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# **Higher Education, High-impact Research and University Rankings: A Case of India**

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**Co-authors**

*Two academicians will be added in the final version*

**Our Original Thoughts and Painful Experiences**

**Dedicated To Our Parents**

# Higher Education, High-impact Research and University Rankings: A Case of India

## Abstract

**Purpose:** The purpose of this paper is to discuss the current state of higher education, high-impact research and university rankings in Asian emerging market-India. Firstly, overview of higher education and government schemes for academic research is presented. Secondly, progress of high-impact research in India and China for citable documents, number of citations, cites per document and H-index in three subject categories is assessed. Lastly, we discuss potential challenges in the university education and recommend policy guidelines for betterment of the existing practices.

**Methodology:** Being a qualitative study we have collected data from archival sources and thereby accomplished our goals based on inductive and deductive logics.

**Findings:** Overall, Chinese universities are found to be outperforming Indian universities, especially in citable documents, number of citations, international collaboration, collaborative research projects, publications and editorship, and university rankings. For citable documents in all subjects category, United States is ranked 1st, followed by China 2nd, United Kingdom 3rd ..., and India 9th. We therefore suggest that individual-, university- and country-specific factors have significant impact on high-impact research.

**Research limitations:** The study is restricted to India. Hence, conducting a survey among government and private universities with regard to academics and research assessment measures deserves future research.

**Practical implications:** A set of policy guidelines (research funding, collaborative research projects and research assessment council) is suggested for imparting quality academic practices and standards.

**Originality:** This paper indeed is an original attempt while no earlier study links higher education, high-impact research and university rankings in India.

**Keywords:** Emerging markets, India, Higher education, High-impact research, Open access, Research funding, Government support, University rankings

**Paper type:** Research paper

## 1. Introduction

“Too many of our higher education institutions are simply not up to the mark. Too many of them have simply not kept abreast with changes that have taken place in the world around us..., still producing graduates in subjects that job market no longer requires... Not one Indian university today figures in top 200 universities of the world”.

- Dr. Manmohan Singh, Ex-Prime Minister of India

(India Today, 2013 February 6)

*On the other hand,*

“By 2030, India will be amongst the youngest nations in the world with nearly 140 million people in the college-going age group, one in every four graduates in the world will be a product of the Indian education system (Times of India, 2014), fifty percent of youth would be in the higher education system, at least 23 Indian universities would be among the global top 200, six Indian intellectuals would have been awarded the Nobel Prize, the country would be among top five countries globally in cited research output, its research capabilities boosted by annual R&D spends totaling over US\$140 billion” (Businessline, 2014).

From the aforementioned comments, one would notice two opposing views that associated with the higher education system in India. Firstly, reaction but *disagreement* to the progress of higher education system, research contribution and university rankings. Secondly, how should we establish better-structured, managed and excelled higher educational systems while scrubbing-out contaminated procedures, controlling malpractices and removing politicking-abuse within it, thus to place the governance-based, objective-oriented higher education system on the world map. Albeit, second comment seems be un(realistic) goals with some fancy numbers, audaciousness whilst more on to protect self-respect of the ruling political party. Being stated that, one should aim high and work prudently for the development of the country. Overall, the outcome will have positive impact on economic progress, employment, foreign collaboration, capital mobilization and entrepreneurship. As such, it is also a fact that institutional environment, economic resources and human resources are important drivers of higher education and high-impact research (Xie *et al.*, 2014; Zoogah *et al.*, 2015).

Generally speaking, higher education degree is the most fundamental constituent that needs careful attention and evaluation to foresee any outcome in the given country. It is truly a reward for citizens, gives knowledge and respect, makes self-assured and provides

opportunity that is more relevant. Taking forward, number of admissions and job market are increasingly becoming more challenging due to structural problems in the governance system, self-benefitting advantages with bureaucrats and politically influencing manners. Importantly, a blend of teaching and research is almost a demanding task in higher education that associated with developing countries in South Asia and African continentals, and being placing in world university rankings is a highly rewarded gift for a number of state-run and private universities. In this vein, Indian higher education has been evolved and progressed during post-independence era. Thus far, government of India has mainly targeted a few areas in higher education, for instance, setting-up national importance institutes (e.g., Indian Institute of Technology, National Institute of Technology, Indian Institute of Management), providing financial assistance to state-run universities, teacher training institutes, quality measures in admissions, job market assistance and producing Ph.D.s for teaching requirements, among others. Unfortunately, Indian institutes have never been focused on industry collaboration, high-impact research, number of citations and university rankings, but they are known about national-level quality measures such as National Assessment and Accreditation Council (NAAC) and National Board of Accreditation (NBA) certifications. In fact, local institutes always thrive for admissions, central government grants, pay scales and increments, and national assessment. In other words, a number of government and private universities could not pay attention to global university rankings because of problems that exist in financial assistance, research infrastructure, research skills of supervisors and of course, research interest. While supporting this, most Indian universities are lacking research culture because of high importance that given to teaching requirements and number of admissions. Further, one would certainly notice increasing number of private universities for last five years, quality and quantity contradictions, unethical practices in the university assessment, outdated policies in technical education, etc. Conversely, one would also find the India's real contribution in higher education when compare to the progress of higher education and research output in China. For example, Xie *et al.* (2014) describe four important factors that drive China in scientific research: a large population and human capital base, a labor market favoring academic meritocracy, a large diaspora of Chinese-origin scientists and a centralized government willing to invest in science. Being realized by these institutional experiences, India's newly elected government aims to establish best practices of excellence and inclusiveness and highest standards of ethics and accountability across university education, and work towards placing local universities in the global university rankings (Businessline, 2014).

With this in mind, the paper sets three goals. First, it presents the overview of higher education system in India and government initiatives for conducting academic research. Second, it reports the current state of high-impact academic research (e.g., citable documents, number of citations, cites per documents and H-index; indexing and abstracting of local journals) in India compared to neighboring Asian country-China and comments on Indian universities ranking in the world university rankings. Lastly but importantly, we discuss potential challenges that embedded in the existing higher education and academic research, and suggest policy recommendations for betterment of academic practices, research skills and university environment. Hence, no earlier study claims our research objectives and contribution to the literature. Therefore, findings of the study would have a greater impact on policy development, university teaching, industry collaboration, high-impact research, global university rankings and national progress.

The remainder of the paper proceeds as follows. Section 2 presents research design and organization of thoughts. Section 3 outlines overview of higher education system in India and outlines different government fellowships for academic research. Section 4 discusses the current state of high-impact research and related issues in India. Section 5 reports global university rankings with regard to Indian universities. Section 6 explains various challenges in higher education and academic research, and suggests policy guidelines for betterment of the system. Finally, Section 7 concludes the study.

## **2. Research design and organization**

The main goal of this paper is to discuss the progress of higher education, high-impact research and university rankings in India. To do so, we have created an interdisciplinary research setting by linking inductive and deductive logics based on archival sources (Reddy, 2015; Reddy and Agrawal, 2012). It allows us to draw various imperative conclusions. For example, it presents not only the evolution of higher education system but also discusses the level of academic research and innovation by making connection to university rankings. It eventually helps us to explore a number of challenges and opportunities in the higher education governance and control mechanisms, and to suggest fruitful policy guidelines for betterment of existing practices. Being stated that, a number of earlier studies refer to India have reviewed and statistics on higher education has collected from the respective government organizations such as Ministry of Human Resource Development (MHRD), Universities Grants Commission (UGC) and All India Council for Technical Education (AICTE). Regarding high-impact research, we have used ‘country-based research and citation

ranking list' from SCImago – an official source of research and citation metrics. Thus, four metrics are being assessed: citable documents, number of citations, cites per document and H-index in three categories- (i) all subjects, (ii) business, management and accounting, and (iii) economics, econometrics and finance. The Times Higher Education (THE) World University Rankings list for 2014-15 has been used in order to make an appropriate comment on the performance of Indian universities compared to neighboring country universities. Lastly, we have surveyed abstracting and indexing of Indian and Chinese journals through browsing world's leading publishers include Elsevier, Emerald, John Wiley, Springer and Taylor & Francis, just to name a few. All in all, this paper is an exploratory study, considering Asian emerging market-India as a case, based on archival sources.

### **3. Overview of higher education system in India**

Indian higher education has long been criticized for various reasons include quality in course content, shortage of excellent teaching faculty, lack of research interest, be short of infrastructure facilities, insufficient financial support, industry-centric skills, international collaborations, and research output and number of citations. By and large, it is because of high-level government control over administration, admissions, examinations, recruitment and assessment. Nevertheless, a number of systems and practices in higher education have been redefined, redesigned and transformed since the entry of private university degree system due to liberalization and globalization of the economy. It infers that economic deregulation and integration policies not only influence the economic performance of the country but also influence the assorted sectors like higher education.

Being stated that, Indian higher education is referred as the third largest in the world after US and China, which has great potential to compete with global universities (Times of India, 2014). Main participants of the system include national importance institutes, central universities, state universities, deemed-to-be universities, private universities, autonomous institutes and supporting institutes. According to MHRD, “number of universities has notably increased from 20 in 1950 at 3285%, to 677 in 2014, which consists of 51 institutions of national importance (16 IITs, 30 NITs and 5 IISERs), 45 central universities, 318 state universities, 185 state private universities, 129 deemed to be universities and four institutions established under various state legislations. Further, number of registered colleges has remarkably increased from 500 in 1950 at 7341%, to 37204 in 2013-March”. These figures infer that the government of India has paid a greater attention to the development of higher education for benefitting the larger population. According to UGC annual report 2012-13 (as

of March), Tamil Nadu has registered with highest number of universities-79, followed by Uttar Pradesh-56, Rajasthan-56 and Andhra Pradesh 43, among others. Total student enrolment in all courses in regular stream has reached 215.01 lakhs (93.06 lakhs female (43.28%)). Thus, Uttar Pradesh has enrolled with maximum number of students-33.65 lakhs, followed by Maharashtra-24.57 lakhs, Tamil Nadu-20.38 lakhs, and Andhra Pradesh-20.14 lakhs, just to cite a few. Number of teaching faculty has reached 9.51 lakhs in which 82.5% teachers are working in colleges and remaining 17.5% are working in universities. Importantly, number of Ph.D. recipients totaled to 17631 in which Faculty of Arts (Faculty of Science) has awarded higher number of research degrees- 5642 (5607), followed by faculty of Engineering & Technology- 2098, Education and Medicine- 617 each, and Agriculture- 564, just to cite a few. Indeed, one would also notice a significant increase in number of Ph.D. recipients over the last few years.

Other appealing observations include (i) growth of student enrolment (including research degrees- M.Phil and Ph.D.s) has massively increased from 3404096 in 1984-85 to 8399443 in 2000-01, and then reached 21501154 in 2012-2013; (ii) number and distribution of teaching staff – in universities and university colleges represent 165964 and affiliated colleges represent 785875. In particular, we come across government expenditure on education and educating activities corresponding to GDP of the country. For example, the amount has truly noticed a notable raise from Rs. 64 crore (0.64% GDP) in 1951-52 to Rs. 19615 crore (3.84%) in 1990-91, then Rs. 82486 crore (4.28%) in 2000-01 and finally Rs. 403236 crore (4.29%) in 2012-13. Regrettably, percentage of higher education against GDP represents 4%, which is less than 6.6% for South Africa. To improve the standards in the university education, 12th five year plan (2012-2017) has mainly focused on six key areas “expansion, equity, excellence, governance, funding, and implementation and monitoring”.

### ***3.1 Government initiatives for academic research***

UGC is the principal body of university education in India and is majorly responsible for government grants allocation to various higher education and research promotion activities. An independent public agent, UGC works under the guidelines of MHRD that prepares annual budget and allocates funds to universities under specific schemes and other research fellowships and promotion schemes. For example, UGC supports both state and central universities and institutions for establishing computer labs, and research and training centers at post-graduation level courses focusing computer applications. It has granted the amount of Rs. 17 crore out of Rs. 31.5 crore for the period 2007-08 through 2012-13. The commission



also provides financial assistance to universities for organizing a seminar, workshop, or conference at national and international level in different disciplines. The financial grant ranges from Rs. 70,000 to Rs. 1,50,000 under this scheme. Herewith, we list out various research fellowship schemes that mentioned in the recent UGC annual report 2012-13.

### *3.1.1 Junior research fellowship (JRF)*

Under this scheme, a candidate admitted in Ph.D. for science, humanities and social science disciplines is eligible to receive monthly stipend for maximum period of five years, provided that scholar has qualified National Eligibility Testing (NET) and UGC-CSIR. There are 8800 slots available for national citizens in a year. In addition, a scholar also receives annual contingency grant to meet various expenses include textbooks, journal articles and attending conferences and workshops. According to Sixth Pay Commission guidelines, a scholar is entitled to receive a monthly stipend ranges from Rs. 25000 (for initial two years) to Rs. 30000 (for remaining years). Further, UGC also supports M.Phil scholars to meet some academic research expenses for one to two years. For the year 2012-13, UGC has spent nearly Rs. 190 crore under this scheme and also incurred an amount of Rs. 70 crore on the account of reimbursement to non-university institutions.

### *3.1.2 Rajiv Gandhi national fellowships for SC/ST category*

Under this scheme, UGC has spent about Rs. 57 crore for SC candidates and Rs. 18 crore for ST candidates during 2012-13.

### *3.1.3 Postdoctoral fellowships for SC/ST category*

Given the importance to postdoctoral fellowships and internationalization of higher education and research activities in emerging markets, UGC aims to provide financial assistance for 100 doctorates every year. The amount of Rs. 1.47 crore has been incurred during 2012-13.

### *3.1.4 Postdoctoral fellowship for women*

The purpose of this fellowship is to provide financial assistance for women doctorates who unemployed and intended to do further research on part time basis. The scheme supports 100 applicants every year. The amount of Rs. 5.39 crore has been accounted during 2012-13.

### *3.1.5 Dr. D.S. Kothari postdoctoral fellowship*

So far, 962 applicants have been received the fellowship and 452 candidates are in status. The amount of Rs. 16.74 crore has been incurred during 2012-13.

### *3.1.6 Research fellowship in science for meritorious students*

To date, 6754 scholars have been received the fund and 4694 JRFs are in status. The amount of Rs. 54.87 crore has been accounted during 2012-13.

### *3.1.7 Single girl child fellowship scheme*

Thus far, nine scholars are in status and the amount of Rs. 2.7 million has been incurred under this scheme.

### *3.1.8 UGC-BSR faculty fellowship scheme*

The amount of Rs. 1.8 crore has been granted to 31 professors who are doing academic research in various universities.

### *3.1.9 One time grant to teachers under BSR programme*

Under this scheme, the amount of Rs. 2.6 crore has been granted to 37 faculty members who are doing academic research in various universities.

### *3.1.10 Start up grant for newly recruited faculty*

To date, 177 newly joined faculty members have been benefited and the amount was incurred roughly Rs. 10.62 crore.

Other UGC research promotion schemes include Maulana Azad national fellowships for minority students; networking research centers: summer-winter school, and operation faculty recharge: initiative for augmenting the research and teaching resources of universities. Furthermore, UGC supports state and deemed-to-be universities for improving infrastructure and academic activities. For instance, under the incentives for resource mobilization scheme during 2012-13, the amount of Rs. 1.73 million has been granted for two state universities and Rs. 2.15 crore has been released for 24 deemed-to-be universities.

### *3.1.11 AICTE-Research promotion scheme*

It is a special scheme for technical institutions initiated by the technical council- AICTE. It provides limited financial assistance for engineering and technical institutes in order to meet

various academic research activities. The amount of the grant ranges from Rs. 0.5 to 2 million for each proposal. For the year 2011-12, the committee has been approved 394 out of 2797 proposals received from all technical institutions in India, which amounting Rs. 42 crore.

### *3.1.12 Shodhganga – the open access repository of Indian research*

Shodhganga is an electronic thesis and dissertation repository of Indian research started in 2010 under the UGC Regulations (Minimum Standards & Procedure for Award of M.Phil/Ph.D.), 2009 (Sheeja, 2012). The purpose of this project is to host Indian research wherein theses and dissertations awarded by universities and institutions, and thereby provide open access to that academic resource. This project is being administered by the Information and Library Network (INFLIBNET) center established in 1991 with an aim to “establish a network by interlinking libraries and information centers of universities, colleges, institutions of national importance and R&D institutions” (Chauhan and Mahajan, 2013). As per the UGC notification, universities must sign a memorandum of understanding (MoU) with INFLIBNET in order to upload the thesis into Shodhganga. It has received *e-India Jury Choice* award for the best ICT enabled higher education institute of the year 2011.

As of 10 February 2015, number of universities signed MoU- 197 and total number of theses submitted- 30545. In fact, number of theses submitted has significantly increased from 1171 in 2010 to 1522 in 2011, 2299 in 2012, 7057 in 2013 and then, 17951 in 2014. The top ten contributing universities are Jawaharlal Nehru University 4433, Anna University 2415, Mahatma Gandhi University 1974, Bundelkhand University 1769, Cochin University of Science & Technology 1428, Chaudhary Charan Singh University 1281, Pondicherry University 779, Pt. Ravishankar Shukla University 774, University of Hyderabad 744, and Periyar University 730. On the other hand, number of university-level repositories has increased to 81 in 2012 from 27 in 2007 (see Appendix-I), and India has been ranked 7th for number of repositories in the world after Brazil (Sahu and Arya, 2013).

### *3.1.13 ShodhGangotri – the open access repository of Indian research in progress*

The purpose of ShodhGangotri project is to host ‘Indian research in progress’, thereby provide open access to it. Thus, research in progress refers to ‘approved research synopsis’. It helps research scholars to avoid copying, plagiarism, duplication in research framework as well as ‘to claim a particular topic in the national level before it is registered by others in the same university or other universities in India’. As of 10 February 2015, 1884 proposals are available that submitted by research scholars registered in various local universities. The top

five contributing universities are Shri Jagdishprasad Jhabarmal Tibrewala University 1062, Dayalbag Educational Institute 198, Mahatma Gandhi University 178, Andhra University 73, and Symbiosis International University 52.

#### **4. High-impact research and Indian research metrics**

We develop this section based on the recent viewpoint articles (Gruber, 2014; Zoogah *et al.*, 2015), SCImago's country research metrics and Indian research environment. We therefore present our thoughts in four main strands such as importance of academic scholarship, determinants of high-impact research, country-based research metrics, and abstracting and indexing of Indian journals.

##### ***4.1 Academic scholarship***

Academic scholarship is the most important intellectual asset of a faculty, university and nation. Indeed, research scholarship is a continuous job influenced by a set of motives and requirements of institutions for discovering new knowledge that led to simplify the human life. By and large, research is a determination of "search and re-search" as to explore new findings for defining the new order of the world. Extant scholars define the scholarship for various reasons. For example, Boyer (1990) suggested that "scholarship involves discovery - original research that advances knowledge; integration - synthesis of information across disciplines, across topics within a discipline, or across time; application - the rigor and application of disciplinary expertise with results that can be shared with and/or evaluated by academic peers and appreciated by the non-academic world; and teaching and learning - the systematic study of teaching and learning processes" (cf. Zoogah *et al.*, 2015). In particular, academic research at university-level not only helps faculty members in receiving government grants but also helps them in publishing research as well as teaching courses. As such, a blend of theory and industry-oriented research enriches the classroom experience among faculty and students, especially in management discipline. Importantly, research findings would have significant impact on government policy making and social issues. For example, findings of the research on road accidents in metropolitan cities help concerned ministry of the government, city police, society and higher education institutions in preventing road accidents and improving safety measures. Overall, research is a form of intangible asset (e.g. patents, research papers, books) of a faculty, university and country.

#### ***4.2 Determinants of high-impact research***

Secondly, high-impact research has distinct meaning in different disciplines (Jie *et al.*, 2008). For example, research on causes of cancer in medical sciences should be at high-level that requires financial support, a pool of talented medical scientists, and physical and scientific infrastructure. Then, findings of the research will be eventually published in referred international journals, for example, *Nature*, *Science*, *New England Journal of Medicine*. Conversely, high-impact research in management discipline can be defined as “an approved project that is meaningful to industry, helps in managerial decision making and government policy making, which can be published in top-ranked journal, for example, *Academy of Management Journal*, *Journal of Finance*. Nevertheless, one has to remember that publishing research in high-quality journals is the only measure to assess the performance of a faculty and university (Zoogah *et al.*, 2015). Further, Zoogah *et.* also described “three characteristics of high-impact research: problematization (diagnoses economic, social, and technical problems with the purpose of generating meaningful solutions), focus (directs the empirical lens at the specific problem with laser-precision to achieve valid and reliable outcomes), and contextuality (distinguishes temporal, physical, and psychological contextual features so as to minimize errors and to maximize the desired effects)”.

Based on the former and later illustrative experiences we perceive that high-impact research is an essential task of disseminating research findings through publishing it in a reputable journal and is irrelevant whether the project was received grants or not from either government or industry. Thus, reputable journal refers to the publishing outlet or place with international outlook, editorial board, mission and objectives, blind review system, highly accessed and highly cited. This is further extended to “indexed in Thomson Reuters ISI-SCI and highest impact factor” (total number of citations against number of published papers). We then explain various determinants of high-impact research: individual-specific factors (e.g., educational qualification, job profile, university affiliation, level of research skills, knowledge of research methods, writing and presentation skills, personal motivation, field of interest, academic network); university-specific factors (e.g., physical and technical infrastructure, research culture, data access, training and workshops on research publications, research assistance, financial support, international collaborations, incentives for research publications, teaching load, coordination among various departments, political and social behaviour, university policies with regard to faculty appointment and promotion); and country-specific factors (e.g., institutional environment, level of government involvement in university administration, level of political intervention, government budgeting for higher

education, tax incentives on research grants and income, postdoctoral research fellowships, collaborative research grants, bilateral agreements). Altogether, high-impact research not only helps in publishing it in a journal with highest impact factor but also attracts a number of citations. For example, a special issue of *Long Range Planning* on “business models” published in 2010 is the most exciting case in management discipline. As of 2013, the special issue has attracted more than 150,000 downloads and more than 3,500 Google Scholar and more than 500 ISI citations (Baden-Fuller and Haefliger, 2013).

Hence, there is no rule-based approach that the paper published in a journal with highest impact factor receives highest number of citations. Again, number of citations is influenced by various factors that responsible for journal outlook, open access, journal subscriptions, speed in publishing the forward-looking research, level of interest in the field (e.g., business models, corporate governance), and progress in the research field (e.g., emerging markets, US, UK), among others (e.g., Bernius, 2010). Albeit, one has to consider that managing research projects and publishing papers in journals with good impact factor are two different tasks in academic environment. Though, academic fraternity should also remember that spreading knowledge through publishing it in high-quality journals (and, books) is not an easy-doing job. It has greater value than low-impact research that indeed influences the university rankings. Referring to management discipline, we come across three high-quality journal ranking lists include *Financial Times top 45* academic journals, *Bloomberg top 25* academic journals and *University of Texas at Dallas top 24* academic journals. Other noteworthy rankings include *Association of Business Schools-UK* journal guide, *Australian Business Dean’s Council* (ABDC) journal rankings, Scopus-indexed, etc.

#### **4.3 Publishing research: Country-based metrics**

We present publishing research metrics during 1996-2013 for top 20 countries in three categories: (i) all subjects, (ii) business, management and accounting (BMA), and (iii) economics, econometrics and finance (EEF) (Table 1). Thus, we discuss four important metrics such as citable documents, number of citations, citations per document and H-index. For citable documents in all subjects category, United States has been ranked 1st, followed by China 2nd, United Kingdom 3rd ..., and India 9th. For citable documents in BMA category, United States has been ranked 1st, followed by United Kingdom 2nd, China 3rd ..., and India 7th. For citable documents in EEF category, United States has been ranked 1st, followed by United Kingdom 2nd ..., China 8th ..., and India 12th. Further, H-index for China in all subjects (436), BMA (83) and EEF (74) is significantly higher than H-index for India (341,

66, and 57). We also show trend line of category-based metrics for China and India (Figure 1). In case of citable documents to all subjects, the speed in rate of growth for China was better than the speed in rate of growth for India. Hence, there were different trend lines for both countries in BMA and EEF categories. For number of cites and cites per document in all subjects category, trend line of Chinese and Indian publishing research has represented 'raising yet declining' sharply, especially after the year 2008. While, mixed performance was noticed for remaining categories.

**[Insert Table 1 here]**

**[Insert Figure 1 here]**

On the other hand, for instance, we found that 'one Chinese professor is currently an associate editor and ten professors from Hong Kong located universities are currently editorial board members of the *Academy of Management Journal*', which is a highly refereed and valued academic outlet in the management discipline. While, only one Indian professor is currently an editorial board member of it. Referring to number of published papers in 2014, we found that six papers are affiliated to Chinese universities and regrettably, not even one paper is from Indian universities. Furthermore, one would certainly notice that a number of Chinese professors representing international journals (e.g. editor, associate editor, board member) are considerably higher than that of Indian professors representing. All in all, Chinese universities are being outperforming Indian universities, especially in citable documents, number of citations, international collaboration (e.g., *Xi'an Jiaotong-Liverpool University, China Europe International Business School*), collaborative research projects and publications and editorship.

#### ***4.4 Abstracting and indexing of Indian journals***

Lastly, we purposively uncover a few interesting observations with regard to the management discipline. For example, Indian universities and institutes publish a number of academic journals but they are mostly local with no abstracting and indexing in *Scopus* and *SSCI* (see Appendix-II). Over the last few years, a number of local management institutes have taken advantage of the 'worldwide distribution at low cost pricing' with Sage India publications and thereby started new journals and preferred hosting services, for instance, *Global Business Review, Journal of Emerging Market Finance, Vision, Management and Labor Studies, Asia-Pacific Journal of Management Research and Innovation*, and *Vikalpa*, just to name a few. Likewise, Elsevier publishes *IIMB Management Review* and Springer publishes *Global Journal of Flexible Systems Management*, and *Decision* based on pricing and distribution

agreement. Emerald publishes *Journal of Indian Business Research*, *Indian Growth and Development Review* and *Journal of Advances in Management Research*, and Taylor & Francis publishes *Macroeconomics and Finance in Emerging Market Economies*. InderScience publishes *International Journal of Indian Culture and Business* but it is not affiliated to any resident Indian university. While, many local journals are not even abstracted in Cabell's directory of academic journals, lacking quality in all respects include research output, formatting and finishing. Importantly, none of the Indian journal in management subject is indexed in SSCI for *Impact Factor*, which is the best indicator of publishing quality research. In fact, many journals are not accepted for inclusion in the *Association of Business Schools-UK journal guide* and *Australian Business Dean's Council journal ranking list*. Undertaking these journal-publishing matters as a serious issue, we therefore suggest that government has to rethink and promote more research activities for betterment of quality in research publications and number of citations.

Conversely, a number of quality journals are edited by Chinese universities (or, dedicated to), for instance, *Management and Organization Review*, *Asia Pacific Journal of Management*, *China Economic Review*, *Chinese Management Studies*, *Asia Pacific Journal of Tourism Research*, *Journal of Travel & Tourism Marketing*, etc. Likewise, South African institutes have a few dedicated journals like *African Development Review*, *South African Journal of Economics*, *Review of Development Finance*, *Africa Journal of Management*, *Journal of Africa Business*, *African Journal of Economic and Management Studies*, etc. Further, number of special issues with international journals edited by resident Indian academicians are not even reached double digit. This figure is really small compare to China and Latin American academicians. We thus strongly propose that a number of Indian institutes require effective training in matters like publishing high-impact research, new journal development, book writing, organizing conferences and workshops, etc. In effect, they could benefit from the experiences of neighboring countries like China, Singapore and Korea.

## **5. University rankings: You deserve this!**

The concept of university rankings was originally evolved in the western world, and thereby transformed to the emerging markets due to globalization, privatization and internationalization of higher education and research practices. Ranking a university establishes best benchmarking practices in the higher education system and allows policy makers in various administration and development activities. In fact, a number of best



practices become standardize for evaluating the current practices and improving the outdated (rule-based) systems. A number of researchers and independent organizations have developed various measures in order to evaluate and rank the university based on survey, academic records and actual performance (Gruber, 2014). For example, number of admissions, number of international students, library and resource budgeting and usefulness, use of ICT, industry linkage and financial support, university budget, job market and placement, high-impact academic research including number of Nobel prize nominees and recipients, number of citations for published research, and international outlook, among others. We come across three most widely used university rankings such as *Times Higher Education (THE) World University Rankings*, *QS World University Rankings* and *Academic Ranking of World Universities* (known as *Shanghai Ranking, China*). In a subject category, *Financial Times* often publishes *Top 100 Best Business Schools*.

We notice that Indian universities were really performing “poorly” over their neighboring country-based universities from China, Korea and Japan. For example, In case of THE-World University Rankings for 2014-15 top 500 list, only four Indian universities were ranked, namely *Panjab University*, *Indian Institute of Science-Bangalore* (276-300 grouping), and *IIT Bombay*, *IIT Roorkee* (351-400 grouping). The report also indicated that none of the Indian university was able to get ranking in top 200 list while there were three Chinese universities and two Singaporean universities (Live mint, 2014). Overall, US universities continue to get top ranking in the list in which it was marked seven universities in top 10 and 74 in top 200, followed by UK 28, and Germany 12, just to cite a few. Notably, *University of Tokyo* (23rd) was ranked as the best institution in Asia. Furthermore, only 10 Indian universities were ranked in THE-Asia 2014-15 top 100 universities compare to 18 Chinese universities that ranked in the list (excluding Taiwan and Hong Kong). The list of Indian universities include *Punjab University* 32, *IIT Kharagpur* 45, *IIT Kanpur* 55, *IIT Delhi* 59, *IIT Roorkee* 59, *IIT Guwahati* 74, *Jadavpur University* 76, *IIT Madras* 76, *Aligarh Muslim University* 80, and *Jawaharlal Nehru University* 90. Indeed, one has to notice that the ranking agency-THE usually ranks universities based on 13 parameters in four key segments: industry income, teaching-learning environment, research contribution and international outlook. For example, “research influence (30%) is the most influential indicator that assesses the role of universities in spreading new knowledge and ideas”. On the other hand, only three business schools were ranked in the *Financial Times Top 100 Best Business Schools* list for 2014, of which *IIM-Ahmedabad* (30), *Indian School of Business-Hyderabad* (36) and *IIM-Bangalore* (68). In case of China, seven business schools were ranked in the list, of which *HKUST*

*Business School (14), CEIBS (17), University of Hong Kong (29), Peking University: Guanghua (57), Hult International Business School (61), Shanghai Jiao Tong University: Antai (77) and Fudan University School of Management (83).*

## **6. Challenges and policy implications**

Lastly but importantly, this section aims to uncover various challenges and issues that embedded in the Indian higher education. A number of issues include gross enrolment ratio, university education and technical infrastructure, job market and placement, industry-oriented research and innovation, quality and assessment of practices, financial support, and political interference. Further, we also suggest a set of policy guidelines for improvement of the existing practices and governance systems.

### ***6.1 Challenges in higher education and academic research***

#### *6.1.1 Gross enrolment ratio*

Number of students opting admission in the university degree is relatively small compare to number of students admitted in the pre-university education. As such, Indian government is being aimed to increase gross enrolment of students in higher education from 17.9% in 2012-13 to 30% by 2020 (Times of India, 2014). Hence, the current rate is worse than 26% in China and 36% in Brazil (British Council, 2014). There are strong reasons behind this dichotomous experience, which include poor financial status of students, lack of student motivation, no suitable job after completing university degree, a number of fake guidelines in admissions criteria, poor quality of examinations and award of degree, and bogus practices in government universities, university affiliated colleges and private universities (e.g., Mahajan *et al.*, 2014). Therefore, government should establish better control measures and inspection committees in order to overcome these dichotomous problems.

#### *6.1.2 University education and physical and technical infrastructure*

One has to remember that education at university level is a matured and appreciated degree in the society. In order to provide better education at degree and post-graduation level universities must furnish sophisticated infrastructure such as location, buildings, technically equipped classrooms, library with access to database, textbooks and journals, and computers and technology centers. Overall, one must hold sufficient funds, a pool of talented faculty and also aspire to do beyond the university system. In particular, Indian universities have never named as world-class institutions expect few corporate promoted institutions such as *Indian*

*School of Business, Hyderabad* and national importance institutions such as established *IITs, NITs, IISc* and *IIMs*. Unfortunately, a number of state universities are being found with outdated computers and applications, old buildings, poor classrooms, very bad sanitary service including drinking water and restrooms, entrenched local culture, outdated textbooks and resources, limited subscription to academic journals (mostly, local journals with low cost), lack of research culture and training among research scholars, lack of research supervision skills, and so on. In fact, many universities do not provide office space for research scholars in social sciences and management disciplines and scholars often sit in library, canteen or hostel.

Taking forward, we have asked a few research scholars who are pursuing Ph.D. in state universities about online subscriptions to international journals. They were not even aware the *Academy of Management Journal* and international publishers like *Emerald, Elsevier, Springer, John Wiley, Taylor & Francis*, etc. However, they were recalled a few local journals that are mostly available in printed copies published by Sage India and other publishers, for example, *Global Business Review, Indian Journal of Finance*, just to cite a few. Regrettably, a number of scholars were not even heard what is *APA* referencing style during their doctoral studies. The fact, yet the fate is that untrained scholars join as a faculty in the same university or in other institutions, then would become supervisors for scholars in coming years. Albeit, the result is same, it infers that “why should I do research when my supervisor does not know about research and publications? So, I simply follow her”. Therefore, government should provide sufficient financial assistance in order to improve the quality in doctoral research and journal publications that would have significant impact on the overall performance of the university. At the same time, government should remove bad practices that injected but largely mixed in doctoral research admissions, research grants, fake publications and award of degree.

### *6.1.3 Job market and placement*

Job market and placement has become more challenging task in higher education sector at both universities and autonomous institutions. A number of corporate recruiting firms argue that university education in India truly fails to teach appropriate theory and provide better hands-on-experience that require for industry. Conversely, job market is really in a bad situation wherein many international companies were financially closed around the 2007-08 global financial crisis. A recent survey by NASSCOM reported that only 25% of technical graduates and 15% other graduates are employed in information technology sector. Another

survey on management discipline indicated that only 23% of graduates are employed in various industries, largely banking and finance sector (Times of India, 2014).

We also present a few realistic but contradicting observations that come across in our experiences. Firstly, a number of applications for Ph.D. admission in universities and national importance institutes have massively increased for last three years. This is due to rate of increase for unemployment in corporate sector, growing number of fresh graduate holders, and importantly, significant increase in monthly stipend from Rs. 16000 to Rs. 25000 per month. Further, a Ph.D. scholar continues to get stipend for minimum of three years to maximum of five years. While, monthly stipend for a Ph.D. scholar in management discipline is considerably *three times* higher than monthly salary for a junior faculty member in university-affiliated colleges. Secondly, an academic doctorate that dedicated five years for Ph.D. in management discipline has joined as a junior faculty member in a third-grade management college for Rs. 14000 per month. Likewise, another doctorate has also joined in a pre-university college for Rs. 6500 per month with 12 hrs teaching load per week. Based on these facts, one should question whether to continue in the current job or to do another Ph.D.? Albeit, we cannot treat them as dignity of labor, in that case what is the use of doctorate degree? To the best of our knowledge on Indian university education, there are plenty of dichotomous experiences yet most horrible and miserable. A number of private business schools in India do consider only teaching experience and not consider research publications. Because, they mostly act as teaching theatres, recruit people who mug up simply textbooks and even become placement agencies.

#### *6.1.4 Industry-oriented research and innovation*

Referring to the mounting competition among universities, a higher education institution should have an ability to establish innovation and incubation centers for promoting entrepreneurship activities. For example, innovation is referred as “it lies in developing products and processes that successfully solve points of pain in existing technologies in an economical, scalable and vastly more efficient manner leading to significant value addition to the end user” (Times of India, 2014). As such, education at university level must prepare students and make them engage more in innovation and entrepreneurship programs that should be at the forefront, thus bridges the gap between academic degree and industry requirements. This initiate, conversely, helps to getting involved more in research and development labs at industry location that usually brings some amount of grants, which can be used to promote research culture among various disciplines that leads to more

interdisciplinary research. Regrettably, it is still lacking in the Indian higher education; and many companies do not consider grades and percentages in their recruitment due to competition between public and private universities and lack of required skills in applicants. Herewith, we argue that not the government but both universities and companies should come forward and establish a few research centers that likely help students to understand the industry needs and requirements. However, very few institutions like IITs and IISc are now promoting more industry-oriented research through better course plan, teaching material and training modules.

#### *6.1.5 Quality and assessment of practices*

University education needs to be defined, designed, dedicated, assessed and improved following the economic changes, increasing competition among public and private universities, and industry requirements. Thus, one must adapt best practices not only at administration level but also at teaching resources, course content, examinations and placement that allows universities and institutions to get more advantage of the markets and opportunities as well as establishes academic relations with the industry. In case of India, NAAC and NBA are two independent organizations that responsible to grade and rank the universities and institutions. Hence, quality measures and assessment practices are not up to the *de facto* subject and their assessment is biased, yet mostly influenced by corruption and political interference. Further, calculating the scores for journal publications, conference presentations, workshops and book publications are not convinced to many academicians, especially talented academic researchers. For example, presenting a paper in the *Academy of Management Annual Meetings* and unknown international conference carries equal scores. Likewise, publishing a research paper in the SSCI-indexed journal and unknown (not even indexed in Scopus) journal carries equal weights. Therefore, Indian university system really needs progressive changes in the governance systems, quality measures and research assessment as to place in global university rankings. Being stated that, one should accountable to the government and society. Taking forward, government should establish a research assessment council to eliminate scientific fraud activities such as submission of fake thesis reports, plagiarized research proposals and bogus academic journals (publish only for fee). As such, a number of policy initiatives surely help the universities and institutions in assessing the performance of a faculty, research scholar and department for various reasons include appointment, promotions and incentives for high-impact research.

### *6.1.6 Financial support*

University education requires huge budget and needs unremitting financial support from the government. However, one has to manage not only fundraising but also budget allocation and control the misuse of such funds. In the early years after independence, government had mostly allocated budget for setting up national importance institutes, central and state universities and specialized institutions in underdeveloped locations. For some reason, Indian universities are known about the world university rankings though they did not really try to get into such top rewards due to lack of – funds, expertise in writing and publishing research, university interest, talented academicians, in-house politics and power, quality and assessment practices. Unfortunately, policy makers also design unproductive schemes, then government approves budget to such projects for no productive benefits. For example, postdoctoral fellowships to “unemployed” women doctorates, why should government encourage unemployed women, if what is right with unemployed women and granting funds for postdoctoral research on part time basis? In such cases, government should enquire how many applicants are genuine and why are they unemployed after holding doctorate degree. One should also assess how many papers they are publishing in SCI-indexed journals and what their contribution to the respective field is. We strongly argue that these concerns bring lot of policy changes in the higher education system, which would have positive impact on overall performance of the university system.

### *6.1.7 Political interference*

It is also a fact that the university education frequently litigates and influences by political environment in emerging countries like India and China. In a recent study, Xie *et al.* (2014) mentioned that China has been facing number difficulties due to political issues and scientific fraud. Being stated that, level of political intervention is too severe in overall Indian education system (Business Standard, 2014; New Indian Express, 2015). Because, most of the politicians hold deep cash flows and have political power to set up a school, pre-university college, engineering institute and private university. In fact, appointment of vice chancellor in a state university is mostly influenced by ruling political party include chief minister and concerned minister. Likewise, faculty recruitment in a local affiliated college or autonomous college is greatly hooked by local ministers and influential persons. It will be even more when the faculty recruitment happens at a state or central university. For instance, a private university has sold faculty appointments for direct cash due to local political influence and of course, same caste, community, religion, or location. Therefore, government

should either control such wrong practices or privatize the higher education and encourage international university collaboration. One should also remember that a complete control of political intervention may not be possible for government but the level of such involvement can be controlled by imposing strict guidelines and severe penalties. Furthermore, many issues (e.g., reservation system, fee reimbursement for political benefit) are unresolved with regard to higher education and job market (Basant and Sen, 2014).

## **6.2 Policy implications**

### **6.2.1 Research funding**

Research funding is the most important element in higher education and high impact research. Indeed, a university that has financial support, sophisticated physical and technical infrastructure, pool of talented academic faculty, high-impact research and quality of admissions not only influence university recognition and brand name but also influence industry income and number of citations (e.g., Jowkar *et al.*, 2011). All in all, will have significant impact on university rankings. Therefore, emerging countries like India must allocate more funds to university-level research and training centers for encouraging students to pursue research degree as well as to bridge the gap between academic courses and industry requirements. For example, the ratio of China's R&D expenditure to that of the United States has appreciably increased to 44% in 2010 from 5% in 1991 (Xie *et al.*, 2014). On one hand, government may approach cash-rich local companies to fund and manage state universities for various reasons include physical infrastructure, network building and placement. This seems to be more appropriate scheme when compare to the scheme that allows corporates to start their own university. For instance, company representatives can participate in strategic decisions, faculty recruitment, course content, research training and placements. As such, similar kind of schemes can be designed for international universities who are keen to offer programs in India.

On the other hand, government should think genuinely what the purpose of research fellowship is. It simply refers to that government supports research scholars "financially" for learning and conducting productive research during the course period. Assume that, a scholar has completed her doctorate in four years wherein she received the fellowship (monthly stipend and annual contingency grant) for full duration. After, she joined as a faculty member in a private university for government scale. The point what we are trying to highlight is that did she pay back that research fellowship? It is obviously 'no', then how should government support new doctoral admissions in coming years. If not, there will be always deficit in

government budget that require for new doctoral admissions and high impact research. To overcome the budget deficit as well as encourage doctoral research admissions, government should ask previous stipendiary candidates to pay that fellowship amount back to the government research fund in equivalent future years. It will not be a serious financial burden if government implements “*paying-back fellowship scheme*” after two years from the award year. In fact, government can include this proposal as a criterion in faculty recruitment in state and central universities. The noteworthy intentions behind this scheme are to create serious research interest among research scholars and supervisors and to support the national development. Though, teaching assistant (not, project assistant) during Ph.D. program is biased yet largely bogus in all most all universities. This scheme can be extended to M.Tech, MSc and other fellowship master degrees. As such, UGC must establish an independent research assessment cell as to minor and administer the scheme.

#### *6.2.2 Collaborative research projects*

Zoogah *et al.* (2015) described that institutional environment, resources, level of involvement by universities, institutions and individuals are major drives of high-impact research. We therefore emphasize that level of involvement is the most critical success factor in collaborative research projects. Further, level of involvement should be high when a foreign university associated with developed market shows keen interest in such collaborative research projects. These schemes are special purpose instruments wherein universities have advantage over direct participation, research output, research grants and research publications. For example, a state university has signed a collaborative research agreement with a well-known UK university. Firstly, there will be an exchange of ideas among faculty members who involve in it. This allows local faculty to share their own thoughts and experiences as well as to work with skilled academic researchers. Secondly, research grant can be shared among participant universities and eventually the research output can be disseminated by publishing in journals and books that will certainly bring new citations. Lastly, local faculty members who participated in such collaborative research projects may give training to their colleagues and doctoral students for betterment in research projects and publications. Thus, universities can establish international collaboration not only in projects handling but also in course development, teaching methods, quality assessment process, infrastructure development, and faculty recruitment and training.



### *6.2.3 Research assessment council*

Our view is that research assessment council should accomplish three main goals, namely evaluating research papers and books published by faculty and research scholars in a university, auditing the income received from industry-oriented research, and ranking best papers, best professors, best local journals and best universities in India. The council must be an independent organization established under MHRD and UGC. Government can recruit senior researchers and provide training on various assessment measures at international standards. Further, the council is also responsible for establishing a research assessment cell in all public and private universities and autonomous institutions. Importantly, senior professors and government officials must guide the council on serious issues such as scientific fraud, fake journal publications, bogus Ph.D. theses and certificates, duplication in research output and approval of patents, among others. Being stated that, the council is accountable to communicate the university assessment report for various purposes include NAAC, NBA and overall university rankings. The council can award incentives for best research publications published by faculty members, retired academicians and researchers, postdoctoral fellows and doctoral students. Hence, incentives for high-impact research should restrict to authors who are affiliated with Indian universities and institutes. Conversely, the council can coordinate with global ranking assessment councils and multinational publishing companies to provide better training for universities, faculties and students in matters include publishing research, journal development and research metrics. In addition, it is accountable to provide Indian Researcher ID and conduct awareness workshops on the open access repository services like Shodhganga and ShodhGangotri.

## **7. Conclusions**

The aim of this paper was to present the current state of higher education system, high-impact research and university rankings in Asian emerging market-India. To do so, we collected data from archival sources and thereby accomplished our goals based on inductive and deductive logics. Firstly, overview of higher education and government schemes for academic research was discussed. Secondly, progress of high-impact research in India and China for three categories (all subjects, BMA and EEF) was assessed and commented. Further, abstracting and indexing of Indian and Chinese journals was compared. Thirdly, we described potential challenges in the Indian university education and thereby recommended fruitful policy guidelines for betterment of the existing practices and university rankings. In particular, we reported country-based research metrics for citable documents, number of citations, cites per

document and H-index in all three categories. For citable documents in all subjects category, United States was ranked 1st, followed by China 2nd, United Kingdom 3rd ..., and India 9th. Overall, Chinese universities are found to be outperforming Indian universities, especially in citable documents, number of citations, international collaboration, collaborative research projects, publications and editorship, and university rankings. We also suggested that high-impact research influences by three important factors, namely individual-, university- and country-specific factors. Importantly, we also proposed that a number of Indian universities really require effective training in academic and administration matters such as publishing high-impact research, new journal development, book writing, organizing conferences and workshops, etc.

Furthermore, a number of potential challenges were deeply discussed, which include gross enrolment ratio, university education and physical and technical infrastructure, job market and placement, industry-oriented research and innovation, quality and assessment of practices, financial support, and political interference. Then, a set of policy guidelines (research funding, collaborative research projects and research assessment council) was suggested for imparting quality academic practices and standards. For example, we proposed that government should embark 'paying-back fellowship scheme' to create serious research interest among public and private universities and to support the national development. Eventually, findings of the paper would influence university teaching, industry collaboration, high-impact research, global university rankings and national progress. Yet, the study was restricted to India and not used survey or interview data to explore the realistic performance of higher education and research. Hence, conducting a survey among higher education institutes, and government and non-government universities with regard to academics and research assessment measures deserves future research.

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- India's top 10 higher education institutions, available at: <http://www.timeshighereducation.co.uk/world-university-rankings/news/the-indian-reputation-rankings>
- Ministry of Human Resource Development, Government of India
- Publishers’ sites: Academy of Management, Elsevier, Emerald, John Wiley, Sage India, Springer and Taylor & Francis.
- SCImago Journal & Country Rank. available at: <http://www.scimagojr.com>
- Shodhganga: Indian ETD Repository, available at: <http://shodhganga.inflibnet.ac.in/>
- ShodhGangotri: Repository of Indian Research in Progress, available at: <http://shodhgangotri.inflibnet.ac.in/>
- University Grants Commission: Annual Report 2012-2013, Government of India.

## Appendix-I

### *List of open access repositories in India*

(Source: Directory of Open Access Repositories, <http://www.opendoar.org/>)

- ABA-NET
- Aligarh Muslim University
- Aryabhatta Research Institute of Observational Sciences
- Central Drug Research Institute
- Central Marine Fisheries Research Institute
- Cochin University of Science & Technology: *Dyuthi*
- CSIR-Institute of Microbial Technology
- CSIR - National Physical Laboratory
- CSIR-Central Electrochemical Research Institute
- CSIR-Central Scientific Instruments Organisation
- Delhi Technological University
- Gokhale Institute of Politics and Economics
- Guru Gobind Singh Indraprastha University
- Indian Academy of Sciences
- Indian Agricultural Research Institute
- Indian Association for the Cultivation of Science
- Indian Institute of Technology, Bombay
- Indian Institute of Astrophysics
- Indian Institute of Horticultural Research
- Indian Institute of Management Kozhikode
- Indian Institute of Management, Ahmedabad
- Indian Institute of Petroleum, Dehradun
- Indian Institute of Science
- Indian Institute of Technology Roorkee: *Bhagirathi*
- Indian Institute of Technology Kanpur
- Indian Institute of Technology, Delhi
- Indian Statistical Institute, Bangalore Centre
- Indira Gandhi Institute of Development Research
- Indira Gandhi National Open University
- Information and Library Network Center (INFLIBNET): ShodhGanga
- Information Centre for Aerospace Science and Technology
- Institute of Mathematical Sciences
- Inter-University Centre for Astronomy and Astrophysics
- International Crops Research Institute for the Semi Arid Tropics
- Madras Diabetes Research Foundation
- Madurai Kamaraj University
- Maharaja Sayajirao University of Baroda
- Mahatma Gandhi University
- Management Development Institute
- National Informatics Centre
- National Institute for Tuberculosis Research
- National Institute of Immunology
- National Institute Of Oceanography
- National Institute of Science Communication and Information Resources
- National Institute of Technology, Rourkela
- National Metallurgical Laboratory

- Osmania University
- Pandit Deendayal Petroleum Univeristy
- Raman Research Institute
- Sardar Vallabhbhai National Institute of Technology
- Saurashtra University
- SDM College of Engineering and Technology Dharwad
- Thapar University
- University of Delhi
- University of Kashmir
- University of Mysore: *Vidyanidhi*
- V.V.Giri National Labour Institute
- Vidya Prasarak Mandal
- West Bengal Public Library Network

## Appendix – B

### Abstracting and Indexing of Indian and Chinese journals in Economics, Management and related disciplines

Publisher	India			China		
	Journal title	Scopus	Impact factor	Journal title	Scopus	Impact factor
<i>Cambridge</i>	Nil			Asian Journal of Law and Society	New	
<i>De Gruyter</i>	Nil			Asia-Pacific Journal of Risk and Insurance		
<i>Elsevier</i>	IIMB Management Review#	•		Asia Pacific Management Review#	•	
				China Journal of Accounting Research#	•	
				Chinese Economic Review	•	1.142
				Pacific Science Review#	New	
<i>Emerald</i>	Indian Growth and Development Review	•		Asian Education and Development Studies		
	Journal of Advances in Management Research			China Agricultural Economic Review	•	0.540
	Journal of Indian Business Research	•		China Finance Review International		
				Chinese Management Studies	•	0.338
				International Journal of Educational Management	•	
				Journal of Chinese Economic and Foreign Trade Studies	•	
				Journal of Chinese Entrepreneurship		
				Journal of Chinese Human Resources Management	•	
				Journal of Science and Technology Policy in China	•	
				Journal of Technology Management in China		
				Nankai Business Review International		
<i>InderScience</i>	International Journal of Indian Culture and Business			International Journal of Automation and Logistics	New	
				International Journal of Chinese Culture and Management		
				International Journal of Internet Manufacturing and Services	•	
				International Journal of Manufacturing Technology and Management	•	
				International Journal of Mobile Learning and Organisation	•	
				International Journal of Project Organisation and		

				Management		
				International Journal of Services, Economics and Management	•	
				International Journal of Shipping and Transport Logistics	•	1.340
				International Journal of Value Chain Management	•	
<b>John Wiley</b>	Nil			China & World Economy	•	0.772
				Management and Organization Review	•	3.277
<b>Oxford Journals</b>	Nil			Chinese Journal of Comparative Law	New	
				Chinese Journal of International Law	•	0.490
				Chinese Journal of International Politics	•	1.000
<b>Palgrave Macmillan</b>	Nil			Nil		
<b>Sage India</b>	Agrarian South: Journal of Political Economy	New		China Information	•	
	Asian Journal of Legal Education	New		China Report	•	
	Asia-Pacific Journal of Management Research and Innovation	New		Chinese Journal of Sociology	New	
	Business Perspectives and Research	New		Modern China	•	0.61
	China Report	•				
	Contemporary Education Dialogue					
	Contemporary Review of the Middle East	New				
	Contributions to Indian Sociology	•	0.120			
	Emerging Economy Studies	New				
	Environment and Urbanization ASIA					
	Foreign Trade Review	New				
	Global Business Review	•				
	Higher Education for the Future	New				
	History and Sociology of South Asia					
	IIM Kozhikode Society & Management Review	New				
	India Quarterly: A Journal of International Affairs					
	Indian Historical Review					
	Indian Journal of Corporate Governance	New				
	Indian Journal of Gender Studies	•	0.216			



	Insight on Africa				
	International Journal of Rural Management	•			
	Jadavpur Journal of International Relations	New			
	Journal of Creating Value	New			
	Journal of Creative Communications	•			
	Journal of Education for Sustainable Development				
	Journal of Emerging Market Finance	•			
	Journal of Entrepreneurship and Innovation in Emerging Economies	New			
	Journal of Health Management	•			
	Journal of Human Values	•			
	Journal of Infrastructure Development				
	Journal of Interdisciplinary Economics	•			
	Journal of Land and Rural Studies	New			
	Management and Labor Studies	New			
	Margin: The Journal of Applied Economic Research				
	Millennial Asia				
	Paradigm	New			
	Psychology and Developing Societies	•			
	Review of Market Integration				
	Science, Technology and Society	•	0.194		
	Social Change	•			
	Society and Culture in South Asia	New			
	South Asia Economic Journal	•			
	South Asian Journal of Business and Management Cases	New			
	South Asian Journal of Macroeconomics and Public Finance	New			
	South Asian Survey	•			
	South Asian Survey	•			
	Studies in History	•			
	Studies in Indian Politics	New			
	Studies in Microeconomics	New			
	The Indian Economic & Social History Review	•	0.121		

	The Journal of Entrepreneurship	•			
	Vikalpa	New			
	Vision	New			
<b>Springer</b>	Decision#	New		Annals of Data Science	New
	Global Journal of Flexible Systems Management#	•		Asia Pacific Journal of Management	• 2.742
	Indian Journal of International Law#	New		China Accounting and Finance Review	New
	Jindal Global Law Review#	New		China Finance and Economic Review	New
	Journal of Social and Economic Development#	New		China Journal of Economic Research	New
	OPSEARCH	•		Customer Needs and Solutions	New
	Psychological Studies#	New		Financial Innovation	New
				Fudan Journal of the Humanities and Social Sciences	New
				International Communication of Chinese Culture	New
				Journal of Chinese Management	New
				Journal of Chinese Political Science	•
				Journal of Computers in Education	New
				Smart Learning Environments	New
				The Journal of Chinese Sociology	New
<b>Taylor &amp; Francis</b>	India Review	•		Asia Pacific Journal of Public Administration	New
	Innovation and Development			Asia Pacific Journal of Tourism Research	• 0.566
	Journal of the Indian Ocean Region	•		Asia-Pacific Journal of Accounting & Economics	• •
	Macroeconomics and Finance in Emerging Market Economies	•		China Economic Journal	•
	Tourism Recreation Research	New		China Journal of Accounting Studies	
				China Journal of Social Work	•
				Chinese Economy	•
				Chinese Education and Society	•
				Chinese Journal of Communication	• •
				Chinese Journal of Population Resources and Environment	New
				Chinese Law and Government	•
				Chinese Sociological Review	•
				Enterprise Information Systems	• •
				International Journal of Management Science and	

				Engineering Management		
				International Journal of Rail Transportation	New	
				International Journal of Sustainable Development & World Ecology	•	1.771
				International Journal of Sustainable Transportation	•	1.447
				Journal of Asian Public Policy	•	
				Journal of China Tourism Research	•	
				Journal of Chinese Economic and Business Studies	•	
				Journal of Comparative Asian Development	•	
				Journal of Contemporary China	•	0.953
				Journal of Management Analytics	New	
				Journal of Marketing Channels	•	
				Journal of Quality Assurance in Hospitality & Tourism	•	
				Journal of Teaching in Travel & Tourism	•	
				Journal of Transportation Safety & Security	•	
				Journal of Travel & Tourism Marketing	•	0.695
				Peking University Law Journal	New	
				Social Sciences in China	•	
				World Leisure Journal	•	
<b>World Scientific</b>	Nil			Advances in Adaptive Data Analysis	•	
				Annals of Financial Economics		
				China Economic Policy Review		
				China Quarterly of International Strategic Studies		
				Chinese Journal of Urban and Environmental Studies		
				International Game Theory Review	•	
				International Journal of Information Technology & Decision Making	•	1.890
				Journal of Financial Engineering		
				Journal of International Commerce, Economics and Policy		
				The Hong Kong Journal of Social Work	•	

Source: Authors have personally browsed the respective publisher's online portals and thereby figured out the journal information include editorial information, sponsor of the journal, and abstracting and indexing.

Notes:

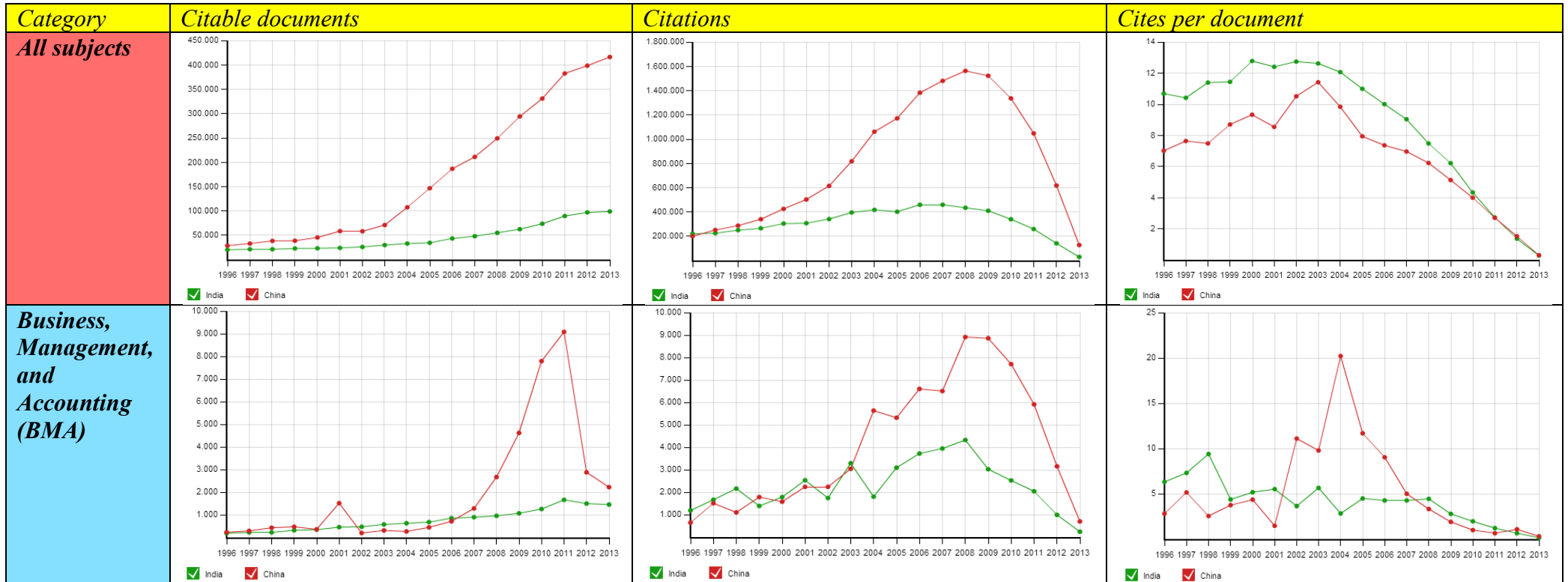
- (1) # refers to that the respective publisher based on hosting and distribution agreement publishes the journal. Similarly, Sage India publishes Indian journals at low-cost pricing under memorandum of understanding with the respective promoting educational institution/organization.
- (2) Impact factor: SSCI or SCI for 2013 published by Thomson Reuters, 2014.
- (3) New: It refers to that the journal is a newly launched (less than three years), newly acquired by the publisher, or new to the publisher based on pricing and distribution agreement.
- (4) We have also included the journal when its sponsor, association, or editorial board (editor-in-chief, associate editors, but not regional editors) represents either China or India.

<b>Table I. Publishing research metrics of top 20 countries, 1996-2013</b>					
<i>Rank</i>	<i>Country</i>	<i>Citable documents</i>	<i>Citations</i>	<i>Citations per document</i>	<i>H index</i>
<b>All Subjects</b>					
1	United States	7,281,575	152,984,430	22.02	1518
2	China	3,095,159	14,752,062	6.81	436
3	United Kingdom	1,932,907	37,450,384	19.82	934
4	Germany	1,876,342	30,644,118	17.39	815
5	Japan	1,874,277	23,633,462	13.01	694
6	France	1,348,769	21,193,343	16.85	742
7	Canada	1,040,413	18,826,873	20.05	725
8	Italy	1,015,410	15,317,599	16.45	654
9	<b>India</b>	825,025	5,666,045	8.83	341
10	Spain	800,214	10,584,940	15.08	531
11	Australia	723,460	11,447,009	18.24	583
12	South Korea	642,983	5,770,844	11.49	375
13	Russian Federation	629,671	3,664,726	6	355
14	Netherlands	574,144	12,103,482	23.03	636
15	Brazil	510,194	4,164,813	10.98	342
16	Taiwan	434,662	3,993,380	11.35	300
17	Switzerland	419,372	9,238,679	24.53	629
18	Sweden	397,095	8,069,960	21.76	567
19	Poland	378,483	2,939,536	8.93	336
20	Turkey	330,411	2,417,631	9.07	237
<b>Business, Management and Accounting</b>					
1	United States	161,082	2,369,434	16.96	382
2	United Kingdom	48,889	564,178	13.97	181
3	China	35,829	73,474	5.28	83
4	Germany	23,982	133,488	6.43	116
5	Australia	20,882	186,638	12.88	117
6	Canada	19,155	255,573	17	158
7	<b>India</b>	13,792	41,503	4.14	66
8	France	12,559	107,164	13.86	118
9	Netherlands	12,214	173,818	19.5	139
10	Spain	11,301	83,896	10.44	87
11	Taiwan	10,374	80,875	12.12	91
12	Italy	8,843	73,344	13.01	91
13	Hong Kong	8,285	122,153	18.17	121
14	Japan	7,601	39,026	6.64	63
15	Sweden	6,451	73,601	16.72	101
16	South Korea	6,453	64,952	15.4	89
17	Switzerland	5,356	50,510	11.88	84
18	Finland	5,026	47,869	15.7	79
19	New Zealand	4,663	46,115	13.53	74
20	Brazil	4,646	15,954	7.07	45
<b>Economics, Econometrics and Finance</b>					
1	United States	119,070	1,918,542	18.97	345
2	United Kingdom	36,832	444,270	14.96	178
3	Germany	20,368	152,114	9.84	102
4	France	16,004	106,455	10.09	100

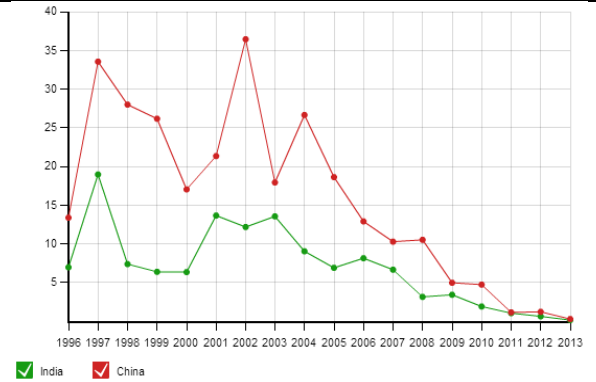
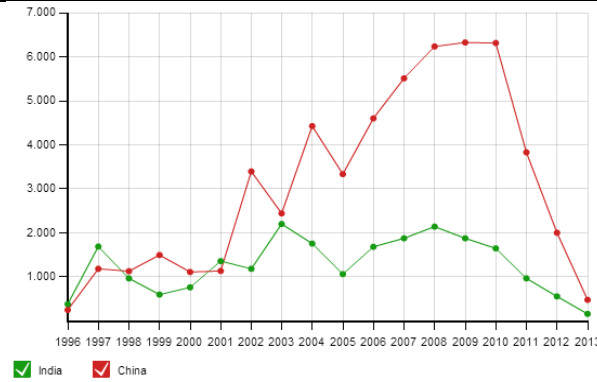
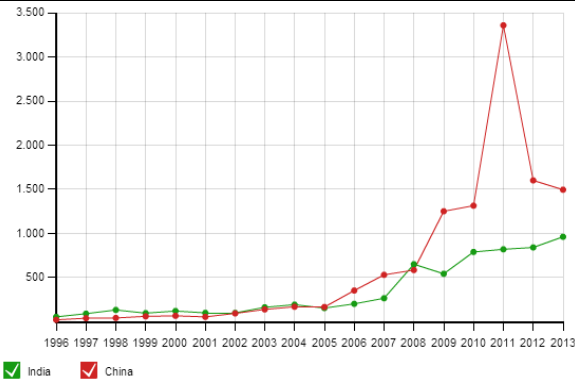
5	Canada	15,694	168,652	12.63	128
6	Australia	14,017	112,089	10.6	99
7	Spain	11,358	80,637	10.51	86
8	China	11,296	55,134	15.85	74
9	Italy	10,922	84,186	11.47	92
10	Netherlands	10,606	131,945	15.24	115
11	Japan	7,143	36,037	6.79	57
12	<b>India</b>	6,240	22,769	7.02	57
13	Taiwan	5,540	34,293	10.54	66
14	Switzerland	5,322	59,757	16	86
15	Belgium	5,058	50,635	13.08	80
16	Sweden	5,002	61,759	16.09	92
17	Hong Kong	4,334	61,899	17.39	91
18	South Korea	4,332	32,542	12.09	66
19	Norway	3,296	36,247	14.05	69
20	Brazil	3,264	15,145	11.11	47

*Source: SCImago Journal & Country Rank*

Figure 1. Trend line of category-based research metrics for China and India, 1996-2013



**Economics,  
Econometrics,  
and Finance  
(EEF)**



Source: SCImago Journal & Country Rank  
Notes: India (green line); China (red line).