



# **APPLIED DATA SCIENCE-1**

## **Assignment-1: Visualisation**

Vyjayanthi Kadapanatham

ID: 2207064

Date of Submission: 09/11/2023

**Dataset Link:** <https://databank.worldbank.org/source/world-development-indicators#>

# Exports Of Goods and Services

## Visualisation-1

### Line Plot:

A line plot was created to visualize the export trends of selected countries, including China, Malaysia, Thailand, Fiji, Indonesia, and Palau, for the years 2013 to 2021.

### Data Description:

The dataset used in this analysis contains information on export rates of goods and services, with attributes including:

Years: The years from 2013 to 2021.

Export Rate: The export rate of goods and services.

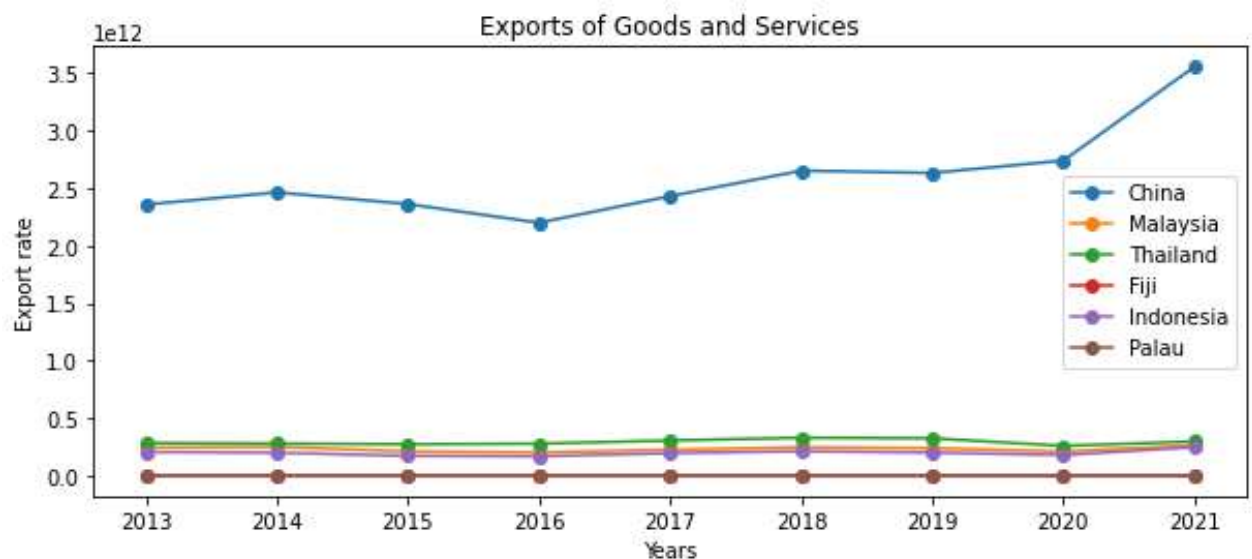


Figure – I

- Title: Exports of Goods and Services
- X-Axis: Years
- Y-Axis: Export Rate
- Legend: Countries

This line plot provides a clear view of how the export rates evolved for these countries during the specified period.

### Line Plot Analysis:

The provided code generates a line plot to analyse the export rate trends for the selected countries. This visualization offers valuable insights into how export rates have evolved over time.

#### China:

- The export rate trend for China, represented by the line, shows consistent growth over the years. This suggests that China has experienced a steady increase in its export rates.

#### Malaysia:

- Malaysia's export rate trend, depicted by the line, reveals more variable growth. While there are periods of export rate increases, there are also years with declines, indicating fluctuations in export performance.

#### Thailand:

- Thailand's export rate trend is characterized by relative stability, with minor fluctuations. Export rates have remained consistent over the analysed period.

#### Fiji:

- Fiji's export rate trend exhibits moderate variability, with periods of growth followed by slight declines. This suggests a mixed export performance.

#### Indonesia:

- Indonesia's export rate trend is characterized by consistent growth over the years. The upward-sloping line indicates positive export rate trends.

#### Palau:

- Palau's export rate trend is difficult to analyse due to a smaller dataset, making it challenging to draw definitive conclusions. However, there is a general upward trend in export rates.

The line plot shown in Figure-I provides valuable insights into the export rate trends for the selected countries. China's consistent growth is notable, while other countries exhibit varying levels of stability and growth.

## Visualisation-2

### Bar Plot:

This report focuses on comparing the export rates of goods and services between China, Thailand, and Indonesia over the years 2013 to 2021. The analysis employs a bar plot to visually assess and contrast their export performance.

### Data Description:

The dataset used in this analysis contains information on export rates of goods and services, with attributes including:

Years: The years from 2013 to 2021.

Export Rate: The export rate of goods and services.

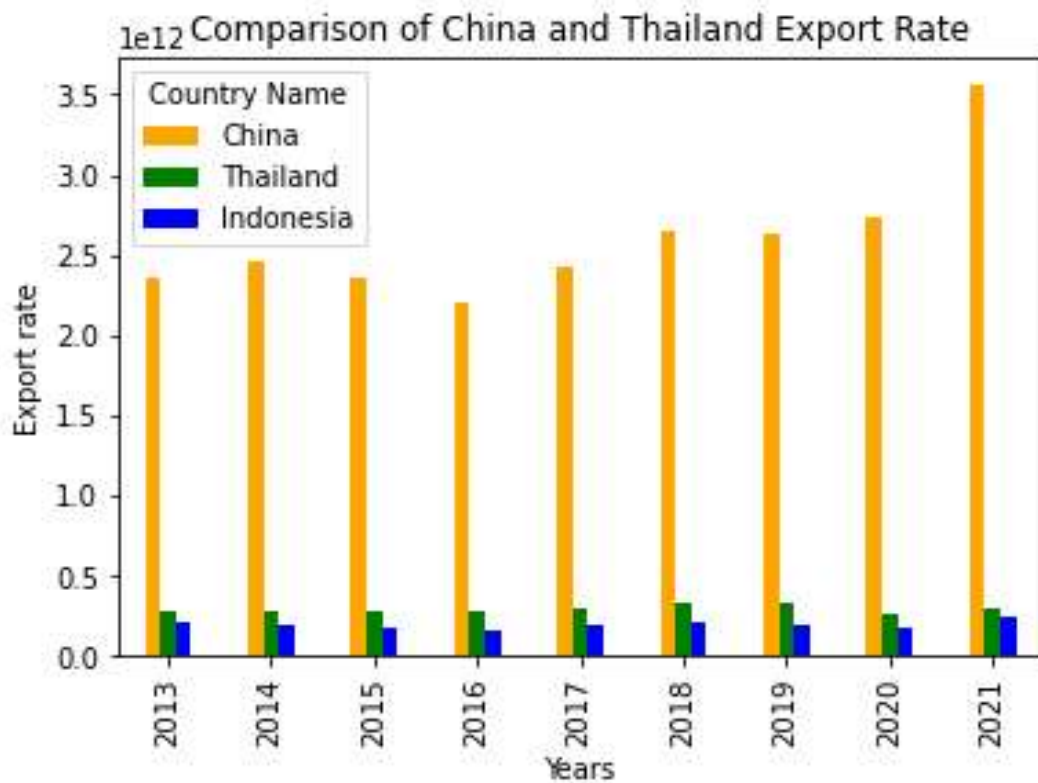


Figure – II

- Title: Comparison of China and Thailand Export Rate
- X-Axis: Years
- Y-Axis: Export Rate
- Colors: China (orange), Thailand (green), Indonesia (blue)

This bar plot shown in Figure-II allows for a direct comparison of export rates between the selected countries.

### Bar Plot Comparison:

The provided code generates a bar plot to compare the export rates of China, Thailand, and Indonesia. This visualization offers a direct and easy-to-understand comparison of their export performance.

#### China:

- China's export rates are represented by the orange bars in the plot. Over the analysed years, China consistently exhibits the highest export rates.

#### Thailand:

- Thailand's export rates are depicted by the green bars in the plot. While there are fluctuations, they generally remain lower than China's export rates.

#### Indonesia:

- Indonesia's export rates are represented by the blue bars. They also exhibit fluctuations but are consistently below China's export rates.

**China Dominates:** China consistently outperforms Thailand and Indonesia in terms of export rates. The orange bars clearly indicate China's dominance in export activities.

**Thailand and Indonesia:** While both Thailand and Indonesia show fluctuations in export rates, they generally lag behind China. Thailand's green bars consistently stay below the orange China bars, and Indonesia's blue bars also fall short of China's export rates.

The bar plot provides a straightforward comparison of export rates between China, Thailand, and Indonesia. China's strong export performance is evident, and it significantly surpasses the export rates of the other two countries.

## Visualisation-3

### Scatter Plots:

This report focuses on the analysis of export rate trends for selected countries over the years 2013 to 2021. The analysis includes data visualization through scatter plots to gain insights into the export performance of these countries.

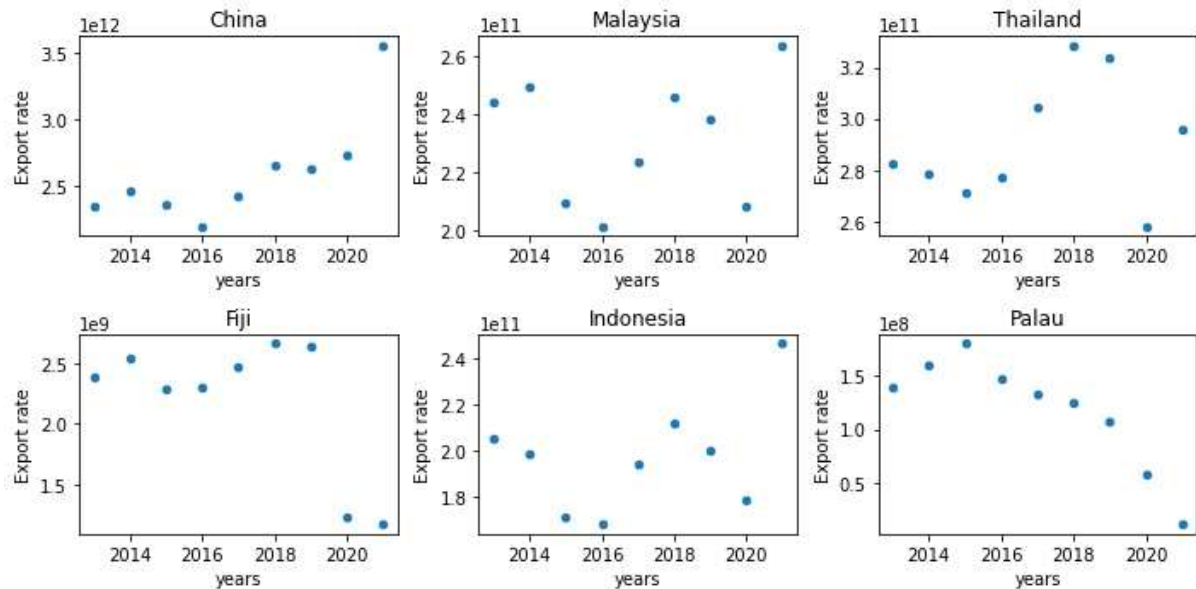


Figure – III

### Data Description:

The dataset used in this analysis contains information on export rates of goods and services. Key attributes include:

Years: The years from 2013 to 2021.

Export Rate: The export rate of goods and services.

### Data Visualization:

Scatter plots were created to visualize the export rate trends for the selected countries, which include China, Malaysia, Thailand, Fiji, Indonesia, and Palau. The plots provide a detailed view of how their export rates evolved over time.

#### China:

- The scatter plot for China reveals an overall upward trend in export rates from 2013 to 2021. This suggests consistent growth in exports.

#### Malaysia:

- The scatter plot for Malaysia displays a more variable trend in export rates. While there are periods of growth, there are also years with a decline in exports.

#### **Thailand:**

- Thailand's scatter plot shows relatively steady export rates, with minor fluctuations. Export rates remained consistent over the analysed period.

#### **Fiji:**

- Fiji's scatter plot exhibits moderate variability in export rates. There are periods of growth, followed by slight declines.

#### **Indonesia:**

- Indonesia's export rate trend is characterized by consistent growth over the years. The scatter plot indicates a positive trajectory in exports.

#### **Palau:**

- The scatter plot for Palau displays a smaller dataset, making it challenging to draw definitive conclusions. However, there is a general upward trend in export rates.

The scatter plots shown Figure-III provide valuable insights into the export rate trends for the selected countries. China stands out with consistent growth in export rates, while other countries show varying levels of stability and growth.

### **Insights:**

These visualizations provide a clear overview of the export rates for the chosen countries. They enable quick comparisons between countries, trends over the years, and potential correlations between years and export rates.



## Conclusion:

The code effectively processes and visualizes export data, offering valuable insights into the export rates of the selected countries. These visualizations aid in making data-driven decisions and identifying trends and patterns in the export data. Further in-depth analysis and insights can be derived from these visualizations, depending on specific research or business objectives.

## Reference:

Kattamuri Meghna (last updated: 28 Sep,2023), how to create multiple line plot by using matplotlib. [Online] [Accessed on November 05, 2023].

[https://www.w3schools.com/python/matplotlib\\_histograms.asp](https://www.w3schools.com/python/matplotlib_histograms.asp)

John Hunter, Darren Dale, Eric Firing, Michael Droettboom and the Matplotlib development team; 2012-2023 The Matplotlib development team. How to make bar plot of two variables. [Online] [Accessed on November 05, 2023].

<https://matplotlib.org/stable/tutorials/pyplot.html>