Data Visualization & Interpretation

(DSECL ZG555)

Academic Year 2020-21

Demonstration of Visualization context

Assignment 1 – PS10

[Agricultural Universities Analysis]

1. **KNOW YOUR AUDIENCE**

    a. List the primary groups or individuals to whom you'll be communicating.
        - Deputy Secretary of Department of Agriculture Research in India.
        - Ministry of Finance, GOI
        - Comptroller and Auditor General of India (CAG)
        - All Investment Parties like ICAR, State Finance, etc.
        - State government authorities
        - University representatives

    b. If you had to narrow that to a single person, who would that be**?**
        - Deputy Secretary of Department of Agriculture Research in India.

    c. What does your audience care about?
        - Under and over utilization of budgets by States Agriculture Universities to make more effective budget allocation going forward.
        - List of States Agriculture Universities who missed out to provide data/audit, which might help in estimating future financial budget assigned to Agriculture Research Field.

    d. What action does your audience need to take?
        - Revisit Budget Allocation to States Agriculture Universities by all Financial Institutions.
        - If more resources are available than needed, the solution should indicate which resources are not to be used, taking associated costs into account.
        - Compel States Agriculture Universities to provide data every year for better financial planning.
        - Audit needs to be done every year, so that we can track resource utilization in better way.

    e. What is at stake? What is the benefit if the audience acts in the way you want them to? What are the risks if they don't?

        What is at Stake:

        - India is an agricultural country. Agriculture and its allied activities act as main source of livelihood for more than 80% population of rural India. It provides employment to approximately 52% of labor. Its contribution to Gross Domestic product (GDP) is between 14 to 15%. But due to lack of data shared by SAU, we are unable to planned Budget allocation efficiently and in the end it direct effects our economy.
        - Under Allocation may reduce the productivity and output.
        - Over Allocation may end up with unspent budget and waste of resources for that year.

        What are the Benefits:

        - If we redirect the over allocated budget to required States Agriculture Universities, it might help in increasing productivity and contribute more towards growth and improvements in agriculture Economy.

        Risks:

        - Unspent budget leads to waste of resources.

2. WHAT?

a. What are you trying to communicate?

- Effective budget allocation based on utilization
- Missing data/unaudited data.

b. What questions are you trying to answer/display in your visualizations?

- Allocation and expenditure seem quite matching for all sources.
- Few States Agriculture Universities are not using the allocated budget & few need more funds.
- States Agriculture Universities are not sharing/auditing data regarding allocations.

c. Write these as specific questions. You need to come up with 3 questions at least, each of which will be answered using one Viz.

- How budget is being allocated by various sources and how it is getting used by year?
    - Budget Allocation & Expenditure Viz.

- How much percent of allocated resources getting used by each state?
    - Effective State-wise Usage Viz.

- How much budget is under/overused by states?
    - Budget Utilization Viz.

- Which are the universities that are providing un-audited/no data?
    - Universities with missing/unaudited data Viz.

d. Data preparation needed to answer the specific queries must be done.

- Cleaning of records having below,

    - Removal of characters like *, **, $, #, a, b.
    - Gujrat → Gujarat
    - NA
    - Null
    - The expenditure is under compilation and budget accounts are yet to be finalized,
    - AUC under preparation.

3. Present the BIG IDEA

It should: (1) articulate your point of view, (2) convey what's at stake, and (3) be a complete (and single!) sentence.
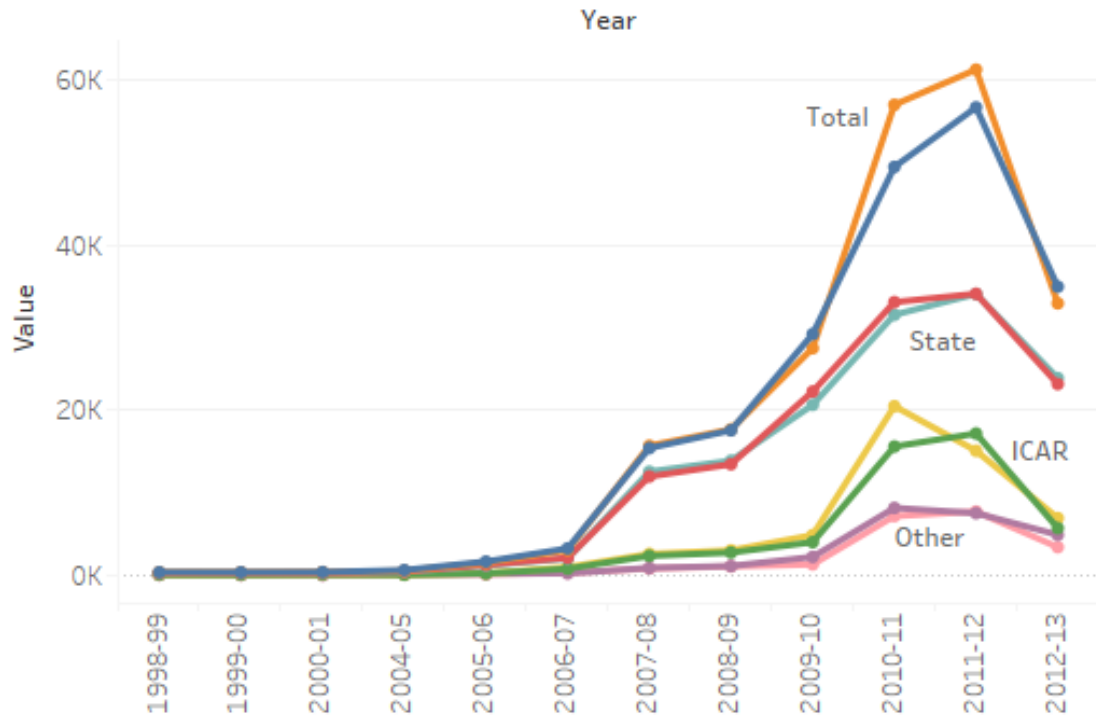
The Big Idea:

"Effective allocation of available budget to meet the expenditures by States Agriculture Universities in order to avoid the improper distribution of funds."

4. HOW?

a. Chart 1: Budget Allocation & Expenditure

Budget Allocation & Expenditure

- What type of viz did you create?
  - Lines - Multiple Series

- Why did you select the viz that you did?
  - To show the changes over time
  - Each series is for specific source showing allocation & expenditure

- Identify at least 3 Gestalt principles employed.
  - Proximity
  - Connection
  - Continuity

- How you strategically used pre-attentive attributes to draw the audience's attention.
  - Color
  - Text

b. Chart 2: Effective State-wise Usage

Effective State-wise Usage

© 2021 Mapbox © OpenStreetMap
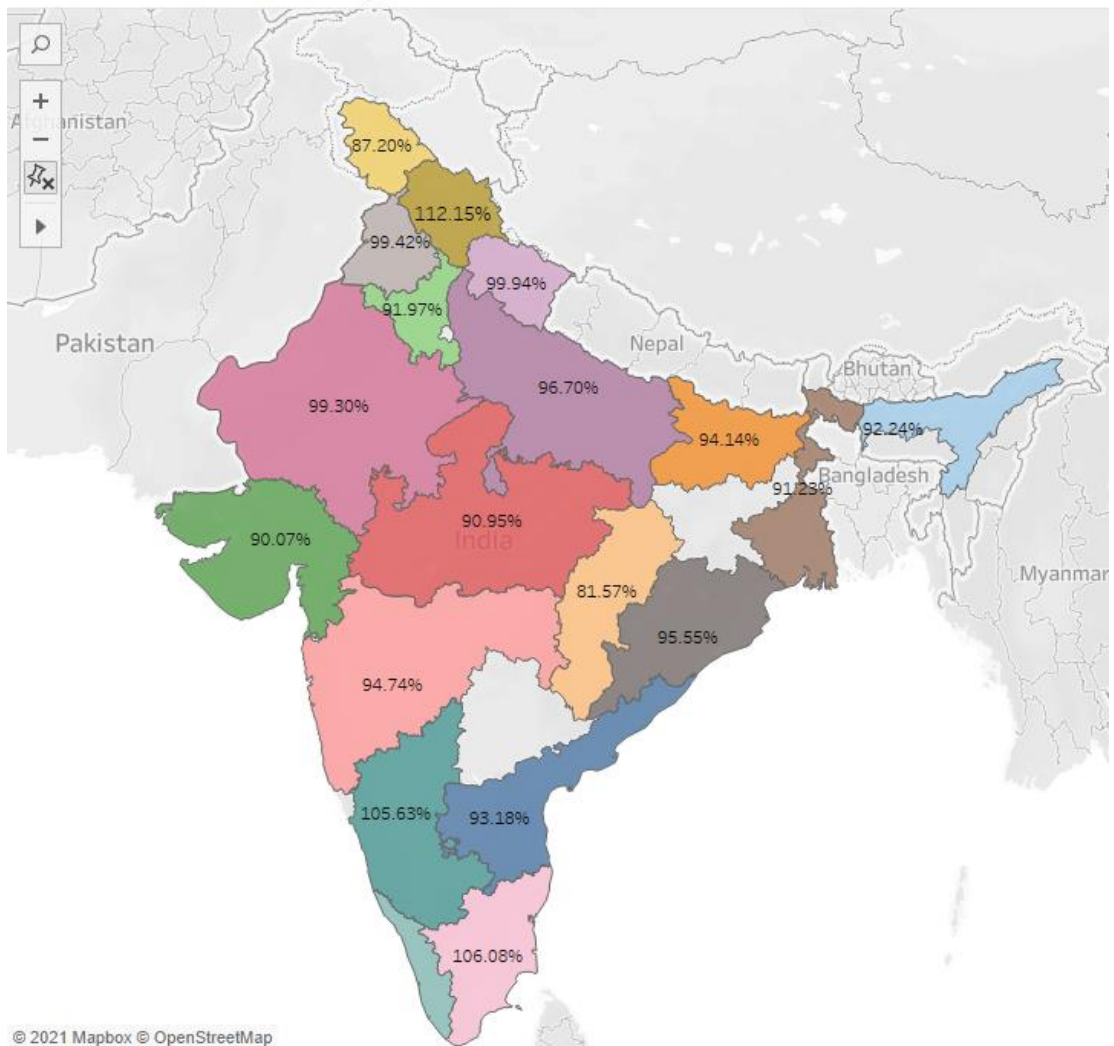
- What type of viz did you create?
  - Map

- Why did you select the viz that you did?
  - State wise distribution of used budget for India
  - Separate color for each state with percentage label

- Identify at least 3 Gestalt principles employed.
  - Closure
  - Figure and ground
  - Continuity

- How you strategically used pre-attentive attributes to draw the audience's attention.
  - Color
  - Text

5

c. Chart 3: Budget Utilization – Under & Over utilization

Under Utilization - Over Utilization
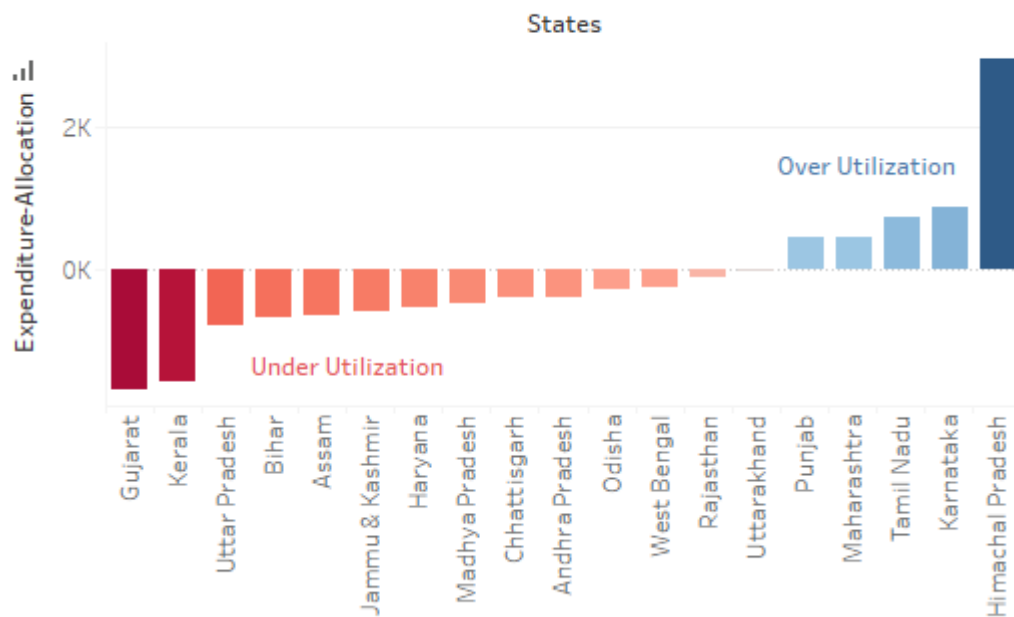
- What type of viz did you create?
    - Bar – Vertical Bars

- Why did you select the viz that you did?
    - Downward bars show under utilization
    - Upward bars show over utilization

- Identify at least 3 Gestalt principles employed.
    - Similarity
    - Proximity
    - Continuity

- How you strategically used pre-attentive attributes to draw the audience's attention.
    - Color
    - Size
    - Position

d. Chart 4: Universities with missing/unaudited data

Universities with missing/unaudited data

- What type of viz did you create?
  - Circle

- Why did you select the viz that you did?
  - To show the count via size, of universities having more missing audit data

- Identify at least 3 Gestalt principles employed.
  - Focal Point
  - Proximity
  - Similarity

- How you strategically used pre-attentive attributes to draw the audience's attention
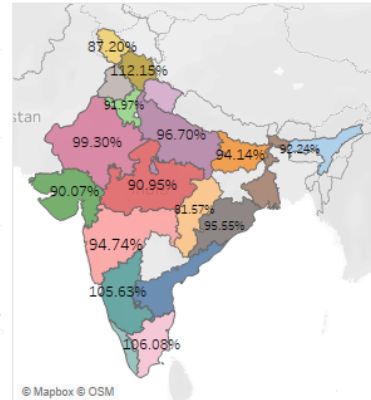 - Color
  - Size

5. Dashboard

Agricultural Universities Analysis

Budget Allocation & Expenditure
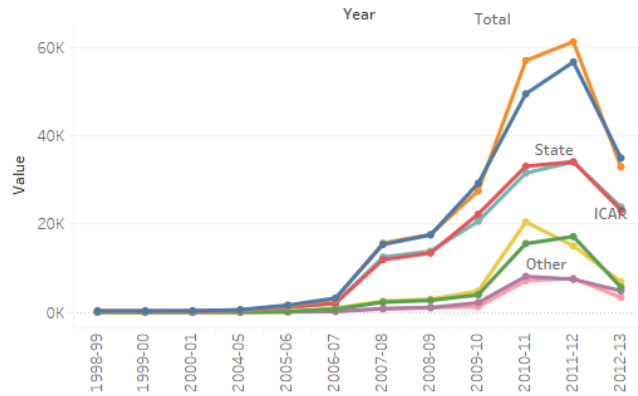
Effective State-wise Usage

Under Utilization - Over Utilization

Universities with missing/unaudited data