GDP Analysis of the Indian States
&
GDP and Education Dropout Rates

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GROSS DOMESTIC PRODUCT

- **Gross Domestic Product(GDP)_at current prices is the GDP at the market value of goods and services produced in a country during a year. In other words, GDP measures the 'monetary value of final goods and services produced by a country/state in a given period of time'.**

- **GDP can be broadly divided into goods and services produced by three sectors: the primary sector (agriculture), the secondary sector (industry), and the tertiary sector (services).**

- **It is also known as nominal GDP. More technically, (real) GDP takes into account the price change that may have occurred due to inflation. This means that the real GDP is nominal GDP adjusted for inflation.**

GDP Analysis of the Indian States

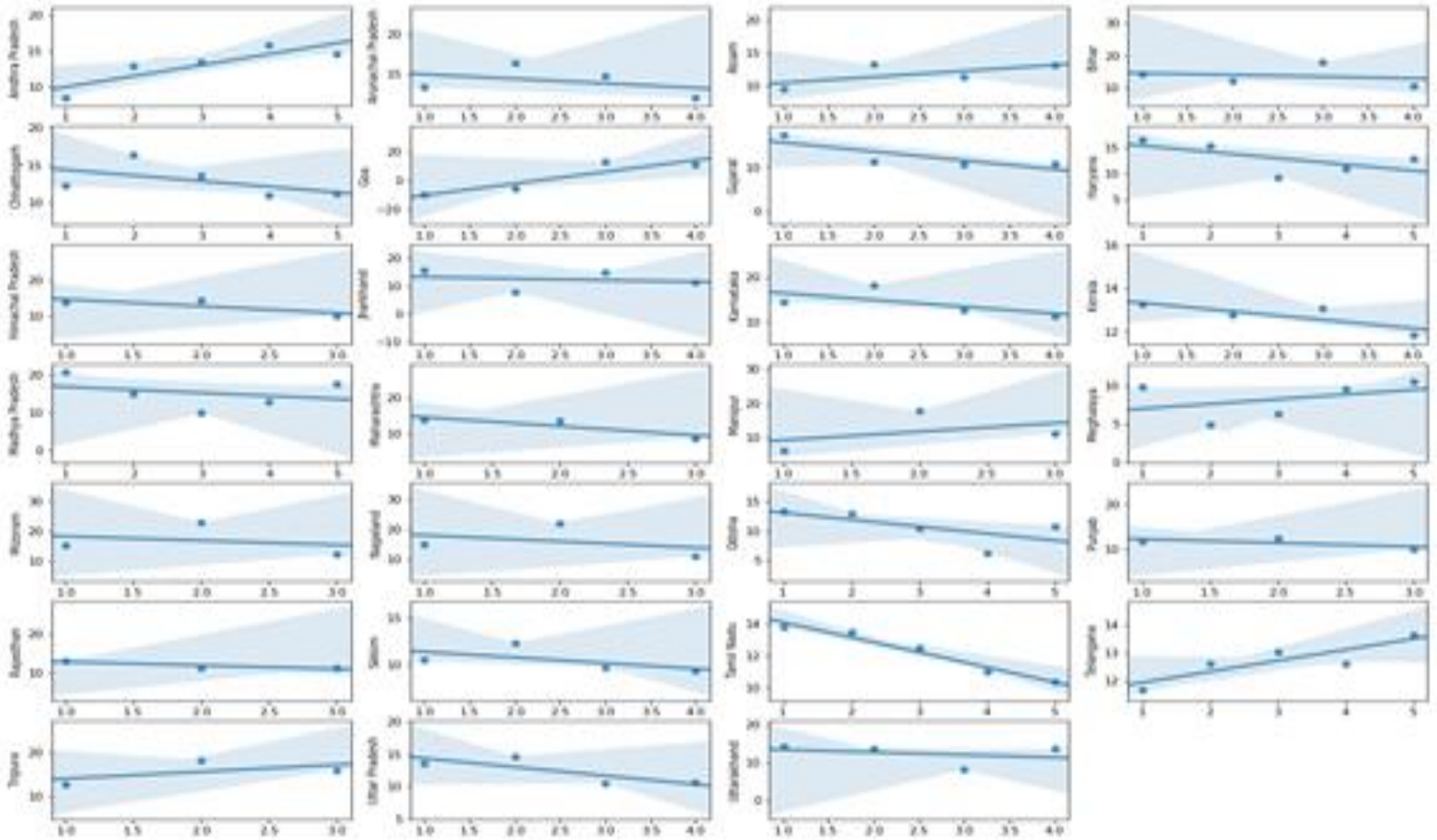
PART-1A:

The GDP analysis is done on the data as shown below:

	A	B	C	D	E	F	G	H
1	Items Description	Duration	Andhra Pr	Arunachal	Assam	Bihar	Chhattisga	Goa
2	GSDP - CURRENT PRICES (` in Crore)	2011-12	379402	11063	143175	247144	158074	42367
3	GSDP - CURRENT PRICES (` in Crore)	2012-13	411404	12547	156864	282368	177511	38120
4	GSDP - CURRENT PRICES (` in Crore)	2013-14	464272	14602	177745	317101	206690	35921
5	GSDP - CURRENT PRICES (` in Crore)	2014-15	526468	16761	198098	373920	234982	40633
6	GSDP - CURRENT PRICES (` in Crore)	2015-16	609934	18784	224234	413503	260776	45002
7	GSDP - CURRENT PRICES (` in Crore)	2016-17	699307	NA	NA	NA	290140	NA
8	(% Growth over previous year)	2012-13	8.43	13.41	9.56	14.25	12.3	-10.02
9	(% Growth over previous year)	2013-14	12.85	16.38	13.31	12.3	16.44	-5.77
10	(% Growth over previous year)	2014-15	13.4	14.79	11.45	17.92	13.69	13.12
11	(% Growth over previous year)	2015-16	15.85	12.07	13.19	10.59	10.98	10.75
12	(% Growth over previous year)	2016-17	14.65	NA	NA	NA	11.26	NA

The relevant data is filtered and plotted.

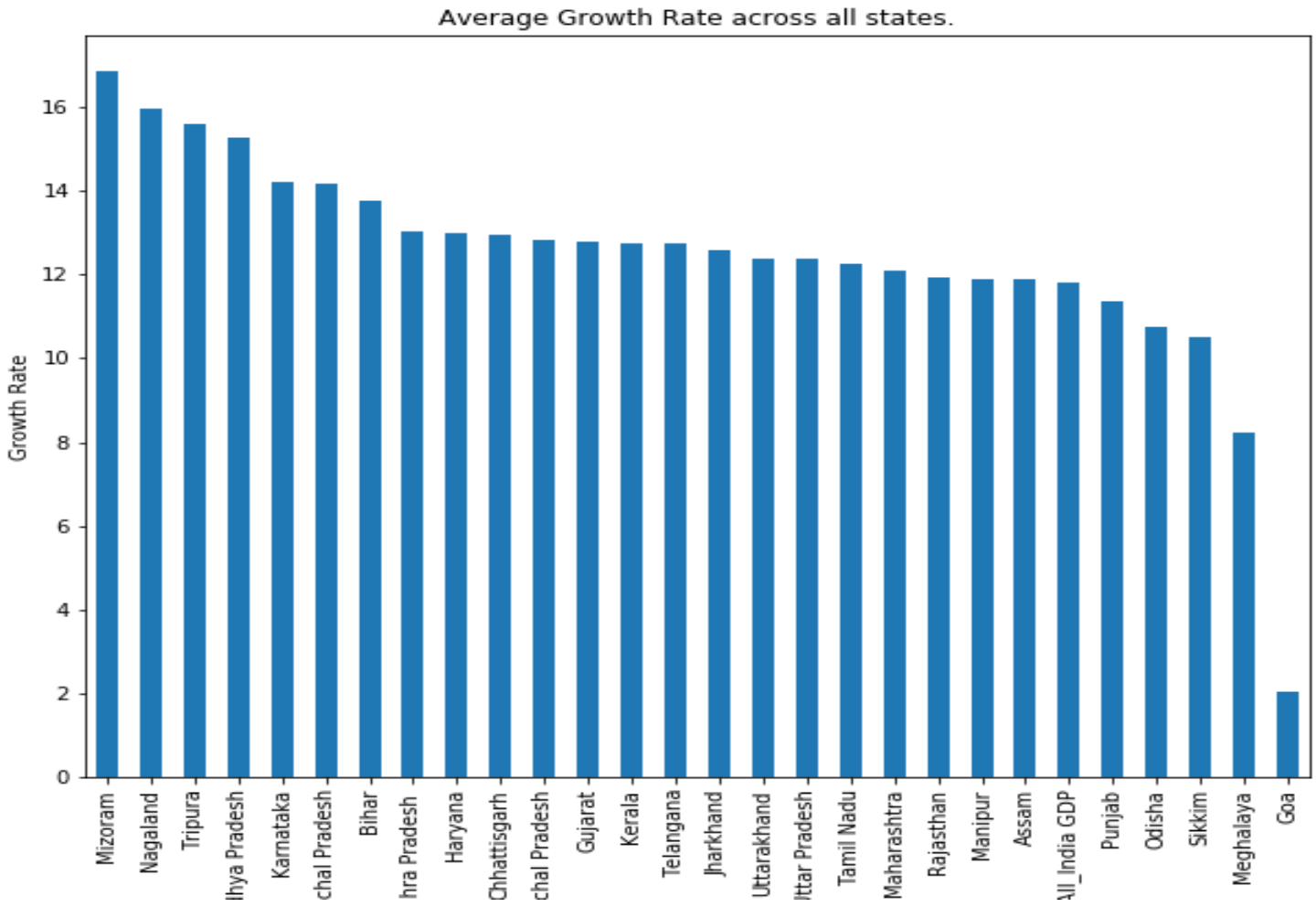
GROWTH-RATE OF ALL STATES.



Insights:

- The growth-rate of all states is plotted using a REGPLOT.
- Regplot will help to define the best-fit line of the graph.
- Best-fit Line shows the trend in the Growth-Rate.
- If we consider, states like Uttarakhand, Jharkhand and Madhya Pradesh, the line suggest that there is a stability in the GDP rates.
- States like Andhra Pradesh and Telangana are growing consistently.
- Tamil Nadu has a negative slope with respect to the growth rate.

Average Growth Rate of Indian States:



COMPARING ANY 2 STATES BASED ON AVERAGE GROWTH RATE:

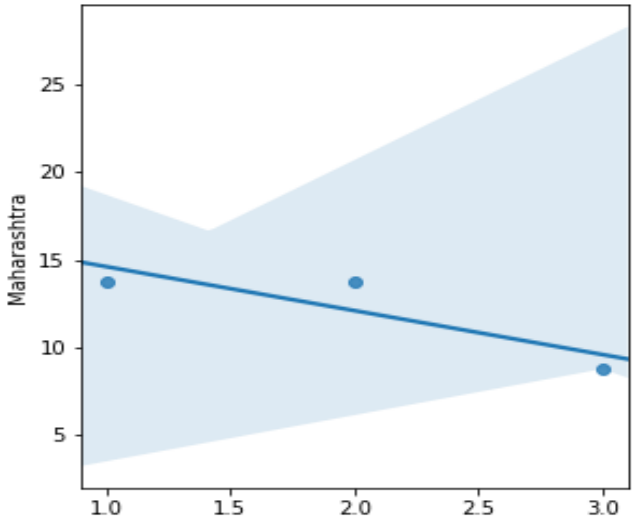
- **Growth rate can be determined by calculating the average of the growth percentage.**
- **From the above bar chart, we can compare the average of any 2 States. If we compare growth rates of Maharashtra and Goa, the growth rate of Goa is less than that of Maharashtra.**
- **Gujarat and Haryana has same growth rate.**
- **Growth rate of Mizoram is much greater than Goa.**

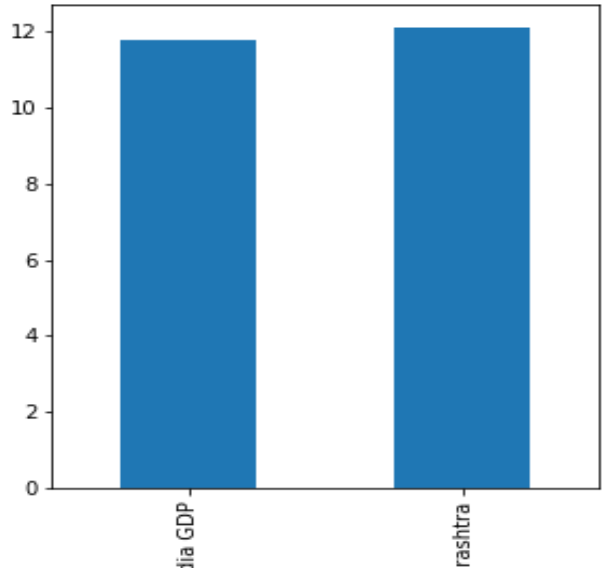
CHOICE OF GRAPH:

Bar chart is used because States are all categorical data and Growth-rate is a numeric data. Bar chart fits well in this criteria and is easy to analyse.

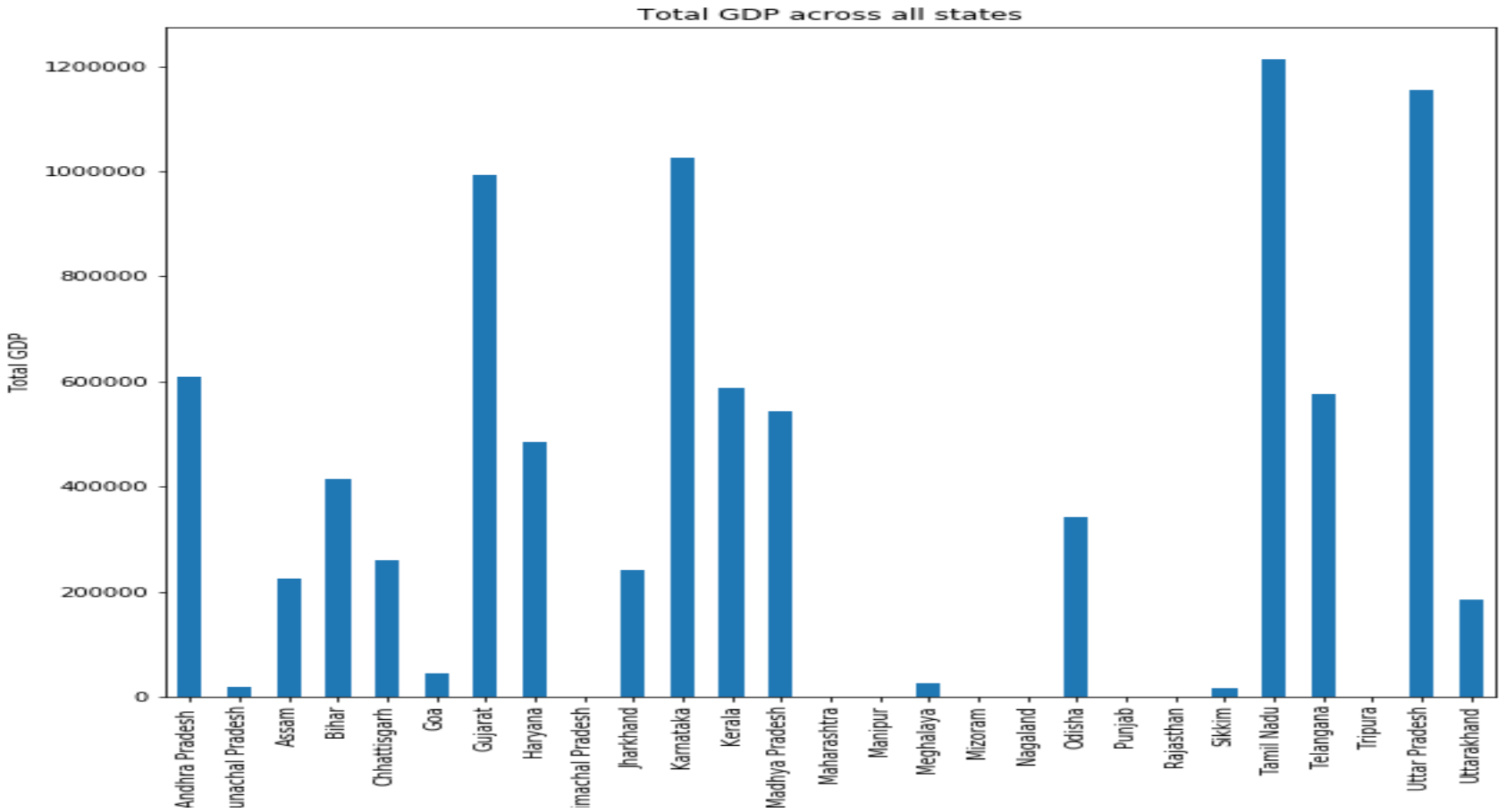
Comparing Growth Rate of my Home-state and Nation.

- *We can say that, the growth rate of Maharashtra is decreasing, but not gradually.*
- *When compared with nation, the growth rate of Maharashtra is higher than the Nation's growth.*





GDP OF ALL INDIAN STATES.



INSIGHTS:

- Top 5 states based on total GDP are :
  - Tamilnadu, Uttar Pradesh, Karnataka, Gujarat, Andhra Pradesh.
- Bottom 5 states based on total GDP are :(excluding the states with NAN values.)
  - Sikkim, Arunachal Pradesh, Meghalaya, Goa, Uttarakhand.
- The poorly performing States with respect to the Total GDP may have such conditions due to Inflation, decline in the consumption of Goods or losses occurred.

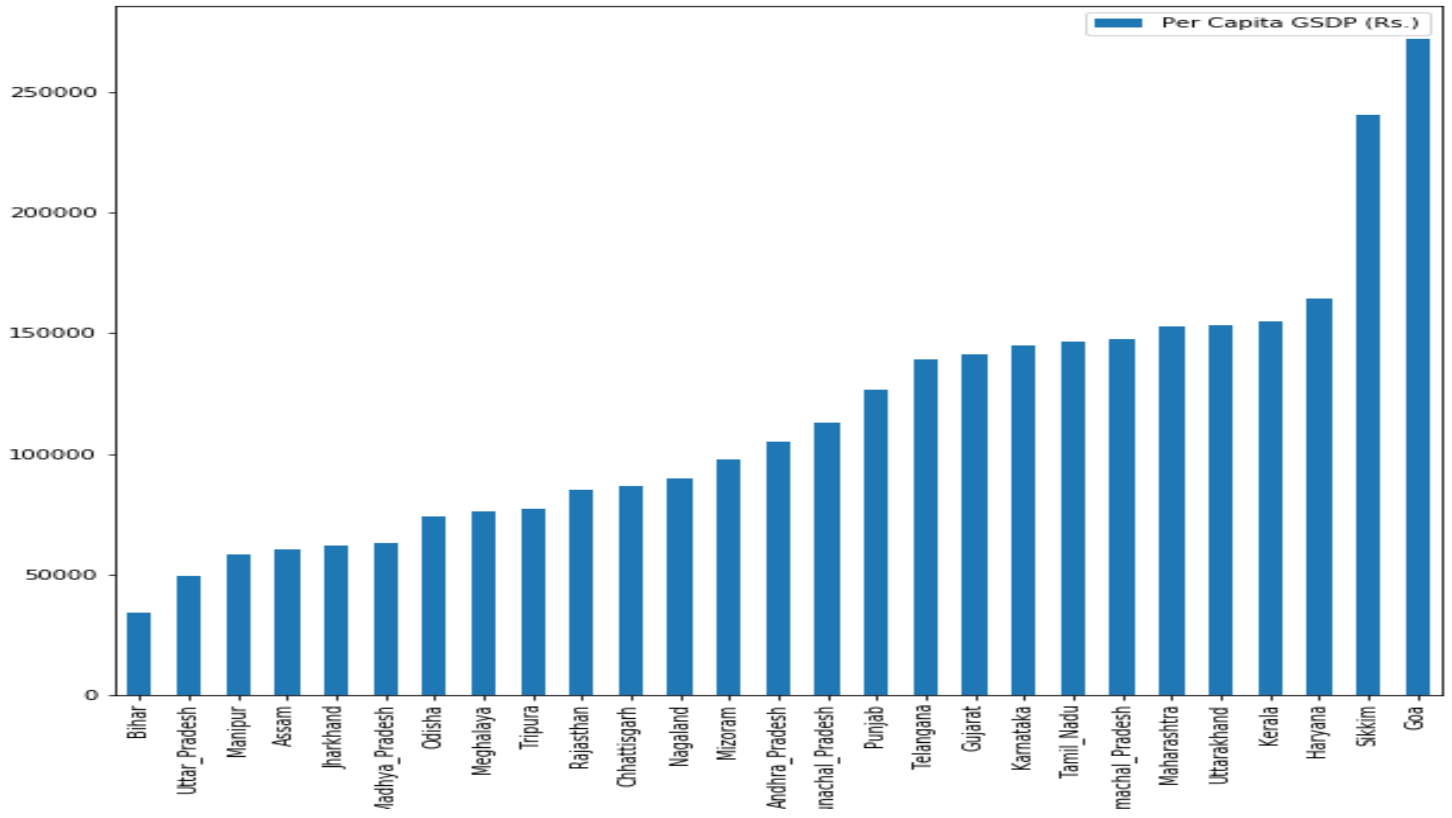
CHOICE OF GRAPH:

Bar chart is used here to depict the total GDP of all the states.

It gives a clear understanding of which states have higher GDP.

PART-1B:

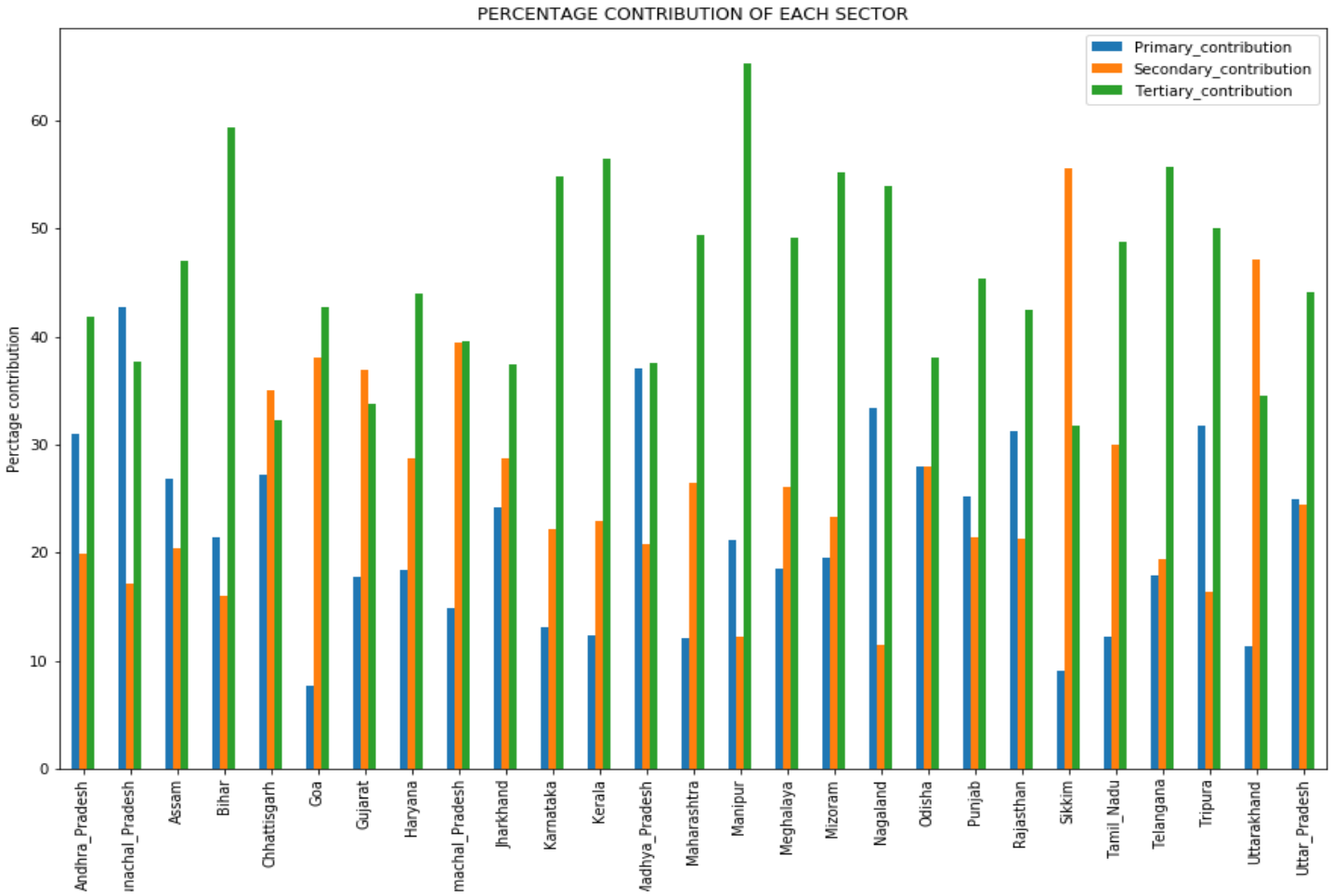
GDP per capita for all the states.



CONCLUSIONS:

- As per the bar graph plotted above:
- Top 5 states based on GDP per capita are:
- Goa, Sikkim, Haryana, Kerala, Uttarakhand .
- Bottom 5 states based on GDP per capita are:
  Bihar, Uttar Pradesh, Manipur, Assam, Jharkand.
- State with highest per capita GDP is GOA.
- State with lowest per capita GDP is BIHAR.
- Ratio of the highest per capita GDP to the lowest per capita GDP is 8.0047.

Percentage Contribution of each sector(Primary, Secondary, Tertiary):



CHOICE OF GRAPH:

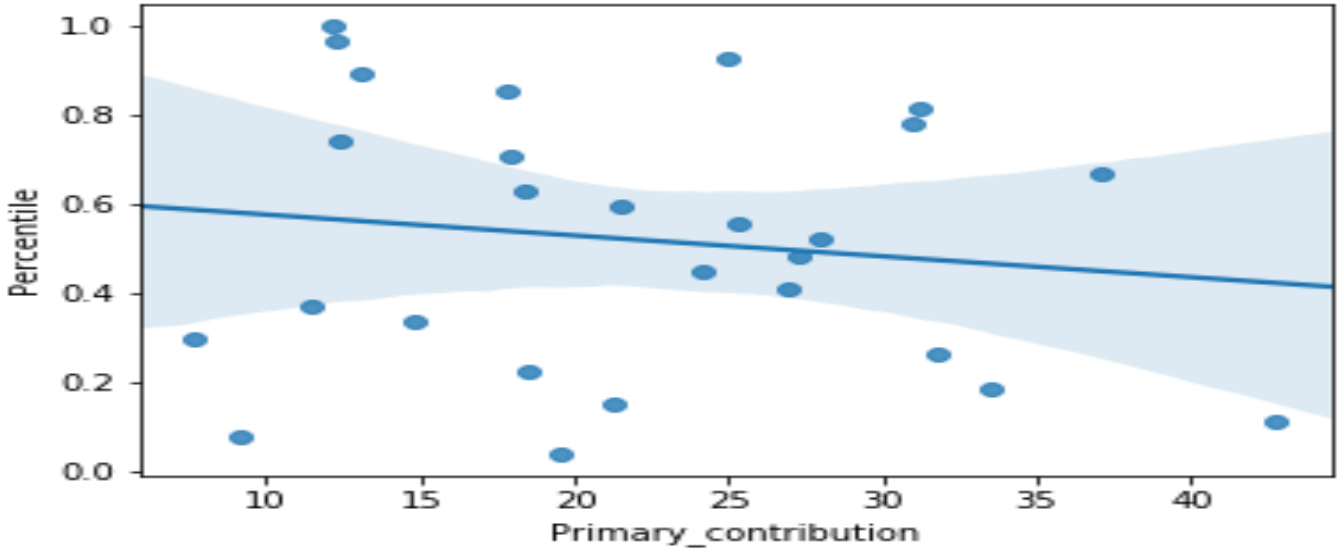
Bar chart with multiple bars in it is used for the depiction of total GDP across the 3 Sectors.

The 3 Sectors are simultaneously plotted on the same chart for the better comparison.

Insights:

- From the plot, we can say that Tertiary sector is growing rapidly in all the states.
- The total GDP is not equal to (Primary + Secondary + Tertiary) because Total GDP contains total of all the sectors as well as the taxes paid by the population . Also the subsidies that are given by the Government of India are excluded from the total GDP.

Correlation of percentile of the state and %contribution of Primary sector to total GDP:



- **The percentile rank is at the decreasing pace for the percentage contribution of the Primary Sector.**
- **We can conclude that the Primary Sectors should contribute much better than this to the total GDP.**
- **Regplot is used here for showing the correlation. The Line shows the trend of the percentile rank.**

Categorizing the states into four groups based on the GDP per capita.

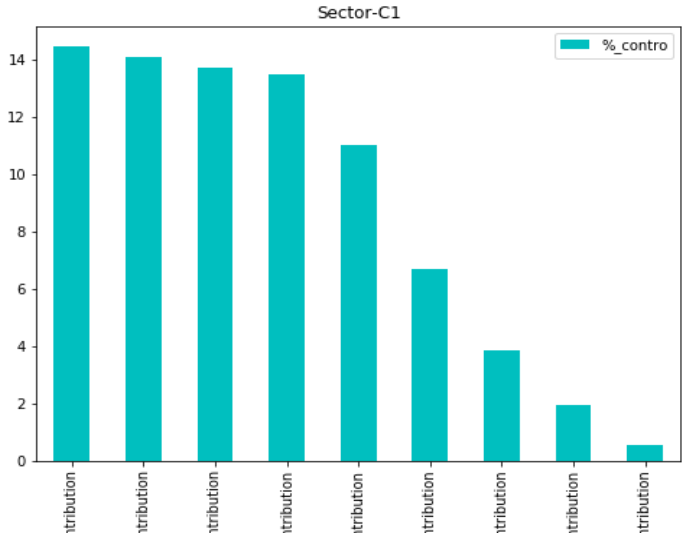
The 4 different categories based on the GDP per-capita are as follows:

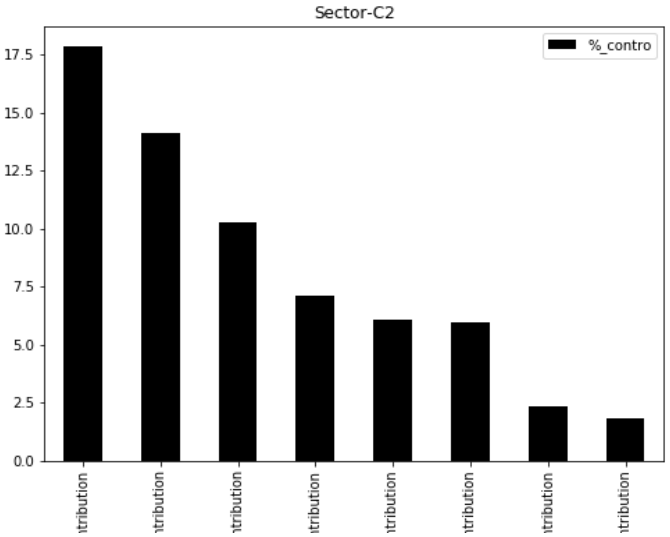
Category	Agriculture, forestry and fishing	Mining and quarrying	Manufacturing	Electricity, gas, water supply & other utility services	Construction	Trade, repair, hotels and restaurants
C1	14391809.0	588961.0	13758793.0	2000998.0	11264451.0	13995159.0
C2	90028438.0	11857646.0	113868796.0	14975107.0	45318451.0	65472262.0
C3	27407472.0	9351471.0	17366065.0	3453045.0	11043032.0	13011909.0
C4	56735044.0	6096419.0	24987032.0	4310264.0	22775948.0	27484595.0

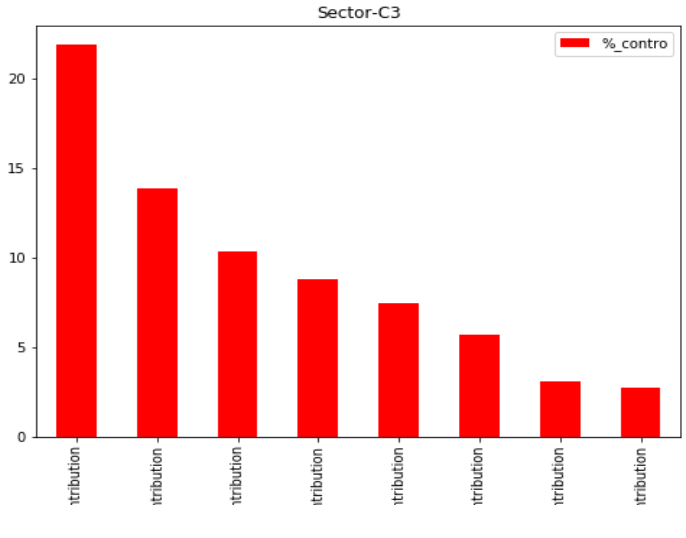
The sub-sectors were categorised based on the percentiles of the Total GDP.

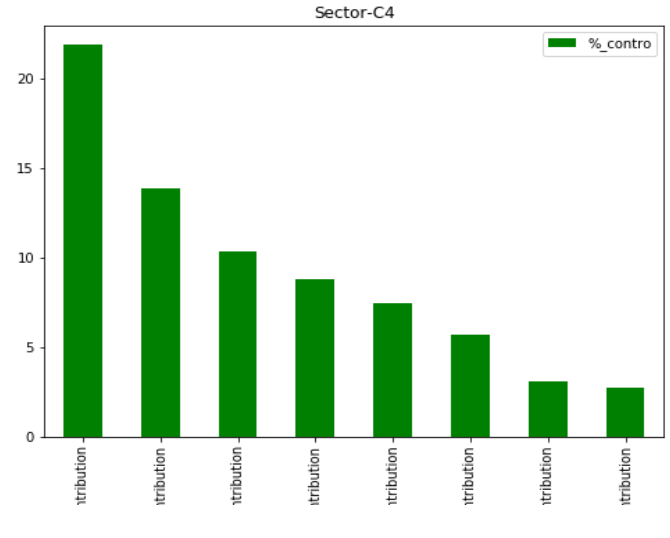
C1—1 to 0.85, C2-- 0.85 to 0.5, C3--0.5 to 0.2, C4--0.2 and below

Sub-sectors that contribute to approximately 80% of the GSDP of each category.









CONCLUSIONS:

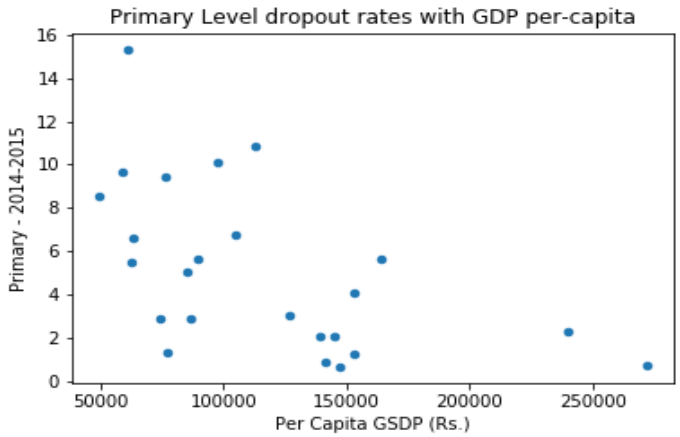
- After comparing the categories, we can say that GSDP of C2, C4 are approximately 2 to 3 times larger than C1 or GSDP of C1 is clos to GSDP of C3.
- From the graphs, subsectors that are correlated with high GDP are:
  - **Agriculture, forestry, fishing , Manufacturing and Real estate.**
- The sub-sectors that are contributing less should be focused more. Analysis can be made for why these sectors are less contributing. The reason can be loss in those sectors.
- The sectors that are contributing more should not be neglected. Instead those sectors should be worked on more for more profit and thus increasing the Total GDP.

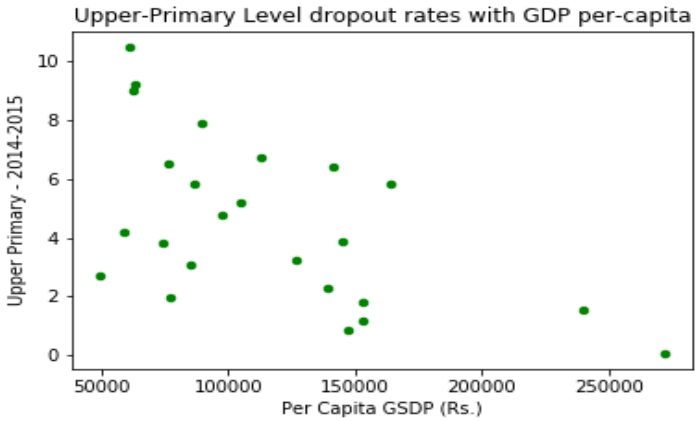
GDP and Education Dropout Rates

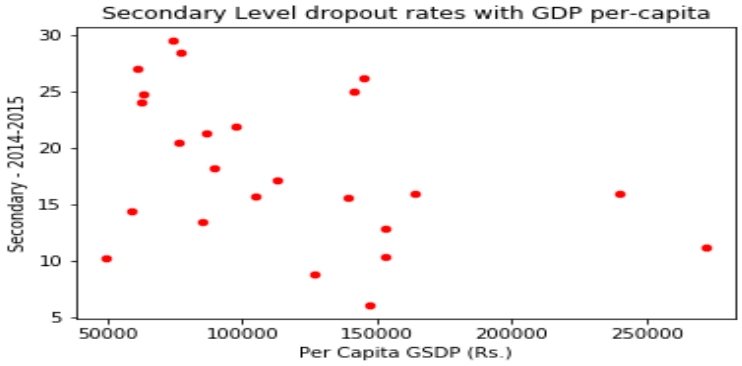
Data from the drop-out dataset and Data-1B was merged after cleaning the datasets and handling all the missing values and spelling mistakes.

GDP and Education:

Correlation of GDP per capita with dropout rates in education :



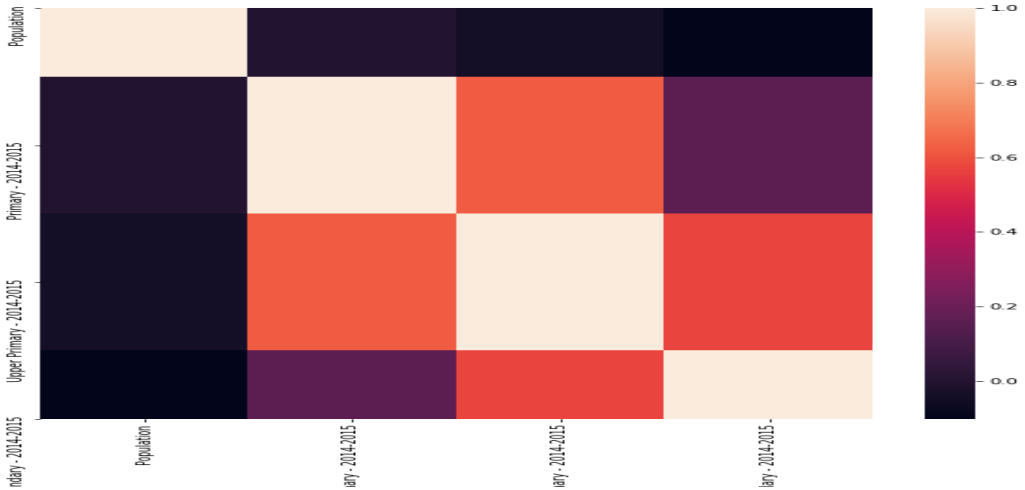




CONCLUSIONS:

- Scatter plot is used for plotting the GDP per capita with the drop out rates as both the variables are Numeric.
- The scatter plots shows that the GDP per capita is increasing and the drop-out rates are decreasing gradually for the year 2014-2015.
- There are some outliers present in the Primary and Upper Primary Levels.

Correlation of the drop-out rates with the Total Population:



HYPOTHESIS

- ***Factors that may influence the GDP are the supplies and demands.***
- ***As the price level rises, supply rises and hence the GDP increases.***
- ***Lower prices of goods demands consumers purchasing more products, thus increasing the GDP.***
- ***Sectors contributing more to the GDP rate should increase their supplies.***
- ***Sectors that are poorly performing can focus more on how the investments can be increased and thus increase the GDP rates.***
- ***We saw that the drop-out rates are decreasing as the GDP increases and hence there is an influence of GDP on the Education Levels.***