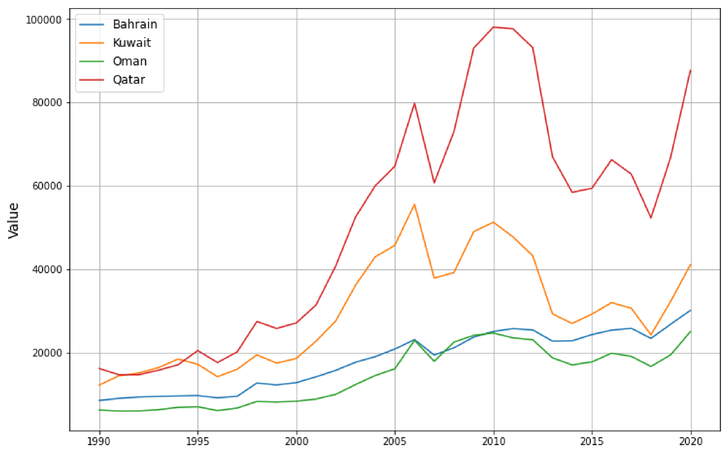
Analysis of GDP Per Capita and Oil Rents in Gulf Countries: Fitting and Clustering Insights

Abstract

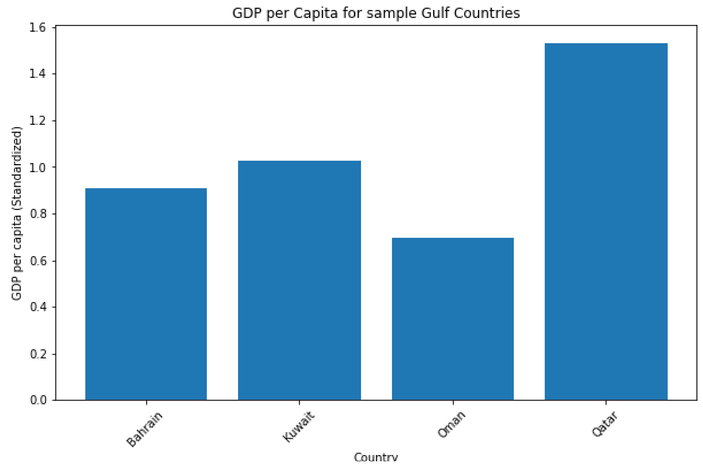
Using clustering and curve fitting, investigate the complex relationship between Gulf states' oil revenues and individual economic prosperity. Use silhouette analysis to identify three unique economic groupings, revealing information on underlying tendencies. Visual representations depict cluster memberships and fitting plots, providing a thorough knowledge of economic structures as well as recommendations for targeted policy

Introduction

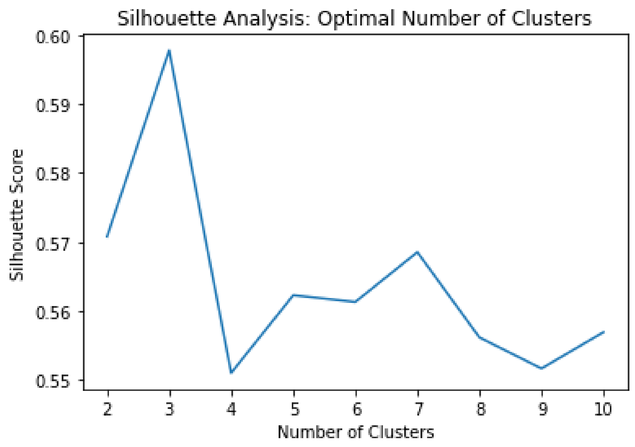
This study investigates the complex link between Gulf nations' oil revenue and GDP per capita using clustering and curve fitting techniques. Silhouette analysis shows three distinct economic groupings and reveals underlying tendencies. Visual representations of cluster memberships and fitting plots provide extensive insights into economic systems. The recommendations for targeted policy adjustments aim to promote sustainable development in the Gulf area.



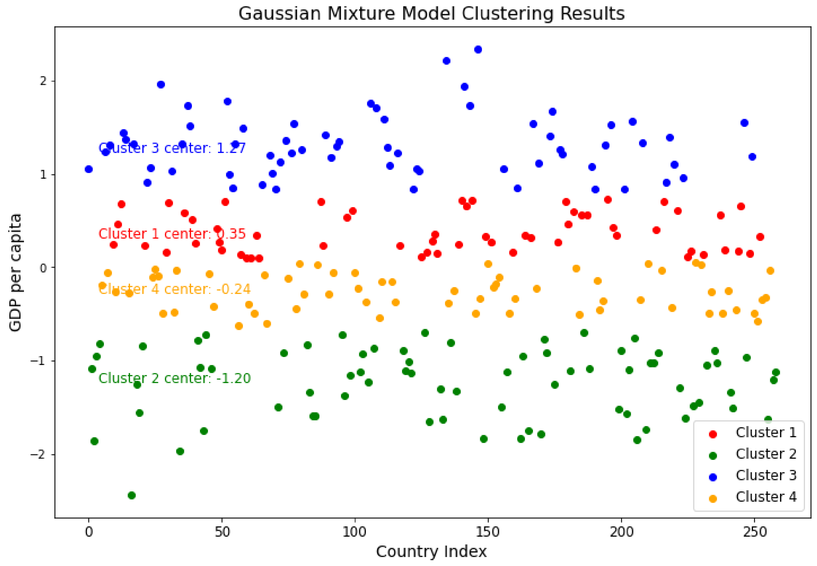
Utilizing silhouette analysis, the clustering graph visually showcases three distinct economic groups among Gulf countries, providing insight into economic patterns. The applied K-means and Gaussian Mixture Model reveal meaningful clusters based on GDP per capita. This aids in understanding the diverse economic landscapes and identifying similarities and differences



The GDP per capita graph visually compares the standardized economic development of Bahrain, Kuwait, Oman, and Qatar. It provides insights into individual prosperity differences, offering a nuanced understanding of the economic landscape among these Gulf countries.



The line chart portrays Gulf countries' GDP from petroleum rents, revealing distinct trends. Bahrain and Kuwait demonstrate steady growth, whereas Oman and Qatar display fluctuations. This analysis delves into economic trajectories, offering insights and signaling opportunities for targeted policy adjustments.



Gaussian Mixture Model (GMM) cluster analysis reveals specific economic clusters in Gulf countries, aiding in understanding economic structures. The analysis assists in identifying patterns and making informed policy recommendations for targeted interventions.

Conclusion

In summary, this study illuminates the intricate dynamics between Gulf countries' GDP from petroleum rents and economic clusters. The identified clusters provide nuanced insights, revealing commonalities and differences among nations. This knowledge empowers strategic interventions for sustainable development. By leveraging clustering and fitting techniques, the analysis contributes valuable perspectives, guiding policy decisions for resilient and prosperous economic futures in the Gulf region.

https://github.com/Anumalamadhu/clustring-and-fitting-