



(RESEARCH ARTICLE)



Trends in enrolment and academic performance of scheduled tribe students at the undergraduate level in Assam: A decadal analysis

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Abstract

This research work examines the enrolment and performance pattern of the Scheduled Tribe (ST) students at the undergraduate level in Assam for the period of 2012-2022. Based on the enrolment data collected from various ST students, the study examines the gender pattern and course selection of students in different disciplines such as B.A., B.Com., and B.Sc. The study reveals major trends in enrolment increase, gender distribution, and course choices for the decade. Using chi-square tests and comparative performance measures, the study reveals factors that affect academic performance and enrolment. Furthermore, bar graphs and line charts are used to present these trends and to give further analysis. The conclusion of this study provides significant implications for the policymakers and educators who are interested in improving the educational access and opportunities for ST students in the higher education in Assam.

Keywords: Assam; Scheduled tribe; Academic performance; Gender distribution; Degree enrollment; Decadal Analysis

1. Introduction

The education system in India has evolved a lot in the last few decades and there is a growing emphasis on the education of the excluded sections of society. Among these communities, the Scheduled Tribes (STs) are one of the most marginalized and experience a range of barriers to and difficulties in entering and succeeding at university Assam, a state in Northeast India with a substantial ST population, provides a unique context for examining these challenges. The Indian government has been keen on ensuring that the marginalized groups in the society are given a chance to access education through policies like the reservation system in schools and colleges, and financial assistance (Singh, 2017). However, the enrolment and performance of ST students in higher education is still a challenge and they are lagging other social categories (Chandel, Rathour & Ramesh, 2023). Given the ethnic diversity of the state of Assam and the presence of several ST communities, the study of these disparities at the undergraduate level becomes important in this context. In the past, STs in Assam have had several challenges in accessing education due to socio-economic factors, lack of quality schools, and cultural factors that may hinder education especially for women (Baidya & Barik, 2023). These challenges are further exacerbated by the regional disparities within Assam in the remote and rural areas are comparatively less privileged in terms of educational facilities (Phukan & Gogoi, 2023). For these reasons, it is important to know how ST students have fared in the higher education system in the last decade and the trends in their enrolment and performance.

The previous studies on ST education in Assam have revealed that there has been a slow and steady rise in enrolment rates due to focused government policies and rising literacy levels (Brahmanandam & Babu, 2016). Nevertheless, gender inequalities are still a major issue. Research has also revealed that ST women are less likely to attend university than men, mainly because of cultural and social factors and family chores (Mudoj & Sarmah). This research extends this existing literature by presenting a comprehensive examination of the gender distribution of ST students by fields of

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study for the decade. Knowledge of these patterns is crucial to overcome the challenges that ST women experience in their attempts to gain access to higher education. Another important research area is the choice of academic disciplines among ST students. Cross-sectional studies at the regional levels have shown that ST students are more inclined to general degree programs such as B.A. than courses such as B.Com. or B.Sc. in major universities of Assam (Charah, 2022). This trend is usually associated with issues like low awareness of career paths, financial challenges, and the belief that science and commerce subjects are hard (Baro & Borgoyary, 2021). The Tiwas, a distinct indigenous group, confront significant obstacles that hinder their ability to provide quality education to their children. These challenges include residing in remote areas with inadequate infrastructure, grappling with economic hardships, and the need to balance their rich cultural traditions with the demands of formal education (Doloi, 2024). In context to the ST communities, there is need of appreciate the cultural orientation of the ST communities of Assam and how this orientation influences their engagement with the contemporary education systems. The study also calls for culturally appropriate educational policies that will cater for the needs of the Tiwa people who are a small part of the ST communities in Assam (Doloi, Timung & Bordoloi, 2024). This study will therefore seek to establish the preferences of the ST students and the rationale behind their choices by comparing enrolment data of different courses. The enrolment and performance of ST students in higher education is still very low and there is a wide gap between the ST students and other social categories. In the context of academic achievement, prior studies indicate that ST students experience difficulties that affect their academic results, such as language difficulties, lack of academic assistance, and socioeconomic difficulties (Day & Ghidyal, 2020). Through these factors, the study aims to offer a better understanding of the academic experiences of ST students and the kind of support that may be required to enhance their performance. These challenges are even worse when we consider regional disparities within Assam where ST communities in the remote and rural areas are likely to have limited access to educational materials. For these reasons, it is important to know the trends in ST students' enrollment and performance in higher education over the past decade.

Objective of this study

The objective of this paper is as follows-

- To find out the major trends in enrolment increase, gender distribution, and course choices for the decade.
- To find out the gender pattern and course selection of students in different disciplines such as B.A., B.Com., and B.Sc.
- To perform the Chi-square test for examine the association between categorical variables gender and course enrollment.

Significance of this study

The implications of this research are significant for educational policy and practice in Assam and other parts of the world. This study is useful in understanding the current enrollment status and performance of the ST students to evaluate the current policies in place and the areas that require more attention. By identifying trends in enrolment and academic performance among ST students, this study provides valuable insights into the effectiveness of existing policies and the areas where further intervention is needed. For policymakers, the study offers evidence-based recommendations on how to enhance educational opportunities for ST students, particularly in addressing gender disparities and encouraging participation in a broader range of academic disciplines. For educators, the study highlights the need for targeted support mechanisms that cater to the specific challenges faced by ST students. This includes developing culturally sensitive curricula, providing academic counselling, providing grants and creating a more inclusive learning environment that acknowledges the diverse backgrounds of ST students.

2. Results and discussion

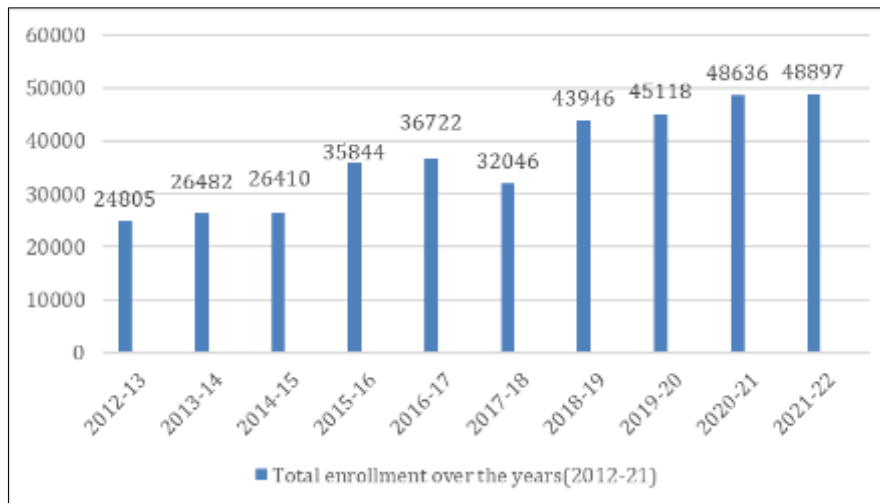
The number of students who take undergraduate courses has been increasing over the decade. From 24,805 in the 2012-13 session, the enrollment increased to 48,897 in the 2021-22 session. This means that the number of students who are pursuing their education to the higher levels has increased by almost doubled within the ten-year period. The highest rates of enrollment were recorded between the 2014-15 and 2015-16 sessions where the enrollment increased by nearly 9000 students. The second largest increase was observed between the 2017-18 and 2018-19 sessions where the enrollment has increased by approximately 12,900 students. The increase in enrollment was slightly lower between the academic year 2020-21 and 2021-22, which indicates that the system is now in a phase of consolidation after expansion in the previous years.

Table 1 Number of enrollments in different Courses for different academic sessions

Sl. No.	Session	No. of Enrolment	Female	Male	Female			Male		
					B.A.	B.Com.	B.Sc.	B.A.	B.Com.	B.Sc.
1	2012-13	24805	8733	16022	7568	656	669	12172	1977	1763
2	2013-14	26482	9500	16982	8010	673	717	13205	2037	1840
3	2014-15	26410	9500	16910	8055	632	813	13285	1780	1845
4	2015-16	35844	13395	22449	10232	1726	1437	16694	2700	3055
5	2016-17	36722	13728	22994	10448	1791	1489	17049	2782	3163
6	2017-18	32046	15508	16538	10092	2136	3280	16638	3206	2941
7	2018-19	43946	17495	26451	11214	2763	3518	18487	3663	4301
8	2019-20	45118	19239	25879	12368	3025	3846	17859	3850	4166
9	2020-21	48636	25226	23410	11514	3942	3948	21257	3153	4822
10	2021-22	48897	22,725	26172	11610	3995	3990	21297	3130	4875

Source: Assam statistical handbooks

Figure 1 indicates a general upward trend in student enrollment over the years, with some fluctuations in between, particularly a notable dip in 2017-18. The increase is more pronounced after 2017-18, reaching the highest numbers in 2020-21 and 2021-22.

**Figure 1** Trend in student enrollment over the years

2.1. Comparison of candidates enrolled in B.A., B.Com. and B.Sc. course over the decades

The total enrollment of students in all the three programs (B. A., B. Com., B. Sc.) has increased from 24,805 in the session 2012-13 to 48,897 in the session 2021-22. This has been evidenced by an overall increase in enrollment in higher education institutions in the given decade. The number of students enrolled in the B. A. program also rose from 19,740 in 2012-13 to 32,907 in 2021-22. There was a moderate increase in enrolment in the initial years, followed by more rapid growth after 2015-16. The highest jump was observed between the academic years 2014-15 and 2015-16 where the enrollment was raised by about 5586 students. The B. Com. enrolment in this program also increased from 2,633 in 2012-13 to 7,125 in 2021-22. The increase is gradual but faster from 2015-16, and the highest jump between 2016-17 and 2017-18. B. Com. The number of students also rose to more than double the number in the previous decade, which

may be attributed to more interest or openings in commerce education. The analysis of the enrollment reveals that the B. Sc. program has the highest proportional growth among the three programs. However, a steep rise is seen from 2017-18 onwards only. The numbers increased almost three folds from the 2012-13 to 2021-22, which indicates that there is an increasing trend in the interest of students towards science stream.

Table 2 The total enrollment of students in all the three programs B. A., B. Com., and B. Sc.

Sl. No.	Session	Total (Male+ Female)		
		B.A.	B. Com.	B.Sc.
1	2012-13	19740	2633	2432
2	2013-14	21215	2710	2557
3	2014-15	21340	2412	2658
4	2015-16	26926	4426	4492
5	2016-17	27497	4573	4652
6	2017-18	26730	5342	6221
7	2018-19	29701	6426	7819
8	2019-20	30227	6875	8016
9	2020-21	32771	7095	8770
10	2021-22	32907	7125	8865

All the three programs experienced a boost in enrollment during the 2015-16 academic year especially in B.A. and B. Sc. This may be due to a shift in the system, for example, better education, changes in policies, or the people's awareness. In the case of B. Com, there is a slight increase for the session 2017-18 to 2018-19 as compared to the previous year. and B. Sc. enrollments, while B. A. enrollment increases slightly. The higher growth in B. Com. and B. Sc. may suggest the change of students' preferences towards commerce and science courses. Even in these years, there are global challenges such as the COVID-19 pandemic, the enrollment in all programs has increased, which may be due to the strong education system or the society's desire for higher education during these years. This growth could be attributed to factors like enhancement of education facilities, enhanced access to higher education, changes in the economy and possibly changes in the job market that may have an impact on students to opt for commerce and science streams.

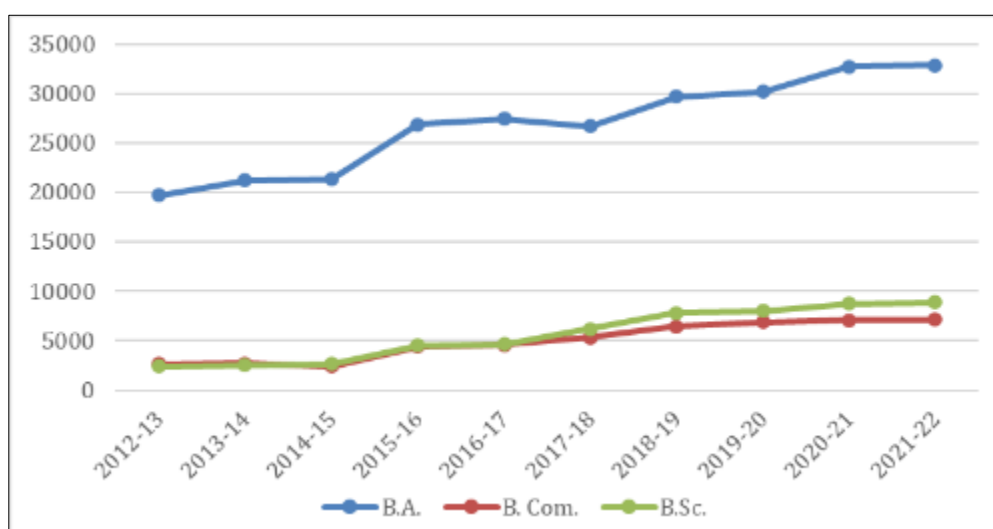


Figure 2 Trend in the enrollment of total students in all the three programs (B. A., B. Com., B. Sc.)

2.2. Gender distribution over the years

There are some variations, which are observed at the level of 2015-16 and 2018-19 over the decades. There is a sharp drop after 2018-19, but it rises again to 2020-21 and 2021-22 to some extent. Female enrollment begins at a lower level but rises progressively over the period. The most prominent increase is seen after 2014-15 and it is further increasing till it reaches almost the level of male enrolment by 2019-20. In some years, for instance, 2019-20 and 2020-21, the female enrollment is slightly higher than the male enrollment.

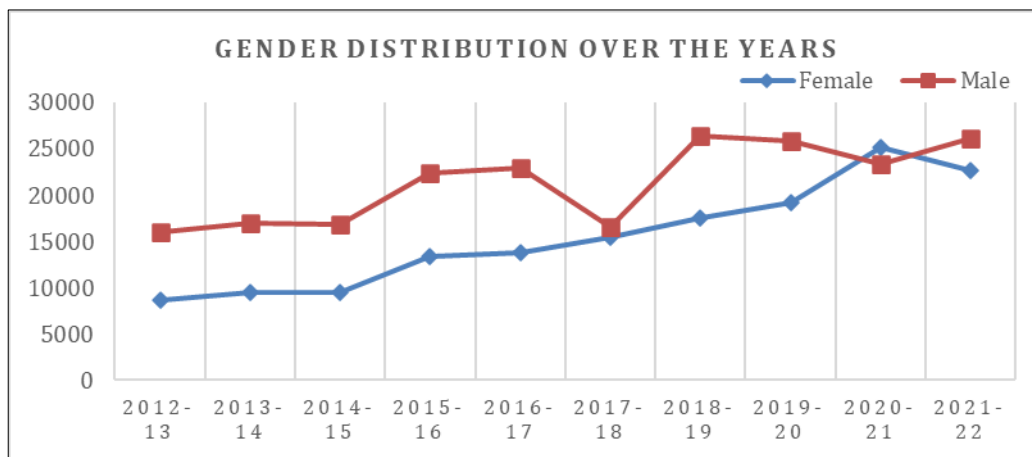


Figure 3 Trend in enrollment of total no. of male and female students

Initially, male enrolment is greater than female enrolment, but the female enrolment increases at a faster rate in subsequent years. The general trend reveals a gradual rise in the number of male and female students with some years having more female students. The male enrollment is more volatile than the female enrollment which is on the rise, and this may indicate changes in the society or in the education system that may be affecting the male students. In the year 2019-20, both the male and female enrollments are almost equal, and the line of female enrollment is slightly above the line of male enrollment. This implies a change in the gender distribution of students where female students are closing the gap and, in some years, outnumbering the male students.

2.3. Detailed gender analysis by discipline over the decade (comparative analysis of all discipline)

B.A. enrolment: Both male and female enrolments in B.A. courses have consistently increased, with male enrolment higher throughout the decade. The trend for both genders is closely aligned, indicating parallel growth.

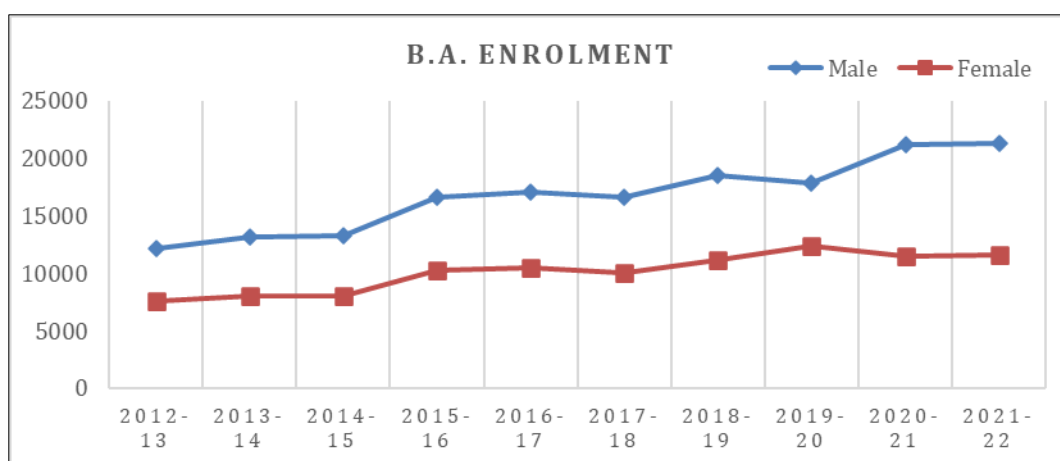


Figure 4 Trend in enrollment of male and female students in B.A. course

B.Com. Enrollment: B.Com. enrollments show more fluctuation, especially for males. Female enrollment has remained relatively stable with a slight upward trend. The gap between male and female enrollments is more noticeable here.

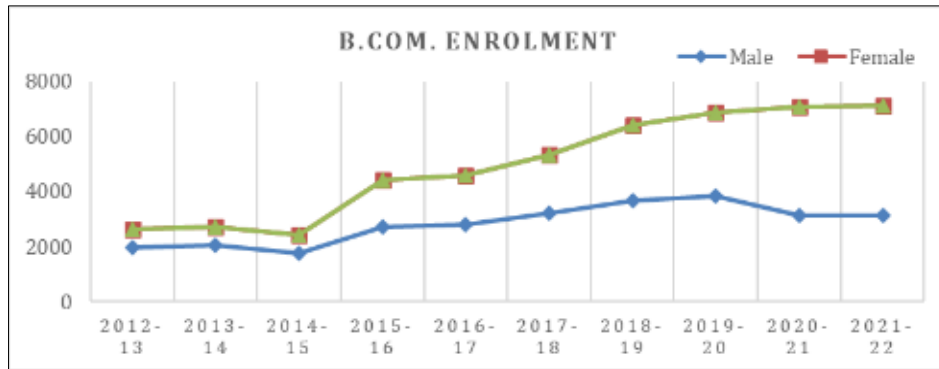


Figure 5 Trend in enrollment of male and female students in B.Com. course

B.Sc. Enrollment: The trend for B.Sc. enrollment shows steady growth for both genders, with a sharp increase around 2017-18, particularly for males. This indicates a rising interest in science courses.

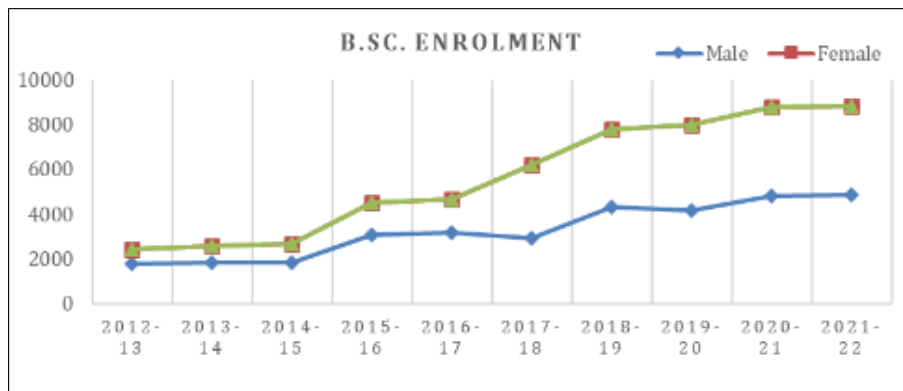


Figure 6 Trend in enrollment of male and female students in B.Sc. course

2.4. Chi-Square tests

To examine the association between categorical variables like gender and course type, we will test the null hypothesis-

H_0 : There is no significant association between gender and course type.

H_1 : There is a significant association between gender and course type.

Table 3 Expected number of students in each course if gender and course enrollment were independent.

Gender	B.A.	B.Com.	B.Sc.	Total
Female	114625	26031	28343	168999
Male	148777	33786	36787	219351
Total	263403	59817	65130	388350

Table 4 Chi-Square contribution per cell

Gender	B.A.	B.Com.	B.Sc.
Female	135.83	4.42	0.97
Male	109.02	3.55	1.32

Aggregating the data across all the years to analyze the overall distribution, and then calculating the χ^2_{total} from the above table, We get $\chi^2_{total}=255.11$ with Degrees of freedom (dof) = 2. So, P-value for the Chi-square test is approximately

1.25×10^{-228} . A low P-value indicates that observed data are unlikely under the assumption of null hypothesis. This leads us to reject H_0 and concludes that there is a statistically significant relationship between gender and course enrollment.

3. Conclusion

The enrollment of students in undergraduate courses over the period of one decade has shown a constant increase in the total enrollment from 24,805 in the 2012-13 session to 48,897 in the 2021-22 session. This increase is particularly evident in the B.A., B.Com., and B.Sc. programs, all of which have recorded significant increases in enrolment, B.Sc. has been experiencing the highest proportional growth. Notably, the most significant increases in enrollment were observed between the 2014-15 and 2015-16 sessions, and between the 2017-18 and 2018-19 sessions, which points to the periods of the growth of the higher education enrollment. The gender analysis reveals that female enrolment has been gradually rising over the years and started at a lower level than male enrolment but was almost at par with the male enrolment by 2019-20. In some years, female enrollment exceeded that of male students, indicating that the gender disparity in higher learning institutions is gradually closing. The Chi-square test also supports the hypothesis that gender has an effect on course selection, meaning that gender influences the type of course a student takes. The findings indicate a changing education environment in which female students are enrolling in higher education and a change in the students' choice in favor of science and commerce programs. This trend shows that gender imbalance and different academic preferences should be taken into consideration in educational planning.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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