



Website:  
[www.github.com](http://www.github.com)

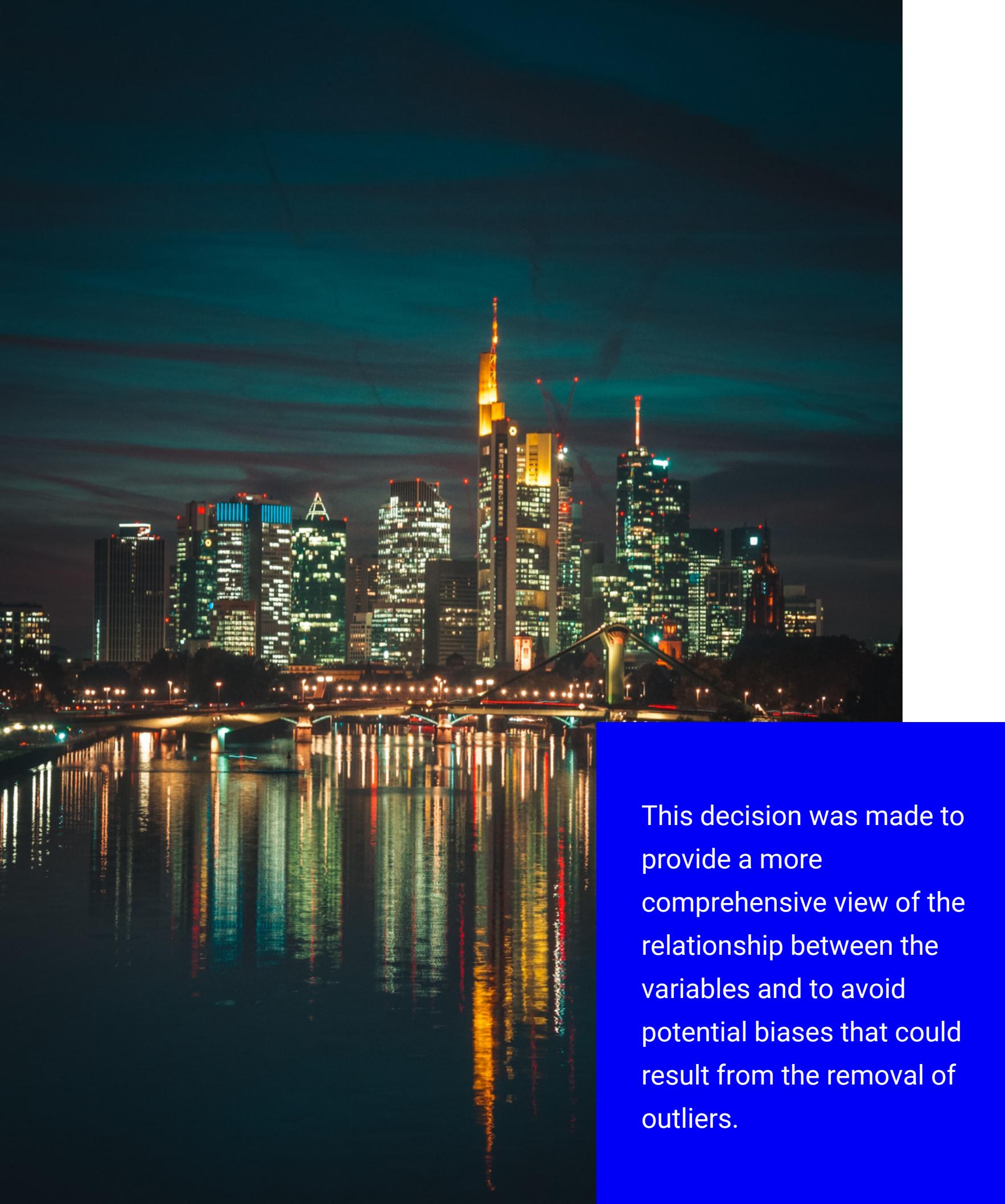
# Why Nations Fail & Grow?

Kamil Kuczynski



Goal

Understanding the factors that Influence Economic  
Prosperity Across Borders



# I. Introduction



## Relationship & outliers

This report examines the relationship between economic freedom, population, area, and GDP per capita growth for all countries from 1990 to 2021.

Outliers were intentionally not removed from the dataset to investigate the potential impact of the smallest and largest countries, which some argue have a significant influence on a nation's overall wealth.

This decision was made to provide a more comprehensive view of the relationship between the variables and to avoid potential biases that could result from the removal of outliers.

## Strategy

# II. RESEARCH METHODS

In the methodology section, I will provide an overview of the research methods and data sources used in this study.

The data were obtained from the World Bank and Fraser Institute.

I considered the **country's area, population**, and average **Economic Freedom score** as independent variables, and the **GDP per capita growth** as a dependent variable.

We utilized Pearson correlation analysis and linear regression to investigate the relationship between these indicators and GDP per capita growth for every country from 1990 to 2021.

To analyze the relationships between indicators, I gathered data on the GDP per capita PPP (constant 2017) for every country from 1990 to 2021.

To calculate the growth indicator, I used the GDP per capita PPP in 2021 divided by the GDP per capita PPP in 1990.

The average Economic Freedom score was calculated as the average score from 1990 to 2020, and the data were obtained from Fraser Institute.

## Overall

This methodology provides a comprehensive analysis of the relationships between various economic indicators and GDP per capita growth, allowing for a better understanding of the factors that contribute to a country's economic development.

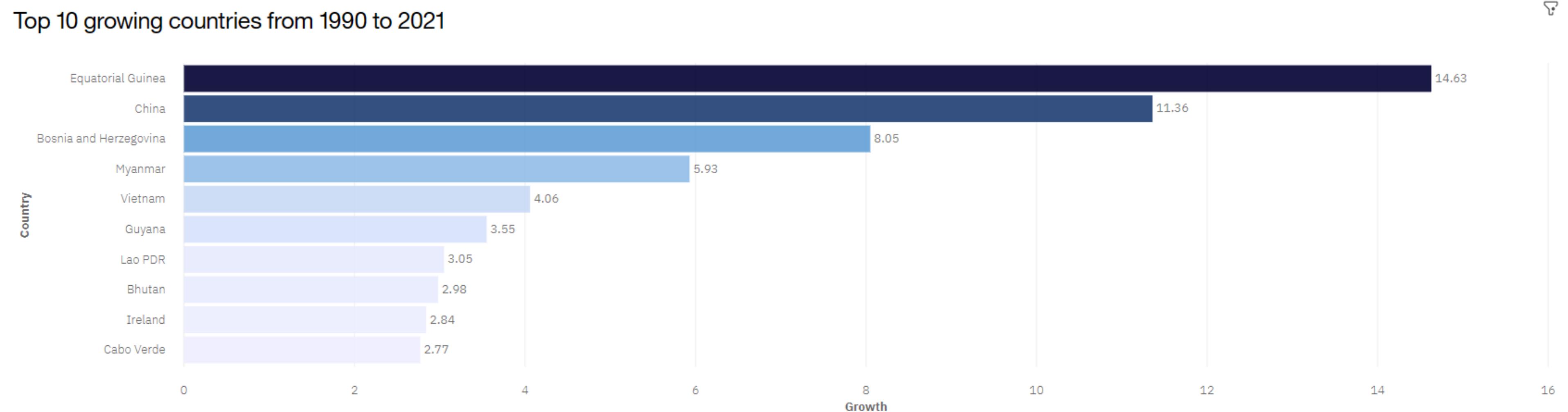


## III. RESULTS AND DISCUSSION

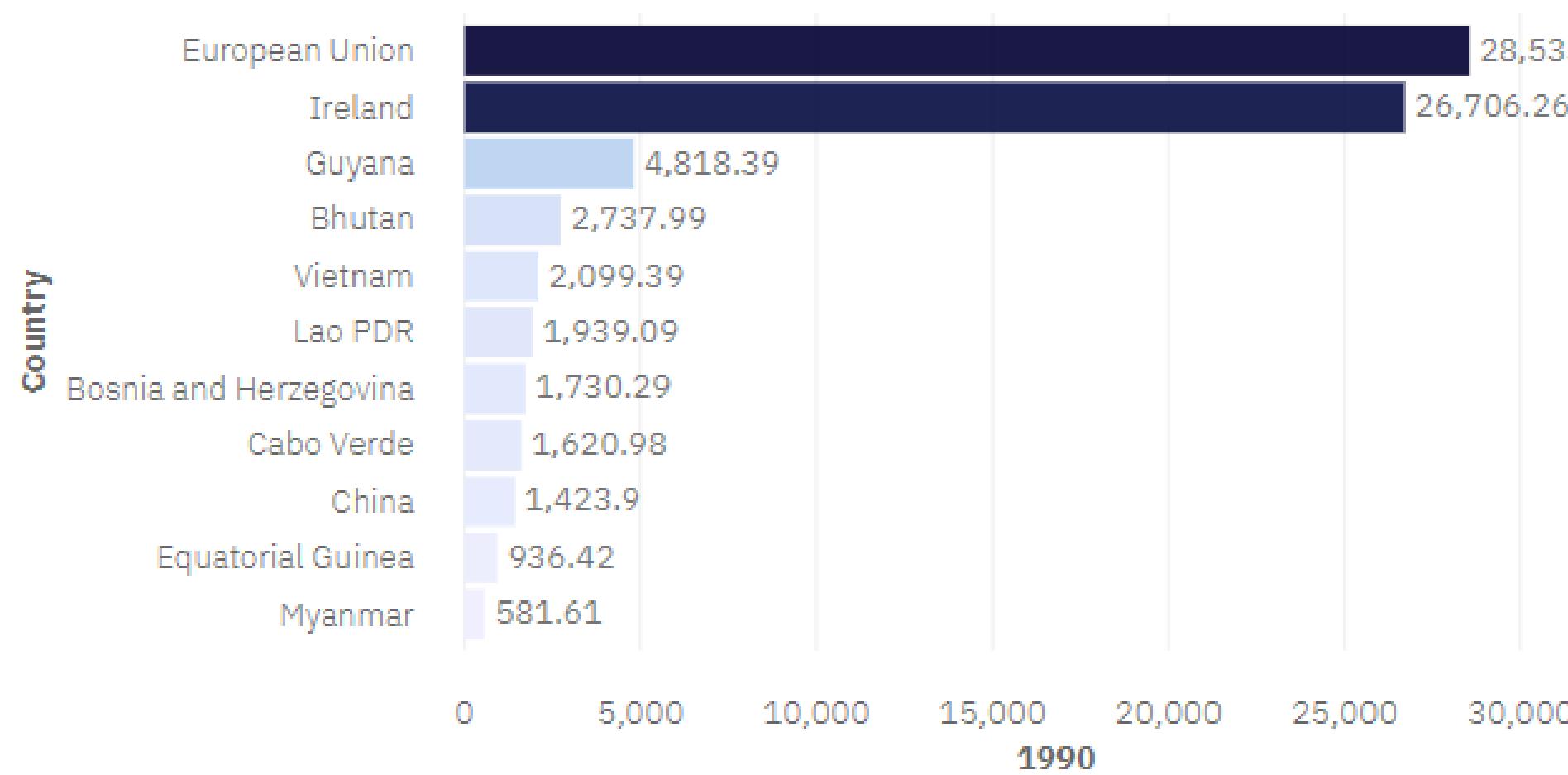
The highest grow of GDP per capita from 1990 tok 2021 achieved... small equatorial guinea. The second place was taken by China.

Sunset in Malabo, Equatorial Guinea





GDP per capita in 1990, PPP (constant 2017 international \$)



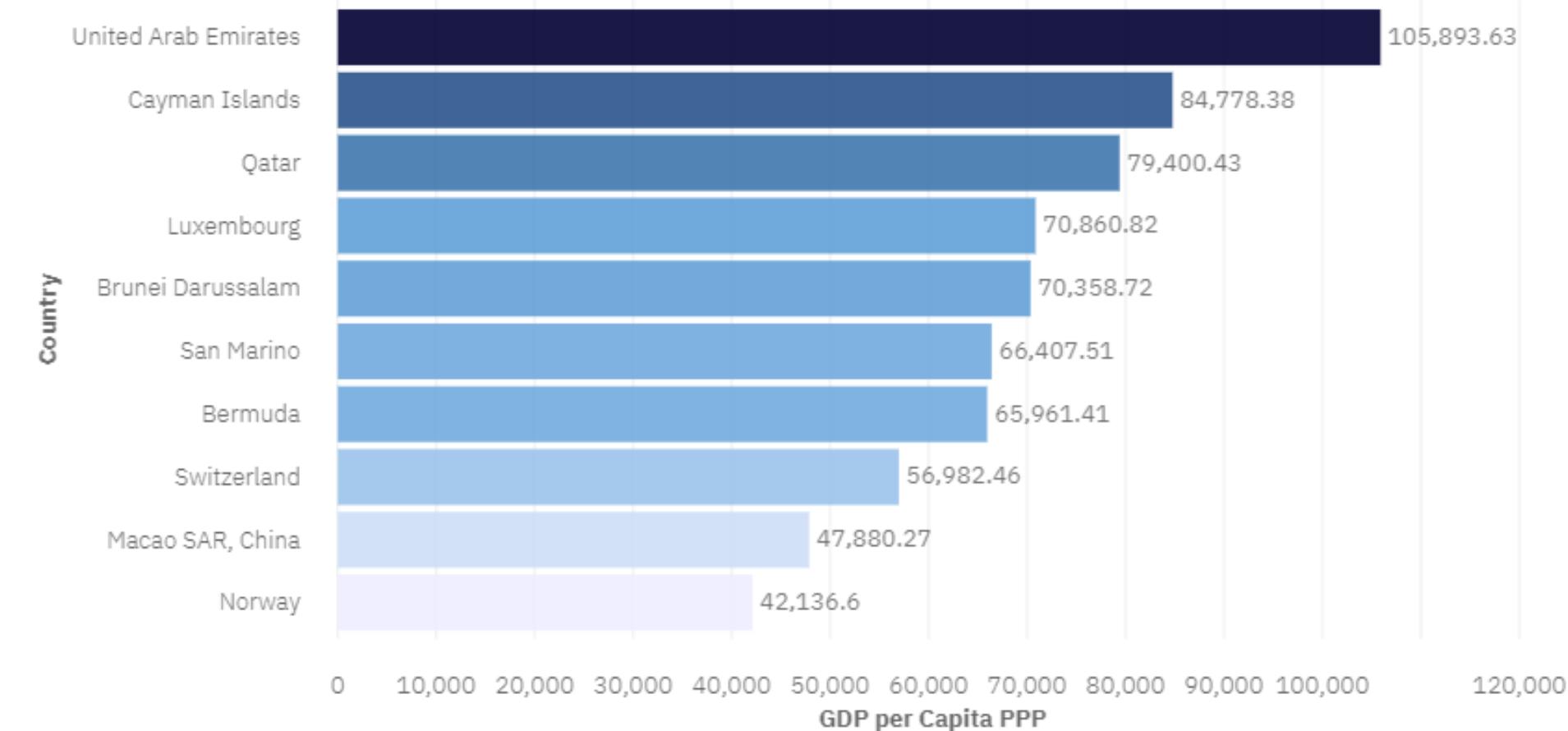
## Economic growth

**Most of these countries have low-income economies.**

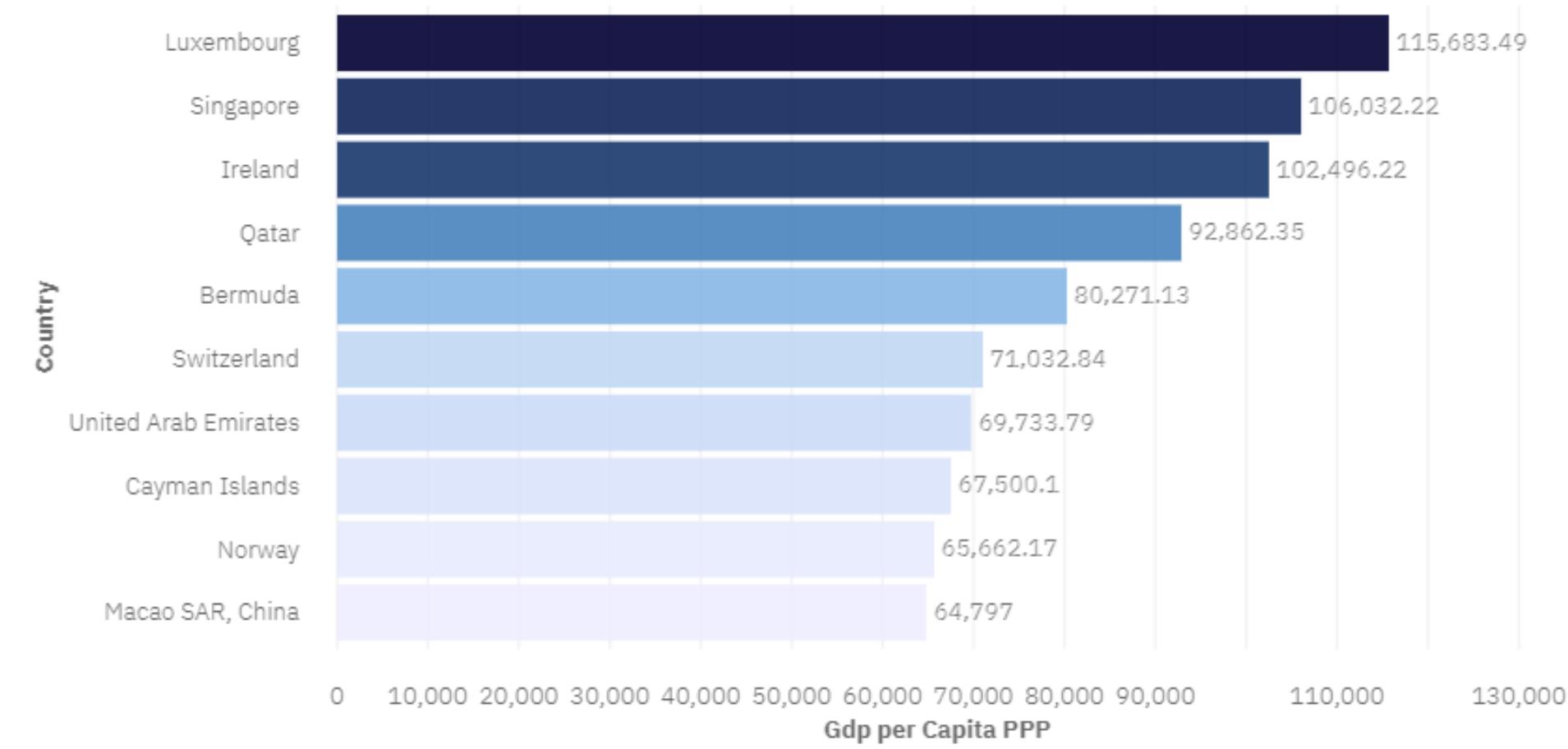
As you can see, most of the countries that have experienced the fastest economic development since 1990 were initially classified as low-income countries with the exception of Ireland. This is likely one of the reasons for their rapid growth.



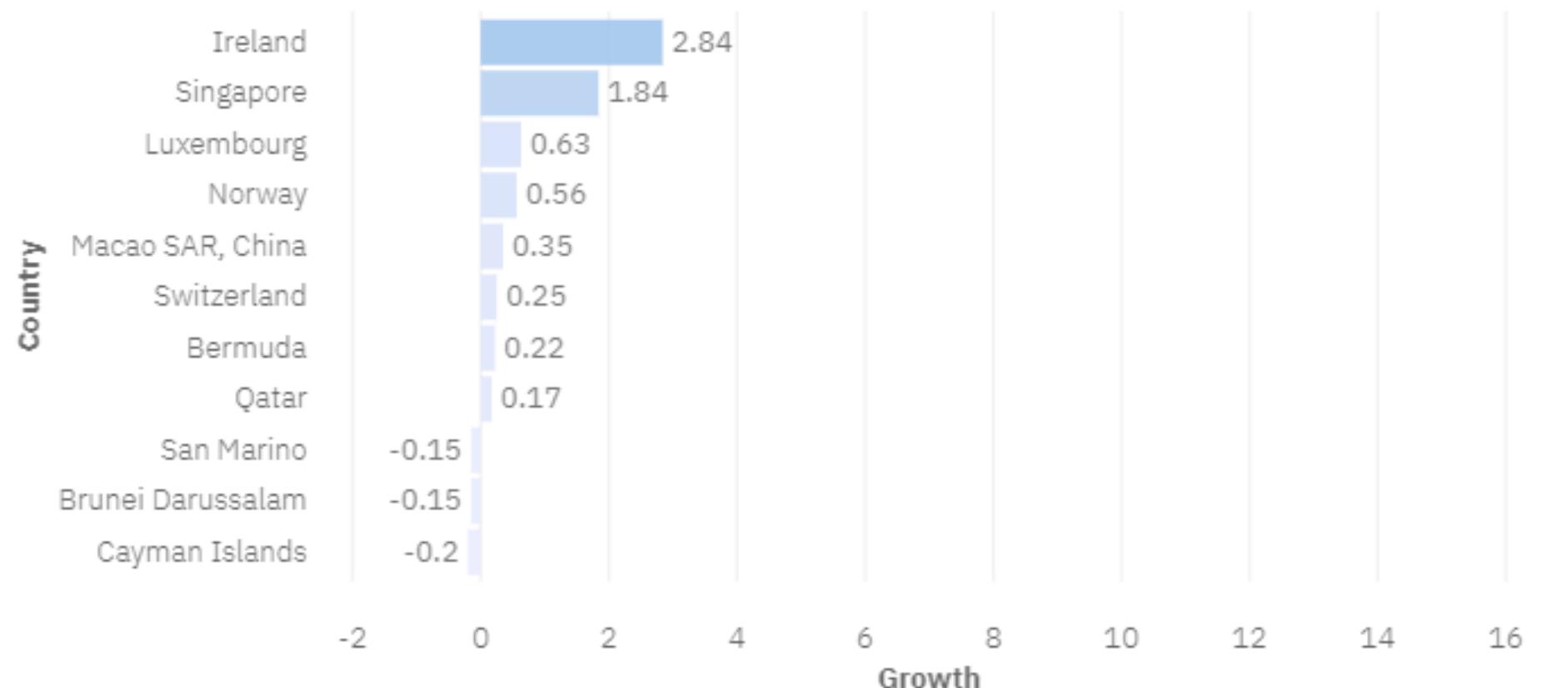
## Top 10 Richest Countries in 1990



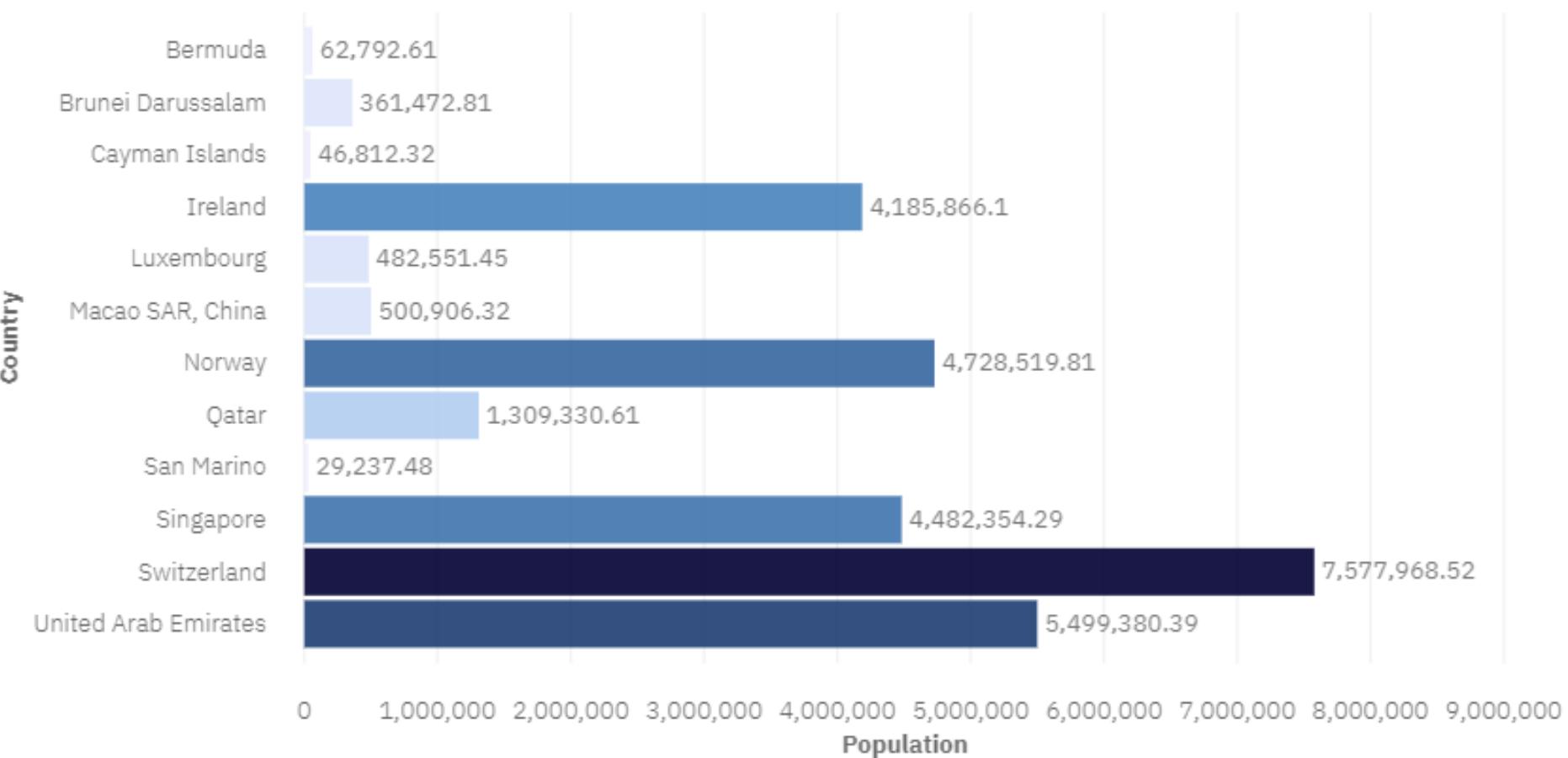
## Top 10 Richest Countries in 2021



## Growing of the Richest Countries in 1990 - 2021



## Population of the Richest Countries in 1990 - 2021



## The Richest Countries grow slowly

It is highly probable that wealthier countries develop more slowly due to their economic prosperity.

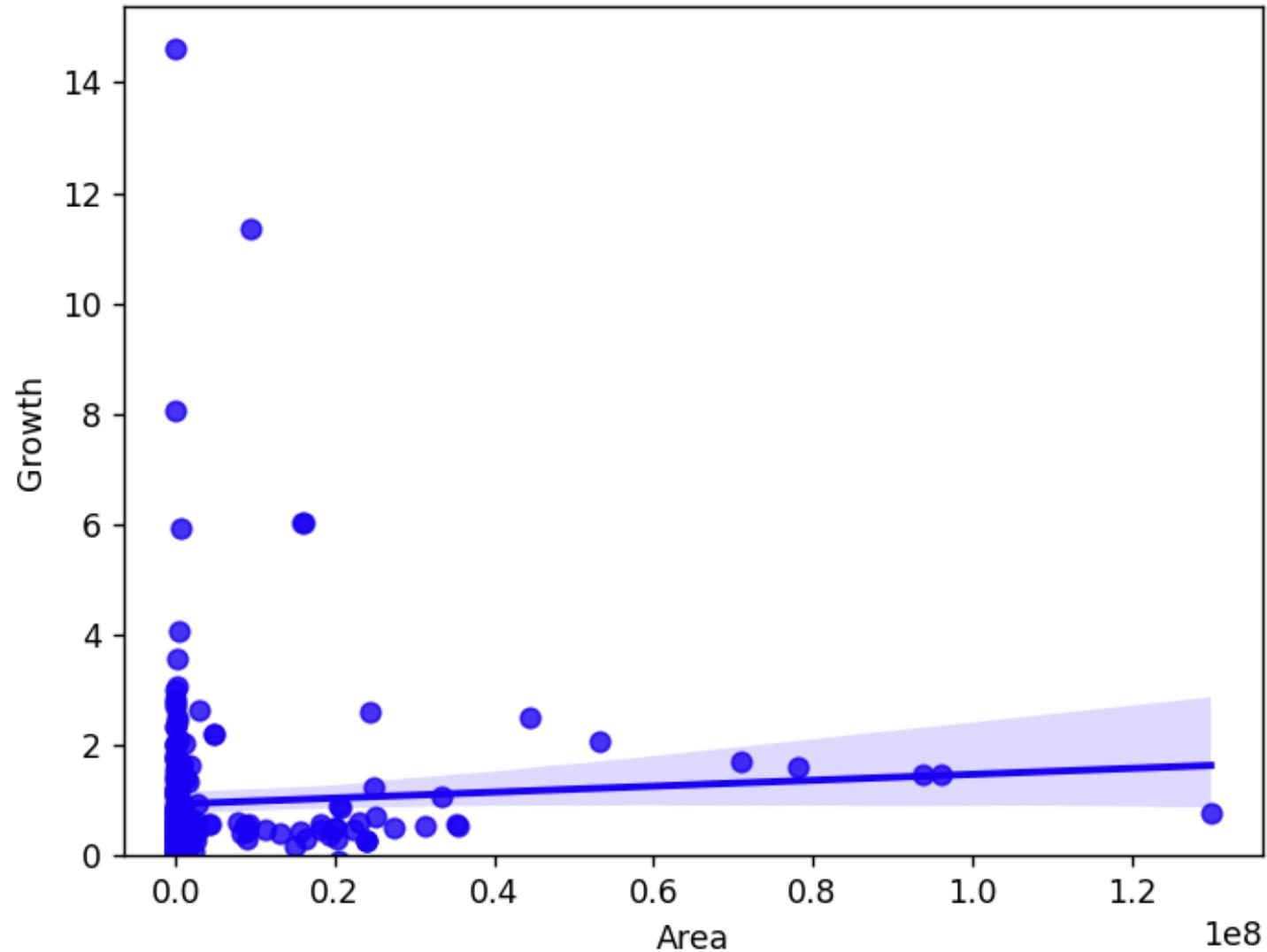
## The Richest Countries have small population

As noted in the text, among the top 10 richest countries, Switzerland is the most populous with around 8 million inhabitants. This suggests that a country's population size is not necessarily the most important factor in driving its economic prosperity. Instead, other factors such as strong economic systems or favorable business environments may play a bigger role.

This is consistent with the fact that the United States ranks just outside the top 10 in terms of GDP per capita PPP in 2021.

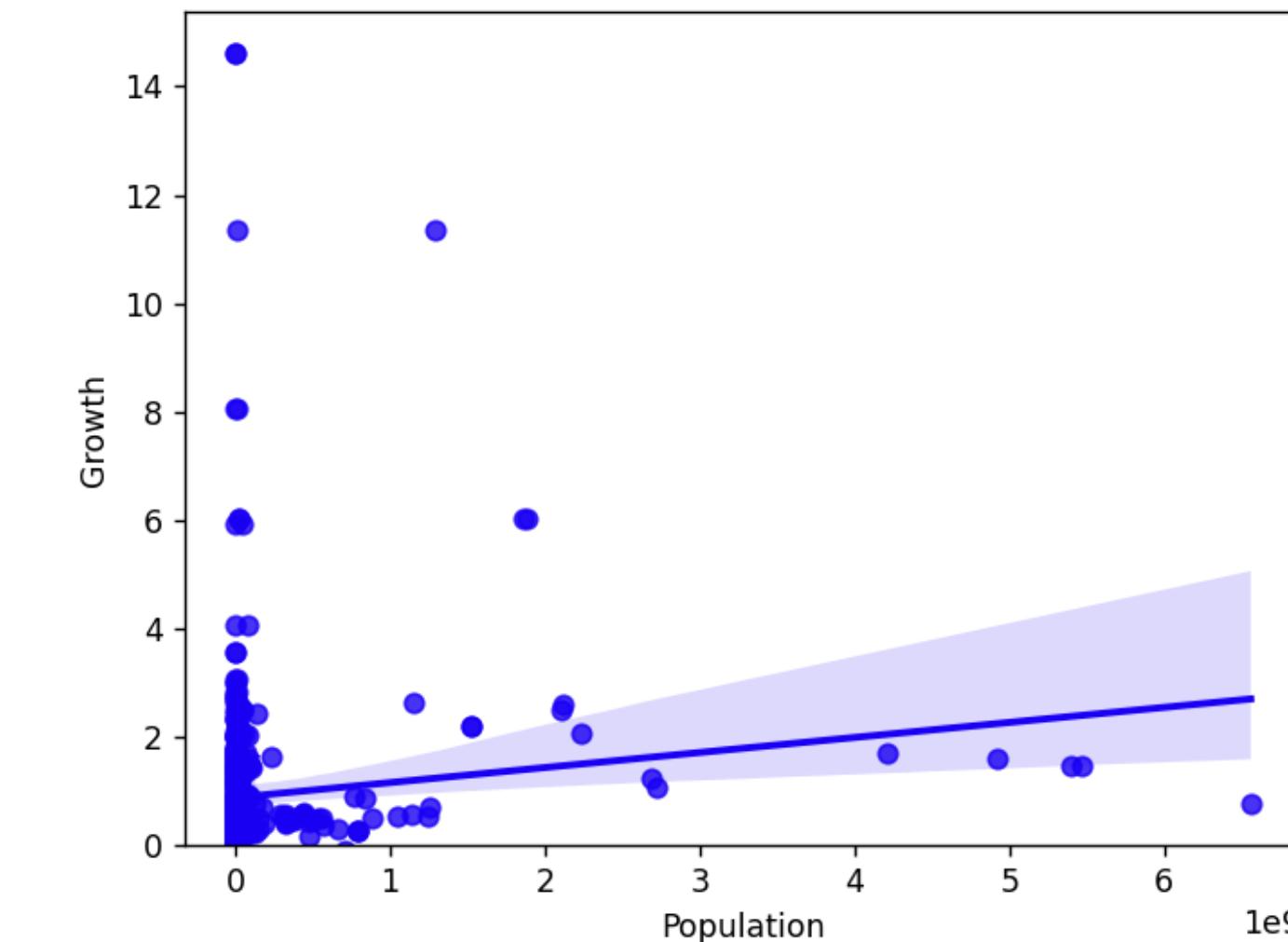


# Exploring Factors with Linear Regression and Pearson Correlation Analysis



## Correlation between growth and area growth and area

The Pearson correlation coefficient between growth and the area of countries is **0.055**, indicating a very weak positive correlation between these two variables. The P-value for this correlation is **P = 0.3995**, which suggests that this correlation is not statistically significant at a conventional significance level of **0.05**.



## Correlation between growth and population

Based on the result of the Pearson Correlation Coefficient being 0.156 and the P-value being 0.0153, there is weak evidence that the correlation is significant.

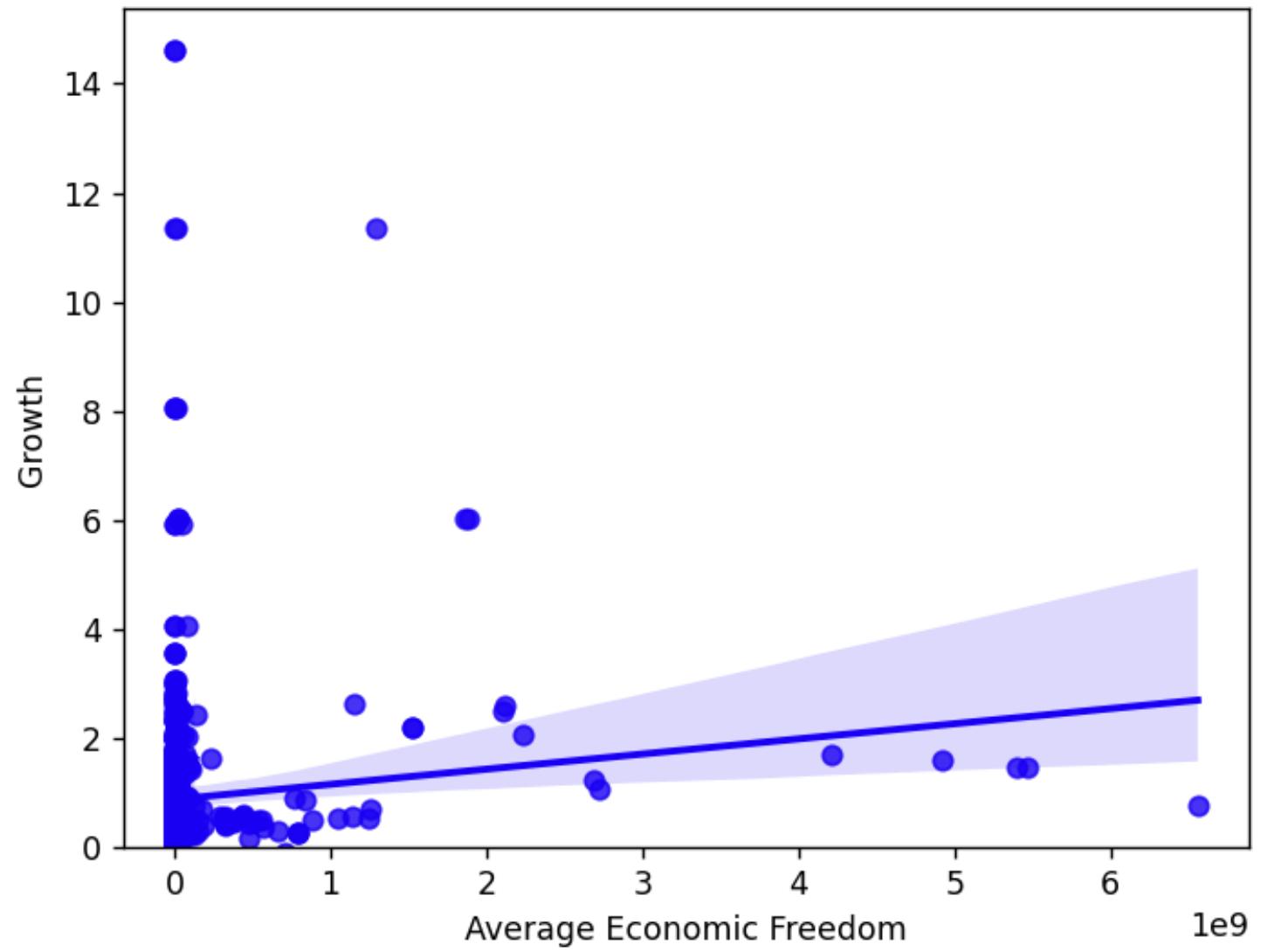
The results of the regression analysis also indicate that population does not have a strong correlation with growth.

The regression line is close to horizontal, indicating a weak relationship between the two variables.

Furthermore, the data points are widely dispersed from the fitted line, showing a significant amount of variability.

These findings suggest that population is not a reliable predictor of growth.

For example, countries such as India, Brazil, Egypt, and China, despite having large populations, are considered to be relatively poor. On the other hand, in wealthy countries such as the United States and Japan, there are also large populations.



## Correlation between growth and average economic freedom

Based on the Pearson correlation coefficient of **0.021** and the associated P-value of **0.7917**, it appears that there is very little correlation between economic growth and average economic freedom.

It seems unlikely that economic freedom has such a small impact on the development of nations and the growth of GDP. It appears that developed, wealthy countries have been growing slower because they started from a higher level of economic development in 1990, making further growth more difficult to achieve.

## Top 10 Countries

RANK	COUNTRY	OVERALL	CHANGE
1	Singapore	84.4	-5.3 <span style="color:red">▼</span>
2	Switzerland	84.2	2.3 <span style="color:green">▲</span>
3	Ireland	82.0	0.6 <span style="color:green">▲</span>
4	Luxembourg	80.6	4.6 <span style="color:green">▲</span>
5	New Zealand	80.6	-3.3 <span style="color:red">▼</span>
6	Taiwan	80.1	1.5 <span style="color:green">▲</span>
7	Estonia	80.0	1.8 <span style="color:green">▲</span>
8	Netherlands	79.5	2.7 <span style="color:green">▲</span>
9	Finland	78.3	2.2 <span style="color:green">▲</span>
10	Denmark	78.0	0.2 <span style="color:green">▲</span>

## 2022 Index of Economic Freedom

In general, for all years of publication of the index, countries with higher economic freedom scores have tended to have higher GDP per capita than countries with lower scores.

Therefore, while the conclusion from the column next to the correlation coefficient may appear to be correct, it is important to recognize that the correlation analysis alone may not fully capture the relationship between GDP per capita growth and economic freedom. The Pearson correlation metric shows no significant correlation between the two variables, but it is highly possible that other factors, such as the initial level of GDP per capita influenced the results.

## IV. DASHBOARD

[LINK TO DASHBOARD](#)



## Dashboard #1

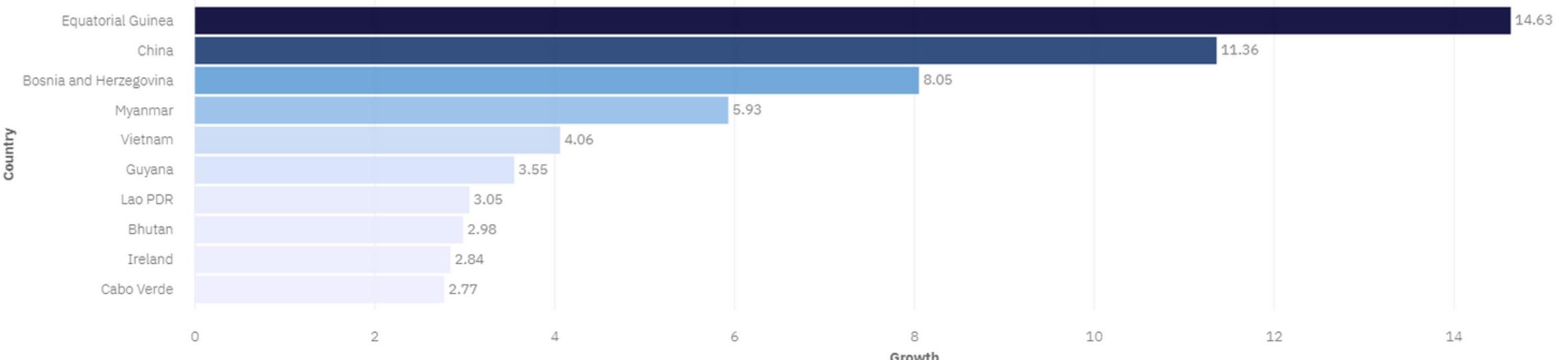
# General results of the study



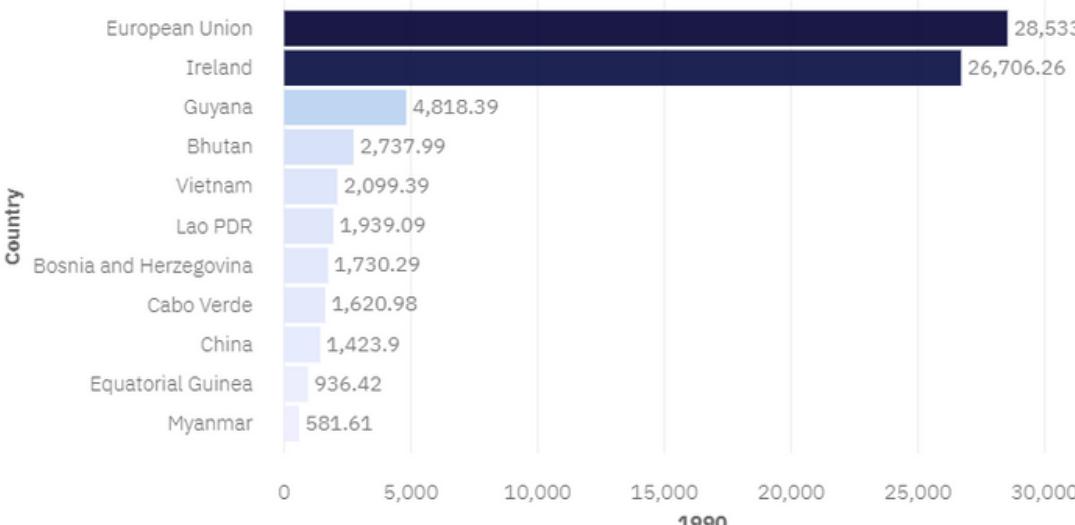
## Dashboard #2

# General results of the study

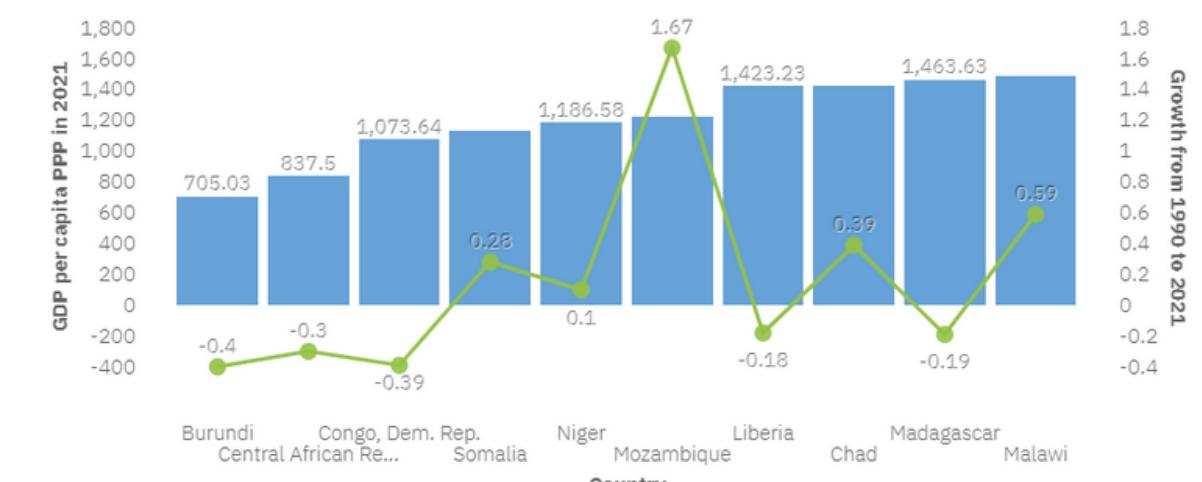
Top 10 growing countries from 1990 to 2021



GDP per capita in 1990, PPP (constant 2017 international \$)



Top 10 countries with the lowest GDP per capita PPP in 2021

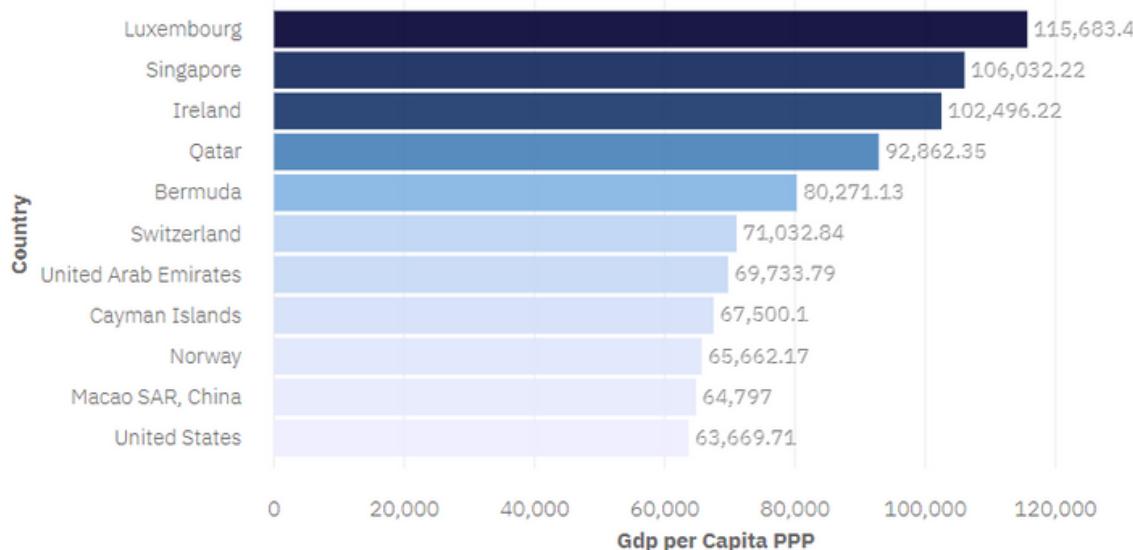


The dashboard presents general information about the top-growing countries. As we can see on the bottom chart, not all of the poorest countries are growing rapidly. This means that a low level of economic development is not sufficient for rapid growth.

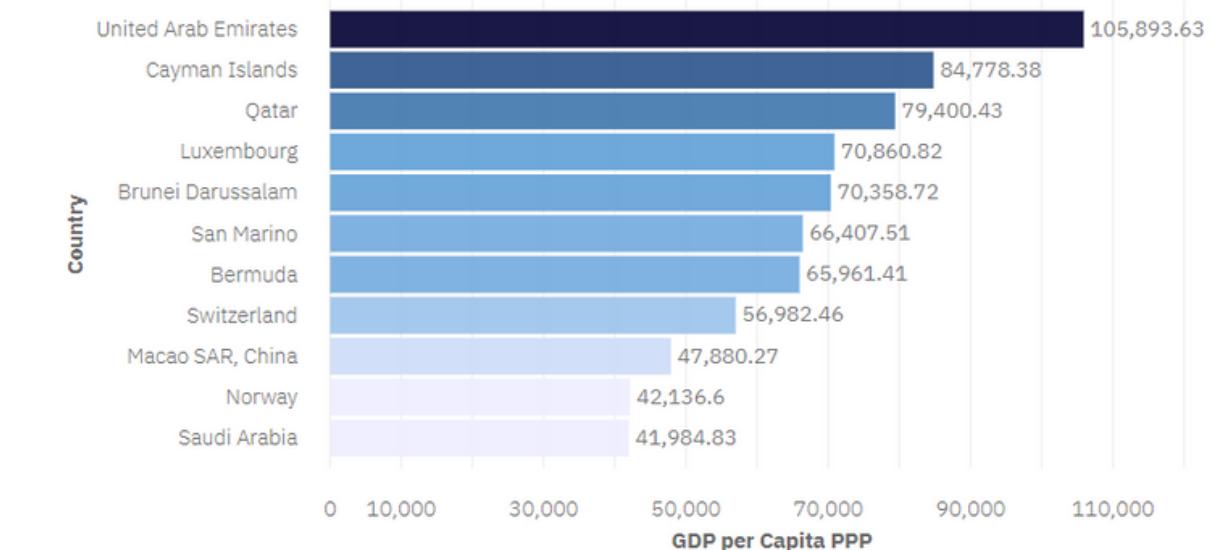
## Dashboard #3

# Results from the wealthiest countries

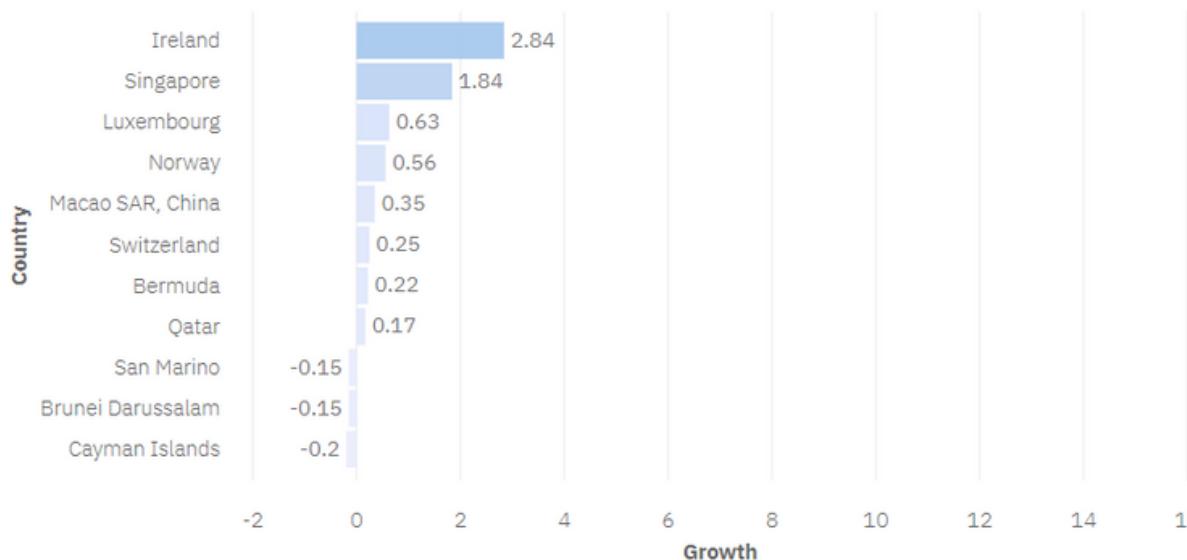
Top 10 Richest Countries in 2021



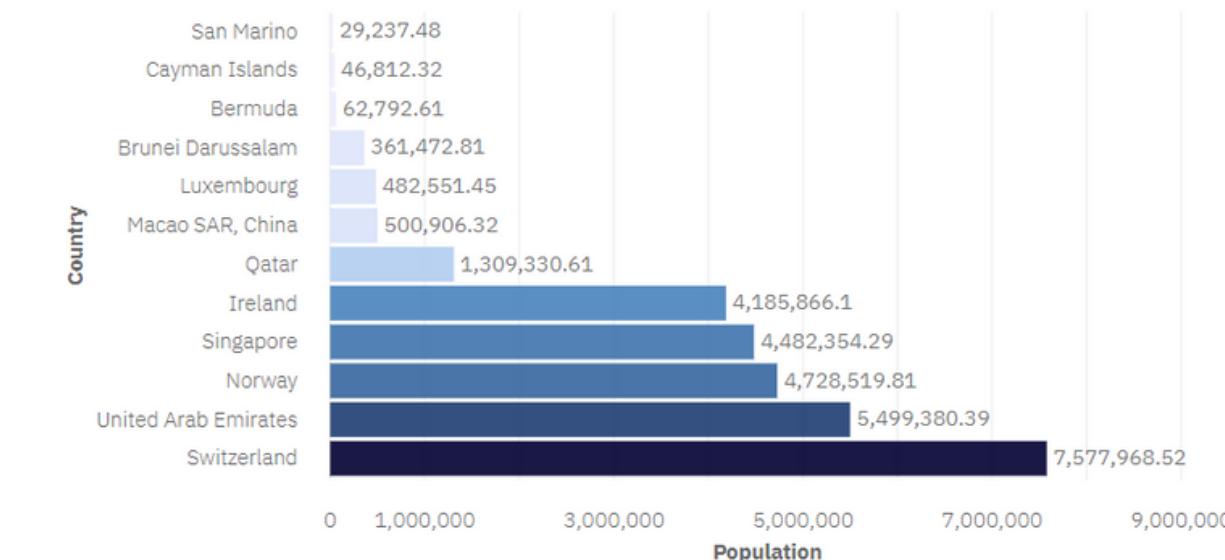
Top 10 Richest Countries in 1990



Growing of the Richest Countries in 1990 - 2021



Population of the Richest Countries in 1990 - 2021



The dashboard presents the outcomes of the wealthiest countries on the globe.



Planning the proper use of funds

Finance is a term related to financial affairs. When it comes to financing,

## V. DISCUSSION

### Removing outliers

The decision not to remove outliers from the dataset was made to provide a more comprehensive view of the relationship between variables. It was also important to keep outliers such as Russia and China in the analysis, as these countries are among the largest in the world.

### Checking multiply regression analysis

Finance is a term related to financial affairs. When it comes to financing, you can't be separated from the economy.economic that focuses on finance

### Checking more indicators

Adding indicators such as inflation rate, debt rate, climate, religion, and other factors can help to assess the economic growth of a country more comprehensively.



# VI. OVERALL FINDINGS & IMPLICATIONS



## Findings

Our study found that area and population do not have an impact on GDP growth, which has important implications for policymakers and individuals.

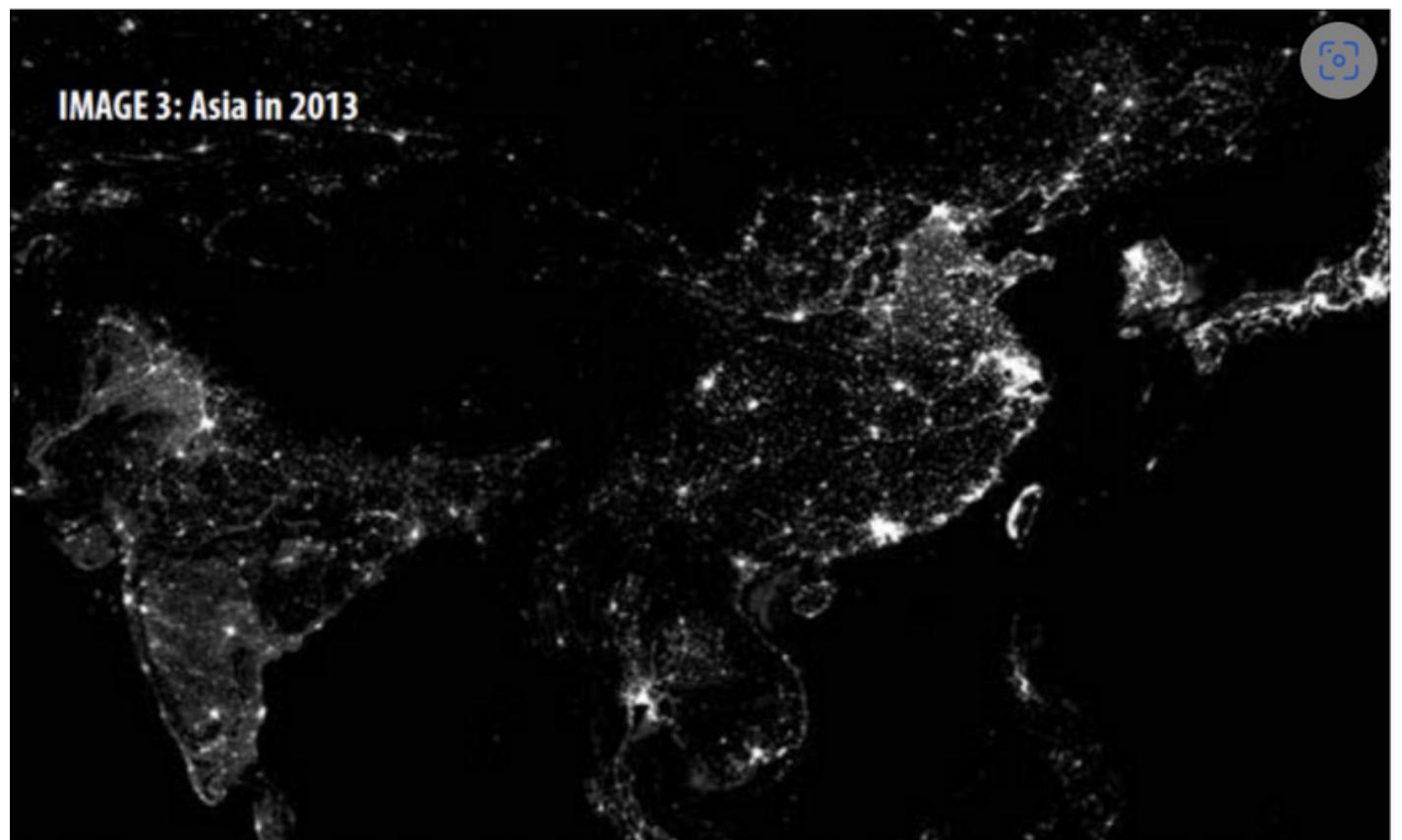
By understanding this relationship, stakeholders can better allocate resources and develop policies that prioritize other factors which are more strongly associated with economic growth.



## Implications

The finding that area and population do not have a significant impact on GDP growth suggests the need to prioritize other factors, such as investment in human capital, innovation, and infrastructure, in policy making and decision making.

**Satellite images of the earth at night reveal the pace of economic growth and much more**



## VII. APPENDIX JOB POST



### Reflecting the changing economy

Scientists have been using satellite images of Earth at night—often referred to as “night lights”—to study human activity and natural events for almost 30 years.

In the past decade, economists have followed suit, realizing that night lights can help gauge economic growth, map poverty, analyze inequality, and tackle numerous questions otherwise impossible to answer, especially in places where data are lacking.

In fact, if aliens were ever to approach Earth from its dark side, they would already know some basics about the global economy long before reaching our atmosphere.

More: [imf.org](http://imf.org)



Website:  
[www.github.com](https://www.github.com)

# Thank You.

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