Measuring the Publication Productivity of N.E-Indian Universities Using Scopus: A Bibliometric Analysis

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Abstract

Universities of N.E- India are having a great importance in higher education sector for the region. Scholars from these universities published a numbers of intellectual works in different publication sources. SCOPUS is an indexing and abstracting database which facilitates for accessing the high quality published materials. The database is having a unique method of searching known as "affiliation search" strategy and the data for the institution publications are collected from it . The paper aims at investigating the different types of published materials by the Universities of N.E- India like articles, conference papers, review, erratum etc. The paper also identifies the peak period in which the growth of publication is maximum. Lastly, an attempt has been made to calculate the Annual Growth rate(AGR) and Average Annual Growth rate(AAGR) of the published documents during the last 20 years.

Keywords: SCOPUS, Annual Growth rate (AGR), Average Annual Growth Rate(AAGR), Publication Productivity, Bibliometric

1. Introduction

Till 1947 University Education was a big challenge for North Eastern states of India as there was not a single University in the region. But after Independence, the scenario gradually changed and the Government of India in support with the different North Eastern states has established a number of reputed Universities under the state act or Central act. Public money is hugely spent on the development programme of all these universities. Universities are also performing their activities sincerely to develop the academic movement of their regional states. Any university has a great role in the field of research and innovation and since the different Universities of N.E- India which are selected in the study is about 20-66 years old and so there is a need to measure their productivity of publication. Today, the publication industry has got a rapid change and it is almost difficult for a layman to differentiate between quality and non quality published material unless the person have some knowledge of evaluation of information sources. There are different databases which indexes the different sources of published materials and from the different databases, one standard databases is chosen which is accepted by every country based on its indexing criteria popularly known as SCOPUS.

1.1 About SCOPUS

SCOPUS of the Elsevier is the largest abstracting and indexing database of peer-reviewed literature covering 53 million records which includes 21,915 titles from 5000 reputed publishers. It covers the worlds research literature in the field of Science, Technology, Medicine, Social Sc and Arts & Humanities. (Elsevier)

1.2 Objective of the study

The following are the main objectives for carrying out this study:

1. To measure the growth of different published documents by the Universities of N.E-India.

2. To find out the period where the growth of publication is maximum.

3. To calculate the Annual Growth rate (AGR) and Average Annual Growth rate(AAGR) of published materials.

1.3 Scope and Limitation of the Study

The area covered under the study is limited to the UGC assisted Universities of N.E-India which were established prior to year 2000. All the other universities which are not under scope of 12(B) of UGC are excluded from the purview of the study including the Open Learning Universities, private or deemed Universities. Three specific broad disciplines are selected for the purpose of the study. These are

1. Life Science

2. Physical Science and

3. Social Science

1.4 Methodology

A standard Indexing and Abstracting database, i.e.SCOPUS is used for measuring the growth in publication productivity of the Universities in world class reputed published sources. SCOPUS provides a unique platform to search the publication and for the purpose "affiliation search" features of SCOPUS is considered to collect the necessary data. Data were collected for ten types of Documents (Article, Conference Paper, review, Article in Press, Book Chapter, Note, Editorial, Erratum, Letter, Short survey). Of these ten types, Article in Press, Book Chapter, Note, Editorial, Erratum, Letter, Short survey are grouped into a single category as "Others" published documents.

Table 1:List of Universities selected for the study

Sl. No	Name of the University	Year of Estb	Abbreviation Used	Phase wise recognition for UGC-Infonet DL Consortia
1	Assam University	1994	AU	Phase II
2	Dibrugarh University	1965	DU	Phase II
3	Gauhati University	1948	GU	Phase I
4	Manipur University	1980	MU	Phase I
5	Nagaland University	1994	NU	Phase II
6	NEHU	1973	NEHU	Phase I
7	Tezpur University	1994	TezU	Phase I
8	Tripura University	1987	TriU	Phase II

*NEHU North Eastern Hill University

Out of 11 Universities, 8 Universities are considered for the study among which Gauhati University is oldest University of N.E-India. Phase I, II and III were assigned by INFLIBNET to avail the E-resource facility under the UGC-Infonet Digital Library Consortium. Universities which were in Phase I and Phase II are availing the e-resources from 2004 and 2005 onwards respectively.

Table 2: Status of Article and Conference Publication

	ARTICLES				CONFERENCE PAPER			
	1994-98	1999-2003	2004-2008	2009-2013	1994-98	1999-2003	2004-2008	2009-2013
AU	167	354	654	1942	0	9	88	271
DU	49	95	114	391	0	1	7	19
GU	109	142	313	689	0	10	51	118
MU	70	53	172	539	0	1	13	24
NU	4	15	45	99	0	2	4	6
NEHU	305	297	417	625	0	16	24	21
TezU	12	61	250	852	1	7	55	200
TriU	33	47	83	234	0	0	8	27

(Source:SCOPUS.com)

One of the important criteria to evaluate the quality of Universities is the publication of its materials in quality referred documents like referred journals, conferences of reputed level, etc. Table 2 reveals that Assam University (AU) is top of hierarchy both in article and Conference paper publication followed by Tezpur University(TezU).

Table 3: Status of Review and Other Publications

	REVIEW				OTHERS			
	1994-98	1999-2003	2004-2008	2009-2013	1994-98	1999-2003	2004-2008	2009-2013
AU	2	7	16	76	1	2	8	33
DU	1	1	4	16	0	0	6	9
GU	0	3	6	12	0	2	6	4
MU	0	0	1	8	0	0	2	17
NU	0	0	5	1	1	1	3	2
NEHU	5	8	9	16	1	2	5	24
TezU	0	0	4	29	0	1	3	23
TriU	1	1	4	12	0	0	0	8

(Source:SCOPUS.com)

[**OTHERS:** Article in Press, Book Chapter, Note, Editorial, Erratum, Letter, Short survey]

Table 3 reveals that during the period of 1994-2003 there was a few numbers of "reviewed" and "other" published materials of all the Universities. But during 2004-08, it is seen that there was a momentum in publication and from 2009-13, the momentum got its full acceleration in publication of the 'reviewed' and 'other' published materials.

Table 4: Total Publication of the published materials

	TOTAL PUBLICATION FROM THE DATE OF ESTB	1994-98	1999-2003	2004-2008	2009-2013	% OF CONTRIBUTION	1994-2003	2004-2013
AU	3795	170	372	774	2353		14.28	82.39
DU	800	50	97	128	413		18.37	67.62
GU	1597 (from 1960 onwards)	109	157	382	835		16.5	76.20
MU	821	70	54	187	399		15.10	71.37
NU	190	5	18	58	108		12.10	87.36
NEHU	2297	311	323	456	689		27.60	49.84
TezU	1517	13	69	315	1120		5.40	94.59
TriU	490	34	48	95	283		16.73	76.53
TOTAL	**11507**	**762**	**1138**	**2395**	**6200**		**16.51**	**74.66**

(Source:SCOPUS.com)

Up to 2003 it has been found that 17.61% document of AU, 12.64% of NU and 5.41% of TezU were published during the initial 10 years from its establishment. Similarly up to 2003, GU has published 23.8% during 43 years (1960 onwards), DU has published 32.38 during 38 years, NEHU has published 50.16% during 30 years, MU has published 28.63% during 23 years and TriU has published 23.47% during 16 years from its establishment
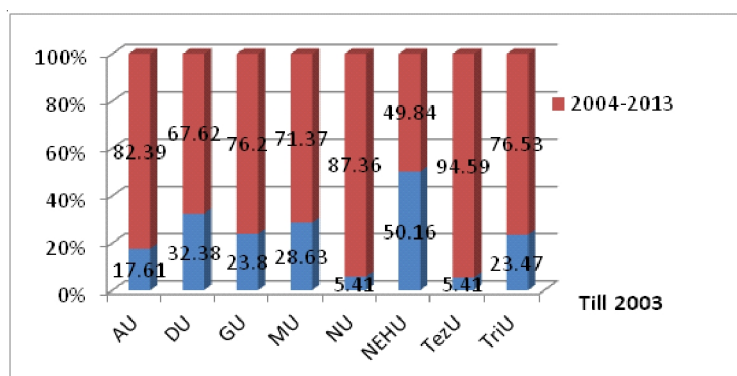

Figure 1: Shows the University wise Document Productivity

The above figure reveals that after 2003 Universities of N.E-India has published maximum of their publication. 82.39% of documents of AU, 67.62% of DU, 76.2% of GU, 71.37% of MU, 87.36% of NU, 49.84% of NEHU, 94.59% of TezU, 76.58% documents of TriU are published during the period 2004-13. Prior to 2004 their publication productivity was not so effective. Within the span of ten years (2004-2013), there was a tremendous growth in publication productivity.

2. Annual Growth Rate (AGR) and Average Annual Growth Rate (AAGR)

"AGR provides average increase in number of publications over a period of 5, 10 or more years. This metric is a used to measure the growth of publications in different subject areas over a period of time for a given university or set of universities" **(Arora Jagdish and Trivedi, Kruti:2012)**. According to Arora,Jagdish and Trivedi Kruti(2012), AGR and AAGR is calculated using the following formulae :

$$AGR = \frac{\text{Current Decade Total - Previous Decade Total}}{\text{Previous Decade Total}} * 100 / \text{No. of Years}$$

$$AAGR = \frac{(\text{Growth Rate in Period A} + \text{Growth Rate in Period B} + \dots \dots \text{Growth Rate in Period X})}{\text{Number of Periods}}$$

Table 5: AGR and AAGR of the Universities

	AGR			AAGR
	1999-2003	**2004-2008**	**2009-2013**	**1994-2013**
AU	23.76	21.61	40.80	28.72
DU	9.69	6.39	44.53	20.2
GU	8.80	28.66	23.71	20.39
MU	-12.57	49.25	22.67	19.78
NU	52	44.44	17.24	37.89
NEHU	0.77	8.23	10.21	6.4
TezU	86.15	71.30	51.11	69.52
TriU	8.23	19.58	39.57	22.46

From the above Table 5, it is analyzed that the Annual Growth Rrate of all the 8 Universities during 1999-2003 were 9.86%, in 2004-08 it increases to 22.09% and in 2009-13 it further increases to 31.77%. Calculating from the three periods (1999-2003, 2004-08, 2009-13) of Annual Growth rate(AGR), the study has calculated the Average Annual Growth rate(AAGR) of all the 8 Universities which is 21.24%.
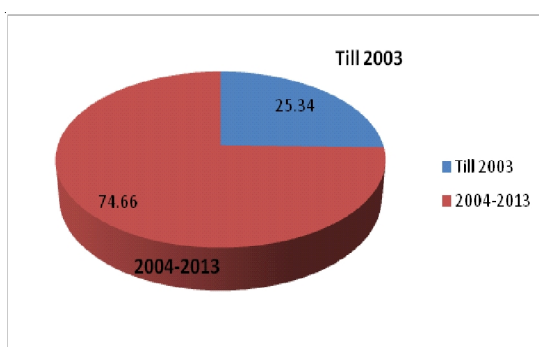

Figure 2: Shows the overall percentage of Publication Productivity of the Universities

The above pie-diagram reveals that Universities of N.E- India has published 75 % (approx.) of their total publication during the period of 2004-13.

3. Findings of the study

i. Till 2003, the article productivity and the publication of conference papers of the Universities were less in numbers.(Table 2)

ii. Similarly till 2003, the publication of reviewed and others published materials were also very few in numbers. Some of the Universities were unable to publish single such published material during the period. (Table 3)

iii. The AGR during 1999-2003 were 9.86%, in 2004-08 it increases to 22.09% and in 2009-13 it further increases to 31.77%. The AAGR

during the three periods were found to be 21.24%.(Table 5)

iv. During the period 2004-13, there was tremendous growth of published materials. One important fact that has been discovered from the study is that, with the introduction of E-resources in these Universities, their growth of publication becomes unpredictable. Out of total documents published by the Universities till 2013, 75% (approx.) of their documents were published during the period of ten years (2004-13).(Table 4, Fig 1 & Fig 2)

4. Suggestion

i. Universities should better utilized the e-resources as maximum as possible for which university libraries should conduct regular Information literacy programme for the users.

ii. Universities should focus on their quality level publication in those referred documents which are traced by the standard databases like SCOPUS, Web of Science and so on.

iii. Publication sources which are not traced by standard databases should try to meet the indexing criteria of those databases.

5. Conclusion

Universities of N.E- India have published most of their documents during 2004-13. During the same period e-resources were introduce by INFLIBNET for the Universities. The output of e-resources usage is clearly visible in the publication activities of these universities which indicates the user acceptance of e-resources. But, still these universities have miles to cover so as to cope with the other Universities of the world.

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