

Exploratory **D**ata **A**nalysis

ON

Exports and Imports of Top 5

Economies with India During Pre and Post Covid

Submitted by –

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Motivation behind the project

The aim of this project study is to explore the performance of imports and exports in the economic growth of India in relation to top 5 economies of the world through exploratory data analysis. Exports have played quintessential role in India's economic growth. It is widely believed that export and import is crucial in providing the drive for economic growth in developing countries and the imports provide the important worthy link between trade and group.

Furthermore, based on the data collected for the imports and exports, it can be interpreted how imports and exports have contributed to the economy of our country over the years.

Objectives of the Study

To study the data for evaluation of various parameters of imports and exports of Indian economy with top 5 economies of world during the study period of 2018-2022.

Research Methodology

This project is analytical in nature. The present study is based on the data collected from various hand book of statistics of Indian economy, RBI, EXIM reports and world bank indicators.

Data has also been taken from ministry of commerce and industry and department of commerce. The period of the study is from 2018 to 2021.

INTRODUCTON

1) What Data Science is all about?

Data science is the field of study that combines domain expertise, programming skills, and knowledge of mathematics and statistics to extract meaningful insights from data. Data science practitioners apply machine learning algorithms to numbers, text, images, video, audio, and more to produce artificial intelligence (AI) systems to perform tasks that ordinarily require human intelligence. In turn, these systems generate insights which analysts and business users can translate into tangible business value.

2) What Praxis is all about and how is it changing the data science industry?

Praxis has been the forefront in India's data science stratosphere transformation and has been leading the cause for the last decade. It has enabled a wide number of students gain technical and practical expertise and helped them transition into the career of Data Science & Machine Learning.

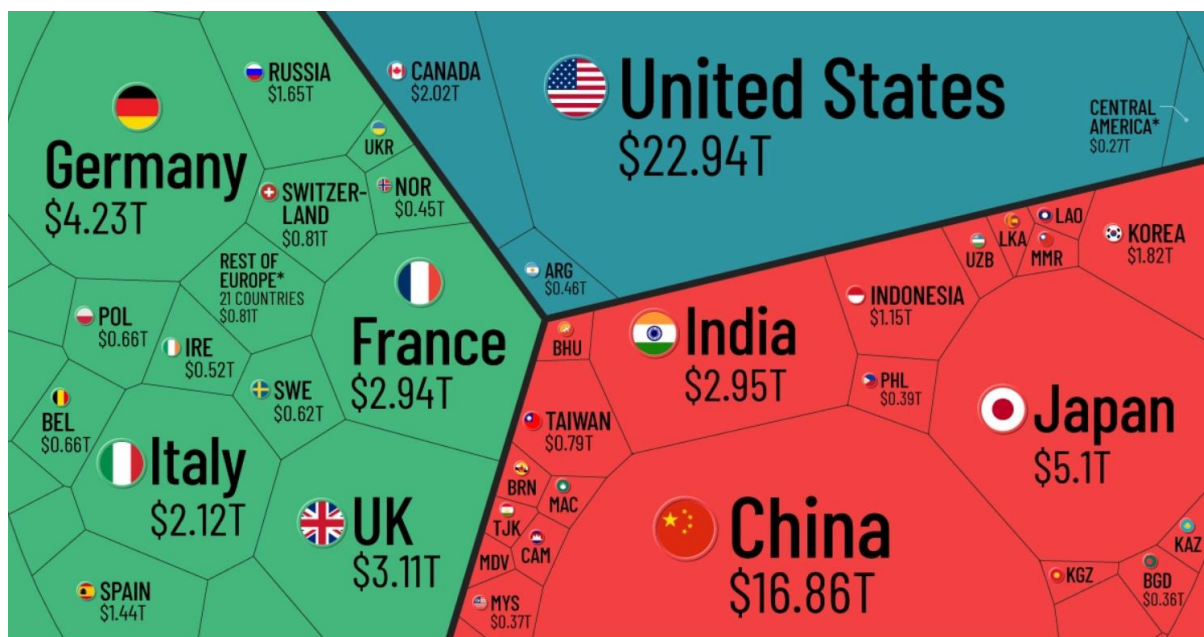
What is EXPLORATORY DATA ANALYSIS?

In statistics, **Exploratory data analysis (EDA)** is an approach of analysing data sets to summarize their main characteristics, often using statistical graphics and other data visualization methods. A statistical model can be used or not, but primarily EDA is for seeing what the data can tell us beyond the formal modeling and thereby contrasts traditional hypothesis testing. EDA is generally cross classified in two ways. First, each method is either non-graphical or graphical. And second, each method is either univariate or multivariate (usually just bivariate).

Non-graphical methods generally involve calculation of summary statistics, while graphical methods obviously summarize the data in a diagrammatic or pictorial way.

Below, we'll explore each of the variables in the dataset one by one and try to have an extended understanding and distribution of it across other variable features.

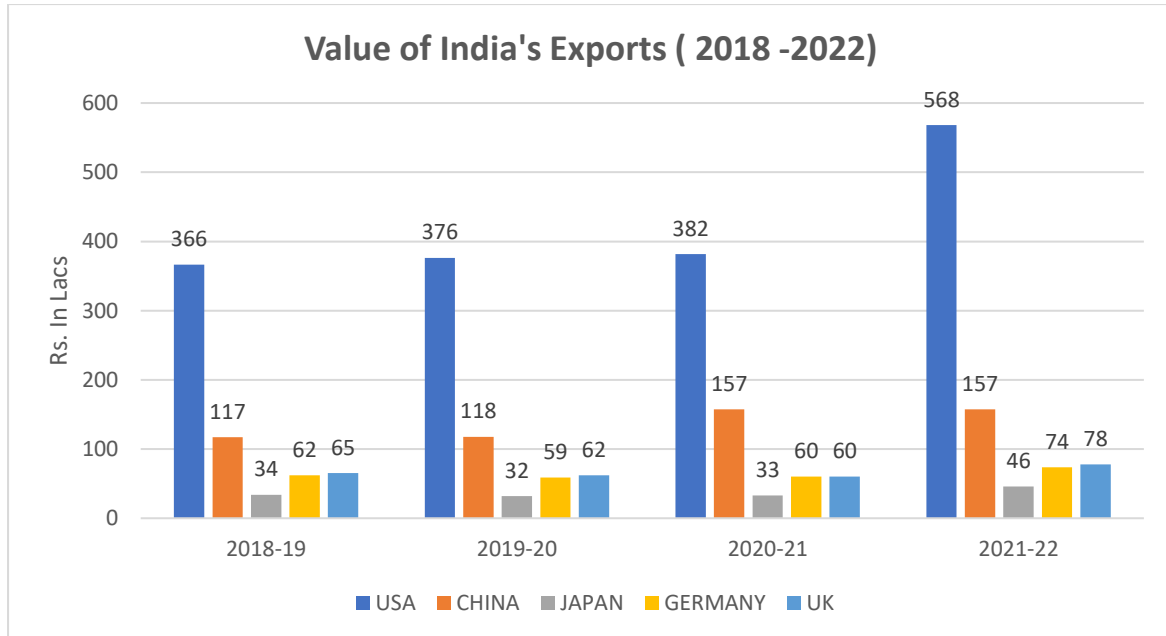
We will be doing the EDA on the imports and exports data of the India to the Top 5 Economies of the World. Who are the top five economy of world?



For Exports

Total Value of Export to top 5 economies

For the value of the total exports from India to 5 top economies of the world, we have plotted the Clustered column chart to understand the contribution of India's exports to the selected economies.

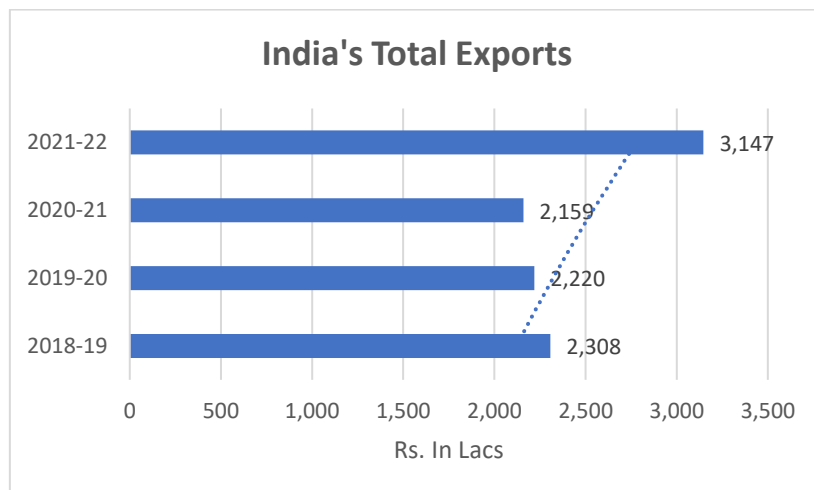


Insights –

From the chart presented above, we can analyze that USA contributes to the India's major exports followed by China, UK, Germany and Japan.

Total Value of Export

For the value of the total exports from India to entire world, we have plotted the Clustered bar chart to understand the India's total exports to the entire world.

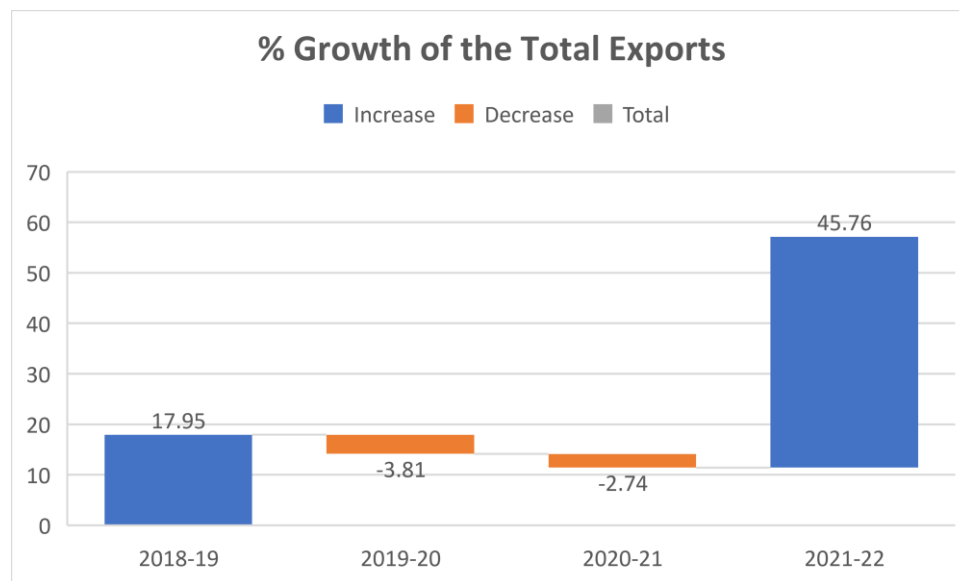


Insights –

From the chart presented above, we can analyze that there has been a sudden fall in the exports for the FY19 and FY20 due to the outburst of pandemic situation all over the world. As the situation started improved in FY21, the exports from the country also took a steep rise.

Growth Percent of the Total Exports

For the growth of total exports from India to entire world, we have plotted the waterfall chart to understand the rise/decline of India's total exports to the entire world.



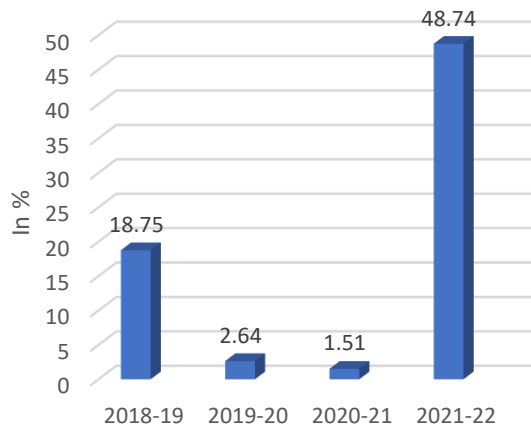
Insights –

From the chart presented above, we can analyze that there has been a fall in the exports for the FY19 to -3.81% and FY20 to -2.74% due to the outburst of pandemic situation all over the world. As the situation started improved in FY21, the exports from the country also improved and rose to 45.76%.

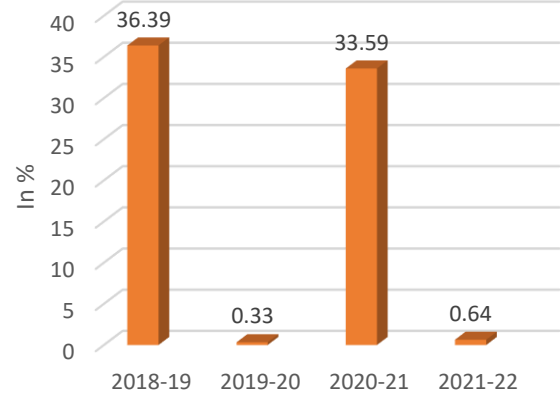
Growth Percent of the Total Exports to Top 5 Economies

For the growth percent of total exports to top 5 economies, we have plotted the 3D-Clustered Column chart to understand the rise/decline of India's total exports to the top 5 economies.

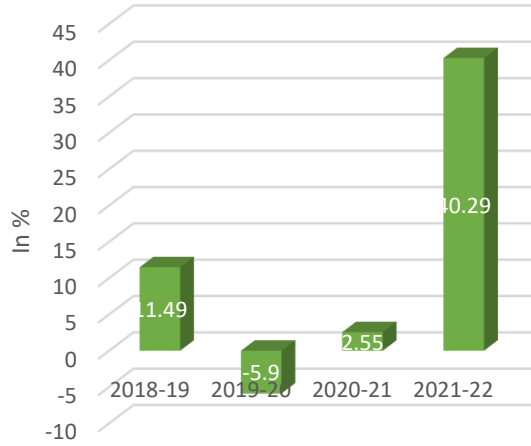
% Growth of Exports to USA



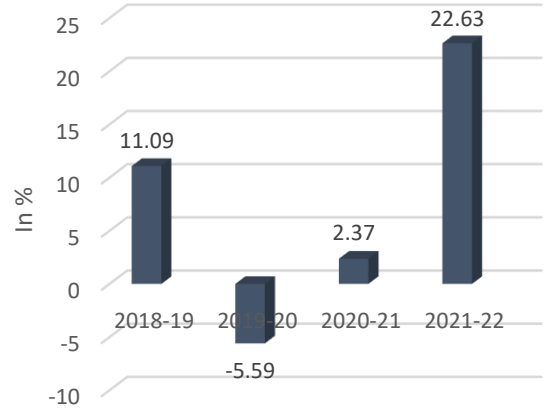
% Growth of Exports to China



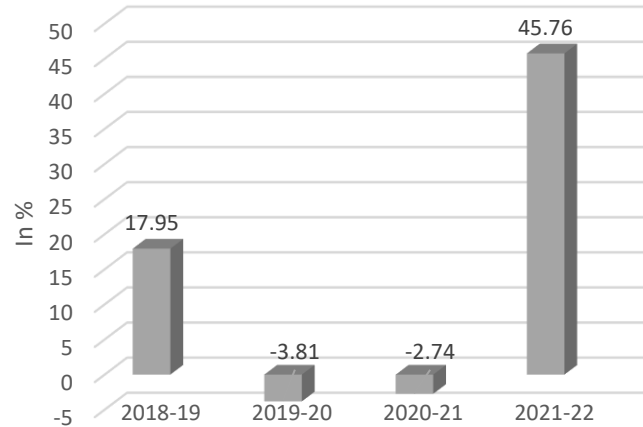
% Growth of Exports to Japan



% Growth of Exports to Germany



% Growth of Exports to UK

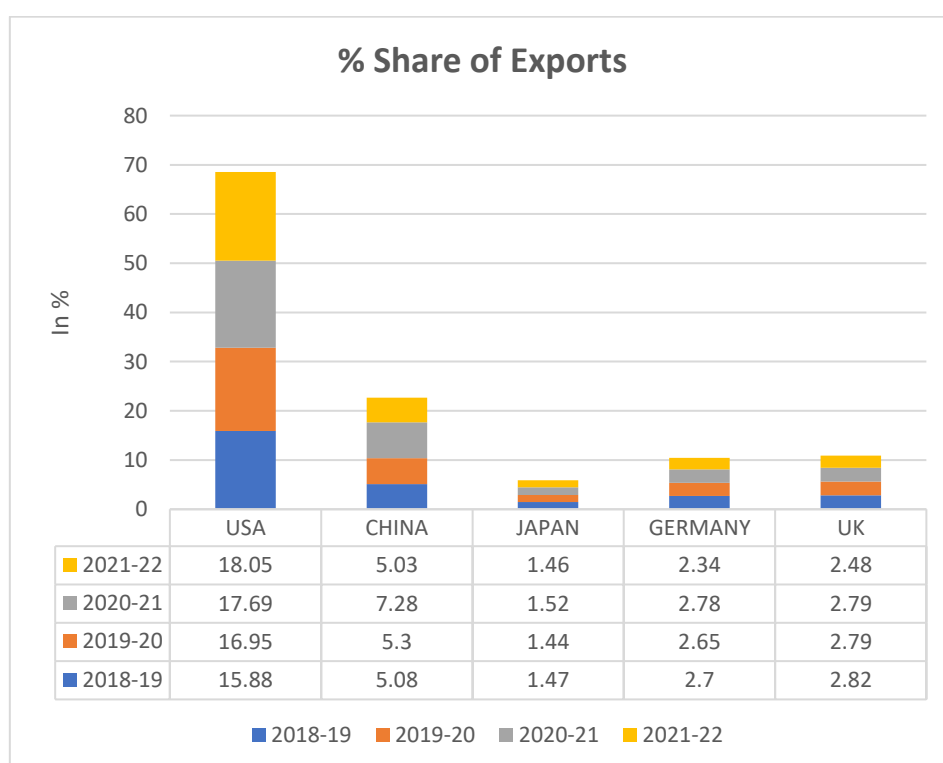


Insights –

From the chart presented above, we can analyze that there has been a fall in the percentage of exports for the FY19 and FY20 to due to the outburst of pandemic situation all over the world. As the situation started improved in FY21, the exports from the country also rose up. Where as the if we see China there has been an increase of exports in FY20 and as the pandemic situation started to improve the exports to China drastically declined.

Percentage Share of Exports

For the Percentage share of total exports to top 5 economies, we have plotted the Stacked Column chart to understand the % share composition of India's total exports to the top 5 economies.



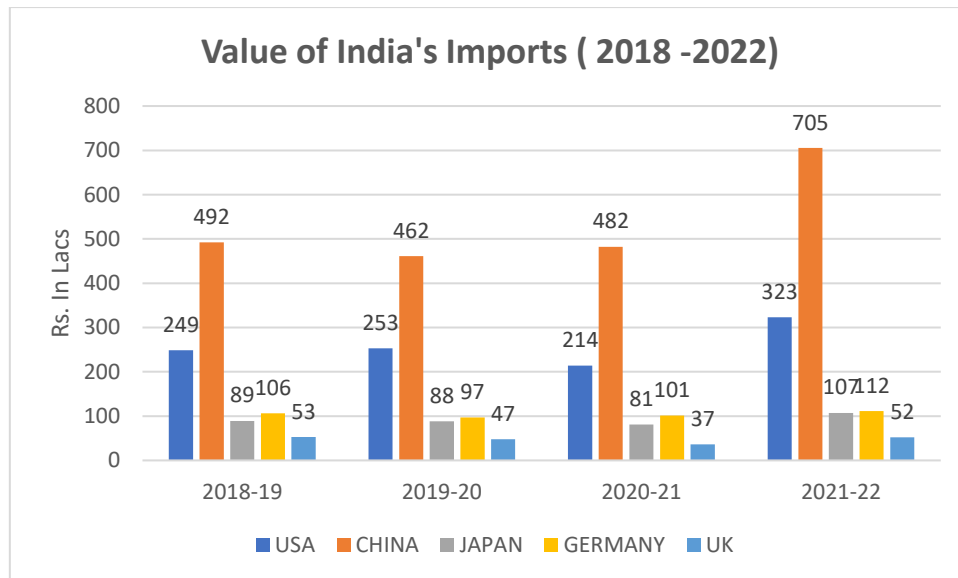
Insights –

From the chart presented above, USA has the largest share contribution to the India's total exports followed by China, UK, Germany and Japan.

Imports

Total Value of Import from top 5 economies

For the value of the total imports from India to 5 top economies of the world, we have plotted the Clustered column chart to understand the contribution of India's imports to the selected economies.

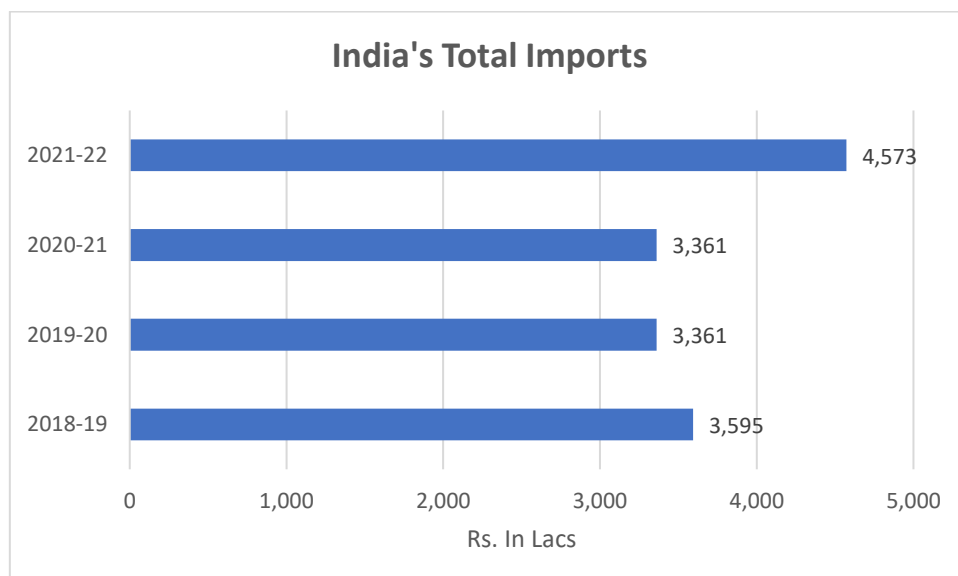


Insights –

From the chart presented above, we can analyze that China contributes to the India's major imports followed by USA, Germany, Japan and UK.

Total Value of imports

For the value of the total imports from India to the entire world, we have plotted the Clustered bar chart to understand the India's total imports to the entire world.

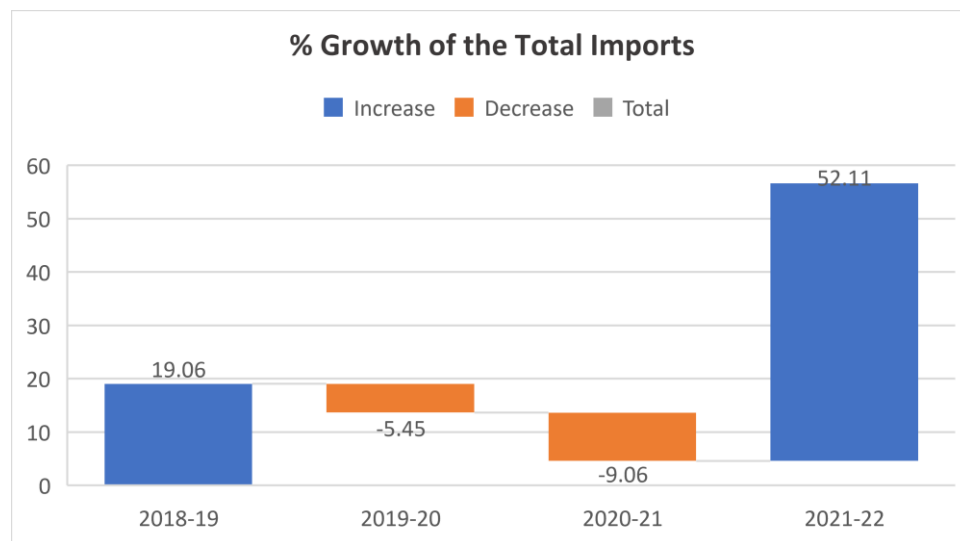


Insights –

From the chart presented above, we can analyze that there has been a sudden fall in the imports for the FY19 and FY20 due to the outburst of pandemic situation all over the world. As the situation started to improve in FY21, the imports for the country also rose.

Growth Percent of the Total Imports

For the growth of total imports from India to entire world, we have plotted the waterfall chart to understand the rise/decline of India's total imports to the entire world.

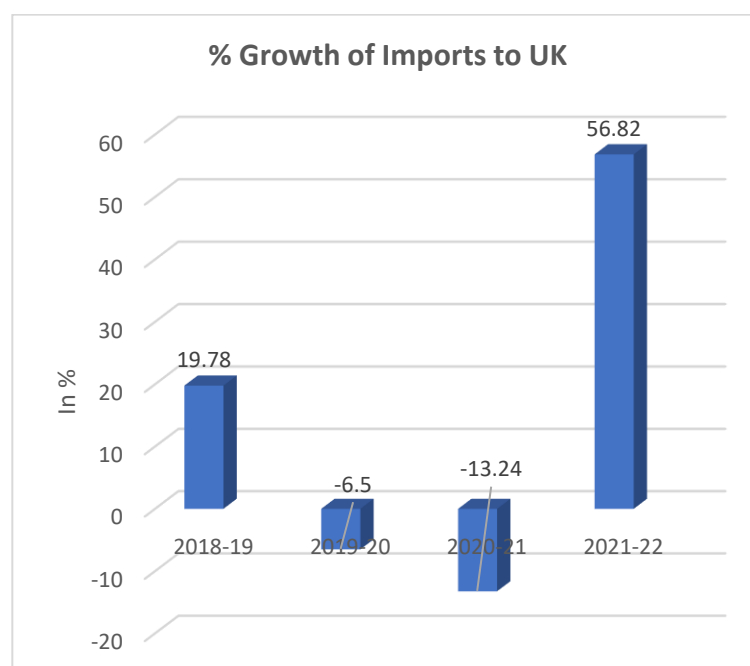
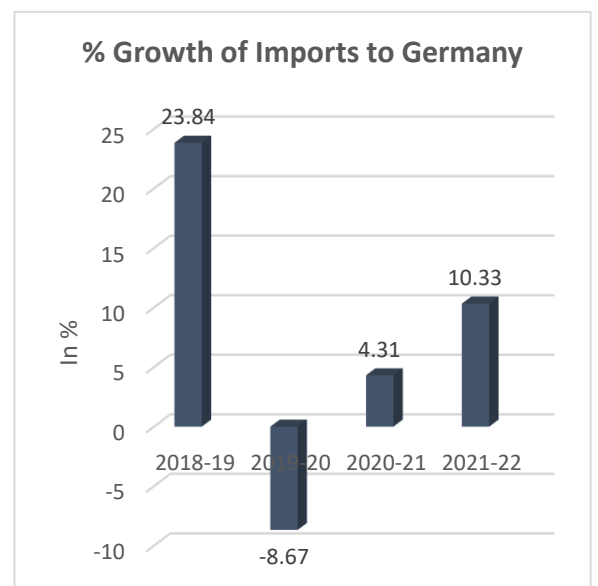
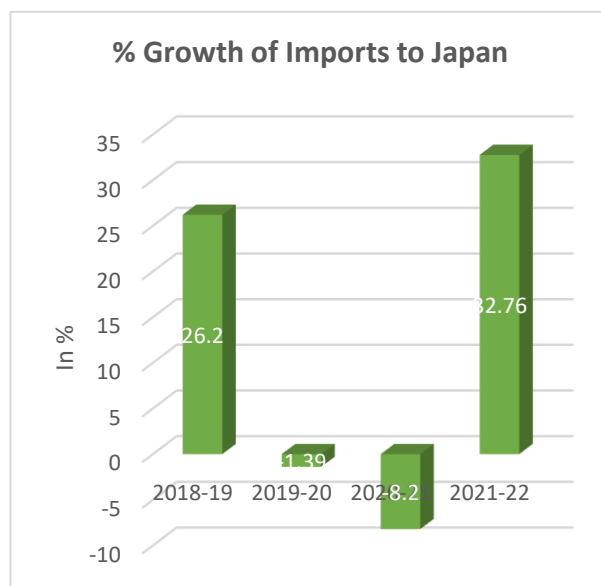
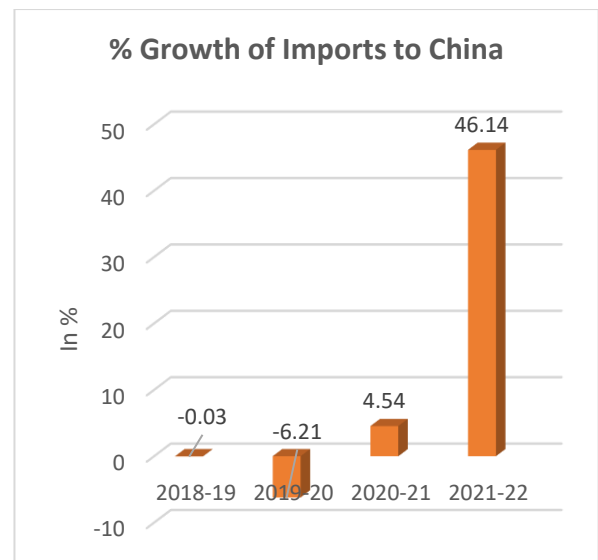
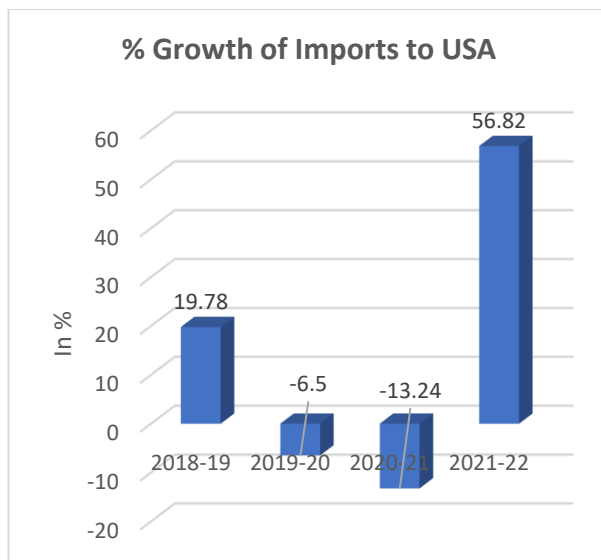


Insights –

From the chart presented above, we can analyze that there has been a fall in the exports for the FY20 to -9.06% due to the outburst of pandemic situation all over the world. As the situation started improved in FY21, the imports from the country also improved and rose to 52.11%.

Growth Percent of the Total Import from Top 5 Economies

For the growth percent of total imports from top 5 economies, we have plotted the 3D-Clustered Column chart to understand the rise/decline of India's total exports to the top 5 economies.

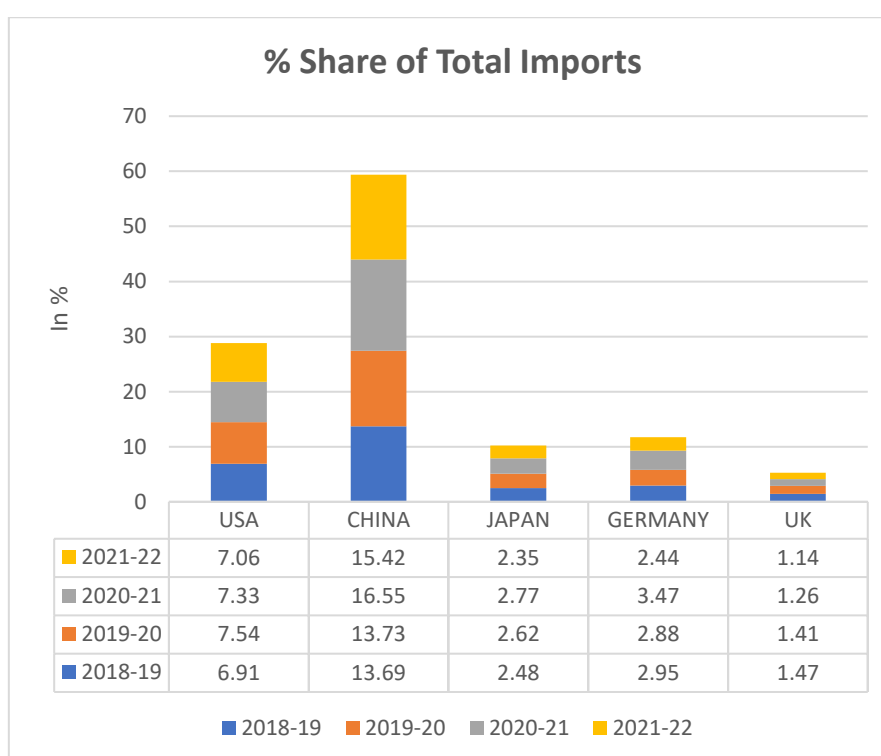


Insights –

From the chart presented above, we can analyze that there has been a fall in the percentage of imports for the FY19 and FY20 due to the outburst of pandemic situation all over the world. As the situation started to improve in FY21, the imports for the country also rose up. Whereas the if we see China there has been an increase of imports in FY20 and as the pandemic situation started to improve the exports to China drastically declined.

Percentage Share of Total Imports to Top 5 Economies

For the Percentage share of total Imports to top 5 economies, we have plotted the Stacked Column chart to understand the % share composition of India's total exports to the top 5 economies.

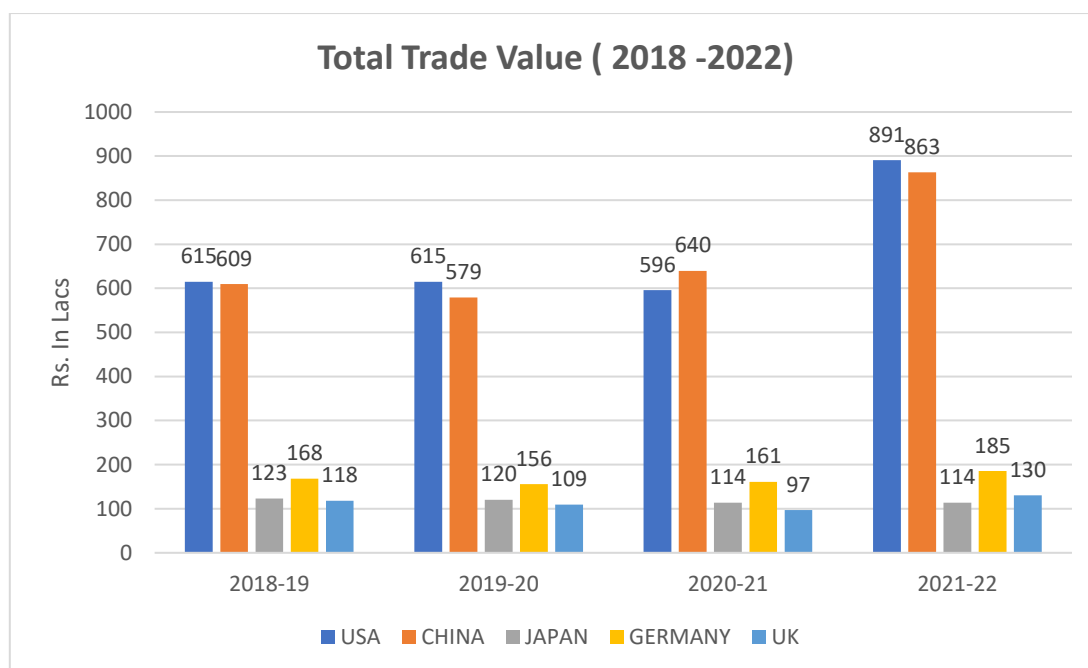


Insights –

From the chart presented above, China has the largest share contribution to the India's total imports followed by USA, Germany, Japan and UK.

Total Trade Value (Sum of Import and Export) to Top 5 Economies

For the total trade value of India with 5 top economies of the world, we have plotted the Clustered column chart to understand the contribution of India's total trade value to the selected economies.

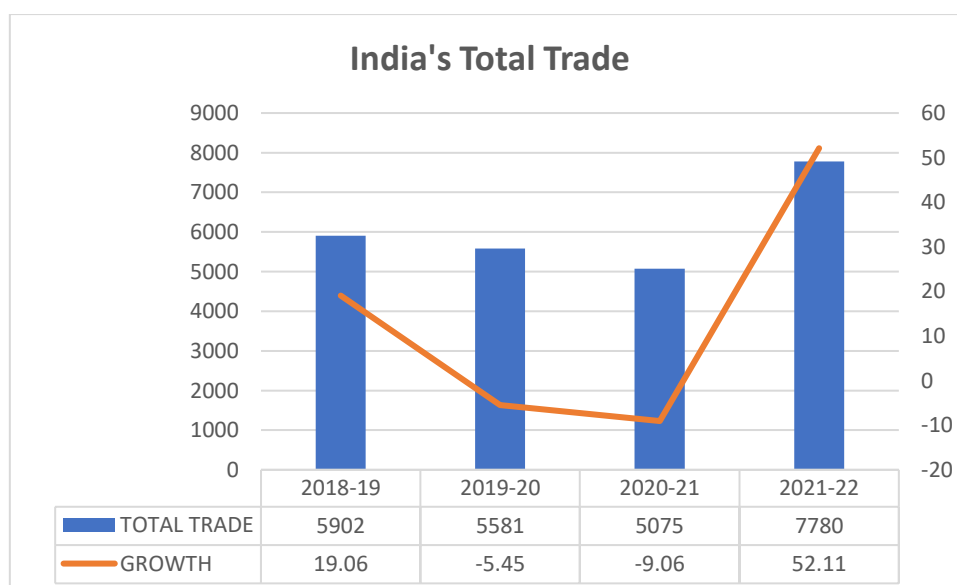


Insights –

From the chart presented above, we can analyze that USA contributes to the India's major trade followed by China, Germany UK and Japan.

India's Total Trade

For the value of the total trade of India with 5 top economies of the world, we have plotted the Clustered column and Line chart to understand the contribution of India's total trade to the selected economies.

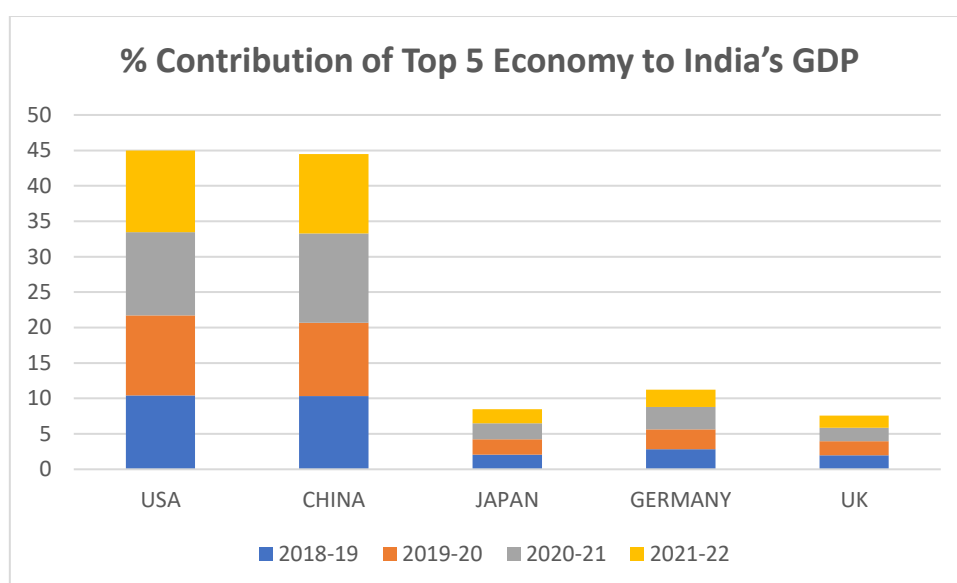


Insights –

From the chart presented above, we can analyze that there has been a fall in the percentage of total trade for the FY19 and FY20 due to the outburst of pandemic situation all over the world. As the situation started to improve in FY21, the total trade of the country also rose up to large extent.

% Contribution of Top 5 Economy to India's GDP

For the Percentage Contribution of total top 5 economies to India's GDP, we have plotted the Stacked Column chart to understand the % share composition of India's total trade to the top 5 economies.



Insights –

From the chart presented above, USA has the largest share contribution to the India's total trade followed by China, Germany, UK and Japan.

Conclusion

With the help of insights generated in our report, we see that how exploratory data analysis is essential in generating such insights & One indeed needs to do a deep dive into the data to extract meaningful information and then work on the insights gained to build a more robust and holistic system of use.

International trade in 2021 has recovered sharply from the slump in 2020. Despite impressive growth rates of world trade flows, the accumulated losses were not yet recuperated by the end of 2021, but the gap can be expected to close in the first quarter of 2022.