DOUGLASCOLLEGE

THE RELATIONSHIP BETWEEN GDP, GDP PER CAPITA AND HAPPINESS SCORES: AN ANALYSIS ACROSS COUNTRIES FROM 2006 TO 2022

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CONTENTS

1. INTRODUCTION

In recent years, understanding the interplay between economic indicators and social well-being has become increasingly crucial for policymakers and researchers. Gross Domestic Product (GDP) and GDP per capita are often used as primary metrics to gauge a country's economic performance and prosperity. However, these measures do not always capture the overall happiness and quality of life experienced by citizens.

Through this comprehensive examination, the purpose is to explore the relationship between GDP, GDP per capita, and happiness scores across various countries from 2006 to 2022, employing Tableau for visual representation and data analysis. By analyzing data from this period, this report seeks to determine whether higher economic outputs and individual wealth correlate with greater happiness levels.

Ultimately, this research will provide insights into how economic growth translates to human contentment and to identify potential discrepancies between economic prosperity and happiness. Understanding these relationships is vital for shaping policies that not only aim for economic development but also enhance the overall quality of life for people around the world.

2. DATA SOURCE

All data sources are obtained from the Kaggle platform. The datasets used are comprehensively detailed in the table below.

Table name	Short description	Records	Features
Countries.csv	A collection of economic, demographic, and developmental indicators for countries worldwide.	5106	25
World Happiness Report 2022.csv	A landmark survey of the state of global happiness	146	12
WorldPopulation2023. csv	Countries in the world by population 2023	234	12

Each dataset is characterized by distinct features, outlined as follows.

Countries.csv

Name	Description
Country Name	Name of the Countries
Continent Name	Name of the Continent
Year	From 2000 to 2022
GDP	Gross Domestic Product in US Dollar ($) measures the total economic output of a country
GDP Per Capita	GDP per capita calculates the average income of each individual in a country and is an indicator of living standards.
Population	Total Population of a country
Unemployment	Unemployment rate (%)

World Happiness Report 2022.csv

Name	Description
Country	Researched country
Happiness Score	An index that reflects the well-being of people and the state of the environment in different countries of the world

WorldPopulation2023.csv

Name	Description
Country	Name of countries and dependent territories.
Population 2023	Population in the year 2023

3. ANALYSIS QUESTIONS

This report provides insights into the relationship between GDP, GDP per capita, and happiness scores by addressing the following research questions:

- In 2020, which continent exhibited the highest average GDP, and how do the trend lines of that continent's the economy over time?
- What are the projected GDP trends for the next year?
- What are the top 10 countries in each region with the highest GDP per capita?
- How does large population affect GDP per capita over time across countries?
- Does a high GDP necessarily indicate a high GDP per capita?
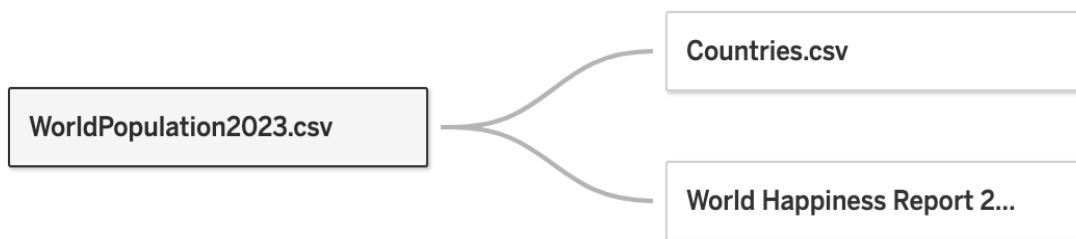- What country have the low happiness scores?

- Is there a significant difference in happiness scores between highly urbanized and less urbanized countries?

4. VISUALIZATIONS

4.1. Data Connections

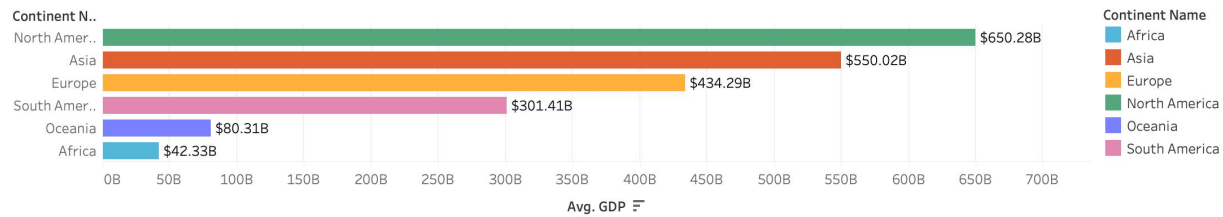After creating connections, this is the updated relationship view

4.2.Visualization Descriptions
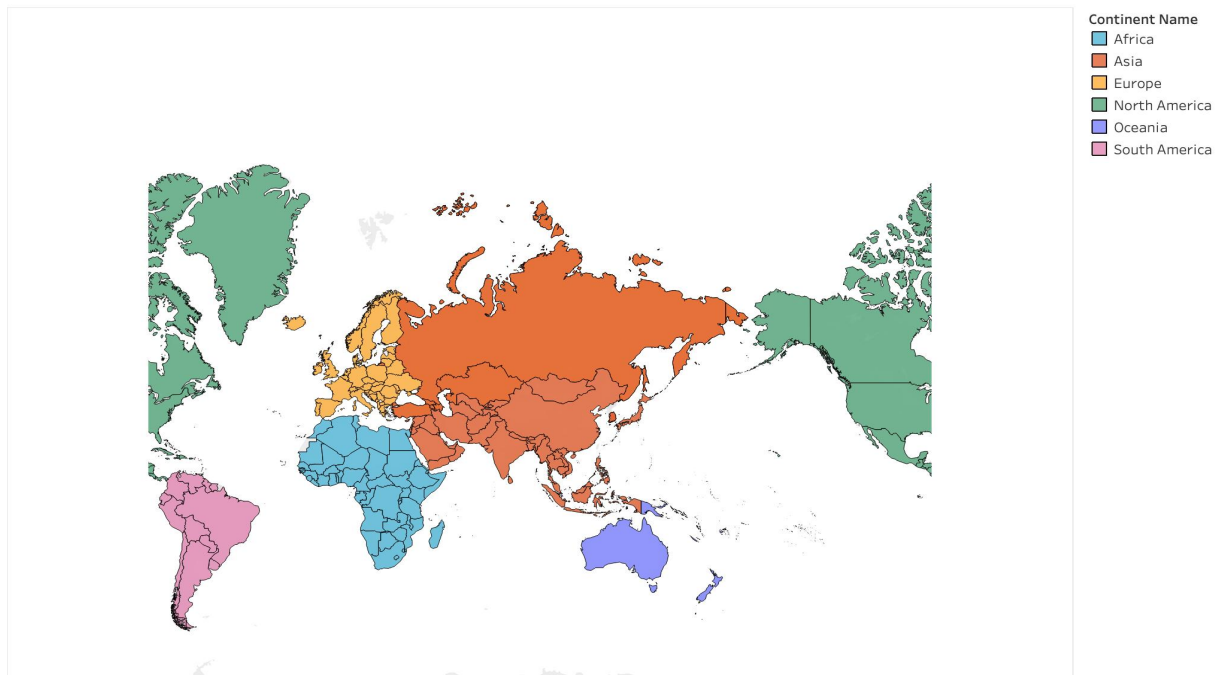
THE GLOBAL GDP ANALYSIS

Question 1: In 2020, which continent exhibited the highest average GDP, and how do the trend lines of that continent's the economy over time?

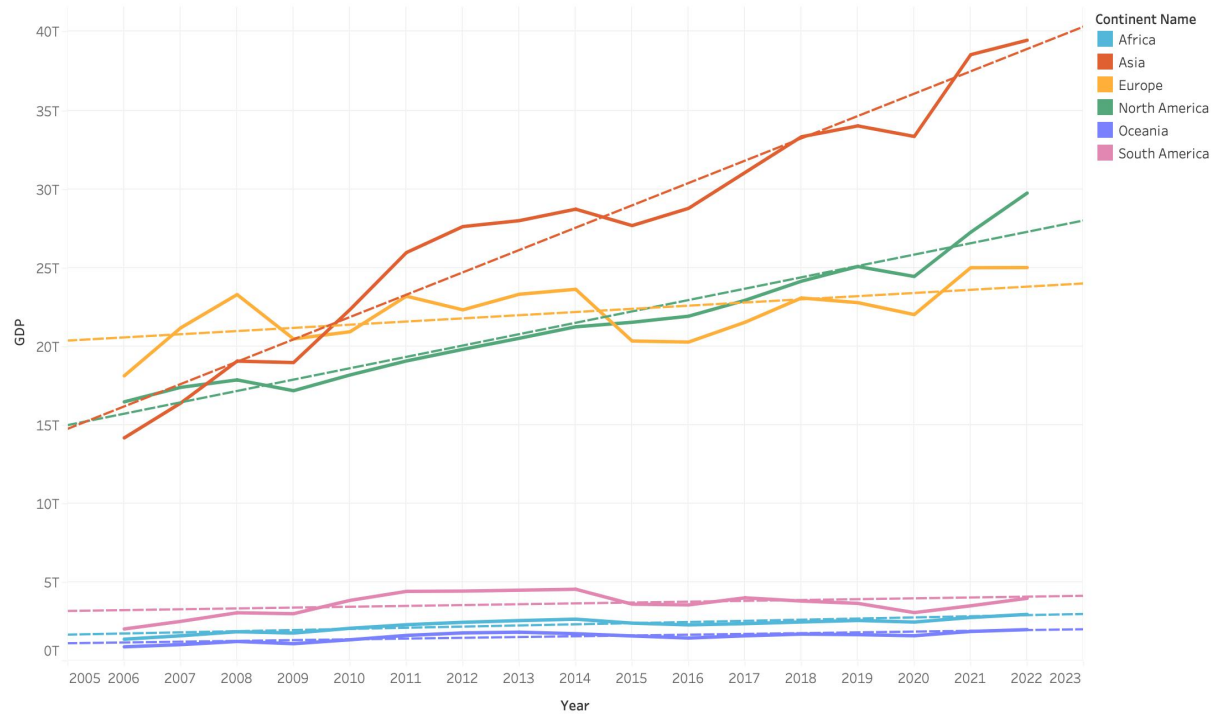**Overall GDP** - This chart shows **the average economic output of each continent**

The bar chart illustrates the average GDP in US dollars across different continents from 2020 to 2022, highlighting significant economic disparities.

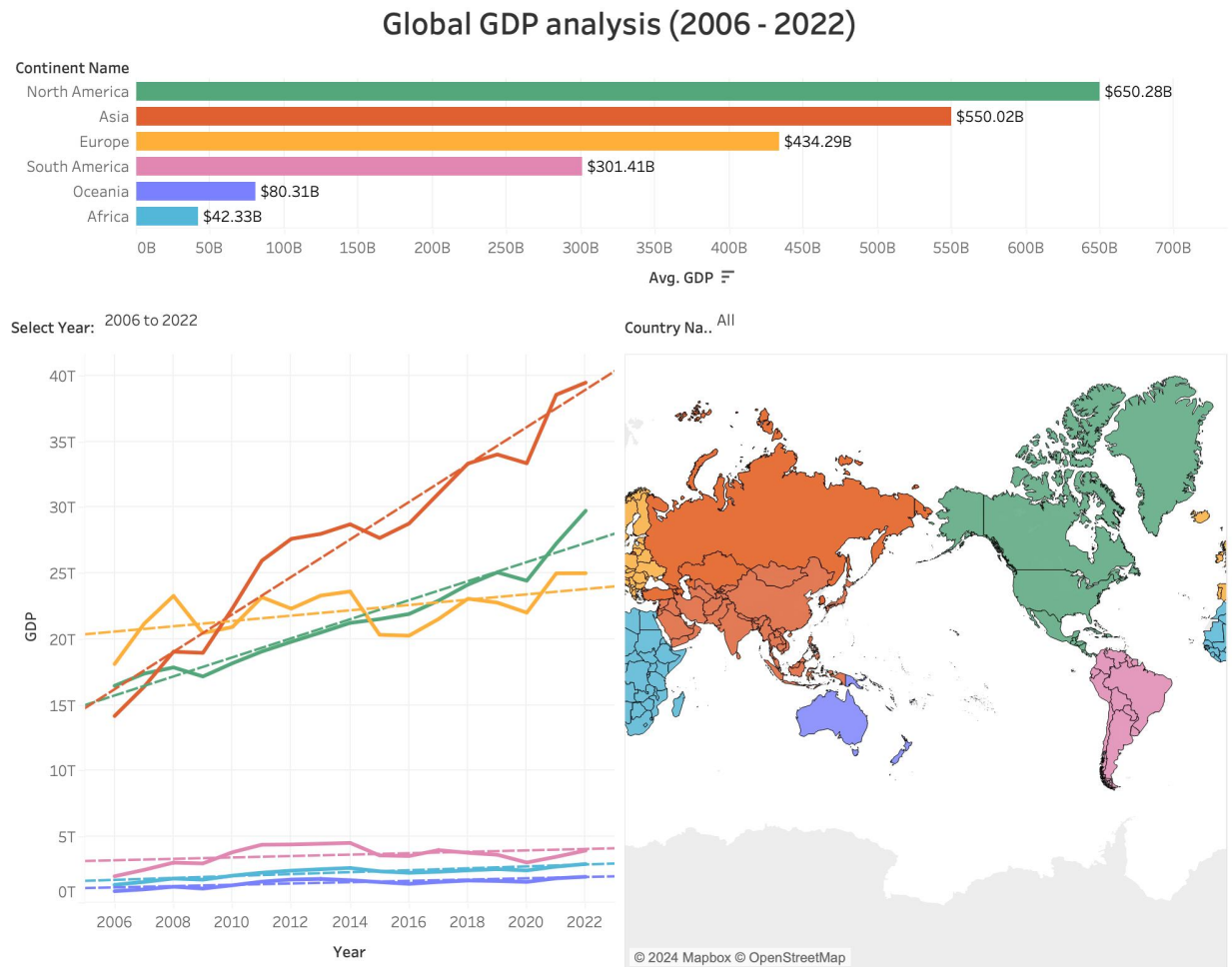**Continents -** Continental color mapping

This map employs a vibrant palette of colors to distinguish each continent, making it easy to visually discern the geographical divisions across the world.

GDP Trend line - This line chart shows the yearwise GDP of each continent

This is a line graph that illustrates the fluctuations and growth patterns in the economic performance of each continent from 2006 to 2022, highlighting significant changes and trends.

Global GDP analysis (2006 - 2022)

Continent Name

Continent	Avg. GDP
North America	$650.28B
Asia	$550.02B
Europe	$434.29B
South America	$301.41B
Oceania	$80.31B
Africa	$42.33B

Avg. GDP

Select Year: 2006 to 2022
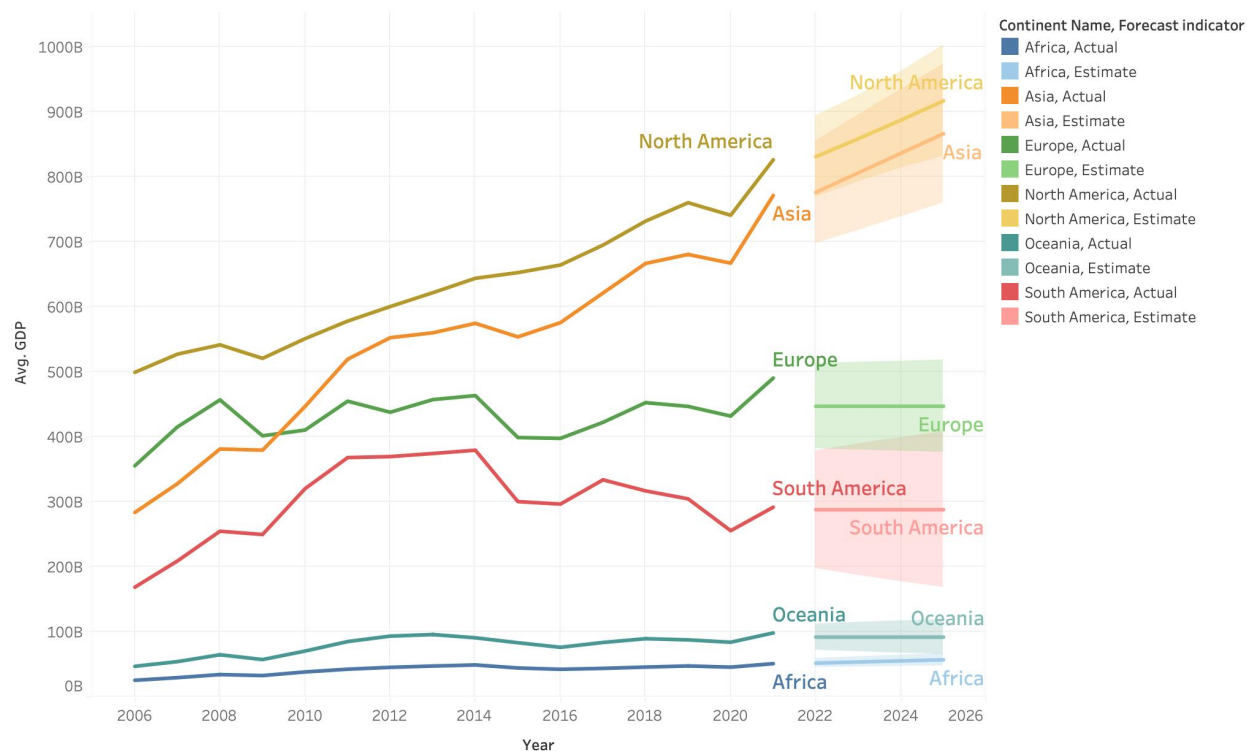
Country Na.. All

© 2024 Mapbox © OpenStreetMap

The dashboard presents a detailed overview of the global GDP across continents from 2006 to 2022. It features a year filter, allowing users to select and view data for specific years, and a country filter, enabling the selection of individual countries for more analysis.

Answer Q.1: In 2020, North America exhibited the highest average GDP. The trend line for North America's economy shows a consistent increase over time, indicating steady economic growth.

Question 2: What are the projected GDP trends for the next year?

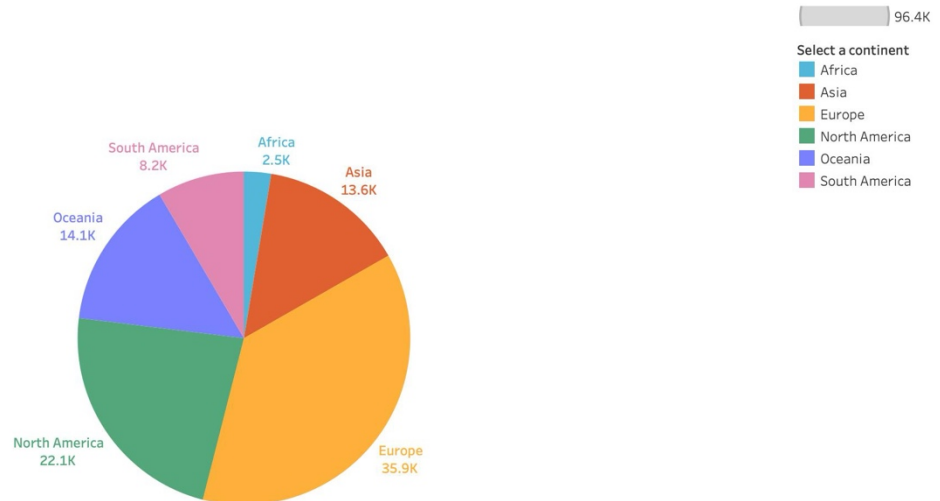**GDP Predictions -** This chart shows a **forecast** of **GDP** by **Continents up to 2025**

The line chart illustrates the forecasted GDP trends for each continent up to the year 2026. Each line represents a continent, allowing for easy comparison of projected growth rates and economic trajectories.

Answer Q.2: The projected GDP trends for 2026 indicate that North America's GDP is expected to grow steadily, indicating continued economic growth. Asian countries are also projected to experience a significant upward trend, whereas the other continents are expected to see relatively minor changes in their GDP.
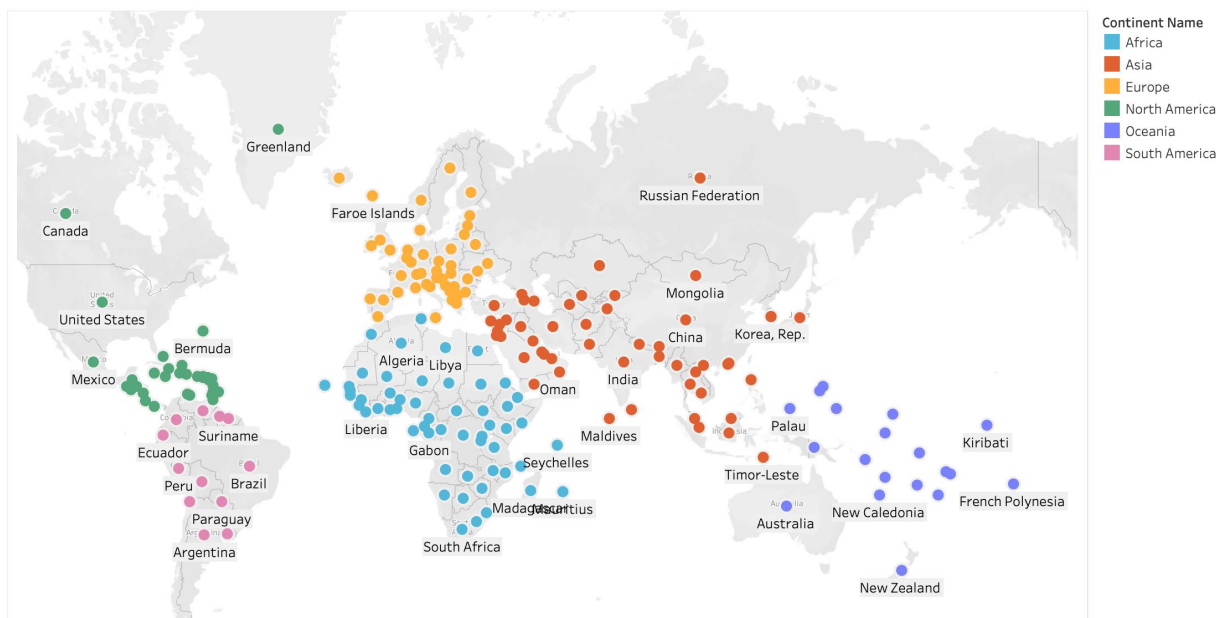
THE GLOBAL GDP PER CAPITA ANALYSIS

Question 3: What are the top 10 countries in each region with the highest GDP per capita?

Overall GDP per Capita - This pie chart illustrates the global **overall GDP per capita** across different continnents
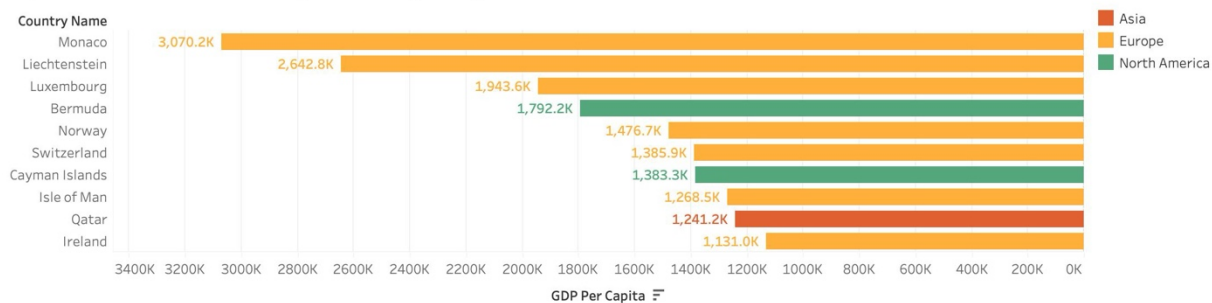

The pie chart highlights the GDP per individual for each continent, offering insights into the disparities and similarities in economic landscape and living standards around the world.

Countries map - This symbol map showing the continent name (encoded with color) and the country name
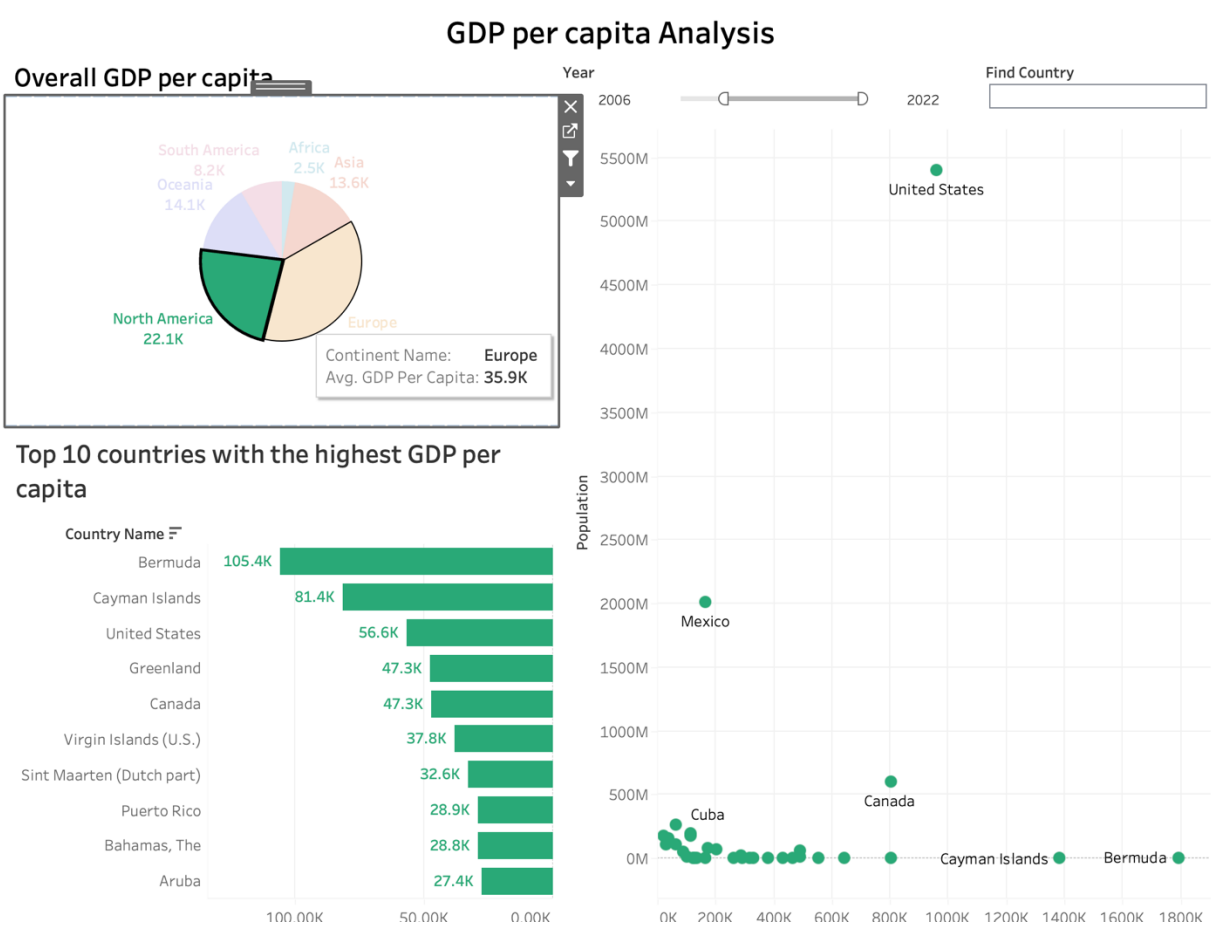
The symbol map visually represents countries by encoding them with distinct colors corresponding to their respective continents. This color-coding enhances user visualization by allowing easy identification and differentiation of countries based on their continental affiliations.

Top 10 countries with the highest GDP per capita

Legend:
- Asia
- Europe
- North America

Country Name	GDP Per Capita
Monaco	3,070.2K
Liechtenstein	2,642.8K
Luxembourg	1,943.6K
Bermuda	1,792.2K
Norway	1,476.7K
Switzerland	1,385.9K
Cayman Islands	1,383.3K
Isle of Man	1,268.5K
Qatar	1,241.2K
Ireland	1,131.0K

The bar chart displays the top 10 countries with the highest GDP per capita. Each bar represents a specific country, showcasing its respective GDP per capita value.

GDP per capita Analysis

Overall GDP per capita

Pie chart:
- South America 8.2K
- Africa 2.5K
- Asia 13.6K
- Oceania 14.1K
- North America 22.1K
- Europe

Continent Name: Europe
Avg. GDP Per Capita: 35.9K

Year: 2006 – 2022

Find Country

Top 10 countries with the highest GDP per capita

Country Name	GDP
Bermuda	105.4K
Cayman Islands	81.4K
United States	56.6K
Greenland	47.3K
Canada	47.3K
Virgin Islands (U.S.)	37.8K
Sint Maarten (Dutch part)	32.6K
Puerto Rico	28.9K
Bahamas, The	28.8K
Aruba	27.4K

Scatter plot labels: United States, Mexico, Cuba, Canada, Cayman Islands, Bermuda

The dashboard presents an overview of the global GDP per capita across continents from 2006 to 2022, highlighting the impact of population on GDP per capita. It features a year filter, allowing users to select and view data for specific years, and a country finding box, enabling the selection of individual countries for more analysis.
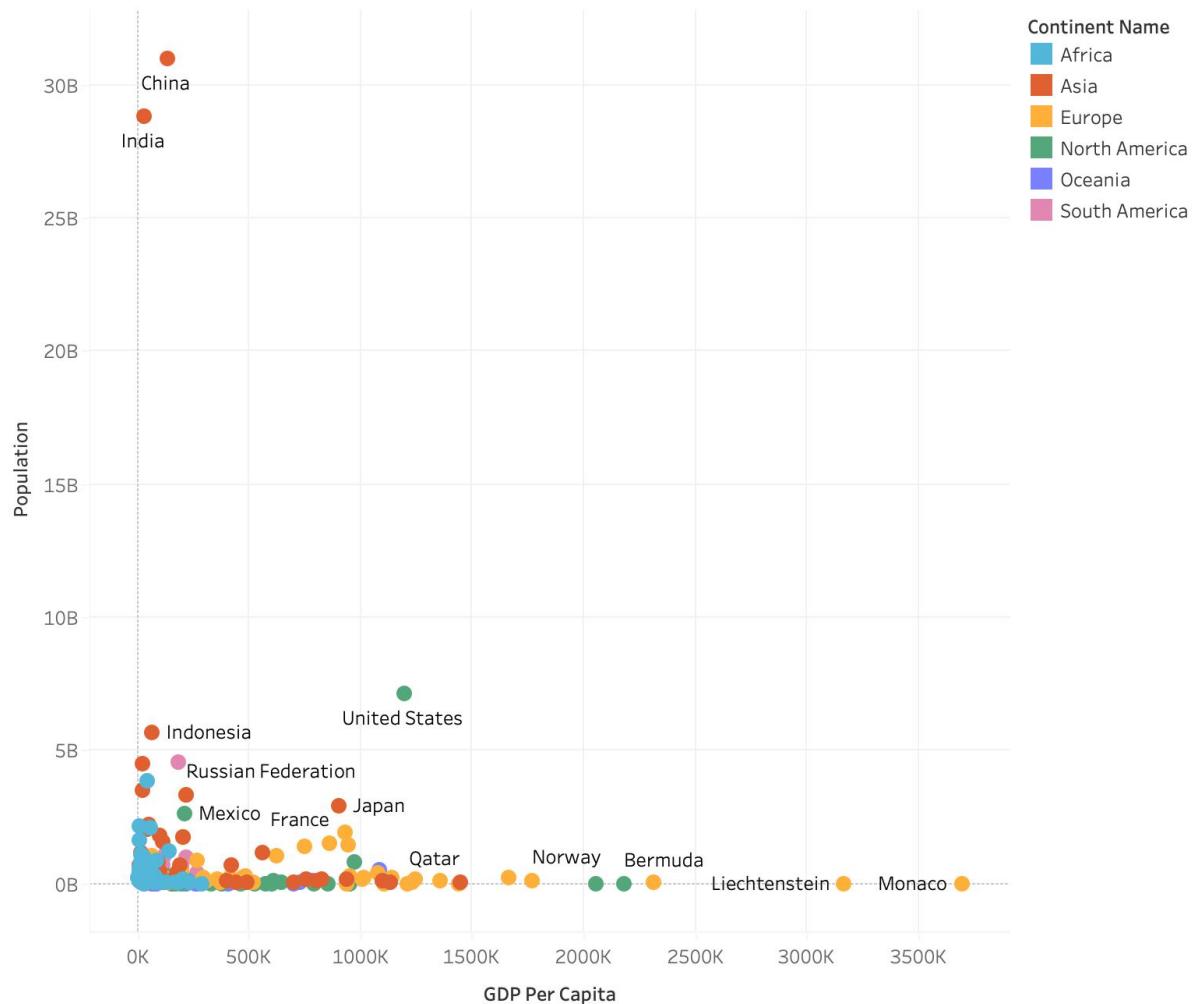
Answer Q.3: The dashboard includes a filter feature that allows users to select a specific region. For example, by selecting North America, the dashboard will display a detailed list of the top 10 countries within this region, ranked according to their average GDP per capita.

THE RELATIONSHIP BETWEEN GDP, GDP PER CAPITA AND HAPPINESS SCORE ANALYSIS

Question 4: How does large population affect GDP per capita over time in different regions of the world? Does it affect the living conditions?
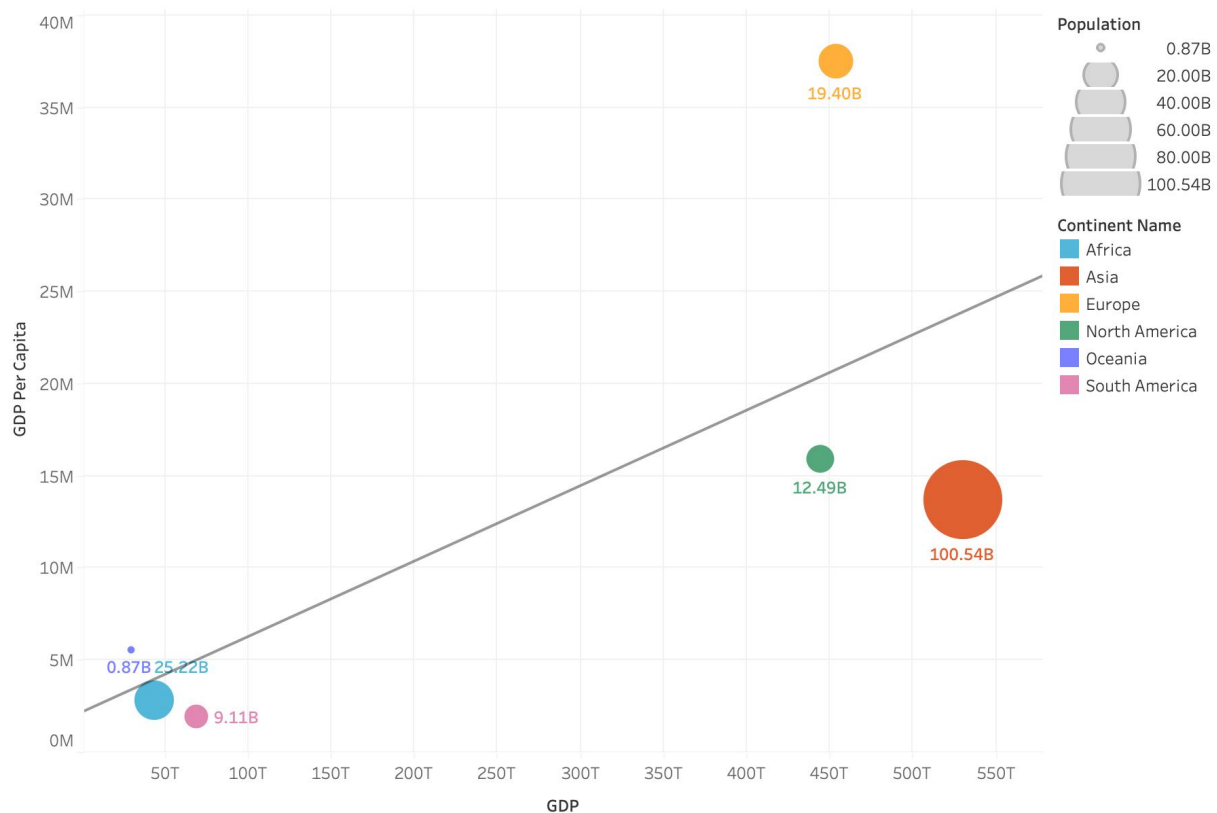
GDP per capita vs Population

The scatter plot illustrates the correlation between GDP per capita and population, providing insights into how a country's economic performance relates to its population size. Each point represents a country, plotted to show its GDP per capita against its population.

Answer Q.4: From the chart, it is evident that countries with larger populations tend to have lower GDP per capita over time. This trend suggests that a large population can dilute the GDP per capita, affecting the distribution of wealth. However, while higher GDP per capita is often associated with

better living conditions, the chart alone does not provide sufficient evidence to conclusively support this claim.

Question 5: Does a high GDP necessarily indicate a high GDP per capita?

Correlation - This chart explores the correlation between **GDP**, **GDP per Capita** and **Population** by **Continents**
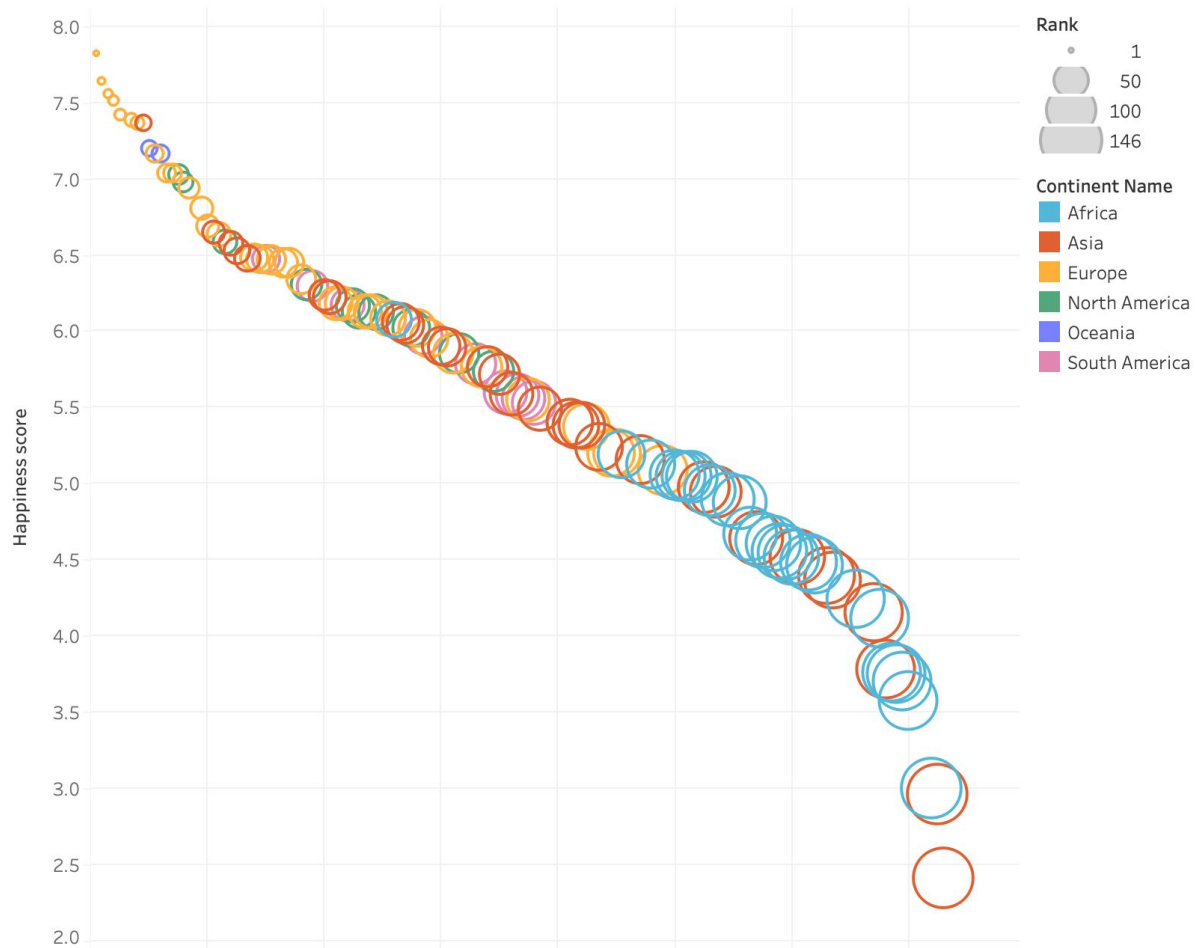

The scatter plot highlights the correlation between GDP and GDP per capita across different continents. Each point represents a continent, allowing viewers to easily identify and compare their economic performance.

Answer Q.5: As the graph shows, there is generally a positive correlation between GDP and GDP per capita. However, a high GDP does not necessarily equate to a high GDP per capita. Continents with very large populations, such as Asia, may have high GDP but lower GDP per capita due to the large number of people sharing the economic output. The distribution of economic output among the population plays a crucial role in determining GDP per capita.

Question 6: What country has the low happiness scores?
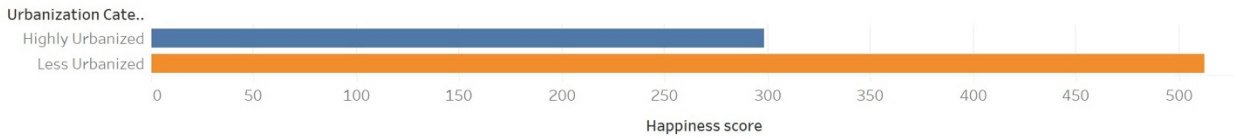
Happiness Ranking in 2022

The chart provides a comprehensive ranking of happiness scores across various countries for the year 2022. It visually represents how each country is positioned in terms of overall happiness, based on key indicators such as GDP per capita, social support, healthy life expectancy, freedom to make life choices, generosity, and perceptions of corruption.

Answer Q.6: Afghanistan in Asia, ranked 146th, has the lowest happiness score. Conversely, countries in Europe and North America report high happiness scores.

Question 7: Is there a significant difference in happiness scores between highly urbanized and less urbanized countries?

Urbanization vs Happiness score

Urbanization Cate..

Highly Urbanized
Less Urbanized

0   50   100   150   200   250   300   350   400   450   500

Happiness score

```
Urbanization Category                              ×

IF [UrbanPop% UrbanPop%] >= 70 THEN "Highly Urbanized"
ELSE "Less Urbanized"
END



                                               ▶



The calculation is valid.    1 Dependency ▾    Apply    OK
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The bar chart illustrates the relationship between happiness scores and the degree of urbanization across various countries. It provides insights into how urbanization levels might influence or correlate with the overall happiness of a population.

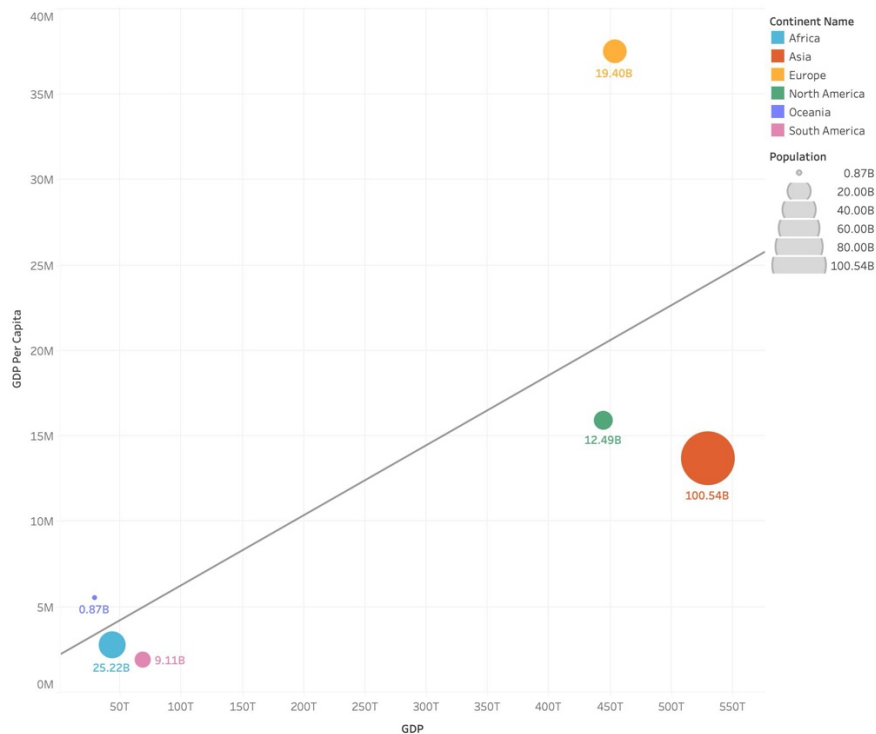*Answer Q.7:* The chart reveals that people tend to feel happier in less urbanized areas.

Analysis Questions

1) In 2020, which continent exhibited the highest average GDP, and how do the trend lines of that continent's economy over time?

2) What are the projected GDP trends for the next year?

3) What are the top 10 countries with the highest GDP per capita?

4) Does a high GDP necessarily indicate a high GDP per capita?

5) How does large population affect GDP per capita over time in different regions of the world?

6) What country have low happiness scores?

7) To what extent does a high GDP correlate with an improved quality of life?

This story provides comprehensive answers to all the analytical questions posed for our project, offering clear and detailed insights into each aspect under investigation.

5. CONCLUSION

In summary, the analysis of GDP, GDP per capita, and happiness scores from 2006 to 2022 reveals significant insights into the relationship between economic indicators and quality of life. Africa, with its lowest GDP and GDP per capita, consistently shows lower happiness scores, indicating a direct correlation between economic performance and quality of life. Conversely, Europe and North America, with their high GDP and GDP per capita, exhibit higher happiness scores, suggesting that elevated economic metrics contribute to a better quality of life.

It is important to note that high GDP does not necessarily equate to high GDP per capita. For instance, while Asia boasts a substantial GDP, its GDP per capita is lower than that of Europe. This discrepancy is often due to Asia's larger population base, which can spread the GDP across a greater number of people, thereby reducing the per capita measure.

GDP per capita offers a more precise reflection of individual economic well-being compared to GDP alone. While GDP measures the total economic output of a region, GDP per capita provides a clearer picture of how wealth is distributed among individuals.

Therefore, to enhance the quality of life, it is essential to focus on increasing GDP per capita rather than solely aiming for a higher GDP. This approach ensures that economic benefits are distributed more evenly among the population, leading to better living standards and greater happiness scores.

6. REFERENCES

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