AIU Research Report 1/2020

Measuring Access to Higher Education through Eligible Enrolment Ratio (EER)

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FOREWORD

Gross Enrolment Ratio (GER) is a statistical tool to measure the student enrolment in higher education. GER is calculated by dividing the number of students enrolled in higher education out of the total population in the relevant age group of 18-23 years. Although, the GER has been widely accepted tool for measuring access to higher education, there are some underneath factors which have been ignored perpetually. One such factor is measuring enrolment out of the eligible population i.e. those who have completed the senior secondary level and are eligible to enrol in Higher Education. A sizeable portion of youth population of the developing and under developed countries are either working population who have not attained the required level of schooling or intermediary drop outs who are not eligible to join the higher education. Secondly, there are students in higher education who are beyond the age group of 18-23 years but the age limitation of the GER does not include them. Third, the students who are enrolled in vocational or various kinds of diploma related courses in private institutions are also not counted in enrolment. Fourth, a huge number of students from developing countries go abroad to pursue higher education, and hence are not counted in enrolment. Fifth, there is a large degree of variation among the countries in definition of relevant age group while calculating the GER. In nutshell, the GER does not project the real picture about the student access to higher education. Therefore, the concept of introducing Eligible Enrolment Ratio (EER) either as a substitute to GER or alongside GER is introduced in this report.

Although, the concept of "Eligible Enrolment Ratio" was introduced two years back in the "Higher Education Policy Retreat" organised by Ministry of Human Resource Development at Lal Bahadur Shastri National Academy of Administration (LBSNAA) at Mussoorie, not much academic discourse was held subsequently. Association of Indian Universities as a policy think tank organisation of the country has been supporting the government in devising the policies on higher education. In conformity with its mandate, AIU thought it appropriate to have a deep dive into the issues of GER and EER. Therefore, a study was conducted on ten different countries namely USA, Germany, France, UK, China, Brazil, India, Indonesia, South Africa, Pakistan for a period of five years (2013-17) to highlight the significance of the proposed indicator. India's rank among selected 10 countries improved from 8 to 6 when GER was replaced by EER. Same trend was observed for other developing countries. EER of different countries was calculated under two scenarios, one by considering total enrolments including enrolments of International inbound students which also has a bearing on GER and EER for developed economies like USA, France, Germany & UK and second, by applying corrections with respect to international students, to depict the real enrolment of the country out of their own eligible population. The study proposes that the GER, the conventional indicator used for measuring access needs to be substituted with the new indicator, EER which considers the number of students qualifying the minimum grade of education necessary for enrolment in higher education.

The study describing the concept in detail was published in two articles namely: 'Measuring Access, Quality and Relevance in Higher Education' by Pankaj Mittal et al. in Economic and Political weekly Volume LV No 24, June 13, 2020 and 'Measuring Access to Higher Education in India' by Pankaj Mittal et al. in Journal of International Higher Education No. 104, Autumn 2020 published in quarterly publication of the Boston College Centre for International Higher Education.

Undoubtedly, the findings of the study revealed many interesting facts which apparently alter the popular perception about GER and also help germinating a thinking to introduce EER for measuring the student access to higher education as an alternative option. The report with findings of the study was deliberated in a Roundtable of Vice Chancellors of select universities organised by AIU.

This report has been brought out on the basis of AIU study and the recommendations of the Roundtable. It is expected and assumed that the report will be useful for the policy makers and the stakeholders of higher education by triggering a thinking on EER. Further, it is expected to open a new debate in academia by providing much required impetus to the issue.

I acknowledge the contribution of Prof Bhushan Patwardhan, Vice-Chairman, University Grants Commission (UGC) who has been a constant source of inspiration and guidance throughout the study. We express gratefulness to the participants of the Roundtable who enriched the discourse by their active participation and structured intellectual inputs in this ground breaking exercise. The Research Division of AIU, especially Dr. Ashwani Kharola, PDF, has contributed immensely in developing the concept. The efforts of Dr Usha Rai Negi in coordinating the Roundtable is duly acknowledged.

Hope you will find the report useful.

Dr (Mrs) Pankaj Mittal

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Executive Summary

In the last three decades, India has witnessed an unprecedented expansion in the higher education sector. At present the higher education sector comprises of 37.4 million students studying across 993 universities, 39,931 colleges and 10,725 standalone institutions as compared to 0.2 million students in about 20 universities and 500 colleges in 1950-51. However, in spite of this large expansion in the number of Higher Education Institutions, the Gross Enrolment Ratio (GER) for India is 26.3, which is lower than the world average and much lower than most of the developed countries. The report deliberates upon the appropriateness of GER as a parameter for measuring the access to higher education, especially for developing countries and suggests alternate ways for measuring enrolments in higher education system.

Till date, Gross enrolment ratio (GER) is the only and widely accepted indicator for measuring access to higher education. GER considers an overall population size of age group of 18-23 years without taking into account the minimum qualification criteria. A novel indicator termed as 'Eligible Enrolment Ratio' (EER) has been proposed in this study. The indicator considers the population of students who are eligible for enrolment in Higher education in the relevant age group rather than the entire population, thus eliminating the drawbacks associated with conventional indicator i.e. 'Gross Enrolment ratio'.

A study was conducted on ten different countries namely USA, Germany, France, UK, China, Brazil, India, Indonesia, South Africa, Pakistan for a period of five years (2013-17) to highlight the significance of the proposed indicator. India's rank among selected 10 countries improved from 8 to 6 when GER was replaced by EER. Same trend was observed for other developing countries. EER of different countries was calculated under two scenarios, one by considering total enrolments including enrolments of International inbound students which also has a bearing on GER and EER for developed economies like USA, France, Germany & UK and second, by applying corrections with respect to international students, to depict the real enrolment of the country out of their own eligible population. The study proposes that the GER, the conventional indicator used for measuring access needs to be substituted with the new indicator, EER which considers the number of students qualifying the minimum grade of education necessary for enrolment in higher education.

1. Introduction

In the last couple of decades, the higher education system across the world has witnessed many reforms and transformations. Although the issues pertaining to quality and relevance has been much highlighted taking it to the center stage of debate and discussions, access to higher education has been also a much dominant discourse in the academic circles. Considering the massification of higher education and the steady increase in its aspirants the issues of access to higher education has become a major cause of concern in general and for the developing countries in particular. In fact, providing equitable access to higher education has been a perennial issue. Though a progressive country like India has been grappling with many such issues since the dawn of its modern higher education system, the issues of access (enrollment), equity and excellence (3Es) has gained more prominence ever since the launch of XIth Five-Year Plan. Considering the massive youth population which has been attributed as the demographic dividends of the country, India has geared up to intensify its measures through policy reforms to widen the access to higher education. Concerted efforts have been made to expand the system through establishing more number of institutions, giving much required attention to remote and rural areas, introducing new and skill based programmes in institutions, encouraging private participation in higher education, focusing on research and innovation, and increasing investment in education. Evidently, the efforts have made some progress in widening the base of higher education which has been expanded in terms of number of institutions, student enrolment and disciplines taught.

2. Trends in Higher Education across India in past few decades

In India educational institutes are broadly classified in three major categories namely University, College and Stand-alone institutions. According to the report of All India Survey on Higher Education (AISHE), 2018-19, there are 993 Universities, 39931 Colleges and 10725 standalone institutions in India. The total enrolment in higher education has been estimated to be around 37.4 million comprising 19.2 million male and 18.2 million female populations. The female comprises of 48.6% of total enrolment. There has been an immense growth in number of students, universities and colleges in India since Independence in 1947. At the time of Independence there were around 20 Universities and 500 affiliated colleges which increased to 132 universities with 4738 colleges by 1980. According to Agarwal (2006), the growth of higher education in India can be categorised into three phases. The phase-I constitutes the period from 1947 to 1980, phase-II is from 1980-2000, whereas phase-III can be considered from year 2000 onwards. Till about 1980, the growth of higher education was mainly confined to the field of arts, science and commerce. The government took over the responsibility to open up many grant-in-aid (GIA) institutions or private aided institutions. In the 1980s, there was an unprecedented demand for quality higher education pertaining to the fields of business and industry. Also there was a substantial increase in the population of middle and high income people who could afford higher tuition fees. In early 1990s, very few universities and colleges were set up in the government sector and fewer still were brought within the

ambit of government funding. After 2000, there was a sudden jump in the number of deemed universities which intensified the competition in higher education in the country and in the last decade the number of state private universities have increased enormously. As per AISHE report, 2018-19, we have 124 deemed universities and 305 state private universities in the country. The increasing trend in growth of number of universities, colleges and enrolment in higher education for last 40 years is shown with the help of graphs in Figure 1, Figure 2 and Figure 3, respectively. The growth in GER in higher education in India in last 20 years is shown in Figure 4.

3. Higher Education scenario across the World

Higher Education is an important educational tool much needed for growth of science and technology thereby benefitting both individual and society (Haas & Hadjar, 2019). It plays a vital role in developing a quality culture in an organization or in a society by encompassing structural, managerial, cultural and psychological attributes to act in synergy (Bendermacher et al., 2016). The higher education system across the world has witnessed manifold increase in its institutional capacity in past few decades. The expansion in institutional capacity in terms of number of universities or colleges and teachers has provided greater access to the students to post-secondary education (Declercq & Verboven, 2018). Although, enrolment trends in higher education across the world has shown a steep rise but there is an urgent need to balance the demand and supply of educated manpower through an optimal enrolment policy (Lukka, 1974; Boes & Pflaumer, 2006). The rapid rise in enrolment may be due to improvements in academic quality, income, comparative fee and wide range of academic programs and optimal location of institutes (Cebula et al., 1979; Psacharopoulos, 1973). As of now, Gross enrolment ratio (GER) is the parameter which is accepted universally for analyzing enrolments in higher education (Wu et al., 2019). The GER in higher or tertiary education is defined as the total enrolment in tertiary education programmes (ISCED

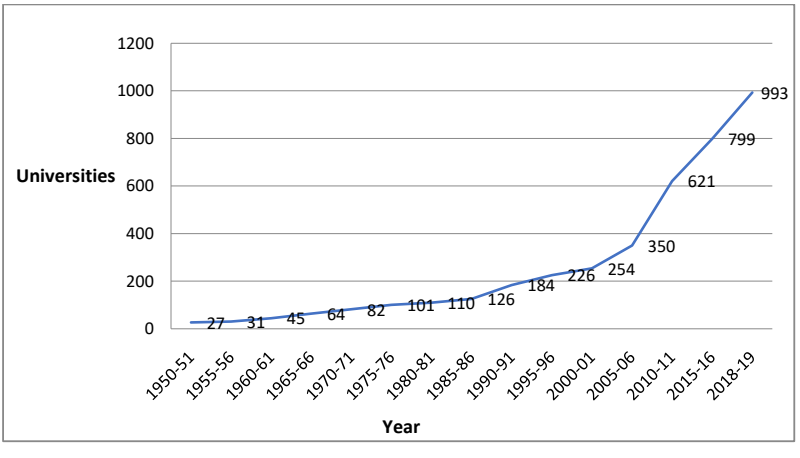

Figure 1. Growth in number of Universities across India

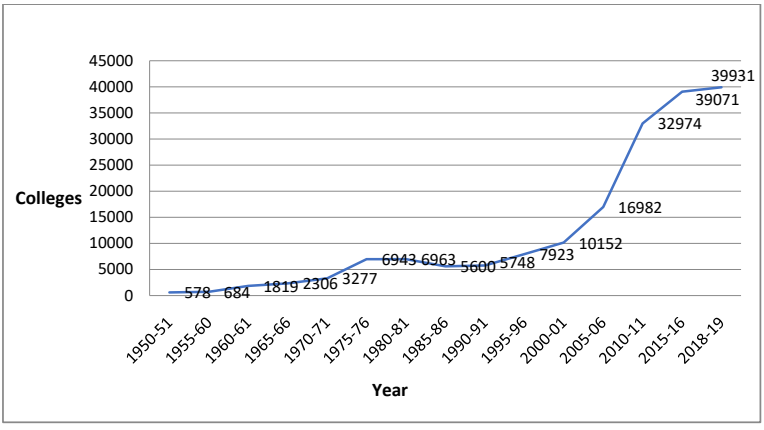

Figure 2. Growth in number of Colleges across India

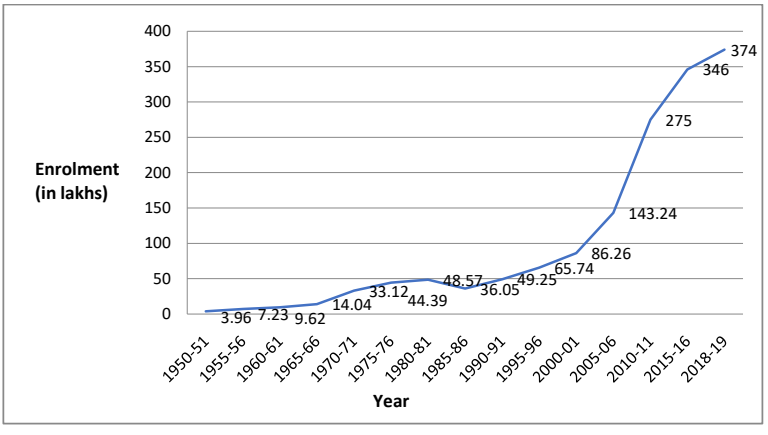

Figure 3. Growth in number of Enrolments (in lakhs) across India

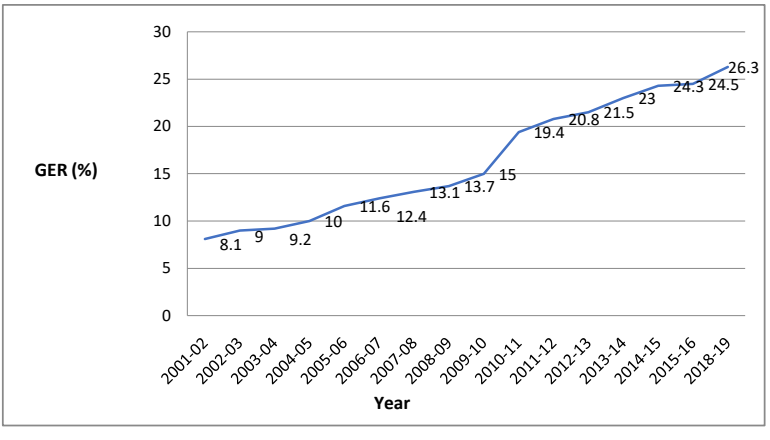

Figure 4. GER in Higher Education in India last 20 years

5 and 6), regardless of age, expressed as percentage of the total population in the 5-year age group following on from secondary school leaving (Source: UNESCO, Eurostat). According to World Bank data (2018), the world GER in tertiary education (ISCED 5 to 8) has increased from 13% to 35% during period of 1985-2015 (Jelic & Kedzo, 2018). Although lower than the global average of 36.7%, GER for India at 26.3% compares favorably with other lower middle-income countries with an average GER of 23.5%. As per India's National Education policy there is need to increase GER in higher education by atleast 50% till year 2035.

The study by Marginson (2016) analyzed the dynamics in expansion of higher education system considering factors like social stratification and inequality, fields of study, public and private distinctions in education etc. The study also highlighted the reasons for educational inequality, socio economic inequality, increase in participation in higher education, public funding of higher education institutes and professional training of personnel's needed for better higher education system. The study by Boyadjieva and Ilieva-Trichkova (2019) conceptualized higher education as a common good in thirteen European countries. A composite index has been considered which measures the level to which higher education as a common good has been adopted in a country. The results showed significant difference in index across different countries with Northern Europe scoring higher compared to other regions. In an article by Obiedzinski (2018) a counter-cyclical relationship has been illustrated between employment and enrolment in higher education. According to this relationship, if the employment rate is very good, enrolment in higher education declines and conversely when unemployment rises the enrolment in higher education increases. This can be analysed from the observations that during year 2010-11, shortly after recession there has been peak enrolment in higher education. The study by Bozick (2009) also indicates that where unemployment is high, youth have higher rate of entering colleges. Also the impact of unemployment on enrolment is more on low income youth compared to high income youth. The higher rate of unemployment may increase college attendance enrolments and vice-versa.

4. Gross Enrolment Ratio in India: A Mismatched Scenario

GER is a statistical measure used in education sector to determine percentage of students enrolled in different level of education (Mardolkar & Kumaran, 2010). The Gross Enrolment Ratio has been universally considered and used as the single most criteria for measuring the student enrolment in higher education. This has been practiced by all countries irrespective of the size and diversities of higher education across the globe. As per the UNESCO classification it has been defined as the total enrolment in tertiary education programmes regardless of age expressed as percentage of total population in the five-year age group following the secondary education level. In its simplest form GER only considers the percentage of population admitted to higher education out of the total 18 -23 years age population of a country. It does not consider many other aspects

such as the percentage of the relevant age group which is eligible for entering into the portal of higher education. Similarly, it also does not include the students enrolled in distance and open learning, students entering into various vocational programmes after the senior secondary level, students studying in abroad, etc. The second important issue is the age bracket. In India and may be in afew other countries the age bracket is 18-23 years whereas in soe other countries the age bracket considered is 18-22 years.

Based on the level of enrolment the development of higher education system is classified under three stages. With GER less than 15%, the higher education system is considered to be an elite system where access to higher education is limited and seen as a privilege. It indicates that the system is not massified nor wide access to higher education is there. When the GER is between 15% and 50%, the higher education system is a mass system where higher education is seen as a right for those who are formally qualified for entering into higher education. The system is considered to be a universal one when the GER is above 50% and higher education is an obligation of the state and well-articulated into its public policy. When examined in these criteria India with its present GER of 26.3% is in its initial stages of 'massification'. It's GER is lower than the global average of 36.7%., but comparable with other Lower Middle-Income Countries, which have an average GER of 23.5%. The GER in higher education is said to be dependent on the level of income and the occupational structure of the economy. Service economies in developed countries tend to have a greater demand for higher education. It is observed that the average GER in Lower Middle-Income Countries has doubled from 11.5% in 2001 to 23% in 2016. In the same period, the GER in Upper Middle-Income Countries increased from 19% to 50% (Ravi, S, Gupta, N., and Nagaraj, P. (2019).

The above picture depicts a stark mismatch among the developed, developing and under developed countries, particularly India wherein the GER is projected in an unreasonable manner which is evidently different from the reality. On the basis of this rationale, a study was attempted by Association of Indian Universities to find out the actual scenario in student enrolment. The study was conducted using diversified secondary sources comprising different statistical information mentioned in various national and international websites, reports of other studies, reviewing articles and research papers produced by academic partitioners of India and abroad. In the process data on GER and the students graduated from School level of different countries were collected and the difference were calculated by deducting the eligible population from the total population of 18-23 years age group. The analysis of the EER has been presented through charts and bar graphs with statistical tables and parentheses.

5. Examining reasons for low GER of India

According to a report by AISHE (2018-19), India has achieved a GER of 26.3% which is lower than the global average GER of 36.7%. According to a report by Sharma (2019), GER can be considered to be linked with income levels and jobs in the economy of a particular country.

The developed countries having service economy shows a greater demand for higher education than the developing countries like India. The postgraduate and research enrolment is also very low in India which is another reason for low GER. India has around 216.2 researchers per one million of population compared to 1200 in China, 4300 in US and around 7100 in South Korea. At present only 0.5% of enrolled students in higher education are pursuing PhD.

The reason for low GER may be due to less number of higher education institutions in accordance with the young population (Iyer, 2019). Also, absence of Indian Universities in top 100 in the global ranking is one of the important factors, which deprives it of the foreign students as well as of those Indian students who can afford foreign education. As of 2018-19 only 47,427 foreign students were enrolled in Indian higher education system in India, whereas around 7 lakhs students went abroad from India to study in international universities. Due to which the annual spending by Indian students on pursuing foreign qualification is almost twice the amount allocated in Union budget for higher education and nearly 20 times of collective research spending by higher education institutes. Hence, an improvement in quality of education and research output will help in improving the enrolments. The lack of integration of higher education with skill generation as per current market scenario is another reason for low GER of India. In fact, the higher education system in India faces challenges in three fronts i.e. expansion, equity and excellence (Pujar, 2014). The various factors which influence GER in higher education includes number of enrolments, school-age population, completion rate, drop-outs, transfer rate, new entrants, transition rate, number of teachers etc (Gao & Chen, 2010). Among above factors drop-out rate is one of the primary attribute which influences GER and therefore it should be critically analysed (Gubbels et al., 2019).

Currently, India is facing serious challenges due to low enrolments and low retention at the school level. Additionally, as witnessed very recently, the enormous number of migrant labourers brings with it the challenge of the education of their children which are not sufficiently recognised or addressed. Furthermore, the contradictions and contestations of the formal schooling system which is struggling to close the gap between the marginalised and the privileged, despite affirmative action pose serious setbacks to realise the fundamental right to education. Gender related factors such as early marriage, child care and domestic responsibilities, availability of toilets and distance of school from home for girls, coupled with family labour, economic constraints and the disconnect of education with their daily lives for boys have remained real obstacles for access and retention in schools among the poor. This situation leads to significant school dropouts drastically reducing educationally eligible population for enrolment in higher education resulting in lower GER for developing countries like India. Obviously, this problem cannot be resolved by increasing the number of colleges or universities or by promoting degrees via distance or online mode. For meaningful increase in GER, it is necessary to improve the quality of school education and link higher

education to skills and vocation thereby making it attractive to the student population (Mittal et al., 2020).

6. Evaluating Eligible Enrolment ratio (EER) from Completion ratio (CR) and Gross Enrolment ratio (GER)

Although, GER is a vital parameter for considering enrolments in higher education system, there is a need to analyse the deficiencies associated with this parameter (Marshall & Oliver, 1979). Therefore, in this study a new indicator called Eligible enrolment ratio (EER) has been proposed for estimating access to higher education. EER can be defined as the ratio of number of students enrolled in tertiary education to the number of persons who have passed 12thclass in the age group of (18-23) years, thus eliminating non eligible persons from the catchment population. The study was conducted for ten selected countries. As the figures relating to the population in the relevant age group who have passed the qualifying examination to be eligible to enter higher education is not readily available for most of the countries, another parameter, viz, Completion Rate (CR) was used to calculate EER. According to UNESCO Institute for Statistics (UIS. Stat), CR can be defined as the number of persons in the relevant age group who have completed the last grade of given level of education expressed as a percentage of total population (in survey sample) of the same age group (Loeb & Duff, 1974). Therefore, mathematically, EER can be formulated in terms of GER and Completion rate (CR). In this study we have expressed EER as a function of GER & CR as indicated by equation (1) and equation (2), respectively. The equation (1) calculates EER while considering total enrolment in higher education including international inbound students whereas equation (2) calculates EER after subtracting international students from total enrolments

$$EER = \frac{GER}{CR} \quad \ldots(1)$$

$$EER_1 = \frac{GER_1}{CR} \quad \ldots(2)$$

Where,

EER is Eligible Enrolment Ratio while counting international inbound students.

GER is Gross Enrolment Ratio while counting international inbound students.

CR is the Completion Rate at senior secondary level (12th pass)

EER1 is Eligible Enrolment Ratio without counting international inbound students.

GER1 is Gross Enrolment Ratio without counting international inbound students.

It is clear from above equations that EER is a function of GER and CR. EER varies directly with GER and inversely with CR. Therefore these two factors can be considered as primary determinants which influence EER. All the factors which affect GER and CR like economic attributes, attendance rates, graduation rate, gender ratios, location etc will also influence EER (Ritter, 2015; Connelly & Zheng, 2003). In this study we have evaluated and compared EER often different countries constituting both developed and developing economies

Table 1. Trends in Enrolment in Higher education (EHE) & Completion rate (CR) for different countries during period of 2013-17

S. No.	Country	Year	2013	2014	2015	2016	2017
1.	USA	EHE	#19440516	19700221	19531727	19288424	19014530
		CR	91.55	93.18	93.02	93.70	94.27
2.	Germany	EHE	2780013	2912203	2977781	3043084	3091694
		CR	82.67	80.07	78.65	77.49	77.07
3.	France	EHE	2338135	2388880	2424158	2480186	2532831
		CR	85.41	86.23	86.42	86.74	86.88
4.	UK	EHE	2386199	2352933	2330334	2387280	2431886
		CR	93.64	82.77	86.87	91.43	95.06
5.	Brazil	EHE	7541112	8072146	8285475	8319089	8571423
		CR	66.99	67.74	69.71	65.13	65.36
6.	China	EHE	34091290	41924198	43367394	43886104	44127509
		CR	53.73	60.87	64.82	66.43	67.29
7.	Indonesia	EHE	6423455	6463297	7043934	7614845	7944099
		CR	54.81	54.62	57.36	59.91	63.19
8.	India	EHE	28175135	30305849	32107419	32391800	33374107
		CR	38.01	39.93	41.49	42.89	42.28
9.	South Africa	EHE	1035594	1018543	1050860	1053607	1116017
		CR	48.90	48.95	48.64	48.52	47.96
10.	Pakistan	EHE	1915419	1931875	1871575	1856156	1941478
		CR	22.27	22.15	21.40	21.06	21.61

of the world. The data for five years i.e. 2013-17 on various factors was collected and analyzed from the data bank of UNESCO Institute for Statistics (UIS.Stat).The data for total enrolment in higher education (EHE) and completion rate (CR) for different countries for period of years 2013-17 is given in Table 1. The missing data sets for any particular year was calculated using forecast tool incorporating linear regression model in excel (Nadler & Kros, 2007). The trend of international inbound students and net enrolment i.e. total Enrolment in higher education (EHE) minus (–) enrolment of international inbound students is given in Table 2.

6.1 *Calculating EER considering enrolment of inbound students in total enrolments*

This study initially considers EER based on total enrolments which include population of international inbound

Table 2. Trends in Inbound students & net enrolled students for different countries during period of 2013-17

S.No.	Country	Year	2013	2014	2015	2016	2017
1.	UK	International Students	416693	428724	430833	432001	435734
		EHE -International	1969506	1924209	1899501	1955279	1996152
2.	France	International Students	228639	235123	239409	245349	258380
		EHE -International	2109496	2153757	2184749	2234837	2274451
3.	Germany	International Students	196619	210542	228756	244575	258873
		EHE -International	2583394	2701661	2749025	2798509	2832821
4.	USA	International Students	784427	842384	907251	971417	984897
		EHE -International	18656089	18857837	18624476	18317007	18029633
5.	China	International Students	96409	108217	123127	137527	157108
		EHE -International	33994881	41815981	42460143	43748577	43142612
6.	South Africa	International Students	42351	42594	43305	45142	45334
		EHE -International	993243	975949	1007555	1008465	1070683
7.	Brazil	International Students	18685#	19093	19855	19996	20671
		EHE -International	7522427#	8053053	8265620	8299093	8550752
8.	India	International Students	34419	38992	41993	44766	46703
		EHE -International	28140716	30266857	32065426	32347034	33327404
9.	*Pakistan	International Students	NA	NA	NA	NA	NA
		EHE -International	NA	NA	NA	NA	NA
10.	Indonesia	International Students	6832#	7195#	7305	7653	7763
		EHE -International	6416623#	6456102#	7036629	7607192	7936336

(*data not available, #forecasted data)

Table 3. Trends in GER & EER for different countries 'without subtracting' inbound students from total enrolments (Figures from UNESCO data)

No	Country	Gross Enrolment Ratio (GER)					Eligible Enrolment Ratio (EER)					Avg. GER	Avg. EER	Diff Avg. EER and GER
		2013	2014	2015	2016	2017	2013	2014	2015	2016	2017			
1.	USA	88.7	88.6	88.9	88.8	88.2	96.9	95.1	95.6	94.8	93.5	88.6	95.2	6.6
2.	Germany	61.4	65.5	67.8	69.6	70.3	74.3	81.8	86.1	89.8	91.2	66.9	84.6	17.7
3.	France	59.9	61.5	62.8	64.7	65.6	70.1	71.3	72.7	74.6	75.5	62.9	72.8	9.9
4.	UK	57.0	56.6	56.5	58.4	60.0	60.9	68.3	65	63.9	63.1	57.7	64.2	6.5
5.	Brazil	46.8	49.9	51.1	50.5	51.3	69.9	73.7	73.2	77.5	78.6	49.9	74.6	24.7
6.	China	32.4	42.4	46	48	49.1	60.4	69.7	71	72.3	72.9	43.6	69.3	25.7
7.	Indonesia	31.1	30.9	33.3	35.4	36.4	56.7	56.6	58	59.2	57.7	33.4	57.6	24.2
8.	India	23.8	25.4	26.8	26.8	27.4	62.6	63.7	64.5	62.6	64.9	26	63.7	37.7
9.	South Africa	19.9	19.8	20.6	20.9	22.4	40.8	40.5	42.4	43.1	46.6	20.7	42.7	22
10.	Pakistan	9.7	9.7	9.2	9	9.4	43.7	43.6	43.1	42.9	43.3	9.4	43.3	33.9

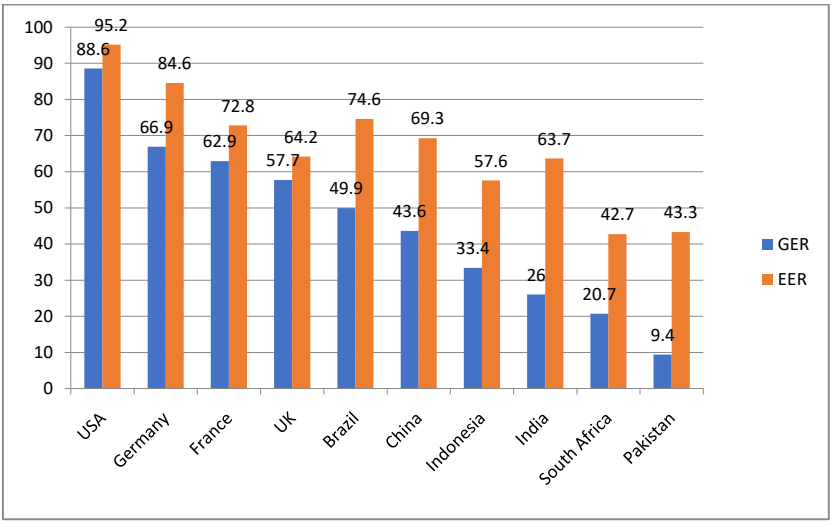

Figure 5. Average GER & EER trends of different countries (yr 2013-17)

students. A comparison of EER & GER obtained after considering enrolments of international inbound students within total enrolments is shown in Table 3. The table also highlights comparison between average GER & EER for a period of five years and difference between the two for the year 2017 for different countries. A graphical comparison between average EER & GER for different countries is given in Figure 5.

It can be observed from the above results that highest values of average EER was obtained by USA (95.2%) followed by Germany (84.6%) and Brazil (74.6%) respectively whereas the lowest values of average EER was obtained by Indonesia (57.6%), followed by Pakistan (43.3%) and South Africa (42.7%) respectively. It is also observed from the results that the highest values of average GER was obtained by USA (88.6%), followed by Germany (66.9%) and France (62.9%) respectively whereas the lowest values of average GER was obtained by India (26%), followed by South Africa (20.7%) and Pakistan (9.4%) respectively. Therefore, we can conclude that India has improved its rank from 8th place to 6th place if we consider EER instead of GER as a measure of enrolment in higher education. It is also observed that the difference between the two indicators is more for the developing countries compared to that of developed nations. The difference between the two for developed countries is USA (6.6%), Germany (17.7%), France (9.9%), UK (6.5%) which is comparatively lesser than for developing countries like India (37.7%), China (25.7%), Indonesia (24.2%), South Africa (22%) and Pakistan (33.9%). Also, the difference between GER & EER is highest for India. We can therefore, say that EER is a more significant parameter for indicating enrolments in developing countries.

6.2 *Further refining EER after adjusting the enrolment of inbound international students from total enrolments*

This study further optimizes the parameter 'EER' by subtracting the

Table 4. Trends in GER_1& EER_1 for different countries 'subtracting' inbound students from total enrolments
(* Number of Inbound students not available)

S. No.	Country	Gross Enrolment Ratio (GER_1)					Eligible Enrolment Ratio (EER_1)					Avg. GER_1	Avg. EER_1	Diff EER_1 and GER_1	Diff EER and EER_1	Diff EER_1 and GER
		2013	2014	2015	2016	2017	2013	2014	2015	2016	2017					
1.	USA	85.2	84.8	84.8	84.4	83.60	93.0	91.1	91.1	90.0	88.7	84.6	90.8	6.2	4.4	2.2
2.	Germany	57.1	60.8	62.6	64.0	64.4	69.0	75.9	79.5	82.6	83.5	61.8	78.1	16.3	6.5	11.2
3.	France	54.0	55.5	56.6	58.3	58.9	63.2	64.3	65.5	67.3	69.0	56.7	65.9	9.2	6.9	3.0
4.	UK	47.1	46.3	46.0	47.9	49.3	50.3	55.9	53.0	52.4	51.8	47.3	52.7	5.4	11.5	5.0
5.	Brazil	46.7	49.8	50.9	50.4	51.2	69.7	73.5	73.1	77.3	78.4	49.8	74.4	24.6	0.2	24.5
6.	China	32.3	42.3	45.1	47.9	48.0	60.2	69.5	69.6	72.1	71.3	43.1	68.5	25.4	0.8	24.9
7.	Indonesia	31.0	30.9	33.2	35.4	36.4	56.6	56.5	57.9	59.1	57.6	33.4	57.5	24.1	0.1	24.1
8.	India	23.8	25.4	26.7	26.8	27.4	62.5	63.6	64.5	62.5	64.8	26.0	63.6	37.6	0.1	37.6
9.	South Africa	19.1	19.0	19.8	20.0	21.5	39.1	38.8	40.7	41.3	44.8	19.9	40.9	21	1.8	20.2
10.	*Pakistan	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

enrolments of international inbound students from total enrolments thereby giving net enrolment in a country. The new EER and GER as indicated in equation (2) have been abbreviated as EER_1 and GER_1 respectively. A comparison of EER_1 & GER_1 obtained after subtracting international inbound students from total enrolment is shown in Table 4. The table also highlights comparison between average GER_1 & EER_1 and difference between the two for the year 2017. A graphical comparison between average values of both of the above quantities for different countries is shown in Figure 6.

It can be observed from the above results that highest values of average EER_1 was obtained by USA (90.8%) followed by Germany (78.1%) and Brazil (74.4%) respectively whereas the lowest values of average EER_1 was obtained by Indonesia (57.5%), followed by UK (52.7%) and South Africa (40.9%) respectively. It is also observed from the results that the highest values of average GER_1 was obtained by USA (84.6%), followed by Germany (61.8%) and France (56.7%) respectively whereas the lowest values of average GER was obtained by Indonesia (33.4%), followed by India (26%) and South Africa (19.9%) respectively. Therefore, we can conclude the impact of enrolment of international students is more on EER of developed nations compared to that of developing countries as shown in Table 4. This is due to the fact that the number of international enrolments in developed countries is quite significant compared to that of developing countries.

6.3 *Comparison of Enrolment ratios (GER & GER_1; EER & EER_1)*

A graphical comparison between average GER & GER_1 and EER & EER_1obtained for different countries is shown in Figure 6 and Figure 7 respectively. The data of international inbound students in Pakistan is not available in UIS.stat website therefore it has been considered as Nil for the sake of this comparison. The comparison

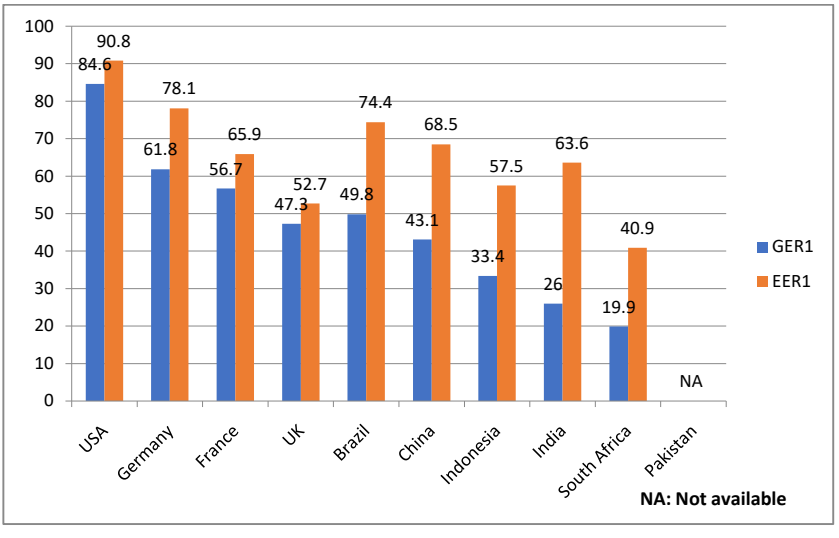

Figure 6. Average GER_1 & EER_1 trends of different countries (year 2013-17)

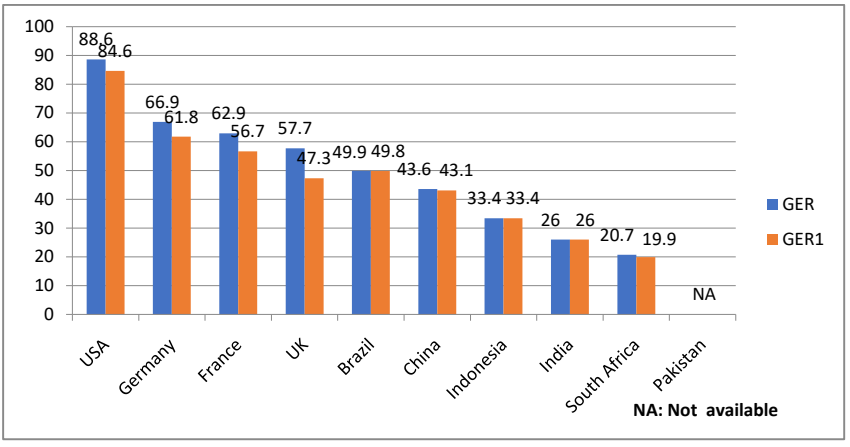

Figure 7. Average GER & GER_1 trends of different countries (year 2013-17)

in Figure 6 clearly indicates that the values of average GER_1 for developed economies like USA, France, Germany and UK has been decreased by 4%, 6.2%, 5.1% and 10.4% respectively when compared to their respective average GER. The decrease in percentage of average GER_1 for middle income countries like China, Indonesia, India and South Africa is negligible which is due to the fact that the number of international inbound student enrolments is very low in these countries.

The comparison in Figure 7 clearly shows that the values of average EER_1 for developed economies like USA, France, Germany and UK has been decreased by 4.4%, 6.9%, 6.5% and 11.5% when compared to their respective average EER. The decrease in percentage of average EER_1 for middle income countries like China, Indonesia, India and South Africa is again negligible which is due to the same fact. Since EER_1considers the net enrolment of students belonging to the same country and not the enrolment of international inbound students we can say that it can be a more relevant and just measure for considering enrolments in higher education.

It can be observed from Figure 9, that the difference between average GER & EER_1 for developing countries is comparatively greater than for developed countries. The difference between the two indicators for developing countries is China (24.9%), India (37.6%), and South Africa (20.2%) which is comparatively more than to that of developed nations like USA (2.2%), Germany (11.2%), France (3%) and UK (5%).

7. Results and Discussions

The results obtained from the study clearly indicate that EER can be considered as a vital, real and unbiased parameter for measuring access to higher education. The results obtained after comparing GER & EER and GER_1& EER_1as illustrated in Figure 4 and Figure 5 respectively, clearly indicates that the difference between the two pair of indicators is more for the developing countries compared to developed nations. For an instance, the difference between GER & EER

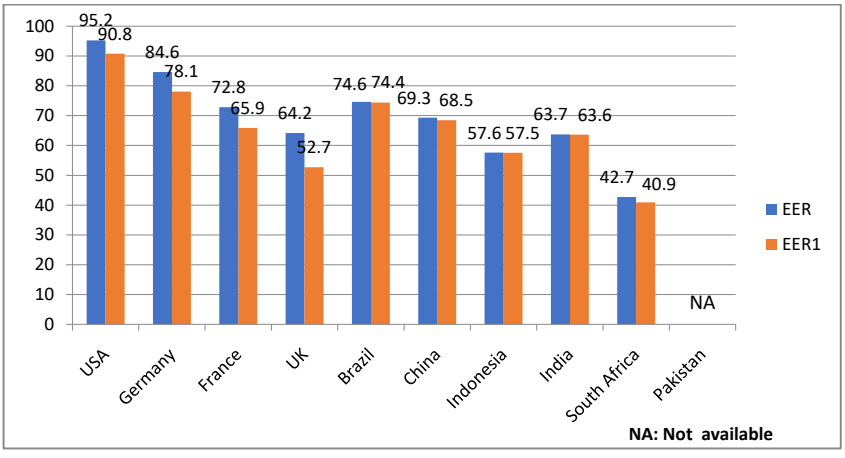

Figure 8. Average EER & EER_1 trends of different countries (year 2013-17)

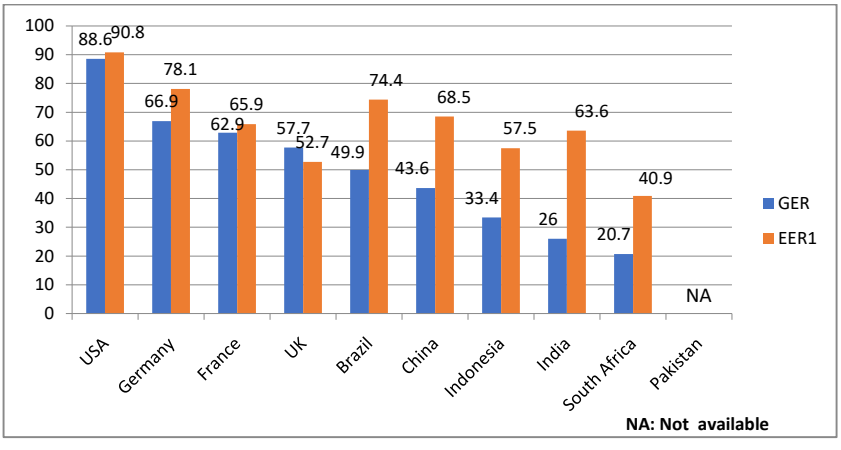

Figure 9. Average GER & EER_1 trends of different countries (year 2013-17)

for developed nations is USA (6.6%), Germany (17.7%), France (9.9%) & UK (6.5%), which is somewhat less compared to that of developing nations like China (25.7%), India (37.7%), Indonesia (24.2%) & South Africa (22%). Similarly when we compare GER_1& EER_1, the difference between the two for developed countries is USA (6.2%), Germany (16.3%), France (9.2%) and UK (5.4%) which is again lesser when compared to that of developing countries like China (25.4%), India (37.6%), Indonesia (24.1%) and South Africa (22%). Therefore, we can conclude that EER or EER_1 is a better indicator for measuring access to higher education in developing countries compared to GER or GER_1. It can be observed from Table 4 that the difference between average GER & EER_1 for developing countries is comparatively greater than for developed countries. It is further observed that this difference is highest for India i.e. 37.6%. This is again due to the fact that the numbers of international students are more in developed countries as compared to developing nations.

The results obtained after comparing GER & GER_1 and EER & EER_1 as illustrated in Figure 6 and Figure 7 respectively clearly indicates that the difference between the two pair of indicators is more for developed countries compared to developing nations. This is due to the fact that the number of international student enrolments is more in developed countries compared to developing nations. For an instance, the difference between GER & GER_1 for developed nations is as follows: USA (4%), Germany (5.1%), France (6.2%) & UK (10.4%) which is very significant when compared to that of developing countries like China (0.5%), India (0%), Indonesia (0%) and South Africa (0.8%).Similarly when we compare EER & EER_1 the difference between the two for developed countries is as follows: USA (4.4%), Germany (6.5%), France (6.9%) & UK (11.5%) which is very large compared to developing countries like China (0.8%), India (0.1%), Indonesia (0.1%) and South Africa (1.8%). Therefore, we can conclude that in order to obtain a real and true picture of enrolments in developed countries EER_1 shall be a more rational, real and just parameter as it considers actual number of enrolments from within a country.

The salient features of results as summarized from the study during period of five years (2013-17) are highlighted as follows:

- EER_1 (calculated after adjusting international students) for developed economies like USA, France, Germany and UK has decreased by 4.4%, 6.9%, 6.5% and 11.5% when compared to their respective average EER.
- The decrease in average EER_1 as compared to EER for middle income countries like China, Indonesia, India and South Africa is negligible.
- The values of average GER_1 for developed economies like USA, France, Germany and UK has decreased by 4%, 6.2%, 5.1% and 10.4% when compared to their respective average GER.
- The rise in percentage of average GER_1 for middle income countries like China, Indonesia, India and South Africa is negligible.
- EER_1 is comparatively lower than EER due to the fact that the number of inbound students is more in developed countries compared to developing nations.
- EER_1 & EER for India remains almost the same with percentage variation of 0.1%.
- Average correlation coefficient between GER & EER is 0.93.
- India has improved its rank from 8th place to 6th place if we consider EER instead of GER as a measure of enrolment in higher education.
- The difference between GER & EER_1 for developing countries is China (24.9%), India (37.6%), and South Africa (20.2%) which is comparatively more than to that of developed nations like USA (2.2%), Germany (11.2%), France (3%) and UK (5%).

8. Conclusion

Till date GER is considered as a primary indicator for enrolments in higher

education but now there is a need to re-consider a new indicator which should specifically be based on the eligible population in the relevant age group to provide for a just and real measure of access. This study proposes EER as a substitute to GER for estimating access to Higher education around the world to allow level playing field for developing countries. Two different perspectives for EER have been proposed, one while considering the total enrolment and other after subtracting the international students from total enrolments. It is evident from the results that new Eligible enrolment ratio termed as EER_1 has comparatively lower values than EER for developed nations like USA, France, Germany and UK. This is due to the fact that these countries have larger number of international inbound students.

Therefore, it is desirable that apart from GER, enrolments in higher education should also be represented in terms of EER. The EER is a more significant and just measure of enrolment in higher education since it considers the populations who have passed class 12^{th} in the relevant age group. The EER of some of the developing countries like India is quite comparable to the EER of some developed nations like UK which needs to be highlighted. The main drawback of using GER as the only indicator for enrolment in higher education is that it considers cohort of an overall population size of (18-23) years of age while ignoring the minimum qualification criterion i.e. students who have passed class 12^{th}. This deficiency can be easily eliminated if we consider EER as alternative indicator for enrolment in higher education. It can be clearly observed from the results that the developing countries are projected in a better light while using EER as the parameter rather than using GER compared to many developed economies like USA, Germany and France as it provides level playing field to all the countries with respect to admission to higher education.

Therefore, we can say that for all developing countries including India, EER would be the more appropriate indicator rather than GER for assessing the access, quality and relevance to higher education. EER is a refined measure to position developed and developing countries on the same plane and therefore might portray a fairer picture about the enrolment in higher education. Moreover, EER_1 proposed in this report can be considered as a more vital measure for developing countries as it considers net enrolment after subtracting international students. Since the number of international enrolments is very less in developing countries compared to that of developed nations, we can say that EER_1 is a more significant measure of enrolment compared to EER for developing nations thereby giving a more real picture of enrolments.

Based upon the above report and with an objective of holding an in-depth discussion of vice chancellors and other academic practitioners on the issue, Association of Indian Universities organized Roundtable on July 27, 2020 through virtual mode which was attended by Vice Chancellors of a few selected member universities of AIU and Heads of Apex Bodies in Higher Education. Prof Bhushan Patwardhan, Vice Chairman, University Grants Commission, New Delhi, Prof K K Aggrawal, Chairman, National Board of Accreditation (NBA), Dr (Mrs) Pankaj Mittal, Secretary General, AIU, three

former Presidents of AIU - Prof. Sandeep Sancheti, Vice Chancellor, SRM Institute of Science and Technology, Chennai, Prof. P.B. Sharma, Vice Chancellor, Amity University, Gurugram, Prof. M.M. Salunkhe, Vice Chancellor, Bharatiya Vidyapeeth, Pune, and other Vice Chancellors of AIU Member Universities like Prof. N.V. Varghese, Vice Chancellor, NIEPA, New Delhi, Prof. Annapuna Nautiyal, Vice Chancellor, HNB Garhwal Central University, Uttarakhand, Prof N C Gautam, Vice Chancellor, Mahatma Gandhi Chitrakoot Gramoday Vishwavidyalya, Dr. Ami Upadhyay , Vice-Chancellor, Dr Babasaheb Ambedkar Open University, Vadodra, Gujarat, and Dr Vijay Kumar, Deputy Secretary, NCTE, Delhi were the dignitaries who attended the Roundtable. Dr Amarendra Pani, Joint Director & Head of Research Division was the convener of the event.

In the Roundtable a threadbare discussion on the present practice of GER and the proposed concept of Eligible Enrolment Ratio was held. It was highlighted that the issues of access, quality and relevance of higher education as emphasized in the XI Five Year Plan document. The present practice of GER in higher education does not project the real picture as some of the students enrolled in skill intensive courses/programmes are not covered and counted in GER. Therefore, a need has been felt to introduce the concept of EER which will provide the real scenario of student access to higher education covering the eligible ratio of the population of the relevant age group.

Various aspects of the report on EER prepared by AIU and the findings of the report was also discussed. It was observed that the Completion Rate at school level in China is 67 percent, UK is 95 percent, but in India it is only 42 percent. When only 42 percent in the age group of 18-23 complete schooling, the calculation of GER which is based upon the entire population of the 18-23-year age group appears to be inappropriate. It was argued that the calculation should be made out of the 42 percent passed out from school education which is eligible for entering into the portal higher education. So far as the Gross Enrolment Ratio (GER) is concerned, it considers the total enrolment in Higher Education from the entire population in the age group of 18-23 years. This is the general and universal definition of Gross Enrolment Ratio (GER). It was emphasized that the problem of higher education sector cannot be adequately addressed unless we improve the quality of school education. In a competitive environment like today, the importance of GER comes to the forefront in any discussion on Higher Education. It is often rued that India is lagging behind in GER as compared to our counterparts. By this time, we should have been achieved the target of 50%. The questions arise, how to increase the GER. While the eligible population itself is 42 %, how can we reach the targeted GER of 50%. Therefore, we have to be pragmatic and must take adequate measures to improve the school education.

The scenario of enrolment in India is really good if we consider the Eligible Enrolment Ratio (EER). As the data is not available for the number of students passing class 12th from various countries it was decided to use an alternative parameter that is the Completion Rate. As per UNESCO

Handbook the completion rate is the number of people completing that level of education out of the relevant age group. So, we can use the Completion Rate of the senior secondary level for calculating EER which can be used as a parameter to measure the access. If the GER is divided by Completion Rate we will get EER. based on this formula, GER and EER for 10 countries were computed and the difference between GER and EER for these countries was calculated. It was seen that the GER of USA 88.2 % whereas its EER was 93.5 % and difference was only 5.3%, Germany was having a difference of 21.1% but the difference in India was 37.5 %, difference in Pakistan was 33.9%. In most of the developing countries difference between GER and EER was high and in most of the developed countries the difference was less than 10. Out of all the developing countries, the difference in India was the highest at 37.5. This projects that the developed nations have a good schooling system, resulting in having only marginal difference in GER and EER, but for developing nations, with a low Completion Rate at school level, the difference is huge. One can predict that GER does not measure access based on a level playing field and is disadvantageous for the developing nations where the school system is not very robust. Therefore, EER seems to be a more just parameter to measure access.

The second aspect of the analysis revealed that GER considers entire enrolment including International students. For example, in USA which has a large number of international students, the enrolment includes both the home students and international students as well. But the denominator consists of only the population of relevant age group of their country therefore the GER further increases on account of International students. There is large chunk of Indian Students and students from other countries studying in USA. These students from developing countries are contributing to the increase in GER of developed nations at the cost of reducing their own GER which is a major disadvantage. This can be refined if EER is used and the number of International students is deducted from the calculation, as they are not counted in the population in relevant age group in the denominator. There are approximately 10 lakh international students in USA, whereas India has only 46703 international students. Therefore, developed countries are better portrayed in terms of GER at the cost of developing countries.

On the basis of above analysis, it was proposed that the EER should be refined in two ways one, based on eligible population and second, based on International students. Therefore, a conclusion was arrived at that the EER based on eligible population in the relevant age group is relatively fair and just parameter for measuring access as it creates a level playing field for developed and developing countries. It can be further refined by deducting International students from the enrolment as they are not enrolled out of their population. She concluded the presentation by mentioning that if a consensus can be developed for use of EER, we will further explore the possibility of refining report and some structured recommendations can be given to the government for taking steps in this direction.

It was pointed out that the idea of EER was proposed a long back in 2004, but it was missing in higher education discourses. Even all the policy documents on education has been referring to GER without going into reality. When we started giving a serious thought to the concept, it was realised that these assumptions, and targets which we have in mind may not be actually doable, because we don't have that kind of eligible candidates in the country. With the initiative taken by AIU, the concept of EER can be given a momentum. The concept of GER is very old, and for some unknown reasons, nobody revisited it in several years. with the analysis of the data presented and in view of the report prepared by AIU the concept needs a relook. It was discussed that there could be a lot many opportunities which need to be deep dived in these subjects, by bringing more countries for comparisons and interpretations. It's high time to show the world that our EER is comparable to other countries.

The issue of eligibility ratio should be seen from a broader angle while presenting the access to higher education in the country in a realistic way. While looking at some glaring statistics on internationalization it was observed that More than 8 lakhs of foreign students are enrolled in the higher education system of the USA but this is not the reason for the high GER of this country as this is contributing only 4 percent. Actual reason is that the USA is also counting mature students who are beyond the age group of 18-23 years in their GER. This is also one of the main reasons which has seemingly influenced GER in the developed countries. The stage transition ratio in India i.e. the students who are passing out 12th grade and entering into graduation is around 90 percent so there is no scope of expansion in this scenario. However, it is not possible to achieve 50 % GER unless we include mature students in the GER and unless our least developed states like Uttar Pradesh, Bihar, Odisha, Rajasthan, Madhya Pradesh, etc. increase their secondary school graduates. The one difficulty with GER is that the denominator in GER is the entire population in age group 18-23 years who may or may not have entered in 12th grade. If we have actual data of students who entered in 12th grade then the realistic pictures will come out but this data is not available for all the countries in actual sense.

In today's context the term PCM is no longer physics, chemistry and mathematics it became People's Capability and Maturity. In the context of EER India is not as bad as projected in GER. Rather than focusing on expansion of the higher education system, there is a need to focus on relevance and capabilities which are created in the country. Apart from capability, value matters, because we are going through a great crisis called value crisis.

In context of Germany, differences of GER and EER is quite high due to fact that 12th grade students are entering in skilled and technology certificate courses rather than entering into general higher education. So, to increase the level of GER or EER we must include the students enrolled in ITI or diploma courses in calculation of GER or EER. We must create Skill Park or Tower in the country so that more and more students are attracted towards the education

system due to high chances of getting lucrative jobs or career after the skilled courses. This practice definitely takes the GER or EER of the country to the next level that we are expecting in the near future. We should raise the term GER to EER in terms of relevance, quality and capability.

The other aspect is that the GER mainly focusing on conventional or general education. The open and distance learning systems in the country accommodates a huge number of students which are not considered under GER. Open school learning system may play an important role in increasing the EER as the open and distance universities are running Bachelor Preparatory Programs for those students who have not completed their 12th grade due to some or other reasons. These programmes may act as a bridge course and will increase eligibility ratio in the country, if we count these students in GER. But in actual scenario these students are not counted due to age factor.

Giving a pointed reference to Sarva Shiksha Abhiyan at school level, it was observed that we are educating everyone without knowing capability, quality and skills, which is a big mistake there is a need to increase the age range from 18-23 to18 to 35 years because the condition in our country is totally different from other western countries. So, we cannot compare India with the western countries although we can talk about it. The main focus should be on skill-based education but everyone has different capabilities. So, it is not possible by imposing this on students. The concept of EER is very practical and valid and must carry forward not only at this forum but also at the National forum. When this debate will go to every institution then the institution may try to change. In NIRF ranking the GER is quoted but format need to be corrected and the performance indicators should not to be fixed only to how many IAS, PCS and Judiciary persons are created by the universities but also a good engineer, doctor, Professors and teachers because these are also a main contributor to the national development.

It was agreed that the concept of EER is quite good as it is a much-needed correction in the concept of GER. We are ruthlessly increasing the number of universities in the country without assessing the actual requirements. It is better to express eligibility ratio sequentially in the form of Primary Eligibility Ratio, Secondary Eligibility Ratio and Higher Secondary Eligibility ratio so that a graded picture of eligibility ratio will come into existence, it will also give an exact number of dropouts and addition in the system. Most of Institutions are working on increasing enrolment rather than concentrating on planning which should be rectified. EER should be related to the planning part and 64 percent EER calculations is quite good in Indian scenario. In Germany education is highly subsidized and skilling is given a lot of importance. The same concept may also help in Indian context. The distance and open learning and diploma education must be included in GER or EER of the country.

It was emphasized that introducing new parameters on the eligibility ratio of the country that the concept of EER should be developed alongside the

GER without surpassing the GER as this concept is worldwide accepted. Distance and opening learning students in GER and computer and vocational certificate courses may also be included in the EER which may present a complete picture of eligibility ratio in the country.

With the initiative of AIU, the issue needs to be given a fresh look and importance it deserves. A goal has been set to achieve a GER of 50%. But our policy documents say that our school pass outs are only 42%. How we intend to achieve the GER of 50%. Challenging GER is the necessity of this country. We are only close to 40%. In this scenario, EER makes better sense then GER. So, this is actually a correction that we needed. In a situation where relatively less students are passing out from school level, why do we need so many universities. It needs to be given a serious thought. If we don't know how many engineers and doctors are actually required in the country then how we make plans for higher education. EER is a good step but we can also consider the progression of students from primary to secondary and higher secondary, if we can measure this progressive percentage that will make a better sense and will guide us much better.

9. The important recommendations emanated from the AIU Study and Roundtable discussions are as follows:

1. The concept of GER appears to hold not much significance because of the fact it does not project the relevant section of population group of 18-23 who are eligible to enroll in higher education. GER is calculated on the entire population of the relevant age category out of which a large chunk is not eligible for higher education enrollment. Hence the concept of GER is misleading and does not depict the real picture. Therefore, it is recommended that along with GER the concept of EER should also be introduced and be put in practice
2. The one difficulty with GER that the denominator covers the entire population in age group 18-23 years who may or may not have entered in 12th grade. If we have actual data of students who entered in 12th grade then the realistic pictures will come out but this data is not available for all the countries in actual sense.
3. In the context of EER India is not as bad as projected in GER. Thus, a need has been felt to promote the concept of EER.
4. A new provision should be made to calculate eligibility ratio sequentially in all levels i.e. form of Primary, Secondary and Higher Secondary levels so that a graded picture of eligibility ratio will come into existence, it will also give an exact number of dropouts and additions in the system.
5. As revealed by the study conducted by AIU the present Eligible Enrolment Ratio in Higher Education for India is 64 percent which is considerably good in Indian Scenario. Most of Institutions are working on increasing enrolment rather than concentrating on planning which should be rectified. EER should be related to the planning part.
6. The goal of achieving a GER of 50% by the year 2030 seems to

be a distant dream unless requisite policy measures are initiated to increasing the rate of school level pass outs which is only 42 percent at present. Therefore, special policy measures are urgent required to increase the pass out rate in school education level. The efforts should also focus on improving the quality of school education.

7. So far, the students enrolled in distance and open learning and diploma education are not covered in the calculation of GER. These students constitute a large section of the student population. Therefore, they must be included in GER or EER of the country.

8. The stage transition ratio in India i.e. the students who are passing out 12th grade and entering into graduation is around 90 percent which is high However, it is not possible to achieve 50 % GER unless we increase our secondary school graduates.

9. AIU study found that in the context of Germany, differences of GER and EER is quite high due to the fact that 12th grade students are entering in skilled and technology certificate courses rather than entering into general higher education. So, to increase the level of GER or EER we must include the students enrolled in ITI or diploma courses in calculation of GER or EER.

10. Like the subsidized system in Germany, India should also have provision of subsidized technical education after Higher Secondary level so that the unnecessary burden on higher education can be minimized and technical and skill-based education can be given a push so as to meet the technical requirement of the country.

11. Skill Parks or Skill Towers must be created in the premises of educational institutions so that more and more students are attracted towards the education system due to high chances of getting lucrative jobs or career after the skilled courses. This practice definitely takes the GER or EER of the country to the next level that we are expecting in the near future.

12. We should raise the concern related to GER not only in Indian context but at International level.

13. The concept of EER is a practical and valid and must be carried forward not only at a limited forum but also at the National level. The concept of EER must reach at institutional level for better understanding and practice.

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