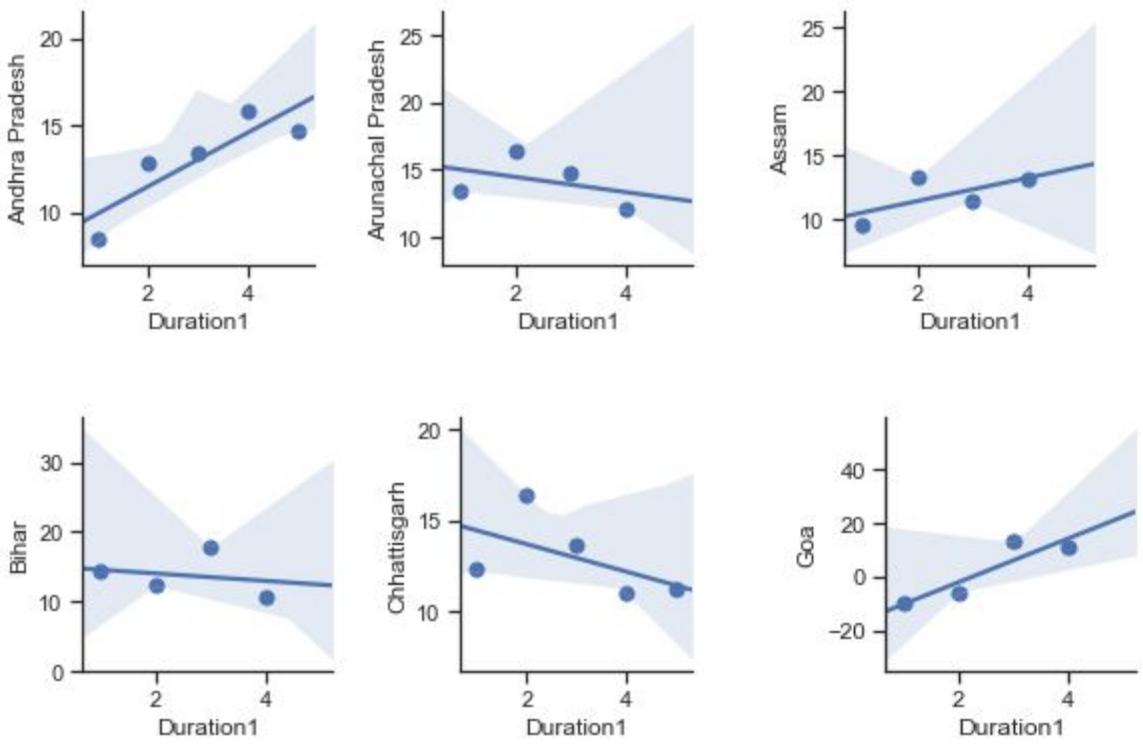
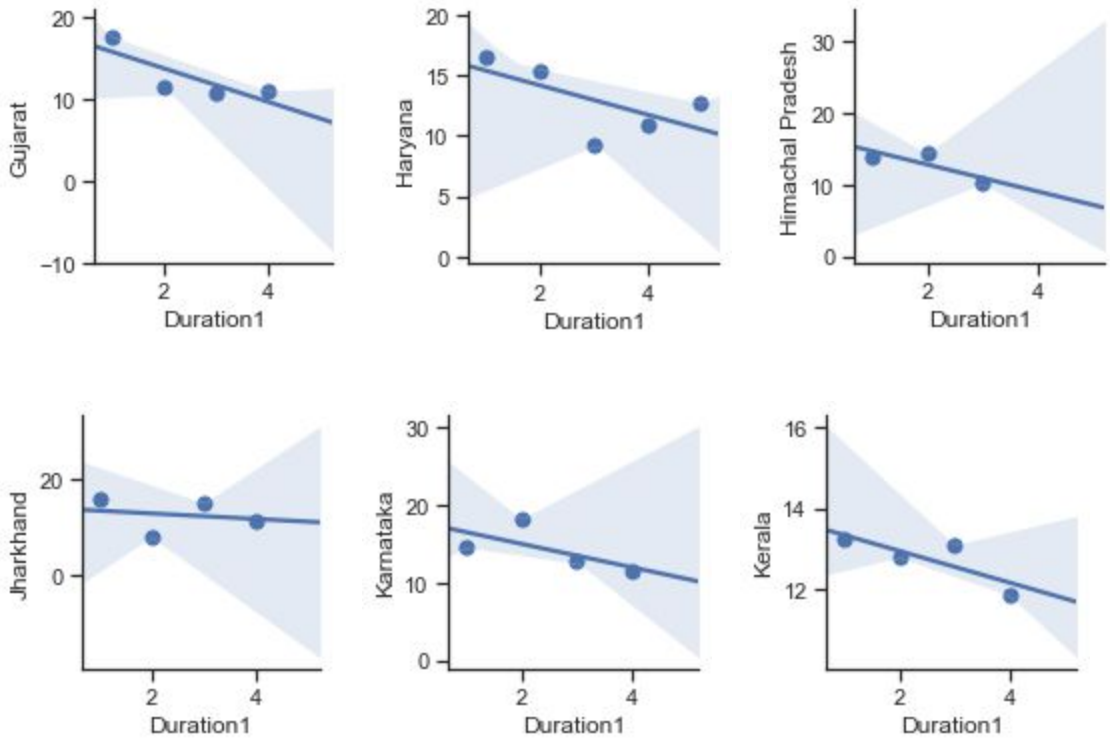
NITI Aayog
GDP Analysis

The main objective is to help the CMs focus on areas that will foster economic development for their respective states. Since the most common measure of economic development is GDP. Analysis of GDP helped in getting more beneficial insights.

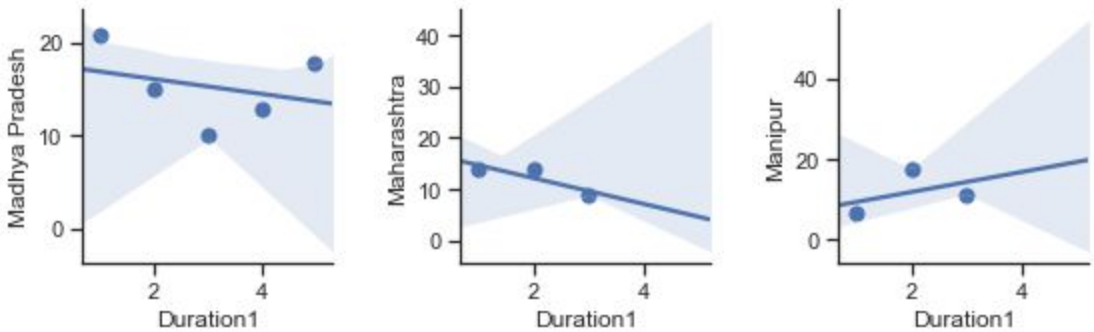
Firstly, the GSDP document was observed, which had attributes like various States and the GSDP values of those states for various durations. The document also had data on percentage growth for the given states. The data had few missing values which were ignored as on replacing those missing values with the mean or median would have lead to biased results. The first thing that was analyzed is the percentage growth of various states for the duration of 2012-13, 2013-14, 2014-15, 2015-16, and 2016-17. The below figure shows the best fit line for growth against the duration for each state.



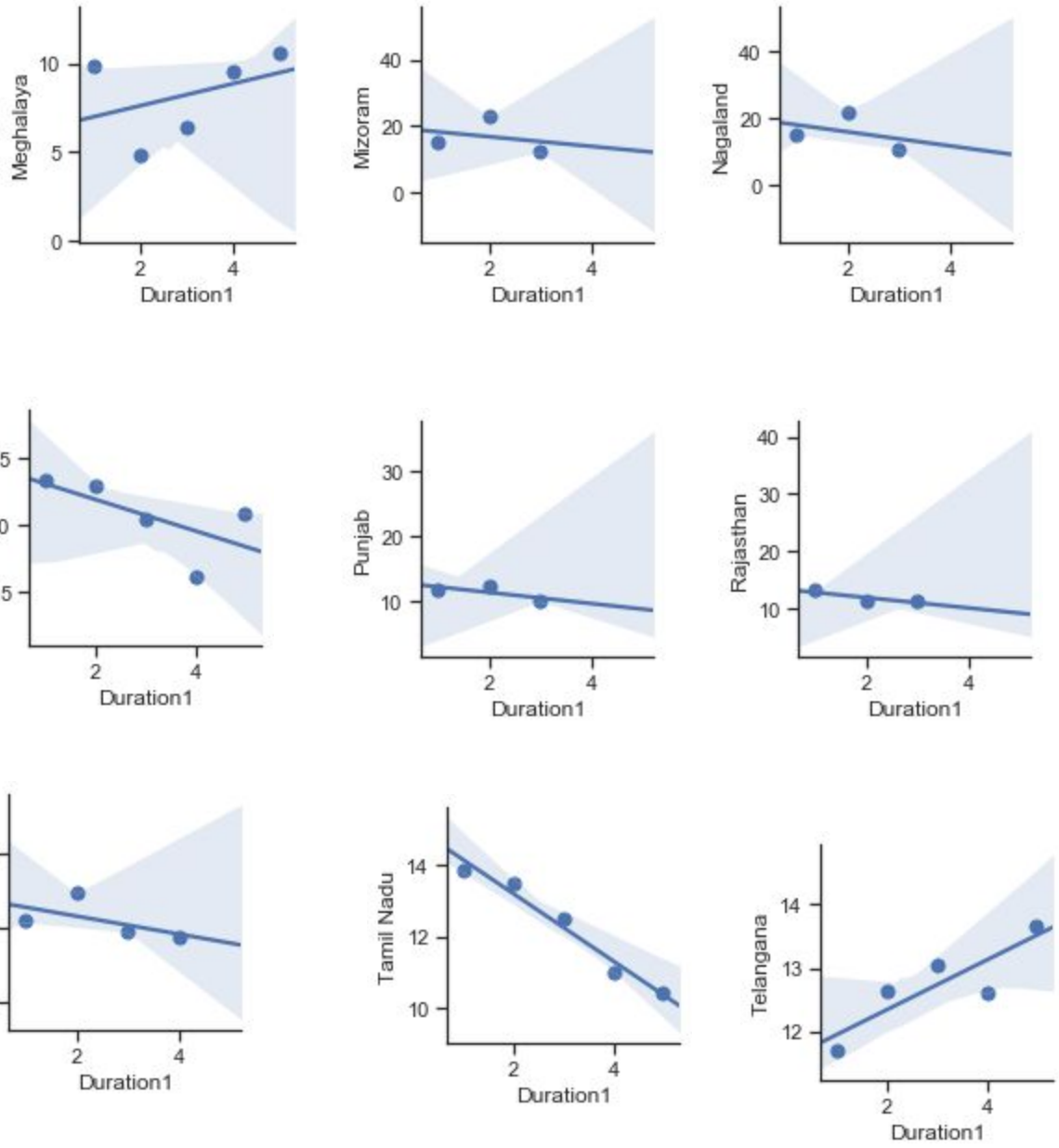
Andhra Pradesh, Assam, and Goa have been growing over the past durations whereas not much change in growth can be seen for states like Arunachal Pradesh and Bihar. We can see a slight dip in growth for Chhatisgarh.

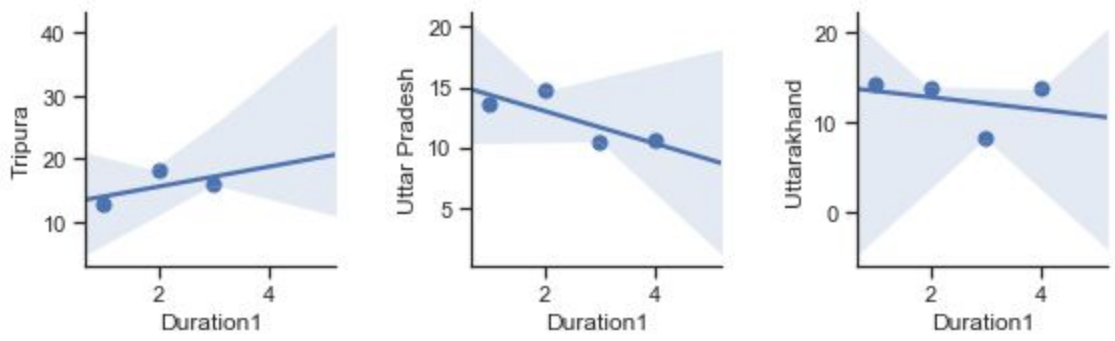


We can see a sudden dip in growth for Gujarat over the given durations whereas for Haryana, Himachal Pradesh, Karnataka, and Kerala there has been a slight decrease in growth, Jharkhand, on the other hand, can be seen a steady trend line.

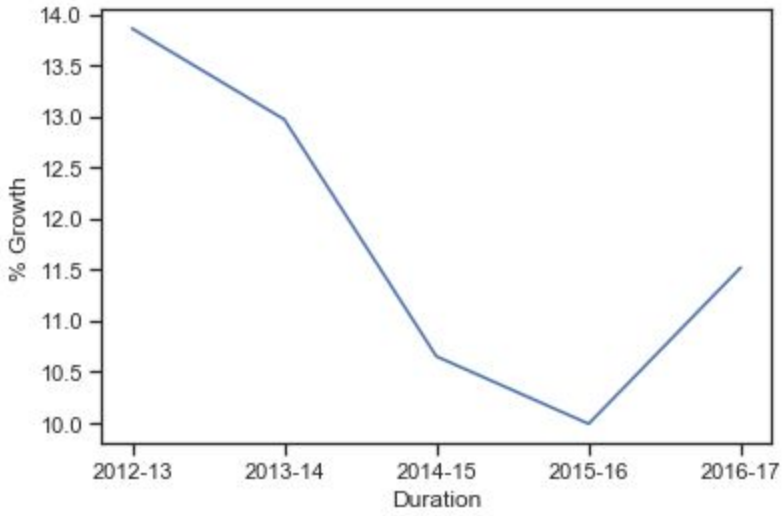


Manipur is showing good growth over the years, Madhya Pradesh is steady, whereas Maharashtra’s trend line dipped.





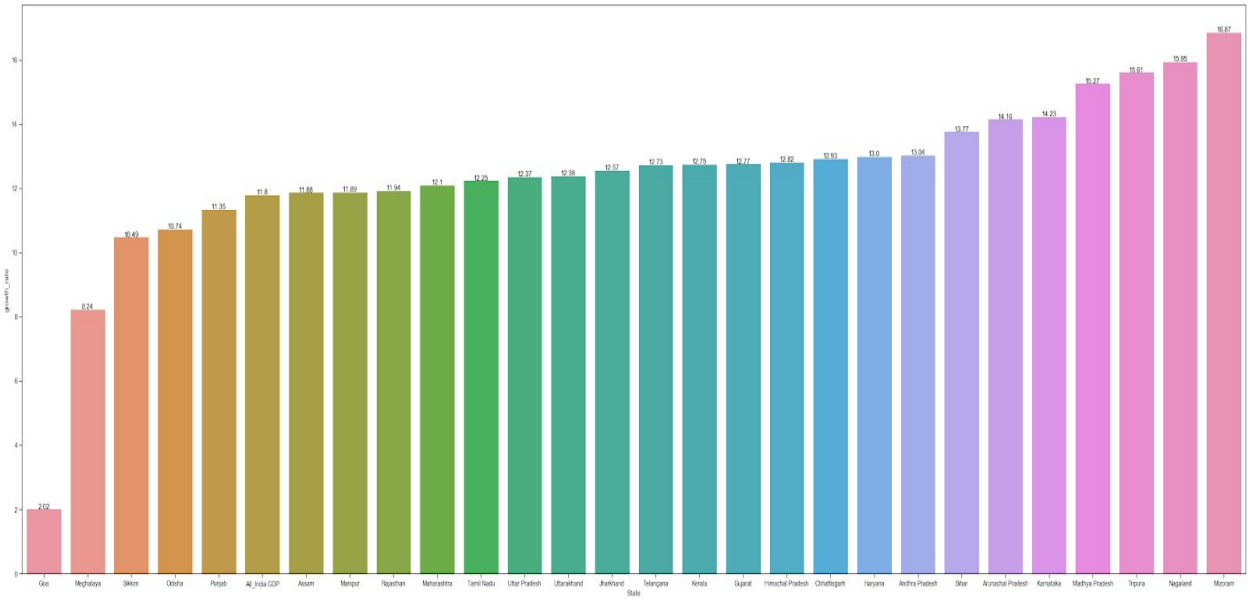
Nation Growth:



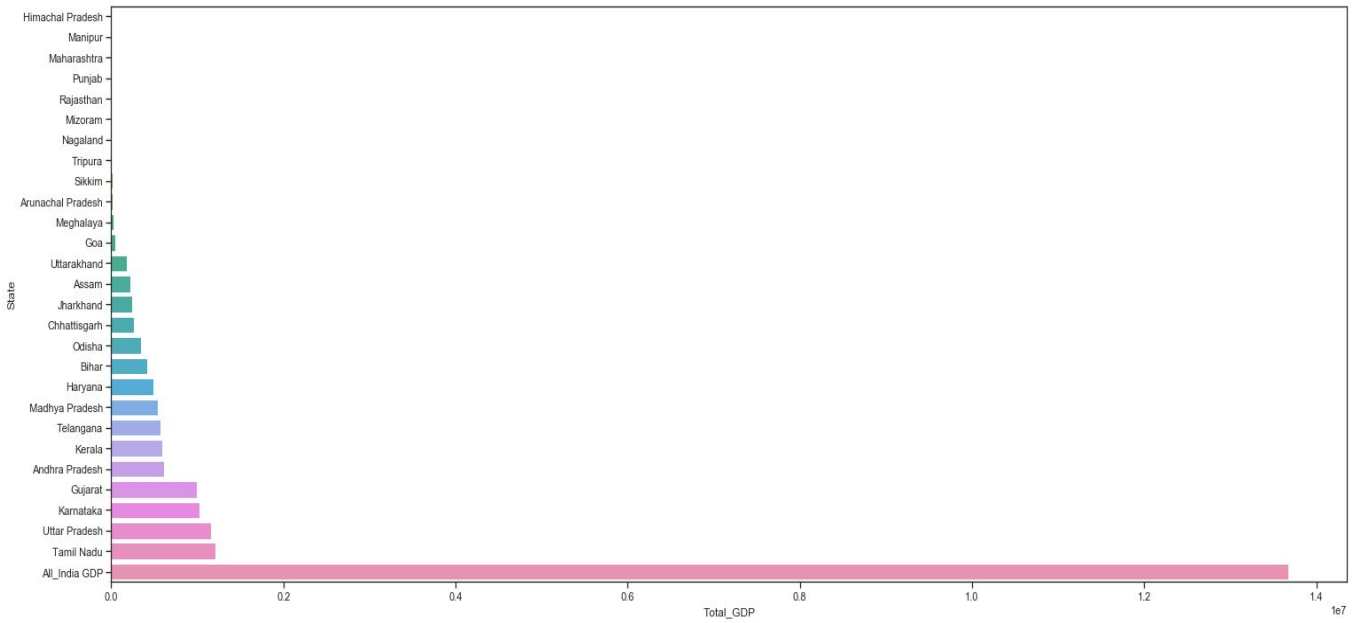
As can be seen, the growth of the nation considerably dipped for the year 2015-16. Although steadily increased but couldn't improve the growth as compared to the duration 2012-13.

Growth Of States presented in barplot:

The three consistent growing states are Mizoram, Nagaland, Tripura.
The three slow-growing states are Goa, Meghalaya, and Sikkim.



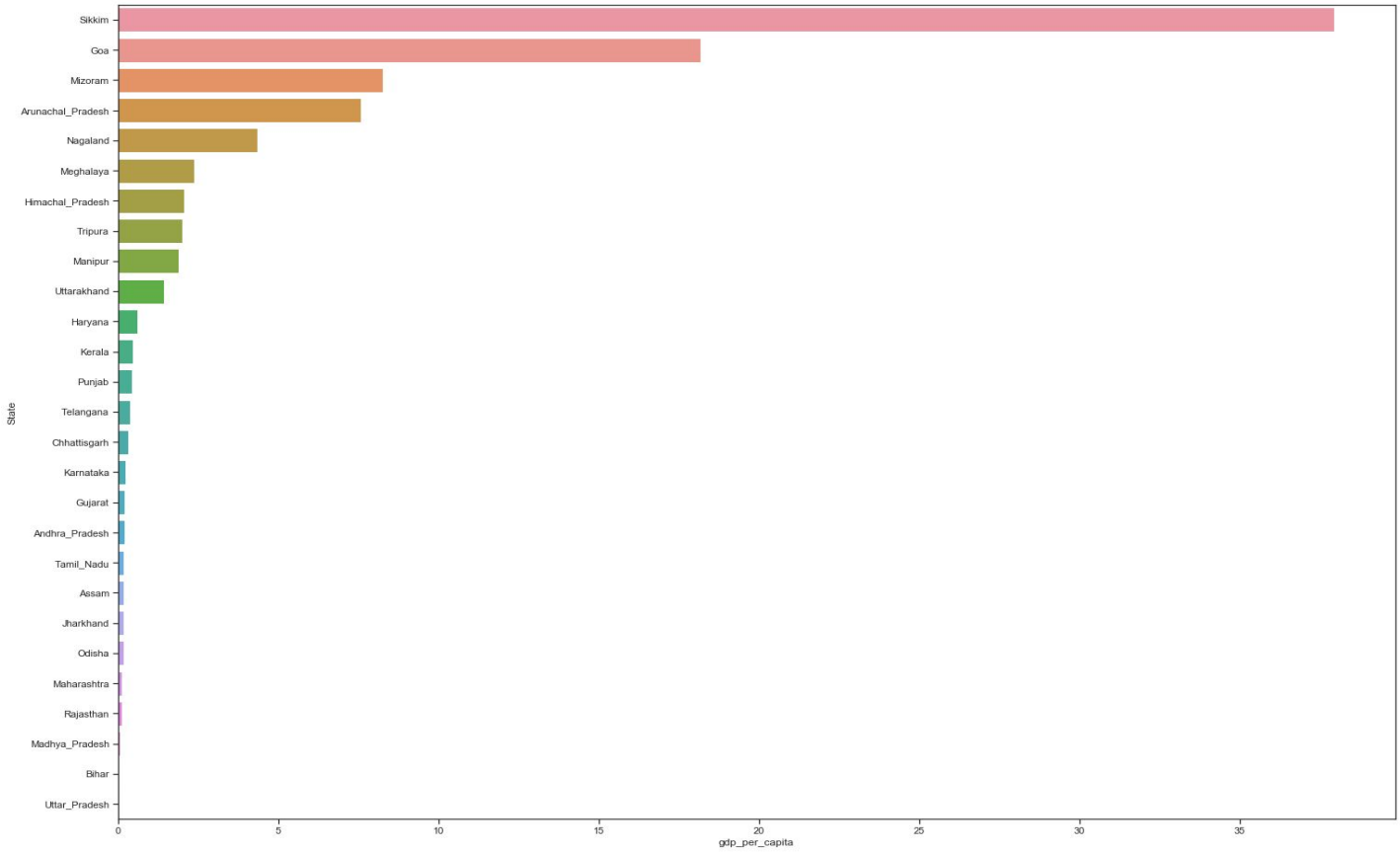
Total GDP of the states for the year 2015-16: Barplot is chosen for plotting as it is easier to analyze and compare variables.



The top 5 states based on total GDP:
Tamil Nadu, Uttar Pradesh, Karnataka, Gujarat, Andhra Pradesh.

The bottom 5 states based on total GDP:
Himachal Pradesh, Manipur, Maharashtra, Punjab. Rajasthan.

Comparing the trend of per capita GSDP for each state:



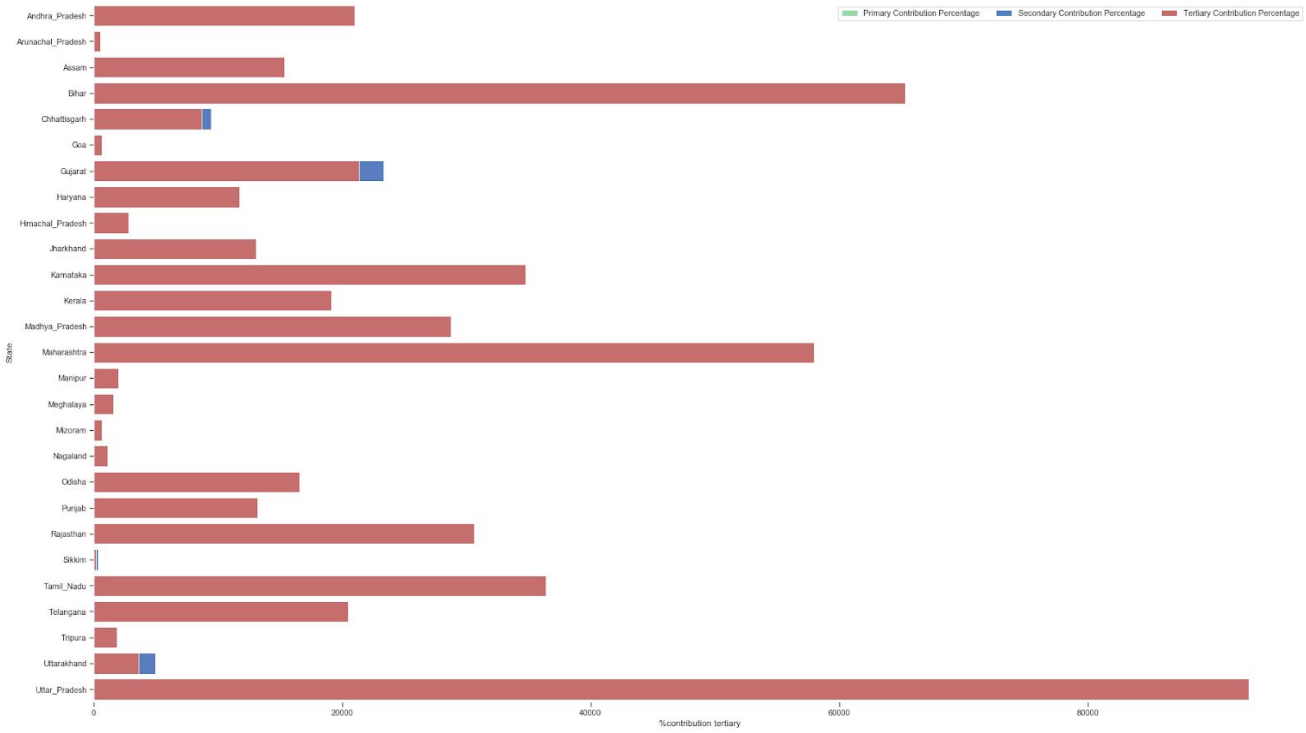
The top five states based on the GDP per capita are:

Sikkim, Goa, Mizoram, Arunachal Pradesh, Nagaland.

The bottom five states based on the GDP per capita are:

Uttar Pradesh, Bihar, Madhya Pradesh, Rajasthan, Maharashtra.

Plot the percentage contribution of the primary, secondary and tertiary sectors as a percentage of the total GDP for all the states.



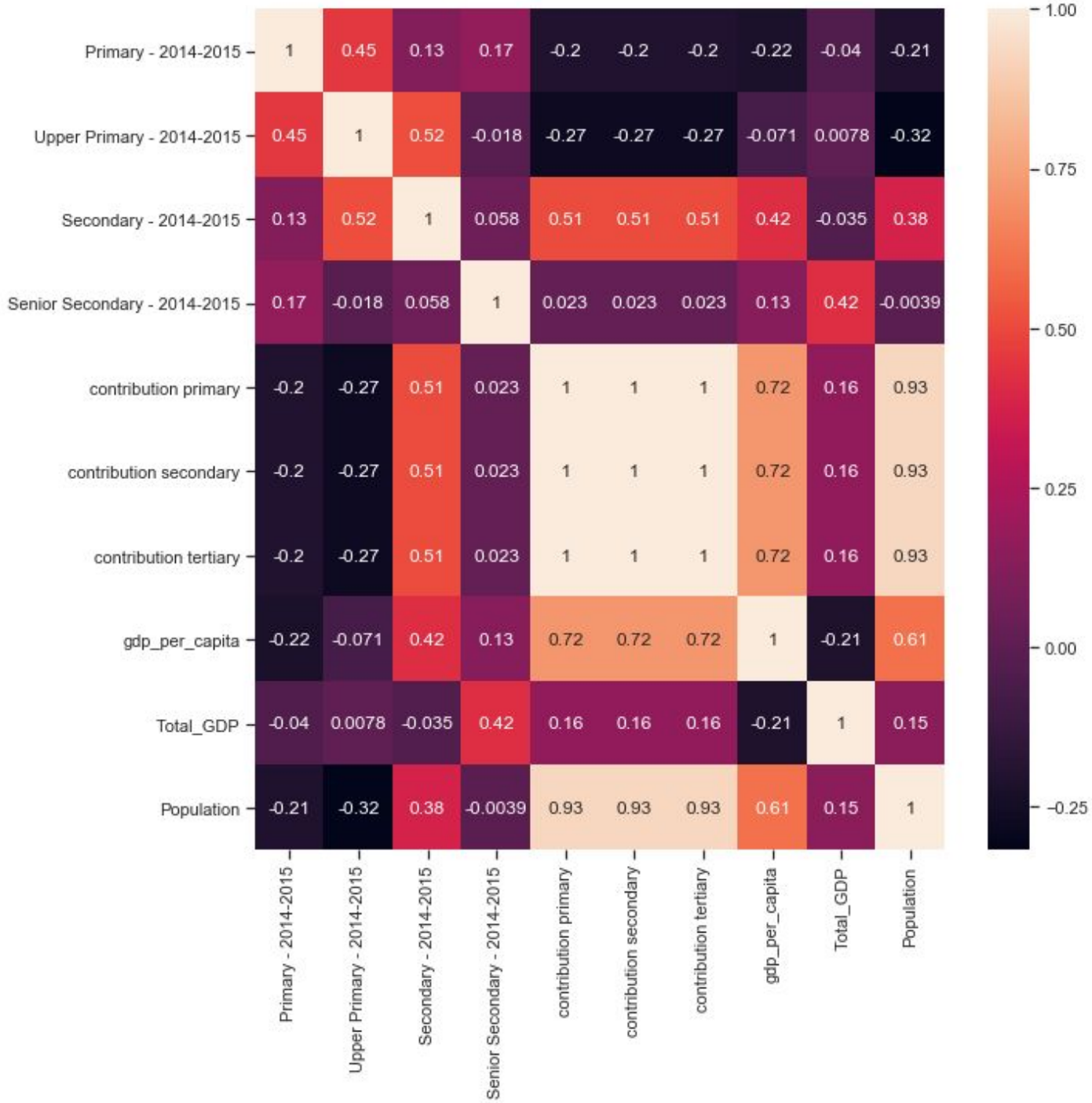
As can be seen, the percent contribution of the Secondary Sector is more for states like Chattisgarh, Gujarat, Sikkim (although minorly visible), and Uttarakhand.
Other than that for all the other states, the percent contribution of Tertiary is more.

Why is (Primary + Secondary + Tertiary) not equal to total GDP?

It is so because other than these sectors (Primary, Secondary, and Tertiary) there are other factors like taxes less subsidies on products that are not considered in this analysis.

<u>GDP and Education Dropout rates:</u>

Analyzing the correlation of GDP per capita with dropout rates (Primary, Upper Primary, Secondary) for the year 2014-15 for each state.


Primary - 2014-2015
Upper Primary - 2014-2015
Secondary - 2014-2015
Senior Secondary - 2014-2015
contribution primary
contribution secondary
contribution tertiary
gdp_per_capita
Total_GDP
Population
1 0.45 0.13 0.17 -0.2 -0.2 -0.2 -0.22 -0.04 -0.21
0.45 1 0.52 -0.018 -0.27 -0.27 -0.27 -0.071 0.0078 -0.32
0.13 0.52 1 0.058 0.51 0.51 0.51 0.42 -0.035 0.38
0.17 -0.018 0.058 1 0.023 0.023 0.023 0.13 0.42 -0.0039
-0.2 -0.27 0.51 0.023 1 1 1 0.72 0.16 0.93
-0.2 -0.27 0.51 0.023 1 1 1 0.72 0.16 0.93
-0.2 -0.27 0.51 0.023 1 1 1 0.72 0.16 0.93
-0.22 -0.071 0.42 0.13 0.72 0.72 0.72 1 -0.21 0.61
-0.04 0.0078 -0.035 0.42 0.16 0.16 0.16 -0.21 1 0.15
-0.21 -0.32 0.38 -0.0039 0.93 0.93 0.93 0.61 0.15 1
1.00
0.75
0.50
0.25
0.00
−0.25

As can be seen that the correlation between Primary and GDP_Per_Capita is negative and so is for Upper Primary. Thus, the dropout rates in Primary and Upper Primary hardly have any impact on GDP_Per_Capita. On the other hand, the Secondary dropout rates are highly correlated to the GDP_Per_Capita, thus, impacting its value.

Similarly, the percent contribution in Primary, Secondary, and Tertiary is highly impacted by the dropout rate in Secondary education.

It can also be seen that the population is positively correlated to the Secondary education dropout rates.

The key insights that are drawn from the visualization is that:

More focus should be given in decreasing the education dropout rates for Primary, and Upper Primary as it is inversely proportional to the gdp_per_capita and the percent contribution in Primary, Secondary, and Tertiary sectors.

The population needs to be maintained as the dropout rates are seen to higher for Primary and Upper Primary dropout rates with increase of population.

Thus, the education infrastructure should be improved for Primary and Upper Primary education. So that the dropout rates are lower for these sectors.