# Gross Domestic Product (GDP) Analysis

# Gross Domestic Product Analysis for each State

## Problem Statement:

Find out the sectors with specific sub-sector's GDP distribution in each state and conclude with recommendation for each state to develop specific areas of their respective states to improve GDP per capita.

- ❖ Based on Problem statement, we have to find the top sub-sectors that contributes higher percentage in each state total GDP.
- ❖ Based on the GDP per capita, we can divide the states into four categories to simply the analysis and produce results in way that makes simplify the comparisons.
- ❖ Find out the top sub-sectors that contribute majorly in each category states, and provide recommendations for each category to improve GDP per capita.
- ❖ Analyse the literacy rate influence in GDP per capita, and conclude the insights from this analysis.

# Average GDP growth rate of all states for the duration of 2013-14 to 2015-16

❖ Average GDP growth rate of India ➔ **11.2%**

❖ **Fastest growing states:** Mizoram, Tripura, Manipur, Arunachal Pradesh, Karnataka

❖ **Least growth rate states :** Goa, Meghalaya, Odisha, Sikkim, Jammu & Kashmir

Average GDP growth rate of states for the duration 2013-14 to 2015-16
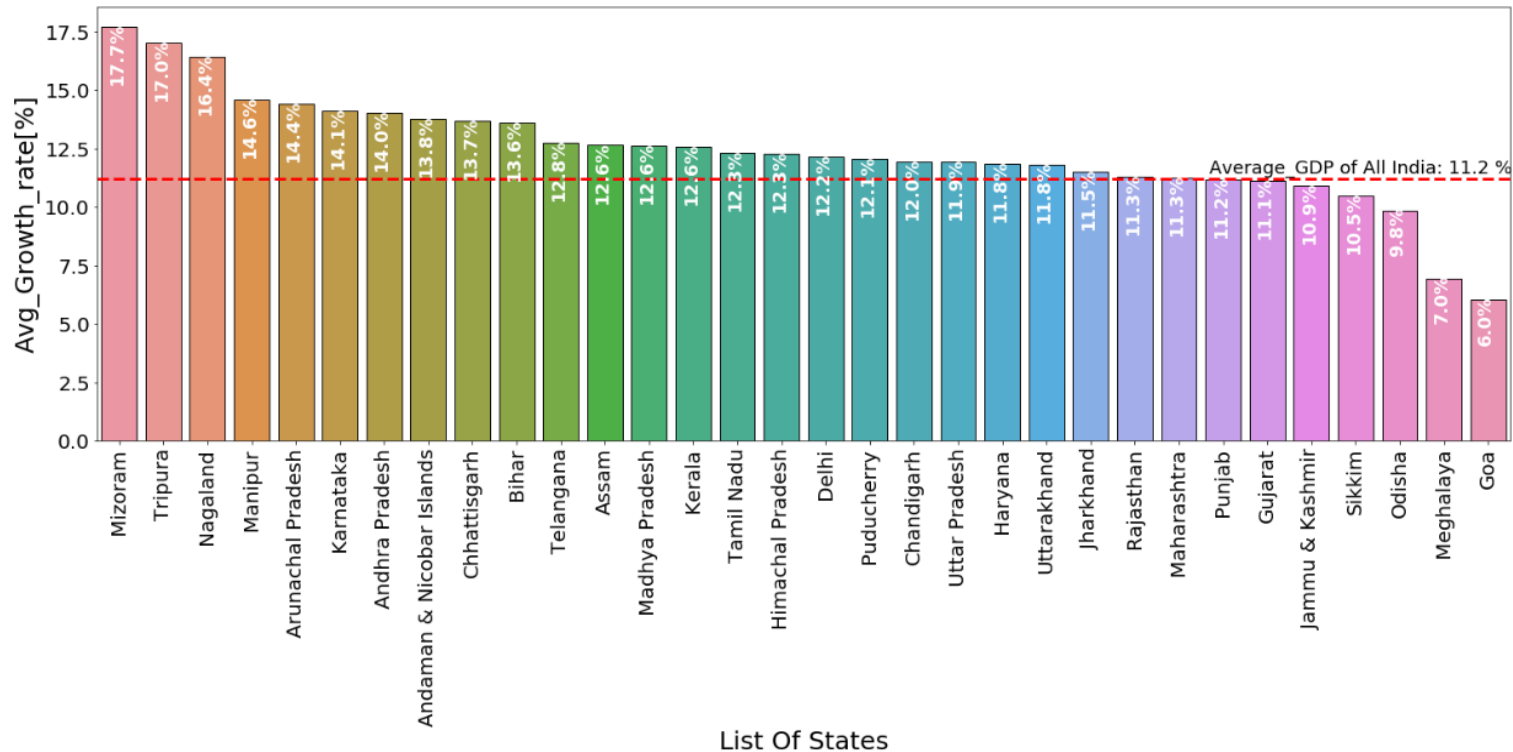
# Total GDP of all states for the year 2015-16

❖ **Top 5 high GDP states:** Tamil Nadu, Uttar Pradesh, Karnataka, Gujarat, Andhra Pradesh

❖ **Bottom 5 low GDP states:** Sikkim, Arunachal Pradesh, Puducherry, Meghalaya, Chandigarh

❖ Some of the states are not showing in the plot due to the reason of missing data or not availability of data for those states.



Total GDP of the states for the year 2015-16
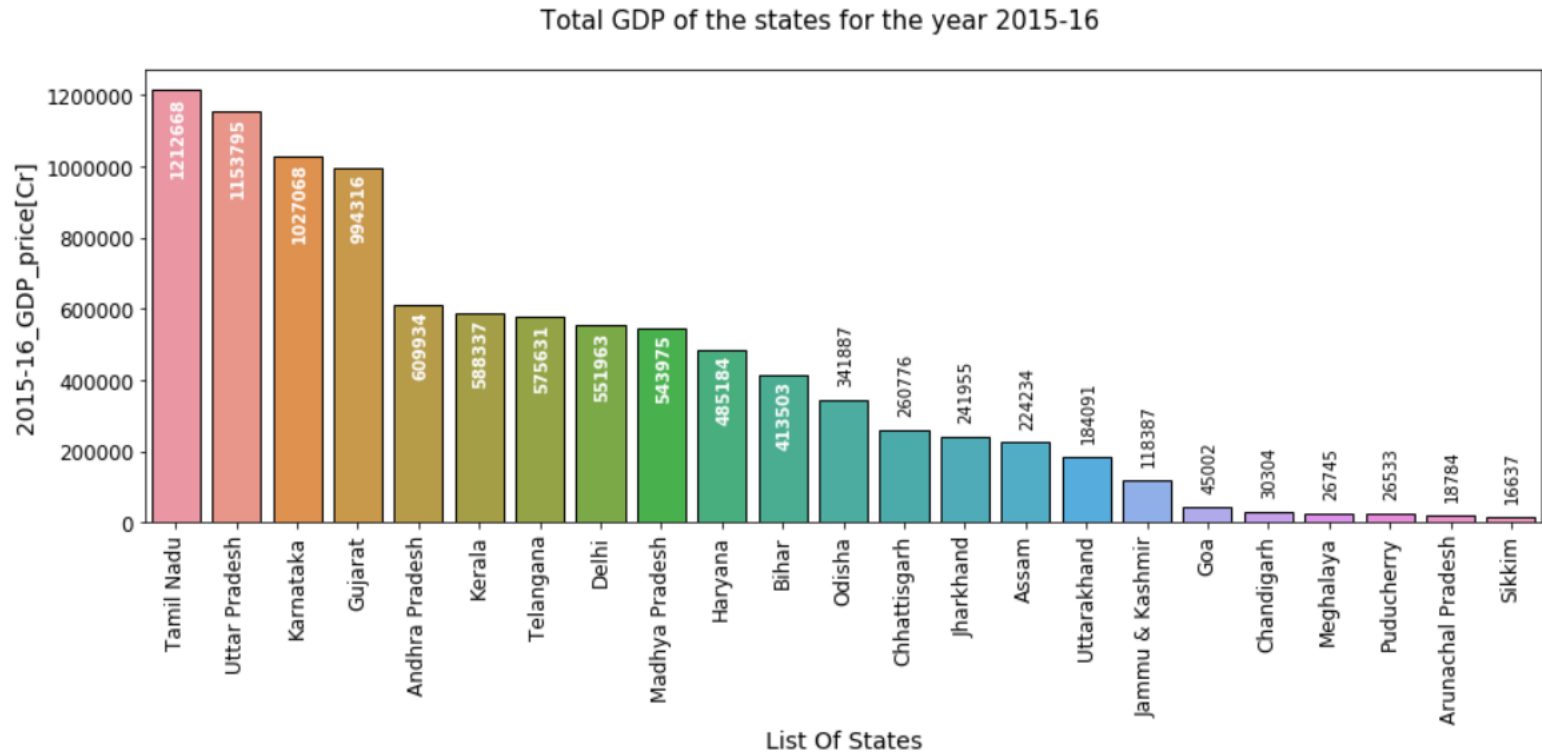
# GDP per capita for all the states for the year 2014-15 (Excluding union territories)

❖ **Top 5 high GDP per Capita states :** Goa, Sikkim, Haryana, Kerala, Uttarakhand
❖ **Bottom 5 low GDP per Capita states :** Bihar, Uttar Pradesh, Manipur, Assam, Jharkhand

❖ Ratio of the highest per capita GDP to the lowest per capita GDP ➔ **8.0**



GDP per capita for all states for the duration 2014-15
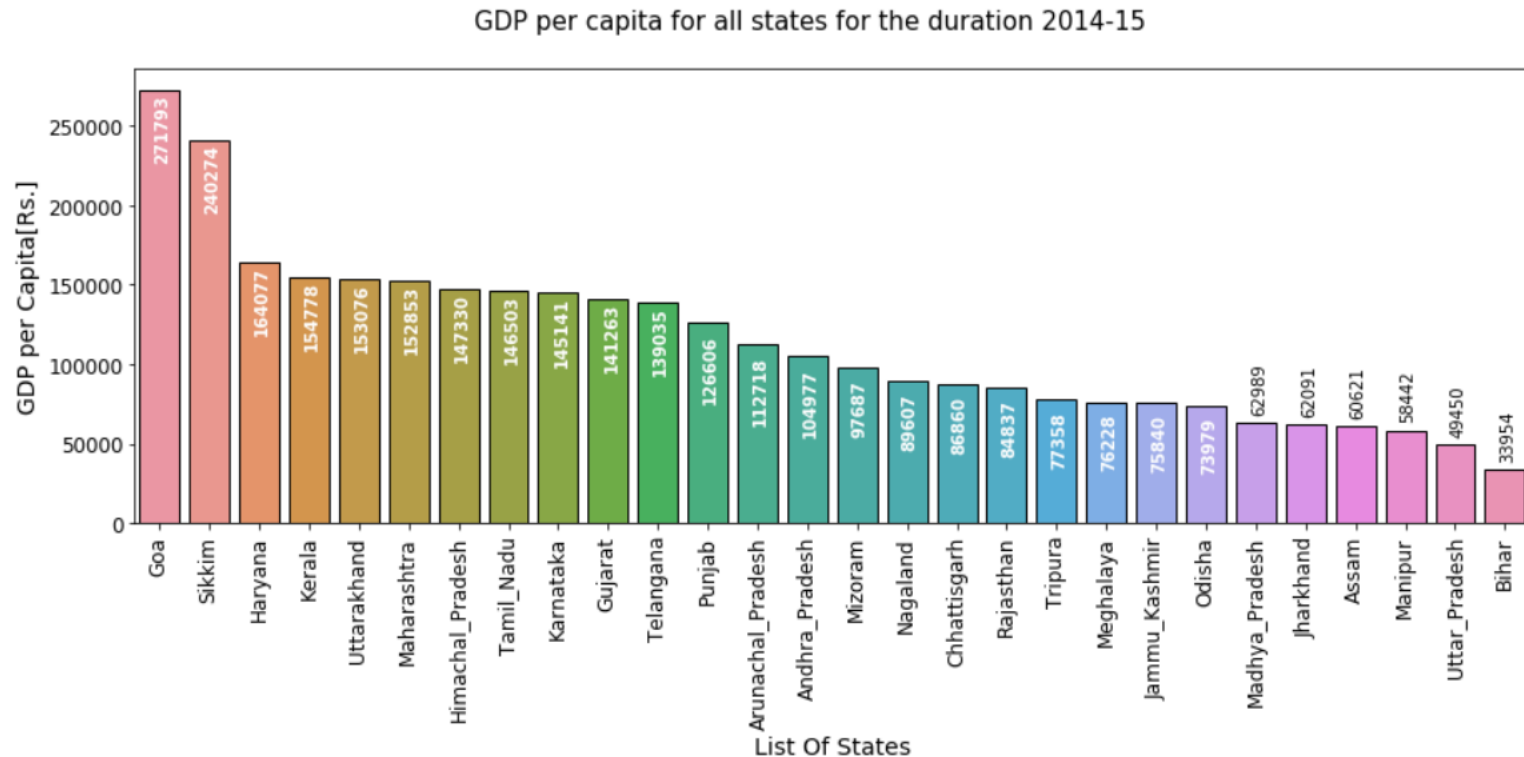
# Primary, secondary and tertiary sectors percentage contribution to the total GDP (2014-15)

❖ Top GDP per capita states contributes relatively less percentage in primary sector than least GDP per capita states.

❖ Top GDP per capita states contributes high percentage in secondary sector than least GDP per capita states.



Percentage contribution of the primary, secondary and tertiary sectors to the total GDP for all states
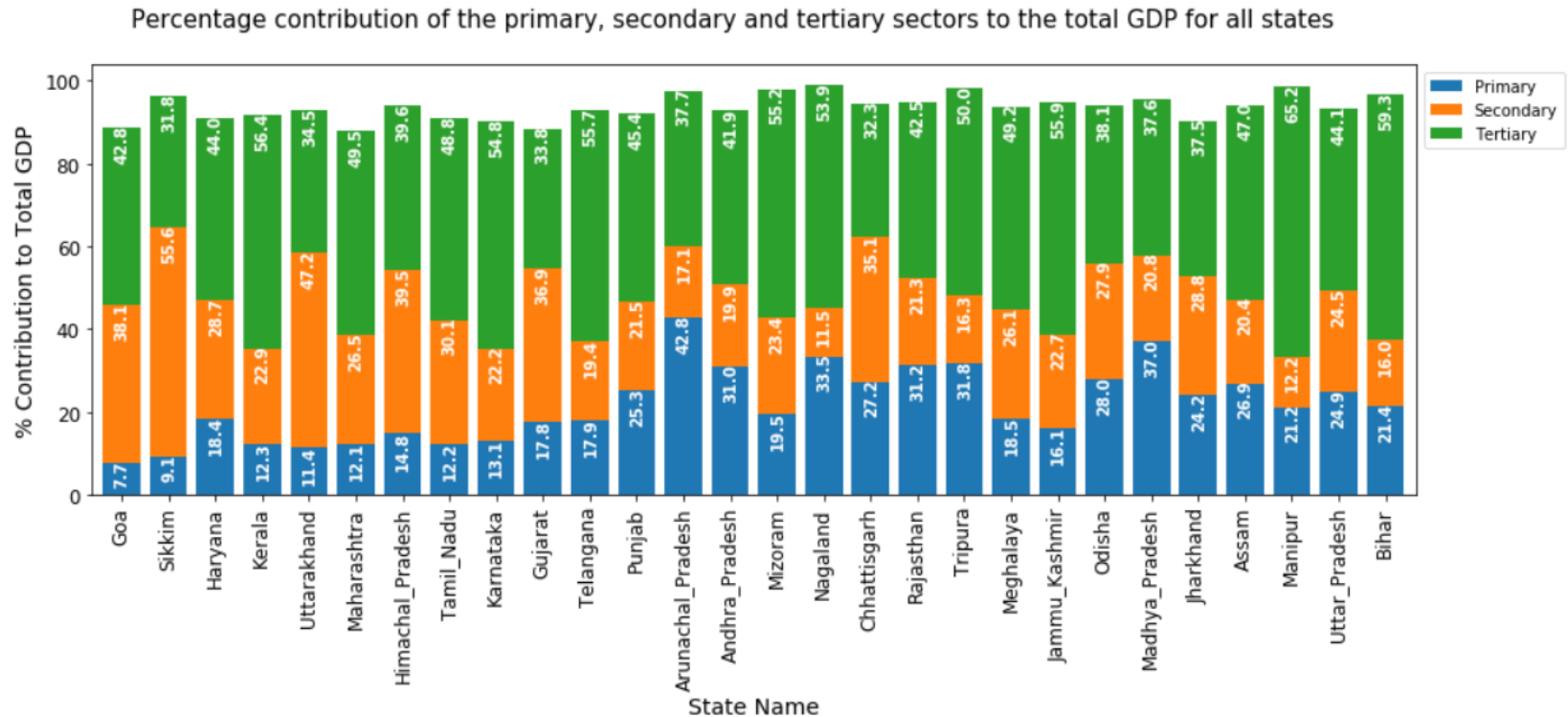
# Percentage contribution of sub-sectors to the total GDP (2014-15)

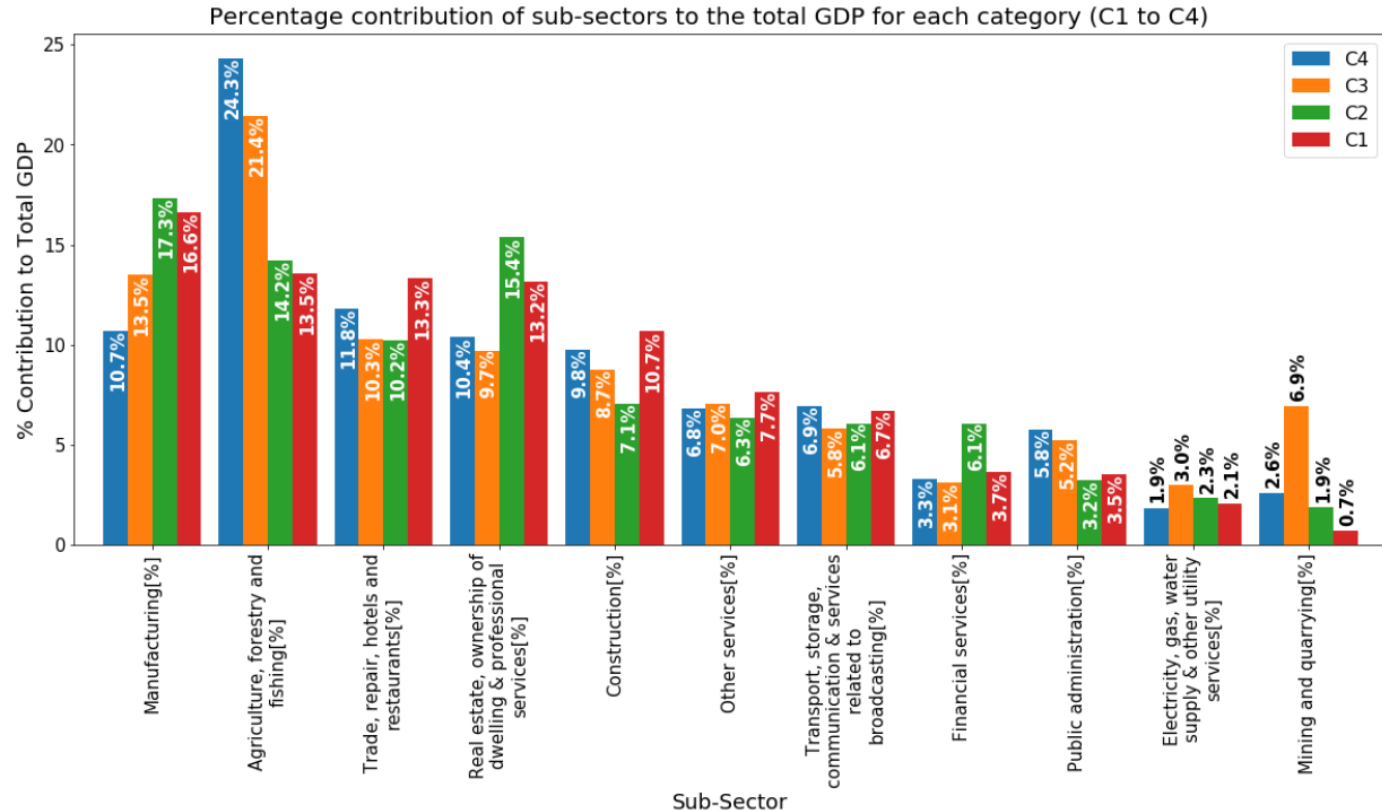❖ **Top percent contribution sub- sectors to the total GDP:**
  - ❖ Manufacturing.
  - ❖ Agriculture, forestry & fishing.
  - ❖ Trade, repair, hotels & restaurants.
  - ❖ Real estate, ownership of dwelling & professional services.

The States are categorized into four groups (C1,C2,C3&C4) based on the GDP per capita percentiles.

Following are the percentile ranges considered for categorization.

- C1 → 85th to 100th
- C2 → 50th to 85th
- C3 → 20th to 50th
- C4 → below 20th

We will consider these categories for further analysis



Percentage contribution of sub-sectors to the total GDP for each category (C1 to C4)

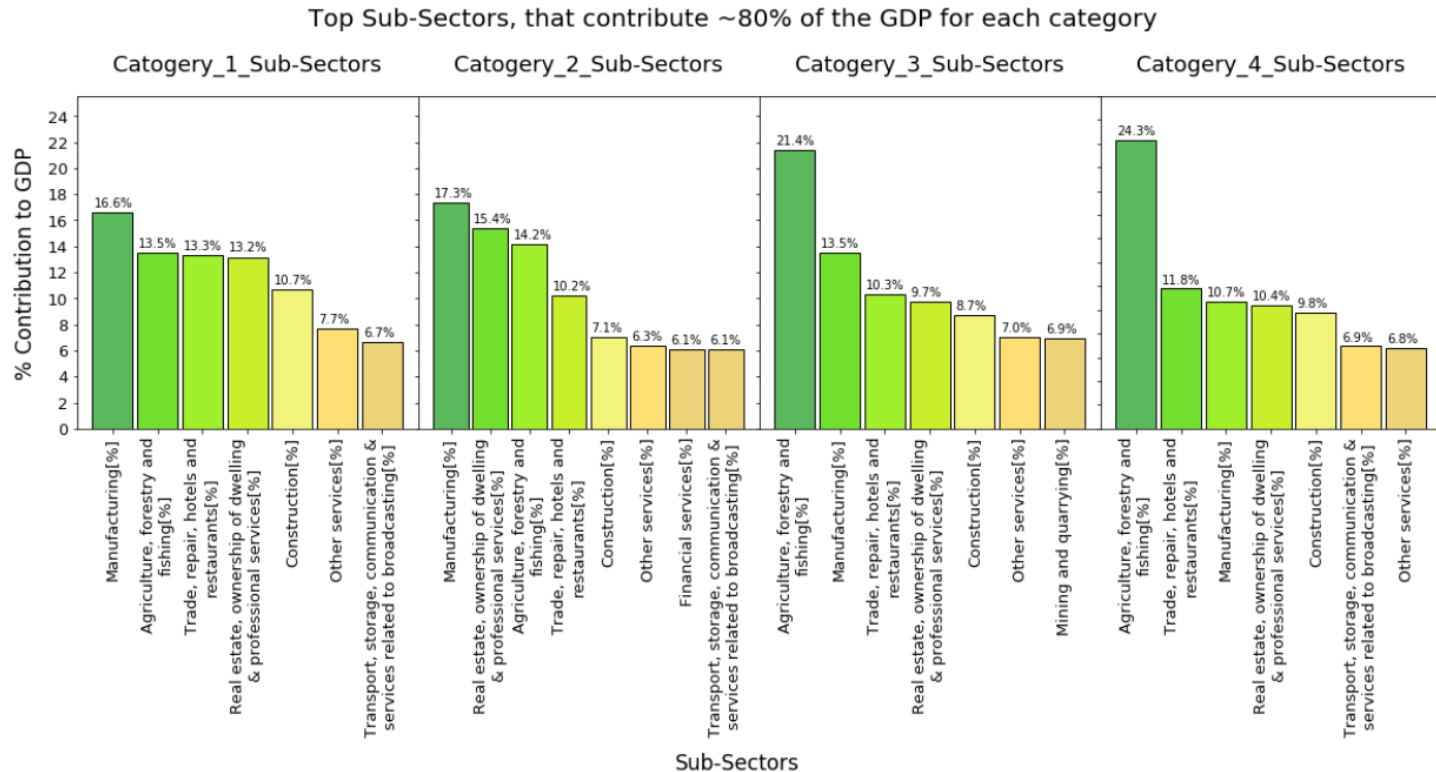# Top sub-sectors that contribution ~80% of the total GDP (2014-15)

❖ **Top 7 sub-sectors that contribute to approximately 80% of the total GDP:**

1) Manufacturing.         2) Agriculture, forestry & fishing.         3) Trade, repair, hotels & restaurants.

4) Real estate, ownership of dwelling & professional services.     5) Construction.

6) Other services.         7) Transport, storage, communication & services related to broadcasting.

The GDP distribution from the top states (C1) is different from others.

From the top states(C1), there are five sub-sectors each contributing more than 10 % of total GDP, whereas other category states having four or less sub-sectors.

Top five sub-sectors from category C1, majority of them equally (approx.) contributing percentage to the total GDP.



Top Sub-Sectors, that contribute ~80% of the GDP for each category

# Sectors that contributes to the total GDP (2014-15)

❖ Top states (category C1, C2) having higher GDP distribution from Tertiary & Secondary sectors than other categories (C3 or C4)

❖ Category C1 & C2 states: It is advisable to keep focus on Secondary & Tertiary sectors to make good GDP per capita.

❖ Category C3 & C4 states: It is advisable to focus on Primary & Tertiary sectors to make good GDP per capita.
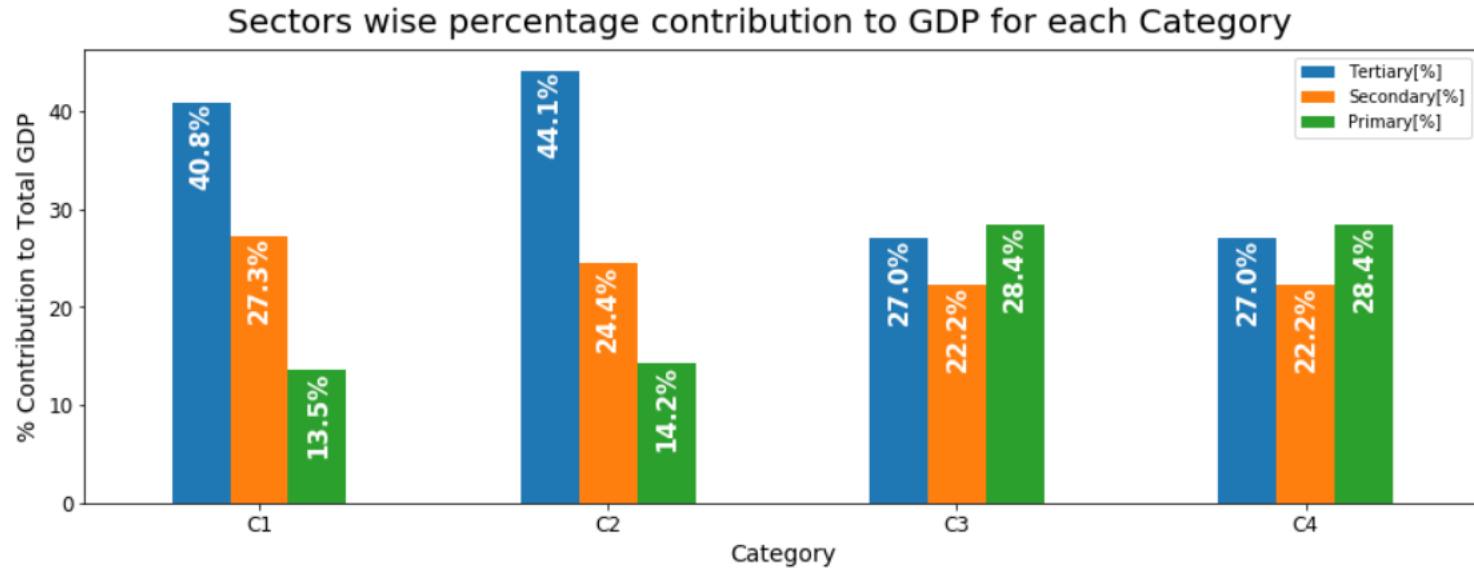
# Correlation between Sub-Sector & GDP (2014-15)

❖ There is strong positive correlation between GDP and services & manufacturing sub-sectors. In other words, Tertiary & secondary sectors are having strong positive correlation with GDP.

❖ Correlation factor is representing linear relationship between two variables.
  ❖ **Value towards +1 :** strong positive correlation
  ❖ **Value towards +1 :** strong negative correlation
  ❖ **Value close to zero :** represents weak or no correlation

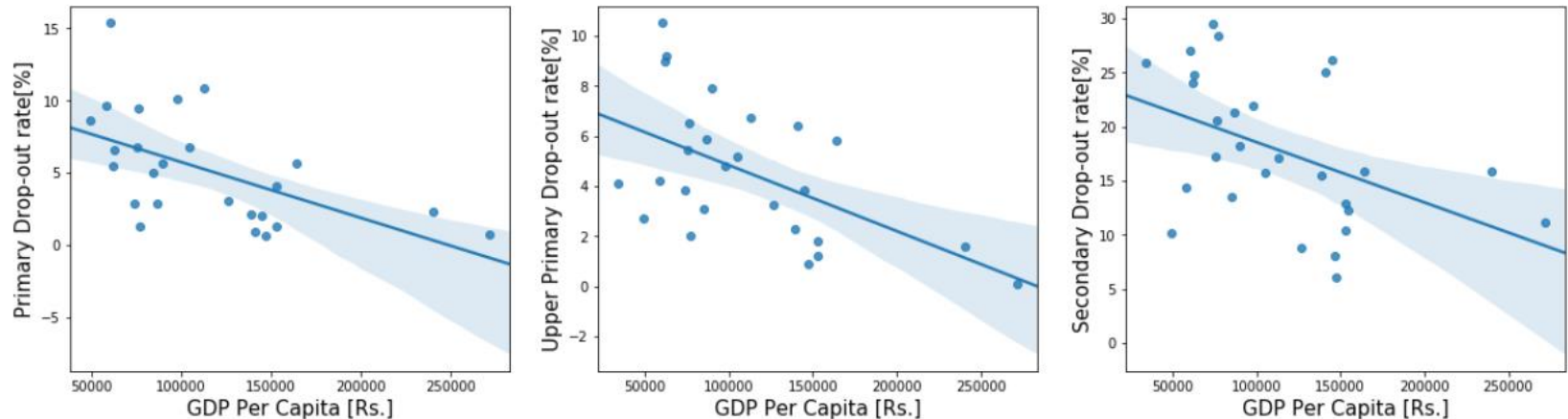| Sub-Sector | Correlation factor with GSDP |
|---|---|
| Transport, storage, communication & services related to broadcasting | 0.97 |
| Trade, repair, hotels and restaurants | 0.96 |
| Other services | 0.94 |
| Manufacturing | 0.93 |
| Real estate, ownership of dwelling & professional services | 0.92 |
| Financial services | 0.92 |
| Public administration | 0.91 |
| Construction | 0.90 |
| Electricity, gas, water supply & other utility services | 0.90 |
| Agriculture, forestry and fishing | 0.83 |
| Mining and quarrying | 0.61 |

# Recommendation for each category to improve GDP per capita

❖ Top 4 sub-sectors that are good to keep invest on them to get improvement in GDP per capita.
   ❖ For Category C1 & C2 : It is recommended to focus on Secondary & Tertiary sectors as priority.  Following are the recommended sub-sectors priority wise.
      ❖ Manufacturing
      ❖ Trade-repair-hotel-restaurants
      ❖ Real estate, ownership of dwelling & professional services
      ❖ Agriculture-forestry-fishing
   ❖ For Category C3 & C4 : It is recommended to focus on Primary & Tertiary sectors as priority.  Following are the recommended sub-sectors priority wise.
      ❖ Agriculture-forestry-fishing
      ❖ Trade-repair-hotel-restaurants
      ❖ Real estate, ownership of dwelling & professional services
      ❖ Manufacturing

❖ It is recommended to all categories, focus on sub-sector which are highly correlated positively with GDP.
   ❖ Transport, storage, communication & services related to broadcasting.

❖ It is important to understand, why some of the sub-sectors contributing very less percent to the total GDP. Need to investigate and if there is any possibility to improve, then it is good to uplift more number of sub-sectors to play active roll in improving GDP per capita.
   ❖ Electricity, gas, water supply & other utility services

# Correlation of GDP per capita with education dropout rate

❖ As we noticed from the analysis, that higher contribution from Secondary & Tertiary sectors in total GDP will result increasing in per capita GDP.

❖ Since these two ( Secondary & Tertiary ) sectors needs educated and skilled people , there could be a correlation between education dropout rate and GDP per capita.

❖ Following are the results from the correlation b/w GDP per capita & Education dropout rates:
  - ❖ There is a reasonable negative correlation ( Increase in Education dropout rate , decrease in GDP per capita and vice-versa)
  - ❖ Primary and Upper Primary drop out having good negative correlation with GDP per capita than Secondary drop out.
  - ❖ I assume that, there is need of minimum of primary and upper primary education to perform in secondary and tertiary sectors, therefore primary and upper primary having high correlation with GDP per capita.
  - ❖ **So it is recommended to ensure higher literacy percentage to make influence in GDP per capita**

Correlation of GDP per capita with education dropout rates for the duration 2014-2015

# Thank you!