

Rwanda Economic Growth Analysis

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Introduction

- Rwanda is a middle-income African country characterized by an emerging economy with a population of about 13 million people (Guilia and Adrienne, 2022). With a small geography, Rwanda has only five provinces, one of which captures the area of the capital, Kigali. It is one of five states in the East Arican Community.
- As a fast-growing economy in Africa, Rwanda attracts interests in the East African region. Therefore, this paper shall focus on making statistical analysis on the economic development in Rwanda from the year 1970 to the yer2021 with focus on 4 major indicators; Population, Gross Domestic Product, Exports, and Consumer Spending by using R programming language.

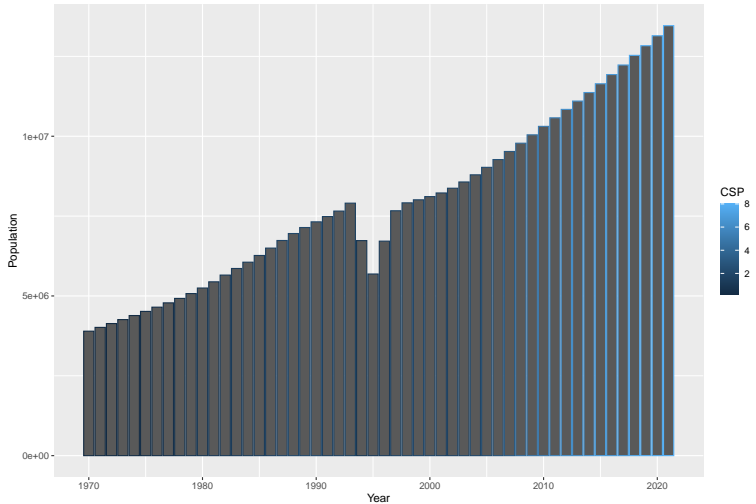
About The Dataset

- Data Source Project Data retrieved from:
<https://www.macrotrends.net/countries/RWA/rwanda/economic-growth-rate>
- Data Structure The “Rwanda Data” is an excel file consisting of 5 major variables; the year, population (PPL), gross domestic product (GDP), exports (EXP), and consumer spending (CSP). This data is a compilation of five different data, cleaned and rwangled to suit the need of this project.

Visualizations

● Rwanda Population

Population Over Time with Color-coded Consumer Spending

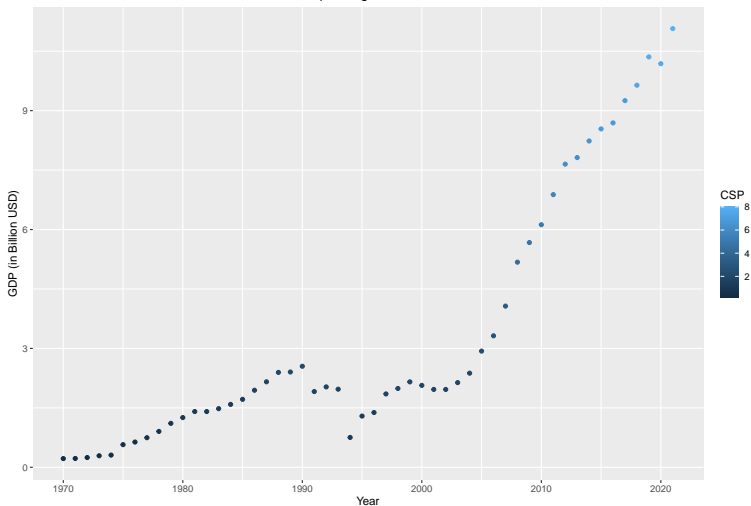


it can be observed that Rwanda has experienced a steady population growth annually. But a sudden drop in the population can be observed in the mid 1990's due to the tragic genocide that happened in the year 1994.

Visualizations

● Rwanda Gross Domestic Product

GDP Over Time with Color-coded Consumer Spending

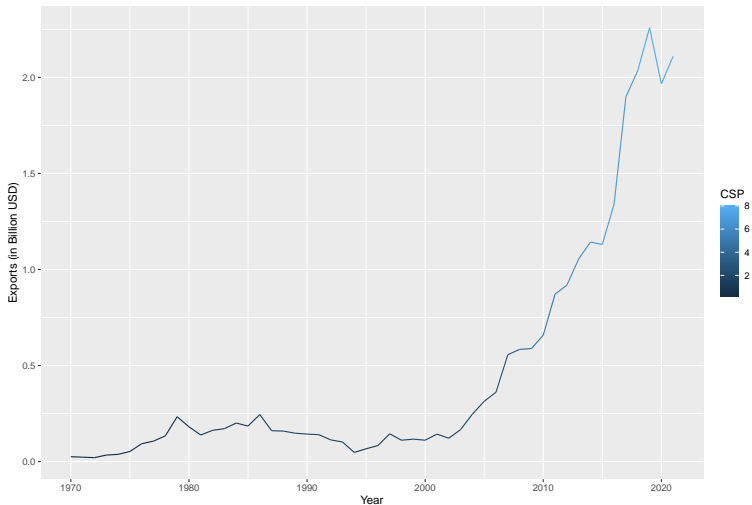


it can be observed that the gross domestic product in Rwanda has experienced a steady growth in the 2000's with challenges in the 1990's and in 2020.

Visualizations

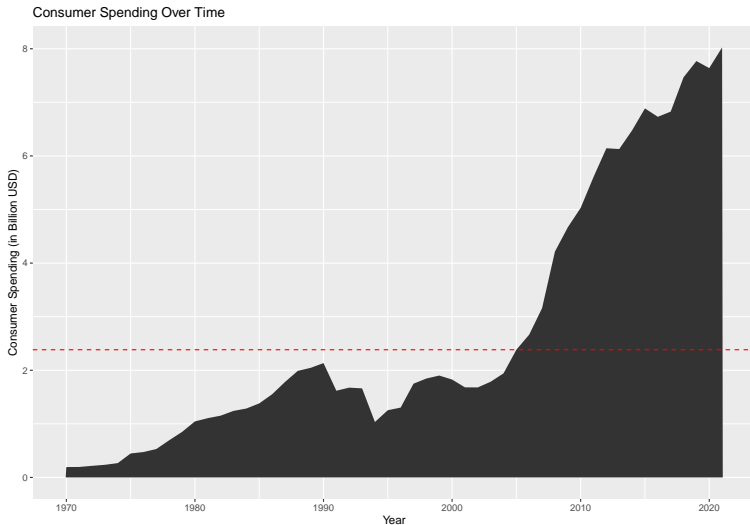
● Rwanda Exports

Exports Over Time with Color-coded Consumer Spending



Rwandan exports trade has been experiencing difficulty over the years, not until 2005 where previous higher highs were broken and exports experienced exponential profits. Also, there was market downsize in 2020 due to the Covid-19 outbreak.

● Rwanda Consumer Spending



There has been a steady rise in consumer spending since 2005's higher-high break streak.

Correlation Analysis

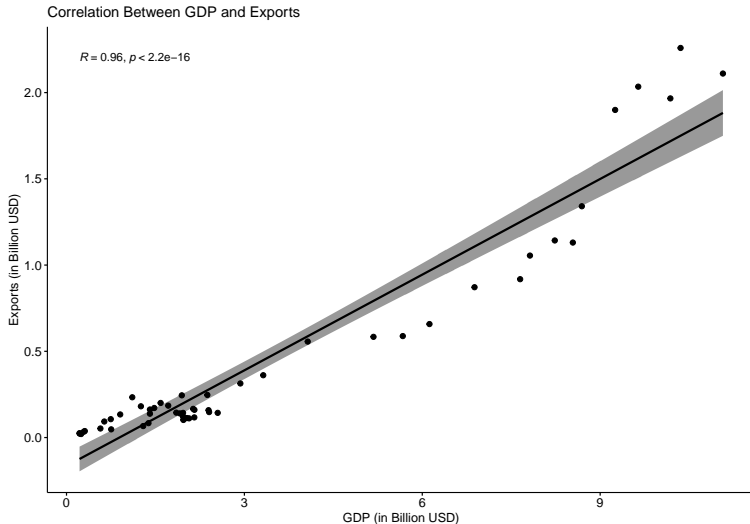
- Correlation Between GDP and Exports

Correlation Coefficient: Using the Pearson's Correlation analysis, the correlation coefficient between the GDP and the Exports (Cor.Coeff1) was found to be 0.96. This correlation coefficient tells us 2 things about the correlation between the GDP and the Exports: -

- 1 The +ve sign of the correlation coefficient tells us about the direction of the relationship between the GDP and the Exports. Since the correlation coefficient is +0.96, this means that the GDP and the Exports vary in the same direction i.e. an increase in the GDP increases the Exports and a decrease in the GDP decreases the Exports.
- 2 Correlation ranges from -1 to +1. Since the Cor.Coeff1 is 0.96, this shows a stronger correlation between the GDP and the Exports i.e., there is a very strong likelihood that a change in the GDP will influence a change in the Exports and vice versa.

Correlation Analyses

Correlation Between GDP and Exports



There is a positive linear correlation between GDP and Exports with variables above and below the correlation line.

Correlation Analysis

- Correlation Between Population and Consumer Spending

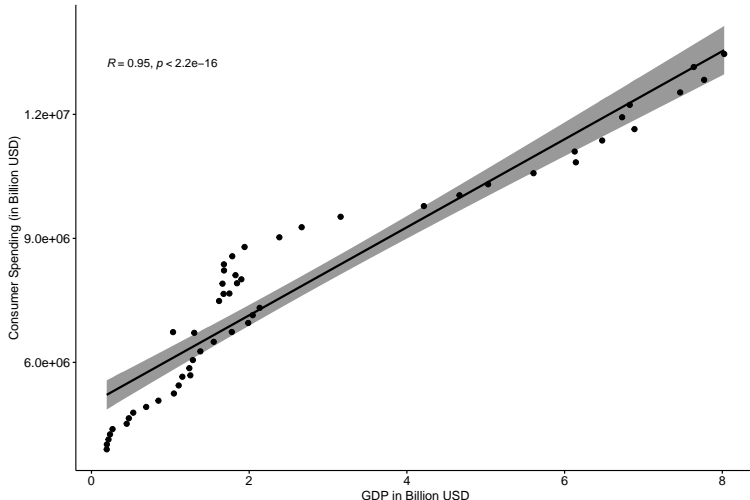
Correlation Coefficient: Using the Pearson's Correlation analysis, the correlation coefficient between the Population and the Consumer Spending (Cor.Coeff2) was found to be 0.949. Therefore: -

- 1 Since the correlation coefficient is +0.949, this means that the Population and the Costumer spending vary in the same direction i.e., an increase in the Population increases the Consumer spending and vice versa.
- 2 Since the Cor.Coeff2 is 0.949, this shows a stronger correlation between the Population and the Consumer spending i.e., there is a very strong likelihood that an increase in the Population will influence an increase in the Consumer spending and vice versa.

Correlation Analyses

● Correlation Between Population and Consumer Spending

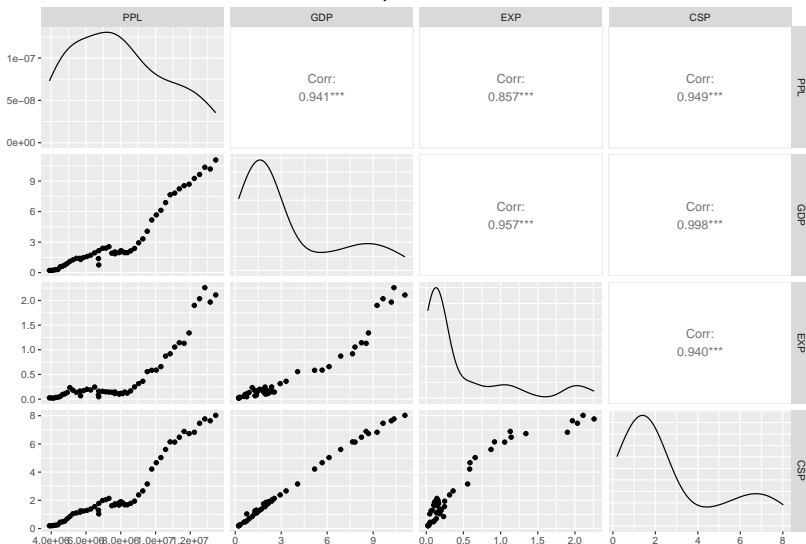
Correlation Between Population and Consumer Spending



There is a positive linear correlation between Population and Consumer spending with variables above and below the correlation line.

Correlation SUMmary

Correlation Coefficient and Correlation Test Summary



Most of the variables have a strong positive correlation approximately above 0.9; Population and Exports which, with a correlation coefficient of 0.857, is the least correlation relationship. Also, the asterisks represents the probability such that; 1 asterisk suggests significance at 5% level; 2 asterisks at 1% level; and 3 asterisks at 0.1% level.