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COLLEGE DENSITY, GROSS ENROLLMENT, AND GENDER PARITY IN HIGHER EDUCATION (2017-2022): AISHE BASED ANALYSIS

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RESEARCH ARTICLE

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Abstract

There are different constitutional provisions, polices, commissions report, and nationalized plans for universalisation of elementary education. But when it comes to talk on higher education, not everyone expects to full enrollment. It has been observed that some quantitative targets have been somewhat arbitrarily set for enrolment ratio. It is very important to recognize that higher education is critically important to national development. The research compares college density, Gross Enrollment ratio (GER), Gender Parity Index (GPI), and the enrollment of SC, ST, and OBC students as key indicators. This study used information from a government survey on higher education, called AISHE. The researcher used Welch's t-test to analyze the difference of Gross enrolment ratio between India and West Bengal.

In 2021-22 West Bengal had 15 colleges per lakh youth, while India's figures indicated 30. West Bengal's Gross Enrollment ratio was 19.9 which is much lower than the national average of 28.4 and this was found to be significant. The Gender Parity Index indicated West Bengal reached parity with a GPI of 1.03 for all students. However, the SC GPI is still at 0.96, which shows gender gaps remain within this cohort. The study advises re-established the number of colleges in rural areas, offered more scholarships, and formed special support programs for SC (girls) as mandated by NEP 2020, and providing more equitable access to education towards the national aim of a 50% GER by 2035, (Ministry of Education, 2020).

Keywords: *All India Survey on Higher Education (AISHE), College Density, Gender Parity Index (GPI), Gross Enrolment Ratio (GER), and Higher Education*

Introduction

India has attained a high stature for its higher education. It is second in size (Study in India, n.d.). Higher education in India means study after 12 years of schooling in a primary school (10 years) and then a secondary school (2 years). The country has over 1,100 universities, and over 45,000 colleges, and it has many good academic offerings. All of these are governed by the Ministry of Education (Study in India, n.d.).

With such an extensive network of universities and colleges, many people in India have the opportunity to attend college or university. Accessibility to education, especially higher education is incredibly important for some opportunities in life. Higher education provides opportunities to improve lives, and access to higher education helps improve the whole society. Education also gives people access to skills and knowledge. Both of which can provide the chance to work jobs to help improve income and quality of life. As more people access education, the whole economy as well as the community benefits.

During 2012 to 2017, the 12th Five-Year Plan attempted to improve the educational landscape. Its main agenda was growth, equity, and excellence. Its goals were a rise in the Gross Enrollment Ratio (GER) to 25.2% in the year 2017–18 and 30% in 2020–21 (Press Information Bureau, 2018). The mission was to enroll 10 million more students. It made way for setting up new colleges in areas that were earlier out of reach for educational institutions. Apart from this, it gave greater support to marginalized groups. The quality of instruction improved through plans pertaining to research, teacher training, and e-learning, using schemes like RUSA, SWAYAM, and the Pandit Madan Mohan Malaviya Mission. For further development in education, the government has declared the National Education Policy (NEP) 2020. The policy is a broad framework for re-engineering education in India, detailing a new vision for its working model. In particular for higher education, NEP 2020 outlines ambitious goals, with a main goal being to bring the Gross Enrollment Ratio (GER) to 50% by the year 2035 (Ministry of Education, 2020).

Since the academic year 2010-11, the Ministry of Human Resource Development (MHRD) has been involved in yearly reviews of higher education. This study is conducted by its Department of Higher Education. The program is known as the All-India Survey on Higher Education (AISHE). The focus of this survey is to analyze the state of higher education in the country. It collates detailed statistics related to various dimensions of higher education. This includes figures on student enrollment divided by gender, social group, and program levels like undergraduate, postgraduate, and Ph.D. Moreover, the survey tracks advancements within colleges and universities. It offers details pertaining to their categorization as public or private colleges and universities, as well as their geographical locations. These yearly survey helps to analyse the trends and issues in higher education.

AISHE reports depict national higher education scenario with a state-wise breakdown, while local initiatives in West Bengal indicate regional progress. West Bengal, a populous eastern Indian state, has a population of 9.13 crore as per the 2011 Census. It has a rich tradition of contributing to India's higher education scenario. The state has introduced schemes such as the Kanyashree Scheme and the Student Credit Card to enhance enrollment, particularly of women and disadvantaged students. It has established a Skill Development Council to give jobs and self-employment to youth. Industry-linked courses for career-oriented training are now provided by some colleges. The 2023 Bengal Global Business Summit further linked students with global job opportunities and encouraged government-industry collaboration for better skills and employment. West Bengal is making new initiatives in education today. The state is now following the NEP 2020. Due to this, school curriculum, teaching, and examinations have been reformed. These reforms enable students to think better and learn differently.

Objectives of the Study

1. To know and compare the status of college density between India and West Bengal from 2017-18 to 2021-22
2. To make comparative analyse of Gross Enrolment Ratio (GER) in higher education between West Bengal and India from the academic years 2017-18 to 2021-22.
3. To investigate social category-wise enrollment patterns (SC, ST, OBC) in West Bengal's higher education from 2017-18 to 2021-22.
4. To evaluate the trends in overall and social category wise Gender Parity Index (GPI) in higher education enrollment in India and West Bengal from 2017-18 to 2021-22.
5. To recommend clear plans to improve access, equality, and quality in higher education in West Bengal.

Methodology

This study adopts a quantitative and comparative approach to analyze access and inclusiveness in higher education in West Bengal in the Indian context, from 2017-18 to 2021-22. Analysis is performed on the basis of data available taken from the All-India Survey on Higher Education. College density, Gross Enrolment Ratio (GER), Gender Parity Index (GPI), and Scheduled Castes (SC), Scheduled Tribes (ST), and Other Backward Classes (OBC) enrollment rates are analysed. Trend plotting in the given time frame is carried out using descriptive statistics and tables and diagrams. Statistical Welch's t-test is used to test the significance of differences in GER. Q-Q plots are used to check data distribution normality. The analytical steps are carried out with the help of Julius AI (Julius AI, n.d.).

College Density

College density is the ratio of colleges to a lakh eligible population (18-23 years). It indicates the availability of higher education in the respective area for the target group. Greater the college density, greater the colleges available per individual in the area. Lower the college density, greater will be the requirement to open additional colleges. The formula is College Density = (Number of Colleges / Population) × 100,000. Below is a data table comparing India and West Bengal for 2017-18 to 2021-22 based on AISHE survey.

Table 1: College Density in India and West Bengal (2017-18 to 2021-22)

Year	All India College Density	West Bengal College Density
2017-18	28	12
2018-19	28	13
2019-20	30	13
2020-21	31	13
2021-22	30	15

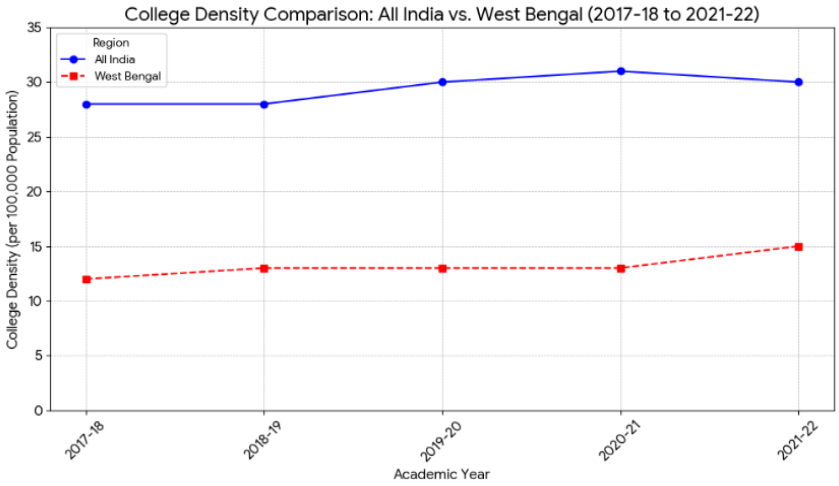

Fig 1: Comparison of College Density Trends in India and West Bengal
Source: AISHE Report 2017-18 to 2021-22

Analysis of trends in the density of colleges

The numbers in table 1 show a consistent and uneven trend in the density of colleges in West Bengal in the initial years of the study period. West Bengal college density was below the all-India average at all points between 2017-18 and 2021-22. The national college density, however, rose from 28 to 31 between 2017-18 and 2020-21. On the other hand, the West Bengal college density remained at 13 for three years after a marginal rise from 12. Even though there was a rise to 15 during 2021-22, the college density of West Bengal was behind the national average of 30.

Gross Enrollment Ratio (GER)

The gross enrollment ratio shows how many students are enrolled at a certain level of education compared to the number of people in the official age group for that level (UNESCO UIS, 2024). The official age group is considered from 18 to 23 for calculation of GER in higher education. Suppose, if a country has a GER of 28, it means that for every 100 people in that age group, there are 28 students enrolled in colleges or universities. The GER is calculated as:

GER = (Total Enrollment in a Specific Education Level / Population of the Corresponding Age Group) × 100.

A higher GER means more people are participating in education, which is also a sign of a development of country.

Table 2: Gross Enrolment Ratio (GER) for India and West Bengal (2017-18 to 2021-22)

Year	GER India	GER West Bengal
2017-18	25.8	18.7
2018-19	26.3	19.3
2019-20	25.6	19.9
2020-21	27.3	20.2
2021-22	28.4	19.9

Source: AISHE Report 2017-18 to 2021-22

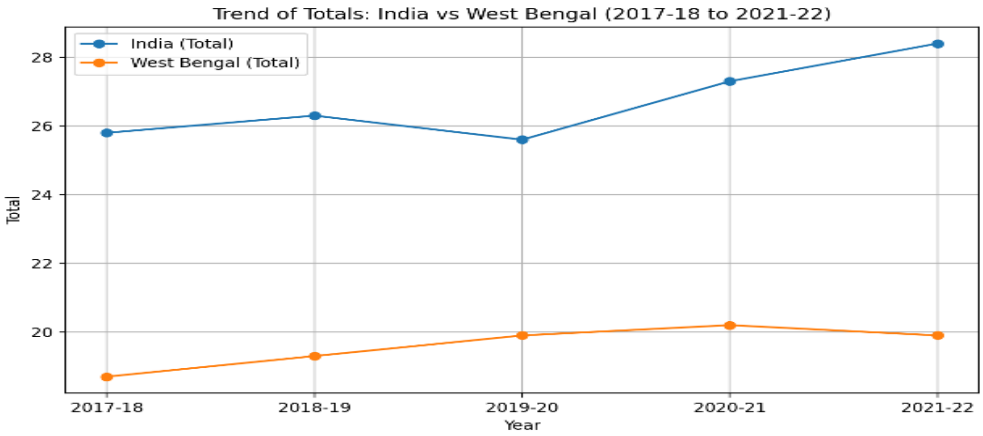

Fig 2: Trends in Total Gross Enrollment Ratio in India and West Bengal

Comparative Trends of Gross Enrolment Ratio (GER)

The all-India GER for Higher Education (overall) has been increasing steadily. GER increased from 25.8 to 28.4 (i.e.2.6) from academic year 2017-18 to 2021-22. Similarly, the overall GER of West Benga also increased between years, from 18.7 to 19.9 GER of (i.e. 1.2). Even with such an increasing trend at the national level and also at the level of West Bengal, the national GER was always greater than that of West Bengal during the years in question. For this identification of the mentioned difference between India and West Bengal in overall GER, the researcher again utilized independent t-test to determine whether the difference is significant or not. Figure-3 illustrates the overall GER of India and West Bengal satisfy the requirement of normality.

H_0: There is no statistically significant difference in the overall Gross Enrolment Ratio (GER) between West Bengal and India.

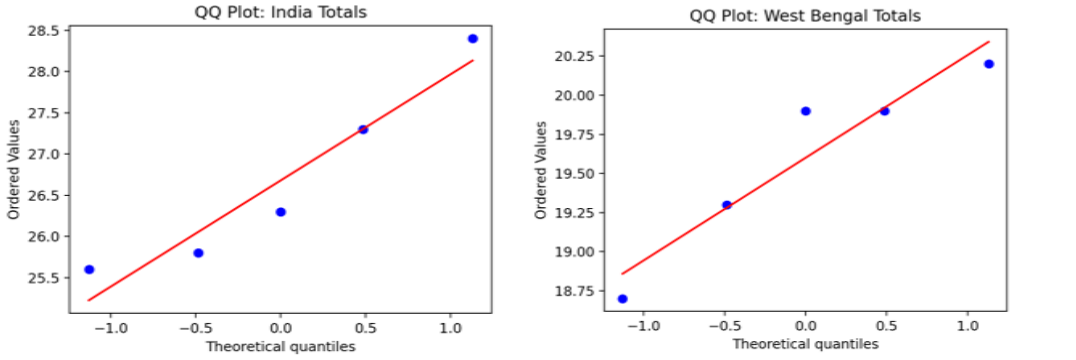

Figure: 3 – Normal Quantile-Quantile Plot for Total GER of India and West Bengal (2017-18 to 2021-22)

Table 3: Descriptive Statistics and Welch's t-test Results for GER: India (Total) vs. West Bengal (Total)

Group	Mean	SD	N	*T*	*P*	Df	Mean Difference	Cohen's *d*	95% CI
India (Total)	26.68	1.17	5	12.08	0.001	5.98	7.08	7.64	[5.65, 8.51]
West Bengal (Total)	19.6	0.6							

Note: GER = Gross Enrollment Ratio. SD = Standard Deviation. df = Degrees of Freedom

Interpretations of the result

A Welch's t-test was conducted to compare the Gross Enrollment Rate (GER) between India and West Bengal. Descriptive statistics revealed that India had a mean GER of 26.68 (SD=1.16), while West Bengal had a mean GER of 19.60 (SD=0.50). The results of the Welch's t-test indicated a statistically significant difference in GER between the two groups, $t(5.98) = 12.08$, $p < .001$. This finding suggests that India's overall GER was significantly higher than West Bengal's during the analysed period.

Gender Parity Index

The Gender Parity Index (GPI) measures the ratio of female to male enrollment in education to show how equal access is between genders. For example, if a school has 100 girls and 100 boys enrolled, the GPI is 1.0, indicating equal enrollment. If 80 girls and 100 boys are enrolled, the GPI is 0.8, showing fewer girls than boys. The Gender Parity Index (GPI) is calculated as: GPI = Female Enrollment / Male Enrollment

Table 4: Gender Parity Index (GPI) Trends in Enrollment for India and West Bengal (2017-18 to 2021-22)

Year	India (All Categories)	West Bengal (All Categories)	India (SC)	West Bengal (SC)	India (ST)	West Bengal (ST)
2017-18	0.97	0.88	0.96	0.87	0.87	0.81
2018-19	1	0.93	1.02	0.98	0.92	0.87
2019-20	1.01	0.96	1.05	1.03	0.97	0.93
2020-21	1.05	1.10	1.07	1.05	1.02	1.03
2021-22	1.05	1.03	1.07	0.96	1.02	1.05

Source: AISHE Report 2017-18 to 2021-22

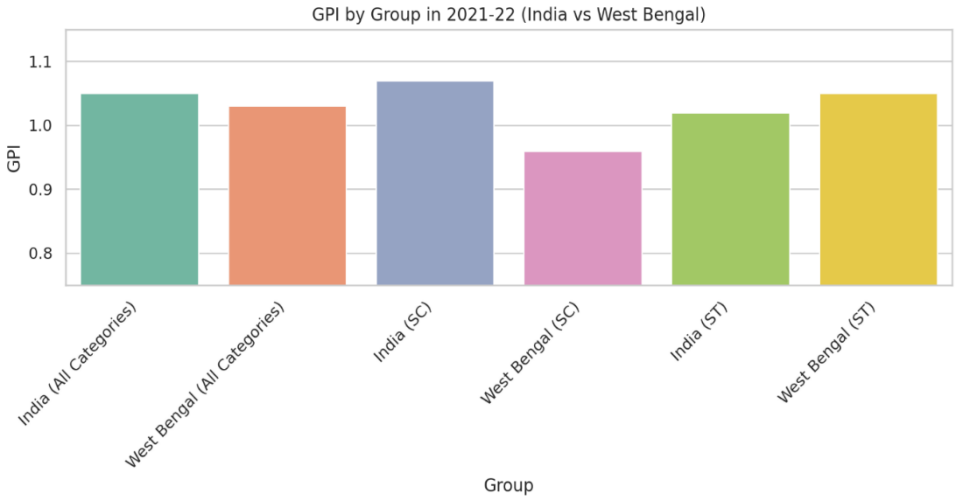

Fig 4: Comparative GPI Trends Across All Categories, SC, and ST in India and West Bengal (2017-18 to 2021-22)

Overall GPI Trends between India and West Bengal (All Categories)

Both India and West Bengal have made significant paces towards achieving GPI. India reached overall parity (GPI ≥ 1.00) in 2018-19 and has maintained it. West Bengal also reached parity for all categories by 2019-20. It also showed exceptional performance in 2020-21, though it slightly moves back in 2021-22. While both India and West Bengal exhibited strong positive trends in GPI, West Bengal started at a lower point than the All India average in 2017-18 (0.88 vs. 0.97). However, West Bengal showed a more rapid growth, especially in 2020-21, where it achieved a higher GPI than the national average.

Analysis of social category wise GPI trends

Scheduled Caste (SC):

- In India, the GPI for SC students has demonstrated a consistent and impressive increase, reaching beyond parity during this period. It increased from 0.96 in 2017-18 to 1.02 in 2018-19. It continued its scaling to 1.05 in 2019-20 and further to 1.07 in 2020-21. The GPI for SC in India remained at 1.07 in 2021-22. This consistent increase signifies a strong focus and success in promoting higher education among SC females.
- In West Bengal, SC GPI also shows a strong increasing trend, reaching parity, but with a recent decline. It was 0.87 in 2017-18 and rose to 0.98 in 2018-19. It then reached 1.03 in 2019-20 and further increased to 1.05 in 2020-21. However, in 2021-22, West Bengal's SC GPI dropped significantly to 0.96, falling below parity and the national average.

Scheduled Tribe (ST):

- In India, the GPI for ST students in India has also shown substantial improvement. It increased from 0.87 in 2017-18 to 0.92 in 2018-19. It continued to rise to 0.97 in 2019-20 and finally reached 1.02 in 2020-21, indicating parity. The GPI for ST in India remained at 1.02 in 2021-22.
- In West Bengal's ST GPI demonstrates a remarkable upward trend, significantly improving and surpassing the national average in recent years. It started at 0.81 in 2017-18 and rose to 0.87 in 2018-19. By 2019-20, it increased to 0.93. In 2020-21, it reached 1.03, surpassing the national GPI for ST students (1.02). This positive momentum continued, with West Bengal's ST GPI further rising to 1.05 in 2021-22, maintaining its position above the national average (1.02). This indicates strong female participation from this historically marginalized group.

Recommendations

- Based on the analysis of table 1, it is clear that there is a need for more colleges in West Bengal. So, the state should build more colleges and expands existing colleges, especially in villages and areas with very few colleges. In this regard, West Bengal can use the National Education Policy (NEP) 2020 to get funds and support for this work.
- Based on the analysis of table-2, West Bengal has fewer students in higher education compared to the rest of India. To increase enrollment, the state should run special outreach programs to get more students to join colleges. Scholarship schemes should be expanded to help poor students pay for their studies.
- West Bengal has made progress in gender parity in higher education. But in 2021-22, the Gender Parity Index (GPI) for SC students was not satisfactory. This was below parity. The state should start special programs for SC girls. These can include mentorship and rewards to encourage them to study.
- The state should set up a special task force to watch how NEP 2020 is being carried out in West Bengal. This group should make sure the state works toward the goal of 50% GER by 2035.

- This research uses data from the All-India Survey on Higher Education (AISHE). To find local problems more clearly, West Bengal should do its own detailed survey. This state-level survey will help study why GER is low and why gender parity changes from year to year. With better data, the government can make smarter decisions and solve problems more exactly.

Limitations of the Study

This research relies solely on AISHE data and does not include qualitative data. Additionally, the small number of years examined might have impacted the statistical tests.

Conclusion

This study found that West Bengal has fewer colleges and lower student enrollment than the rest of India. Many young people in the state still face problems getting into college. While things are getting better for girls and for tribal students, some groups like Scheduled Castes are still falling behind.

To fix these gaps, West Bengal should build more colleges, offer more scholarships, and help students from poor or minority groups. It would also help to have more career training, better data about student needs, and a team to check if plans like NEP 2020 are working. If these steps are taken, more students can go to college and find good jobs. This will help West Bengal grow and give everyone a fair chance at a better future.

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