EXPLORING TRENDS IN THE NIRF RANKING FOR INDIAN COLLEGES

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Abstract: - *The aim of this study is to identify the present status of Indian colleges with respect to the National Institutional Ranking Framework (NIRF) ranking. The study considers NIRF ranking data from 2017 to 2022, and performs state-level aggregation and analysis across metrics such as score, participation levels and percentage which secured a ranking. The data is analysed both from a qualitative as well as quantitative standpoint, to note specific trends, improvements and invariants over the years.*

Introduction:

India boasts the third largest higher education systems of the world by the number of enrolled students. Despite its rapid growth over the recent years, India's higher education system faces multiple challenges in enrolment, equity and quality, among other factors. According to the latest AISHE (All India Survey of Higher Education) report, the national average gross enrolment ratio (GER) for higher education in India is 27.1, which has not changed significantly over the previous years. The GER for males is 26.9, females is 27.3, for scheduled castes, it is 23.4 and for scheduled tribes it is 18.0. This highlights the challenges faced both in enrolment and equity. The concept of the quality of a higher educational institute is a dynamic one, which can be simplified into multiple simpler concepts, each of those can be broken down into multiple quantitative parameters. Thus, an appropriate, well-defined methodology is needed to discuss the quality of a higher educational institute in a broad sense. The National Institutional Ranking Framework (NIRF) is such a methodology approved and launched by the Ministry of Human Resource Development (MHRD) in September 2015. From 2017 onwards, NIRF rankings have been published for the colleges of India, which is the focus of this study. The NIRF score can be broken down into five parameters, namely Teaching, Learning & Resources (TLR), Research and Professional Practice (RP), Graduation Outcomes (GO), Outreach and Inclusivity (OI) and Peer Perception. The NIRF ranking, released annually, serves as an indicator of the institution's

performance for that year from a qualitative standpoint. Many colleges participate in the ranking, but only the top 100 are ranked, with the rank bands of 100-150 and 151-200 also being displayed, even though their individual ranks are hidden. The ranking affects the applicants of the concerned colleges, as well as funding and policy decisions are made based on the NIRF rankings. This further highlights the need to study how the rank list evolves over the years, the state-wise distribution of participating colleges, and the state-wise distribution of ranked colleges.

Literature review:

The number of colleges in India has seen rapid growth from 3603 in 1970-71 to 33000 in 2011-12 (Sheikh 2017). This number has grown even further in the last decade, and as of 2019-20 there are 42343 colleges in India. However, 32.6% of the colleges only run a single programme, of which about 84% are privately-run. College density (number of colleges per lakh of eligible population) is the highest in Karnataka and lowest in Bihar (MHRD 2020). Despite the challenges in enrolment, equity and quality that are faced by the higher education system in India, opportunities have been identified for the growth and improvement in quality of higher education systems (Sheikh 2017; Begum 2017; Gupta and Gupta 2012). The Rashtriya Uchchatar Shiksha Abhiyan (RUSA) was established to increase the GER, establish new colleges and convert college clusters into universities (Sirswal 2016). The recommendations from the Yashpal Committee Report in 2015 were made in order to improve the quality of higher education in India through redesigned syllabii and courses, stress on practical knowledge alongside the theoretical and an heavy emphasis on research (Pandya 2016). The two major accreditations in India are given by NAAC (National Assessment and Accreditation Council) and NBA (National Bureau of Accreditation). It is found that other than Tamil Nadu and Maharashtra, no other state has NAAC accreditation of at least 50% of all universities (Hota and Sarangi 2019). On a global stage, it is found that depending on the department or program being evaluated, accreditation is more likely to be given for some departments than others (Stura et al. 2019). For quality assessment of higher education institutions, both ‘peer review’ and being accountable to an external constituency are considered (Van Vught and Westerheijden 1994). There has been significant work on rankings as a measure of quality assessment for higher education institutions. For QS College rankings, one of the top international rankings for higher education, only 30% of its criteria are generated by the institution themselves, the rest being reputation surveys from academics and faculty citation data (Davis 2016). Work has been conducted on analyzing the quality assessment policy for undergraduate institutions in countries such as China (Liu and Rosa 2008), Netherlands (Frederiks, Westerheijden, and Weusthof 1994) and UK (Harvey 2005).

Therefore, a research gap is identified, as significant research has not been done on NIRF rankings of Indian colleges in terms of score earned, placement in the top 100 ranking as well as trends in participation. Hence, the listed objectives of this study are as follows:

Objectives:

- To identify the present status of Indian colleges in respect of NIRF ranking.
- State wise comparative analysis of colleges based on NIRF raking to identify both the quantitative and qualitative improvement if any.

Methodology:

To fulfil the objectives of the study, data has been collected from the website of the National Institutional Ranking Framework, Ministry of Education,
Government of India i.e. - https://www.nirfindia.org, All India Survey of Higher Education i.e. https://aishe.gov.in and UGC. The data was collected through web scraping methods, and data cleaning was performed to verify the validity and consistency of the data set collected. A quantitative study has been carried out based on the collected data. Collected data has been presented in a tabular form and charts. Data has been analysed to find out the year wise growth of participated colleges in India, both on a national and state level.

Scope:

The study has been carried out based on the NIRF Ranking Reports from 2017 to 2022. It is not possible to include NIRF Ranking Report 2016 as there is no data is available under the college category.

Analysis:

The NIRF ranking data, along with the associated metadata for each college is collected. The data sets of the participating colleges were also collected. The two data sets were aggregated and joined, grouping by state. Various operations were performed to calculate aggregate measures and ranks for each year. We studied the average NIRF score obtained by each state's colleges. We also studied the participation metrics, along with the percentage of the colleges participated that secured a spot in the NIRF top 100 rankings. Finally, we also explored the top 10 colleges ranked by the NIRF for each year.

Table 1: State wise distribution of the data of NIRF Ranking 2017.

State	Total Participating Colleges	Total Colleges in Top 100	Total Score	Average Score	Best Rank achieved	Rank According to Average Score	Percentage of total colleges in NIRF top 100
Andaman and Nicobar Islands (AN)	1	0	0	0			0
Andhra Pradesh (AP)	167	10	410.5	41.05	21	10	5.99
Assam	14	1	41.81	41.81	64	8	7.14
Bihar	1	0	0	0			0
Chandigarh	4	3	129.94	43.31	32	5	75
Chhattisgarh	3	0	0	0			0
Delhi	11	11	611.62	55.6	1	1	100
Goa	4	1	43.18	43.18	53	6	25
Gujarat	34	3	125.72	41.91	37	7	8.82
Haryana	10	0	0	0			0
Himachal Pradesh(HP)	1	0	0	0			0
Jammu and Kashmir(JK)	24	0	0	0			0
Jharkhand	14	0	0	0			0
Karnataka	19	6	239.3	39.88	29	11	31.58
Kerala	16	14	609.9	43.56	17	4	87.5
Madhya Pradesh(MP)	1	0	0	0			0
Maharashtra	133	10	412.17	41.22	30	9	7.52
Nagaland	3	0	0	0			0
Punjab	4	0	0	0			0
Rajasthan	1	0	0	0			0
Tamil Nadu (TN)	46	37	1683.5	45.5	2	3	80.43
Telangana	2	0	0	0			0
Uttar Pradesh (UP)	14	0	0	0			0
West Bengal (WB)	8	4	183.99	46	6	2	50

From the above table, we see that 24 states and union territories combined participate in the NIRF ranking process. AP has the highest participation at 167, while Delhi secured a spot in the top 100 for all 11 of its participating colleges. Tamil Nadu has the largest number of colleges in the top 100, at 37 and is ranked third according to average score earned, behind Delhi and West Bengal.

Table 2: State wise distribution of the data of NIRF Ranking 2018.

State	Total Participating Colleges	Total Colleges in Top 100	Total Score	Average Score	Best Rank achieved	Rank According to Average Score	Percentage of total colleges in NIRF top 100
AP	302	2	102.57	51.29	35	4	0.66
Arunachal Pradesh (AR)	2	0	0	0			0
Assam	40	0	0	0			0
Chandigarh	7	2	95.69	47.85	68	9	28.57
Chhattisgarh	13	0	0	0			0
Delhi	37	27	1507.37	55.83	1	2	72.97
Goa	13	0	0	0			0
Gujarat	40	2	99.9	49.95	48	6	5
Haryana	8	0	0	0			0
HP	2	0	0	0			0
JK	20	0	0	0			0
Jharkhand	7	0	0	0			0
Karnataka	51	3	144.87	48.29	55	8	5.88
Kerala	53	17	843.43	49.61	18	7	32.08
MP	8	0	0	0			0
Maharashtra	184	4	200.32	50.08	19	5	2.17
Mizoram	1	0	0	0			0
Nagaland	4	0	0	0			0
Odisha	3	0	0	0			0
Pondicherry	2	0	0	0			0
Punjab	10	0	0	0			0
Rajasthan	4	0	0	0			0
Sikkim	1	0	0	0			0
TN	202	38	1966.45	51.75	5	3	18.81
Telangana	24	0	0	0			0
Tripura	2	0	0	0			0
UP	20	0	0	0			0
Uttarakhand	1	0	0	0			0
WB	26	5	281.45	56.29	9	1	19.23

From the above table, we see that 29 states and union territories combined participate in the NIRF ranking process. AP has the highest participation at 302, while Delhi secured a spot in the top 100 for 27 out of its 37 participating colleges. TN has the largest number of colleges in the top 100, at 38 and is ranked third according to average score earned, behind WB and Delhi.

Table 3: State wise distribution of the data of NIRF Ranking 2019.

State	Total Participating Colleges	Total Colleges in Top 100	Total Score	Average Score	Best Rank achieved	Rank According to Average Score	Percentage of total colleges in NIRF top 100
AP	257	2	105.53	52.77	45	7	0.78
AR	2	0	0	0			0
Assam	40	0	0	0			0
Chandigarh	9	2	100.4	50.20	72	10	22.22
Chhattisgarh	10	0	0	0			0
Delhi	40	29	1704.21	58.77	1	2	72.5
Goa	23	0	0	0			0
Gujarat	54	2	110.92	55.46	26	3	3.7
Haryana	25	0	0	0			0
HP	2	0	0	0			0
JK	18	0	0	0			0
Jharkhand	8	0	0	0			0
Karnataka	72	1	52.26	52.26	61	9	1.39
Kerala	105	18	942.73	52.37	23	8	17.14
MP	7	0	0	0			0
Maharashtra	248	3	161.58	53.86	27	5	1.21
Manipur	1	0	0	0			0
Meghalaya	5	0	0	0			0
Mizoram	1	0	0	0			0
Nagaland	4	0	0	0			0
Odisha	3	0	0	0			0
Pondicherry	12	1	52.93	52.93	49	6	8.33
Punjab	12	0	0	0			0
Rajasthan	6	0	0	0			0
Sikkim	1	0	0	0			0
TN	270	35	1893.78	54.11	3	4	12.96
Telangana	16	1	49.7	49.70	95	11	6.25
Uttar Pradesh	19	0	0	0			0
Uttarakhand	1	0	0	0			0
WB	33	6	361.24	60.21	8	1	18.18

From the above table, we see that 30 states and union territories combined participate in the NIRF ranking process. TN has the highest participation at 270, while Delhi secured a spot in the top 100 for 29 out of its 40 participating colleges. Tamil Nadu has the largest number of colleges in the top 100, at 35 and is ranked fourth according to average score earned, behind WB, Delhi and Gujarat. Out of 54 participating Gujarat colleges, 2 secured a spot at the NIRF rankings.

Table 4: State wise distribution of the data of NIRF Ranking 2020.

State	Total Participating Colleges	Total Colleges in Top 100	Total Score	Average Score	Best Rank achieved	Rank According to Average Score	Percentage of total colleges in NIRF top 100
AN	1	0	0	0			0
AP	259	1	57.64	57.64	36	3	0.39
AR	3	0	0	0			0
Assam	64	0	0	0			0
Bihar	5	0	0	0			0
Chandigarh	10	1	51.28	51.28	86	12	10
Chhattisgarh	8	0	0	0			0
Delhi	45	29	1755.75	60.54	1	1	64.44
Goa	24	0	0	0			0
Gujarat	55	2	114.94	57.47	24	4	3.64
Haryana	26	1	54.93	54.93	49	6	3.85
HP	4	0	0	0			0
JK	15	0	0	0			0
Jharkhand	11	0	0	0			0
Karnataka	105	1	52.37	52.37	72	10	0.95
Kerala	116	20	1060.99	53.05	23	8	17.24
MP	8	0	0	0			0
Maharashtra	397	3	160.84	53.61	42	7	0.76
Manipur	25	0	0	0			0
Meghalaya	5	0	0	0			0
Mizoram	1	0	0	0			0
Nagaland	4	0	0	0			0
Odisha	3	0	0	0			0
Pondicherry	12	2	105.27	52.64	56	9	16.67
Punjab	16	0	0	0			0
Rajasthan	9	0	0	0			0
Sikkim	2	0	0	0			0
TN	272	32	1807.12	56.47	5	5	11.76
Telangana	20	1	52.28	52.28	73	11	5
Tripura	13	0	0	0			0
UP	20	0	0	0			0
Uttarakhand	2	0	0	0			0
WB	99	7	417.99	59.71	7	2	7.07

From the above table, we see that 33 states and union territories combined participate in the NIRF ranking process. Maharashtra has the highest participation at 397, while Delhi secured a spot in the top 100 for 29 out of its 45 participating colleges. Tamil Nadu has the largest number of colleges in the top 100, at 32 and is ranked fifth according to average score earned, behind Delhi, West Bengal, AP and Gujarat.

Table 5: State wise distribution of the data of NIRF Ranking 2021.

State	Total Participating Colleges	Total Colleges in Top 100	Total Score	Average Score	Best Rank achieved	Rank According to Average Score	Percentage of total colleges in NIRF top 100
AP	254	1	57.47	57.47	34	4	0.39
AR	3	0	0	0			0
Assam	56	0	0	0			0
Bihar	3	0	0	0			0
Chandigarh	9	1	52.22	52.22	78	10	11.11
Chhattisgarh	6	0	0	0			0
Delhi	49	28	1692.17	60.43	1	2	57.14
Goa	24	0	0	0			0
Gujarat	61	2	115.59	57.80	22	3	3.28
Haryana	30	1	57.15	57.15	38	5	3.33
JK	16	0	0	0			0
Jharkhand	12	0	0	0			0
Karnataka	191	3	157.01	52.34	62	9	1.57
Kerala	133	19	1010.5	53.18	25	8	14.29
MP	11	0	0	0			0
Maharashtra	382	4	208.77	52.19	61	11	1.05
Manipur	34	0	0	0			0
Meghalaya	5	0	0	0			0
Mizoram	1	0	0	0			0
Nagaland	4	0	0	0			0
Odisha	7	0	0	0			0
Pondicherry	10	1	55.01	55.01	50	7	10
Punjab	22	0	0	0			0
Rajasthan	7	1	51.89	51.89	81	12	14.29
Sikkim	1	0	0	0			0
TN	261	33	1857.69	56.29	3	6	12.64
Telangana	72	1	51.58	51.58	85	13	1.39
Tripura	18	0	0	0			0
UP	27	0	0	0			0
Uttarakhand	3	0	0	0			0
WB	90	5	313.85	62.77	4	1	5.56

From the above table, we see that 31 states and union territories combined participate in the NIRF ranking process. Maharashtra has the highest participation at 382, while Delhi secured a spot in the top 100 for 28 out of its 49 participating colleges. TN has the largest number of colleges in the top 100, at 33 and is ranked third according to average score earned, behind WB and Delhi.

Table 6: State wise distribution of the data of NIRF Ranking 2022.

State	Total Participating Colleges	Total Colleges in Top 100	Total Score	Average Score	Best Rank achieved	Rank According to Average Score	Percentage of total colleges in NIRF top 100
AP	222	1	52.38	52.38	94	12	0.45
AR	4	0	0	0			0
Assam	76	0	0	0			0
Bihar	6	0	0	0			0
Chandigarh	11	1	56.26	56.26	46	6	9.09
Chhattisgarh	12	0	0	0			0
Delhi	54	32	1970.27	61.57	1	2	59.26
Goa	22	0	0	0			0
Gujarat	65	1	55.33	55.33	52	7	1.54
Haryana	41	1	57.16	57.16	42	4	2.44
HP	6	0	0	0			0
JK	23	0	0	0			0
Jharkhand	89	0	0	0			0
Karnataka	200	2	107.38	53.69	55	10	1
Kerala	152	17	937.67	55.16	24	8	11.18
MP	114	0	0	0			0
Maharashtra	466	3	161.77	53.92	57	9	0.64
Manipur	26	0	0	0			0
Meghalaya	5	0	0	0			0
Mizoram	2	1	56.32	56.32	45	5	50
Nagaland	7	0	0	0			0
Odisha	7	0	0	0			0
Pondicherry	12	2	105.64	52.82	80	11	16.67
Punjab	23	0	0	0			0
Rajasthan	9	0	0	0			0
Sikkim	1	0	0	0			0
TN	308	32	1843.63	57.61	3	3	10.39
Telangana	81	0	0	0			0
Tripura	22	0	0	0			0
UP	33	0	0	0			0
Uttarakhand	60	0	0	0			0
WB	111	7	432.01	61.72	8	1	6.31

From the above table, we see that 33 states and union territories combined participate in the NIRF ranking process. Maharashtra has the highest participation at 466, while Delhi secured a spot in the top 100 for 32 out of its 54 participating colleges. TN and Delhi jointly share the largest number of colleges in the top 100, at 32. Tamil Nadu is ranked third according to average score obtained, behind WB and Delhi.

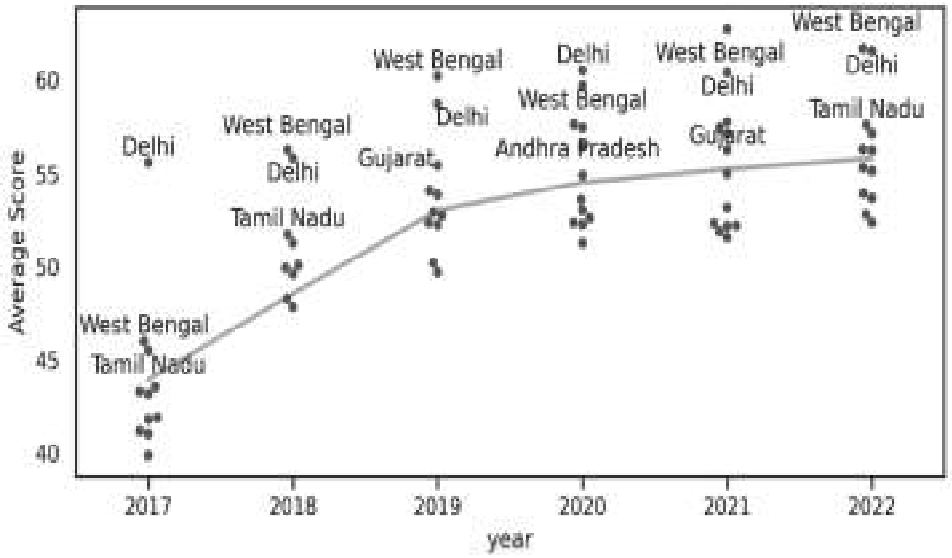

Figure 1: Trends in the distribution of average scores of each state. Note that Delhi vastly outperforms the other states in 2017 but this behaviour is not reflected 2018 onwards.

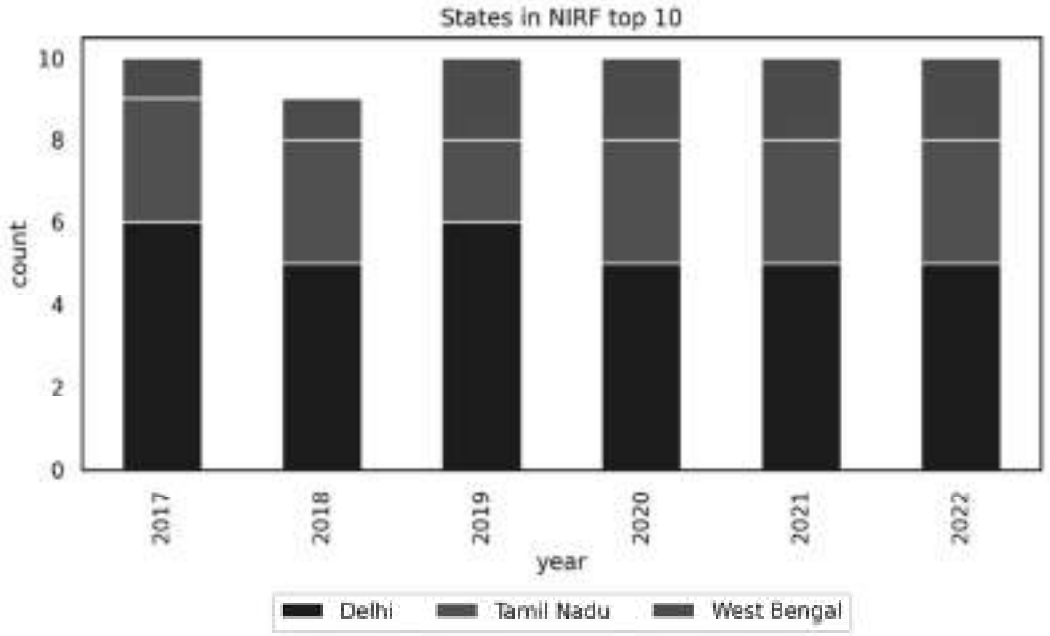

Figure 2: Distribution of states in the NIRF Top 10 across the years (Note: For 2018, the third rank holder college was withdrawn from the rankings after it was found that inaccurate information was submitted. Hence, there are only 9 rank-holder colleges in the top 10.)

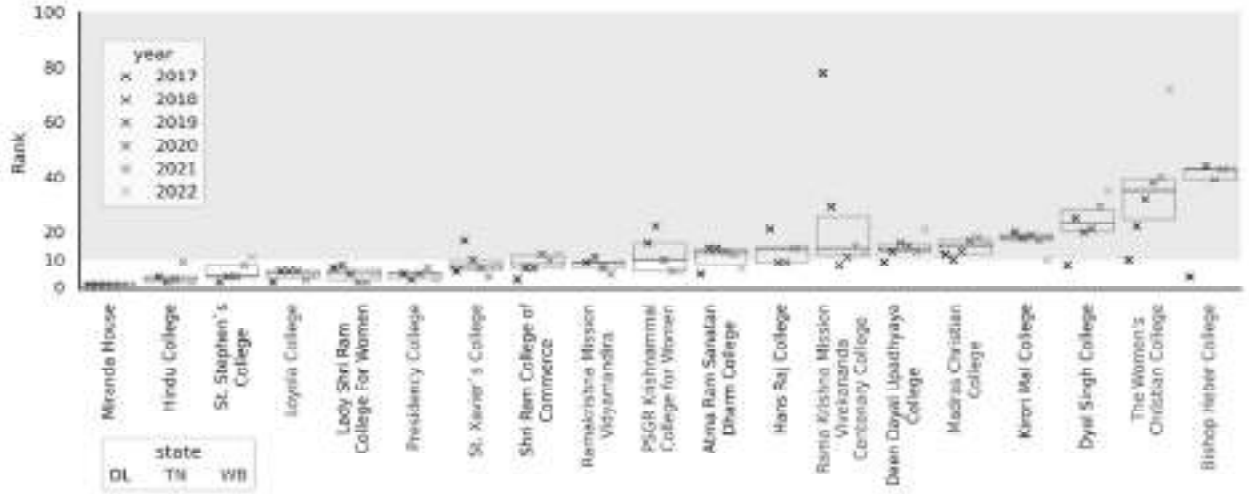

Figure 3: Colleges which secured a top 10 rank in NIRF across the years, sorted by median rank obtained. The marker for each college is ordered and coloured by year. The college labels in the x-axis are coloured according to state code. The median ranks as well as the quartiles are highlighted via box plots. Data points with ranks of 10 or below are highlighted by a lighter background.

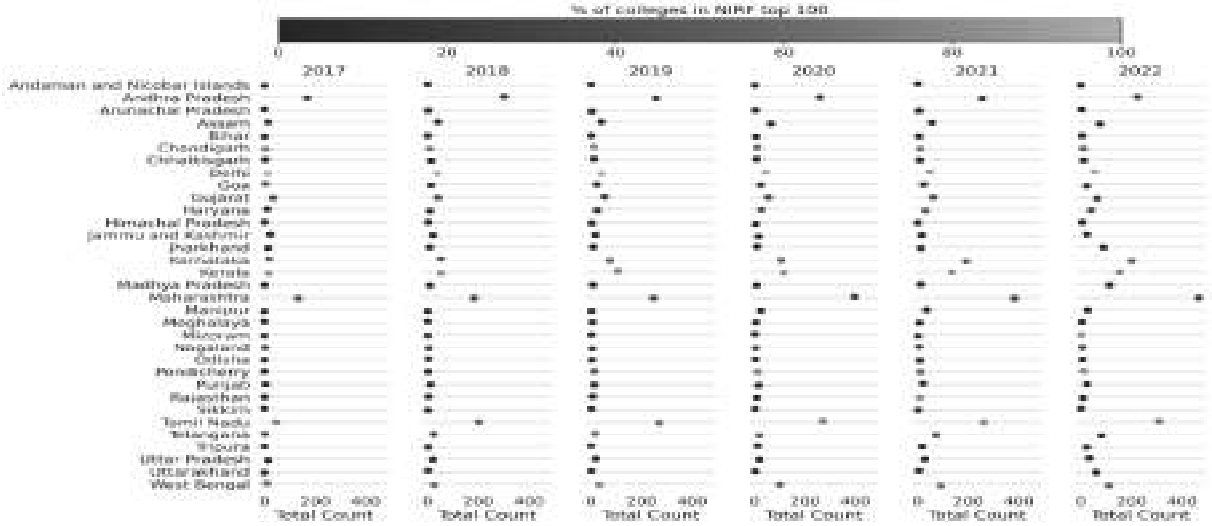

Figure 4: A multivariable dot-plot demonstrating the relationship between Number of participants and the percentage of rank holders for each state across the years. Each year is represented by a column, each state is represented by a row, the total number of colleges participating is seen by the relative position of the dot

(axis at the bottom) and the hue of the dot signifies the percentage of colleges that secured a spot in the NIRF top 100 (colour map at the top).

Findings & Conclusions:

From Figure 1 and Tables 1 through 6, we see that West Bengal and Delhi have consistently had the highest average score, with Tamil Nadu, Gujarat, Andhra Pradesh, and Haryana being strong contenders. Note that the metric of highest average score gives insight on the state of the ranking when considered in conjunction with total number of colleges that secured a NIRF ranking. From Figure 1 we see that there was a sharp increase in average score obtained between 2017 and 2019, but the increase has slowed 2019 onwards.

From Figure 2, we see that the top 10 colleges are distributed largely in Delhi, with smaller percentages in Tamil Nadu and West Bengal, respectively. We see that this distribution has remained constant from 2020 onwards. From Figure 3, we see that Miranda House has consistently been securing the top rank for each year since 2017. We also see that a handful of colleges are consistently achieving ranks within the top 10. There are 10 colleges with a median rank of 10 or higher, meaning there is low movement in the top 10. Rama Krishna Mission Vivekananda Centenary College is notable as it rose from rank 78 to securing a spot at the top 10, and consistently performing in the later years.

From Figure 4 we gain insights into participation and ranking percentage among states. Participation seems to have increased significantly across the board, but only few states are participating in substantial numbers. Many states are still participating at a negligible rate. Some states are participating at a lesser rate but securing a larger share of participants in the top 100 rankings. However, this is to be noted that the states with higher participation counts will still occupy a larger share of the rankings, even if the percentage of participants in the rankings is small. According to the AISHE report of 2019-20, there are 25511 general-track colleges present in the country. However, only 2270 (8.9%) of them participate in 2022's NIRF rankings. This highlights a major issue still plaguing the rankings, as participation needs to be improved significantly to foster equity and make objective judgements on the higher education quality based on NIRF rankings. Furthermore, we have observed a pattern of a few colleges that have established a monopoly over the top ranked spots. Ideally, we would see more movement in the ranking which would be in the spirit of equity and healthy competition. Future work needs to be performed on strategies to increase participation and to include a more diverse list of colleges in the top ranks of NIRF.

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