

Higher Education in India – A Critical Appraisal

Author: Miss Damayanti Sen

Email: damayantisen20@gmail.com

Department: Economics

Affiliation: Research Scholar, Department of Economics, Rabindra Bharati University, Kolkata, West Bengal, India

Country: India

Postal Address: CK-110, Salt Lake, Kolkata, West Bengal, India, Pin Code 700091.

Mobile No.: 9748197287

Higher Education in India – A Critical Appraisal

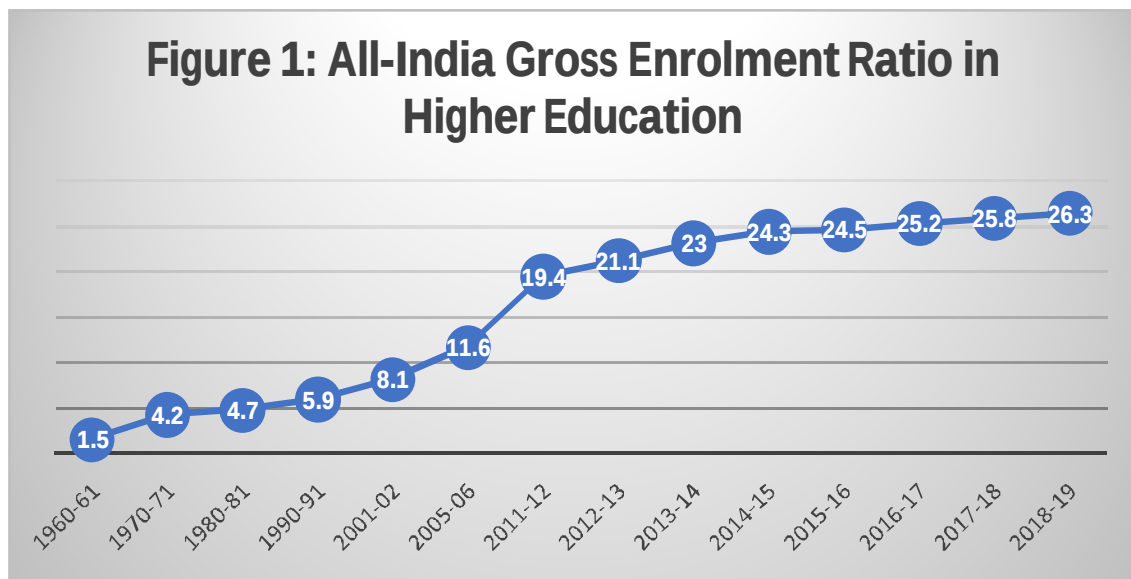
Abstract: The primary concern of the paper is to assess the present Indian higher education scenario. It is tested that the infrastructure and the enrolment are growing at the same pace and there is no significant difference between their growth rates. However, Cluster Analysis and Sopher's Index reflect that the fruits of expansion in higher education are not reaching all corners of the country. The benefits are restricted to certain states and the urban areas, while the other states and the rural areas are still marginalised in access and outcome as far higher education is concerned. The extent of inequality across the states is captured by construction of unidimensional Gini index and multidimensional inequality index following Maasoumi's methodology. The values show prevalence of disparity across the states and no significant reduction in inequality as such over time. As far as setting standards for quality assurance in higher education is concerned, a significant but very low correlation between the two major assessing institutions, NAAC and NIRF, seems to enhance the dilemma of the higher education institutions. The need of the hour are right policies as a necessary requirement for the higher education trajectory to be sustained at a prestigious and positive level that benefits the whole nation.

Keywords: inter-state inequality, higher education, cluster analysis, multidimensional inequality index, Sopher's index, rural-urban disparity, correlation

1. Introduction

According to Martin Trow's classification of stages of development of higher education (Trow, 2006), "a country is at an elite stage of higher education when the gross enrolment ratio (GER) is less than 15 per cent; at a stage of massification when the GER is between 15 and 50 per cent and at a stage of universalization when the GER reaches 50 per cent mark." If we follow this definition, then the higher education sector in India, with a GER of 26.3 per cent in 2018-19, is in its early stages of massification. Figure 1 represents the GER trajectory traced by Indian higher education system over time.

Figure 1 All-India Gross Enrolment Ratio in Higher Education

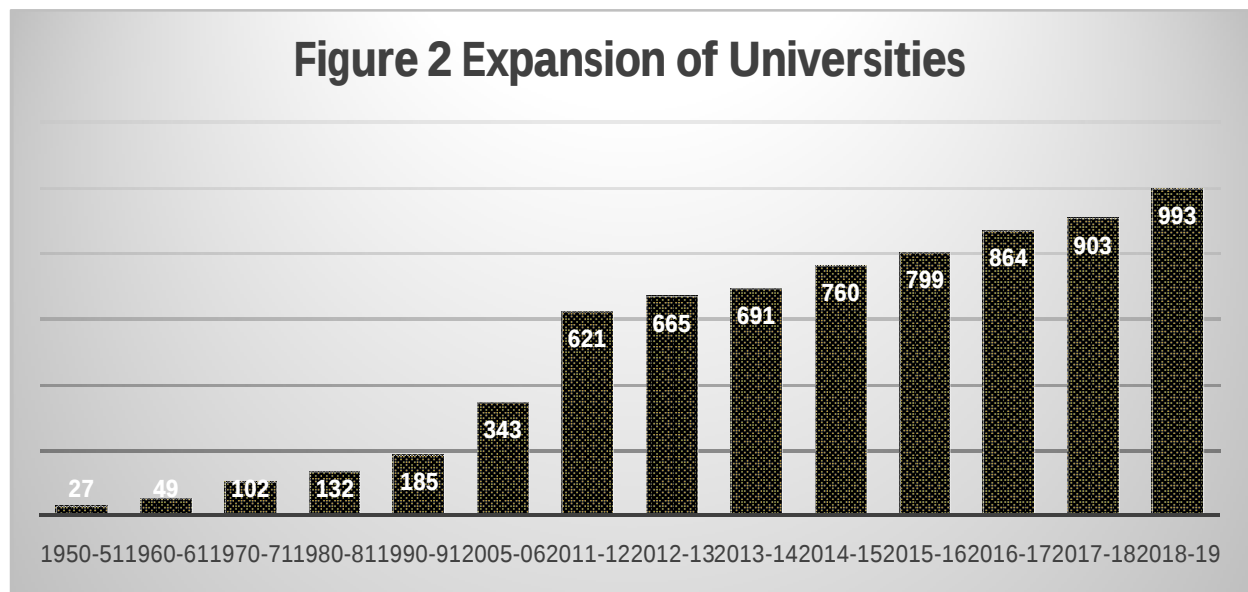


Source: Varghese (2015); AISHE Reports (Various years)

After a prolonged neglect of higher education for two and a half decades by the Government of India, it has again become a priority for the government since 2007. Following major initiatives launched by the Government of India in its Eleventh and Twelfth Plans, there have been massive expansion in the infrastructure of the higher education sector. Figure 2 shows the expansion path of number of universities while figure 3 plots the rise in the number of colleges.

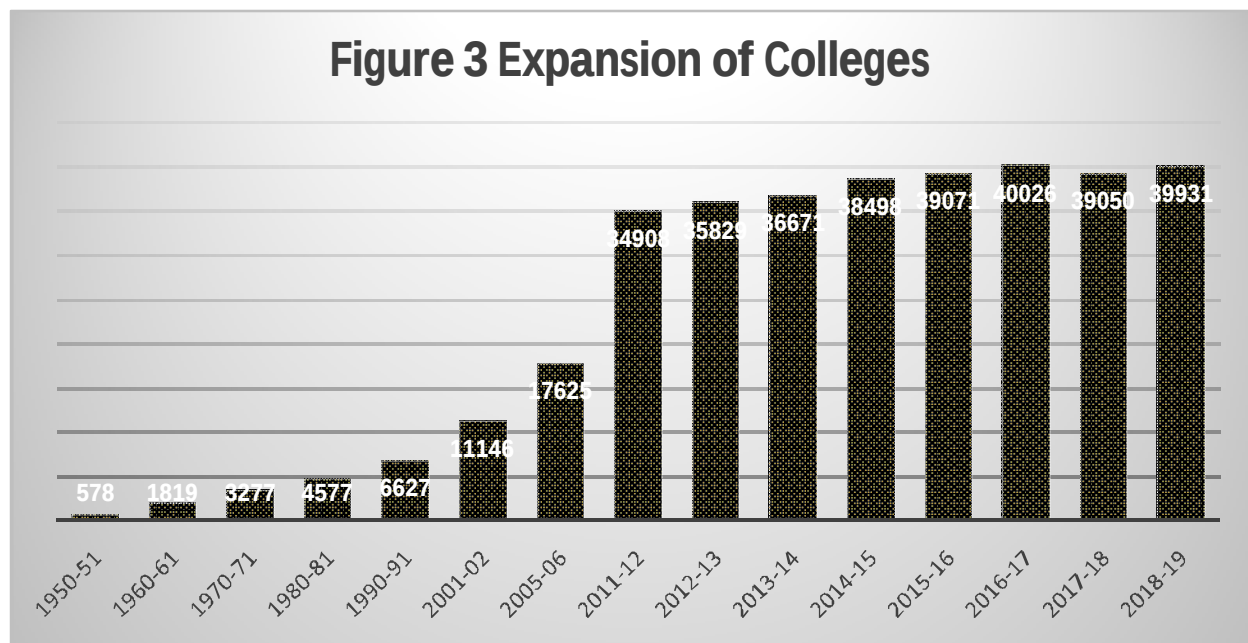
Now, question arises whether this increasing trend is sustainable for India and whether India can move towards further massification. This concern is reframed as research questions in section 2. Section 3 describes the data sources and methodology applied. Section 4 presents the results and finally section 5 gives the conclusion on the findings of this paper. References are presented at the end of the paper.

Figure 2 Expansion of Universities



Source: Varghese (2015); AISHE Reports (Various years)

Figure 3 Expansion of Colleges



Source: Varghese (2015); AISHE Reports (Various years)

2 Research Questions and Objectives

In a quest to understand better the current scenario prevalent in India and the future prospects of the country with respect to higher education, the research question framed is “Achieving massification, inclusion and excellence in higher education in India- a myth or a reality?”

This question is analysed in the paper. This paper answers this question by investigating if our infrastructure is growing at the same pace as our participation in higher education and also, if the growth is inclusive in nature across states and rural-urban regions of India and whether it ensures quality. The objective is to capture All-India picture as also the inter-regional variations in higher education indicators across the states of India and the rural-urban inequality prevalent in the country. Additionally, a study on the quality assessment needs of HEIs in India is also made, with an attempt to throw light on the “Excellence” aspect.

3 Data and Methodology

3.1 Data Sources: The analysis of this paper is based on secondary data from the sources mentioned below:

- (i) All India Survey on Higher Education (AISHE) various years’ reports, NSSO 71st round report, Tilak (2015), Educational Statistics at a Glance (ESAG 2018) have given the data on higher education enrolment and infrastructure in India.
- (ii) Analysis of Budgeted Expenditure on Education (various issues) published by MHRD and also RBI Handbook of Statistics (various years) and RBI State Finances (2017-18) have been used to get data on public expenditure on education for India, states of India and NSDP.
- (iii) Report on Education, Skill Development and Labour Force (2015-16) and CMIE Reports provided data on educated unemployment
- (iv) Data on NAAC and NIRF scores have been taken from the respective websites.

3.2 Methodology:

(i) Overall Growth Comparison: The growth rates of enrolment, colleges, eligible population and teachers over the years is calculated as $g_t = \frac{x_t - x_{t-1}}{x_{t-1}} \times 100$. It is also statistically tested whether there is significant difference between the following pairs of growth rates:

- (a) Growth rate of enrolment – Growth rate of colleges

(b) Growth rate of enrolment – Growth rate of teachers

(c) Growth rate of eligible population - Growth rate of colleges

(d) Growth rate of eligible population – Growth rate of teachers

(ii) Cluster Analysis: To compare the development of the states of India with respect to higher education parameters, the paper has made use of hierarchical cluster analysis of the standardized values of the chosen variables. Cluster analysis is a tool for examining unstructured multivariate data. Clustering is a statistical tool to organize a given data set into homogeneous subgroups, or “clusters.” The paper has used the Hierarchical Clustering Technique to analyze the data with the help of the SPSS software.

Choice of the period of analysis: 2013-14 – The paper has chosen this particular period because it marks the second year from the starting of the 12th Five Year Plan which is notable for its massive higher education plans. So, the analysis will reflect the position of the states of India in this year and thereby help in the right policymaking, through identification of the lapses. Also, to consolidate our result, the chapter repeated the same clustering procedure for the data of a subsequent year **2016-17**.

Choice of the indicators: To make the comparison effective, we have chosen indicators under five broad heads:

(I) Economic Indicator: The per capita Net State Domestic Product is chosen as the economic indicator of the state.

(II) Higher Education Infrastructural Indicators: Under this head, the number of colleges per lakh population of the state and also the pupil-teacher ratio are chosen.

(III) Public Policy Indicator: The public expenditure on education as a percentage of aggregate expenditure of the state is selected.

(IV) Extent of privatisation Indicator: The ratio of private colleges (both aided and unaided) to total number of colleges in the state is calculated.

(V) Higher Education Participation Indicator: The overall gross enrolment ratio in higher education of the state is taken.

Using the above indicators, the hierarchical cluster analysis was is done, and the clusters are highlighted with the help of maps of India, designed taking the help of website <https://mapchart.net/india.html>.

(iii) Inequality indices: To consolidate our findings of state-wise disparity found in cluster analysis and quantify the extent of inequality prevalent across states of India in higher education, the paper exploits the same data set to construct inequality indices and compare over the two chosen years 2013-14 and 2016-17.

First, the paper applies the individual approach, where each dimension's inequality is calculated and analysed one at a time. To capture individual inequality, the paper calculates the Gini Coefficient for each indicator for each of the two periods 2013-14 and 2016-17.

Gini coefficient (G) = $1 + (1/n) - (2/n^2 \cdot \bar{X}) (X_1 + 2X_2 + 3X_3 + \dots + nX_n)$, where n is the number of observations in the series, $\bar{X}$ is the average of the observed values, $X_1, X_2, X_3, \dots$ are observed values arranged in descending order. The value of the Gini Coefficient measures the extent of variation. If $G=0$, then there is no variation. Higher the values of G , higher the variation in the observed values in the series.

Second, the paper calculates multidimensional inequality indices using the Maasoumi method. The logic is inequality in any of these indicators is going to increase the overall disparity across the states and hence reduce the overall well-being of the country. So, an overall multidimensional inequality index is constructed. First, standardization of the indicators is done by dividing each value by the mean. Next, the equation used to aggregate the six dimensions into a single well-being measure is listed below:

$$S_i = (\sum_{k=1}^6 w_k Z_{ik}^\beta)^{1/\beta}, \beta \neq 0 \text{ and}$$

$$S_i = \prod_{k=1}^6 (Z_{ik})^{w_k}, \beta=0,$$

where S_i is the well-being measure of person i , w_k is the weight of dimension k , $Z_{ik} = f(X_{ik})$, X_{ik} is the value of dimension k for person i , $f()$ is the standardization function, and β is the

substitutability parameter among the dimensions. By substitutability we mean when dealing with multiple dimensions, it is important to decide how the dimensions interact with each other. The paper has taken moderate substitution of dimensions ($\beta = -1$), that is, it is assumed that less inequality in one dimension moderately offsets the inequality in another dimension.

After having done this, the multidimensional Atkinson inequality measure is calculated as follows:

$$I^A = 1 - \left[\frac{1}{n} \sum_i \left(\frac{S_i}{\mu} \right)^{1-\epsilon} \right]^{1/(1-\epsilon)}, \epsilon \neq 1,$$

$$I^A = \frac{1}{n} \sum_i \log \left(\frac{\mu}{S_i} \right), \epsilon = 1,$$

where μ is the mean of the well-being measure, S_i and ϵ is the inequality aversion parameter.

Inequality aversion is a measure of how society feels about distributions. If $\epsilon=0$, there is no aversion to inequality and the Atkinson Index is zero. As ϵ increases, inequality aversion increases, and the Atkinson Index increases. The preferred specification is the multidimensional Atkinson Index with moderate inequality aversion ($\epsilon = 2$) and moderate substitution of dimensions ($\beta = -1$).

To avoid value judgements about which indicator is more important than the other, equal weighting of dimensions is considered.

(iv) Rural-urban gap prevalent in higher education in India: This aspect has been studied from two angles – absolute terms and relative terms and with the help of three major parameters of higher education participation, higher education attainment and labour market outcome.

(a) Higher education participation indicators taken are the following:

(i) Gross Enrolment Ratio (GER) (students enrolled in higher education, regardless of age, as a percentage of the population of the age group 18-23),

(ii) Net Enrolment ratio (the proportion of the students of the age 18-23 enrolled into higher education as a percentage of the population of the age group 18-23, thus showing the levels of representation of population in higher education),

(iii) Eligible Enrolment Ratio (students enrolled in higher education as a percentage of high school graduates, that is, people who are eligible to enter higher education),

(iv) Transition Rates (entrants in higher education as a proportion of entrants to senior / upper secondary school education),

(b) Higher Education Attainment indicator is the percentage of adult population who completed higher education over the years.

(c) Labour market outcome indicator is the educated unemployment rate for graduates and post-graduates (absorption of the educated in the labour market).

To capture the rural-urban inequality the above indicators have been studied in absolute terms. In addition, to capture the inequality in relative terms, the Sopher's Index (1974) of regional disparity has been estimated. Sopher's Index of inequality is explained as follows: If X_1 and X_2 represent the respective percentage of the variables of groups 1 and 2, then the Sopher's index of inequality D is:

$$D = \log (X_2 / X_1) + \log (Q - X_1) / (Q - X_2)$$

The objective of taking logarithm is to reduce the levelling off effects (region with high level of attainment may have low level of disparity and vice versa). Sopher's Index has a number of useful properties like (1) It ranges from minus infinity to plus infinity and each of these extremes are possible if one group totally lacks the property or when all members of one group have the property; (2) Obviously if there is no inequality then $D=0$. Therefore, any deviation from zero is inequality. (3) A positive value implies X_2 has higher values than X_1 , while a negative value indicates the reverse. Also, higher the absolute value of D , higher the inequality; (4) The sign is reversed when the disparity is measured in the reverse direction, that is, rural-urban gap is made urban-rural gap; (5) the sign also gets reversed when the absence of the property is measured, that is to say, rural-urban disparity in higher education enrolment is the reverse of rural-urban disparity in higher education non-participation; (6)

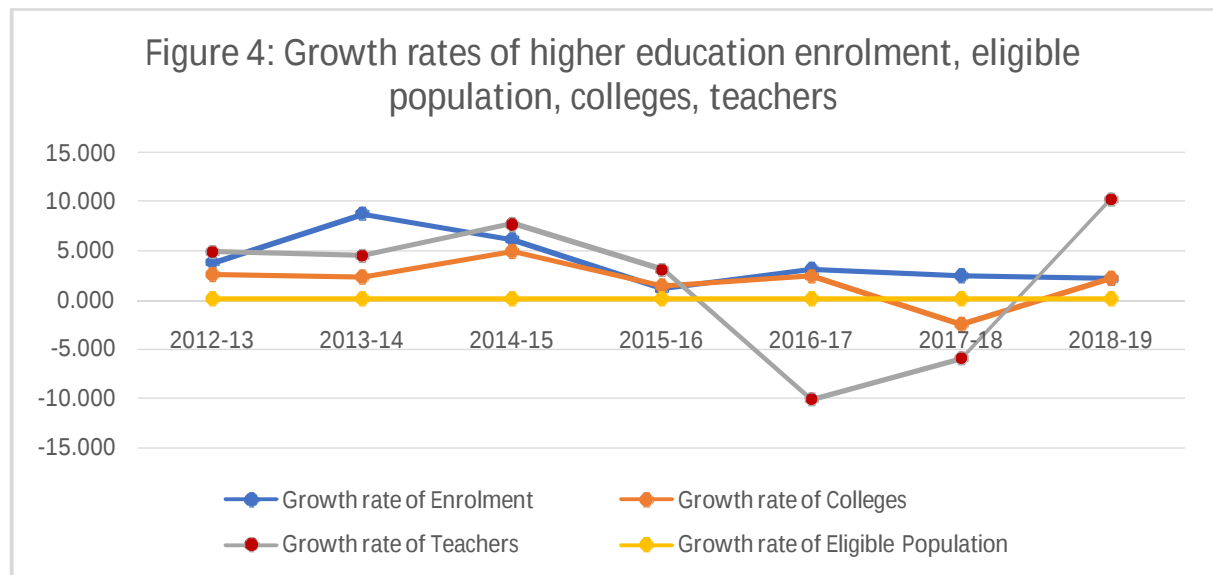
The index is additive, that is, the sum of disparity between groups A and B and the disparity between B and C, is equal to the disparity between groups A and C.

(v)Product-Moment Correlation Coefficient: In order to study the extent of compatibility between the assessment methods of NAAC and NIRF, the product – moment correlation coefficient of the corresponding scores of 88 colleges in India is calculated, its significance tested and its sign and strength analysed.

4 Results

4.1 Overall Growth Comparison: The growth rates of higher education enrolment, eligible population, colleges and teachers is plotted in Figure 4. It is seen that eligible population has grown fairly steadily over the years, while growth rate of enrolment is showing fluctuations, as also growth rate of colleges and teachers. The reasons for this fluctuations have not been investigated in this study, and is left for future research. Also as seen in Table 1, there is no significant difference in the growth rates of any of the chosen pairs at 5% level of significance. That means, the enrolment and infrastructure in higher education in India, as also the eligible population and higher education infrastructure are growing at the same pace. This is a positive result, because massification is being supported by simultaneous and adequate growth in higher education infrastructure.

Figure 4 Growth rates of higher education enrolment, eligible population, colleges, teachers



Source: Author's Calculations

Table 1 Testing of significance between growth rates of four chosen pairs

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Growth rate of Enrolment - Growth rate of Colleges	2.027286	2.609879	.986441	-.386449	4.441021	2.055	6	.086
Pair 2	Growth rate of Enrolment - Growth rate of Teachers	1.921714	7.205598	2.723460	-4.742352	8.585781	.706	6	.507
Pair 3	Growth rate of Eligible Population - Growth rate of Colleges	-1.781571	2.233492	.844180	-3.847207	.284064	-2.110	6	.079
Pair 4	Growth rate of Eligible Population - Growth rate of Teachers	-1.887143	7.369237	2.785310	-8.702550	4.928265	-.678	6	.523

Source: Author's Calculations using SPSS software

4.2Cluster Analysis: The descriptive statistics of the indicators are presented in tables 2 and 3.

Table 2 Descriptive Statistics of the Indicators for 2013-14

	N	Minimum	Maximum	Mean	Std. Deviation
PerCapitaNSDP	29	22776.00	188358.00	78779.62	39089.99679
PubExpEdu	29	11.50	22.60	16.1357	2.43238
PupilTeacherRatio	29	14	58	26.00	11.446
CollegesPerLakhPopln	29	7	55	26.59	11.779
PvtColgToTotal	29	.03	.91	.5876	.24430
GER	29	13.00	43.00	23.0	7.70054

Source: Author's Calculations

Table 3 Descriptive Statistics of the Indicators for 2016-17

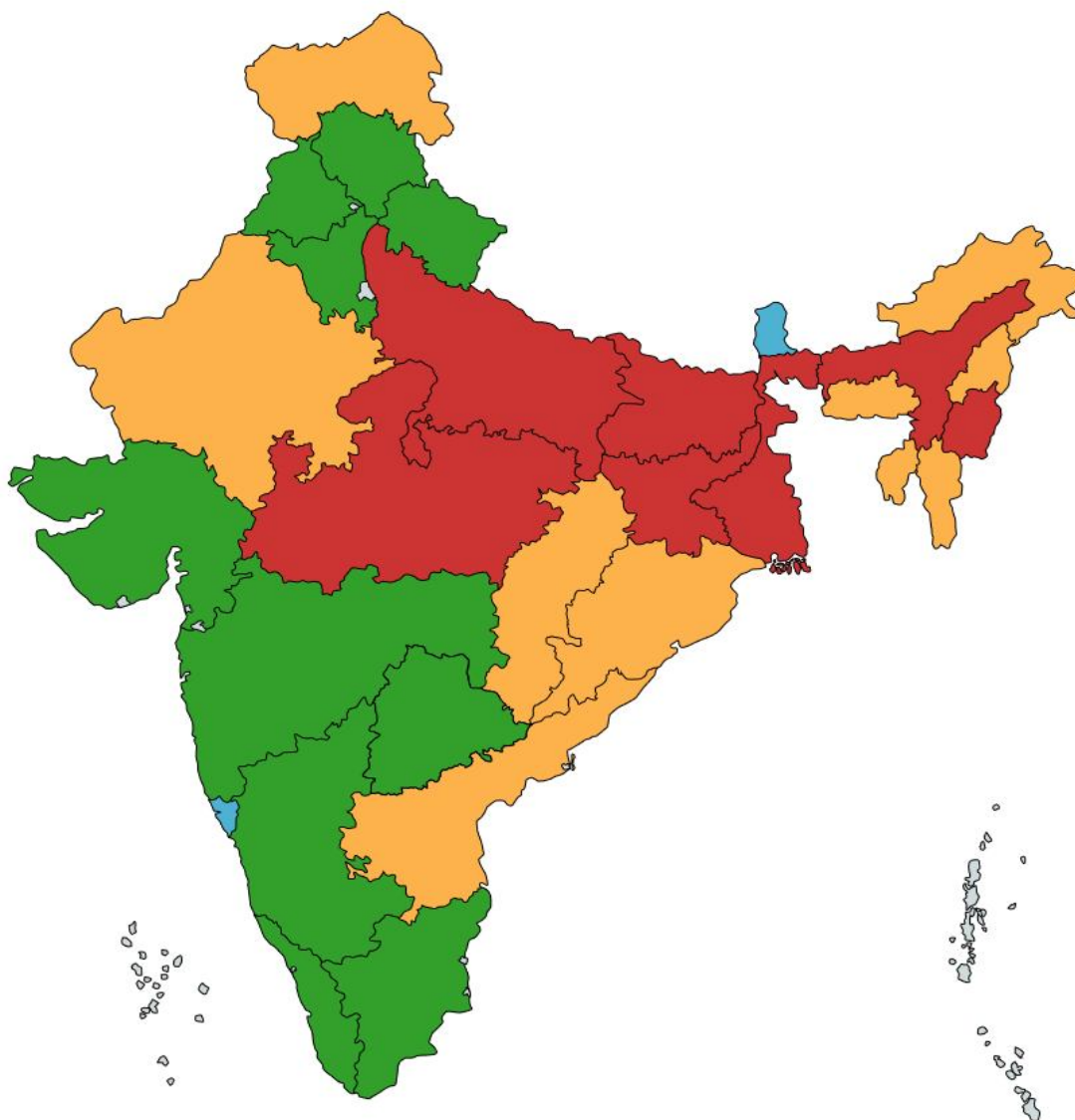
	N	Minimum	Maximum	Mean	Std. Deviation
PerCapitaNSDP	29	.00	308823.00	95681.83	59867.92978
PubExpEdu	29	8.80	20.80	14.7897	2.73866
PupilTeacherRatio	29	15	70	28.76	12.763
CollegesPerLakhPopln	29	7	59	28.97	13.305
PvtColgToTotal	29	.07	.89	.5969	.24339
GER	29	14.40	46.90	25.2	7.94775

Source: Author's Calculations

For the year 2013-14, cluster analysis yielded four distinct cluster of states. These clusters have been shown in the map of India in figure 5 where the orange coloured states show a mediocre per capita NSDP, low infrastructural parameters. The red coloured states are the second cluster which also show mediocre per capita NSDP and poor infrastructure. Both these two clusters are in the possibility of getting trapped into a vicious circle as their parameters are not showing 'up-to-the-mark' values. The green coloured states are comparatively in a more comfortable position and form the third cluster. A most unique

position is enjoyed by the 4th cluster of Goa and Sikkim, who have the virtues of good performance in almost all the indicators. This is represented by blue colour.

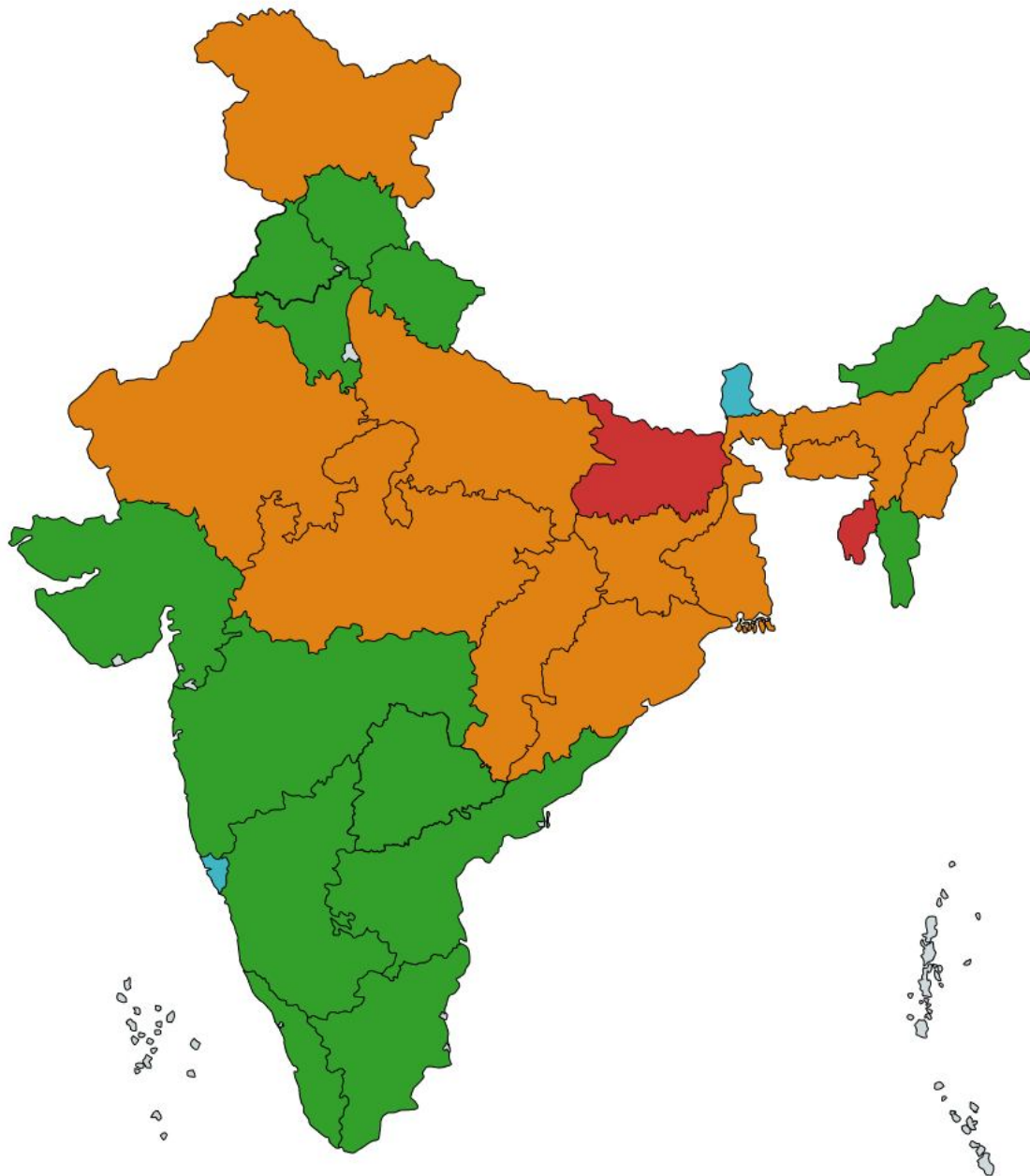
Figure 5 Clusters in the year 2013-14



Map has been designed taking help of website <https://mapchart.net/india.html>

The same procedure is repeated with the data of 2016-17 and the clusters are presented in figure 6. In the year 2016-17, we see that the 4th cluster is unchanged as Goa and Sikkim continue to enjoy their supreme positions in respect of the parameters. The green coloured states in figure 3 are also in a comfortable position. But the orange coloured states are still in a vulnerable position, and particularly the two red-coloured states of Bihar and Tripura show the tendency of getting badly trapped into a vicious circle, as in the year 2013-14 also their position was equally vulnerable.

Figure 6 Clusters in the year 2016-17



Map has been designed taking help of website <https://mapchart.net/india.html>

Thus, the paper concludes objectively that not all states in India are experiencing the same progress in higher education. Some states are in a secure position, but some states, particularly the orange and red coloured states identified do have a threat of getting trapped in

a “vicious circle” where low state income is inducing low public expenditure on education which subsequently gets translated into low availability of the required infrastructure leading to lower opportunity to access higher education for the eligible candidates. It is high time to raise alarm and highlight and present to the Central as well as the State governments about the issues persisting in these states, to take the necessary steps forward to alleviate the problems at the earliest.

4.3 Inequality Indices: According to table 4 which presents the inequality by individual indicators, per capita NSDP is the most unequal dimension across the states, and Public expenditure on education is the most equal dimension across the states. Infrastructural parameters also show substantial inequality, as does extent of privatisation. Participation is comparatively less unequal, though still assuming quite high value.

Though statistically insignificant, there has been a 9.5% increase in the inequality as measured by Gini index in Per Capita NSDP. As far as infrastructure is concerned, there has been a conflicting change. While inequality in distribution of colleges has increased, pupil teacher ratio is showing improvement. Disparity in pupil teacher ratio is coming down, probably due to massive teacher recruitment drives by the government. A sharp increase in the disparity has occurred with respect to public expenditure on education by the states. Inequality in the extent of privatisation has fallen, showing more and more states are opting for privatisation. Participation in higher education is also bridging down across the states. But since the changes are statistically insignificant, therefore inequality has remained more or less the same across all the indicators over the time period.

Table 4 Inequality by Individual Indicators

Indicator	Variable Used	Gini index 2013-14	Gini index 2016-17	Difference	Percentage change
Economic Indicator	Per Capita Net State Domestic Product	0.263	0.288	0.025*	9.5*
Higher Education Infrastructural Indicator	No. of Colleges per lakh eligible population	0.245	0.253	0.008*	3.26*
	Pupil Teacher Ratio	0.219	0.216	-0.003*	-1.37*
Public Policy Indicator	Public Expenditure on Education as a percentage of Aggregate Expenditure of the state	0.081	0.098	0.017*	20.99*
Extent of Privatisation Indicator	Ratio of private colleges to total number of colleges in the state	0.226	0.224	-0.002*	-0.88*
Higher Education Participation Indicator	Gross Enrolment Ratio in higher education	0.178	0.167	-0.011*	-6.18*

*Statistically insignificant at 5% level of significance

Source: Author's Calculations

According to table 5, in 2013-14, the multidimensional inequality index assumes a very high value, indicating the high level of disparity across the states. Though in absolute terms the value of the multidimensional inequality index has fallen in 2016-17, yet the change is statistically insignificant at 5% level of significance, implying the inequality across the states has not reduced.

Table 5 Multidimensional Inequality

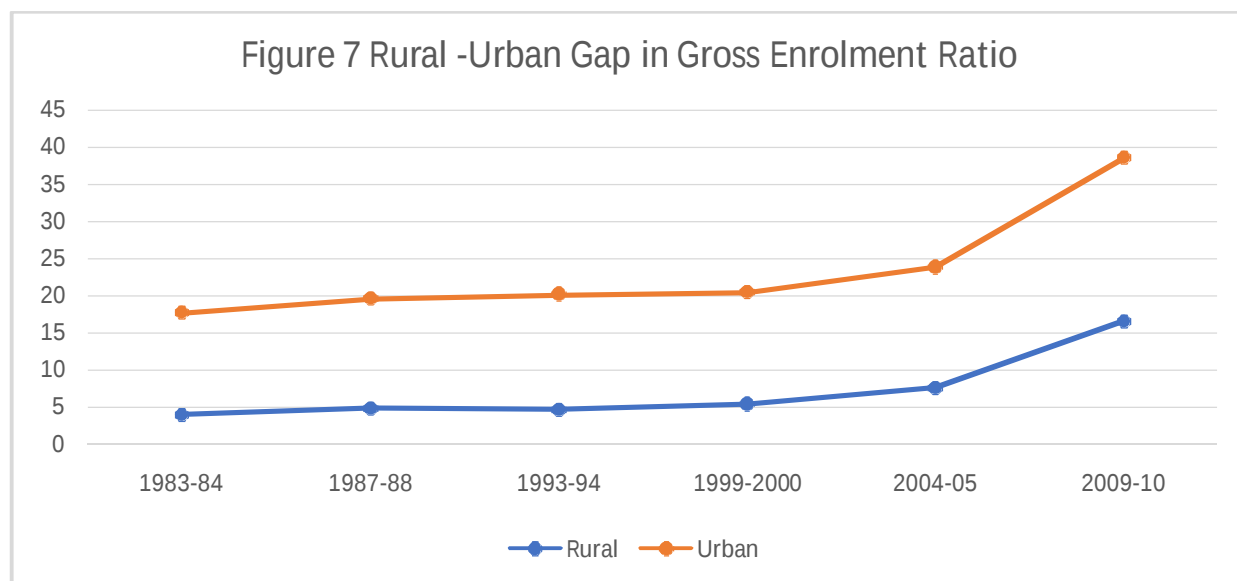
	2013-14	2016-17	Difference	Percentage Change
	Moderate Inequality aversion $\epsilon = 2$	Moderate Inequality aversion $\epsilon = 2$		
Moderate Substitutability $\beta = -1$	0.60376	0.457875	-0.1459*	-24.16*

*Statistically insignificant at 5% level of significance

Source: Author's Calculations

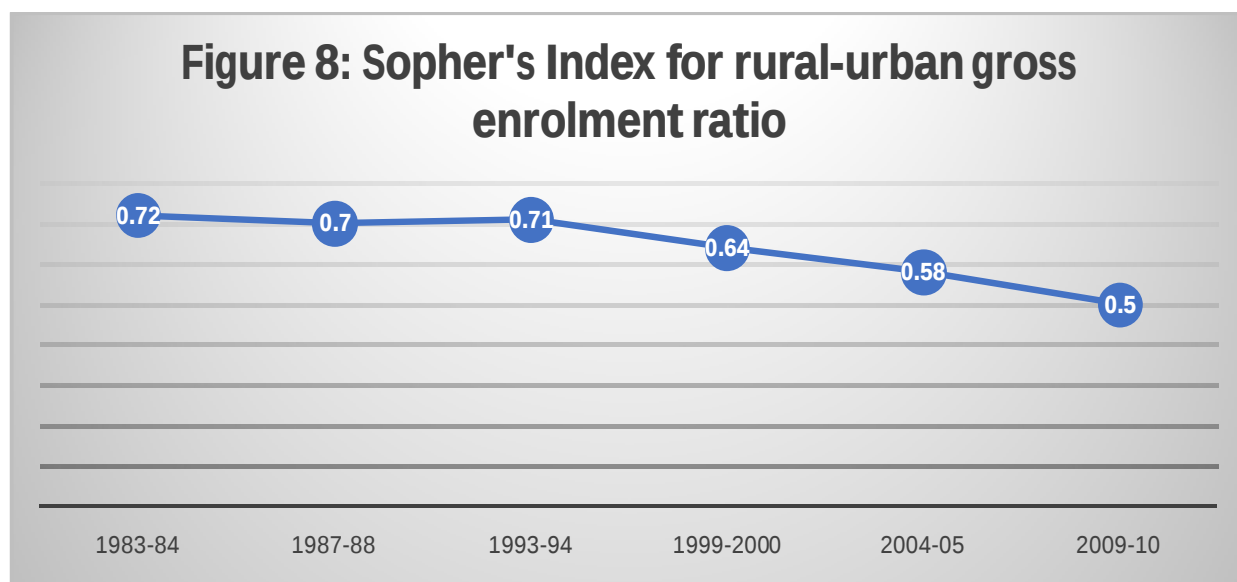
4.4 Rural-urban gap prevalent in higher education in India: Figures 7 to 13 present the rural-urban gap and hence the weak position of the rural population in higher education. The sharp distinction is evident from the data. In absolute terms GER, NER, EER of rural India sharply differ from that of urban areas. Same holds true for the higher education attainment indicator and educated unemployment indicators. Sopher's index assumes a high absolute value, though the silver lining is its declining trend over the years. This implies rural-urban gap is gradually coming down, but still its value is quite high. Thus, the rural areas are certainly lagging behind than urban India in higher education.

Figure 7 Rural -Urban Gap in Gross Enrolment Ratio



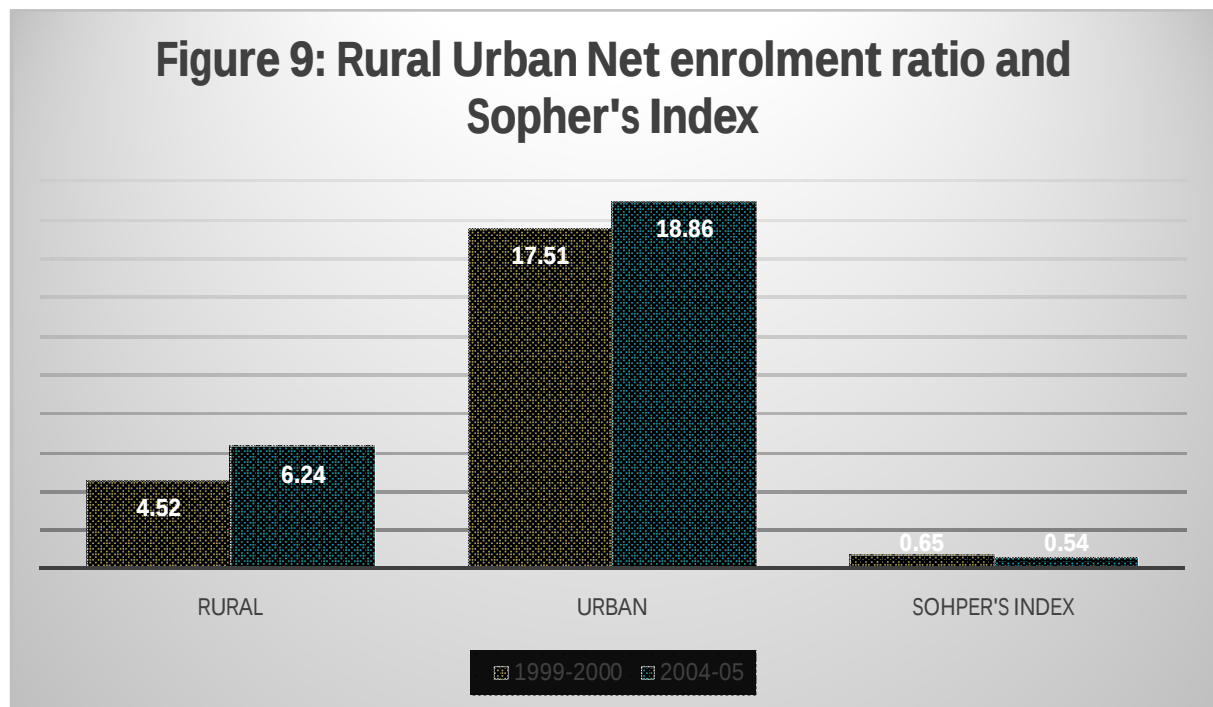
Source:Source: Author's Compilations from Tilak (2015), AISHE 2017-18, ESAG 2018, NSS Report 71st round.

Figure 8 Sopher's Index for rural-urban gross enrolment ratio



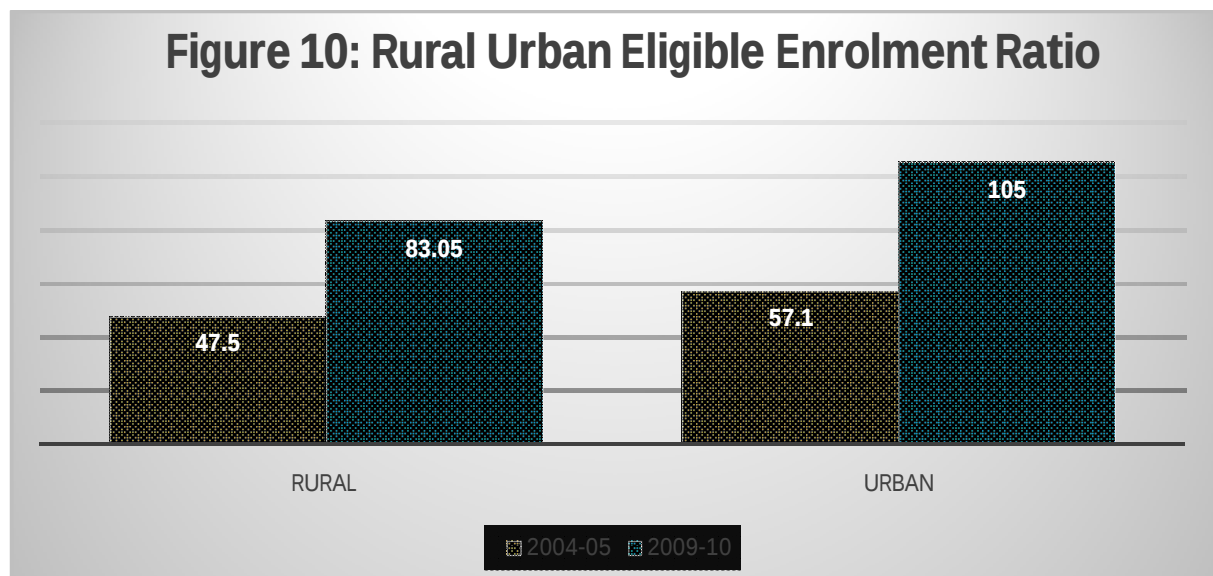
Source: Author's Calculations from Figure 7 data

Figure 9 Rural Urban Net enrolment ratio and Sopher's Index



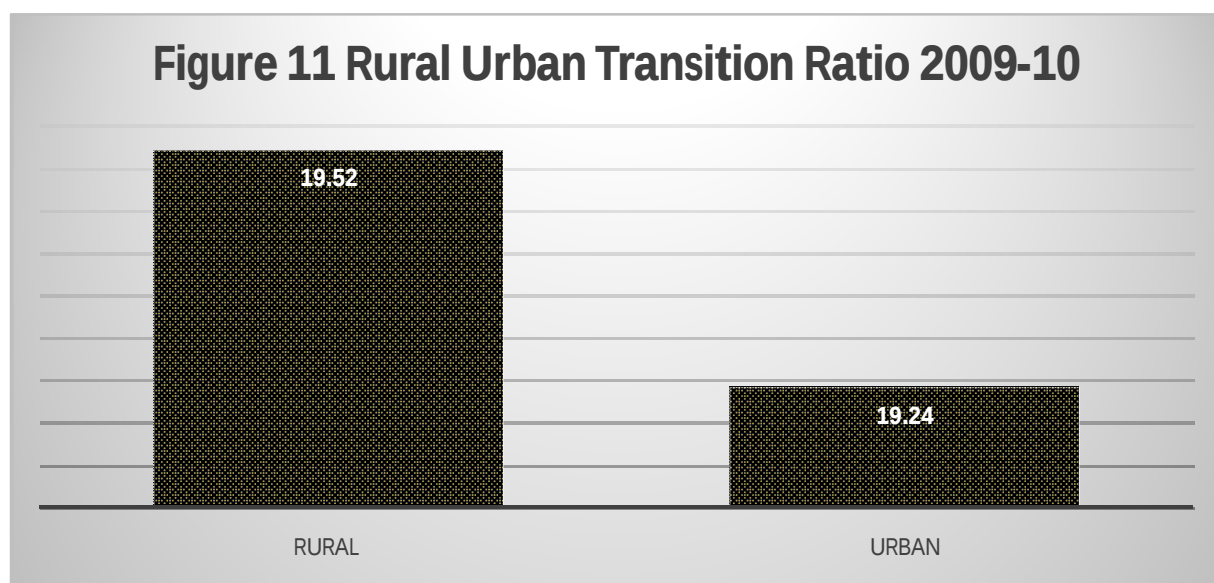
Source: Author's Compilations from Tilak (2015), AISHE 2017-18, ESAG 2018, NSS Report 71st round.

Figure 10 Rural Urban Eligible Enrolment Ratio



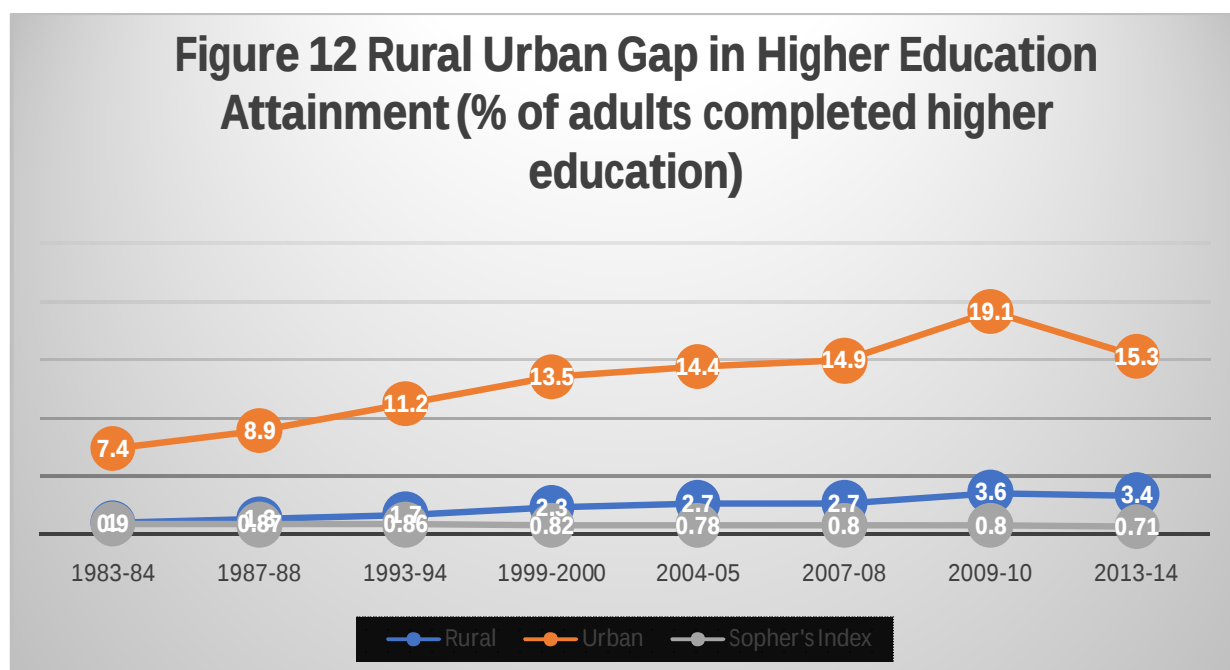
Source: Author's Compilations from Tilak (2015), AISHE 2017-18, ESAG 2018, NSS Report 71st round.

Figure 11 Rural Urban Transition Ratio 2009-10



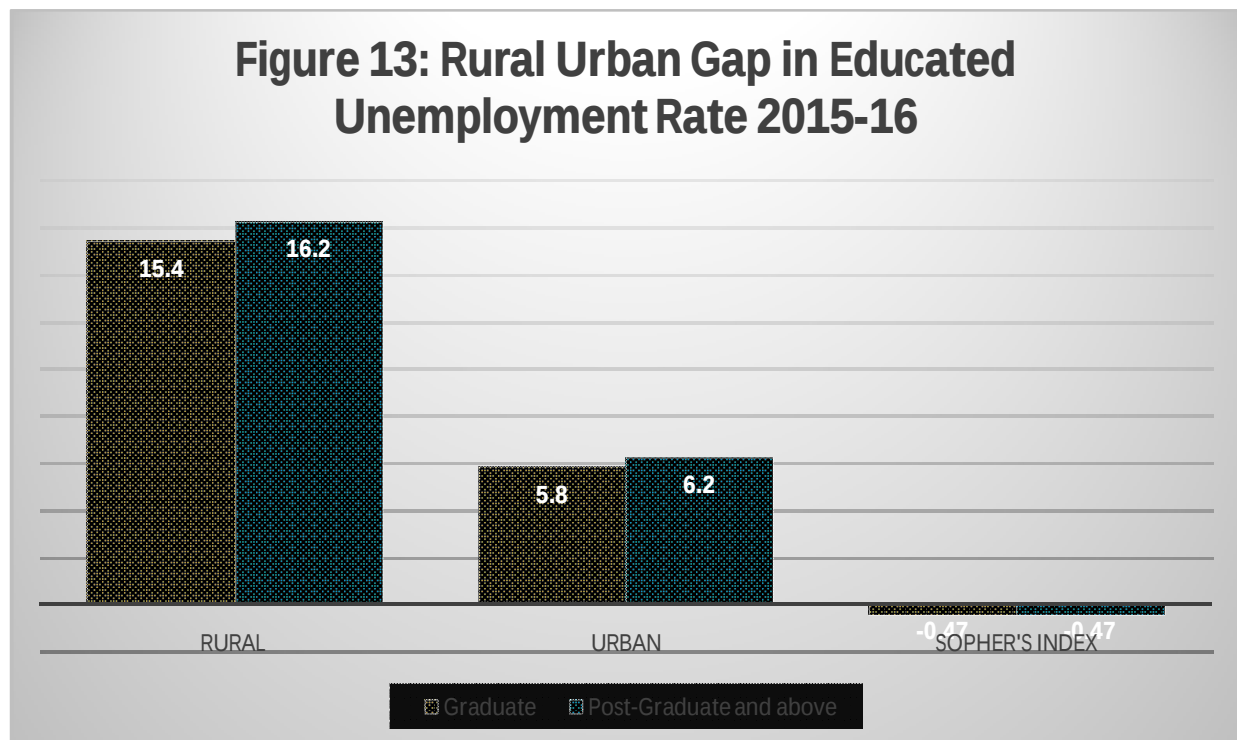
Source: Author's Compilations from Tilak (2015), AISHE 2017-18, ESAG 2018, NSS Report 71st round.

Figure 12 Rural Urban Gap in Higher Education Attainment (% of adults completed higher education)



Source: Author's Compilations from Tilak (2015), AISHE 2017-18, ESAG 2018, NSS Report 71st round.

Figure 13 Rural Urban Gap in Educated Unemployment Rate 2015-16



Source: Author's Compilations from Report on Education, Skill Development and Labour Force (2015-16)

3.4.5: Excellence and Product Moment Correlation: Quality seems to be the most debatable issue. There are many stakeholders in higher education – students, employers, teaching and non-teaching employees, government, funding agencies, regulatory bodies, professional bodies, and the accreditation agencies. Each of them has different perceptions about quality based on their personal interests and expectations from higher education. For example, for those willing to join the labour force, higher education is the producer of qualified manpower, and to them, the career earnings and employment of the outgoing graduates become the indicator of quality. For those willing to pursue a research career, the performance indicators (PIs) become the research output of staff and students. If one perceives higher education as an efficient management of teaching provision then PIs are efficiency indicators such as completion rates, unit costs, student-staff ratio and other financial data. On a larger scale, if higher education is thought to expand life chances, then

the PIs are the percentage of or growth of students from less represented backgrounds. The question lies how to club all these into one single index for judging quality.

Assessment of Quality of Higher Education Institutions in India

We will all agree that a system of assessment and accreditation does sensitize the quality issue and higher education institutions wake up to prove their worth. In India, NAAC, set up by UGC in 1994, National Board of Accreditation (NBA) established by the AICTE in 1994 and the Accreditation Board (AB), established by the ICAR in 1996 are involved in assess quality in higher education. Recently the National Institutional Ranking Framework (NIRF) has been set up by the MHRD on 29th September, 2015. This framework outlines a methodology to rank institutions across the country. The parameters broadly cover “Teaching, Learning & Resources”, “Research and Professional Practices”, “Graduation Outcome”, “Outreach and Inclusivity”, “Perception”.

Correlation

NIRF has both its similarities and dissimilarities with the criteria set up by NAAC. To contrast the outcome of NIRF with that of NAAC, the correlation coefficient of NAAC score and NIRF score of 88 colleges was calculated and it turned out to be a very weak positive and significant correlation of 0.352.

Table 6 Product-moment correlation coefficient between NAAC and NIRF scores

Correlations			
		NIRF	NAAC
NIRF	Pearson Correlation	1	.352**
	Sig. (2-tailed)		.001
	N	88	88
NAAC	Pearson Correlation	.352**	1
	Sig. (2-tailed)	.001	
	N	88	88

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Author's Calculations using SPSS software

This result may prove to be slightly agitating for colleges, because they will be in a dilemma for the standards set for quality assessment. While NAAC is more focussed on the teaching

and research outcomes, NIRF seems to emphasize more on the employability aspect and the alumni achievements.

5 Conclusion

From the above analysis, it is clear that India's higher education infrastructure is growing at the same pace as her eligible population and participation in higher education, which is a positive sign as far as supporting further massification is required. However, Indian higher education system is suffering from the problem of inaccessibility to a major section of the country. The system is still elitist and does not happen to be equitable. Access to higher education is still a myth for many aspiring candidates from the rural areas. Rural urban disparity is huge, though marginally coming down over the years. Also, state-wise there is a large disparity among the twenty-nine states of India, with some states having the danger of falling into a vicious circle of low achievements in higher educational parameters. Despite the expansion in higher education, the benefits are still restricted to a privileged few and inclusive growth is still a myth, and not a reality. The extent of inequality across the states is captured by construction of unidimensional Gini index and multidimensional inequality index following Maasoumi's methodology. The values show prevalence of disparity across the states and no significant reduction in inequality as such over time.

Given that India's growth is service sector-led and that bulk of India's population is young, the hour has come when we focus on the equitable access to higher education in India. Unless policymakers look into the issue right now, it would heavily burden our country with extreme inequality in various forms, particularly income and standard of living. Policies are recommended which reduce state-wise disparity and rural-urban gap. It is recommended that more emphasis be given on massification supported by inclusive growth such that the benefits trickle down to every corner of the Indian society and not anybody be deprived. These policy recommendations should not be ignored because they are essential for the higher education trajectory to be sustained at a prestigious and positive level that benefits all the corners of the country.

References

Agarwal, P. (2009). *Indian Higher Education - Envisioning the Future*. New Delhi: Sage Publications Pvt Ltd.

- Atkinson, A. (1970). On the Measurement of Inequality. *Journal of Economic Theory*, 2(3), 244-263.
- CMIE. (2016). *Unemployment in India A Statistical Profile May -August 2016*. Kolkata: Centre for Monitoring Indian Economy.
- CMIE. (2017). *Unemployment in India A Statistical Profile May -August 2017*. Kolkata: Centre for Monitoring Indian Economy.
- CMIE. (2018). *Unemployment in India A Statistical Profile May -August 2018*. Kolkata: Centre for Monitoring Indian Economy.
- Glassman, B. (2019). Multidimensional Inequality: Measurement and Analysis using the American Community Survey. *Social, Economic, and Housing Statistics Division (SEHSD) Working Paper No. 2019-17*.
- Hussain, Z., & Sarkar, S. (2011). Gender Disparities in Educational Trajectories in India: Do Females Become More Robust at Higher Levels? *Social Indicators Research*, 101(1), 37-56.
- India - Create Custom Map. (2019, July 22). Retrieved from Create Custom Map: <https://mapchart.net/india.html>
- Lugo, M. (2007). Comparing Multidimensional Indices of Inequality: Methods and Application. In J. Bishop, & Y. Amiel (Eds.), *Inequality and Poverty* (Vol. 14, pp. 213-236). Emerald Group.
- Maasoumi, E. (1986). The Measurement and Decomposition of Multi-dimensional Inequality. *Econometrica*, 54(4), 991-997.
- MHRD. (2013-16). *Analysis of Budgeted Expenditure on Education*. New Delhi: MHRD, Government of India.
- MHRD, GOI. (2013). *Report to the People on Education 2010-11*. New Delhi: MHRD, GOI.
- Higher Education, MHRD, GOI.
- MHRD, GOI. (2017). *All India Survey on Higher Education (2016-17)*. New Delhi: Department of Higher Education, MHRD, GOI.
- MHRD, GOI. (2018). *All India Survey on Higher Education (2017-18)*. New Delhi: Department of Higher Education, MHRD, GOI.
- MHRD, GOI. (2018). *Educational Statistics at a Glance*. New Delhi: MHRD, GOI.
- MHRD, GOI. (2019). *All India Survey on Higher Education 2018-19*. New Delhi: Department of Higher Education, MHRD, GOI. Retrieved from AISHE.
- Ministry of Labour and Employment, Labour Bureau. (2016). *Report on Education, Skill Development and Labour Force, Volume III (2015-16)*. Chandigarh: Ministry of Labour and Employment, Labour Bureau, GOI.

- NAAC. (2019). *Statistics*. Retrieved from National Assessment and Accreditation Council: www.naac.gov.in/
- NIRF. (2017). *India Rankings 2017*. New Delhi: Government of India.
- NIRF. (2019). *India Rankings*. Retrieved from National Institutional and Ranking Framework (NIRF): <https://www.nirfindia.org>
- NSSO. (2014). *Education in India*. New Delhi: NSSO, MOSPI, GOI.
- Reserve Bank of India. (2017). *Handbook of Statistics on Indian Economy 2016-17*. RBI.
- Reserve Bank of India. (2018). *State Finances A Study of Budgets of 2017-18 and 2018-19*. RBI.
- Sen, D. (2016). Higher education policies: The Indian experience since Independence. *International Journal of Multidisciplinary Education and Research*, 1(10), 15-21.
- Sen, D. (2018). Assessment of Quality in Higher Education in India. *International Journal of Research in Engineering, IT and Social Sciences*, 8(8), 120-122.
- Tilak, J. (Ed.). (2013). *Higher Education in India - In Search of Equality, Quality and Quantity*. Hyderabad: Orient Blackswan Pvt. Ltd.
- Tilak, J. (2015). How Inclusive is Higher Education in India. *Social Change*, 45(2), 185-223.
- Trow, M. (2006). Reflections on the transition from elite to mass to universal access: Forms and phases of higher education in modern societies since WWII. In J. Forest, & P. Altbach (Eds.), *International Handbook of Higher Education*. Dodrecht: Springer.
- Varghese, N. (2015). Challenges of Massification of Higher Education in India. *Working Paper CPRHE*. New Delhi, India: CPRHE.