CHAPTER V

FINDINGS, SUGGESTIONS AND CONCLUSIONS

The study of Bibliometrics is popular because it helps to improve scientific documentation, information and communication activities by quantitative analysis of library collections and services. It is observed to be one of the best way in getting knowledge of scientific productivity of individual authors/scientists, institutions and journals and to study the pattern of growth of literature and nature of research publications, age of literature used, information needs of scientists, etc. The generated information will help the policy makers and experts in taking decisions.

The present study has been undertaken to assess the research performance in nine Economic Journals. Analysis have been made from the point of view of their growth, collaboration in research, countries contribution to research output and many other such characteristics. From the analytical study used by the researcher the following conclusions and recommendations were made.

5.1 Findings

5.1.1 Growth of Literature

The growth of literature of nine economic journals as a whole did not show any specific pattern. There was no steady growth in terms of productivity throughout the period of study. Though there was no steady growth rate, from 2004 onwards there was a slight upward trend. There was an increase in the number of publications from 2001 onwards. The percentages of output in 1986 were 4.01 which rose to 4.56 percentages in 2010 (Table – 4.2).
5.1.2 Relative Growth Rate and Doubling Time

The analysis showed that there was a declining trend in the growth rate. Contrastingly, doubling time for publications was increased. The RGR in 1987 was 0.661 and it was in 0.05 in 2010. The doubling time was in 1.048 in 1986 was doubled to 14.84 in 2010. (Table 4.3).

5.1.3 Year-wise Distribution of Annual Research Output Vs Pages

It was observed that there was an increasing trend in the quantum of research output for the period 1986-1997. The growth of annual research output was increasing steadily, which was accounted from 446 to 513 during 1986 to 2009. The study revealed that the year 2010 recorded highest output. The year wise analysis over the study period revealed that the average number of pages per contribution for the total output was recorded as 18.68 (Table 4.4).

5.1.4 Journal-wise Research Output of Economic Journals

It was found from the analysis of journal wise distribution that American Economic Review ranks first in order by contributing 37.15 percentage of total research output taken for study. The Journal of Finance occupied second place which shares 17.47 percentages. The Quarterly Journal of Economics and Review of Economic Studies contributed almost same percentages ranging from 9.93 to 9.44 respectively and there by ranking third and fourth place. Economica stood fifth position contributing 7.72 percentages. Journal of Economics and American Economist ranked sixth and seventh place in order contributing 6.57 and 5.36 percentages respectively. The eighth place was occupied by Bulletin of Economic Research which contributed 4.95 percentages. Journal of Economic Literature got ninth place contributing to 3.38 percentages. It was found out that there
was no relationship between the periodicity and total number of articles published. AER and JOF have a periodicity of 6 issues per annum which recorded high percentage of articles published. At the same time Journal of Economic Literature has 9 issues per annum but has 3.38 percentages. American Economist has 2 issues per annum which have 5.36 percentages. The participative index was calculated (PaI) for nine Economic Journals. The mean, standard deviation, Coefficient variation were also calculated. AER had high PaI and got 35.17 percentages and also stood first. The lowest percentage of PaI was in JOEL (3.38 percentages) (Table 4.5).

5.1.5 Year-wise Distribution of Annual Research output Vs Research Pages

There was an increasing trend in the quantum of publications in pages from 1986 to 2010. The average number of pages in 1986 was 12.15 percentages and in 2010 it was 23.07 percentages. The total pages of publications in 1986 were 5419. It increased two times by the year 2010 which was calculated as 11697 pages. The publications of pages remained almost constant for four years from 1986 to 1989 where the research output of pages was 5419, 5482, 5482 and 5554. There was an increase from 6743 pages (13.08) to 8126 (17.00) from the year 1990 to 1992. The year wise analysis over the study period revealed that all the years except for 1999 and 2000 recorded increasing trend in growth of pages. The average number of pages per contribution for the total output of publications was found as 18.68 percentages. (Table 4.7).

5.1.6 Distribution of Research Output by length of Pages

A total of 1870 articles of nine Economic Journals were in the page range of 16-20 which contributed highest percentage denoting 16.83 percentages. 1438 publications had
very close to the page range of 21-25 (12.94). Fewer publications were in the following ranges 46-50 to 71-75 which had low percentages contributing 1.24 to 0.04. It was found that 1870 publications occupied first place and had a page range of 16-20. (Table 4.8).

5.1.7 Length wise Distribution of pages in Economic Journals

Out of 596 publications, 165 articles had a page range of 1-5 pages in AE, 265 publications had 6-10 page range. Very few articles were in the page ranges of 21-25 to 30-35. The average page length of AE was 5.36 percentages.

The AER published 1098 articles ranging 1-5 pages and 1058 ranging 6-10 pages against its total publication of 3907 over the study period.

BER journal’s pages ranged from 1 to 55 and the highest percentage of articles were in the range of 6-10 pages. Out of the total publications of 550, 141 publications had a page range of 1-6 pages and 119 had the page range of 11-15.

Econmica’s pages ranged from 1 to 50 and the largest number of contributions was in 16-20 pages which accounts for 257 articles. The page range of JOE was from 1 to 50. A total of 179 articles had a page range from 21 to 25 and 174 articles pages ranged from 16 to 20 pages. The average page range in JOE was 6.57 percentages.

The JOF had a page range from 1 to 60 and 349 articles were in the page rage of 16-20 pages. 317 articles had a page range of 26 to 30, 298 articles 21-25, 243 articles had a page range of 11 to 15 pages, 172 had 36 to 40 pages, 118 had 6 to 10 pages, 111 articles had a page range of 41-45. The average page range in JOF was 17.47.

The page ranges of JOEL were from 1 to 75 and 44 articles had the highest range of 36-40. Out of 1103 articles, 168 articles’ pages ranged from 26-30 and this journal also had range from 1-5 to 66-70. The average page range in JOEL was 3.38.
QJE pages ranged from 1 to 75 pages. Out of 1103 publications, 168 publications had the page range of 26-30, 162 publications have 31-35 and 155 have 36-40. Its average percentage is 9.93.

RES had its pages ranged from 1-5 to 50- 55. Out of 1049 publications 240 had page range of 16-20, 233 had 21-25. The average percentage of page range was 9.4 in RES. AER had the highest average of 35.17 percentages. JOF occupied the second place and its average length of article was 17.47 percentages.

QJE and RES occupied the third and fourth position since the average percentage of QRE and RES were 9.93 and 9.44 respectively. Economica got fifth position of having 7.72 percentages and JOE had got 6.57 percentages which was placed in the sixth position. AE had got 5.36 percentages and BER had got the eighth position by having 4.95 percentages. JOEL got last and ninth position of having 3.38 percentages (Table 4.9).

5.1.8 Authorship Pattern in Economic Journals

Out of 11110 publications during 1986 to 2010 the percentage of single author contribution was 43.51 percentages. (4834 contributions) 40.95 percent belong to co-authors. The total numbers of articles contributed by two authors were 4550 which had 40.95 percentages. The three authored contributions were 13.26. There were 2.05 percentages of four authored contributions and the five authored contribution was much less to 0.23 percentages Table (4.11).

5.1.9 Degree of Collaboration

The degree of collaboration in 1986 was 0.41percentages which had increased to 0.74 percentages in 2010. There was continuous increase from 2003 onwards where the degree of collaboration increased from 0.65 in 2003 to 0.74 percentages in 2010(Table 4.12).
5.1.10 Journal-wise Distribution of Degree of Collaboration

It was noted that Single authored papers ranked first in order sharing 70.47 percentages. Two authored pattern ranked second position contributing 23.83 percentages and there was no five authorship pattern. The single authorship and the two authored publications were more or less same in AER. The three authored contribution was 12.6 percentages and 0.2 percent was the five authored contributions. In ECO and JOE the single authorship was same 47.5 occupying the First position in contributing the publications.

In BER journal, the contribution of single authorship contribution was 58.9 whereas the two authored contribution was 33.4 percentages. In JOF two authored contribution ranked first position by contributing 45.8 percentages. Three authorship patterns in JOF were 22.6 percentages and the four authored contribution was 3.36 percentages.

Single authored publication was 64.6 percentages in JOEL. Two author pattern had 27.9 percentages and 7.18 had three authored publication. Two authorship patterns in QJE occupied first position there by contributing 46.3 percentages. Single authorship contribution was 35.2 which were placed in second order of rank. 14.5 was the three authorship pattern and the five author contribution was 0.63.

In RES 43.6 was the two authored contribution and 41.2 percentages were the single authorship patterns. The three authored contribution was 13.6 percentages. In five authorship pattern, all the journals had less than one percentage (Table 4.13).

5.1.11 Citation Analysis

Ten bibliographical formats were observed by the researcher from the citations of 11100 articles. Nine economic journals contained 217898 journal citations. Out of

There was an increase in the citation of Journals by authors from 6033 in 1986 to 12352 in 2010. This showed that the authors cited more journals and it was nearly three times higher. Journals occupied 77.14 percentages of all other bibliographical formats. In 1986 the authors of nine Economic Journals had cited 1421 books which showed an increasing trend from 1986 to 2010 (2423). The citation of books constituted 16.21 percentages of the bibliographical formats (Table 4.1)

5.1.12 Journal wise Citation analysis

The citations in AE increased from 163 in 1986 to 355 in 2010 and its percentage was 2.96. AER used 74259 bibliographical forms of citations contributing 26.29 percentages. There was no constant increase in the citations used throughout the years. Except the years 1989, and 1994, there was an increase in the use of citations by authors and the utilization of cited documents increased from 2239 to 4494.BER used 11606 citations contributing 4.11 percentages. There was an increase in the Citations in ECO from 374 in 1986 to 1338 in 2010. However there was a fall in the use of citations used in the year 2010 contributing to 648 citations. JOF used 14366 citations over the study period and it occupied second place having 19.42 percentages of citations. JOEL used 37705 cited documents amounting to 13.35percentages. The authors in QJE used 32275 bibliographical formats constituting 11.43 percentages. RES had 28266 citations having 10.09 percentages of citations.
5.1.13 Citation per Article

The nine Economic Journals selected for study contained 11110 publications and 282466 citations. The average rate of citation per article (C/A) was 25.42. But rate of citation varied from 2.12 to 75.79. Among the journals, Review of Economic Studies contained highest number of citation per article (C/A 75.79. Journal of Finance had 75.15 percentages per article followed by Journal of Economic Literature (C/A 63.26) (Table4.20).

5.1.14 Country wise Distribution of Articles

The continent North America ranked first by contributing 14138 (72.91) articles. Europe stood second position by contributing 4096 (21.12 percentages) Publications. Asian continent was in third position contributing 935 publications. Australian continent contributed 192, South America 26 and Africa 3 publications and being placed fourth, fifth and sixth respectively (Table 4.23).

5.1.15 Country wise contribution in Economic Journals

USA was the major contributor to AE contributing to 684 articles. Israel was in second place by contributing 36 articles and Taiwan got published 22 research articles during the Period of study. Japan, South America, Hong Kong, Thailand, UAE, Austria, France, Greece, Italy, UK, Ethiopia, South Africa and Canada contributed their research output to AE and their total contribution was 4.82 percentages.

Authors from 19 countries contributed to AER,. USA occupied first place by contributing 5710. UK was in second position by publishing 319 articles. India’s contribution was nil in this journal.
UK was the major contributor in BER. A Share of 164 publications from USA was in second position in this journal. Notable contributions were made by Japan, France, Germany, Greece, Italy, Spain, Canada and Australia during the study period.

Germany ranked first in JOE by contributing 211 contributions. Japan had its contribution of 152 authors finding second place in JOE. Out of 730 authors in JOE, 135 authors were from USA, 86 authors from UK, 77 authors from Italy had contributed to this journal. India had its contribution of 30 authors.

Major Share of 3300 authors from USA had contributed to JOF occupying the first place. UK was in the second place of 168 author publications. It was worth mentioning that 104 authors from Hong Kong contributed their publications in this journal. India contribution was very less compared to other countries.

USA was the major contributor in JOEL journal by having 457 contributions. The second position was occupied by authors from UK. Canada contributed 12 contributions.

USA was the major contributor in QJE and UK occupied the second place in contributing 110 authors. Indian authors had not contributed in this journal.

In RES journal also, USA is placed first place contributing to 1220 authors followed by UK. Nine authors from India contributed their contributions to this journal. 83 from France and 36 from Germany had their contributions in this journal.

Geographical analysis revealed that during the period of study, contributions from USA had more publications in all journals except JOE and BER. India’s contribution was very little and its authors had contributed only to BER, JOE, JOF and RES Journals (Table 4.23).
5.1.16 Institution-wise contribution of Economic Journals

Financial institutions contributed 98.14 percentages and Academic institutions came in the second place there by contributing 93.66 percentages. Research institute contributed 84.2 and the last was the University’s contribution contributing 77.9 in the total output. Others occupied 1.86 percentages in the total contribution (Table 4.24).

5.1.17 Subject-wise Distribution in Economic Journals

The total output of 11110 publications was classified and the highest contributions were in Public finance contributing 23.1 percentage of the total output and it was placed first in order. Micro Economics occupied second position thereby contributing 19.38 percentages of the total output. Health, Education and welfare came in third position by 9.46 percentages and Macro Economics and Monetary policy stood fourth position by contributing 9 percentages. Mathematical and quantitative methods occupied fifth place by contributing 7.43 percentages. Financial economics was in sixth place by contributing 7.02 percentages and International Economics was in seventh place contributing 6.2 percentages (Table 4.26).

5.1.18 Subject wise Distribution in Individual Journals

AER publications occupied 35.17 percentages in the total output of the publications. Micro Economics in AER placed first position contributing 22.27 percentages.

The study observed that BER got more publications in Micro Economics (24.27) Health Education (15.64) and Welfare and Public Finance (15.09). Macro economics and Monetary Economics contributed 12.36 percentages in the total output of BER.
Public Finance stood first in ECO by contributing 15.03 percentages. Labour and Demographic economics was in the second place by contributing 13.99 percentages.

32.33 percentages of the publications of JOE were in Micro Economics. Public Finance got second position contributing 13.29 percentages. Macro Economics and Monetary Economics occupied third position by contributing 7.95 percentages.

Out of its total publications, JOEL contributed in Micro Economics by contributing 23.67 percentages and 10.11 percentages in Macro Economics and Monetary. 9.84 percentages of contributions were in Mathematical and Quantitative Methods.

QJE concentrated on Mathematical and Quantitative Methods by contributing 29.10 percentages. Public finance stood in the second place by producing 12.96 percentages of its publications. Micro economics occupied third position by contributing 11.33 percentages.

Micro Economics had got significant contribution in RES by contributing 32.7 percentages and mathematical and quantitative methods occupied 16.3 percentages and stood second place. Macro Economics and monetary economics concentrated 8.87 percentages of its total output.

The subject head, Micro Economics got significant contribution in RES by contributing 32.7 percentages and Mathematical and Quantitative methods occupied 16.3 percentages and stood in the second place (Table 4.27).

5.1.19 Subfields in Economic Journals

Fiscal policies got the second position by contributing 21.68 percentages. National Government expenditure related policies had got 17.17 percentages which forms third position in the subfield. National Budget Deficit and Debt contributed to 15.57 percentages (Table 4.29)
5.1.20 Users citing EBSCO

AER had been cited at 28 percentages. QJE had been cited at 17.75 percentages occupying third position; RES and JOEL stood in the fourth and fifth position citing 7.75 percentages and 7.21 percentages respectively. JOE had been cited by the users at 6.99 percentages occupying sixth position. ECO had got the seventh position having 1.68 percentages and AE had got eighth position with 0.20 percentages (Table 4.30).

The researcher has framed six hypotheses based on the objectives of the study. These formulated hypotheses were tested using various statistical tools.

The first formulated hypothesis “There is no significant relationship in the research output among the journals” is identified and validated (Table 4.2)

The second formulated hypothesis” Co-authored articles are much higher than the Single Authored articles” is also identified and validated (Table 4.12)

The third formulated hypothesis” There is no significant relationship between the number of citations and number of research output.” is also identified and validated (table 4.17)

The fourth formulated hypothesis “the relationship between the journal citations and research output is much higher than the relationship between the book citations and research output” is formulated and validated by using correlation coefficient and the significant value as $r=0.557$ (Table 4.21)

The fifth formulated hypothesis “Indian Authors contribution in the selected economic journal is much lower than the other countries” is identified and validated (Table 4.22)
The sixth formulated hypothesis that,” Articles related to Public Finance are much higher than the other subject headings is also validated (Table 4.25)

5.1.21 Bradford’s Distribution of Ranking

A study was undertaken to find out the Core Journals in all nine Economic Journals. The citations of nine Economic Journals were analysed for this study. Bradford’s Core zone was identified and semi log graph was drawn using MATLAB. It was found that American Economic Review was considered the Core Journal in nine Economic Journals except Journal of Finance. The Journal of Political Economy occupies as the second core Journal. The Review of Economic Studies occupy the third position in the nine Economic Journals

5.2 Suggestions

The following suggestions are recommended based on the findings of the study

- It is suggested that each journal should have a specific plan of increasing their research output through certain norms.
- The publishers of the Journals can have a tie with notable institutions and encourage the publications.
- Publishers of various journals should encourage the international regional wise publications
- The publication details can be noted in the web sites of other countries.
- A special area of research can be encouraged not as a separate volume in every year
- The details of authors, Journal, Volume, Number etc in the abstract of the EBSCO database can be differentiated more clearly. Reference details can also be added in the abstract itself or a link can be given in the abstract itself.
• Address of the authors can be also made clear in the abstract itself.

• Indian Contributions almost in all Journals are very less. There are no contributions in some of the journals. There is a need to come up with a National Plan where low publication productive institutions can be encouraged to publish in international journals. They can be linked with bigger institutions within their geographical regions and there by jointly publish their publications.

• Efforts should be made to encourage educational institutions to publish their articles in relatively higher impact journals.

• The opportunities for international collaboration in publications can be enhanced.

• Organizing more Seminars, Symposium, Conference proceedings with these publishers inside India and encouraging the participations of authors is also needed.

• Encouraging the authors to tie up with Publications of these Journals through establishing a permanent body

The research on bibliometric analysis are mostly concentrated with the data available in EBSCO database with regard to growth of publications, authorship pattern, authorship collaboration, Citation analysis, Continent wise distribution of Publications, Institutional wise distribution of analysis and subject analysis. This study appears to be a landmark to enhance further research

5.3 Area of Further Research

The present study is carried out based on the research output of nine Economic Journals.
It is suggested that this study can be extended to test the Lotka and Broad ford laws. The citations of twenty five years can alone be taken for research. Self citation, Citing and Non-Citing Citations, Doubling time, Time lag can be applied separately and research also can be encouraged in this field also. Research can be done on subject dispersion. The analysis of the present study further reveals the applications of statistical techniques and tools that facilitate future researchers to test.