



Power BI



Github

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PROJECT TITLE - STATE-WISE STUDENT PROGRESSION ANALYSIS

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COLLEGE : SISTER NIVEDITA UNIVERSITY

PROGRAM : BACHELOR OF TECHNOLOGY

STREAM : COMPUTER SCIENCE AND ENGINEERING

SEMESTER : 7TH SEMESTER

State-wise Student Progression Analysis

School to College to University Journey

Comprehensive analysis of student progression patterns across Indian states with focus on dropout rates, gender gaps, and policy recommendations

ACKNOWLEDGEMENT

I would like to express my sincere gratitude to all those who supported me in completing this project, “*State-wise Student Progression Analysis: School, College, University*”. I am deeply thankful to my institute and mentors for their valuable guidance, encouragement, and constructive feedback throughout this work.

I also acknowledge the use of reliable data sources such as UDISE and AISHE which made this analysis possible. These datasets provided a strong foundation for understanding student enrolment, dropout trends, and progression across different educational stages. I am grateful to the Government of India and associated institutions for making such valuable data accessible for research and learning purposes.

Finally, I extend my appreciation to my peers and colleagues for their constant support and motivation during the preparation of this project.

TABLE OF CONTENTS

SECTION TITLE	PAGE NO
INTRODUCTION	PAGE – 6
OBJECTIVE/PROBLEM STATEMENT	PAGE – 7
DATASET OVERVIEW	PAGE – 8
TOOLS	PAGE – 9
RESEARCH METHODOLOGY	PAGE – 10
DETAILED SLIDE FOR EACH VISUALIZATION	PAGE – 11 to 34
MAJOR FINDINGS	PAGE – 35
CONCLUSION	PAGE – 36
GITHUB REPOSITORY LINK	PAGE – 37
REFERENCES	PAGE - 38

Introduction

Understanding Student Progression Pathways

Context :

Tracking student progression from school through college to university is crucial for understanding Educational system effectiveness and identifying barriers to higher education access.

Importance :

This analysis helps policymakers identify states with successful progression models, understand dropout patterns, address gender disparities, and develop targeted interventions to improve higher education enrollment rates across India.

OBJECTIVE/PROBLEM STATEMENT

Goal :

The goal of this project is to analyze the progression of students across different stages of education in India — from **Pre-Primary to Higher Education** — and identify **dropout patterns, enrolment trends, and state-level variations** using **Power BI interactive dashboards**.

Key Objectives :

Dropout Analysis : Identify critical transition points where students discontinue education from school to university level across different states.

State Comparison : Compare progression rates between states to identify best practices and areas requiring intervention.

Gender Gap Assessment : Analyze male vs female enrollment patterns and progression rates to address gender-based educational disparities.

DATASET OVERVIEW

Source : UDISE and AISHE

This project is based on data collected from two major sources: **UDISE (Unified District Information System for Education)** and **AISHE (All India Survey on Higher Education)**. The UDISE datasets provide comprehensive enrolment details from pre-primary to higher secondary education across different states and union territories of India. These datasets capture state-wise enrolment figures, allowing for a deeper analysis of progression, retention, and dropout rates within school education.

The AISHE dataset complements this by offering insights into enrolment trends in higher education, covering undergraduate, postgraduate, diploma, certificate, and Ph.D. levels. It highlights gender distribution, course preferences, and state-wise variations in access to higher studies. Together, the two UDISE datasets and one AISHE dataset form the backbone of this project, enabling a holistic understanding of student progression from school to higher education in India.

TOOLS

Power BI

- Helps in **data cleaning, transformation, and integration** of UDISE and AISHE datasets for smooth analysis.
- Provides **interactive visualizations** (charts, maps, dashboards) to clearly present enrolment and dropout trends.
- Enables **insightful comparisons** across states, education levels, and gender, making patterns easier to interpret.

GitHub

- Acts as a **version control system**, storing project files, datasets, and documentation safely.
- Facilitates **collaboration and transparency**, making the project accessible to peers and mentors.
- Provides a **portfolio showcase**, demonstrating technical and analytical skills for academic or career opportunities.

Research Methodology

Systematic Data Analysis Framework

Data Collection

Gather data from UDISE+ and AISHE datasets covering 36 states/UTs across all education levels.

Data Processing

Clean, standardize, and integrate datasets to ensure consistency across different data sources.

Visualization

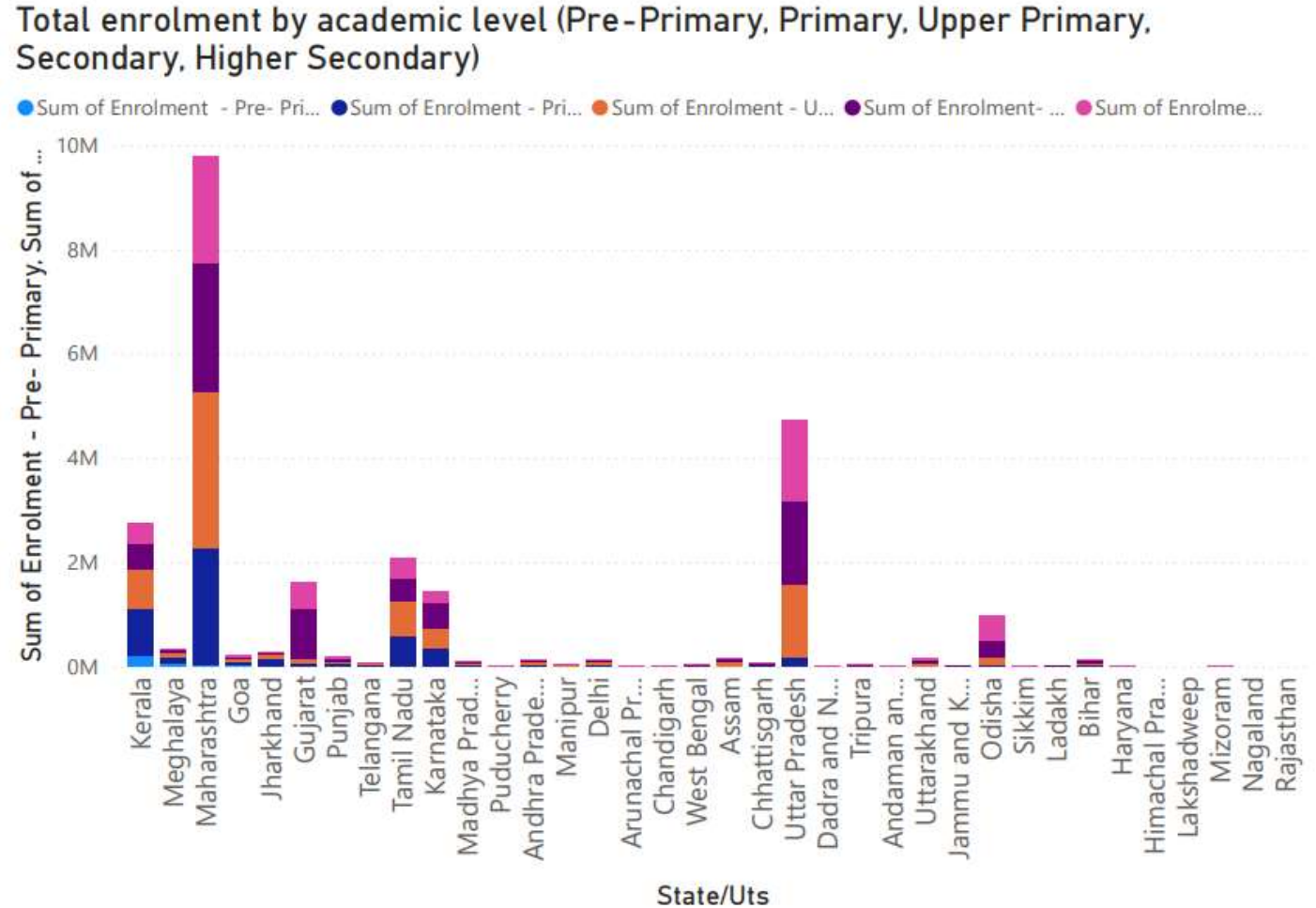
Create interactive dashboards in Power BI for comprehensive state-wise analysis and trend identification.

Analysis

Perform statistical analysis to identify progression patterns, dropout factors, and gender disparities.

Total enrolment by academic level (Pre-Primary, Primary, Upper Primary, Secondary, Higher Secondary)

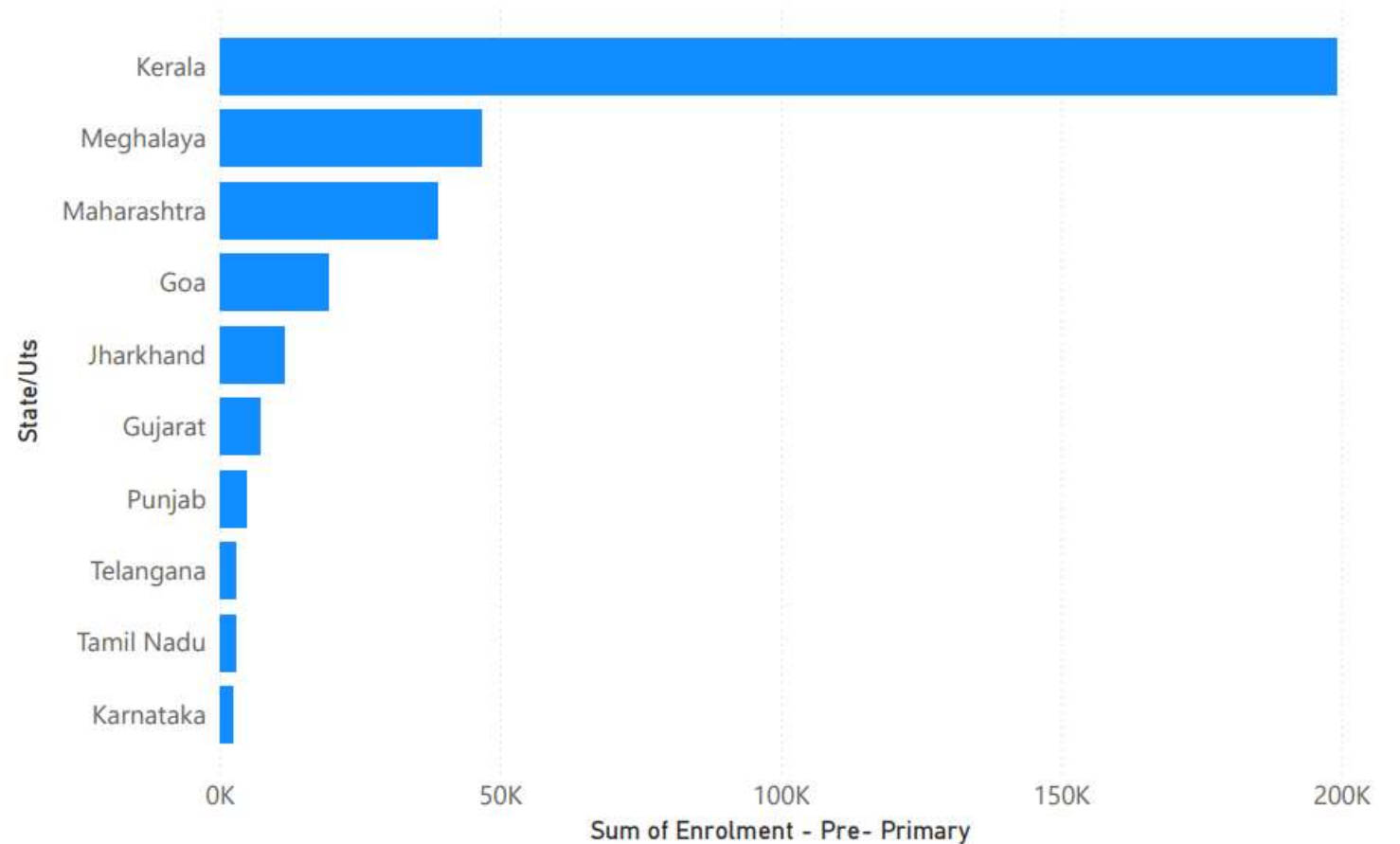
This chart visualizes total student enrolment across different academic levels, highlighting the distribution from Pre-Primary to Higher Secondary and showing the progression of students through the school system.



Top 10 states most focused on Pre-Primary education

This chart highlights the top 10 states with the highest enrolment in Pre-Primary education, showcasing regions that place strong emphasis on early childhood learning.

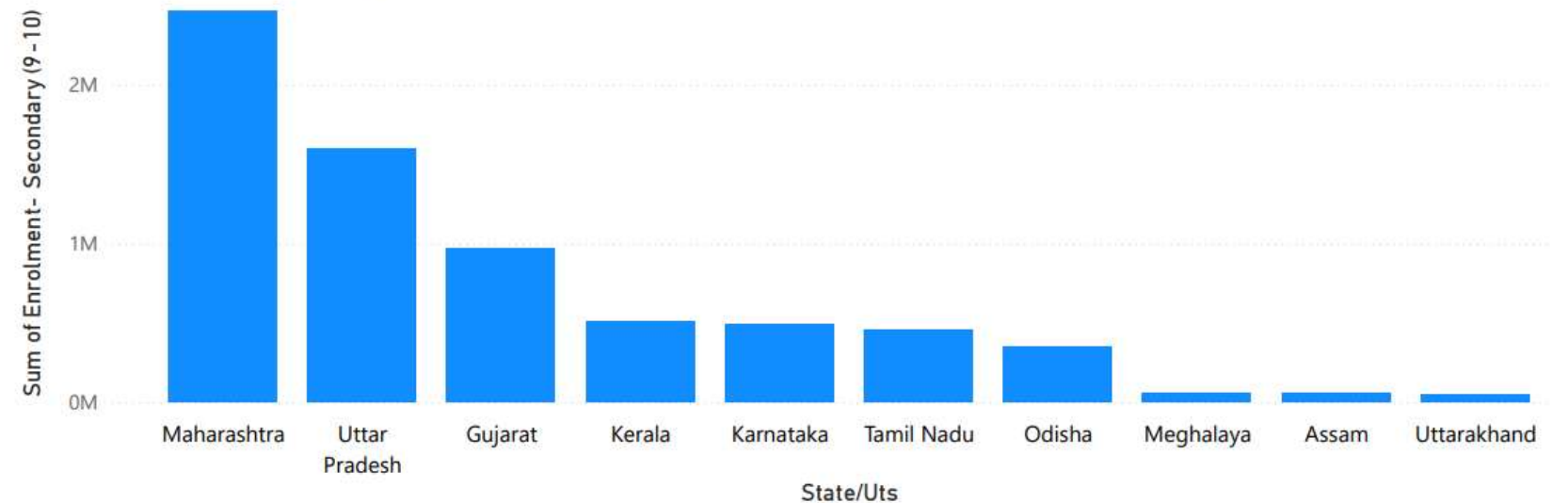
Top 10 states most focused on Pre-Primary education



Top 10 states with the highest enrolment in Secondary level.

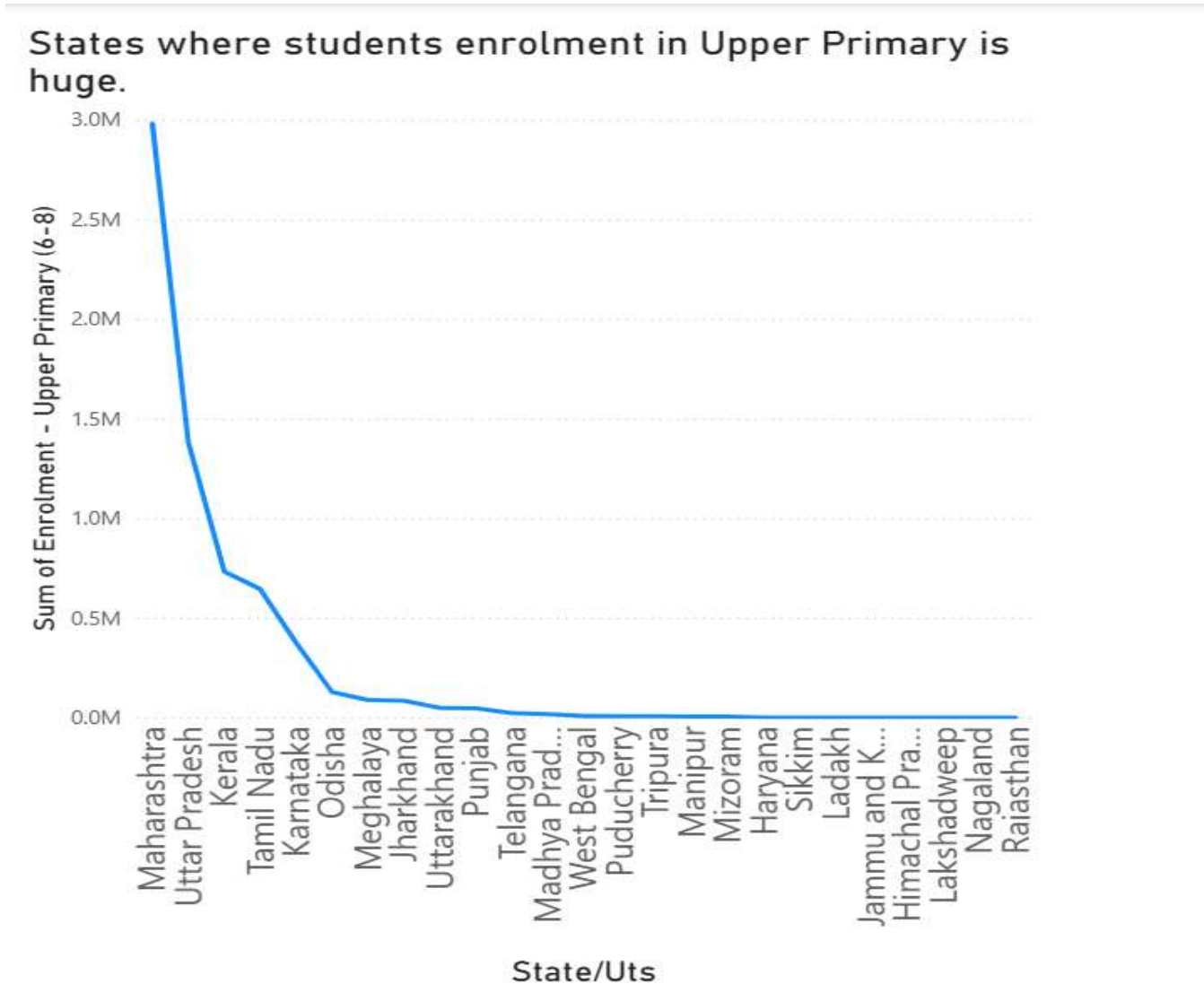
This chart shows the top 10 states with the highest enrolment at the Secondary level, reflecting stronger student retention and transition from elementary education.

Top 10 states with the highest enrolment in Secondary level.



States where students enrolment in Upper Primary is huge

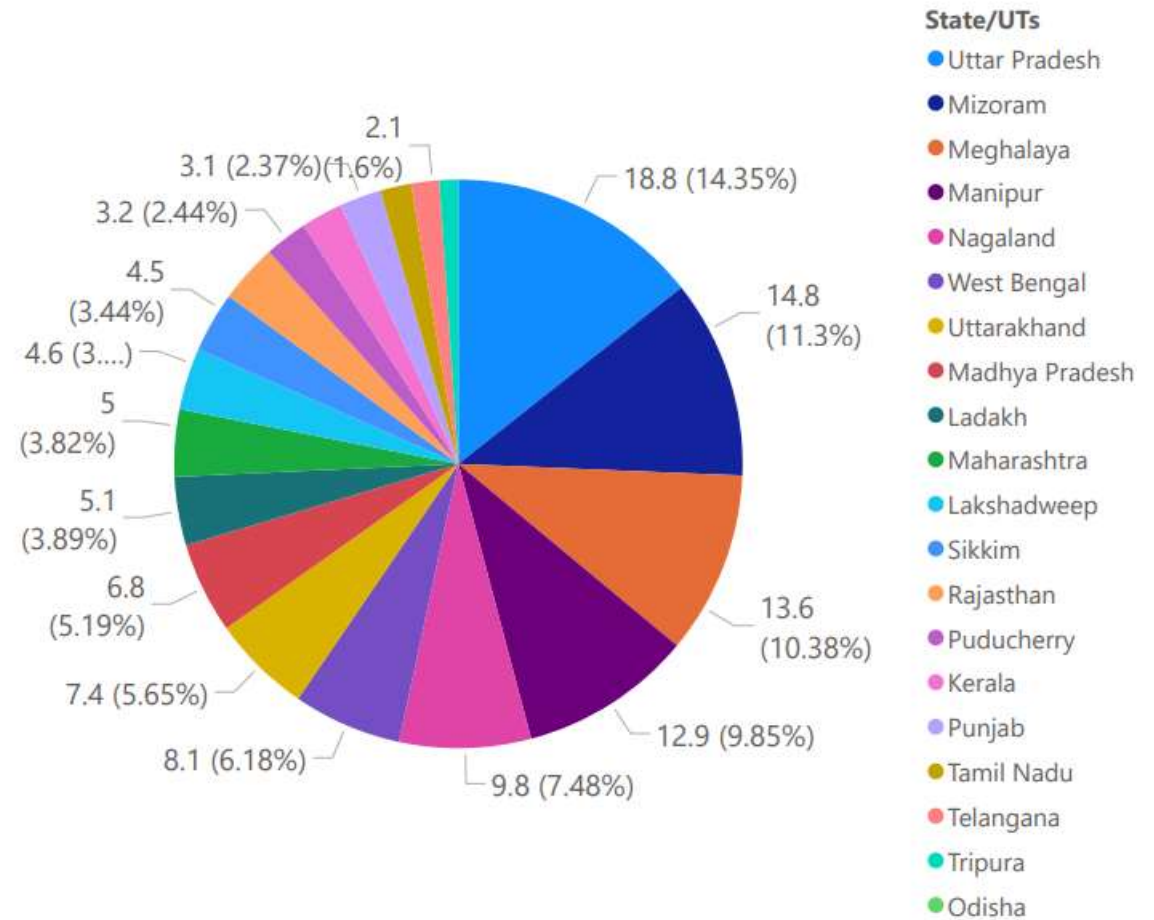
The line chart highlights states with significantly high enrolment in the Upper Primary level, indicating strong progression of students beyond the Primary stage.



State-wise drop in enrolment from Class 1 to Class 5.

The pie chart shows the state-wise share of student dropouts between Class 1 and Class 5, highlighting regions where early school retention is a major challenge.

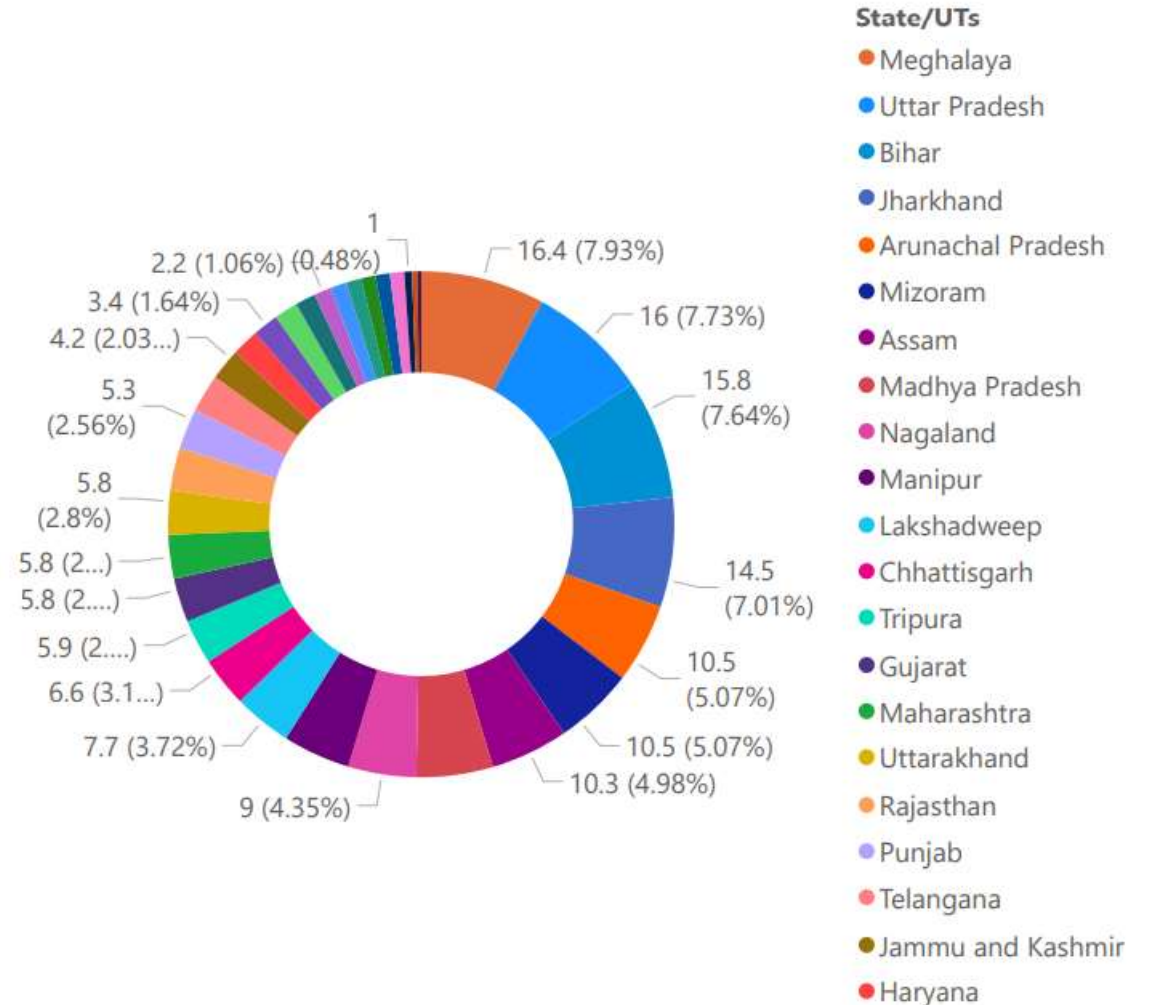
State-wise drop in enrolment from Class 1 to Class 5.



State-wise drop in enrolment from Class 6 to Class 8

The donut chart highlights the state-wise drop in student enrolment from Class 6 to Class 8, emphasizing the regions where middle school retention remains a key concern.

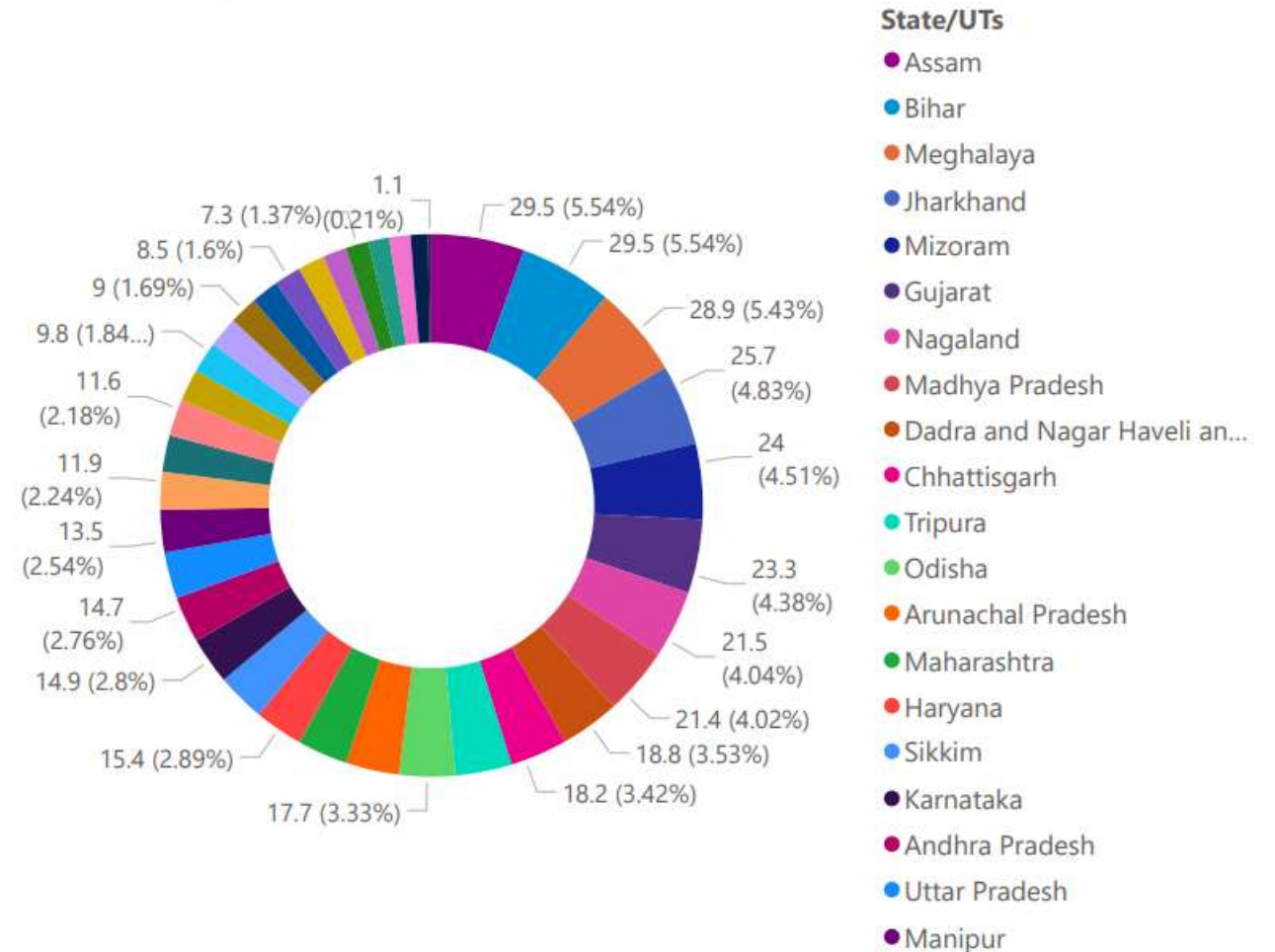
State-wise drop in enrolment from Class 6 to Class 8.



State-wise drop in enrolment from Class 9 to Class 10.

This chart highlights state-wise student dropouts between Class 9 and Class 10, with Assam, Bihar, and Meghalaya recording the highest dropout rates, indicating critical challenges in retaining students at the secondary level.

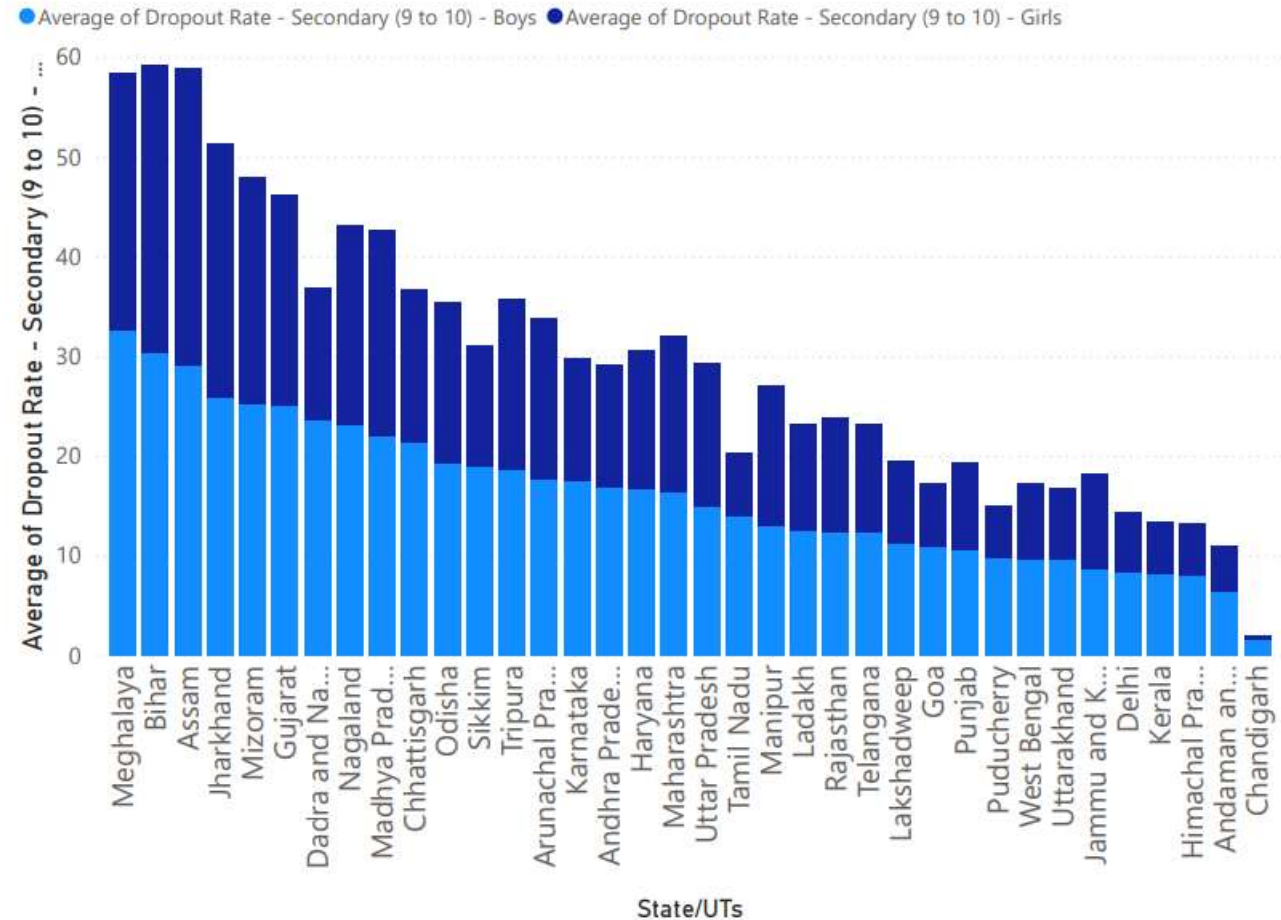
State-wise drop in enrolment from Class 9 to Class 10



State-wise Girls' vs Boys' dropout in secondary level

This visualization compares dropout rates of boys and girls at the secondary level across states. The data highlights gender disparities, with certain states showing higher female dropout rates, reflecting socioeconomic and cultural barriers.

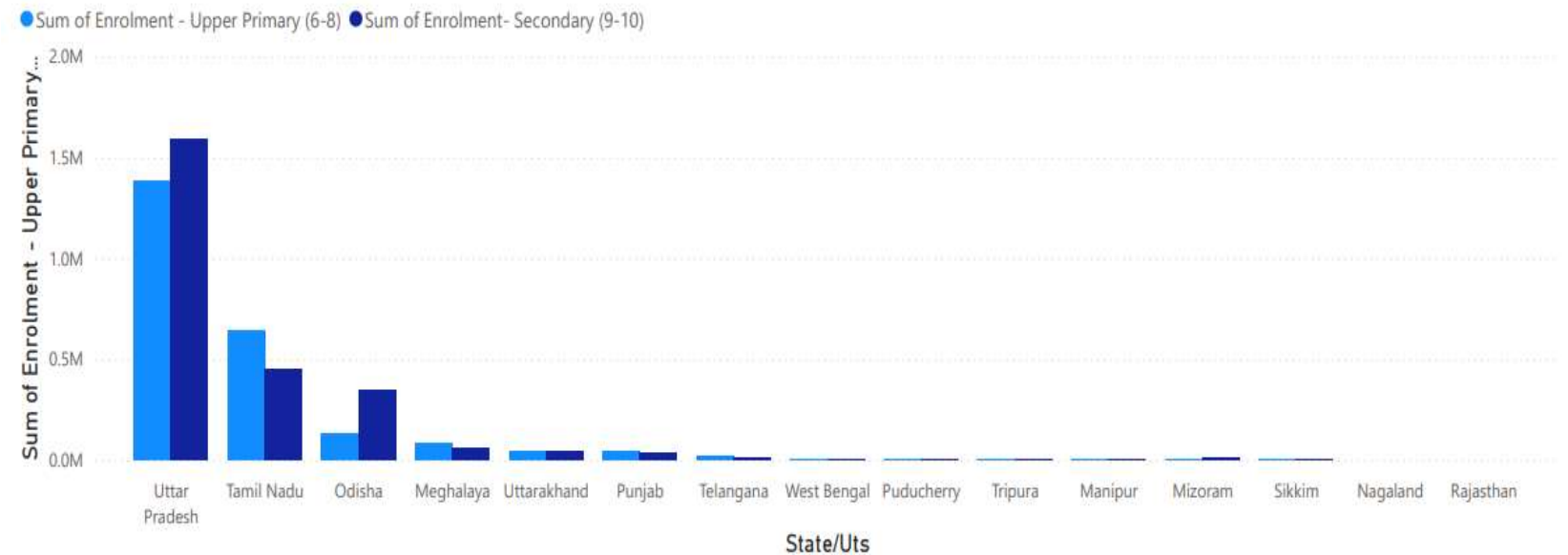
State-wise Girls' vs Boys' dropout in secondary level



Dropout Rate from Upper Primary to Secondary Level

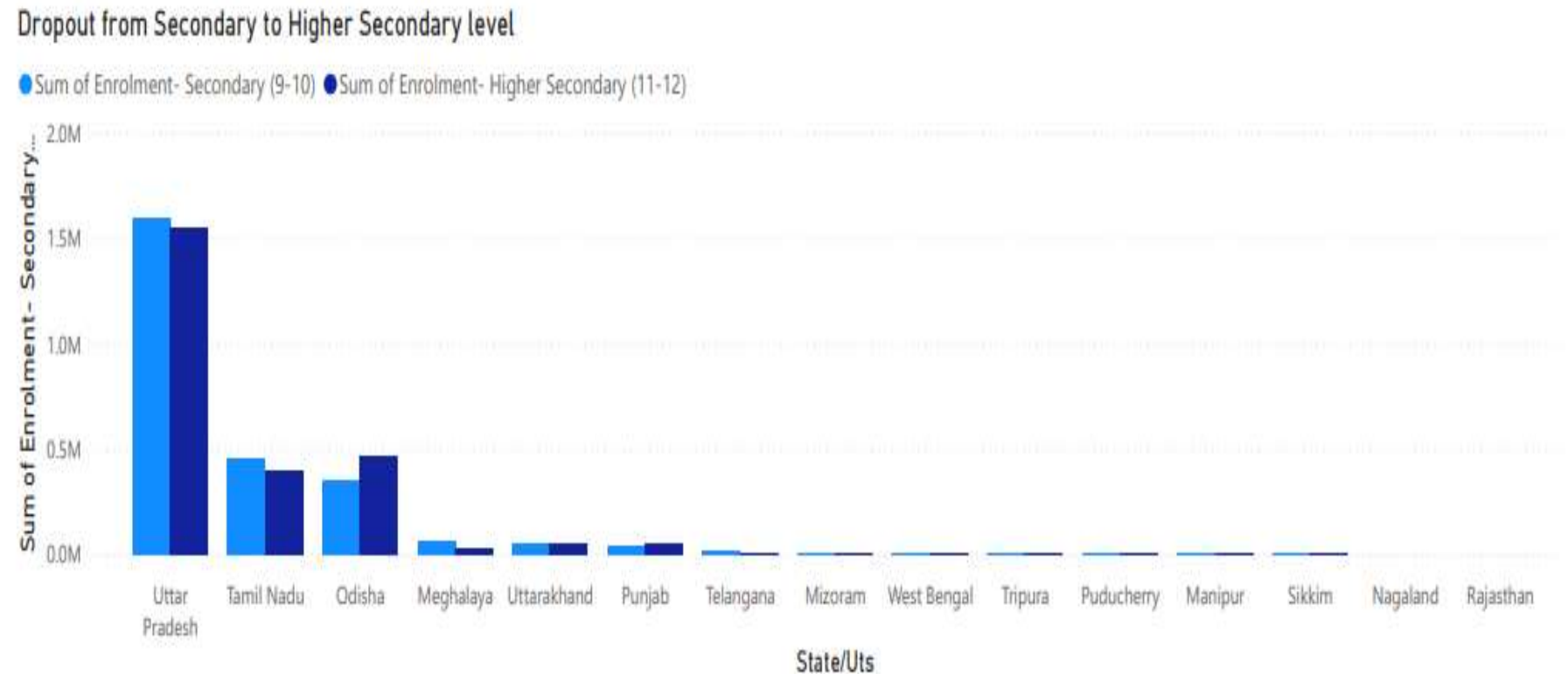
This chart shows the percentage of students who leave school when transitioning from Class 8 to Class 9. States like Bihar and Assam show higher dropout rates, underlining weak student retention at a crucial stage.

Dropout Rate from Upper Primary to Secondary Level



Dropout from Secondary to Higher Secondary level

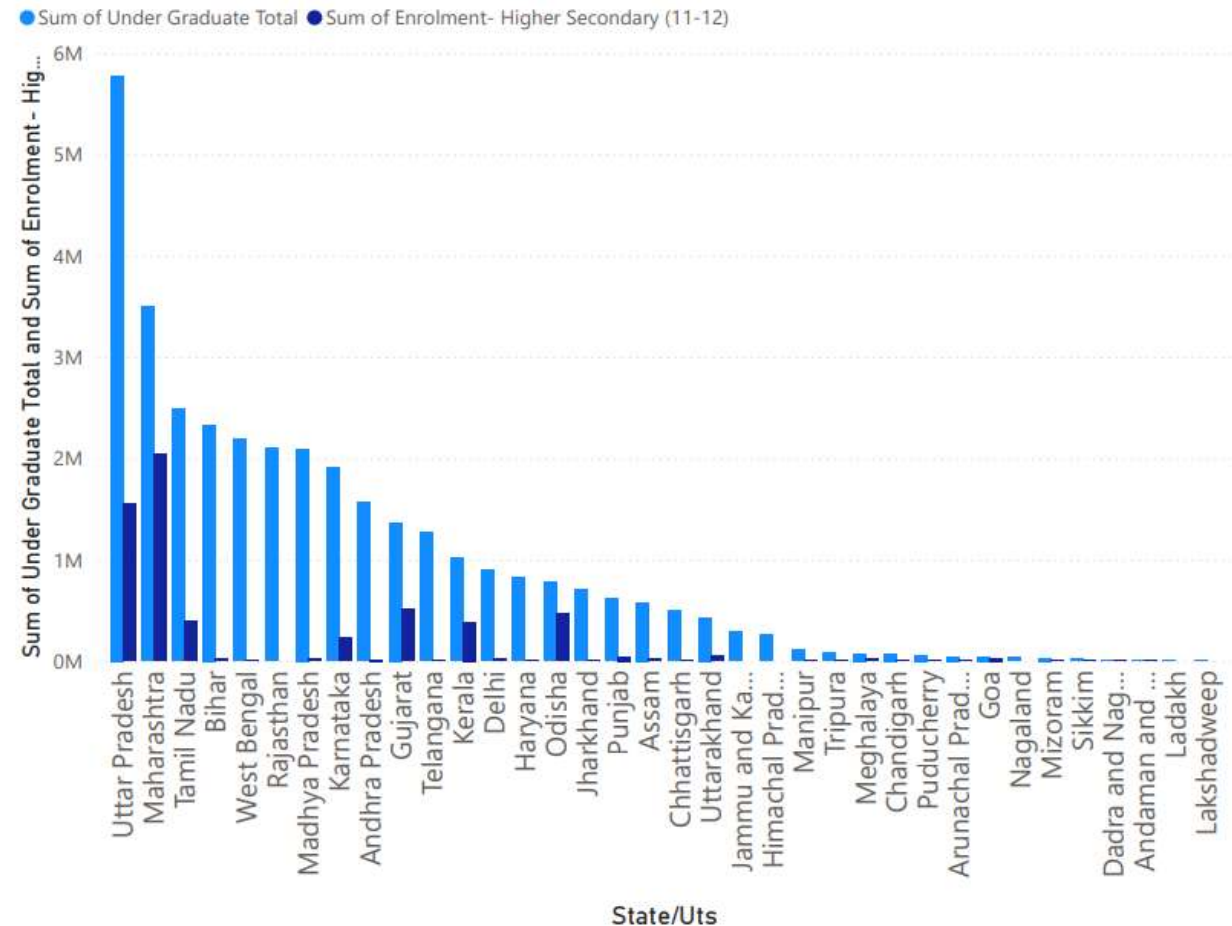
This analysis tracks student attrition between Class 10 and Class 11. The trend reveals that despite completing secondary education, many students do not enter higher secondary, particularly in rural and underdeveloped regions.



Total number of students enrolled in Higher Secondary Vs. First Year UG Enrollment

This comparison illustrates the number of students in higher secondary versus those entering first-year undergraduate courses. The sharp fall indicates a gap in progression from school to higher education.

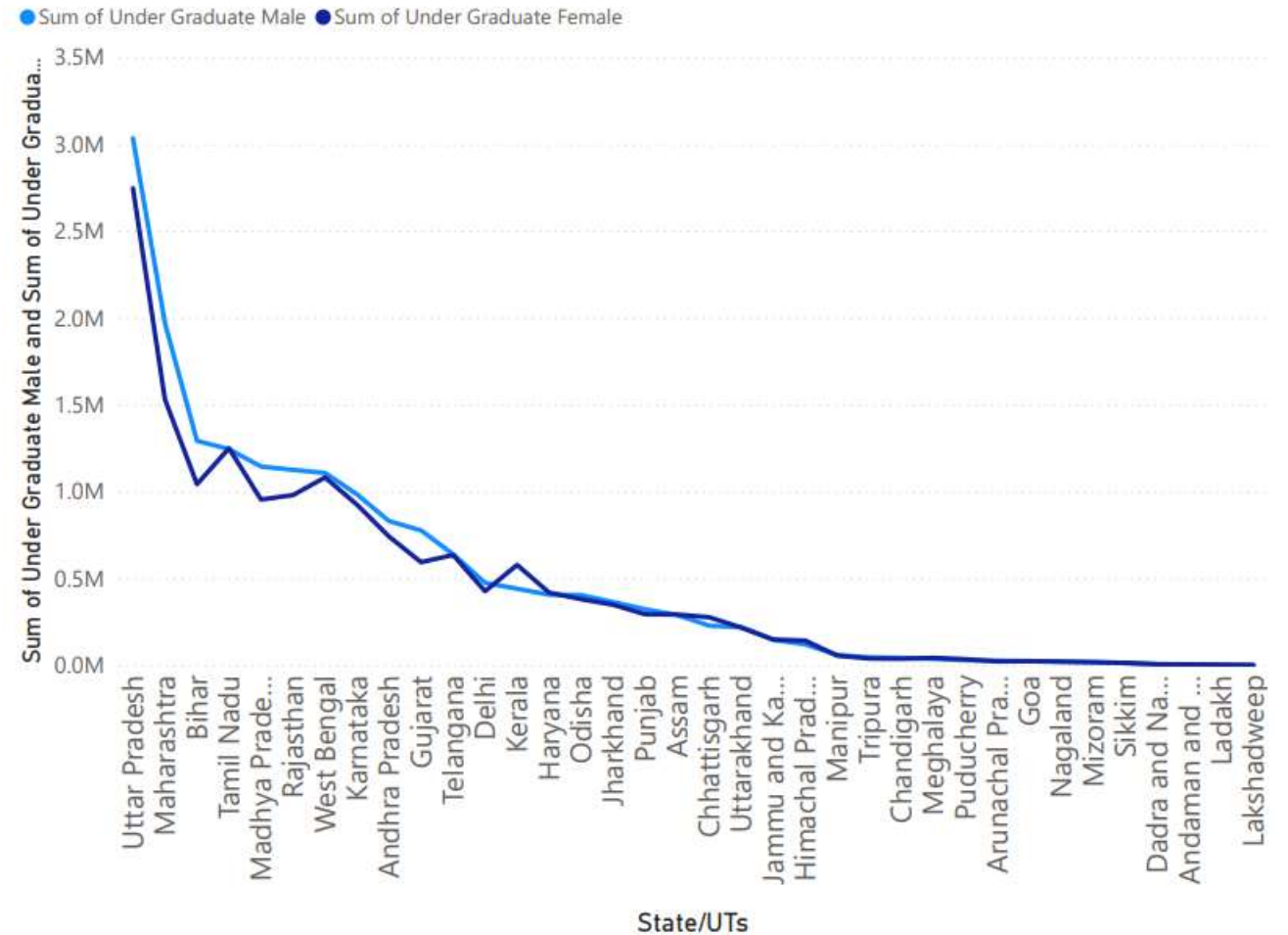
Total number of students enrolled in Higher Secondary Vs. First Year UG Enrollment



Male Vs Female Candidate enrollment in UG Course

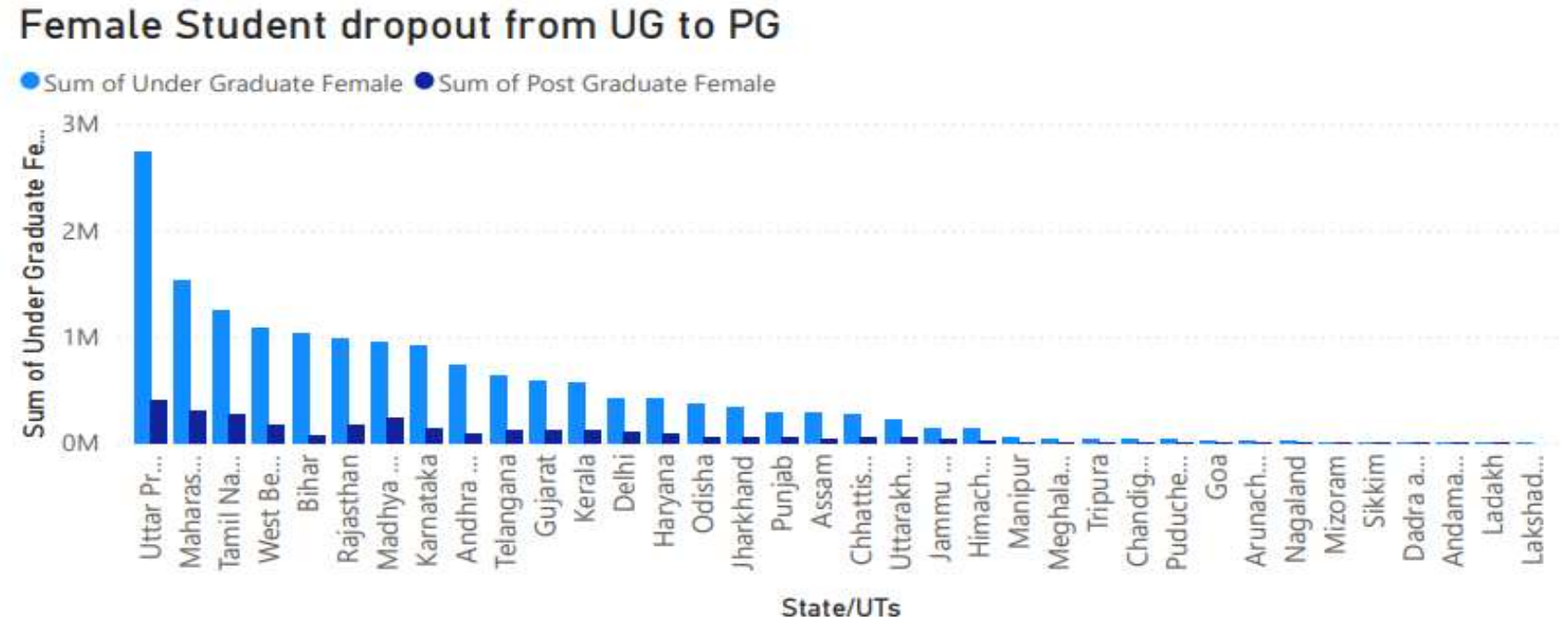
This analysis compares male and female participation in undergraduate education. While overall enrolments are large, the gender gap varies state to state, showing disparities in access to higher education.

Male Vs Female Candidate enrollment in UG Course



Female Student dropout from UG to PG

This chart measures how many female students Discontinue studies after UG and do not move into PG courses. It reflects barriers like early marriage, financial constraints, and lack of opportunities.

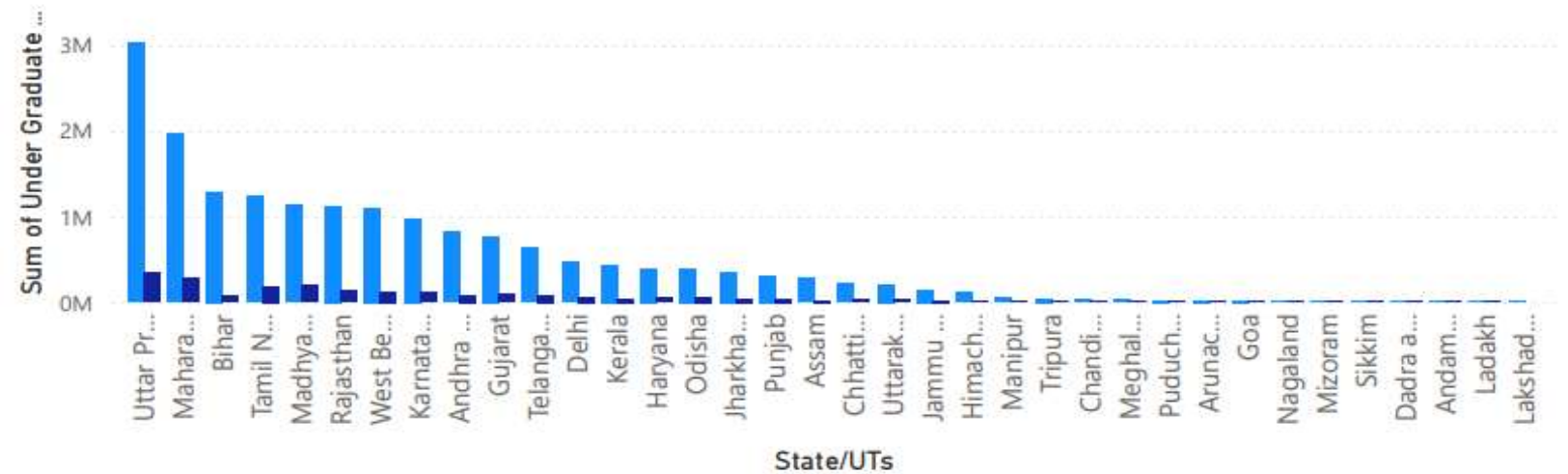


Male Student dropout from UG to PG

This visualization highlights dropout of male students between UG and PG. Unlike females, male dropout is often linked to early employment, migration, and economic responsibilities.

Male Student dropout from UG to PG

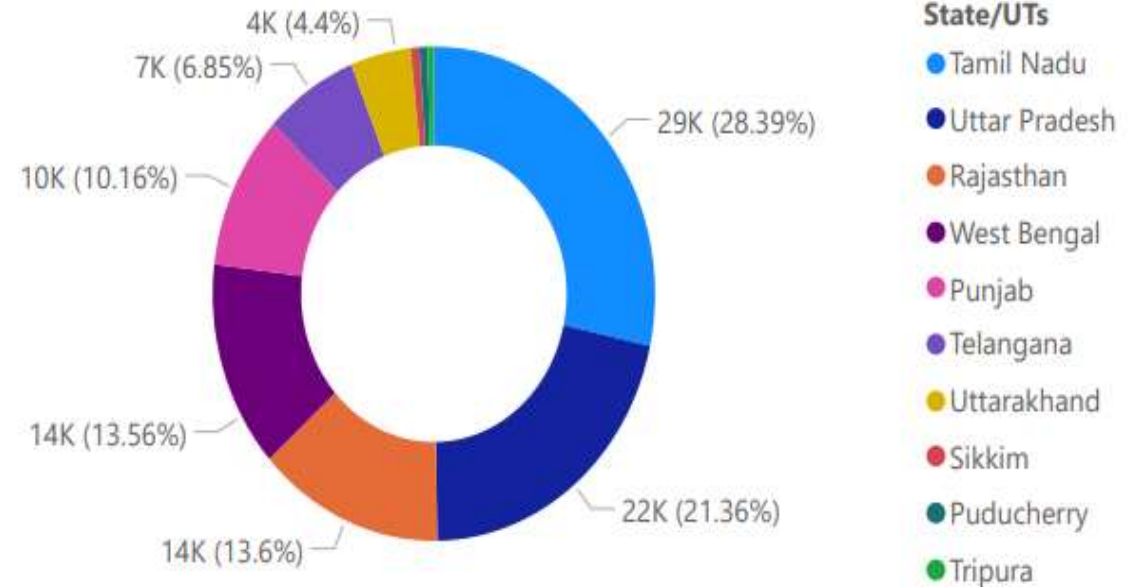
● Sum of Under Graduate Male ● Sum of Post Graduate Male



Top 10 States with Highest Ph.D. Enrolment

This chart ranks the top states with maximum Ph.D. enrolment. It highlights educationally advanced states like Maharashtra, Tamil Nadu, and Karnataka leading in research-level education.

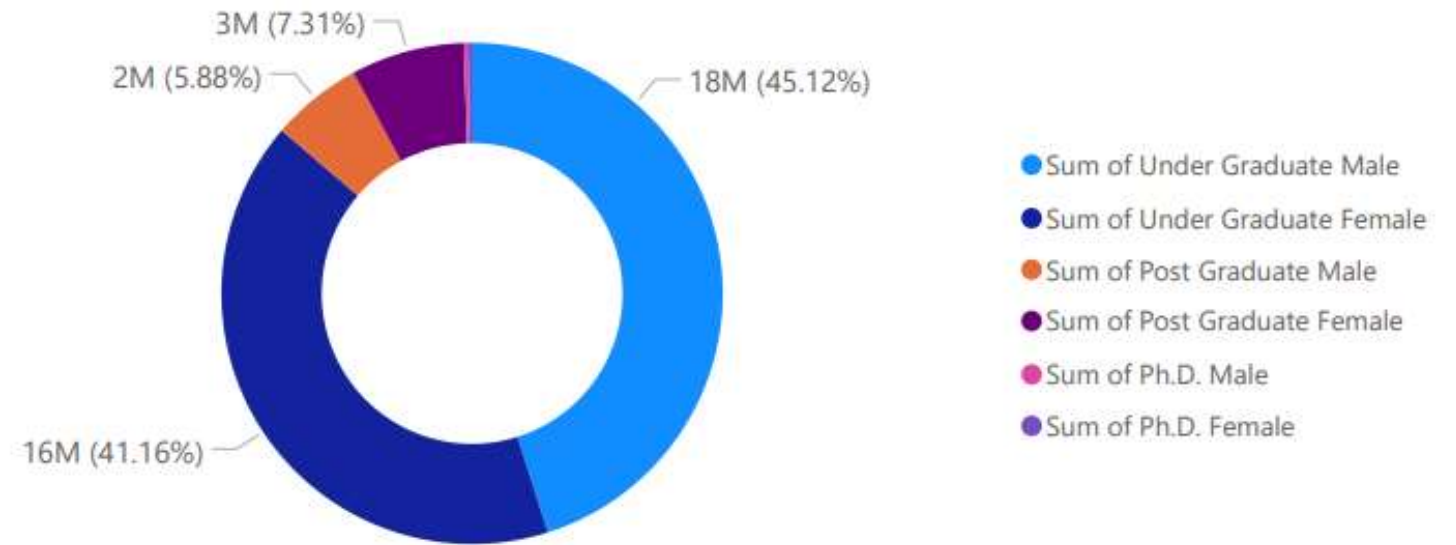
Top 10 States with Highest Ph.D. Enrolment



Male vs Female Ratio at Each Academic Level

This visualization tracks gender ratio across levels—school, UG, PG, and Ph.D. It reveals how female representation steadily declines at higher academic levels.

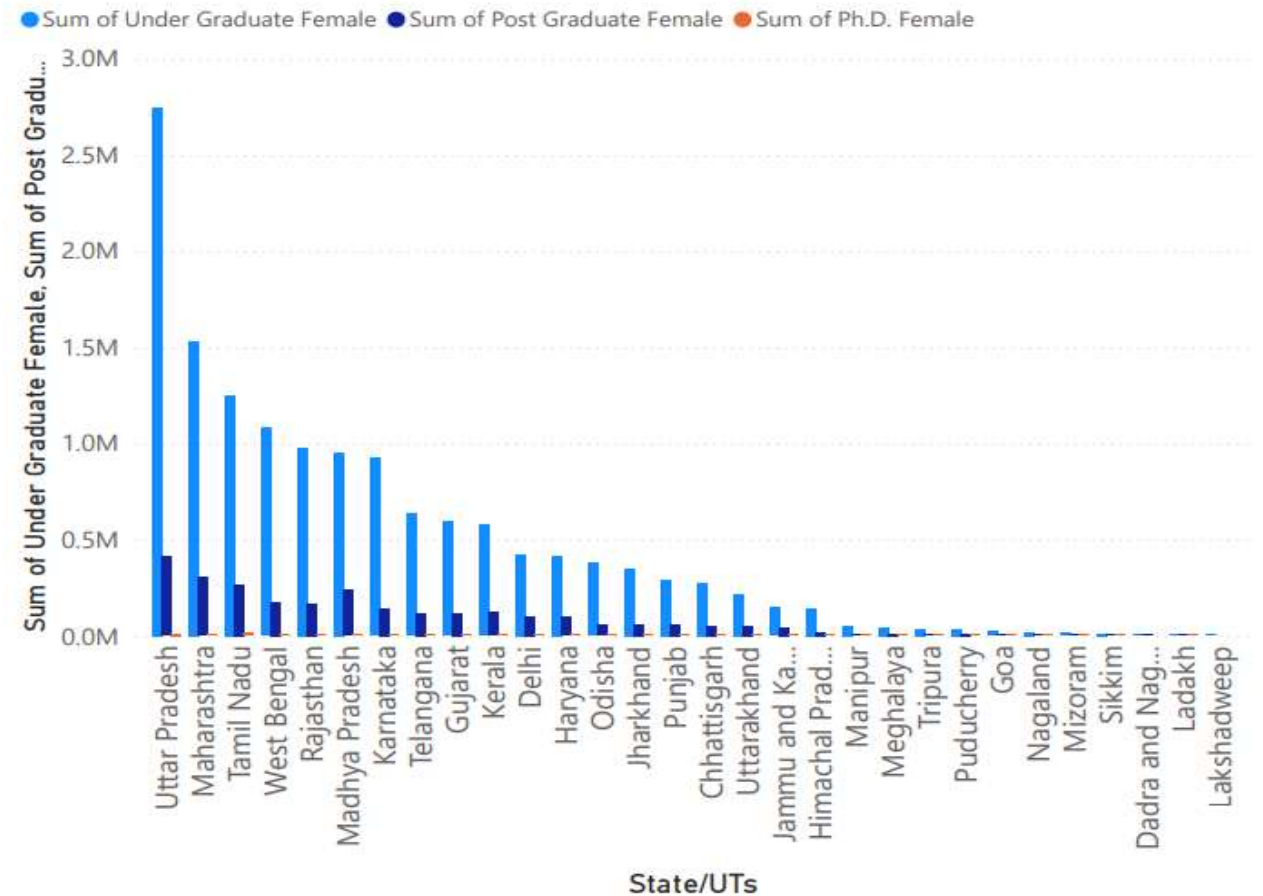
Male vs Female Ratio at Each Academic Level



State-wise % Share of Female Enrolment in Higher Education

This chart depicts how female enrolment contributes to total higher education participation in each state. States like Kerala and Telangana show higher female shares compared to northern counterparts.

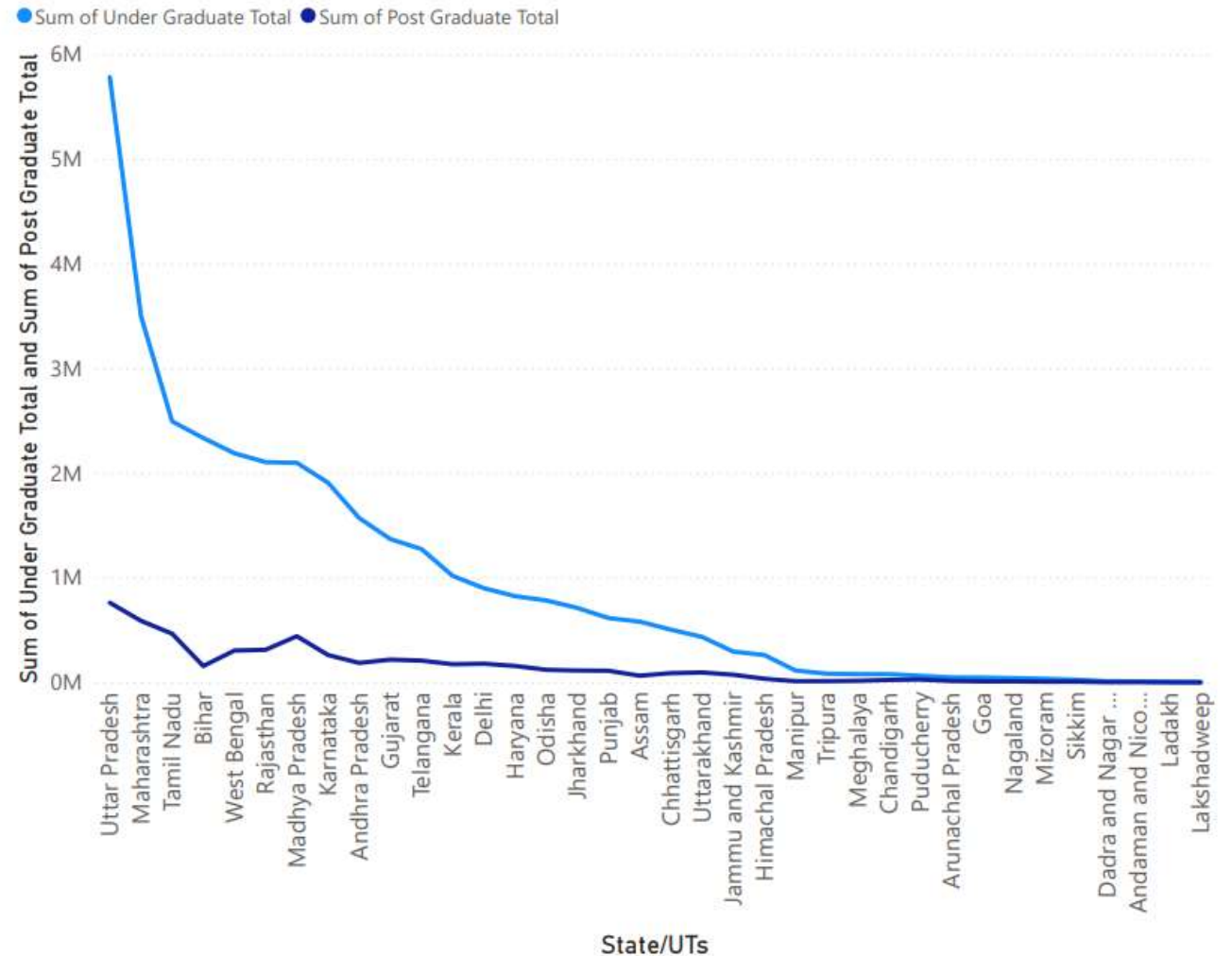
State-wise % Share of Female Enrolment in Higher Education



Transition Rate from UG to PG

The graph shows the enrolment gap between Undergraduate (UG) and Postgraduate (PG) students across Indian states and UTs. States like Uttar Pradesh, Maharashtra, and Tamil Nadu have the highest UG enrolments, but only a small portion of these students continue to PG studies. The sharp decline in PG numbers compared to UG highlights the low transition rate. Overall, the chart reflects how progression from UG to PG is limited despite large UG enrolments.

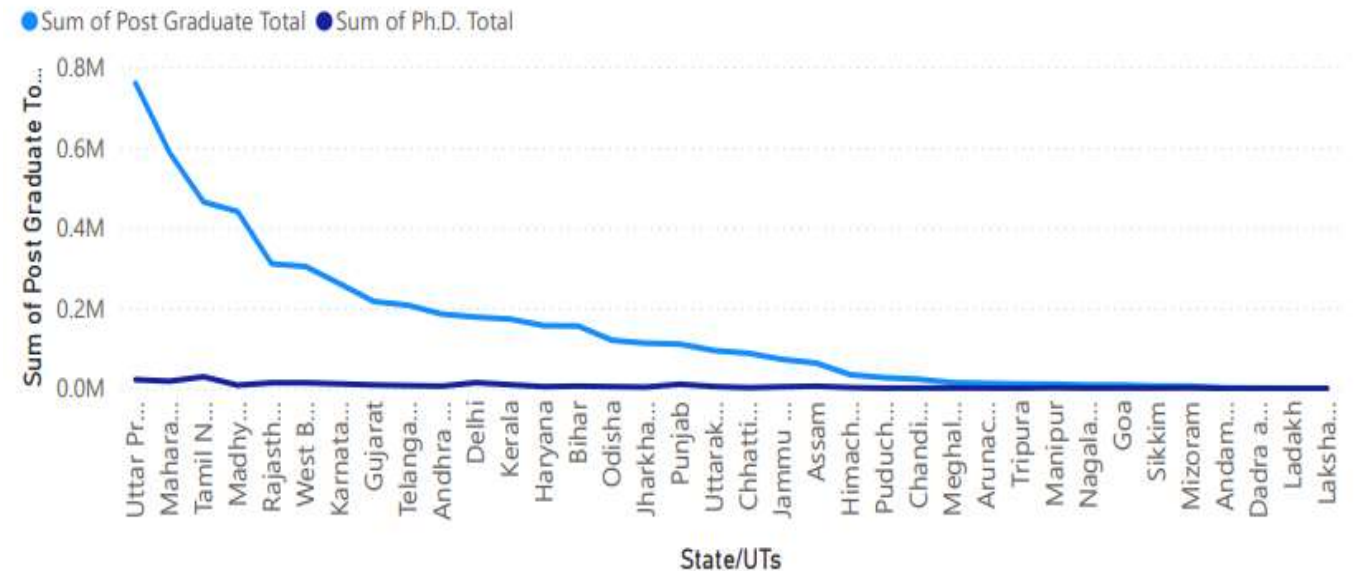
Transition Rate from UG to PG



Transition Rate from PG to Ph.D.

This shows how many PG students move into doctoral studies. The transition rate is generally low, with only a few states supporting higher research participation.

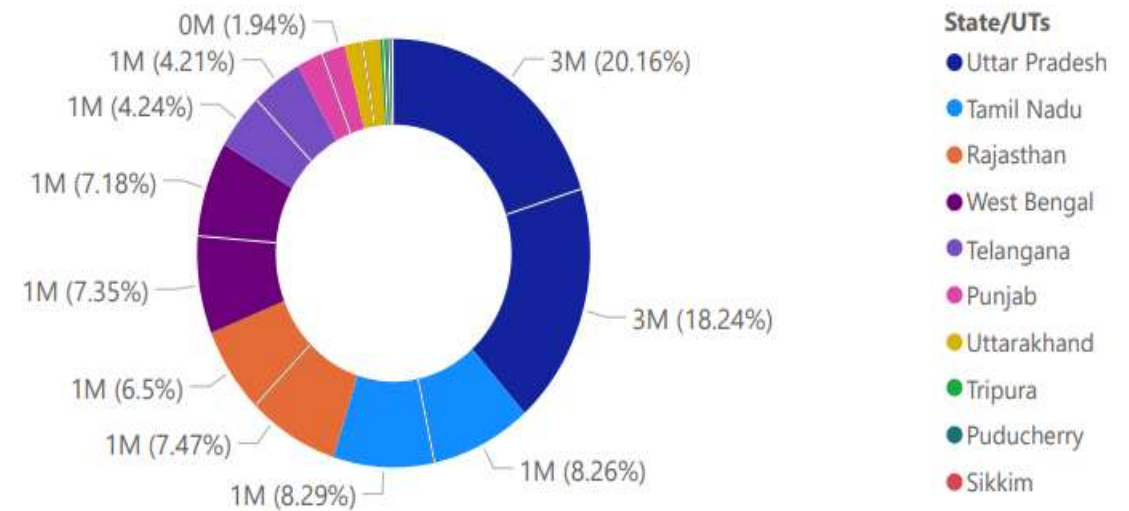
Transition Rate from PG to Ph.D.



Top 10 States with the Largest Gender Gap in Under Graduation Level

This chart identifies states where male-female enrolment gaps are widest at UG level. Such gaps indicate unequal opportunities for women in undergraduate education.

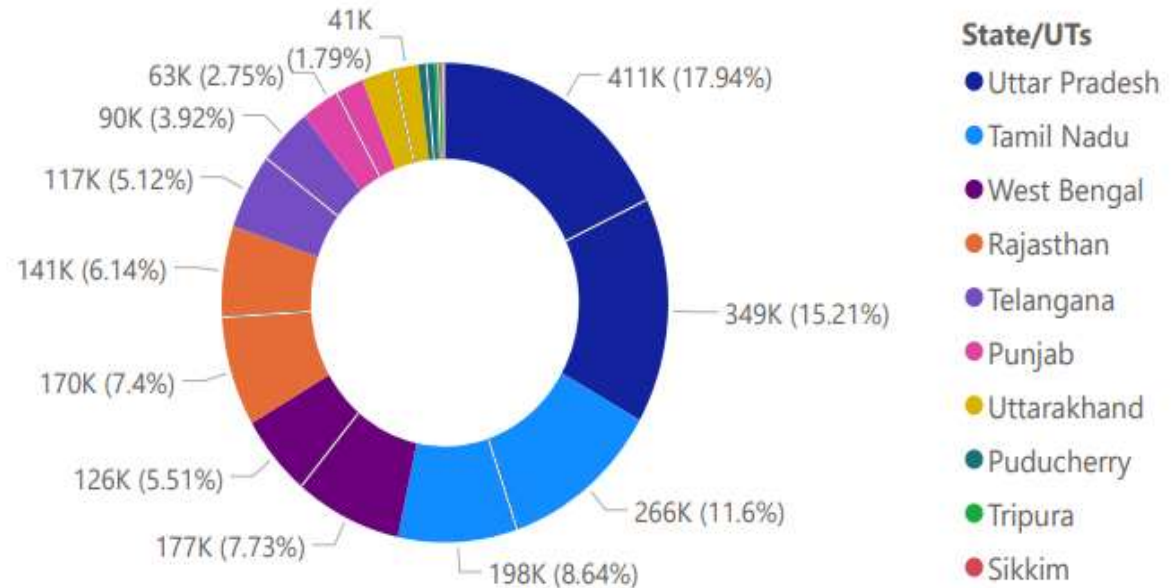
Top 10 States with the Largest Gender Gap in Under Graduation Level



Top 10 States with the Largest Gender Gap in Post Graduation Level

This visualization focuses on PG education where gender disparities widen further. It highlights states where fewer women continue into advanced studies.

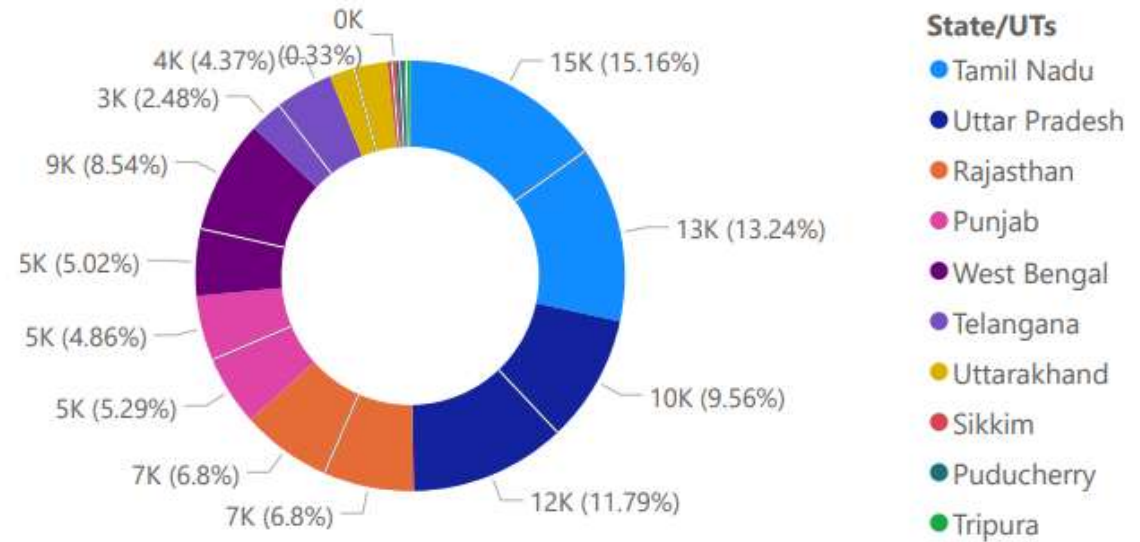
Top 10 States with the Largest Gender Gap in Post Graduation Level



Top 10 States with the Largest Gender Gap in Ph.D.

This chart captures gender imbalance in research-level education. Male dominance in Ph.D. enrolment is evident, raising concerns about inclusivity in higher education research.

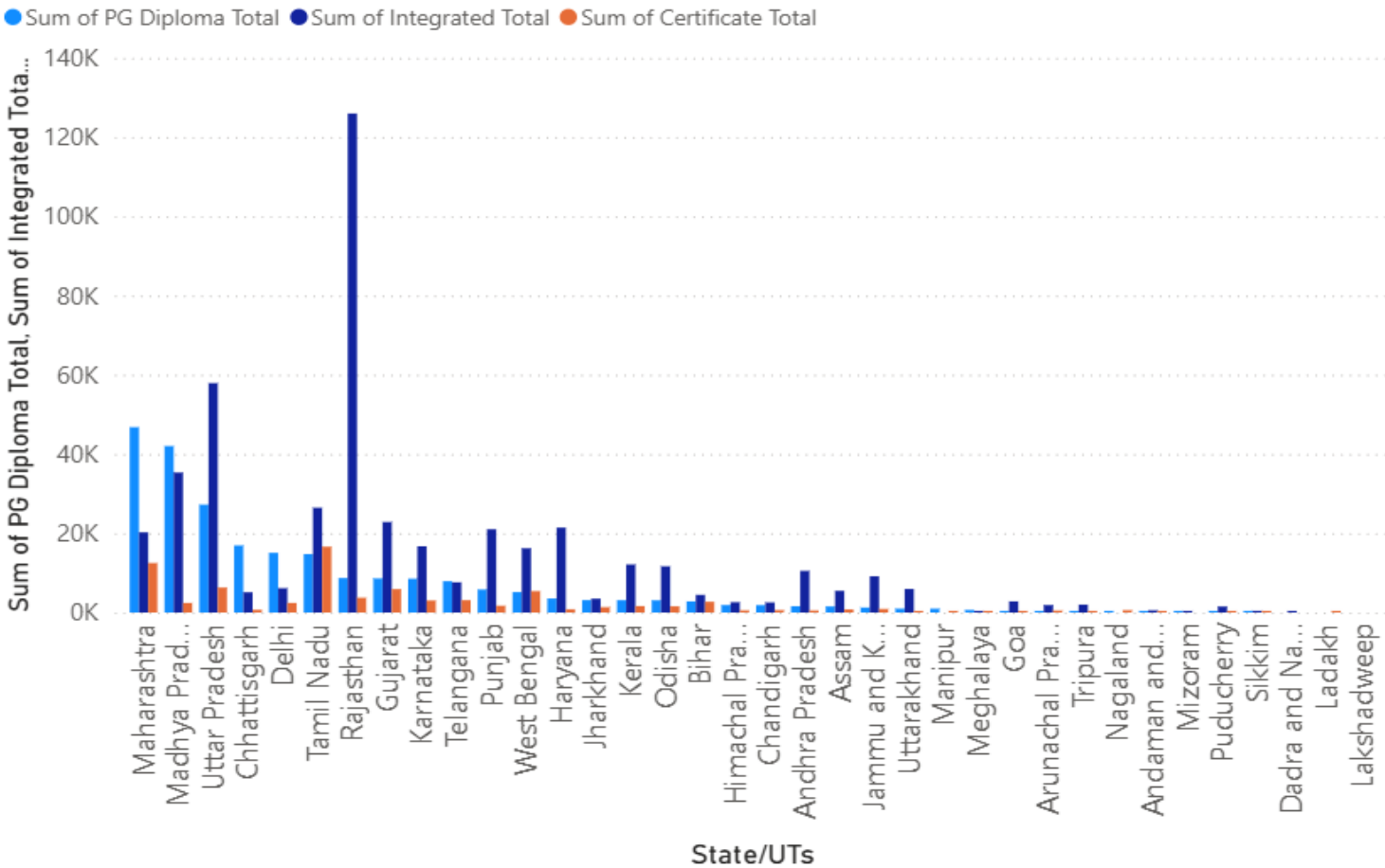
Top 10 States with the Largest Gender Gap in Ph.D



Distribution of Students in Specialized Courses (Diploma, Certificate, Integrated)

This analysis examines how students are distributed across non-traditional courses like diplomas, certificates, and integrated programs. It reflects diversification in education pathways.

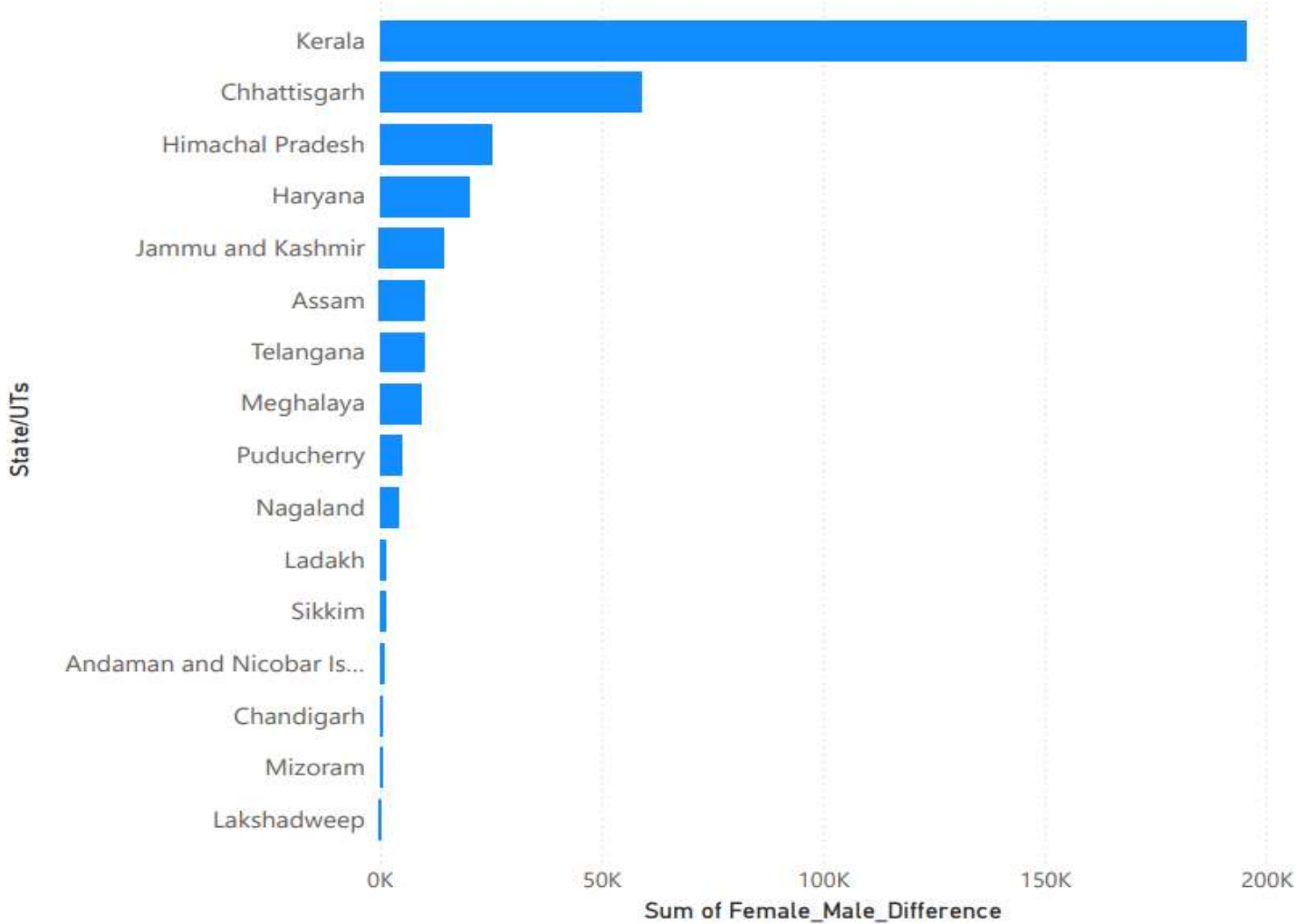
Distribution of Students in Specialized Courses (Diploma, Certificate, Integrated)



States Where Female Enrolment Exceeds Male Enrolment

This visualization highlights progressive states where women outnumber men in higher education enrolment. It is an encouraging trend pointing towards gender empowerment in education.

States Where Female Enrolment Exceeds Male Enrolment



Major Findings

Critical Insights from State-wise Analysis

High Performing States

Kerala, Tamil Nadu, and Maharashtra show highest progression rates with 75-80% transition from school to university education.

Challenge States

Bihar, Uttar Pradesh, and Jharkhand face significant dropout challenges with only 35-45% progression to higher education.

Gender Paradox

While female enrollment improves at school level, significant gaps persist in STEM fields and Postgraduate education.

Conclusion

Transforming India's Education Landscape

Key Takeaways

State-wise analysis reveals significant disparities in student progression, with southern states outperforming northern and eastern regions in higher education access.

Future Outlook

Systematic tracking of student progression is essential for evidence-based policy making. Targeted interventions addressing regional, gender, and socioeconomic disparities will be crucial for achieving 50% GER by 2035 as envisioned in NEP 2020.

GITHUB REPOSITORY LINK

This repository link contains the complete Power BI report and the datasets used for analysis. Feel free to explore the project files from the link below:

https://github.com/Palla04/Education_Data_Analysis

REFERENCES

Dataset Source: UDISE+ and AISHE

Power BI Documentation:

<https://learn.microsoft.com/en-us/power-bi/>

GitHub Repository (Project Files):

https://github.com/Palla04/Education_Data_Analysis

Thank You

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