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# BIBLIOMETRIC DIMENSION OF INNOVATION COMMUNICATION PRODUCTIVITY OF TATA INSTITUTE OF SOCIAL SCIENCES

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***ABSTRACT***

Bibliometric analysis of 663 papers published by the social scientists of Tata Institute of Social Sciences during 1990-2000 in diverse domains in the social sciences were analysed for authorship pattern and collaboration. The results indicate that the collaboration co-efficient of the 613 single-authored papers is 92.46 percent, followed by 6.33 percent (42 papers) two authored papers. Maximum collaboration coefficient (0.13) was found during 1996-1997. The most prolific authors were: Murli Desai, Sarthy Acharya, Lakshmi Lingam, I.U.B. Reddy, Kailash, Shalini Bharat, and Chhaya Datar, publishing between 20-38 papers each. The core journals publishing TISS papers were: *Indian Journal of Social Work (98), Economic and Political Weekly (26), Perspective of Social work (7), and All India Institute of Local Self Government (5).*

**Keywords:** Bibliometrics; Individual institution; Publication productivity; Authorship pattern; Collaboration Coefficient; Channels of communication; TISS; Social Sciences.

## INTRODUCTION

The Tata Institute of Social Sciences, Deonar, Mumbai, India (TISS) is one of the premier institutions in India conducting research in social sciences. The Institute was established in 1936 in the Nagpada Neighbourhood House as the Sir Dorabji Tata Graduate School of Social Work.

The term “Bibliometrics” is generally credited to Pritchard (1969) who described it as "all studies, which seek to quantify the process of written communications". He described bibliometrics as "the application of mathematical methods to books and other media of communication". Over the years the bibliometric techniques have become tools to evaluate the productivity of research institutes, individual researcher and to map the growth of subject. Publication and citation counts are being extensively used for evaluation purpose (Narin, 1976; Yankevich, 1982; Carpenter and Harries, 1988). Raan (1999) presents examples of application of bibliometric methods in evaluation. He focuses on the assessment of strengths and weaknesses in

the research performance of a scientific institution or organisation in an international context and discusses the identification of patterns of scientific development, particularly the mapping of research activities of the organisation.

Goel and Garg (1993) and Goel (2001) made the assessment of social science research in India based upon the publication data from *Social Science Citation Index* for the year 1998. The study dealt with highly productive institutions, areas of research journals where the research results were published. Tata Institute of Social Sciences (Mumbai) ranks 9$^{th}$ among other institutions in India.

## OBJECTIVES AND METHODS

This paper attempts to provide a more detailed account of the productivity and publication behaviour of scientists in the TISS. The objectives of this study are:

(a) To identify the publication productivity of TISS by departments and research units;
(b) To ascertain the authorship and collaboration pattern of the researchers;
(c) To identify the prolific authors; and
(d) To identify the channels researchers use for communication.

A total of 663 papers published by the scientists of TISS during 1990-2000 form the data for this study. A bibliography of the publications of scientists was compiled using Winisis (Windows version of CDS/ISIS) and data from this database form the basis for this study.

## RESULT AND DISCUSSIONS

### (a) Publication productivity by Department

TISS has nine departments and the publication productivity of the departments is indicated in Table 1. During 1990-2000 the Department of MPSW had contributed 51 papers (20%), followed by SWA, 49 papers (19%), and PMIR, 45 papers (18%).

### (b) Publication Productivity by Research Units

The Units for research in TISS have been established to address specific concerns in social sciences, participate in interdisciplinary teaching programmes, undertake studies, consultancy and demonstration projects, and bring out publications. TISS has fifteen Units and the publication productivity is indicated in Table 2. During 1990-2000 the Unit for Rural Studies had contributed 62 papers (15.58%), followed by UCYR, 60 papers ( 15.08%), US, 57 papers (14.32%), UWS, 55 papers (13.82%), UFS, 50 papers (12.56%), and URSE, 44 papers (11.06%). These top six units account for 82.42 % of the total out put. Remaining nine units account for just 17.58%. Year 1998 has produced maximum number of papers in a single year with 101 papers.

Table 1: Department-wise publication productivity

| Sl. No | Depts | Year | | | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | |
| 1 | CCA | 2 | 3 | 5 | 7 | 4 | 2 | 1 | 1 | 3 | 1 | - | 29 |
| 2 | EMS | - | 2 | 1 | 2 | 1 | 5 | 4 | - | - | - | - | 15 |
| 3 | FCW | 3 | - | 4 | 7 | 4 | 2 | 3 | - | 2 | 1 | - | 26 |
| 4 | HSS | 1 | 5 | 2 | - | 2 | 6 | 2 | - | - | 3 | 1 | 22 |
| 5 | MPSW | 5 | 3 | 10 | 11 | 5 | 1 | 1 | 4 | 5 | 2 | 4 | 51 |
| 6 | PMIR | 8 | 5 | 7 | 5 | 9 | 2 | 1 | 2 | 5 | 1 | - | 45 |
| 7 | RM | 2 | 2 | - | 2 | 3 | - | 1 | 2 | 2 | - | - | 14 |
| 8 | SWA | 2 | 4 | 4 | 4 | 9 | 5 | 5 | 2 | 3 | 8 | 3 | 49 |
| 9 | URCD | - | - | - | - | - | - | 3 | - | 11 | - | - | 14 |
| | | | | | | | | | | | | Total | 265 |

**CCA** = Criminology and Correctional Administration; **EMS** = Extra Mural Studies; **FCW** = Family and Child Welfare; **HSS** = Health Services Studies; **MPSW** = Medical and Psychiatric Social Work; **PMIR** = Personnel Management and Industrial Relations; **RM** = Research Methodology; **SWA** = Social Welfare Administration ; **URCD =** Urban and Rural Community Development

Table 2: Units-wise publication productivity of TISS Scientists (1990-2000)

| Sl. No | Res. Units | Year | | | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | |
| 1 | SWE | 3 | - | 2 | 4 | - | - | 1 | - | 11 | - | 4 | 25 |
| 2 | AVU | 1 | - | - | - | 1 | 1 | 3 | - | - | - | - | 6 |
| 3 | LS | 1 | 1 | - | 1 | - | - | - | - | - | - | - | 3 |
| 4 | NSSU | 2 | - | - | 2 | 1 | 2 | - | 2 | 1 | 2 | - | 12 |
| 5 | PU | - | - | 2 | - | - | - | - | - | - | - | - | 2 |
| 6 | RS | 9 | 7 | 11 | 5 | 4 | 5 | 4 | 6 | 5 | 4 | 2 | 62 |
| 7 | URSE | 4 | 7 | 1 | 2 | 7 | 3 | 3 | 1 | 10 | 6 | - | 44 |
| 8 | SSC | - | 1 | - | - | -- | - | - | - | - | - | - | 1 |
| 9 | UCYR | 2 | 5 | 1 | 4 | 11 | 3 | 10 | 8 | 9 | 6 | 1 | 60 |
| 10. | UFS | 1 | - | - | 10 | 4 | 12 | 2 | 8 | 10 | 3 | - | 50 |
| 11. | UMC | - | - | - | - | - | - | - | - | 10 | 1 | - | 11 |
| 12. | URCSP | 3 | 2 | - | 1 | 3 | - | - | -- | - | - | - | 9 |
| 13. | US | 5 | 6 | 3 | 6 | 6 | - | 11 | 5 | 9 | 4 | 2 | 57 |
| 14. | USP | - | - | 1 | - | - | - | - | - | - | - | - | 1 |
| 15. | UWS | 3 | 8 | 2 | 4 | 2 | 6 | 8 | 6 | 12 | 3 | 1 | 55 |
| | | | | | | | | | | | | Total | 398 |

**SWE** = Social Work Education and Practice Cell ; **AVU** = Audi-Visual Unit; **LS** = Unit for Labour Studies ; **NSSU** = National Service Scheme; **PU** = Publication Unit; **RS** = Unit for Rural Studies; **URSE** = Unit for Research in the Sociology of Education; **SSC** = Students Service Cell; **UCYR** = Unit for Child and Youth Research; **UFS** = Unit for Family Studies; **UMC** = Unit for Media & Communications; **URCSP** = Unit for Research and Consultancy in Social Policy; **US** = Unit for Urban Studies; **USP** = Unit for Social Policy and Social Welfare Administration; **UWS** = Unit for Women's Studies.

### (c) Authorship Pattern and Collaboration Coefficient

Table 3 indicates the authorship pattern of the 663 papers studied. About 92.46%, 6.33% and 1.06% papers are single authored, two authored and three authored papers respectively. The number of four-authored paper is only one (0.15%).

To measure the collaborative research pattern, a simple indicator called collaboration coefficient (number of collaborative papers divided by total number of papers), (Subramanyam, 1983) is used. The degree of collaboration varies from one discipline to another. It is generally high in the intensely collaborative scientific and technical field but low in the humanities in which the lone scholar, working without the trapping of 'big science' still produces much of the scholarly literature. The highest collaboration coefficient was 0.13 in 1995 and 1996. Interestingly, there was no collaboration in the year 1997 as all the papers (47) were single authored. Patel (1973) found a direct relationship between funded articles and multi-authorship. Heffner (1981) found that financial support for research is associated with an increase in the total number of persons involved in the production of knowledge per journal article. However, the impact of funding is not the same for all models of collaboration, nor the same for all disciplines. This study seems to indicate that there is less scope for collaboration in the field of the social sciences. An unpublished study by Lindsey and Brown, quoted by Garfield (1979), also indicated that multi-authored papers accounted for only 17-25 percentage of samples of published papers in economics, social work and sociology. This trend clearly indicates that social scientists prefer to work in solitude (Marcina, 2000). This authorship trend is also indicated for authors from TISS.

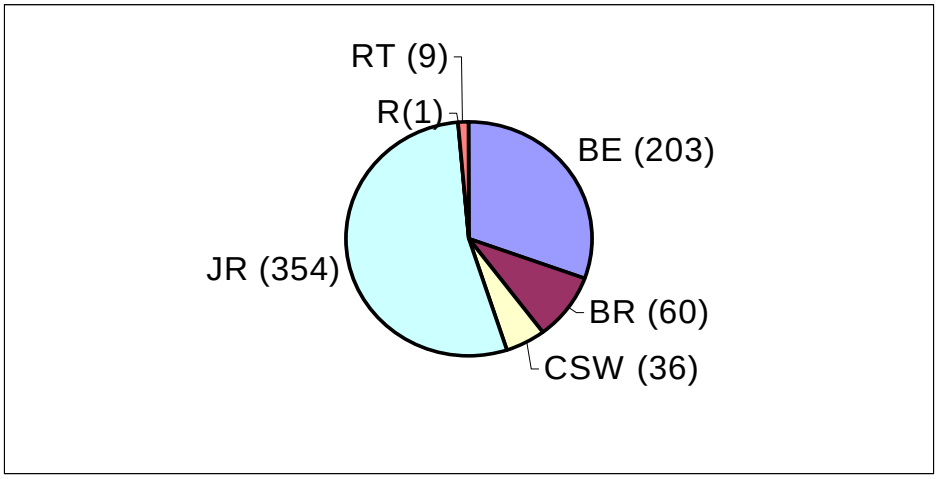
Table 3: Authorship pattern

| Year | Number of Papers under various authorship | | | | | Collaboration coefficient |
|---|---|---|---|---|---|---|
| | One | Two | Three | Four | Total | |
| 1990 | 52 | 3 | 2 | - | 57 | 0.09 |
| 1991 | 56 | 5 | - | - | 61 | 0.08 |
| 1992 | 54 | 2 | - | - | 56 | 0.04 |
| 1993 | 70 | 6 | - | 1 | 77 | 0.09 |
| 1994 | 70 | 4 | 2 | - | 76 | 0.08 |
| 1995 | 48 | 6 | 1 | - | 55 | 0.13 |
| 1996 | 55 | 8 | - | - | 63 | 0.13 |
| 1997 | 47 | - | - | - | 47 | 0.00 |
| 1998 | 101 | 7 | - | - | 108 | 0.06 |
| 1999 | 43 | 1 | 1 | - | 45 | 0.04 |
| 2000 | 17 | - | 1 | - | 18 | 0.06 |
| Total | 613 | 42 | 7 | 1 | 663 | 0.07 |
| Percentage | 92.46 | 6.33 | 1.06 | 0.15 | 100.00 | |

**(d) Types of Documents**

Figure 2 indicates the different types of documents used by the TISS scientists for communicating their research findings. The maximum share of 354 papers were published in the journals followed by edited books (203), book reviews (60), conference/seminar/workshop (36), reports (9) and review articles (1).

Figure 2: Types of Documents used by TISS Scientists




**JR** = Journal Articles, **R** = Review articles, **RT** = Reports
**BE** = Edited Books, **BR** = Book Reviews, **CSW** = Conference/Seminar/Workshop
**JR** = Journal Articles, **R** = Review articles, **RT** = Reports

**(e) The Prolific Authors**

The most prolific authors with their number of publications is given in Table 4. The most productive authors found in the study in order of the number of contributions are Murli Desai, who tops the list with 38 publications followed by Saarthy Acharya with 28 publications, Lakshmi Lingam with 23 publications, I.U.B. Reddy with 23 publications, Kailash with 22 publications, Shalini Bharat with 21 publications and Chhaya Datar with 20 publications.

**(f) Channels of Communication**

Table 5 shows the journal preference for TISS scientists. Four journals account for 38.42% of total journal articles published by TISS scientists and these are, *Indian Journal of Social Work* (98), *Economics and Political Weekly* (26), *Perspective of Social Work* (7), *All India Institute of Local self-Govt.* (5). Sixteen top journals account for 50 percent of journal articles. Goel (2001) also found that the *Indian Journals of Social Work* ranks 2nd position among other journals in his study.

Table 4: List of prolific authors with more than four publications

| Sr.No | Name | Total Authorship |
|---|---|---|
| 1 | Desai, Murli | 38 |
| 2 | Acharya, S. | 28 |
| 3 | Lingam, L. | 23 |
| 4 | Reddy, I.U.B. | 23 |
| 5 | Kailash | 22 |
| 6 | Bharat, Shalini | 21 |
| 7 | Datar, Chhaya | 20 |
| 8 | Gangopadhyay, A. | 19 |
| 9 | Mane, P.N. | 19 |
| 10 | Roy Burman, J.J. | 18 |
| 11 | Nadkarni, V.V. | 16 |
| 12 | Kashyap, L. | 14 |
| 13 | Monteiro, A. | 14 |
| 14 | Nayar, Usha S. | 14 |
| 15 | Siva Raju, S. | 13 |
| 16 | Singh, D.R. | 13 |
| 17 | Aikara, J. | 12 |
| 18 | Hans, G. | 12 |
| 19 | Mukherji, P.N. | 12 |
| 20 | Narayan, L. | 12 |
| 21 | Pandey, V.N. | 12 |
| 22 | Pawar, M.S. | 12 |
| 23 | Anilkumar, K. | 11 |
| 24 | Bajpai, A. | 11 |
| 25 | Shah, G. | 11 |
| 26 | Datta, R.C. | 10 |
| 27 | Mahtani, R.P. | 10 |
| 28 | Pandey, S. | 9 |
| 29 | Sharma, R.N. | 9 |
| 30 | Garain, S.K. | 8 |
| 31 | Jayasankar, K.P. | 8 |
| 32 | Parasuraman, S. | 8 |
| 33 | Rane, A.J. | 8 |
| 34 | Saldanha, D. | 8 |
| 35 | Sengupta, C. | 8 |
| 36 | Sonowal, C.J. | 8 |
| 37 | Velaskar, P. | 8 |
| 38 | Yesudian, C.A.K. | 8 |
| 39 | Jain, Ranu | 7 |
| 40 | Ramaiah, A. | 7 |
| 41 | Rao, N. | 7 |
| 42 | Wankhede, G.G. | 7 |
| 43 | Desai, A.S. | 6 |
| 44 | Galliara, M. | 6 |
| 45 | Gandevia, K.Y. | 6 |
| 46 | Singh, D.P. | 6 |
| 47 | Veedon, R. | 6 |
| 48 | Andharia, J.B. | 5 |
| 49 | Bhide, A. | 5 |
| 50 | Datta, V.R. | 5 |
| 51 | Jaswal, S. | 5 |
| 52 | Maitra, S. | 5 |
| 53 | Mithrani, V. | 5 |
| 54 | Abraham, L. | 4 |
| 55 | Apte, M.J. | 4 |
| 56 | George, A. | 4 |
| 57 | Kamat, V. | 4 |
| 58 | Mani, R.S.S. | 4 |
| 59 | Narender, A. | 4 |
| 60-67 | 8 authors contributed 3 papers each | 24 |
| 68-78 | 11 authors contributed 2 papers each | 22 |
| 79-108 | 31 authors contributed 1 paper each | 31 |

Table 5: Journals preference for TISS Scientists

| Sl. No | Journal Titles | No of Papers | Cum. No of Papers | FPY - LPY - TY | |
|---|---|---|---|---|---|
| 1. | Indian Journal of Social Work | 98 | 98 | 1990 - 2000 | 11 |
| 2. | Economics and Political Weekly | 26 | 124 | 1990 - 1999 | 10 |
| 3. | Perspective of social work | 7 | 131 | 1992 - 1998 | 7 |
| 4. | All India Institute of Local self-Govt. | 5 | 136 | 1994 - 1994 | 1 |
| 5. | Indian journal of Labour economics | 5 | 141 | 1991 - 1996 | 6 |
| 6. | Indian Journal of Public Administration | 4 | 145 | 1992 - 1994 | 3 |
| 7. | Perspectives | 4 | 149 | 1996 - 1996 | 1 |
| 8. | Radical Journal of Health | 4 | 153 | 1994 - 1996 | 3 |
| 9. | Tribal research Bulletin | 4 | 157 | 1991 - 1998 | 8 |
| 10. | Vanyajati | 4 | 161 | 1991 - 1996 | 6 |
| 11. | Health policy and Planning | 3 | 164 | 1994 - 1995 | 2 |
| 12. | Journal of Indian Anthropological Society | 3 | 167 | 1993 - 1999 | 7 |
| 13 | Journal of RuralDevelopment | 3 | 170 | 1993 - 1996 | 4 |
| 14. | Nagarlok | 3 | 173 | 1990 - 1996 | 7 |
| 15. | Social Science and Medicine | 3 | 176 | 1994 - 1995 | 2 |
| 16. | Trends in social Science Research | 3 | 179 | 1997 - 1997 | 1 |
| 17. | Access | 2 | 181 | 1995 - 1996 | 2 |
| 18. | AIDS | 2 | 183 | 1998 - 1998 | 1 |
| 19. | Critical public health | 2 | 185 | 1998 - 1998 | 1 |
| 20. | Down to earth | 2 | 187 | 1997 - 2000 | 4 |
| 21. | Drug Abuse | 2 | 189 | 1992 - 1993 | 2 |
| 22. | Indian Journal of Secularism | 2 | 191 | 1999 - 2000 | 2 |
| 23. | Inter. Family Planning Perspectives | 2 | 193 | 1999 - 1999 | 1 |
| 24. | Inter. Journal of Advancement of Counseling | 2 | 195 | 1992 - 1995 | 4 |
| 25. | ISS | 2 | 197 | 1991 - 1991 | 1 |
| 26. | Journal of elder abuse And Neglect | 2 | 199 | 1995 - 1995 | 1 |
| 27. | Journal of family Welfare | 2 | 201 | 1994 - 1997 | 4 |
| 28. | Lawyers collective | 2 | 203 | 1997 - 1997 | 1 |
| 29. | Madhyam | 2 | 205 | 1991 - 1995 | 5 |
| 30. | Mainstream | 2 | 207 | 1998 - 1998 | 1 |
| 31. | Man and development | 2 | 209 | 1998 - 1998 | 1 |
| 32. | Maternal and child health | 2 | 211 | 1993 - 1995 | 3 |
| 33. | New frontiers in Education | 2 | 213 | 1991 - 1991 | 1 |
| 34. | One India one people | 2 | 215 | 1999 - 1999 | 1 |
| 35. | Samaj Seva | 2 | 217 | 1991 - 1991 | 1 |
| 36. | Samvadini | 2 | 219 | 1998 - 1998 | 1 |
| 37. | Sociological Bulletin | 2 | 221 | 1990 - 1998 | 9 |
| 38. | Voices | 2 | 223 | 1994 - 1995 | 2 |
| 39 - 169 | 131 JLs with 1 paper each | 131 | 354 | 1990 - 2000 | 11 |

**FPY** = First publication year; **LPY** = Last publication year; **TY** = Total years

## CONCLUSION

Tata Institute of Social Sciences is one of the internationally renowned institutions in social sciences in India. The objective was to give a birds-eye-view of communication productivity of TISS scientists and their areas of specialization. It is

clearly evident from the study that TISS conducts research of high quality in many areas of social sciences and produces many publications in addition to imparting several academic training programmes. It is suggested that a citation analysis study of the institution may be taken up to know the institution's standing globally.

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