



## PUBLICATION PRODUCTIVITY IN THE UNIVERSITIES OF TAMIL NADU: A SCIENTOMETRIC ANALYSIS

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### Abstract

This study aims to assess the publication productivity of the Universities in Tamil Nadu using Scientometric tools. The Web of Science database was used to retrieve relevant records. The performance of the most productive authors, institutions, most preferred type of documents, journals is assessed. The citation scores were used to rank the universities under study.

**Keywords:** Publication Productivity, Scientometric analysis, Universities, Tamil Nadu.

### Introduction

Publication in high standard peer reviewed and highly impact factor journals have become a major criterion to evaluate the academic standard of an individual researcher and also the status of the institution. It is essential to succeed in the competitive environment of the global higher education. Universities are engaged in a global race of publications. The allotment of funds by the Government, national ranking of institutions and to attract the students and professors towards the institutions in the global arena. But it is limited to a very small part in Indian educational system. Most of the universities in India are engaging in affiliating colleges and most of the time is swallowed for administrating the institutions only. The universities in India are also concentrating on teaching-learning process and very insignificant level of importance is given for research and development. To encourage research work in the higher academic institutions, many Universities in China are providing payments to faculty and research scholars as the recognition of their research productivity. This type of payments may be more than their monthly salary. In Russia, bonuses are given to the publications in International Journals. In this background, the study of publication productivity of Universities in Tamil Nadu is carried out. The 20<sup>th</sup> century may be called as the century of metric sciences. There have been the developments of Bibliometrics, Scientometrics, biometric, webometrics and infometrics etc. The term Bibliometrics was first used by Pitchard in 1969 as the application of mathematical and statistical methods to books and other media of communication. Growth pattern of literature and usage of bibliographic databases are measured with the help of these metrics. Scientometric analysis is one of the method used to measure the research productivity of the faculty and research scholars in the Universities of Tamil Nadu. The main purpose of this study is to understand the publication productivity of the researchers and faculty members in the Universities under study.

### Statement of the Problem

This study aims at analyzing the publication and research productivity of Universities in Tamil Nadu. Even though the universities are incepted in different years, the facilities and funds available for research and development is varying, the citation scores, average citation rates etc. are the factors which may be useful for comparing and ranking the productivity of the Universities. The study was carried out with the help of the Web of Science (WOS) database to analyse the data available.

### Objectives of the Study

The study focuses its analysis with the following objectives:

1. To identify the publication output and ranking of the Universities under study
2. To know the global citation scores of the Universities
3. To understand the ranking of the universities according to citation rate per paper
4. To view the universities according to the h-index
5. To analyse the country wise collaborative publication of the records

### Methodology

To analyse the records downloaded from Web Of Science database up to Dec.2014, the data were used through the Histcite software to get the required output.

### Analysis of Data

The number of research articles published in various periodicals were identified and it was calculated as publication output.



**Table1: Publication Output**

It is found from the above table that the maximum publications were 7251 by University of madras ranked in first place. Next to this Annamalai University, Chidambaram produced 4985 articles placed in the second place. It is also found that the least number of 76 articles were produced by Thiruvalluvar University in the tenth position.

Name of the Universities	Publication Output	Rank
Annamalai	4985	2
Alagappa	1458	6
Bharathidasan	2975	4
Bharathiar	2784	5
Madurai Kamaraj	3087	3
Manonmaniam Sundaranar	663	8
Mother Teresa	83	9
Periyar	705	7
Thiruvalluvar	76	10
University Madras	7251	1

**Table 2: Total Global Citation Score Wise**

**TGCS** (Total Global Citation Score) – means how many times the author's papers included in this (WOS) collection have been cited. This score is calculated from the Times Cited score retrieved from the Web of Science. Local Citation score is the number of times a paper is cited by other papers in the local collection. It is observed from the table that University of Madras has the highest TGCS of 33657 with 7251 records stood first. It is also found that for 3087 records published by Madurai Kamaraj University have the TGCS of 14208 ranked in the second place.

Name of the Universities	Publication Output	TGCS	Rank
Annamalai	4985	1017	8
Alagappa	1458	4061	6
Bharathidasan	2975	11917	4
Bharathiar	2784	13511	3
Madurai Kamaraj	3087	14208	2
Manonmaniam Sundaranar	663	2300	7
Mother Teresa	83	520	10
Periyar	705	4458	5
Thiruvalluvar	76	529	9
University Madras	7251	33657	1

**Table 3: Average Citation Per Paper**

Name of the Universities	Publication Output	Average Citation Per Paper	Rank
Annamalai	4985	2.20	10
Alagappa	1458	2.78	9
Bharathidasan	2975	4.00	7
Bharathiar	2784	4.85	4
Madurai Kamaraj	3087	4.60	6
Manonmaniam Sundaranar	663	3.46	8
Mother Teresa	83	6.26	3
Periyar	705	6.32	2
Thiruvalluvar	76	6.96	1
University Madras	7251	4.64	5

The above table shows the average number of citations a typical paper gets over many years. The total number of publications was cited in thousands of time in a University. The average citations per paper for universities are calculated.



These numbers are averages over many papers and many years. Some papers get thousands of citations and others get no citations. The distribution is very skewed. Majority of scientific papers do not get any citations. It is found that in Thiruvalluvar University the average citations per paper is 6.96 and the University is ranked in first place according to the average citation score. It is also observed that the Periyar University with 705 publications over the period of time is able to get the average citation score as 6.32 ranked in second place./ The highest number of papers published by University of Madras is able to get the 5<sup>th</sup> place with the average citation score of 4.64.

**Table 4: Ranking of Universities on the basis of the h-Index**

Name of the Universities	h-Index	Rank
Annamalai	65	2
Alagappa	45	6
Bharathidasan	65	2
Bharathiar	63	4
Madurai Kamaraj	55	5
Manonmaniam Sundaranar	25	8
Mother Teresa	12	9
Periyar	27	7
Thiruvalluvar	10	10
University Madras	75	1

The H-index is a parameter used to assess the performance of researchers and institutions based on the number of times a published research paper has been cited by peers or other researchers. The above table shows the ranking of Universities in Tamil Nadu based on its h-index. The maximum h-index score of 75 was obtained by University of Madras ranked in the first place. It is also observed that the Bharathidasan University, Tiruchirappalli and Annamalai University, Chidambaram were ranked in 2<sup>nd</sup> place with the h-index of 65 each.

**Table 5. Country wise Collaboration of Publications**

Universities	Anna	Alaga	BDU	BHA	MKM	MSU	MTU	Periyar	Thiru	UniMad
Countries										
South Korea	60	134	120	234	55	20	2	48	6	131
Taiwan	0	99	0	48	53	0	0	0	0	30
Japan	70	39	0	72	71	9	1	8	0	143
Mexico	0	29	0	0	0	0	0	0	0	34
Singapore	0	23	0	25	0	0	0	0	0	0
USA	156	19	135	191	111	29	1	16	0	310
Germany	0	11	63	34	34	5	0	15	0	66
UK	0	7	87	34	57	6	2	0	3	54
Peoples R China	46	6	0	48	0	6	0	0	0	0
Italy	65	0	0	0	0	0	0	36	0	0
Malaysia	52	0	0	0	22	0	0	7	0	200
Turkey	44	0	0	0	0	0	1	0	0	0
Canada	34	0	0	30	0	0		0	0	41
France	30	0	0	25	25	0	17	0	0	51
Switzerland	0	0	98	0	0	0	0	0	0	0

The above table explains the collaboration of authors in the Universities of Tamil Nadu with various countries. It is found from the table that the maximum of 310 articles were published with American authors by the faculty and research scholars in the University of Madras. It is 191 in the case of Bharathiar University, Coimbatore and University and 156 by Anna University. It shows that the maximum of 234 publications were made by Bharathiar University in collaboration with South



Korea. It is 134 by Alagappa University and 131 by University of Madras. It is also found that 200 publications were made by University of madras with Malaysian authors.

**Table 6. Percentage of International Collaboration**

Name of the Universities	% Share of International Collaboration	Rank
Annamalai	11.23	10
Alagappa	25.17	4
Bharathidasan	18.92	6
Bharathiar	26.16	3
Madurai Kamaraj	15.97	7
Manonmaniam Sundaranar	13.12	9
Mother Teresa	36.14	1
Periyar	24.39	5
Thiruvalluvar	34.21	2
University Madras	14.61	8

Among these universities of Tamil Nadu, Mother Therasa University, Kodaikanal have 36.14% of international collaboration in publishing the research work. Next to this, it is 34.21% in Thiruvalluvar University and 26.16% in Bharathiar University.

#### **Findings:**

From the analysis, the following inferences were made as findings of the study:

- The maximum number of publications were 7251 by University of madras ranked in first place.
- From the analysis, it is found that the University of Madras has the highest TGCS of 33657 with 7251 records stood first among the Universities under study.
- It is found that in Thiruvalluvar University the average citations per paper is 6.96 and the University is ranked in first place
- The maximum h-index score of 75 was obtained by University of Madras ranked in the first place.
- The maximum of 310 articles were published with American authors by the faculty and research scholars in the University of Madras. It is 191 in the case of Bharathiar University, Coimbatore and University and 156 by Anna University
- Among these universities of Tamil Nadu, Mother Therasa University, Kodaikanal have 36.14% of international collaboration in publishing the research work.

#### **Conclusion**

By this type of scientometric analysis of publication productivity, the Universities can obtain visibility, prestige, and credibility in the broader academic community by producing high quality research and this in turn enhances the reputation of the universities and provides a greater opportunity for attracting students and faculty members towards the institutions.

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