Indian GDP Analysis 2011-2022

Adarsh Jamuaar - RA2011028010018

[1] SRM IST Kattankulathur

aj4113@srmist.edu.in

1. Introduction

The following report uses information from the Open Government Data (OGD) platform to analyse the Indian Gross Domestic Product (GDP) from the years 2011(Q1) through 2022(Q3). With the GDP broken down into four quarters for each year, the data offers a thorough and in-depth perspective of India's economic growth over the years.

Additionally, the data digs into the many GDP-contributing industries, including agriculture, mining, manufacturing, electricity, construction, trade, finance and real estate, among others, offering insightful information about the economy's expansion and their involvement in the GDP and advancement of the nation. The data-set also takes into account each quarter's growth rate, enabling a full assessment of India's economic development over time.

2. D3.js

D3.js (Data-Driven Documents) is a JavaScript library for data visualization. It allows developers to create dynamic, interactive, and animated visualizations from data. With D3.js, data can be transformed into meaningful and insightful graphics, such as bar charts, line graphs, scatter plots, and maps. The library is designed to work seamlessly with web standards, such as HTML, CSS, and SVG, making it easy to integrate into web pages and applications.

It also supports a wide range of data formats, including CSV, JSON, and XML. The library's focus on web standards and its extensive documentation make it a popular choice for data visualization among developers.

3. Schema

A schema is a blueprint or structure for organizing data in a database, which is important for data retrieval, manipulation, and analysis.

It also helps to defines the constraints on the data, such as data type and length, and any relationships between tables, such as one-to-one, one-to-many, or many-to-many relationships. With the data we have, our goal is to establish these relations which are meaningful and can be useful for any analysis.

The following figure (Figure 1) describes the schema or the structure of the data-set with the various parameters involved in it. These parameters can be further studied individually or with other parameters.

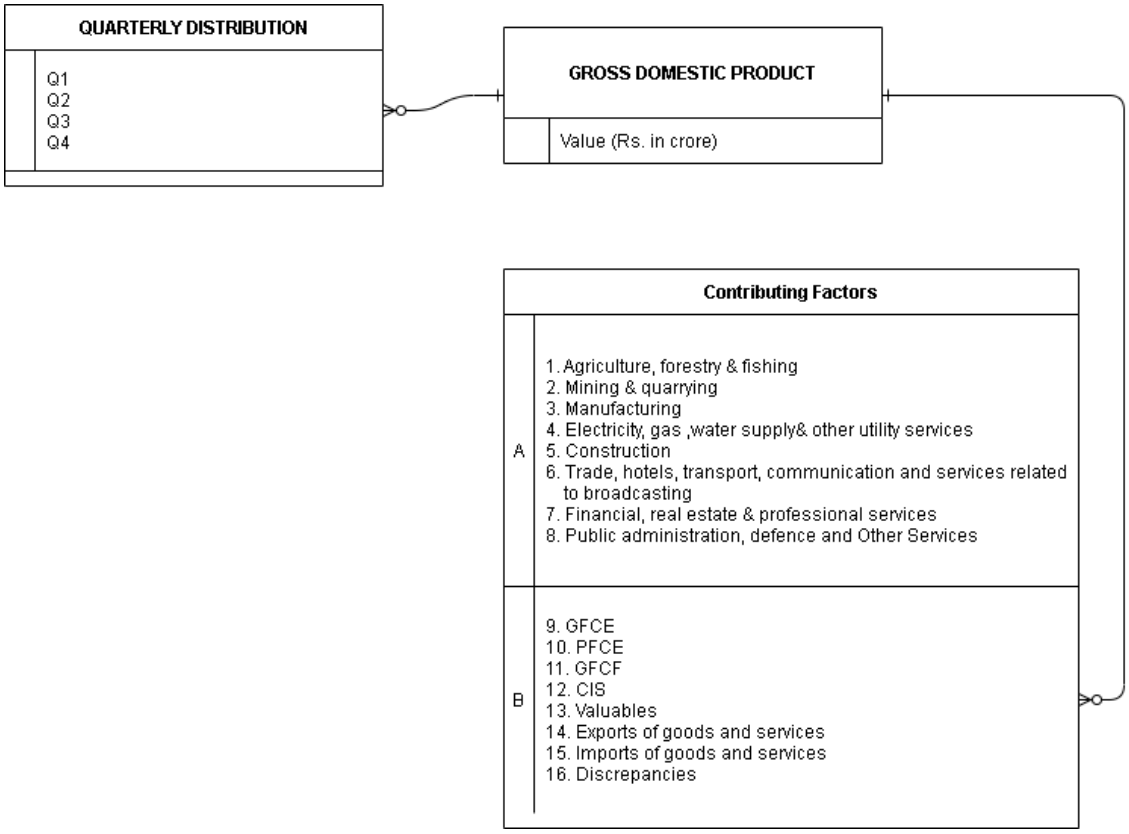

Figure 1. Schema of the GDP dataset

4. Outputs

Using D3.js, we can produce a variety of dynamic results from the given Indian GDP dataset. As a JavaScript toolkit for data visualisation, D3.js may assist in converting this dataset into informative and engaging visualisations. Using D3.js, the dataset can produce a variety of results, including some of the following based on the basis on visualisation:

1. Line graphs are used to display the overall GDP trend as well as the annual growth rate for each quarter.

2. Bar graphs are used to compare the GDP for each quarter of each year and to show how different industries contribute to the GDP.

3. Pie charts are used to show how the GDP was distributed among various sectors during a given quarter or year.

4. Area diagrams are used to illustrate how GDP has increased over time and to emphasise how the contributions of various industries have changed.

5. Scatter plots are used to show how the growth rates of the several quarters relate to one another.

6. Map visualisations are used to show how the GDP is distributed by region and how each industry contributes to the GDP as a whole. (for this implementing an additional state data-set would be helpful).

Additional datasets can be added to the existing GDP dataset to make each of the contributing factors more informative. Some of the ideas are -

Idea 1: Agriculture sector's quarterly GDP could be analyzed for every year and with an additional dataset consisting of the type of crops for a season and relating both the dataset, conclusions could be drawn stating which season performs good or bad on a general basis and which type of crops need more attention so they also contribute high to the GDP in the future.

Idea 2: Studying and analyzing the quarterly GDPs and pointing out the highs and lows among them and understanding the various reason for the highs and lows which could be calamities or corruption or international trading highs/lows etc.

References/Sources

Indian GDP Dataset source link:

https://data.gov.in/catalog/quarterly-estimates-gdp-constant-prices [1].

[1]