Chapter – 8

Findings and Conclusions
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Research in every discipline, be it social sciences or economics, is growing so much and so vast that a researcher is likely to get lost in this information explosion. An information scientist helps a researcher to keep track of the developments in his field of work. Today we are living in an information age in which information, past and present-plays a vital role in all spheres of human activity. The all round progress of human society depends exclusively on our achievements in scientific, technological and social research. In turn, research is possible in environment of free flow and universal availability of current and retrospective knowledge. Promotion of research is one of the prime functions of the university. Research is carried in the university at two levels-first, by the faculty members as their obligation in extending the boundaries of knowledge and for their own professional prospects and secondly, the research scholars for the award of Ph.D. degree, which is the highest academic degree.

The main function of the university library is to collect and organise the records of knowledge to support teaching and research programmes of the university. The object of any library is to satisfy the information needs of users within a limited allocated budget, but in this world of information explosion it is a challenging job to any librarian to select the right kind of reading materials. For judicious selection librarian usually adopts various acceptable techniques or tools. Bibliometric study is one such universally acceptable technique.

Bibliometrics is an emerging thrust area of research in the field of library and information science. The word bibliometrics is derived from Latin and Greek words, i.e. biblio and metrics. So the word etymologically biblio-metrics stands for the application of mathematics to the study of bibliography. Bibliometric is a branch of information theory, which analyses quantitatively the recorded knowledge to know its properties and behaviour. The recorded knowledge may be in the form of books, journals, doctoral theses, dissertations etc. In almost all subject disciplines,
bibliometric research has developed a body of theoretical knowledge and a group of techniques based on bibliographic data elements. The doctoral dissertations which are products of research activity form an important source of information because apart from giving the experimental evidences, it also records a thorough review of works that have already been done in a particular field to show that the proposed work is not done elsewhere. In this process, to establish their claim, the researcher cites a large number of references in the theses. Studies of these citation may be useful in decision making process of a library.

Citation analysis is one of the popular methods employed in recent days for the identification of core documents in various subject fields or for a particular specific community in a geographical proximity. In fact, citation study is one of the effective and indirect method to understand the information requirements of users. Citation method is used in the present study to understand the information needs, use pattern and use behavior of research scholars in the field of “Economics”. With the advancement of time, the professionals have been increasingly realising the value and effectiveness of research. This trend has been reflected globally in the Ph.D. programmes of the universities during last fifty years. The thesis contains nascent primary information, which is unable to acquire through normal channels. The theses are unpublished documents, and are evaluated by the expert examiners. Hence the analysis of thesis is very important to impart valuable information to other researchers, scientists, librarians, etc.

Libraries and information centers play a vital role in the socio-economic development of a nation. The accelerated growth in research and development activities in science and technology and other fields of human endeavor contributed to a phenomenal growth in the universe of subjects, resulting in information explosion and interdisciplinary approach to research during the past seven-eight decades. These developments generated new demands on the services offered by libraries and information centers. Journal literature is an important source of information to disseminate new ideas for research and development work.
The role of research in several fields of economics has greatly increased in modern times. Research, as an aid to economic policy, has gained added importance, both for government and business. Government's budgets rest in part on an analysis of the needs and desires of the people and on the availability of revenues to meet these needs. The cost of needs has to be equated to probable revenues and this is a field where research is most needed. Through research we can devise alternative policies and can as well examine the consequences of each of these alternatives. An attempt has been made in this doctoral dissertation to scale the Ph.D. programmes in economics so far completed in the Madhya Pradesh Universities in terms of types and areas of research, productivity of universities etc.


Bibliometric study was conducted on the basis of the information collected from the theses available for references from the Madhya Pradesh Universities. Out of 14 universities of Madhya Pradesh only eight universities have been selected for data collection, where economics is one of the main subjects at post graduate level of teaching and researches are being conducted. The main objectives of the study are to examine the use pattern of literature consulted for research work and to identify bibliographic forms of literature; languagewise distributions; the nature of authorship pattern; subjectwise break up; number of citations per dissertations; ranking list of journals; chronological distribution and frequency of cited journals; and countrywise distribution of cited journals.
Social science research, especially of the applied variety, is of recent origin. Social science are those studies of men which seek to discover what is true about life. Social science is that branch of knowledge which cover the study of men in relation to society. It has vast range of interest and it attempts for development of their activities. During the last few years, social science has played significant role as far as the subjects derived from knowledge are concerned. The history of social sciences can be traced back to the beginnings of the 20th century. Among different social science disciplines, economics and political science were the first to gain recognition as independent or autonomous disciplines. The disciplines of sociology, psychology and anthropology were latecomers on the scene and are still in the adolescence.

Economics is one of the disciplines of social sciences. Since human beings have always thought about economic problems for their day to day existence, origin of economics can be regarded as old as the history of mankind. Research in economics depends heavily on availability of up-to-date information. Access to right information is a difficult task due to very fact that information is abundant, but the users do not know whether it is available and it does where to locate it. Unless proper bibliographic mechanism for organization of information is evolved to route the flow of information to the target user all expenditure and efforts on its generation become wasteful. Information is no doubt an essentially required commodity in any research activity because of its potential value in policy formation and decision making. Information needs of economists have become both discipline oriented and mission oriented. Information in the form of data, both raw and processed, is heavily relied upon by the economics information users.

Research is a continuous process in any field and economics is no exception. The analysis for the growth and trend of doctoral researches in Madhya Pradesh Universities in economics is based on literature survey ‘A bibliography of Doctoral Dissertations : Social Science and Humanities’. The bibliography lists 715 theses accepted by the Madhya Pradesh Universities for doctoral degrees in economics during the year 1857-1991. It has shown that the research activities in the field are
constantly on the rise. This is certainly an encouraging sign for this subjects. In economics the first Ph.D. degree was awarded by Calcutta University in 1911. In Madhya Pradesh the first Ph.D. theses was submitted in 1956 in Dr.Hari Singh Gour Vishwavidyalaya, Saugar. The maximum Ph.D. theses have been submitted during the year 1986-1990, (254). It is evident that research activities in the field of economics, the highest number 164 (22.93%) of Ph.D. theses have been awarded in economics from Saugar Vishwavidyalaya. Subject distribution of Ph.D. theses indicates that the maximum number of 183 theses has been submitted in the field of Industrial Economics, which contribute to 25.59% out of the total 715 theses, followed by Agricultural Economics (168), Labour Economics (102) and Financial Economics (70). The top three guides in this field are H.C.Sainy (16), V.P.Pandey (13) and R.K.Bharti (12) during the period 1857-1991.

"Library and Information Science Abstracts", being one of the prominent abstracting journal in the field at international level, was selected as a database for the literature survey bibliometric studies. The intent of this study is to review the general area of bibliometrics, with special emphasis on the social sciences. The findings indicates that during the twenty seven year period (1964-1990) a very few 172 articles have been published on bibliometrics researches in social sciences while other than social sciences comprised on over all 1329 articles. The maximum number of citation studies were made in 1985-1990 and very few attempts have been made in economics i.e. 23 (1.53%) out of the total 1501 number of articles published in bibliometric researches through out the world.

As foundation of scholarship, journal literature occupies an important place in economics. Journals seek to disseminate knowledge and enable researchers to publish their work, to become familiar with the work of others and to benefit from scholarly discussions and dialogues. In fact without journals, it is difficult to ensure the growth of any research discipline. As a discipline grows, the volume of research grows and the need for more journals to publish the research findings, becomes increasingly felt. Thus the number of research journals in a discipline is one indicator of its status and growth. Journal is considered as one of the most important
components in information communication process. In modern days of science and technology it is playing key role in research work because it contains latest information about current developments in any field of knowledge. The number of journals being published in the world is growing very fast every year, they are also the life blood of research.

In modern days of science and technology journals are playing key role in research work. "Ulrich's International periodical Directory", 30th edition 1991-1992 were used to identify the year of origin, country, rank, language and frequency of the journals in field of economics published throughout the world. The total number of journals are 8076 published in economics in different languages from 148 countries. The maximum number of journals are published from united states 2775 (34.3%) and english is the main language for publication of journals in the field of economics. Mostly journals are published annually, monthly and quarterly. The highest number of journals are published during the year 1971-1975, i.e., 901 (11.15%) followed by 898 (11.11%) published during 1976-1980, and 883 (10.93%) published in 1981-1985. The first journal of economics was published in 1685 under the title "Berliner Wertpapierboerse. Amtliches Kursblatt" from Germany.

The literature of any subject field has certain basic characteristics which provide information as to structural forms and process of the subject. An objective and systematic means for identifying some of these characteristics of a subject or discipline is through citation analysis. The study of citations to materials which various authors was to support or in which they publish the results of their different intellectual inquiries within subject field, usually serves as a useful indicator to the relevant and significant literature of the subject. The main branches of economics are recognised as-Agricultural Economics; Demography; Economic Theory; Industrial Economics; International Economics; Mathematical Economics and Econometrics; Money and Banking ; Public Finance; Transport; Economic History; Economic surveys of selected regions.

The subject-wise distribution of researches in economics has been undertaken to analyse the 444 doctoral dissertations submitted to the Madhya Pradesh
universities during the year 1970-1995. It is obvious from the analysis that large part of research output has been in the area of Industrial Economics i.e., 79(17.79%) out of the 444 Ph.D. theses. Agricultural Economics (78), Labour Economics (68) and Financial Economics (66) occupy second, third and fourth position respectively. This finding indicates that the above mentioned four areas represent the subjects in which maximum research work is done, which is nearly 65.52% of the total research work.

The study indicates that the most concentrated subject areas for researches are Industrial, Agricultural, Labour and Financial economics in Madhya Pradesh universities. But may be noted that some of the areas of economics are becoming obsolete, e.g. Land economics in which no thesis has been submitted in any university after 1990.

Many different physical formats are used to record information, and each form of publication is intended to serve specific purposes or information needs. The bibliographic items were classified into journal articles, proceedings of conferences/seminar, books/monographic materials, etc. Citation analysis of doctoral dissertations helps to know the literature most used by the scholars and this may be used as an important source of information for selection of materials for acquisition. The objectives of the study is to identify the main bibliographic forms of literature used by the researcher in economics. The importance of understanding the interaction between the various document forms is twofold. First-each document form has a separate role to play and each is thus a carrier of a unique brand of material. To neglect a form is to miss a link in the information network. Second-each library collection consists of a mixed assembly of documents and each author's or user's awareness is formed from the combined resources of the library.

Researchers carry out basic or fundamental research using objective methods on an identified problem under the supervision. Result of research work in the form of a report is submitted to the university for partial fulfillment for the award of Ph.D., generally known as Doctoral Dissertation. Dissertations provide authoritative definitive and latest findings on the subject. A thesis is much more than a large term paper. It normally represents the cumulation of substantial piece of original
work over a period of at least one year. The thesis is expected to make an original contribution to knowledge. The researcher has the right to select the specific area of his interest and can work at his own pace. The valuable information contained in the thesis near gets through the traditional forms of literature.

Nevertheless, research in economics and related subjects started in 20th century. Out of the consulted 444 Ph.D.'s during the year 1970-1995, Vikram University, Ujjain gets the first position with a total of 83 Ph.D. submission, followed by Rewa (77); Gwalior (76); Raipur (58); Jabalpur (51); Bhopal (37); Indore (36) and Bilaspur (26) respectively. The maximum number of theses (38 theses) were produced in 1992 and 1995, from different universities of Madhy Pradesh. The growth and development of researches in economics continuously increased, and Prof.V.C.Sinha of A.P.S. University, Rewa have the maximum number of researchers and guided 19 candidates in this field.

Citation counting provides an indication of what materials researchers are using to support their efforts in intellectual inquiry. In this respect, the title of an article can be said to represent a query, and the citations, to represent a partial answer to the query. From this rationale, citations, as an indicator of use, may represent an indirect means of determining a parietal structure for a given knowledge domain. Cited documents are concept symbols; this is the central claim of a symbolic approach to citation analysis. Citation analysis is made in identifying bibliographical references and for providing a convincing statistical study of doctoral dissertation in economics, and professional interaction among the research scholars. The doctoral dissertations which are products of research activity form an important source of information because a part from giving the evidences, it also records a thorough review of works that have already been done. In this process, to establish their claim, the researcher cites a large number of references in the theses. The number of theses with the number of citations have been analysed and found that nearly half of the total 444 theses, have
cited 51-100 references. 97 theses contain citations below 50, and 89 theses have 101-150 citations.

Each document type has a specific role to play in dissemination of information and it is this role that dictates the nature, level and currency of information carried, as well as physical format and the frequency with which it is published. The distribution of cited literature in different bibliographic forms in economics having total number of 38, 663 references cited by researches have been analysed and found the highest number of citations accounting for 47.76% from books, and journals are the second highest group accounting for 22.1% of total citations. From the remaining 30.12% of total, citations are distributed in other bibliographic forms. i.e., report literature and reference books are 7.85% and 7.07% respectively.

Journals being the vital source of information about the new ideas in economics are also life blood of research. In the use pattern of journals in economics researches in Madhya Pradesh Universities during 1970-1995, it can be seen that researchers have cited 8547 references form various economics journals approximately 10 years old and maximum number of citations belong to the period 1981-85. The number of journals cited by the research scholars is found that out 129 journals, 77 journals have been cited 15 and more times and 52 journals have been used for less than 15 times. Among the cited journals Indian Journal of Agricultural Economics, Economic and Political Weekly, Yojana and Agricultural Situation in India are the most frequently used by researchers. “Indian Journal of Agricultural Economics ” has got the first position in ranking order on the basis of total citations. This journal has mentioned the same position in 4 universities i.e. Jabalpur, Bhopal, Gwalior, and Ujjain. But as per its use in Raipur, Bilaspur and Indore Universities it get 2nd rank, and in Rewa University it has been placed on 4th position. The journal “Economic and Political Weekly” has got the second position in ranking. As per its use in Raipur Bilaspur and Indore Universities it gets first position. This journal has got second position in Rewa, Jabalpur, Bhopal and Indore Universities as per its use, and in Gwalior University it has been placed on 3rd position. Comparatively the use pattern
of journals vary from university to university. So, the ranking position is also different from university-to-university.

The characteristics of any subject literature include not only the basic publishing patterns but those of the authors themselves. Authors are important in a system which is concerned with the generation of information, its communication and consumption. Authors not only contribute to the production of new scientific knowledge, they also influence many other aspects related to and concerned with the information production, dissemination and use. The analysis of authorship pattern is based on the cited authors of journals and books given as bibliographical references in 444 doctoral dissertations of economics considered as source materials for study. The main objectives of the study are to determine the percentage of theses with different number of authors per thesis; extent of multiple authorship; degree of authorship collaboration; and trend of change in multiple authorship.

The authorship pattern was analysed to determine the percentage of single, two, three and more than three or multiple authors works of the total 8547 journal citations. In this study only 6642 authors of journal citations have been analysed excluding 1905 anonymous works used by researchers in their Ph.D. theses and found that most of the citations 3619 are of single authors. The remaining citations contributed are of two (1842), three (753) and four and above (428) authors.

Now-a-days, the collaboration among scientists in a scientific community is a common phenomenon. It is the necessity of time to carry out the researches successfully which is also reflected in scientific journals. This leads the investigation under multiple authorship studies in bibliometrics. Multiple authorship indicates development of a subject and a tendency of inter institutional and inter disciplinary study. The percentage of single authored and multiple authored of journals articles cited by researchers in their doctoral dissertations in different universities of Madhya Pradesh, are analysed and found that in Pt.Ravishankar Shukla University, Raipur and Devi Ahilya Vishwavidayala, Indore research scholars have used high rate of collaboration within the multiple authorship. The relationship between single authored
and multiple authored are close near about with 3619 (54.48%) and 3023 (45.51%) citations, out of the total 6642 journal citations.

Multiple authorship has become correlative with collaboration and despite the problems of interpretation, collaboration in research can apparently be measured with the multiple authorship. The proportion of multi-authored papers to the total number of papers is called degree of collaboration. In the present study the value of degree of collaboration is 0.45. This brings out clearly the prevalence of team research in economics for the year 1970-1995. It is very interesting to record for that the degree of collaboration in different universities of Madhya Pradesh varied from 0.37 to 0.54. It is also clear that in economics about 45% research papers are written by more than one authors which shows the productivity of multiple authorship.

The ranking of authors has its own importance. This type of studies is related to the productivity patterns of authors. The most popular and effective authors in concerned field are identified from this ranking. The importance of particular articles written by particular author can be determined from this study. An author might have published a good number of articles in a particular field. But the important of those publications cannot be judged if those are not referred to and cited by others. Ranking of authors have been prepared on the basis of the number of times the authors were cited as per their number of articles/papers. In economics there are most important 21 authors who have been cited 15 times or more and have been ranked 1 to 14. Others authors are cited less than 15 times each and total citations for them are 6079 of the total journal citations. As per total citations P.K. Bardhan has been kept on the top in the ranking list with his 05 papers. M.L. Dantwala got second rank with 58 citations of 11 papers. V.S. Vyas (42 citations), Ashok Rudra (39 citations), J.S. Sisodia (33 citations) and A.S. Kahlon (31 citations) have been placed gradually from 3rd rank to 6th rank with their 4, 7, 6 and 4 papers respectively. Some authors with less number of articles have been cited for more times comparatively, e.g. A.M. Khusoro has been cited 15 times on the basis of his one paper only. So the importance of author cannot be counted only on the basis of his citations, but may be recognised on the basis of the articles productivity also.

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The importance of a book cannot be judged if those are not referred to and cited by others. Analysis of the books cited by researchers in their doctoral dissertations in economics, determine the importance and strength of a particular publication as well as its authors and at the same time indicates his potentiality in productivity. The total book citations used by researchers were 18466. Out of the total book citations only 16103 citations are considered in this study because the number of 2363 cited books are anonymous. Out of the 16103 book citations, 9582 (59.5%) belong to single authors, and multiple authored books are 6521 (40.49%).

Pt.Ravishankar Shukla University, Raipur researchers have cited highly book citations (4782) followed by Jabalpur (2204), Ujjain (2174), Gwalior (1961), Bilaspur (1601), Rewa (1307), Indore (1045) and Bhopal (1029) respectively.

A statistical study was conducted to find out the possible correlation between the growth of the number of single authored publication and multiple authored publications. The percentage of single authored and multiple authored of books cited by researchers in their doctoral dissertations are analysed and found that out of the 16103 book citations the percentage of single author citations is more than that of the multi-authored citations. The degree of collaboration in economics doctoral dissertations for book citation is 0.404. The distribution of university wise degree of collaboration over the years from 1970-1995, books cited by researchers in their doctoral dissertations in different universities of Madhya Pradesh varied from 0.37 to 0.47.

A comparative study of the degree of collaboration (DC) among journals and books has been analysed. It is observed than in Devi Ahilya Vishwavidayalaya, Indore the degree of collaboration is highest, i.e. for journals it is 0.54 and for books it is 0.47. The DC for journals and books in Jabalpur University is same (i.e. 0.40). But Gwalior, Bhopal, Rewa and Raipur universities are equal for DC for books (i.e. 0.40) though it varies for journals in these universities. For Vikram University, the DC is 0.39 for journals and 0.41 for books. Similarly for Bilaspur University the DC for journals and books are 0.37 and 0.38 respectively.
In order to ensure a scientific and systematic progress in the investigation, the major hypothesis which were formulated at the initial stage of this study were tested with the furnished data in order to determine the validity and relevance of the propositions that guided to entire investigation. On testing of the hypothesis, the following results were obtained -

**Hypothesis - 1 :** The hypothesis that ‘Books are the major documents used by researchers’ has come true, as the study reveals that out of total citations 38663, the cited books are 47.76%, and journals citations are 22.1%, which is comparatively very less.

**Hypothesis - 2 :** The hypothesis that, ‘the research output in economics is increasing in the recent years’ has come true, as there were only 78 doctoral dissertation during 1857-1970 in Madhya Pradesh universities, which raised upto 254 during 1986-1990.

**Hypothesis - 3 :** ‘The universities established earlier have advantages in getting more number of researches’. This hypothesis has also come true, as out of 8 universities considered for survey, 83 doctoral dissertation have been submitted till 1970-1995 in Vikram University, Ujjain (est. 1957) while Guru Ghasidas University has only 26 doctoral dissertation.

**Hypothesis - 4 :** The hypothesis that ‘the scholars use old volumes of journals instead of current one’ has come true as the use of journals are mostly upto the year 1980.

**Hypothesis - 5 :** The hypothesis that ‘Indian journals are most effective means of communication pattern’ has come true with a positive response of approximately 81% of Indian journals.

**Hypothesis - 6 :** The assumption that ‘citation rate is increasing as more literature for use is available’, has become true as expected.

**Hypothesis - 7 :** The assumption that ‘team research is the trend in writing research papers’, came true, since 45% cited documents are multiauthored.

**Hypothesis - 8 :** The presumption that ‘the research scholars have concentrated themselves in there own area in selecting research problem’, is also true as the titles of their dissertations disclosed.
The findings of this work are fruitful in substantiating the objectives of the study. This study will help to examine the nature and growth of research in economics during 1970-1995. It will also help the document lists in providing suitable services for the benefit of the potential users and researchers in economics. It can also serve as a feed back to the librarians in the selection and acquisition of documents, specially journals, most useful to research in economics. Moreover, the following suggestions are provided keeping in view of the need for modernizing research in this changing environment -

(1) The unexplored areas in economics that is relevant to the economics problems in Madhya Pradesh universities in modern days should be brought to the attention of researchers.

(2) The use of primary journals should be encouraged more in research.

(3) Use of current issues of journals should be encouraged.

(4) New media of information sources has to be provided to the researchers, as internet and electronic sources of information are most helpful to research.

(5) For bibliographical citations, a standard pattern, as given in MLA manual, or Chicago manual, or Bureau of Indian standards, must be followed.