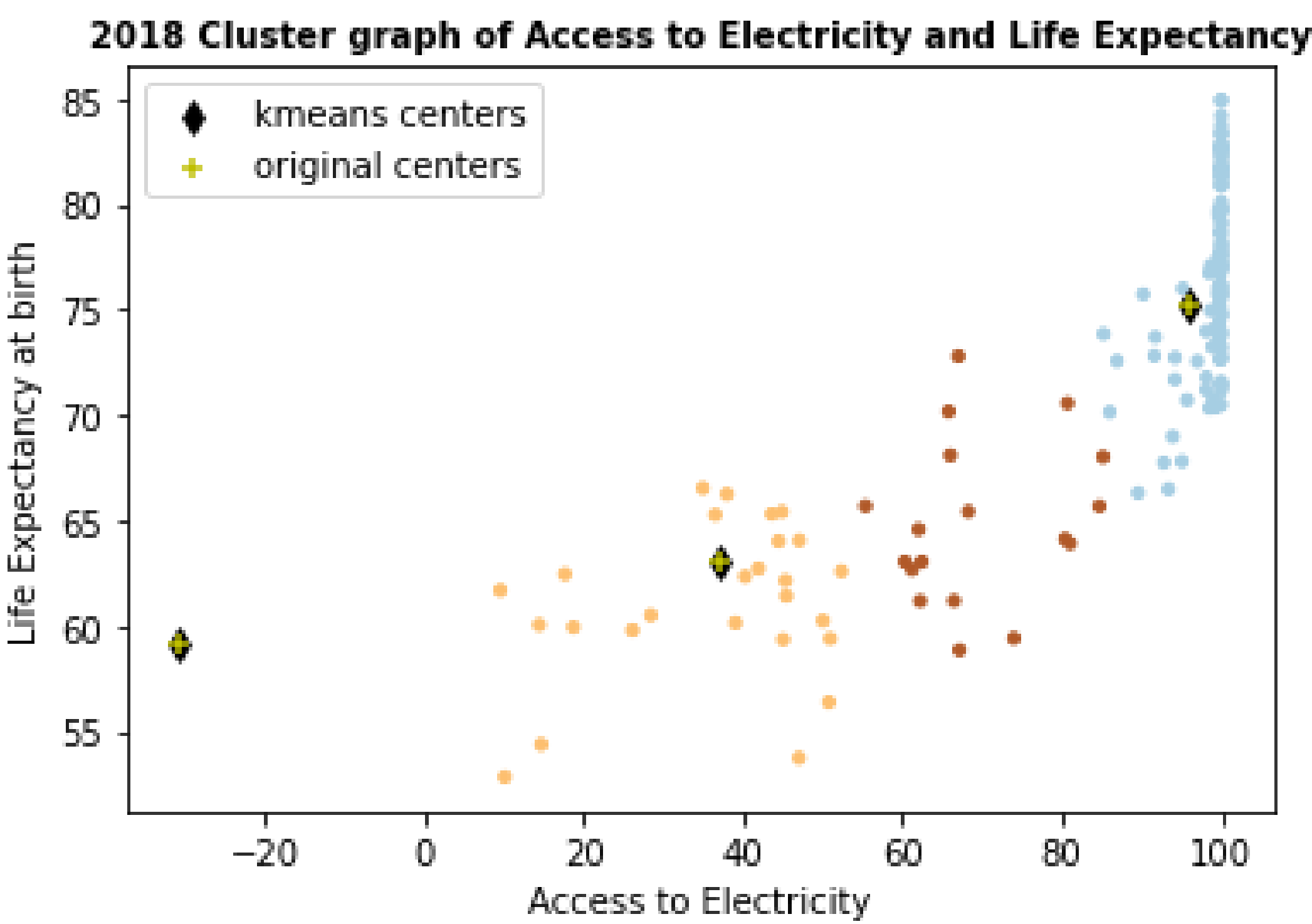
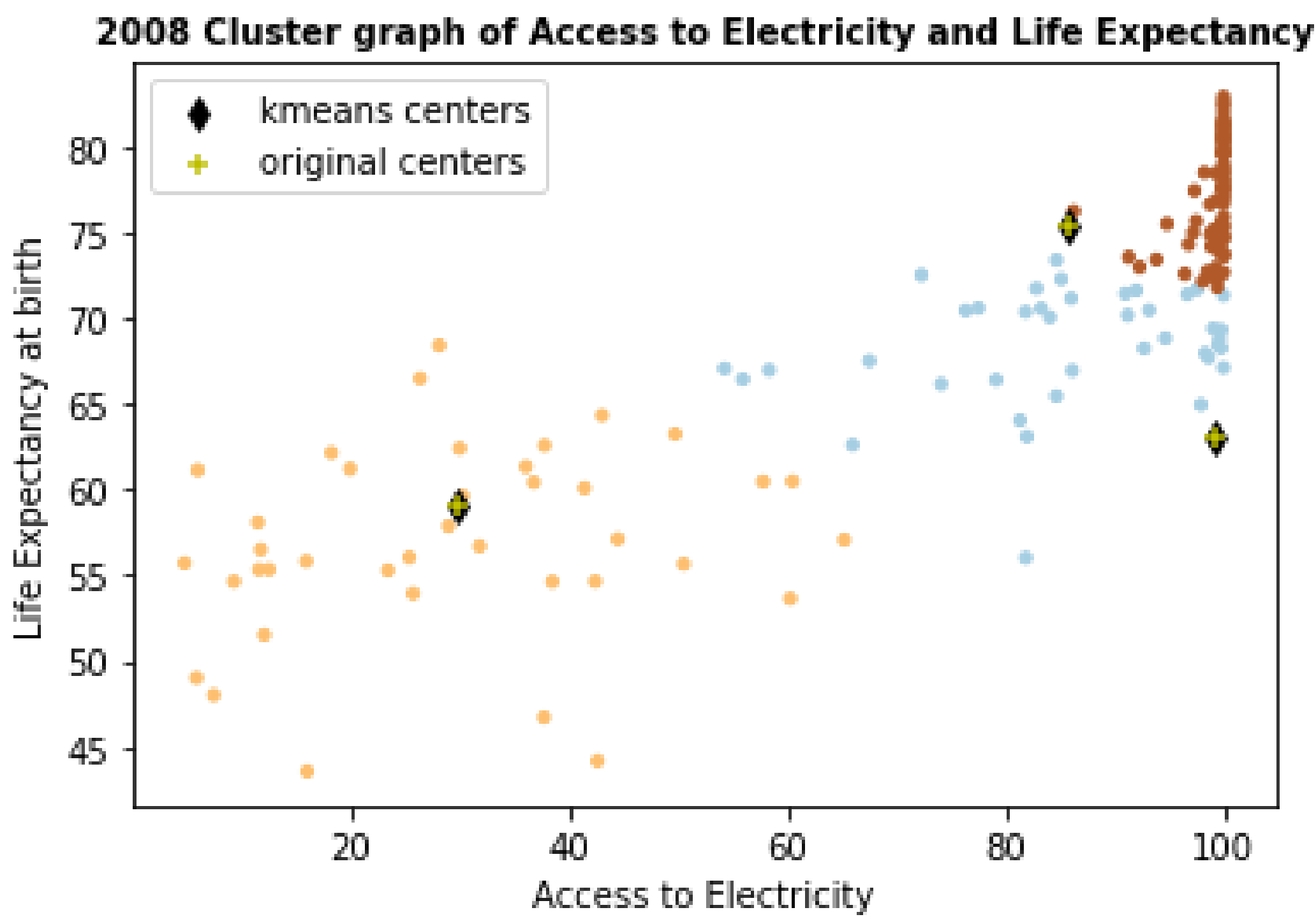
We explore the relationship between economic indicators and national income of countries. Focusing on key indicators such as Access to Electricity, Gross National Income (GNI), Self-Employment, Life Expectancy, Labor force, and Exports of Goods and Services, the study aims to uncover patterns and clusters amongst the countries that shed light on the economic landscape of the nations.

Github link:
https://github.com/01DorSarpong/Assignment_3_Clustering_Fitting

Data Source:
<https://databank.worldbank.org/source/world-development-indicators#>

Introduction

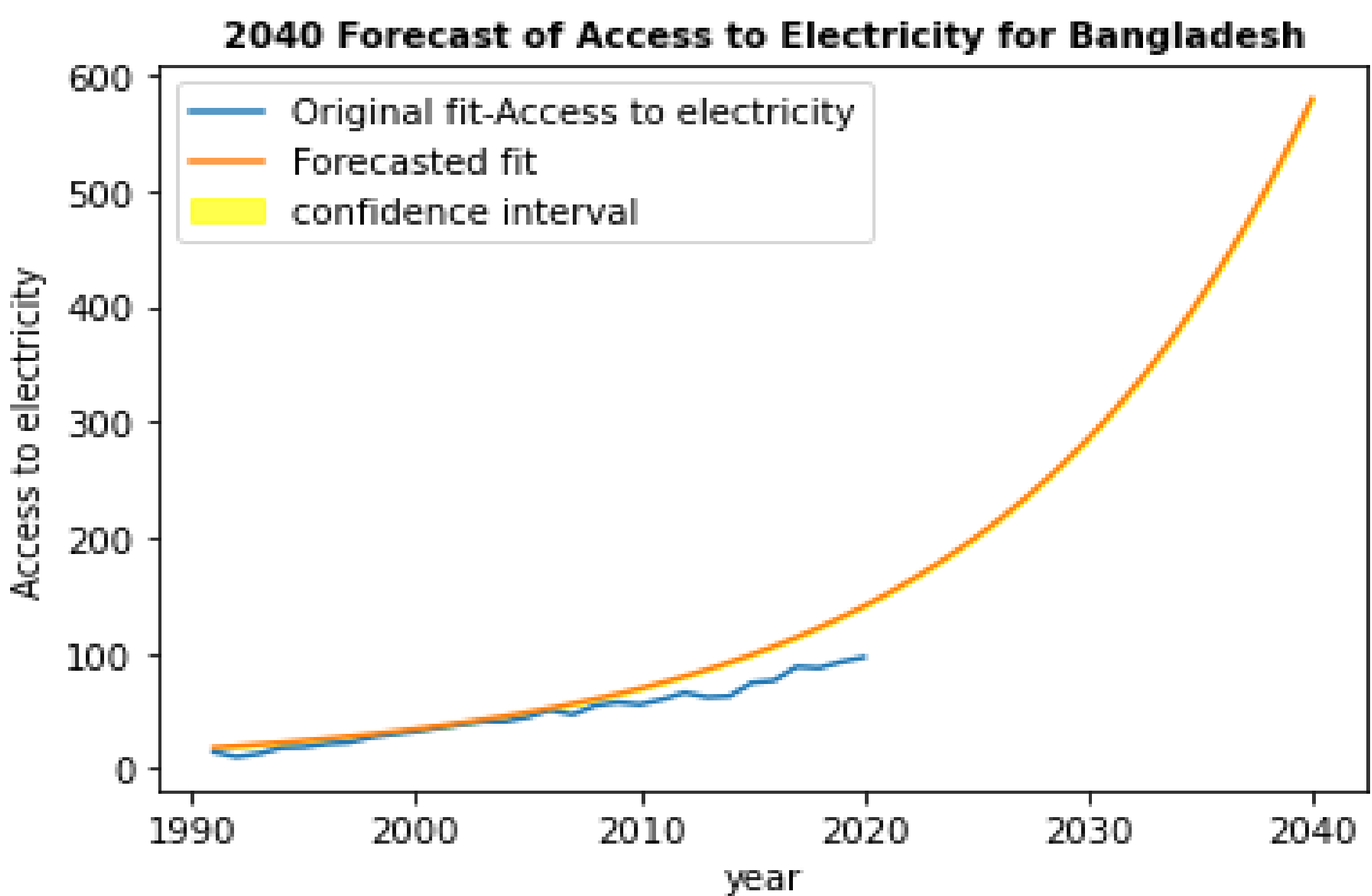
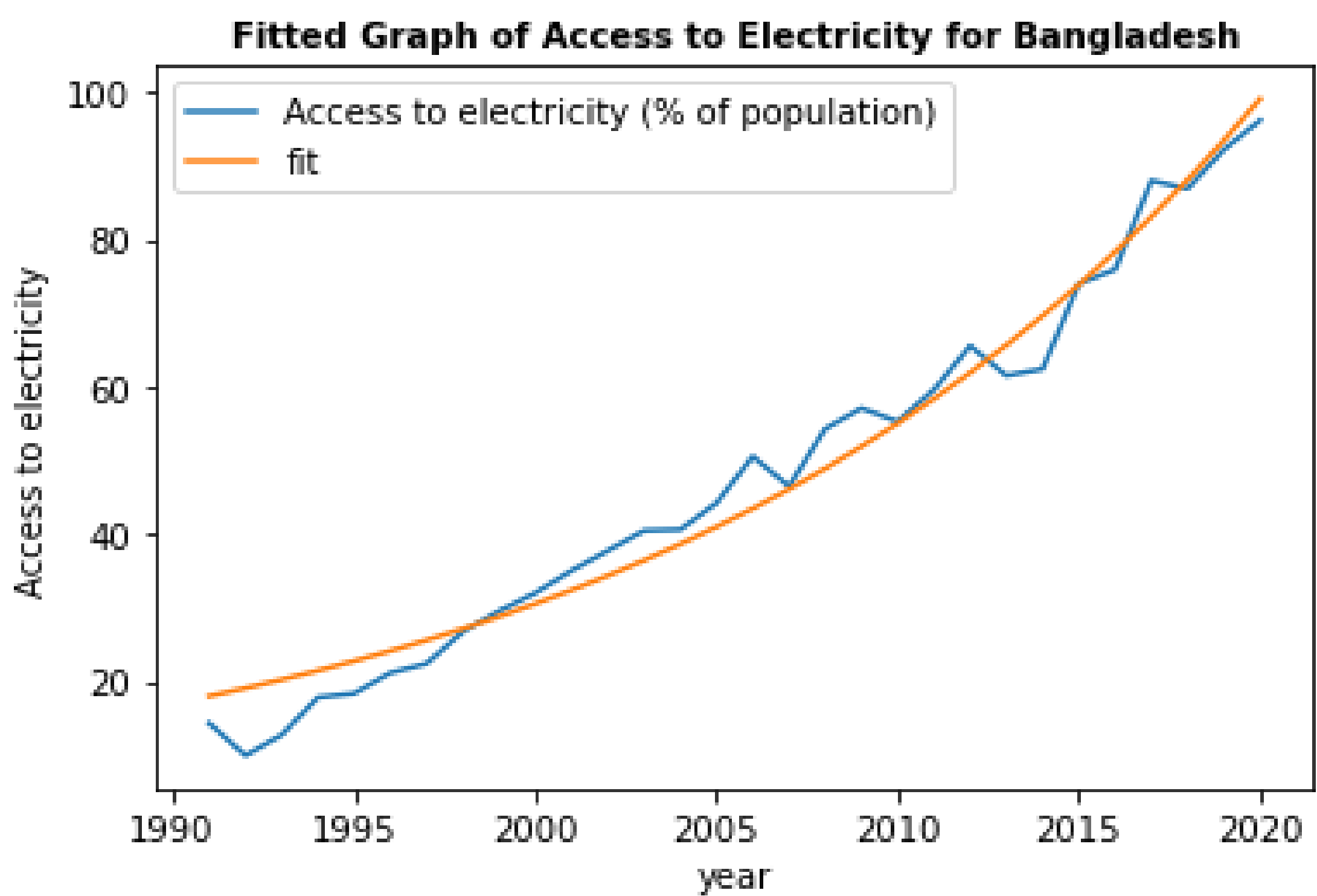
Due to global interdependence and complex economic dynamics, the exploration of the interplay between economic indicators and national income stands as a crucial endeavor. The study explored clusters amongst the Access to Electricity and Life Expectancy at Birth indicators for 2008 and 2018. Cluster 0 which had countries with the highest values were further explored with a focus on Algeria, Bangladesh and China. Further investigations were made on Bangladesh to understand the distribution and forecasting of the values for the next 20 years.



The cluster graphs show a 10-year span analyses between 2008 and 2018. We see a decline in the access to electricity over the years. This could be due to economic crises, prevalence of natural disasters, increase in population etc. Life expectancy at birth also increased slightly in the new years and this could be associated with the introduction of new technologies in health care that seeks to ride on advanced scientific research and studies.



Three countries (Algeria, Bangladesh, China) were selected from cluster 0, which indicated countries with very high access to electricity and life expectancy at birth. A fitting on each of the countries showed Bangladesh having a closer fit using the exponential model. Minimum errors in the Bangladesh data is evident in the small confidence interval displayed in graph below. The forecast also suggest a similar trend in past years indicating an upward growth.



Conclusion

In assessing the overall prosperity of countries, Gross national income, a comprehensive measure of a country's economic performance, has been crucial. Valuable insights and correlations have been provided by the analysis of these macroeconomic indicators. Labor force has been a pivotal factor, showcasing the importance of human capital in economic growth. Access to electricity has surfaced as a key contributor to economic prosperity, as it directly influences productivity and development. The positive correlation between life expectancy at birth and national income underscores the interconnectedness of healthcare and economic well-being. Two thirds of the over 150 countries analyzed, proved that a country can increase it's National Income with a keen focus on their Labor Force, Access to Electricity and the factors that influence their Life Expectancy at Birth such as the Health Sector.