IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

A Cross-Country Analysis Of Higher Education And Its Components: *Insights From Global Knowledge Index*

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Abstract

This study presents a cross-country analysis of higher education and its components leveraging insights from the Global Knowledge Index (GKI). The GKI provides a comprehensive framework for assessing knowledge related performance with a focus on seven composite sub-indices, including higher education as one of its sub-indices. The present study compares the performance of six South Asian countries, highlighting their strengths, weaknesses and the areas for improvement. The core focus of the study is to identify the areas where India lags behind other South Asian countries and investigate the root cause of these disparities. Our analysis reveals that India underperforms in the 'Employment' subcomponent which is a crucial aspect of higher education. Further examination suggests that India's socio-economic set up is the major contributor to this underperformance. Thus, the study provides valuable insights into the dynamics of Higher Education in South Asia, emphasizing the need to address the socio-economic challenges to improve the employability of educated youth.

Keywords: Higher Education, Government Expenditure, Enrolment, Education Attainment Rate, Employment, Gender Equity

INTRODUCTION

The economy of a civilization has been viewed as having different forms throughout history. These include agrarian economy, industrialized economy or natural resource-based economy. Earlier the nations used to rely on labour and capital to build wealth and spur economic growth, but with globalization, new trends and technical progress, majority of the countries have progressively transitioned into the knowledge economies. The phrase 'knowledge economy' first appeared in 1960s and characterized a shift away from conventional economies dependent on agriculture or manufacturing. In contrast to the latter which bases economic development on labour, capital and natural resources, the former is based on knowledge with education, innovation, research and development as its major pillars. It is an economy based on exploring, assessing, evaluating, enhancing, exchanging and merchandising the knowledge. The Organisation for Economic Co-operation and Development (OECD) defines a society with a knowledge-driven economy as one where "the production, diffusion and use of technology and information are keys to economic activity and sustainable growth".

The Term "Knowledge economy" refers to a change in perspective where knowledge and intellectual capacity are seen as the main drivers of economic development. The shift has pivotal ramifications for how economic activities operate and economy competes in the contemporary international environment. The need for thorough and useful indicators for 'knowledge' is greater than ever in a time when the 2030 Agenda's urgency is emphasized. This need is satisfied by the Global Knowledge Index ((GKI) Developed by the United Nations Development Programme - Regional Bureau for Arab States (UNDP RBAS) and the Mohammed bin Rashid Al Maktoum Knowledge Foundation (MBRF), the GKI provides a distinct measure that allows to impartially interpret the complex terrain of knowledge and growth. It is a pioneering tool in the realm of knowledge and development. Initiated in 2017, it serves as a comprehensive framework for understanding and measuring knowledge-related performance globally. As such, the index is a special tool that helps policymakers create developmental and cognitive policies that create knowledge economies and communities.

Global Knowledge Index is an exhaustive index which encompasses seven composite sub-indices that assess the performance of six crucial sectors: Pre-University Education; Technical and Vocational Education; Higher Education; Information and Communications Technology; Research and Development and Innovation and Economy. Along with these is a unique sub-index that explores the Enabling Environment constituting the governmental, socioeconomic and health and environmental backdrops that reinforce the outcomes of these sectors. To promote sustainable development, nations must take advantage of their knowledge infrastructure to create new jobs and livelihood opportunities. The GKI assists nations in determining where and how to make investments in order to create the advanced knowledge-based societies.

Objectives of the study

- To assess Global Knowledge Index of South Asian Region in general with particular focus on India.
- To analyse the 'Higher Education' index of South Asia with detailed assessment/evaluation of its pillars.
- To explore another sub index 'Enabling Environment' to trace the root cause of underperformance of India on some subcomponents of Higher Education
- To delve into the insights provided by the analysis of two sub-indices to provide evidence-based policy recommendations.

Research Methodology

The study makes a cross-sectional analysis of indicators of Higher Education using the Global Knowledge Index Report 2024 across the South Asian Region. The study adopts a dual approach with the use of descriptive and comparative research design to elaborate different sub-indices of Higher Education and their components to provide an exhaustive overview of current state of Higher Education across six countries of South Asian (SA) region, viz., Bangladesh, Bhutan, India, Sri Lanka, Pakistan and Nepal. The study intends to first identify the underperforming variables/subcomponents and then traces the intrinsic factors by overhauling the enabling environment sub-index so that the remedial actions may be suggested.

Higher education and knowledge economy

Education is the foundation of knowledge and higher education is the nucleus of knowledge production as it produces intellect, skills and creative abilities and thus leads to the generation of human capital required for fostering innovation and knowledge. Hence higher education generates human capital with the credentials and abilities needed to satisfy the demands of the sectors that propel the global knowledge economy. This justifies th fact that the higher education has grown in importance in all nations.

The present study is an attempt to assess and analyse the 'Higher Education' sub index of GKI for the South Asian Region in general and India in particular. Higher Education has been chosen for the in-depth analysis as despite sustained economic growth, India's higher education indicators remain modest as compared to other SA Countries.

Table1: Higher Education Index of South Asian countries

Country	HE index
Bangladesh	33.3
Bhutan	47.76
India	37.98
Sri Lanka	38.36
Pakistan	36.15
Nepal	35.64

Source: Global Knowledge Index Report, 2024
(All values are normalized into (0-100) range, higher values indicating better results.)

The table shows that Higher education Index of South Asian countries lies between the 33 to 48 value where India lies at third rank with value of 37.98 compared to other nations like Bhutan (47.76) and Sri Lanka (38.36).

The study intends to explore the *inherent/intrinsic* factors by a disaggregated study of pillars of Higher Education Index. Three primary pillars make up the higher education sub-index: **Inputs**, which include three sub-pillars: Expenditure, Enrolment, and Resources; **Learning Environment**, which includes two sub-pillars: Diversity and Academic Freedom and Equity and Inclusivity; and **Outputs**, which includes three sub-pillars: Education Attainment, Employment and Impact.

INPUTS OF HIGHER EDUCATION

Inputs form the basis for outputs in all activities. The inputs of 'Higher Education' include those factors which enable the systems to achieve their objectives. GKI categorizes inputs into three subcomponents: Expenditure, Enrolment and Resources.

Two factors are included in the 'Expenditure' subcomponent: the amount of money the government spends on tertiary education per student and the salary of teaching personnel (as a percentage of total tertiary expenditure in public institutions). Two factors are considered for the 'Enrolment' subcomponent: the percentage of the population enrolled in bachelor's or equivalent degrees, and the percentage of population enrolled in the master's, doctorate, or equivalent level. The Pupil-teacher ratio in tertiary education and the percentage of researchers in higher education are the two variables used in the 'Resources' subcomponent.

Now we analyse these subcomponents for the countries chosen for study.

Table 2: Inputs sub-index of Higher Education index and its subcomponents

Country	Bangladesh	Bhutan	India	Sri Lanka	Pakistan	Nepal
Inputs ↓ Sub Pillars	**27.4**	**45.35**	**24.23**	**25.46**	**30.6**	**10.11**
1.**Expenditure**	37.08	NA	7.26	22.6	5.66	20.2
a) Government expenditure per tertiary student	1.7	NA	7.26	8.11	5.66	1.38
b) Teaching staff compensation (percentage of tertiary expenditure)	72.47	NA	NA	37.08	NA	39.02
2. **Enrolment**	11.55	9.55	18.2	12.4	5.13	10.15
a) In bachelor's or equivalent level	14.81	9.55	19.55	11.54	7.06	11.79
b) In Master's, Doctoral or equivalent level	8.28	NA	16.86	13.27	3.19	5.5
3.**Resources**	33.57	81.16	47.24	41.38	81.01	0
a) Pupil-teacher ratio in tertiary education	33.57	81.16	58.35	50.89	67.78	0
b) Researchers in higher education	NA	NA	36.12	31.88	94.24	NA

Source: Global Knowledge Index Report, 2024

(Refer to the Methodology section of GKI Report, 2024 for calculation of values of indices)

All South Asian countries except Bhutan are below the world average which is 38.6. India become a slow runner with the value 7.26 compared to other South Asian countries in 'Expenditure' which is the first sub pillar of Inputs, the reason may be the large population due to which the gross expenditure per tertiary student stands to be low despite the high levels of public expenditure incurred on education. In second sub pillar 'Enrolment'; India is forerunner with highest value (18.2) in all South Asian countries. **In resources, India shows marginalized status which stands to be the area of concern and seeks improvement**. India needs to design strategies to address the issues of pupil-teacher ratio in tertiary education and the percentage of researchers in higher education. The cause for Bhutan (45.35) scoring better than world average is the only subcomponent where Bhutan's value is much greater than other SA countries is 'Resources' which is a very crucial component and the major reason for under performance of developing world. Bhutan stands to be strong on Pupil teacher ratio (81.16) which might be caused by the second sub pillar – 'Enrolment' where Bhutan is scoring low and the non-availability of data on Expenditure sub pillar.

LEARNING ENVIRONMENT OF HIGHER EDUCATION

The second sub-pillar of Higher Education is Learning Environment. The objective of this subcomponent is to give a sense of the teaching and learning environment that both instructors and students encounter in higher education organizations. As a result, four themes were proposed: diversity, academic freedom, equity and inclusiveness. So one subcomponent of Learning Environment includes 'Diversity and Academic Freedom while another aub-pillar includes Equity and Inclusivity. Two variables—the female-to-male ratio of tertiary education teachers and the inbound mobility rate—were used to measure the first theme on diversity in the diversity and academic freedom sub-pillar. Concerns about freedom and transparency are reflected in the second theme, which is academic freedom. A higher education sector can respond to issues of freedom and diversity if it considers a balanced representation of male and female

instructors, welcomes international students of both sexes, and upholds an environment that values academic exchange, campus integrity, institutional autonomy, freedom of expression and freedom in teaching and research. The gross attendance ratio for tertiary education, gender parity; gross attendance ratio for tertiary education, wealth parity; and gross attendance ratio for tertiary education, location parity are the three variables chosen for the equity and inclusivity sub-pillar. When combined, these three factors that relate to the gender, wealth and location distribution of students in higher education institutions offer a useful measure of equity.

Table 3: Learning Environment sub-index of Higher Education index and its subcomponents

Country	Bangladesh	Bhutan	India	Sri Lanka	Pakistan	Nepal
Learning Environment Sub Pillars ↓	**35.61**	**60.56**	**32.64**	**46.14**	**47.91**	**58.95**
1.Diversity	**17.16**	**60.56**	**32.64**	**46.14**	**52.4**	**75.9**
a)Teachers in Tertiary Education, gender parity	38.43	54.81	79.45	75.86	N/A	N/A
b) Inbound Mobility Rate	0.15	54.45	0.26	0.96	N/A	N/A
c) Academic Freedom	12.9	42.4	18.2	61.6	52.4	75.9
2.Equity and Inclusivity	**54.06**	**N/A**	**56.84**	**N/A**	**43.41**	**42**
a)Gross Attendance Ratio for Tertiary Education, gender parity	75.54	N/A	84.57	N/A	88.38	94.96
b) Gross Attendance Ratio for Tertiary Education, wealth parity	18.99	N/A	17.94	N/A	2.27	5.93
c) Gross Attendance Ratio for Tertiary Education, location parity	67.65	N/A	62.02	N/A	39.59	25.12

Source: Global Knowledge Index Report, 2024

(Refer to the Methodology section of GKI Report, 2024 for calculation of values of indices)

The table provides an analysis of the second sub pillar of 'Learning Environment' for SA countries.. India's value on this sub index is also less than other nations under study except only Bangladesh. The first subcomponent of 'Learning Environment' which is 'Diversity' seems to be the cause of lesser value of the sub-index 'Learning Environment'. But the thorough investigation reveals that it is only Inbound Mobility rate which is second subcomponent of 'Diversity' which is leading to the undervaluation of 'Learning Environment' index. Inbound mobility is the number of foreign students expressed as a percentage of total tertiary enrolment in the country.

OUTPUTS OF HIGHER EDUCATION

Assessing the system's effects and results as well as how it contributes to the social and economic advancement of its graduates is the goal of 'Outputs' sub-index. Three components, viz., Attainment, Employment and Impact make up the 'Outputs' sub-pillar. Bachelor's or equivalent educational attainment rate, master's or equivalent educational attainment rate, and doctorate or equivalent educational attainment rate are the three variables that make up the 'Attainment' subcomponent. 'Employment' subcomponent is constituted of labour force participation rate with advanced education as a percentage of the total labour force (15+); and unemployment rate with advanced education as a percentage of total labour force (15+). The 'Impact' subcomponent features two variables: university industry collaboration in R&D, which indicates economic and business impact; and citable documents normalized by total R&D personnel in higher education, which indicates research and knowledge creation impact.

Now we analyse the values of this sub-pillar for SA countries

Table 4: Outputs sub-index of Higher Education index and its subcomponents

Country	Bangladesh	Bhutan	India	Sri Lanka	Pakistan	Nepal
Output Sub Pillars ↓	36.89	37.36	45.97	43.48	29.94	37.84
1.Attainment	**8.77**	**9.76**	**44.61**	**2.24**	**8.95**	**7.74**
a)Education Attainment rate at Bachelor' level	12.21	16.52	21.49	1.29	13.94	9.34
b)at master's or equivalent level	13.04	7.57	12.33	3.2	12.35	6.14
c)at doctoral or equivalent level	1.07	5.19	100	N/A	0.56	N/A
2. Employment	**68.73**	**65.69**	**55.96**	**82.02**	**52.86**	**66.38**
a) LFPR with advanced education	76.73	62.29	56.44	81.41	59.92	60.23
b) Unemployment rate with advanced education	60.73	69.09	55.48	82.63	45.8	72.52
3. Impact	**33.16**	**36.62**	**37.33**	**46.19**	**28**	**39.4**
a)University industry collaboration in R&D	33.16	36.62	42.34	47.45	51.52	39.4
b)Citable documents per R& D personnel in Higher Education	N/A	N/A	32.32	44.92	4.49	N/A

Source: Global Knowledge Index Report, 2024

(Refer to the Methodology section of GKI Report, 2024 for calculation of values of indices)

The general overview of the table reveals that India's value of 'Output' is more than the other SA countries but the thorough analysis reveals that India's value of 'Attainment' sub pillar is much ahead of other countries under study. Education attainment rate at all levels is better than other SA countries. But India is under performing on the second subcomponent which is 'Employment' India's values of both the subcomponents of 'Employment' which are 'LFPR with advanced education' and 'Unemployment with advanced education' are less than the other SA countries. India's value of LFPR with advanced education is the least as compared to all other countries. The value of 'Unemployment with advanced education' is also less than other SA countries except only Pakistan. Unemployment is though a negative variable yet lower values represent worse performance as the indices are normalized. India's value is more than the average of all SA countries on the third sub pillar which is 'Impact'. So, the focus of concern is the second subcomponent which is 'Employment'.

Further the study intends to trace the root cause of underperformance of 'Employment' subcomponent. For this purpose, we explore another sub index of GKI which is 'Enabling Environment'. This sub-index represents aspects that interact and impact each of the six sub-indices. Three pillars serve as the foundation for 'Enabling Environment': governance, socio-economics, and health and the environment. The first sub-pillar governance provides an incubating environment which is a prerequisite for development of all sectors. Due to its role in maximizing potential, establishing priorities, advancing justice and equal

opportunity, and curbing corruption, the political environment's efficacy is a crucial metric. The World Bank places emphasis on these characteristics in its endeavours to track and quantify governance globally through the collection and documentation of data on both individual and aggregate governance indicators. According to the aforementioned, the governance pillar was separated into two sub-pillars: the political environment, which is assessed using two variables: political stability and the lack of terrorism or violence, as well as voice and accountability; and the quality of institutions, which is assessed using three factors: the rule of law, control of corruption, and government effectiveness.

The second sub index is _socioeconomic environment. It fits within the framework of ideas that the UN has adopted, including sustainable development and human development, or issues pertaining to integration, equity, and inclusion. The consensus definition emphasizes improving people's income and standard of living while also giving them more control over their lives and the variables and forces that impact them. Additionally, it helps people develop their abilities and skills and integrate fully into society, Since the social, economic, and knowledge dimensions all require the capacity to influence and take part in change, this pillar is made up of three sub-pillars: Gender Equity, Social Inclusion and Standard of Living. Three factors make up gender equity: female to male ratio in parliament, female to male ratio in labour force participation, and female to male ratio in Internet usage. Three other factors are included in social inclusion: the percentage of the population receiving at least one social protection benefit; the adult literacy rate for those aged 15 and over; and the percentage of young people without jobs, education, or training. Two factors are used to measure standard of living: GDP per capita and the poverty headcount ratio at national poverty levels as a proportion of the population.

Table 5: Enabling Environment Index and its sub-pillars

Country	Bangladesh	Bhutan	India	Sri Lanka	Pakistan	Nepal
Enabling Environment Sub Pillars	39.89	64.73	45.31	51.56	34.83	48.09
1.Governance	**21.71**	**71.11**	**45.57**	**36.12**	**20.75**	**35.29**
2. Socio-Economic	**42.15**	**51**	**33.41**	**51.07**	**32.8**	**40.91**
3.Health and Environment	55.81	72.07	56.94	67.49	50.93	68.07

Source: Global Knowledge Index Report, 2024

(Refer to the Methodology section of GKI Report, 2024 for calculation of values of indices)

Although significantly lower than Bhutan's, India's value of the "Governance" subcomponent takes precedence over all other SA nations. India's performance of the socio economic is the worst in the region, nearly on par with Pakistan.

The present study traces out that India and Pakistan, which have the lowest and nearly equal values of socio economic , are ranked lowest and equivalent in the LFPR with advanced education and Unemployment with advanced education. Although, India’s values of the third subcomponent, Health and Environment is also less than other SA countries under study, yet the focus of our concern is Socio Economic index which is more closely associated with the ‘Employment’ component of ‘Output’.

Further, we explore the values of subcomponent 'Socio Economic'

Table 6: Subcomponents of Socio-Economic sub index of Enabling Environment Index

Country	Bangladesh	Bhutan	India	Sri Lanka	Pakistan	Nepal
1. Gender Equity	**47.8**	**63.93**	**38.68**	**45.67**	**32.8**	**51.4**
a) Female-male ratio in Parliament	25	4.49	15.87	5.6	19.33	49.48
b) Female-male ratio in labour force Participation	**46.16**	**87.29**	**40.55**	**44.92**	**30.16**	**53.32**
c) Female-male ratio in internet usage	72.23	100	59.6	86.48	56.63	N/A
2. Social Inclusion	40.29	43.63	55.23	63.93	28.1	35.51
a) Social Protection Coverage	20	9.64	47.49	39.79	18.15	18.97
b) Adult Literacy Rate	67	61.63	68.37	89	42.24	60.33
c) Youth not in Employment, Education or Training	33.86	59.62	49.82	62.98	23.91	27.24
3. Standard of Living	38.37	45.45	6.32	43.61	34.93	35.81
a) Poverty Head count ratio(% of population)	**71.19**	**80.89**	**N/A**	**77.97**	**66.26**	**68.72**
b)GDP per capita	5.56	10.02	6.32	9.25	3.25	2.9

Source: Global Knowledge Index Report, 2024

(Refer to the Methodology section of GKI Report, 2024 for calculation of values of indices)

Upon closer examination of the "socioeconomic" subcomponents, we find that India's value on 'Gender Equity' is lower than that of every other nation, with the exception of Pakistan, where India's value is only slightly higher. Now within 'Gender Equity', India ranks higher than Bhutan and Sri Lanka but lower than Bangladesh, Pakistan, and Nepal in the first subcomponent 'female-male ratio in parliament'. The female-male ratio in labour force participation is even more concerning, as India is once again ranked second lowest, ahead of only Pakistan. The ranking is identical for the female-male ratio in internet usage as it is for labor force participation. India is in a better situation than other nations under study, with the exception of Pakistan, in terms of social inclusion. The third subcomponent, 'Standard of Living' is not comparable because of lack of sufficient data on its subcomponent, 'Poverty Head Count ratio'.

FINDINGS AND CONCLUSION

- The major finding of the research is that the lower value of female-male ratio in Labour force participation implicitly indicated that the low values of subcomponents of Employment, viz. LFPR with advanced education and Unemployment with advanced education are caused by low values of socio-economic index and more particularly low value of 'Gender Equity' subcomponent. Hence the study aligns with the theoretical perspective that in low socio-economic development settings (like India and Pakistan), returns to education—especially for women—are often low and social barriers remain strong. So, despite higher education, female labour force participation (FLFP) can remain low. Thus, though education increases productivity and employability yet the returns to education depend on socio economic settings of the country. the Participation in economic activity especially that of the females is deeply influenced by socio cultural norms, patriarchy and gender-based division of work and responsibilities. This is consistent with "rising education among women has not translated into higher labour market participation due to social and mobility restrictions" (World Bank, 2018).
- Disparities in female labour force participation in South Asian economies are directly related to the underlying systems of family and inheritance. Countries like Bhutan which is historically matrilineal (in many communities) and Nepal which is historically patrilineal but rapidly shifting

towards liberal egalitarian norms and Sri LANKA which is patrilineal but with relatively liberal social norms exhibit comparatively better socio-economic outcomes for women, while India and Pakistan continue to be constrained by strong patrilineal and patriarchal norms that restrict women's mobility and employment opportunities.

- Thus, the study concludes that enabling socio economic environment is a prerequisite for the successful transformation of 'Inputs' into 'Outputs' in the context of 'Higher Education' pillar of Global Knowledge Index.

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