

ABSTRACT: This project focuses on leveraging indicators like individuals using the internet, employment-to-population ratio, ICT imports, access to electricity and GDP to understand the symbolic relationship between technology adoption, economic development, and employment dynamics. The analysis explores how internet access (technology advancement) acts as a mechanism for economic growth and job creation.

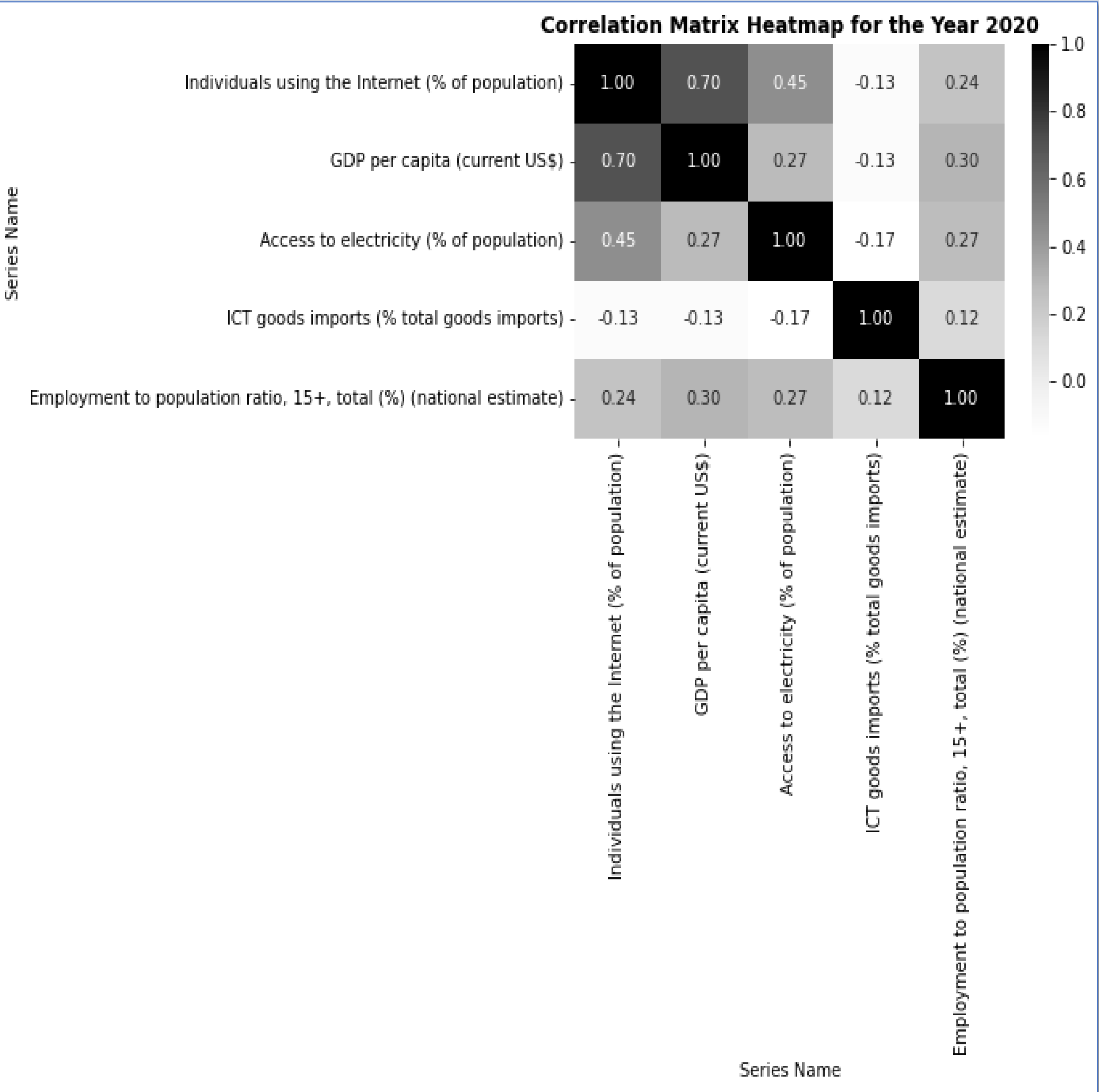
AIM: To understand patterns where that exist among countries of the same cluster group that shed light on how the usage of the internet by individuals has impacted the economic growth of the countries.

INTRODUCTION: In a world, currently characterized by technological evolution, this study utilized data from the World Bank to understand technological advancement on economic growth.

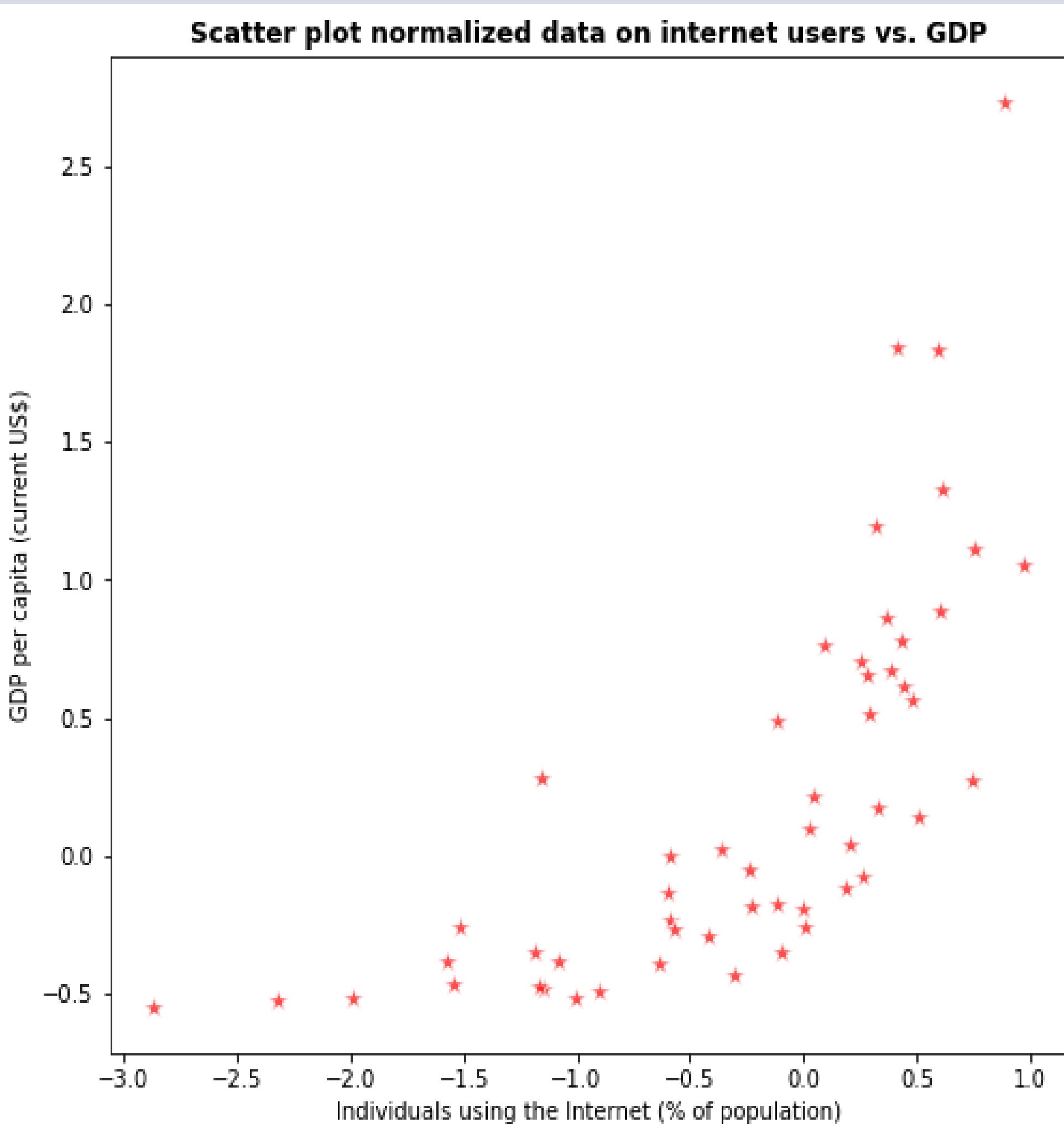
Through clustering, fitting, and forecasting methods, we attempt not to focus on the impact of selected indices like individuals that use the internet, GDP, ICT import, and employment-to-population ratio but also to predict the trajectories.

The study investigates clusters among individuals that use the internet and GDP for 56 countries. The cluster was segmented into 3 groups where group 0 is high number usage, group 1 is middle and group 2 is low number internet usage.

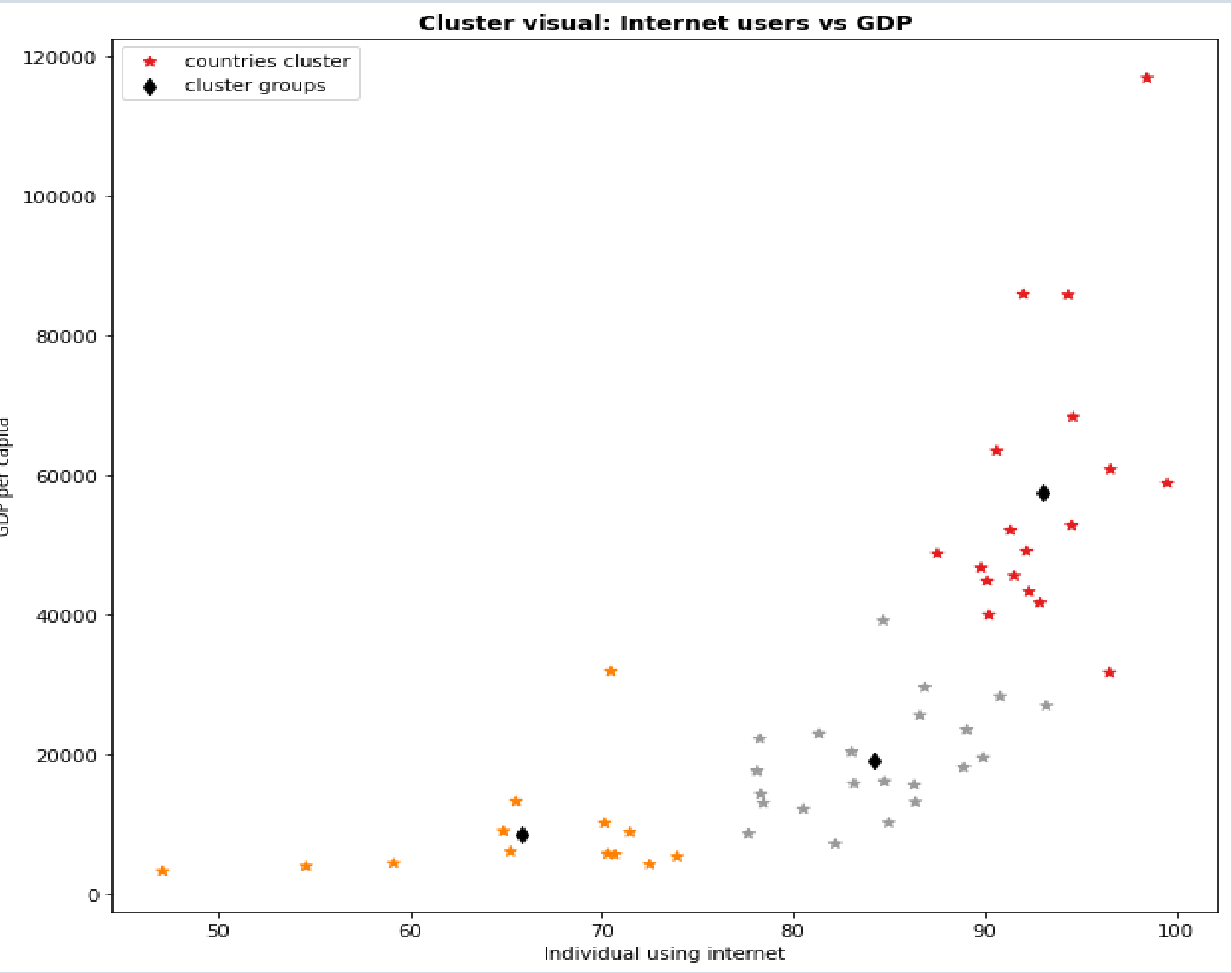
Fitting and forecasting were done on the indices ‘individual that uses the internet(% of the population)’ for South Africa.



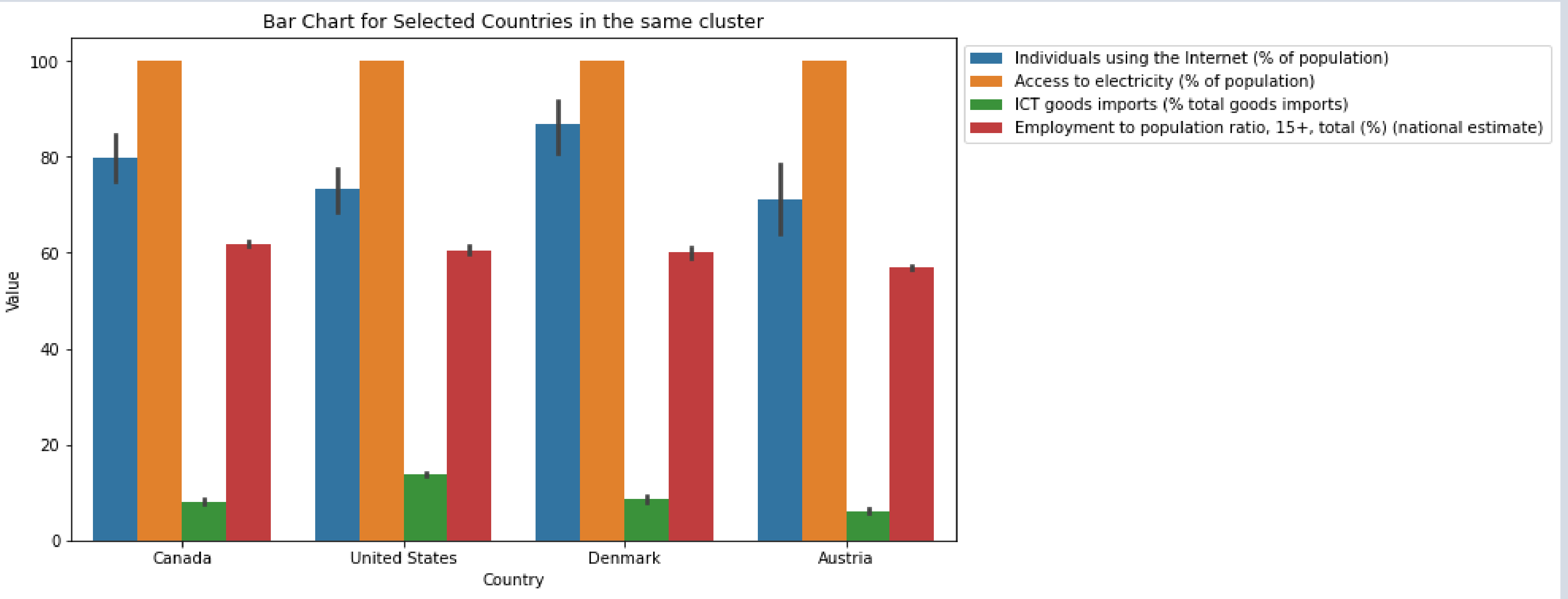
Heatmap showing the correlation among the selected indices for the project. It is evident from the heat map that internet users and GDP are correlated. This buttress the fact that technology drives the economy



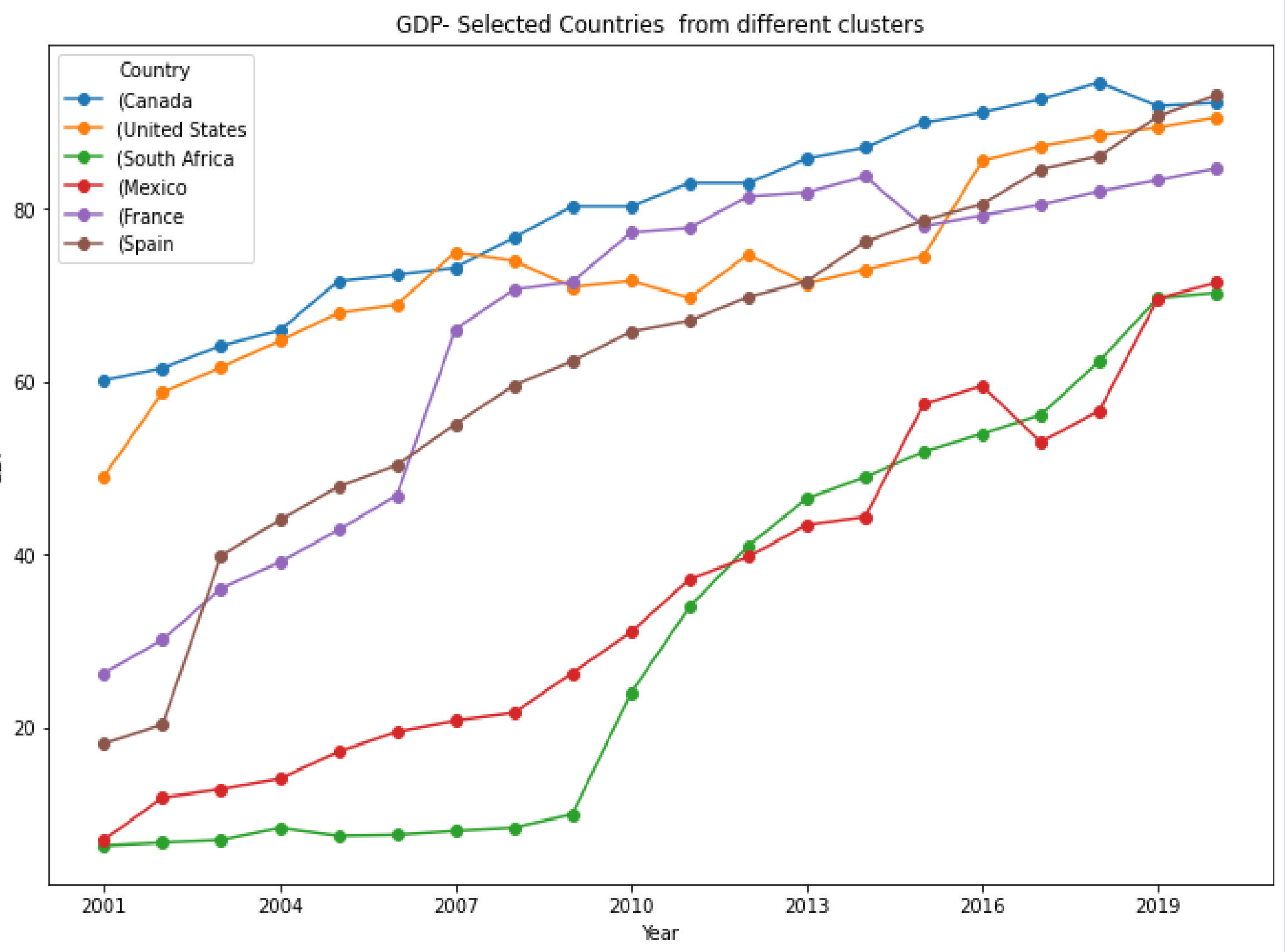
This is a normalized data plot of two selected indices individuals that use the internet and GDP. It can be seen that as internet users increase, the GDP which is a measure of a country's economy increases.



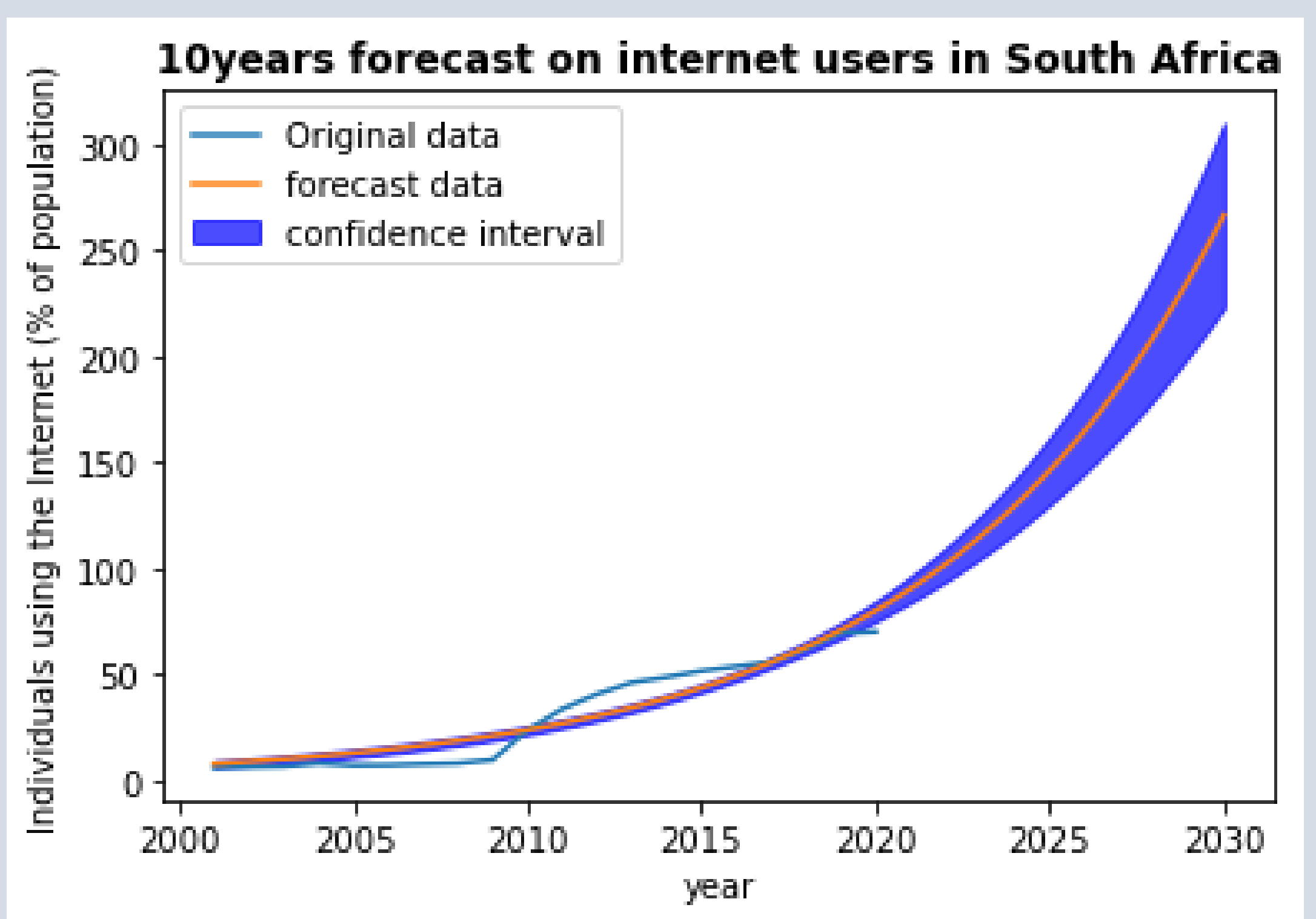
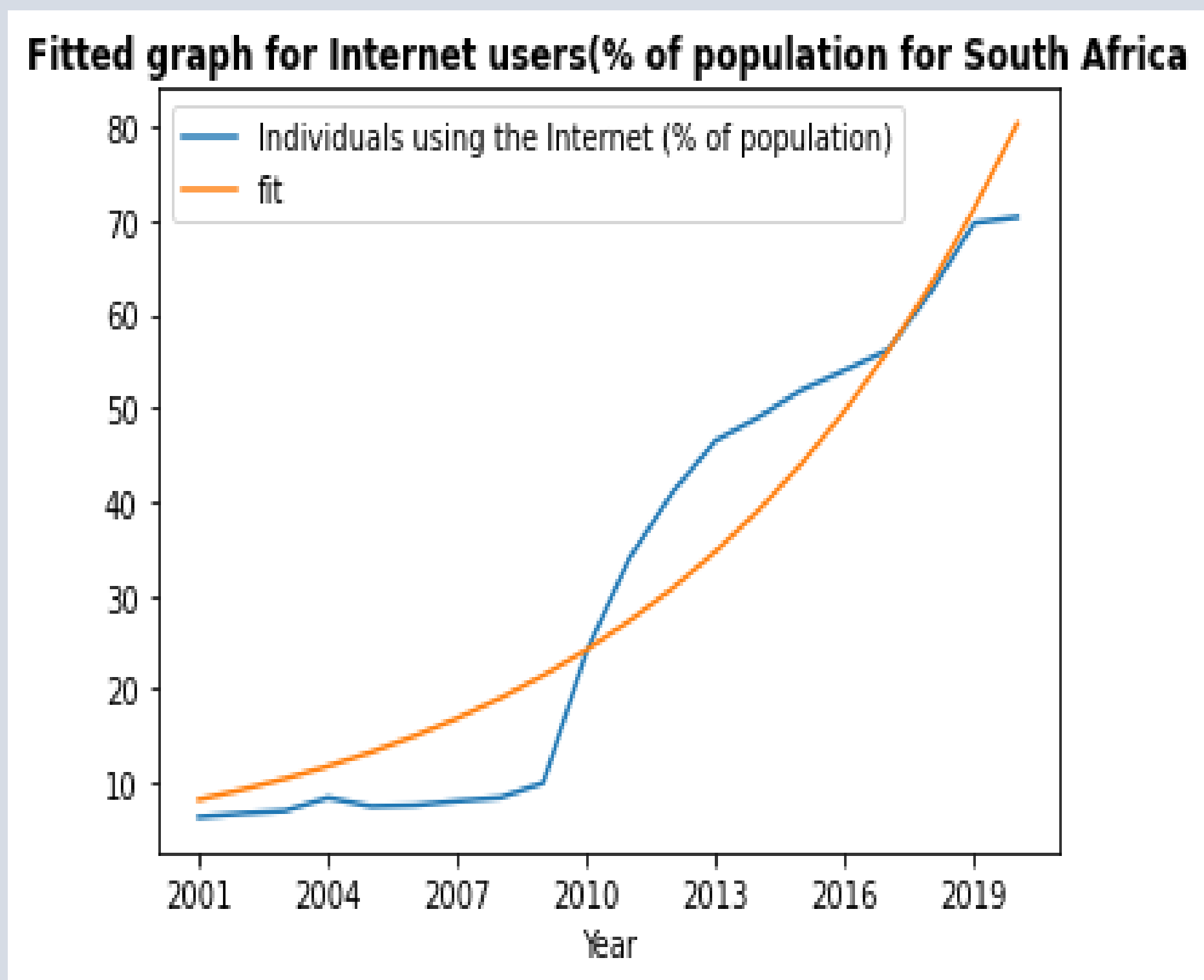
As can be seen, 3 clusters were used. The countries were clustered according to the normalized value of the individual using the internet and GDP



In the above bar chart, Canada, United States, Denmark, and Austria belong to the same cluster 0 which are states with high internet users. Comparing other indices of the study among these countries shows that as individuals using the internet grows, the employment-to-population ratio increases.



The above is the line plot of selected countries from the cluster. Canada and the United States are in cluster 0(high number of internet users), France and Spain are in cluster 1(middle number of internet users), and South Africa and Mexico are in cluster 2 (low number of internet users). It's clear that countries in cluster 0 have high GDP, followed by cluster 1, and so on



The forecast for South Africa was done for 10 years and it observed that the percentage of individuals using the internet in South Africa will increase by more than 220%. This barring other indices will also see a higher increase in the economic state of South Africa.

In conclusion, the analysis sheds light on the profound impact technology has on economic growth and employment. Leveraging clustering, fitting, and forecasting techniques, policy markers and stakeholders can plot a route to ensure that their countries are in tune with the technological developments so as to open more job opportunities and boost the economy.