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RESEARCH PERFORMANCE ANALYSIS OF SOME INDIAN TOP BUSINESS SCHOOLS USING ABC MODEL

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Abstract:

Performance of higher educational institutions can be measured using different criteria like student pass percentage, the annual research output, student placement result, foreign exposure, quality education etc. In this paper, we have used a recently developed model of measuring research productivity for higher educational institutions based on calculating institutional research index and weighted research index. The institutional research productivity is calculated using a metric which consists of three institutional variables and one parameter. The three variables identified are Number of Articles published in peer reviewed journals (A), Number of Books published (B), and Number of Case studies and/or Book Chapters (C) published during a given time of observation. The parameter used is a number of full-time Faculty members (F) which remains constant during a given period of observation and the number of research scholar registered for their Ph.D. work. The framework can be used to determine institutional research productivity by calculating Institutional Research Index for higher educational institutions. Further, the model is tested by making use of case examples of seven top Business Schools in India. The value of annual research index is calculated for these institutions for last four years and observed variation of research productivity during these years are studied and discussed.

Index Terms: Business School Ranking, Faculty Productivity, Institutional Research Productivity & Institutional Research Productivity Index

1. Introduction:

A Business management institution, being a university-level institution imparts higher education in business administration or management by imparting innovative training and research in business management related areas. All business management institutions have two responsibilities as imparting effective training in higher education business, management, and related subjects to the aspiring managers and doing research to create new models, identifying new concepts, developing new ideas, promoting new strategy, study new systems, to patent new processes to develop innovative products and services to promote further business so that the institution can contribute to new knowledge creation. With the responsibility of imparting higher education training, a business management institution teaches various subjects such as accounting, principles and practice of management, business environment, organizational administration, organizational strategy, finance, economics, marketing, entrepreneurship, human resource management, management information systems, logistics, supply-chain management, organizational psychology, organizational behavior, public relations, research methods, decision science, data analytics and intelligence, e-business, international business, entrepreneurship, real estate etc [1-2].

Many business management institutions use various pedagogies to educate their students. Most of the business management institutions use the lecture method to give basic business education. Lectures are generally given from the faculty point of view, and rarely provide interaction opportunity for the students. Some business management institutions focus their teaching on case studies. The case method is the historical descriptions of actual business situations in companies and need not be repeated due to changes in technology, business environment time to time. In some institutions, teaching is delivered about a business firm's products, services, markets, competition, financial structure, sales volumes, management, employees, and other factors affecting the firm's success. Some institutions use a skills-based approach in business management subjects teaching emphasizing quantitative methods, in particular, operations research, statistics, management information systems, organizational behavior, online analytics, modelling and simulation, and decision science. Some institutions, in addition to concept based teaching, use business games in different disciplines such as business, economics, management, etc. Many institutions are blending these approaches. Using above pedagogy, higher educational institutions teaching business management area, strive to meet above discussed two goals: knowledge exploration through research and knowledge exploitation through instruction based training. The instruction based training imparted in business management institutions are mainly derived from research and hence the knowledge exploration through research finds important activity [2].

Innovations in higher educational system covered long way and its contribution improved the quality of education and quality of graduates [2-3]. Several studies on innovations and quality in higher education including Strategic Planning in Higher Education Institutions [4], Innovations and Best Practices can Transform Higher Education Institutions [5], quality in higher education [6], Internal Quality Assurance Cell and its Contribution [7], Enhancement of Graduate attributes in Higher Education Institutions through Stage Models [8], Quality Enhancement in Higher Education Institutions [9], Effective Leadership and Governance [10],

Strategy Development and Deployment in Higher Education Institutions [11], Faculty Empowerment Strategies in Higher Education Institutions [12], Unique & Successful Model in Integrated Development [13], Applying SWOC Analysis to an Institution of Higher Education [14], Techniques for Electric Energy Auditing in Education System [15], Societal Expectation And Institutional Accountability in Higher Education [16], Methods and Approaches for Employability Skill Generation in Higher Educational Institutions [17], Quality Enhancement in Higher Education Institutions through Best Practices in Library [18], Analysis of Academic Administrative System Implemented in Higher educational institution [19], Learning through Team Centric Exercise & Key Point Pedagogy - An effective Learning Model for Slow Learners in Higher Education Training [20], Opportunities and Challenges for Private Universities [21], Innovations in Private Universities [22], Creating Innovators through setting up organizational Vision, Mission and Core Values : a Strategic Model in Higher Education [23], Comparative Study on MBA Programmes in Private & Public Universities [24], Impact of On-line Education on Higher Education System [25], Innovations in Higher Education - A new model implemented in MCA degree programme [26], Environmental Consciousness in Higher Educational Institutions [27], Analysis of Choice Based Credit System in Higher Education [28], Innovations in Student Centric Learning – A Study of Top Business Schools [29], Innovations in Experimental Learning – A Study of World Top Business Schools [30], How to Increase Research Productivity in Higher Educational Institutions [31], Academic Support through Information System [32], and Quality Teaching and Learning as Practice Within Different Disciplinary Discourses [33], Innovative Education Model to realize Ideal Education System [34], ABCD analysis of Stage Model in Higher Education [35]) Analysis of NAAC Accreditation System using ABCD framework [36], Application of ABCD Analysis Framework on Private University System [37], The Study of New National Institutional Ranking System using ABCD Framework [38], Educational institutions quest for service quality: customers‟ perspective [39], Comparative study of quality practices in higher education institutions [40], Quality in higher education-a survey [41], Blended learning: Uncovering its transformative potential in higher education [42], Innovations in Experimental Learning – A Study of World Top Business Schools [43], Academic Support through Information System [44], Changing Approaches in Campus Placements - A new futuristic Model [45], Information Technology Innovations in Library Management [46], Teaching - Learning Process in Higher Education Institutions [47], Maintaining Teacher Quality in Higher Education Institutions [48], Student performance and Learning Outcomes in Higher Education Institutions [49], Catering Student Enrolment and Retaining Diversity in Higher Education Institutions [50], Student Evaluation and Reforms in Higher Education Institutions [51], An innovative education model in Corporate Auditing [52], Student Centric Learning Through Planned Hard work - An Innovative Model [53], Green Placement – An Innovative Concept & Strategy in Campus Placement Model [54], Review on Various Ideal System Models Used to Improve the Characteristics of Practical Systems [55], Green Education Concepts & Strategies in Higher Education Model [56], and Smart Library Model for Future Generations [57] are studied and published.

Recently introduced business school ranking system based on various criteria and parameters is helpful to study and compare the quality of knowledge and skills imparted in these business schools. Business school ranking also helps student aspirants to choose the school and the programme to pursue their education with required competitive edge to be suitable to get absorbed in industries. Ranking is based on pedagogy [1], placement [58], research output [59], faculty-student ratio [60], international linkage [61], management of technology [62] etc. The validity and relevance of rankings of business schools and programmes are directly related to the choice of criteria against which the ranking takes place [63]. Recently an Indian news firm, ‘Business Today’ announced Indian best schools ranking based on five criterion namely: learning experience, living experience, selection process and establishment, future orientation, and placement performance [64]. This is not a scientific way of measuring the higher educational institutions performance due to the fact that these parameters are not measurable and quantifiable systematically. These parameters used in various higher institutional (especially business schools) ranking depends on environmental factors and hence different at different locations and countries.

It is argued that the institutional quality in the higher education system should not be measured based on the quality input of admitted students, the infrastructure provided, the academic result achieved, the international exposure, the amount of fee the institution is charging on students and the placement performance. Institutional productivity and performance should not be measured based on number of industry linkage, number of Management Development Programmes (MDP) & Faculty Development Programmes (FDP) it conducted, the amount of money through consultation and the number and amount of funding it received through projects, but the performance of higher education institution should be based on the ‘New Knowledge’ it has created [66-67]. In this paper, we have used ABC model of research productivity to measure institutional annual research productivity which is in turn based on faculty research output. Out of various criteria of ranking system mentioned above, faculty research output (or faculty productivity) is the deserved criterion for business school ranking. All other criteria/parameters depend on faculty ability to decide on the model of training. A business school can be effective if the faculty members are very active in research and finding new optimum solutions to

the industry problems. The quality and the reputation of a business school depend on the effort of faculty members in involving students in research projects and case developments. This will enhance the student's ability to do innovation in industries. Such graduates will carry values and ideas to the industry to identify new business opportunities. To support our model, we have studied the research publication performance of seven top ranking business schools in India and developed a metric of assessment for research productivity for last four years. The paper also discusses the limitations of the present method of institutional research index calculation method.

2. ABC Model of Institutional Annual Research Productivity:

Recently the Ministry of Human Resource Development, Govt. of India has developed a National Institutional Ranking Framework [65] which uses various criteria and parameters that have global appeal e.g. research output, research impact, learning environment, etc. The framework has also considered parameters like infrastructure, facilities for differently-abled persons, the percentage of students from other states and other countries, the percentage of women students and faculty, and percentage of economically and disadvantaged students. The framework has also given weight age to the sports and extra-curricular facilities available on the campuses of universities, which supports the overall development of a student in a Business school or a University. But we argue that all other facilities like infrastructure, student development facilities, library and laboratory facilities, faculty-student ratio etc. are already standardized by national accreditation bodies and the graduation outcome cannot be quality measurement criteria for autonomous institutions. The Outreach and Inclusivity parameters depend on the objective of the organization and the perception parameter depend on the innovation ability and research productivity of the organization and hence the only criterion which should be used to decide the quality and hence the ranking of the organization should be institutional research productivity which is a measure of institutional effectiveness.

In our model of studying institutional effectiveness, which in turn depend on the institutional research productivity of both faculty and students of the higher educational institution, we have developed a scheme of measuring institutional performance based on following postulates [66 - 68]:

Postulate 1: The Quality of higher education depends on the ability of the institution in new knowledge creation.

Postulate 2: The ability of new knowledge creation of the institution depends on the institutional research and publications by both faculty members and students.

Postulate 3: The institutional publication is measured by calculating its annual average publications.

Postulate 4: The institutional publication ability is measured by its annual publications in terms of the number of Articles published in Journals (A), the number of Books published in the subjects/Edited volumes (B), and the number of Business cases and Book chapters (C) published.

Postulate 5: The Research productivity (P) of the institution can be measured by knowing research index (α) and weighted research index (β), which shall be calculated using average publications in Journals, average publications of books and an average number of publications of Business cases. The research index per year (α) is calculated using the formula $\alpha = (2A + 5B + C)/F$, and the weighted research index (β), per year, is calculated using the formula $\beta = (2A + 5B + C)/8F$, where A = No. of publications in Journals in that year, B = No. books published in that year, C = No. of Publications of Business Cases published in that year, and F = No. of full-time Faculty members in that institution during that year. In the above formula, the weight age for a research article A is two and that of book B is five and the case study is one, based on a quantified assumption of the relative significance & efforts involved in generating it arrived at through a summated scaling technique.

Postulate 6: The annual research productivity (research index α) of the organization decides institutional ranking. If $\alpha < 3$, the Business school is poor in Research Productivity, if $\alpha = 3$, the Business School is sustainable if $\alpha > 3$, the institution is good and $\alpha > 5$ for top business schools and only such institutions should be considered for global Ranking.

The last postulate will give an idea for Institutional administrators of what productivity level the organization should maintain to improve its brand. The faculty members who fail to contribute to the research in addition to their teaching workload, to improve annual research productivity to the desired level should be relieved from the job. Since the annual research productivity decides the quality of the higher educational institution, there is a continuous pressure on all the faculty members to involve in research activities and best performers in the team should get incentives from the organization [66].

3. Research Index& Weighted Research Index using ABC Model:

The institutional research performance can be calculated by considering the different ways of new knowledge creation. All institutional effort to improve teaching-learning process should be focused towards developing students' research and innovating ability which in turn depends on faculty guidance on creating a new idea, concept, methods and the analysing ability of problems for effective decision making. Students through the theoretical study of concepts, experimental study through projects/fieldwork should be capable of publishing research papers, book chapters, and/or case studies. Through forming research teams which include both faculty members and students, the higher educational institution has the responsibility towards creating new knowledge, developing new skills and imparting new experience through research and innovation. All other

aspects and parameters for enhanced performance in higher educational institutions like obtaining project funding, providing industry consultation, applying patents etc. are subsidiary requirements because their further effectiveness also depends on the research outcome of the organization in the form of publications. In this model, we have four types of research publications namely Journal publications, Book publication, Book chapter publication and Business Case publication. Any other type of publication like the publication of papers in conferences/proceedings requires to be further improved and converted as journal publication and hence such publications are not counted for calculation of the index [69-71]. By considering such effective research publications, ABC model of institutional productivity can be calculated. In ABC model, A stands for the number of research articles published in reviewed journals, B stands for the number of Books published with unique ISBN number, and C stands for the number of business cases and/or number of book chapters published by the institution during a given year.

Research index is Calculated Using Following Formulae:

Research productivity index of the Higher Education Institution = (2A + 5B + 1C) / F, where A is number of papers published in reviewed & indexed Journals with ISSN number during a given year, B is number of books published with ISBN number during a given year, and C is sum of number of business cases and book chapters published during a given year. F is number full-time faculty members of the institution during a given year.

Institutional Research productivity index = [(2A + 5B + 1C) / F] ---- (1)

The weighted average is an average in which each quantity to be averaged is assigned a weight age. These weight ages determine the relative importance of each quantity on the average. Weight ages are the equivalent of having that many like items with the same value involved in the average. Weighted Research productivity index of the Higher Education Institution are calculated using following formula:

Weighted Research Productivity index = [(2A + 5B + 1C) /8] / F --------- (2)

Where A is the number of papers published in reviewed & indexed Journals with ISSN number during a given year, B is the number of books published with ISBN number during a given year, and C is the sum of the number of business cases and book chapters published during a given year. F is number full-time faculty members during a given year.

By examining the value of calculated weighted Research productivity index, we can classify a given higher education institution as five categories as Best, Better, Good, Satisfactory and Non-performer as shown in Table 1.

Table 1: Institutional Grading based on Research Productivity & Weighted research productivity [68]

Value of research index (α) ≥	**Value of weighted research index (β) ≥**	**Grade**
16.0 – 24	2.0 – 3.0	Optimum
8.0 – 16.0	1.0 – 2.0	Best
4.0 – 8.0	0.5 – 1.0	Better
3.0 – 4.0	0.375 - 0.5	Good
2.0 – 3.0	0.25 - 0.375	Satisfactory
1.0- 2.0	0.125 - 0.25	Poor
0 – 1.0	0 - 0.125	Nonperformer

4. Effect of Research Scholars on ABC Model:

The research scholars admitted to the institution for full-time research with/without institutional scholarship are usually important contributor to institutional research output. Generally, during the first and second year, research scholars contribute for case development and writing articles for books (book chapters). From the third year to the fifth year, they will be major contributors for research articles to be published in journals. However, research scholars are inferior to Faculty members in terms of their responsibility towards research and new knowledge creation so that while giving weight age, three research scholars made equivalent to one faculty. i. e. R = F/3. Hence the institutional research index can be calculated [70] using following corrected formula given in equation (3) and the weighted research index can be calculated using following corrected formula given in equation (4)

Institutional Research productivity index = [(2A + 5B + 1C) / (F+R/3)] ---- (3)

Weighted Research Productivity index = [(2A + 5B + 1C) /8] / (F+R/3) --------- (4)

5. Research Performance Analysis of Some Indian Top Business Schools:

(1) Indian Institute of ManagementBangalore: Established in 1973, IIM Bangalore claims that it has a base of highly accomplished faculty, world-class infrastructure, and motivated student body to emerge as one of the premier institutes for management education and research, promoting managerial excellence in the country. With the mission to 'build leaders through holistic, transformative and innovative education', IIM Bangalore strengthening their research and teaching which have enhanced our international reputation. Their PGP, Executive PGP, and executive programmes are all very highly placed in global rankings by the Financial Times.

IIMB is the only Indian business school to feature among the Top 50 B-schools on the Financial Times Executive Education 2015 Rankings, alongside the London Business School, Harvard School of Business, University of Oxford and several others. IIMB has also been ranked among the Top 30 Business Schools in the world on the Financial Times' prestigious Master in Management Rankings for 2015. For the eighth consecutive year, in 2015, IIM Bangalore has been ranked the best business school in Central Asia by Eduniversal, Paris [72]. IIM Bangalore has also topped the first rank in the list of best management institutes in the 'India Ranking 2016' – the first-ever national ranking of universities by MHRD's National Institutional Ranking Framework (NIRF), rated IIM Bangalore as the 'Best Management Institute' in India. The research publications (A), Books written/edited (B), and the book chapters & Case studies published (C) during last four years along with the number of faculty members and Ph.D. students as obtained from their institutional website as well as from NIRF website are listed in Table 2. The graph of the variation of research index for last four years is shown in figure 1.

Table 2: Research productivity index of IIM Bangalore during the last four years

Year	Regular Faculty F	Research Students R	Articles A	Books B	Case & Chapters C	RI* (using eq.3)	Total annual Citation 519
2012	97	75	57	03	22	1.24	268
2013	97	75	53	03	53	1.43	168
2014	97	75	51	06	26	1.30	83
2015	97	75	49	06	34	1.33	-

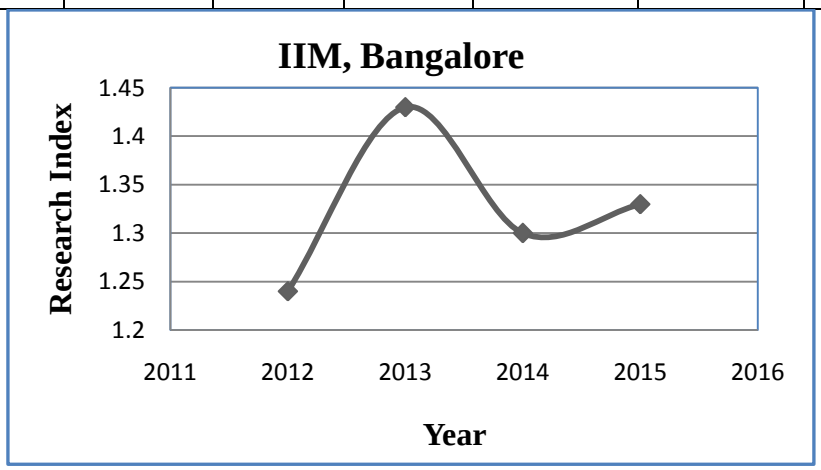

Figure 1: Variation of Research index with year in case of IIM, Bangalore.

(2) Indian Institute of Management, Ahmedabad: Started in 1961, IIM Ahmedabad is a public business school located in Ahmedabad, Gujarat, India. It was the second Indian Institute of Management to be established, after IIM Calcutta. IIM Ahmedabad occupy a prominent position to be ranked number top among Indian business schools, in India. With 143 faculty members during year 2015, drawn from different disciplinary backgrounds, teaching, and research interests, IIMA conducts it academic programmes through a number of clearly defined areas. The faculty has the flexibility to initiate inter-disciplinary groups to address issues and management challenges that require a multi-disciplinary approach. The faculty members have the flexibility to address management challenges through multi-disciplinary approach by initiating inter-disciplinary research through collaborations from members in different areas. One faculty member is designated as chairperson for each Area and he coordinates the various activities related to developing and running academic programs [73]. IIM Ahmedabad has also topped second in the list of best management institutes in the 'India Ranking 2016' – the first-ever national ranking of universities by MHRD's National Institutional Ranking Framework (NIRF), rated IIM Ahmedabad as the 'Second Best Management Institute' in India. The research publications (A), Books written/edited (B), and the book chapters & Case studies published (C) during last four years along with the number of faculty members and Ph.D. students as obtained from their institutional website as well as from NIRF website are listed in Table 3.The graph of variation of research index for last four years is shown in figure 2.

Table 3: Research productivity index of IIM Ahmedabad for last four years:

Year	Regular Faculty	Research Students	Articles	Books	Case & Chapters	RI	Total Annual Citation

2012	143	90	95	14	137	2.30	235
2013	143	90	69	18	106	1.93	81
2014	143	90	98	15	125	2.29	58
2015	143	90	55	04	109	1.39	-

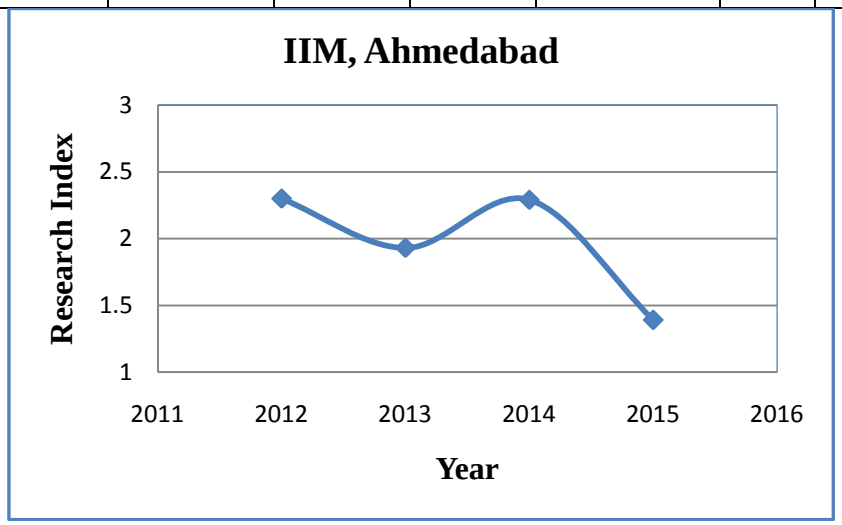

Figure 2: Variation of Research index with year in case of IIM, Ahmedabad.

(3) Indian Institute of Management.Calcutta: With the vision to emerge as an International Centre of Excellence in all facets of Management Education, rooted in Indian ethos and societal values, IIM Calcutta established in 1961 as the first national institute for Post-Graduate studies and Research in Management by the Government of India. Over the past five decades, IIM Calcutta has blossomed into one of Asia's finest Business Schools. Its strong ties to the business community make it an effective mechanism for the promotion of professional management practices in Indian organizations. Presently, IIM Calcutta attracts the best talent in India - a melting pot of academia, industry and research. The best and brightest young men and women pursue its academic programs [74]. IIM Calcutta is a fully autonomous institution and offers several postgraduate and doctoral programmes in management, as well as a bouquet of executive education programmes. In addition to its main academic programmes, IIM-C is also engaged in research, consultancy, seminars, academic conferences and research publications. IIM Calcutta is the only triple accredited business school in India: it is one of only 74 b-schools around the world and 5 in Asia which are accredited by the three largest and most influential worldwide b-school accreditation associations: AACSB, AMBA and EQUIS. It is also the only Indian business school that is a member of the Global Alliance in Management Education (CEMS). IIM-C is especially renowned for its finance-related courses, and is widely considered to be one of the best business schools in the world for finance. IIM Calcutta has also topped third in the list of best management institutes in the 'India Ranking 2016' – the first-ever national ranking of universities by MHRD's National Institutional Ranking Framework (NIRF), rated IIM Calcutta as the 'Third Best Management Institute' in India. The research publications (A), Books written/edited (B), and the book chapters & Case studies published (C) during last four years along with the number of faculty members and Ph.D. students as obtained from their institutional website as well as from NIRF website are listed in Table 4.The graph of variation of research index for last four years is shown in figure 3.

Table 4: Research productivity index of IIM Cacutta for last four years:

Year	Regular Faculty	Research Students	Articles	Books	Case & Chapters	RI	Total Citation
2012	102	75	72	0	8	1.20	157
2013			80	4	12	1.51	137
2014			59	4	09	1.20	36
2015			03	2	10	0.21	-

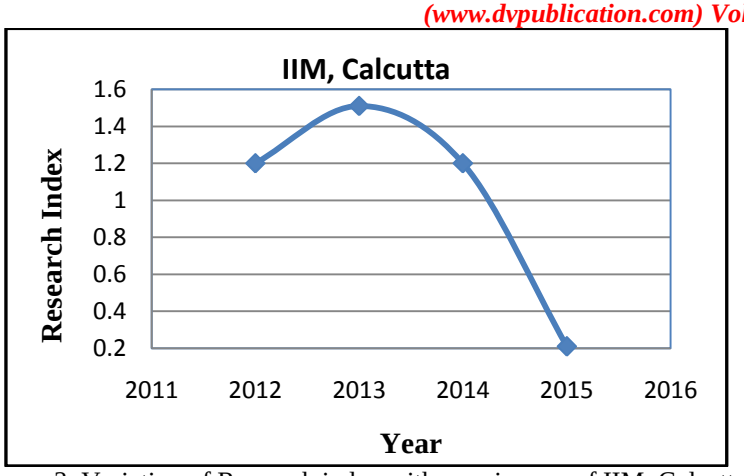

Figure 3: Variation of Research index with year in case of IIM, Culcatta.

(4) Indian Institute of Management, Lucknow: Founded in 1984, the Indian Institute of Management (IIM) Lucknow is an autonomous public business school located in Lucknow, Uttar Pradesh, India. It was established the fourth Indian Institute of Management by the Government of India. IIM Lucknow offers post-graduate diploma, fellowship and executive programs in management. It is recognized as an "Institution of Excellence" by the India's Ministry of Human Resource Development. It is ranked among the top 5 B-schools in India. IIM Lucknow also serves as the mentor institution for the newly established IIM Rohtak and IIM Kashipur. The programs are accredited by the Global accreditation body AMBA. The institute has tie ups with 24 leading B-schools across the world for student exchange.IIM Lucknow was ranked No. 4 by CNBC-TV18's Top B-Schools in India in 2012 and by *Hindustan Times* in India's top 50 business schools of 2011. The institute was ranked No. 5 by the *Business Today* in the list of 50 best business schools of 2011and ranked no. 6 by Careers 360's Top Public B-Schools in India in 2016 [75]. IIM Lucknow has also topped fourth in the list of best management institutes in the 'India Ranking 2016' – the first-ever national ranking of universities by MHRD's National Institutional Ranking Framework (NIRF), rated IIM Lucknow as the Fourth Best Management Institute' in India. The research publications (A), Books written/edited (B), and the book chapters & Case studies published (C) during last four years along with the number of faculty members and Ph.D. students as obtained from their institutional website as well as from NIRF website are listed in Table 5.The graph of variation of research index for last four years is shown in figure 4.

Table 5: Research productivity index of IIM Lucknow for the last four years

Year	Regular Faculty	Research Students	Articles	Books	Case & Chapters	RI	Total Citation
2012	80	60	58	04	06	1.42	38
2013	80	60	76	03	09	1.76	75
2014	80	60	85	02	05	1.85	47
2015	80	60	62	01	15	1.44	-

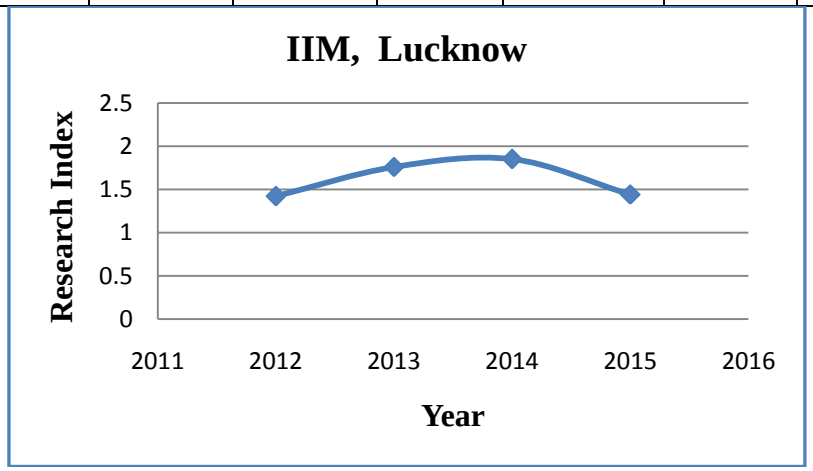

Figure 4: Variation of Research index with year in case of IIM, Lucknow.

(5) Indian Institute of Management, Kozhikode: Indian Institute of Management (IIM) Kozhikode has founded in 1996 in collaboration with the State Government of Kerala, as the 5th IIM established in India. IIM Kozhikode provides full range of academic activities in the field of management education covering research, teaching, and training, consulting and intellectual infrastructure development. The Institute emphasizes development of analytical skills and a focus on global and cross-cultural issues with a balance between business demands and social concerns. IIMK was ranked 7 by the *Hindustan Times* India's top 50 business schools of 2012. Ranked 6 by the 2012 edition of CNBC-TV18's Top B-Schools in India, Ranked 6 by the *Business Today* 50 best business schools of 2012, Ranked 7 by the 2013 Pagalguy rankings, it is ranked 5 in Top 10 B-Schools in India by India Today, and ranked 7 by Careers360's Top Public B-Schools in India in 2016 [76]. IIM Kozhikode has also topped sixth in the list of best management institutes in the 'India Ranking 2016' – the first-ever national ranking of universities by MHRD's National Institutional Ranking Framework (NIRF), rated IIM Kozhikode as the sixth Best Management Institute' in India. The research publications (A), Books written/edited (B), and the book chapters & Case studies published (C) during last four years along with the number of faculty members and Ph.D. students as obtained from their institutional website as well as from NIRF website are listed in Table 6. The graph of variation of research index for last four years is shown in figure 6. The graph of variation of research index for last four years is shown in figure 5.

Table 6: Research productivity index of IIM Kozhikode for last four years

Year	Regular Faculty	Research Students	Articles	Books	Case & Chapters	RI	Total Citation
2012	80	33 91	28	03	12	0.91	73
2013	80	33 91	40	04	08	1.19	45
2014	89	63 110	35	05	07	0.93	14
2015	89	63 110	49	02	07	1.05	-

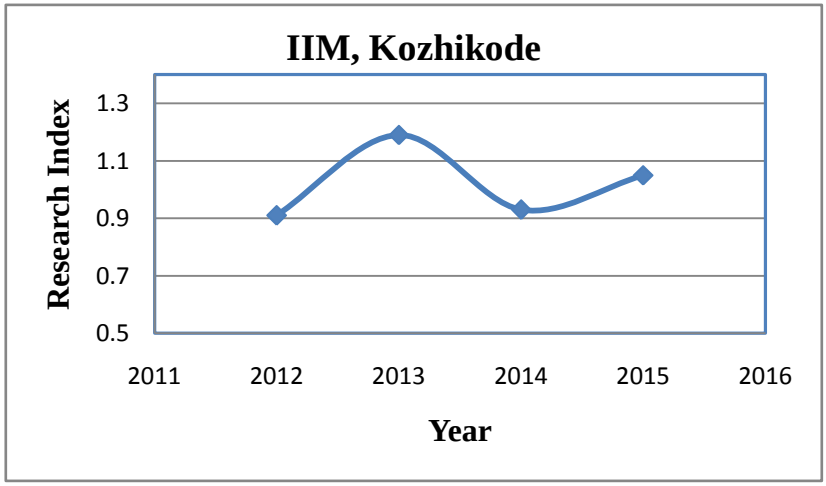

Figure 5: Variation of Research index with year in case of IIM, Kozhikode

(6) Indian Institute of Management, Indore: IIM-Indore is an autonomous public business school located in Indore, Madhya Pradesh in India. Instituted in 1996, IIM Indore is the sixth addition to the Indian Institute of Management (IIM) family of management schools. IIM Indore was ranked 6 by the *Business Today* 50 best business schools of 2012, Ranked 5 by the *Hindustan Times* India's top 50 business schools of 2011 and ranked 8 by the 2012 edition of *CNBC-TV18*'s Top B-Schools in India [77]. IIM Indore has also topped tenth in the list of best management institutes in the 'India Ranking 2016' – the first-ever national ranking of universities by MHRD's National Institutional Ranking Framework (NIRF), rated IIM Indore as the tenth Best Management Institute in India. The research publications (A), Books written/edited (B), and the book chapters & Case studies published (C) during last four years along with the number of faculty members and Ph.D. students as obtained from their institutional website as well as from NIRF website are listed in Table 7. The graph of variation of research index for last four years is shown in figure 6.

Table 7: Research productivity index of IIM Indore during the last four years

Year	Regular Faculty	Research Students	Articles	Books	Case & Chapters	RI	Total Citation*

2012	66	60	35	02	13	1.10	42
2013	66	60	34	05	22	1.34	53
2014	92	60	41	03	16	1.31	12
2015	92	60	53	01	24	1.57	-

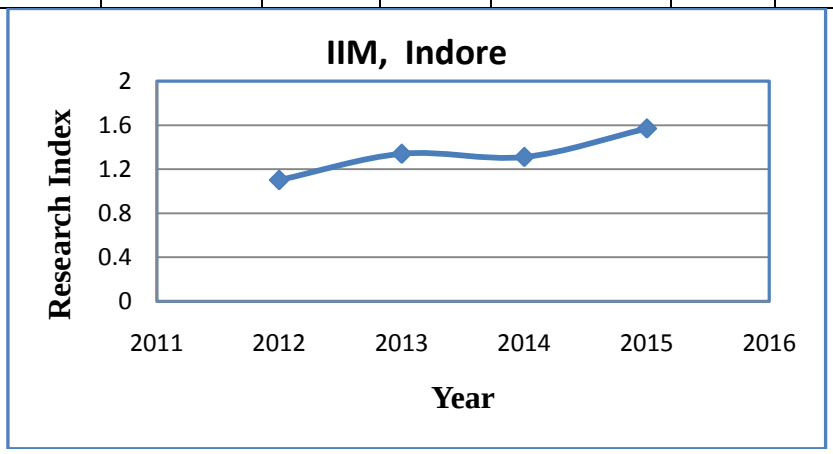

Figure 6: Variation of Research index with year in case of IIM, Indore

(7) Indian Institute of Foreign Trade, New Delhi: The Indian Institute of Foreign Trade (IIFT) is an autonomous public business school established in 1963 at New Delhi, India to help professionalize the country's foreign trade management and increase exports by developing human resources; generating, analysing and disseminating data; and conducting research. IIFT started out as a centre to provide foreign trade advice to governments and has since played an instrumental role in conducting research in trade policy formation [78]. IIFT is the only institute among the top-10 business schools of India that offers International Business program. The institute identified its future role as to catalyst for new ideas, concepts and skills for the internationalization of the Indian economy, the primary provider of training and research-based consultancy in the areas of International Business for the corporate sector, Government, the student's community. The research publications (A), Books written/edited (B), and the book chapters & Case studies published (C) during last four years, the number of faculty members and Ph.D. students as obtained from their institutional website as well as from NIRF website are listed in Table 8 and graph of variation of research index for last four years is shown in figure 7.

Table 8: Research productivity index of IIFT New Delhi during the last four years

Year	Regular Faculty	Research Students	Articles	Books	Case & Chapters	RI	Total Citation*
2012	44	15	9	3	15	0.98	-
2013	44	15	7	1	6	0.51	-
2014	44	15	19	1	7	1.02	-
2015	44	15	21	1	9	1.14	-

The research index for all seven top Indian business schools shows that the research productivity and hence competency of these Higher education institutions are decreasing in many cases during the observed period of last four years and is not increasing year after year. Even though the full-time faculty members have many research scholars working under them, the research productivity of the full-time faculty members considered altogether is not encouraging. Assuming that a faculty member with Ph.D. research qualification should be capable of publishing at least 4 papers (A), 2 books (B) and 6 business cases/book chapters per year in a good/top business school, the average institutional research index will be $\alpha = (8+10+6)/1 = 24$ instead of between 1.24 to 1.43 as in case of IIM Bangalore, between 1.39 to 2.30 in case of IIM, Ahmedabad, between 0.21 to 1.51 in case of IIM, Calcutta, between 1.42 to 1.85 as in case of IIM Lucknow, and between 0.91 to 1.19 in case of IIM Kozhikode, between 1.10 to 1.57 in case of IIM Indore, and between 0.51 to 1.14 in case of IIFT, New Delhi. Therefore, it is observed that the focus and the performance of even top higher educational institutions in terms of research contribution and consequently their productivity are diminishing. As suggested

in recently proposed new organizational theory for enhancing institutional performance called Theory A, [79 - 81] these organizations, by resetting their objectives on research contribution, fixing the targets for each category of faculty and students, continuous motivation, appointing directors who can act as role model for other faculty members and researchers by their individual research contribution along with motivating and directing others, and implementing both positive and negative accountability for meeting or not meeting targets, can improve their research contribution. These institutions have to target their average research index $\alpha = 24$ in order to raise their research competency to the optimum level.

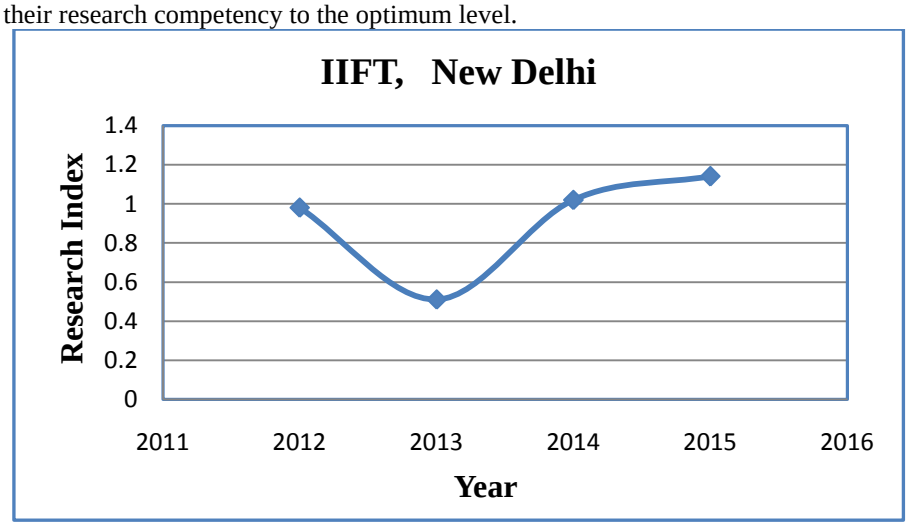

Figure 7: Variation of Research index with year in case of IIFT, New Delhi

6. Limitations of the Study:

- ✓ The Research index is calculated using the publication data of the institutes given on their website and the data submitted by them to NIRF, India website.
- ✓ The number of full-time Faculty members is considered as a parameter and is considered as constant during the observation period.
- ✓ The research publications of part-time faculty members and any part-time research scholars are also considered in publication number.
- ✓ Some of the top business institutions have no habit of periodically improving their publication information so that the information available in their Annual newsletters are used while calculating the research index.

7. Conclusion:

The newly developed simple model named ABC model to determine the institutional research productivity based on higher educational institutions research publications is used to determine research index of some of the top Indian business schools. The model allows measuring the institutional effectiveness and competency in research contribution. ABC model can be used scientifically measure the research output of a higher education institution based on the ability of new knowledge creation of its students and faculty members. Higher Educational Institutional Ranking can be calculated using our ABC model. This model helps the ranking agencies by providing a logical, scientific, and tangible metric system for institutional rankings. All other criteria for institutional rankings presently used by ranking agencies involve immeasurable/intangible parameters which cannot be measured directly and hence any kind of lobbying/corruption in institutional ranking by various agencies is possible. The research performance of the so-called top ranking business schools in India is no encouraging due to the fact that most of these institutions fail to publish even one article/faculty per year during the observation period of last four years. In this paper, we have studied and analysed the annual institutional research index of seven Indian top business schools and analysed the variation in research index during the four years of the observation period.

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