University of Hertfordshire UH

Name: Zain Shoukat
Student ID: 22087011

Navigating Economic Futures Predictive Insights: Hungary's Gross Savings

Main Objective

The objective of this analysis is to explore various economic indicators across different countries, conduct clustering based on selected features, and develop a predictive model for future gross savings (% of GDP).

Introduction

This deep exploration of Hungary's economic landscape peels back the layers of historical gross savings, meticulously analyzing trends with advanced clustering and curve-fitting techniques. Beyond simply describing what has been, the study confidently predicts future paths, offering crucial insights into Hungary's economic direction. By expertly weaving these analytical strands into a cohesive picture, we aim to reveal not only the intricacies of Hungary's economic landscape but also broader global implications gleaned from the unraveled patterns.

Abstract

The abstract offers a concise overview of the entire study. It briefly describes the methodologies employed, such as data preprocessing, K-means clustering, and curve fitting. It also summarizes the key findings: the identification of distinct economic clusters among countries and the predictive analysis of Hungary's Gross Savings.

Analysis & Insights

In this section, delve into the insights gained from the analysis. Discuss how the clustering of countries reveals similarities and differences in economic patterns and what these patterns signify. Also, interpret the trends observed in Hungary’s Gross Savings, emphasizing the implications of these trends.

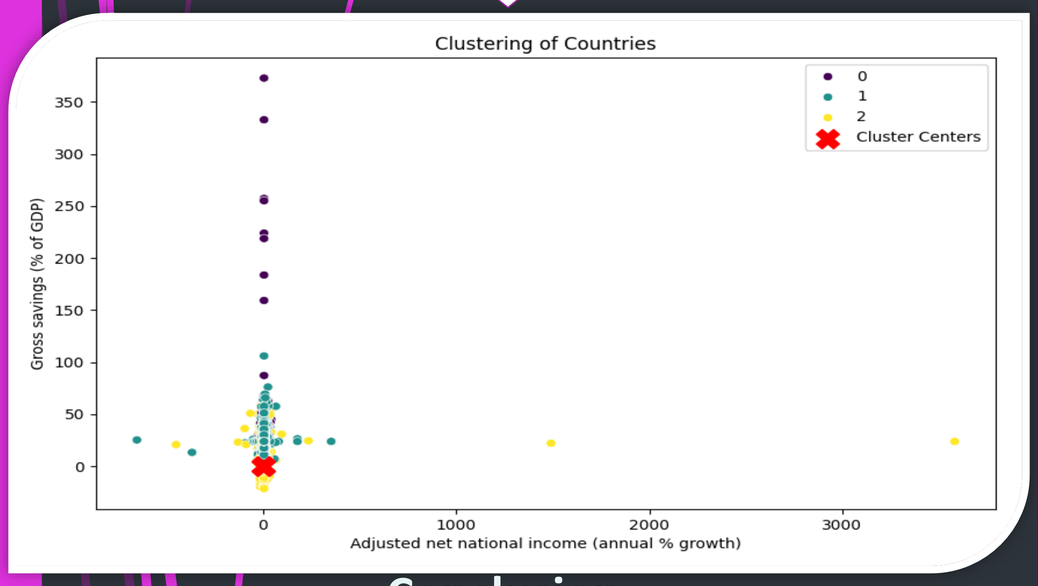
Silhouette Score: 0.3630

Data Processing

- The dataset is loaded from a CSV file.
- Missing values denoted as '..' are replaced with NaN. Columns are converted to numeric values.
- NaN values are imputed with the mean of their respective columns.

Clustering

- K-means clustering is applied to relevant economic indicators.
- Data is normalized before clustering.
- The resulting clusters are then interpreted.



Conclusion

In conclusion, the clustering analysis has revealed distinct economic groups among countries, providing a valuable tool for policymakers, economists, and stakeholders in understanding the economic landscape and making informed decisions. The time series analysis for Hungary's Gross Savings has provided historical trends, while the predicted values have offered insights into future economic scenarios. An extended analysis for Hungary provides a comprehensive view of the country's Gross Savings trajectory, offering valuable insights into the economic landscape of the country over an extended period.

GitHub Link: Click here

Curve Fitting

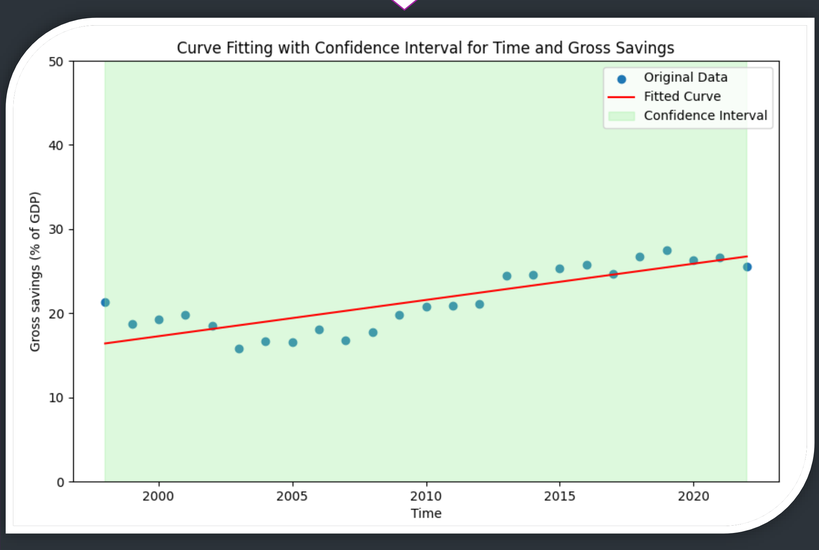
- The linear model used for curve fitting Hungary's Gross Savings data.
- It also illustrates how the confidence interval was calculated.
- Time and Gross Savings (& of GDP) are extracted for curve fitting.

Time Series Analysis for Hungary’s Gross Savings (% of GDP)

The time series analysis involves examining Hungary's Gross Savings data over a significant period. This analysis identifies historical trends, patterns, and anomalies in the data. By applying a linear model, the study not only elucidates past economic behaviors but also facilitates predictions about future trends in Gross Savings as a percentage of GDP.

Fitted Curve and Confidence Interval

The fitted curve represents the best-fit linear model applied to Hungary's historical Gross Savings data. This curve is essential for visualizing the trend over time and understanding the general direction of the economic indicator.



Future GDP Growth Prediction

- Time Series analysis For Hungary Gross Savings.
- Fitted Curve and confidence Interval.

Country	2024	2029
Hungary	27.60%	29.75%