Chapter – 3

Bibliometric Researches : A Literature Survey
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Social science 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.

White's sources of Information in the Social Sciences includes history, geography, economics and business administration, sociology, anthropology, psychology, education and political science as the main subjects of Social Sciences. These subjects have, in common, a concern for the behavior of man in relation to his fellows and to the environment they share.

Among the subjects who formed Social sciences, two main tendencies dominated : first was to drive towards unification, i.e. towards a single master Social Science, the second was to drive towards diversification. The latter triumphed with the result that highly specialized disciplines have emerged.

The intent of this chapter is to review the general area of bibliometrics, with special emphasis on the Social Sciences. In the present study “Library and Information Science Abstracts”, a monthly abstracting journal published by Bowker-Saur, London has been opted as the source.

LISA, being one of the prominent abstracting journals in the field at international level, was selected as a database for the present study because it processes material from 60 countries in 34 different languages. It systematically scans approximately 550 journal titles apart from monographic materials (books, reports, conference proceedings, theses and dissertations) and is a comprehensive source of bibliographic information in the field of Bibliometrics since 1964.
Table 3.1 indicates a comprehensive statistics of publications on bibliometrics in Social Science –

Table 3.1

Bibliometric Studies in Social Science
(Source: LISA)
1964-1990

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<td>1</td>
<td>Economics</td>
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<td>2</td>
<td>Education</td>
<td>-</td>
<td>-</td>
<td>03</td>
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<td>-</td>
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<td>03</td>
<td>05</td>
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<td>18</td>
<td>74</td>
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<td>01</td>
<td>02</td>
<td>03</td>
<td>07</td>
<td>81</td>
<td>0.466</td>
<td>5.395</td>
</tr>
<tr>
<td>5</td>
<td>Management</td>
<td>-</td>
<td>-</td>
<td>02</td>
<td>01</td>
<td>01</td>
<td>04</td>
<td>85</td>
<td>0.266</td>
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<td>Political Science</td>
<td>-</td>
<td>03</td>
<td>01</td>
<td>03</td>
<td>07</td>
<td>92</td>
<td>92</td>
<td>0.466</td>
<td>6.127</td>
</tr>
<tr>
<td>7</td>
<td>Psychology</td>
<td>-</td>
<td>-</td>
<td>01</td>
<td>07</td>
<td>13</td>
<td>21</td>
<td>113</td>
<td>1.299</td>
<td>7.526</td>
</tr>
<tr>
<td>8</td>
<td>Sociology</td>
<td>01</td>
<td>05</td>
<td>12</td>
<td>26</td>
<td>15</td>
<td>59</td>
<td>172</td>
<td>3.930</td>
<td>11.456</td>
</tr>
<tr>
<td>9</td>
<td>Other than Social Science</td>
<td>23</td>
<td>131</td>
<td>263</td>
<td>358</td>
<td>554</td>
<td>1329</td>
<td>1501</td>
<td>88.540</td>
<td>99.996</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>24</td>
<td>147</td>
<td>287</td>
<td>412</td>
<td>631</td>
<td>1501</td>
<td>1501</td>
<td>99.996</td>
<td>99.996</td>
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The results given in Table – 3.1 indicates that during the 27 year period (1964-1990) a very few 172 articles have been published on bibliometrics researches in Social Sciences while other than Social Sciences comprised an overall 1329 articles. In order to determine the subjects in LISA during the period total 1501 number of articles published in bibliometric researches throughout the world. The maximum numbers of citation studies were made in 1985-1990. Out of the total 631 studies made during this period, the Social Sciences have only 77 articles on bibliometrics studies.

Only considering the field of Social Sciences, it is evident from the table that sociology is the most predominant subject group comprising 3.93% articles on bibliometrics studies. It is followed in descending order by education (2.19%),
economics (1.53%), psychology (1.39%), geography (1.19%), political science and history (0.46% each). Very few attempts have been made in management, which account of only 0.26%.

This chapter surveys all the citation studies, which could be located for the Social Sciences and attempts toanalyse and synthesize their findings in an understandable and manageable form. There are two general reviews of Social Science citation studies, both appearing in the early 1970s, the work of Broadus and Brittain.

Broadus\textsuperscript{2} suggested that enough citation studies have been completed to produce material for interesting comparison in the Social Sciences. His article surveys all the British and American citation studies. In some cases it was necessary to calculate percentages where the original author had presented raw numbers only. Some times it seemed best to make abstraction of the original studies, or to select parts which were parallel with approaches in similar investigation. For education Broadus obtained a sample of 1,372 citations from the 1950 'Encyclopedia of Educational Research'. He also took all 1016 bibliographic citations in the 1950 volume of the 'American Review'. On the basis of this review, it seems evident that english-speaking social scientists do not depend greatly upon research materials in foreign languages and that in education and business administration they are used practically not at all. This conclusion can be supported by reference to some citation studies made in other branches of knowledge. In term of form, books or non-serials were found to be an important source of citation, ranging from 30.9% in education to 61.5% in sociology. In term of the age of the literature cited, percentage of materials published within 10 years, for sociology is 69.9%.

Brittain\textsuperscript{3}, in his review, includes studies of the growth, size and obsolescence rate of Social Science literature, as well as reference scattering and bibliographic coupling. He used somewhat different terminology for a similar area of research - 'At the systematic level of analysis it is the artifacts of communication created by researchers/teachers that are the units of analysis. These artifacts of communication include citations, articles, monographs and publication papers. Brittain summarizes areas of sociology, economic history and political science, social scientist
make greater use of the older literature than do natural scientists, but in the experimental areas of Social Sciences, the obsolescence rate is closer to that in the natural sciences.

Quinn\(^4\), working with publications in sociology, used forty-seven books issued in 1948 and 1949 as listed in the United States Quarterly Book list. He gathered a sample of 3018 citations. Meier\(^5\), also in sociology, used six journals published in 1947 and 1948, resulting in a sample of 2993 citations. Brown and Gilmartin\(^6\) estimate that, languages cited by social scientists ‘three-fourths of today’s research in sociology has its setting in the United States’. Lin and Nelson\(^7\) found the percentages of citations referring to books ranged from 42 to 56. These proportions take on meaning when compared with data obtained from citation studies in other disciplines.

Guttsman\(^8\) used as sources 116 articles published in eight representative British journals, found that about 87.7 percent of the references were in english, and forms of publication cited from general Social Sciences, found 43.9 percent ‘treatises and monographs’. Earle and Vickery\(^9\), in a study, which included science and technology, gathered 23,228 citations from Social Science books and journals published in 1965 but their analysis was based largely on their 13,412 references to Social Science literature. They found that subjects of the citations in Social Sciences 57.7 percent and languages cited by social scientists using english 89 percent and forms of publication cited found that 46.2 percent from books.

Mark\(^10\) likewise studied citations relative to economics, but used a sample of 3471 citations found in ten of the field’s representative journals published the years 1945-1950. For economics he found forms of publication cited were using 47.6 percent monographs and age of literature used ‘1 of 2 published within six years’. Mark’s references from economics journals show a higher concentration both in the special subject. Livesay\(^11\), also started with the 1949 United States Quarterly Book list, and examined thirty-nine economics books as sources. Taking approximately seventy-five citations from each, she had 2871 references to analyse.

Sarle\(^12\) drew a sample of 1095 citations from nine journals of business administration, using chiefly articles published in 1956. He found that 32.6 percent of
the references were to ‘monographs’ and age of literature used within 10 years 56.2 percent. Martin\textsuperscript{13} used as his sources forty-six books listed in the law and political science section of the United States Quarterly Book list. These source books were published in 1948 and 1949. He sampled the citations; the number chosen for analysis was 3024. In political science, he found 47.6 percent of materials published within ten years. Martin discovered that in english-language political science publications 89.4 percent of the citations referred to english materials.

Miwa and Ueda\textsuperscript{14}, analysed Social Science Citation Index 1977 and 1972 citations in economics, education, law, politics, psychology and sociology. Data analysed includes number of references per article, forms of references, obsolescence, title and subject dispersion. They found the number of references to periodicals increased and references to books decreased between the two years. In economics older references tended to be used, nearly 40\% of the references being from the top ten cited journals. Bush\textsuperscript{15} identified 14 most important journals and compared this result with the data of a Delphi study, finding similar results. Eagly\textsuperscript{16} study showed that core journals have a degree of emphasis on theoretical fields, and serve as network feeders.

McDonough\textsuperscript{17} compared several criteria of journal quality, including institutional affiliation of authors, peer evaluation especially familiarity, reading list citations and journal citations. She concluded that the best estimate of the true ranking is provided by the order of the sums of the ranks of these various criteria. However, due to the larger number of new journals in the early 1970s in economics, the relative rankings may be changing. Hawkins\textsuperscript{18} suggests that the subject content and network function of his analysed publications is undergoing increased specialization that is also reflected in the increasing number of economic journals since 1961. This trend would imply growing compartmentalization of the economics profession. It may also signify the coming demise of the general journal.

Aina\textsuperscript{19} describe the use of SPSS (Statistical Packages for the Social Science) in a bibliometric study of the bibliography of scientific research in Nigeria. Doreian\textsuperscript{20} analysed two journal-to-journal matrices for psychology in 1950 and 1960 in terms of structural equivalence. Structurally nonequivalent positions have a strong
correspondence with a categorization based on the intended audiences and objectives of these journals, supporting the hypothesis that journals of a discipline function as a status-role relational system. It supported the hypothesis that inter-disciplinary journals are distant from journals of a field, but not the hypothesis that journal networks have a core-periphery structure. The network of psychological journals has a discernible core, but not a clear core-periphery structure.

Ormaner\textsuperscript{21} has compared the names of the authors most cited in journals. He has tried to focus upon a comparison of the most important influential in contemporary American and British sociology. This comparison will span a time period of eleven years, 1958-1968. If sociology were becoming ‘global’ or ‘international’ one would expect that this process might first be found in the case of the United States and Britain. He has compared the name of the men most cited in the ‘American Sociological Review’ and the ‘British Journal of Sociology’ for two time periods; 1958-1962 as period I and the time period 1967-1968 as period II. He found that the lists for the second time period contained a larger number of names in common than the list for the first period. These findings were interpreted as support for the thesis that sociology is becoming more internationals.

Rana\textsuperscript{22}, a citation study has been made from a sample of 272 articles published in the man in India, during 1970 to 1979 to find out the trend in citation pattern in Anthropology. The study reveals that the authors consult mostly the literature in the english language, mostly books are cited and most of them are from their own subject. Most of the citations are more than one decade old. Over\textsuperscript{23} assessed relationships between age and scholarly impact by determining the number of times single author articles published in ‘Psychological Review’ between 1965 and 1980. There were substantial individual differences in citation rates. Although the majority of articles in ‘Psychological Review’ were published by authors under the age of 40, such a bias is to be expected in terms of the age distribution of American psychologists. When allowance was made for the number of authors in different age ranges, older authors were no less likely than younger authors to have generated a high-impact article.
Peritz\textsuperscript{24} reviewed the changes in the characteristics of the demographic literature between 1964 and 1984, by means of statistical comparison of the entries in 'Population Index' for the subjects pertaining to population movements, the development of epidemiological research, the rising cost of book production and the increasing use of English language in foreign journals. Cozzens\textsuperscript{25} examined the authors citation works in his papers and observed many documents are standard symbols for single concept, but others are used in connection with multiple concepts.

Hasso\textsuperscript{26} found by citation analysis that archaeologists cite journal materials less than non-journal materials. He further discussed that Bradford-Zipf studies show a rather high average time lag between publication of an article and its appearance in the secondary service. The relationships between Social Science disciplines were the focus of the work by Hamelman and Mazze\textsuperscript{27}, summarized in several articles in the early 1970, in their exploration of cross citation patterns.

Oromaner\textsuperscript{28} study explores the role of articles published in three core general sociological journals during 1960 and 1973. He suggested that citation from subsequently published articles indicated the extent to which publication plays an integrating role in discipline. They are American Sociological Review, American journal of Sociology, and Social Forces. Line and Roberts\textsuperscript{29} dealt with the size, growth and composition of Social Science literature upto 1973. The data were gathered as part of a wide-ranging project concerned with the Design of Information Systems in the Social Sciences (DISISS). The base used for most of the calculations was a file of Social Science serial titles collected especially for the main research project, as it was found that no published list was adequate for the purpose. The data were supplemented by other sources : Ulrich's serial directories, the UNESCO statistical yearbook, and the world list of Social Science Periodicals. The average annual growth rate of Social Science serial titles between 1820 and 1870 was 3.44 percent per annum. Between 1870 and 1900 it was 3.63 percent per annum, between 1900 and 1940 it was 3.08 percent per annum and between 1950 and 1970 it was 3.35 percent per annum, so it seems as if there has been a slight acceleration of growth since the second world war.
Persson has analyzed the publication of articles by Scandinavian authors using Social Science Citation Index. An on-line research in SSCI revealed stagnation of article production from the Scandinavian countries during the late 70s. This may be due to increase of applied research, financed by non-traditional research council. Economics is the discipline that produces the largest number of articles in non-Scandinavian journals. Sociology is much more oriented to a Scandinavian journals, even when they are in english, are mainly cited by other Nordic periodicals.
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