# Indian Economic Metrics

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Abstract: This Poster describes about the Indian Economic Metrics, considering few factors that could define the countries economic situation from 2012-2021. Important facets such as Exports & Imports of goods & services, High-technology exports percentage, GDP (annual %) & Inflation percentage were used to predict the future outcomes or analyse the economic conditions of the country.

Introduction : To enhance the insights and to provide the in-depth analysis different techniques namely K-means clustering, Polynomial regression & curve fitting techniques are applied along with various plotting mechanisms to provide the best information about the economic behaviour during the significant time period. Valuable outcomes are obtained by performing comparisons among the correlated indicators of the Economy.

## Percentage of Gross Domestic Product & Gross Capital Formation:

The amount of capital available to firms today helps determine how much they can currently produce and consequently affects real GDP. The current amount of investment determines how much capital there will be next year and consequently helps determine the growth rate in real GDP. Accordingly, both GDP and GCP percentages are plotted through grouped bar chart and could visualize the insights as per the below plot.
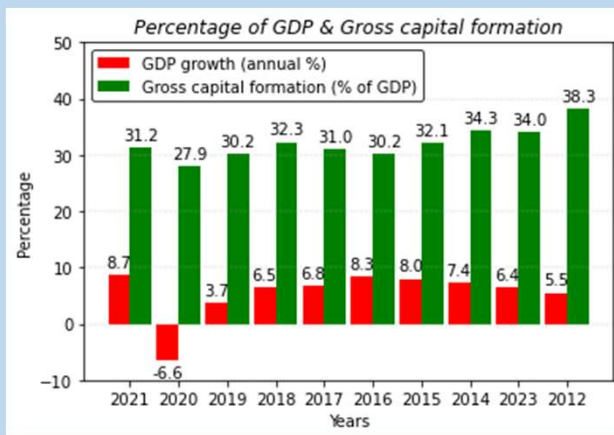
In a significant way, country's GDP was all time low and hit negative percentage in the year 2020 with valuation of -6.6%. Whereas, in the year 2021 we could see GDP growth was phenomenal with highest percentage of 8.7 in the time frame 2012-2021.

## Plotting Exports & Imports of Goods & Services using Polynomial Regression:

Below plot visualizes the data of percentages containing Exports and Imports of goods & services from 2012-2021 using polynomial regression technique. Best fit is predicted accordingly as shown in the figure.
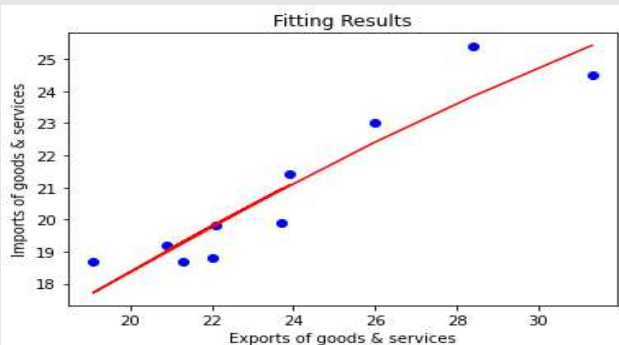
As per the above plot we can understand that the straight diagonal line in a line scatter plot, it suggests that the data points have a linear relationship. In such cases, it is more appropriate to fit a linear regression model rather than an exponential growth model.

Fitting using Polynomial Regression:

- The scatter plot below is plotted by considering GDP (annual %) and Inflation percentage indicators, K-means clustering had been done with respect to 5
- Result has been displayed as below where significantly Green scatter dot seems to be an outlier from the rest of the pointers possessing high GDP (annual %) even with inflation percentage at all time high in last decade (2012-2021).
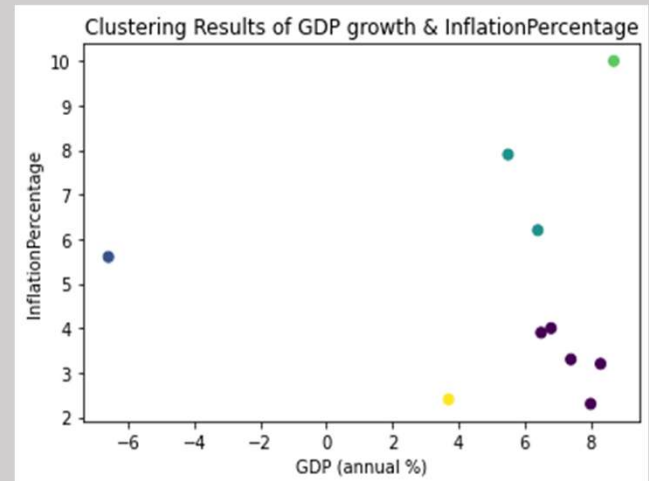
Percentage of High-technology exports :

As economy describes, High technology exports plays a major impact in GDP growth. Increase in exports increases GDP because they bring in more revenue from foreign nations through the goods that are exported, thus increases Foreign Direct Investments as well. Imports, on the other hand, do not affect GDP since they are not produced domestically.
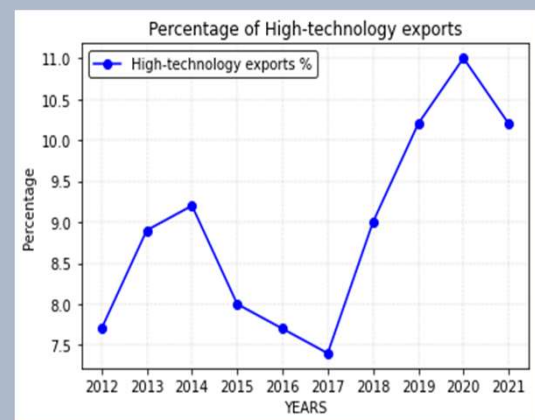
Conclusion:

After observing the various factors and the plots one can understand that Indian Economic situations are seen substantial growth. As rest of the world, Indian economy also got impacted during 2020 financial year due to Covid-19, but recovery has been exponential within quick time and performed well in year 2021.

Note: Information obtained for providing the entire insights of this poster are gathered from World Data bank and dataset links are provided below.

https://databank.worldbank.org/indicator/BN.KLT.DINV.CD/1ff4a498/Popular-Indicators#