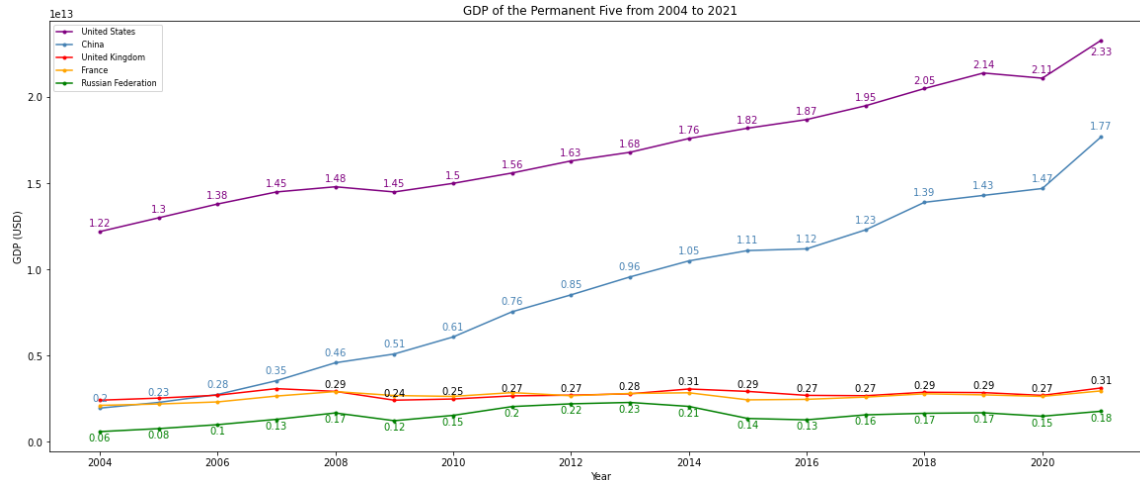


# INFSCI 2415 Final Report

## GDP of the Permanent Five from 2004 to 2021

Figure 1: Line Plot



### Legend explained

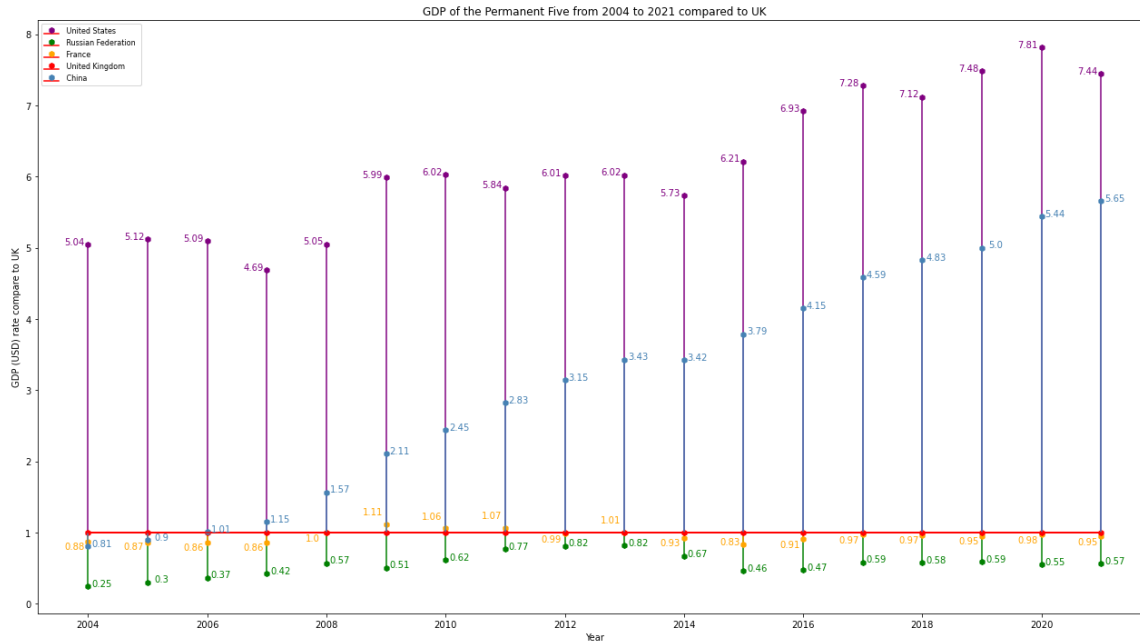
- The purple line represents the GDP of the United States.
- The blue line represents the GDP of China.
- The red line represents the GDP of the United Kingdom.
- The orange line represents the GDP of France.
- The green line represents the GDP of Russian Federation.
- The colored values represent the total GDP of each country in each year.

### Findings text introducing highlights of the produced figure in bulletin points

- This is a line chart depicting statistical data of the GDP of the five permanent members from 2004 to 2021.
- From the chart, it can be observed that with the passage of time, the GDP of the United States and China gradually increased. In contrast, the GDP of France, the United Kingdom, and Russia remained relatively stable.
- The GDP growth of all five countries slowed down during 2018-2020, likely due to the COVID-19 pandemic.
- From 2020 to 2021, there was a significant rebound in GDP growth for all five countries, likely associated with post-pandemic economic recovery.

Data gathered from <https://www.kaggle.com/datasets/prasad22/global-economy-indicators>

Figure 2: Stem Plot



### Legend explained

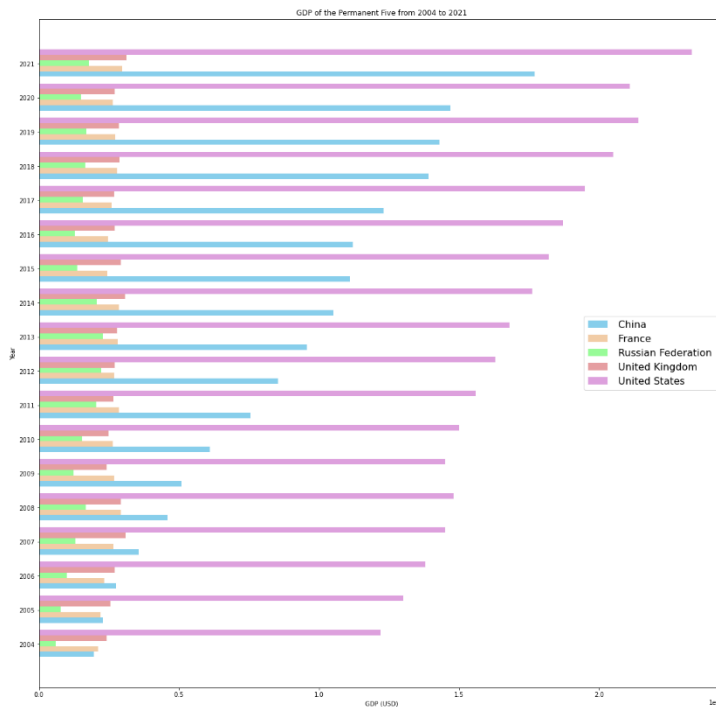
- The purple points represent the GDP of the United States compared to the GDP of UK.
- The blue points represent the GDP of the China compared to the GDP of UK.
- The orange points represent the GDP of France compared to the GDP of UK.
- The green points represent the GDP of Russian Federation compared to the GDP of UK.
- The red line represents the GDP of the United Kingdom compared to itself, which is the base line, so the value of each point is always 1.

### Findings text introducing highlights of the produced figure in bulletin points

- The stem plot displays the comparison of the GDP of the Permanent Five to that of the United Kingdom from 2004 to 2021. The red line at the bottom represents the annual GDP of the United Kingdom, serving as a reference point for all other countries. In this chart, the higher the point, the higher the annual GDP. The UK was chosen as the baseline because its GDP growth has been stable and gradual, making it more suitable as a benchmark.
- The GDP of the United States has consistently been 4 to 7 times that of the United Kingdom and has generally increased over time. In 2004, China's GDP was less than that of the UK, but as time progressed, China exhibited rapid GDP growth. After surpassing the UK in 2006, its growth continued, reaching more than 5 times the UK's GDP by 2021.
- France's GDP has been very close to that of the United Kingdom, fluctuating around the baseline from 2004 to 2021, which may indicate a significant correlation between the GDPs of the two countries.

Data gathered from <https://www.kaggle.com/datasets/prasad22/global-economy-indicators>

Figure 3: Bar Plot



#### Legend explained

- Purple bar represents US.
- Red bar represents UK
- Orange represents France.
- Blue bar represents China.
- Green bar represents Russia.

#### Findings text introducing highlights of the produced figure in bulletin points

- The bar chart illustrates the changes in GDP of different countries.
- From 2004 to 2021, there was an overall increase in the GDP of various countries. However, there was a slowdown in growth during 2019-2020, which is likely attributable to the COVID-19 pandemic.

The pandemic had a significant impact on global economies, leading to decreased economic activity, disruptions in supply chains, and declines in consumer spending, all of which contributed to the observed deceleration in GDP growth during that period.

#### Data and method text describing the data and method used in this process

- The dataset contains data from 193 countries worldwide, with their GDP from 2004 to 2021.
- Matplotlib, NumPy, and Pandas were used. They are powerful libraries which can create a wide range of plots, including line plots, stem plots, and horizontal bar charts, which can be implemented through functions like 'plt.stem()', and 'plt.barh()'. Visual Studio Code is used to edit code. Also, Jupyter Notebook has been used for interactive data analysis and visualization.

#### Significance statement on why the presented figure is important

- Global Economic Impact, As some of the world's largest economies, the economic performance of these countries significantly influences global markets, trade, and economic trends.
- Investment and Trade, These countries are major players in international trade and investment. Changes in their GDP can affect global supply chains and investment flows.
- Benchmark for Global Growth, The economic health of these nations often serves as a benchmark for assessing global economic stability and growth patterns.

Data gathered from <https://www.kaggle.com/datasets/prasad22/global-economy-indicators>

Github link: <https://github.com/Yiz277/INFSCI-2145>