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Measuring Research Excellence with Two Journals in Social Sciences: A Scientometric Sketch

BIPIN BIHARI SETHI
Sambalpur University,ODISHA,INDIA, bipin_bihari_sethi@hotmail.com

Krushna Chandra Panda Prof.
krushna52@yahoo.co.in

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[1]Bipin Bihari Sethi
[2]Prof. K. C. Panda

Abstract

In view to measure the scientific temper of publication output and to examine the citation pattern in the area of social sciences, 1000 papers drawn from Science Direct Database from the period 2006-2010 for the present piece of study is experienced. In order to serve this purpose the focus has been centered on the analysis of trend of publications, citation and ranking patterns, and global publication profiles in the faculty of the study, and extensively, an attempt has been made to explore the strengths and weakness of different productive countries, affiliated organizations, and the most productive researchers, considering the quantum of their respective research publications. The core findings indicate that, the momentum in quantum of publication output and the participation of number of researchers in research and development has already been accelerated generally in social sciences, specifically, in Political Science at a vertical direction. USA has been proved as a most productive country with 52.6 and 44.8 per cent papers among 27 and 24 participative countries in both journals such as: 'CPCS' and 'ES'. Besides, the period 2006-2010 has identified as one of the most productive time zones having highest 62.8 and 57.5 percent papers contribution to each journal respectively. Additionally, it is noticed that, the single author publications are dominant in 1st journal 'CPCS', while a highest number of papers in 2nd journal 'ES' are found to be co-authored which is dominating over single authorship pattern. Nevertheless, the most participative institutions in publication in both journals are significantly representing to the highly productive country 'USA' is graced to be worthiest, as the study unfolds.

Keywords: Social Sciences; Scientometrics; Research out put; Authors productivity; Degree of collaboration; Authorship pattern; Citation pattern; Productive countries and Institutions; Prolific Authors; Science Direct; Scholarly Publications; Research Excellence, Productometric analysis.

Bibliometrics, Scientometrics, Citation Study, and Content analysis are the concepts supplementary and complementary to each other in their respective applications in the domain of research which are most popular tools extensively used in the field of Library and Information Science. This technique has been applied in the present study to evaluate Social Sciences research productivity at a global context for obtaining necessary inferences.

To avoid confusion it would be worthwhile to point out here that, though the data undertaken from papers indexed in Science Direct Bibliographic Database top 25 hottest papers covering the time period 2006-2010, but the growth pattern of publications across several time zones as indicated in this paper are variably denotes the period 1996-2010, because, the papers are appeared in the top 25 hottest papers site under the period 2006-2010 which were actually published in the 1st journal (CPCS) and also in 2nd journal (ES) within the period 1996-2010. Hence, the growth pattern of papers is made considering their actual year of publication in the concerned journals instead of taking into account the year under which the papers appeared in Science Direct Database hottest papers site.

1. Introduction

Bibliometrics and scientometrics are the two closely related approaches for measuring scientific publications and science in general, respectively. In practice, much of the work that fall under this header involves various types of citation analysis, which looks at how scholars cite one

[1] *Prof. B B Centrak Library,Sambalpur Universuty, Jyotivihar-768019, Burla (Odisha), India, Email: bipin_bihari_sethi@hotmail.com, bbs21111967@gmail.com, Ph. 91-7377136122 (M)*

[2] *Former Professor & Head, P G Department of Library & Information Science, & Dean, Faculty of Arts, Sambalpur University, Jyotivihar-768019, Burla (Odisha), India, Email: krushna52@yahoo.co.in*

another in publications. In the context of this toolkit, bibliometrics are also one of the key ways of measuring the impact of scholarly publications. 'Scientometrics' is often done using bibliometrics which is a measurement of the impact of (scientific) publications. Modern scientometrics is mostly based on the work of *Derek J. de Solla Price* and *Eugene Garfield*. The latter founded the Institute for Scientific Information which is heavily used for scientometric analysis. Methods of research include qualitative, quantitative and computational approaches. (*http://en.wikipedia.org/wiki/Scientometrics/ accessed on 15.12.11*).

Over the years, the Scientometric techniques have become tools to evaluate the productivity of research institutes, individual researchers and to map the growth of the respective subject. Publication and citation counts are being extensively used for evaluation purpose (*Koganuramath et. al., 2002; Davarpanah, 2009; Bechhofer et. al., 2001;* and *Thanuskodi, 2010*). The studies undertaken by the above researchers comprehensively focus on the assessment of strengths and weaknesses in the Social Sciences research performance in an international context and discussed the identification of patterns of scientific development, particularly the mapping of research activities of varied organizations, institutions, scholars/researchers, etc.

2. Review of Literature

The internationalization of social science research in developing countries mainly takes the form of a growing dependence on citations of papers produced in Europe and North America, and can be measured by the geographical origins of the references in social science journals (*Gingras and Mosbah-Natanson; 2010*). Internationalization thus, tends to reinforce the centrality of the West over the rest of the world.

The hegemony of the North in the social science production is not only obvious from a linguistic standpoint. Four countries – the USA, the UK, the Netherlands and Germany – produce two-thirds of the social science journals registered in the most encompassing of the social science journals' databases. North America alone produced in the last ten years more than half of the social science articles registered in the Thomson SSCI database. Europe is the second producer, and published almost 40 per cent of the world's social science articles in the past decade (*Gingras and Mosbah-Natanson; 2010*).

Nevertheless, the contribution of other regions is growing. Oceania, Latin America, and Africa, each contribute less than 5 per cent to the world production of articles. But the Asian share of world social science published papers has increased manifold, particularly in the past decade. It represents almost 9 per cent of the world production. Chinese and Japanese are respectively the fifth and sixth languages used in social science journals. China's growth is in good part due to the production of researchers with Chinese surnames outside of mainland China, and visible especially in some subfields such as management science (*Jonkers; 2010*). The Russian Federation is the principal country whose social science output is failing to increase, hence needs introspection.

Social science production and collaboration retain a very strong core–periphery pattern and have a highly asymmetrical structure of exchange. But there are signs of gradual change (*Frenken, et. al.; 2010*). What will locally produced knowledge become in the light of this uneven process of internationalization? Answering this question will require a careful study of the gradual changes in the social sciences' world structure, and there need to be more regional and discipline-specific studies (*Russell and Ainsworth; 2010*).

Kahn (2010) presented the basic statistics on the production of social sciences that, the SSCI captures some 2,800 journal titles, while ***Scopus Social Sciences*** covers close to 4,000. The combined Scopus subject areas of 'Social Sciences', 'Economics, Econometrics and Finance', 'Business, Management and Accounting' and 'Psychology' overlap somewhat with the SSCI; Scopus 'Arts and Humanities' is thought to closely match the A&HCI. This is the best that can be done without a journal-by-journal match across the databases. According to the Web of Science SCI-E, SSCI and A&HCI databases for the listed countries, journal article production stands at 889,895, 101,804 and 17,675 respectively for a world total of some 1.1 million. For SCI-E citations, North America and Western Europe account for 64 per cent, Asia and the Pacific 24 per cent, and other regions 12 per cent. For the SSCI, the proportions are more skewed at 85 per cent, 12 per cent and 5 per cent, while, for the A&HCI, the figures are 87 per cent, 7 per cent and 6 per cent respectively. On the SCOPUS databases, the distribution for social science is 75 per cent, 17 per cent and 8 per cent respectively, and for Arts and Humanities 80 per cent, 11 per cent and 9 per cent. It appears that the SCOPUS database indexes journals that are more popular with authors outside North America and Western Europe.

3. Scope and Objectives of the Study

The scope of the study is encompassed to two international journals viz., *"Communist and Post-Communist Studies (CPCS)"* and *"Electoral Studies (ES)" index*ed at Science Direct Database under the heading Top 25 Hottest Articles during the period 2006-2010 in the field of Social Sciences. The study accounts a total of 1000 articles adding 500 (five hundred) from each journal. The specific objectives of the present study holds to determine the following key issues are:

i. Nature of Authorship pattern in Social Sciences;
ii. Single Vs Multiple authored papers;
iii. Geographical Distribution of publication;
iv. Growth pattern of literature;
v. Most productive authors of top countries;
vi. Degree of collaboration of authors;
vii. Degree of citation of articles; and
viii. Study of length of the papers.

4. Methodology Employed

Data on papers published in the above two journals such as: *"Communist and Post-Communist Studies (CPCS)"* and *"Electoral Studies (ES)"* was collected from each downloaded articles from Science Direct on-line Database and each data was examined identically. All papers

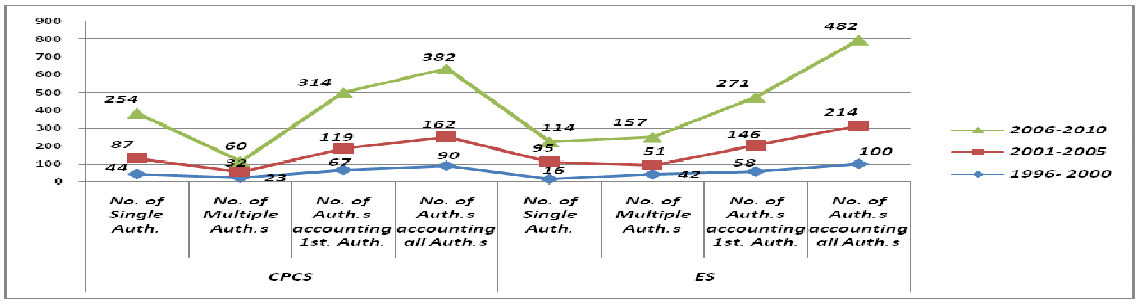
included in the analysis which are indexed under the top twenty five hottest papers site from 2006-2010. Each item of information processed by developing a database of 1000 down loaded records (500 from each journal) adding essential fields viz. journal title, article title, 1st author, number of authors, affiliation with institutions, country of origin (considering 1st author), year of publication, number of citations, length of papers and ranking pattern, etc. using the MS-Excel spread sheet. It may be noticed here that, out of 500, only 25 records of journal *"ES"* lacks information about institutional affiliation and country of origin in abstract site, although, those papers have been considered under the gamut of the present study. Since, reference counts are not freely available with the abstract site the investigator did not able to analyze the reference pattern of the papers. Finally, all relevant data are then sorted, tabulated, and assimilated in a logical order to draw inferences for the present research.

5. Data Analysis and Discussion

Table-5.1: Authorship pattern and Degree of Collaboration

Year	1. Communist and Post-Communist Studies (CPCS)						2. Electoral Studies (ES)					
	Authorship Pattern of Papers'						Authorship Pattern of Papers'					
	No. of Single Author	No. of Multiple Authors	No. of Authors Considering 1st Author	No. of Authors Considering all Authors	No. of Papers	Degree of Collaboration	No. of Single Author	No. of Multiple Authors	No. of Authors Considering 1st Author	No. of Authors Considering all Authors	No. of Papers	Degree of Collaboration
1996-2000	44	23	67	90	67	*0.34*	16	42	58	100	58	*0.72*
2001-2005	87	32	119	162	119	*0.26*	95	51	146	214	146	*0.34*
2006-2010	254	60	314	382	314	*0.19*	114	157	271	482	271	*0.57*
Total	385	115	500	634	500	*0.23*	225	250	475	796	475	*0.52*

Figure-1: Authorship Pattern of Papers of Journal "*CPCS*" and "*ES*"



The extent of collaboration in research can be measured with the help of multi authored papers using the formula given by Subramanyam (1982).

Degree of Collaboration C= Nm/Nm+Ns

C= Degree of Collaboration

Nm= Number of Multiple Authors

Ns= Number of Single Authors

The *table 5.1* clearly depicts the authorship trend and degree of collaboration of 1000 research papers taking into account two international core journals named *'Communist and Post-Communist Studies (CPCS)' and 'Electoral Studies (ES)'* capturing 500 papers from each. All published papers of 1st journal "CPCS" and 2nd journal (*ES*) which are being appeared in top 25 hottest paper site are broadly grouped under three periodic zones such as 1996-2000, 2001-2005 and 2006-2010 taking into account the actual year of publication of papers in respective journals. From the above periodical statements of literature publication it is ascertained that, the number of 'single author' at each zone of 1st journal are dominating over each relative zone 'multiple authors'. Hence, the result of the degree of collaboration marked below 0.5 clearly proves that, individual research is predominantly commanding over the collaborative research. But, on the other hand in 2nd journal (*ES*), except its 2nd zone, at remaining all 2 zones, the 'number of multiple authors' are dominating over 'number of single authorship'. However, resultantly, it is found from 1st and 3rd zone of 2nd journal research is a collective and participative work, while 2nd zone proves research as an individual practice. The overall result of 'author collaboration' of both journals, however, stands unlikely with one another. The study further unfolds that, in the 1st journal, research remained as an isolated work, while the 2nd journal indicates the same, as a collaborative effort.

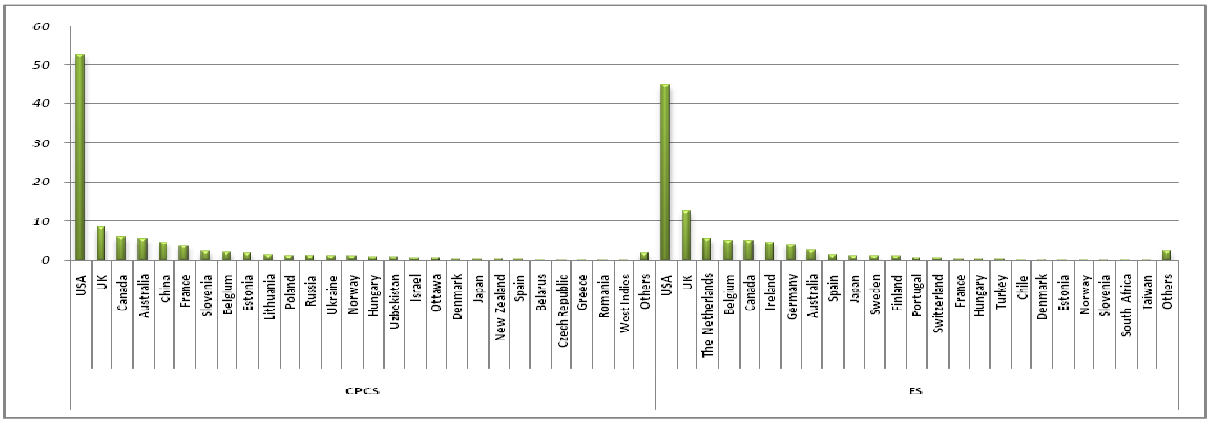
Additionally, from the gathered data of both journals it is found that, each later zone of both journals seen to have ensured a tremendous growing trend of 'author participation' in research work as well as research out put which remarkably signifies a very good sign for future research and development.

Table-5.2: Geographical Scattering of Publications

Rank	1. Communist and Post-Communist Studies *(CPCS)*			Rank	2. Electoral Studies (ES)		
	Country	Literature Production	%		Country	Literature Production	%
1	***USA***	263	52.6	1	***USA***	224	44.8
2	***UK***	42	8.4	2	***UK***	63	12.6
3	***Canada***	30	6.00	3	***The Netherlands***	28	5.6
4	***Australia***	28	5.6	4	***Belgium***	26	5.2
5	***China***	23	4.6	4	***Canada***	26	5.2
6	***France***	18	3.6	5	***Ireland***	23	4.6
7	***Slovenia***	11	2.2	6	***Germany***	19	3.8
8	***Belgium***	10	2.00	7	***Australia***	12	2.4

9	***Estonia***	**09**	**1.8**	**8**	***Spain***	**7**	**1.4**
10	***Lithuania***	**07**	**1.4**	**9**	***Japan***	**6**	**1.2**
11	***Poland***	**06**	**1.2**	**9**	***Sweden***	**6**	**1.2**
11	***Russia***	**06**	**1.2**	**10**	***Finland***	**5**	**1**
11	***Ukraine***	**06**	**1.2**	**11**	***Portugal***	**3**	**0.6**
12	***Norway***	**05**	**1**	**11**	***Switzerland***	**3**	**0.6**
13	***Hungary***	**04**	**0.8**	**12**	***France***	**2**	**0.4**
13	***Uzbekistan***	**04**	**0.8**	**12**	***Hungary***	**2**	**0.4**
14	***Israel***	**03**	**0.6**	**12**	***Turkey***	**2**	**0.4**
14	***Ottawa***	**03**	**0.6**	**13**	***Chile***	**1**	**0.2**
15	***Denmark***	**02**	**0.4**	**13**	***Denmark***	**1**	**0.2**
15	***Japan***	**02**	**0.4**	**13**	***Estonia***	**1**	**0.2**
15	***New Zealand***	**02**	**0.4**	**13**	***Norway***	**1**	**0.2**
15	***Spain***	**02**	**0.4**	**13**	***Slovenia***	**1**	**0.2**
16	***Belarus***	**01**	**0.2**	**13**	***South Africa***	**1**	**0.2**
16	***Czech Republic***	**01**	**0.2**	**13**	***Taiwan***	**1**	**0.2**
16	***Greece***	**01**	**0.2**	**Others**		**11**	**2.31**
16	***Romania***	**01**	**0.2**	*	*	*	*
16	***West Indies***	**01**	**0.2**	*	*	*	*
Others		**09**	**1.8**	*	*	*	*
Total (Rank-16 and Country-27)		**500**	**100**	**Total (Rank-13 and Country-24)**		**475**	**100**

Figure-2: Distribution of Papers by Country of Journals "*CPCS*" and *"ES"*



Provoking into the geographical distribution of literature of both journals "*CPCS*" and "*ES*", the *table 5.2* clearly connotes that, the authors from 27 and 24 countries have shown vigorous interest for publishing literature with both journals. It is proven from above data that, USA is highly prolific and most productive country with 263 (52.6%) and 224 (44.8%) papers in both 1st and 2nd journal, followed by UK pose 2nd productive country in both journals publishing

42 (8.4%) and 63 (12.6%) papers respectively, where as Canada (30, 6%), Australia (28, 5.6%), China (23, 4.6%) and France (18, 3.6%) who respectively stand with 3rd, 4th, 5th and 6th rank in 1st journal. Addressing the productivity of 2nd journal by country the study appraises that, The Netherlands (28, 5.6%), Ireland (23, 4.6%) got 3rd, 5th ranks respectively, while Canada (26, 5.2%), Belgium (26, 5.2%) both got 4th rank contributing equal number of papers. Besides, the remaining 21 countries of 1st journal contributing 0.2 to 2.2 per cent papers got their relative rank 7th to 16th, while in 2nd journal the rest 18 countries published 0.2 to 3.8 per cent papers and reserved their ranks from 6th to 13th at length.

In the concluding remark it may be stated here that, 'USA' is the only and most dominant contributor in 1st and 2nd journal which shares about 50% papers from both journals collectively, while the remaining 49 productive countries of both journals published papers parallel to USA.

Table-5.3: Ranking pattern of Papers

1. Communist and Post-Communist Studies *(CPCS)*									**2. Electoral Studies (ES)**								
Rank	**Name of the Country**	**Scattering of Papers under specified Rank**							**Rank**	**Name of the Country**	**Scattering of Papers under Specified Rank**						
		R 1-5	**R 6-10**	**R11-15**	**R16-20**	**R21-25**	**Total Number of Papers**	**%**			**R 1-5**	**R 6-10**	**R11-15**	**R16-20**	**R21-25**	**Total Number of Papers**	**%**
1	***USA***	**44**	**56**	**51**	**58**	**54**	**263**	**52.6**	**1**	***USA***	**46**	**49**	**40**	**51**	**38**	**224**	**44.8**
2	***UK***	**05**	**07**	**19**	**06**	**05**	**42**	**8.4**	**2**	***UK***	**04**	**14**	**22**	**13**	**10**	**63**	**12.6**
3	***Canada***	**10**	**09**	**05**	**02**	**04**	**30**	**6.00**	**3**	***The Netherlands***	**07**	**05**	**06**	**04**	**06**	**28**	**5.6**
4	***Australia***	**23**	**02**	**02**	**01**	**0**	**28**	**5.6**	**4**	***Canada***	**02**	**04**	**05**	**02**	**13**	**26**	**5.2**
5	***China***	**04**	**03**	**07**	**06**	**03**	**23**	**4.6**	**5**	***Belgium***	**17**	**05**	**01**	**01**	**02**	**26**	**5.2**
6	***France***	**03**	**03**	**03**	**03**	**06**	**18**	**3.6**	**6**	***Ireland***	**08**	**04**	**06**	**03**	**02**	**23**	**4.6**
7	***Slovenia***	**0**	**04**	**01**	**05**	**01**	**11**	**2.2**	**7**	***Germany***	**02**	**06**	**02**	**04**	**05**	**19**	**3.8**
8	***Belgium***	**02**	**02**	**02**	**02**	**02**	**10**	**2.00**	**8**	***Australia***	**01**	**02**	**03**	**03**	**03**	**12**	**2.4**
9	***Estonia***	**0**	**02**	**02**	**01**	**04**	**09**	**1.8**	**9**	***Spain***	**03**	**02**	**01**	**01**	**0**	**7**	**1.4**
10	***Lithuania***	**01**	**04**	**01**	**01**	**0**	**07**	**1.4**	**10**	***Japan***	**01**	**01**	**02**	**01**	**01**	**6**	**1.2**
Other (17) Countries		**07**	**08**	**07**	**12**	**16**	**50**	**10**	**Other (14) Countries**		**04**	**03**	**04**	**09**	**10**	**30**	**6**
No Information on Country of		**01**	**0**	**0**	**03**	**05**	**09**	**1.8**	**No Information on Country of**		**0**	**0**	**03**	**03**	**05**	**11**	**2.31**

origin								origin							
Total	100	100	100	100	100	500	100	Total	95	95	95	95	95	475	100

For the present study, the scholar has downloaded all papers, accounting 500 each of the journal 'Communist and Post-Communist Studies *(CPCS)* and 'Electoral Studies (*ES*)' which are indexed and ranked under Science Direct Database top 25 hottest papers site during the period 2006-2010. In both journals, 'USA' deserves pride rank having been published 52.6 and 44.8 per cent papers of the total publications which deem highest in comparison to other productive countries. The resultant data has shown further that, there is no significant difference in the number of papers contributed to varied ranks by USA authors to both journals. Beside, it is promulgated that, except Canada and Australia, the other 25 countries fail to obtain the highest number of top ranking papers (rank 1-5) as compared to other ranks such as: rank 6-10, 11-15, 16-20 and 21-25 in 1st journal, while in 2nd journal, countries like The Netherlands, Belgium and Irelands became proud enough holding a large number of top ranking (1-5 rank) papers over other related ranks among 24 productive countries as unmasks the *table 5.3.*

Commenting over the concluding result, it may be argued that, though USA is a dominating contributor to both journals yet it lacks highest number of papers under rank 1-5 in comparison to other ranks, but it holds highest number of papers across the whole rank 1-25 as compared to all participative countries accounting both journals.

Table-5.4: Number of expected Authors derived with the value of α=2 using Lotka's inverse Square Law of Scientific Productivity

No. of Papers	1. Communist and Post-Communist Studies *(CPCS)*				2. Electoral Studies (ES)			
	Considering 1st Auth. (unique)		Considering all Authors		Considering 1st Auth. (unique)		Considering all Authors	
	No. of Auth.s Observed	No. of Auth.s Expected	No. of Auth.s Observed	No. of Auth.s Expected	No. of Auth.s Observed	No. of Auth.s Expected	No. of Auth.s Observed	No. of Auth.s Expected
1	37	37	47	47	78	78	133	133
2	19	09	48	12	24	20	80	33
3	06	04	23	05	13	09	68	15
4	13	02	71	03	10	05	61	08
5	05	01	25	02	13	03	112	05
6	03	*	18	01	02	02	30	04
7	04	*	28	*	02	02	35	03
8	04	*	41	*	02	01	19	02
9	02	*	18	*	01	*	11	02
10	01	*	10	*	01	*	20	01
11	03	*	66	*	03	*	43	*
12	02	*	36	*	01	*	24	*
13	02	*	26	*	01	*	38	*
14	02	*	28	*	01	*	28	*

15	*	*	*	*	*	*	*	*
16	**01**	**	**32**	*	**02**	*	**48**	*
17	**01**	*	**17**	*	**01**	*	**17**	*
18	**02**	*	**36**	*	*	*	*	*
19	*	*	*	*	*	*	*	*
20	**01**	*	**40**	*	*	*	*	*
21	*	*	*	*	*	*	*	*
22	*	*	*	*	*	*	*	*
23	*	*	*	*	**01**	*	**29**	*
24	**01**	*	**24**	*	*	*	*	*
Total	**109**	*	**634**	*	**156**	*	**796**	*

Lotka's Law describes the frequency of publication by authors in any given field. It states that the number of authors making n contributions is about $1 / n^a$ of those making one contribution, where a nearly always equals two. More plainly, the number of authors publishing a certain number of articles is a fixed ratio to the number of authors publishing a single article. As the number of articles published increases, authors producing those publications become less frequent. There are 1/4 as many authors publishing two articles within a specified time period as there are single-publication authors, 1/9 as many publishing three articles, 1/16 as many publishing four articles, etc. Though the law itself covers many disciplines, the actual ratios involved (as a function of 'a') are very discipline-specific. The general formula says:

$X^nY = C$ or $Y = C/X^n$,

Where X is the number of publications, Y the relative frequency of authors with X publications, and n and C are constants depending on the specific field $n \approx 2$.

For the present study N≈3 and C≈37 and 47 in 1st journal, while C≈78 and 133 in 2nd journal respectively.

The *table 5.4* delineates the author productivity considering 1st author as well as all participative authors. From the above table it is seen that, in the journal *'CPCS'* 37 and 47 authors have single paper each. Hence, considering above observed author frequency the expected authors might be 37, 9,4, 2, and 1 with expected papers 1, 2, 3, 4, and 5 each, whereas with the consideration of all authors the expected frequency might be 47, 12, 5, 3, 2, and 1 for paper at each account 1, 2, 3, 4, 5, and 6 as well.

As far as 2nd journal '*ES*' is concerned there are 78 and 133 observed authors to have each 1 paper (considering 1st and all authors) respectively. With reference to value 78 observed authors, applying Lotka's Law the expected authors' frequency could be 78, 20, 9, 5, and 3 against their respective number of papers production 1, 2, 3, 4, and 5 each inversely. Moreover, 6 and 7 papers could produce each 2 authors, while 8 papers might produce only one author respectively. On the other hand (considering all authors) 133 authors are observed to have 1 paper each and basing on that value by applying Lotka's Principle the expected frequency of

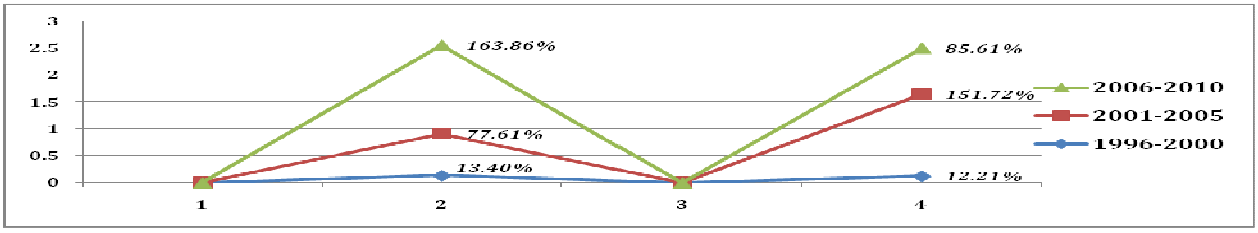
authors would be 133, 33, 15, 8, 5, 4 and 3 with papers each 1, 2, 3, 4, 5, 6, and 7, whereas 8 and 9 would be produced by 2 authors each and 10 number of papers might be produced by only one author respectively.

From the present observation it may be finally concluded that, the authors' contribution pattern of both journals is away from Lotka's Law of Inverse Square, as the study clearly indicates the observed frequency of authors and number of papers stands unlikely with expected authors and their respective productivity frequency which is quite significant.

Table-5.5: Growth Pattern of Literature

Sl. No.	1. Communist and Post-Communist Studies *(CPCS)*			2. Electoral Studies *(ES)*	
	Year	Number of Papers	Growth Rate	Number of Papers	Growth Rate
1	1996-2000	67 (13.4%)	13.4%	58 (12.21%)	12.21%
2	2001-2005	119 (23.8%)	77.61%	146 (30.73%)	151.72%
3	2006-2010	314 (62.8%)	163.86%	271 (57.05%)	85.61%
Total		500	*	475	*

Figure-3: Growth Pattern of Papers by Time Zones of Journal "*CPCS*" *and "ES"*



The study of literature growth pattern is stressed through the present study and measured in order to envisage the growing trend of literature over the years passed out. The above table clearly enunciates that, in the 1st '*CPCS*' and 2nd 'ES' journal there are three time zones such as: 1996-2000, 2001-2005 and 2006-2010 among which the whole 1000 papers are distributed on the basis of their actual year of publication. The 1st zone carries 67 papers, followed by 2nd zone 119 and the 3rd zone has 314 papers of 1st journal which implies that, the growth rate of 2nd zone is 77.61 per cent from 1st zone and the 3rd zone growth rate is 163.86 per cent higher from 2nd zone, while in 2nd journal the growth rate is 151.72 per cent and 85.61 per cent higher from their respective earlier zones as asserted from the *table 5.5*.

As a whole, it may be seen that, both journals literature growth are observed ascension. More over, it is clear that, the 3nd zone growth rate of 1st journal and 2rd zone of 2nd journal are ensured proficient having wider range of gap in literature out put between later zone with respective earlier zone. There is another prime vision in 1nd journal 3nd zone which accumulates a significant growth rate in literature production than all other zones of both journals.

Considering the data of *table 5.5*, Chi-Square (X^2) test is applied to know whether there is any significant difference between two journals in their growth rate of literature.

Let us take the hypothesis hy: h0: 1st journal growth rate is significant. Formula for $X^2 = (o-e)^2/e$

Table Expected Frequencies

CPCS	ES	Total
64.10	60.89	125
135.89	129.10	265
300.1	285.01	585
500	475	975

'O' Table	'E' Table	X^2 Value
67	64.10	0.13
119	135.89	2.09
314	300.01	0.65
58	60.89	0.13
146	129.10	2.21
271	285.01	0.68
X^2 Value=		5.89

Degree of Freedom = 5 and at 95% level of significance X^2 tabulated value is 11.07, while calculated value is 5.89. As calculated value of X^2 (5.89 < 11.07) is less than tabulated value the hypothesis is true and accepted which means literature growth pattern of 1st journal is significant.

Table-5.6: Average Calculation

Sl. No.	Factors	1. Communist and Post-Communist Studies *(CPCS)*	2. Electoral Studies (*ES*)
1	Avg. Citations per Paper	9.586	27.473
2	Avg. Papers per Author Considering unique 1st. Author	4.58	3.04
3	Avg. Papers per Author Considering all Authors	0.78	0.59
4	Avg. Authors per Paper Considering all Authors	1.26	1.67
5	Avg. Papers per Country	18.51	19.79
6	Avg. length of Papers	19.374	16.755

Figure-4: Average Statement of Whole Publication of Journal "*CPCS*" and "*ES*"

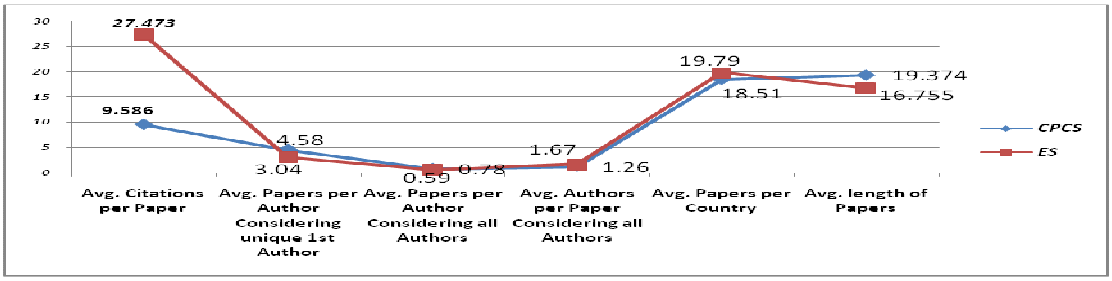


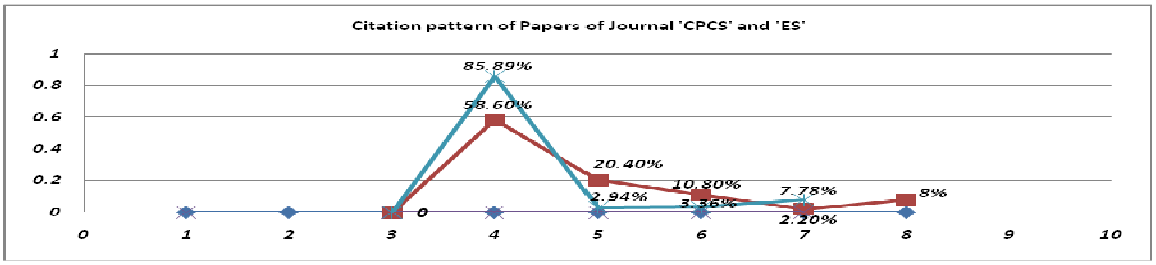
Table 5.6 significantly, depicted varied average factors such as: average citations per paper, average citations per author, average authors per paper, average citations per country, and average length of papers at large. The out comes clearly unfolds that, there is no uniformity in results of both journal papers as stated in above table. However, the study prostrates that, the 2nd journal papers are more popular among the users, because those are highly downloaded, referred and cited. Accounting the authors participation in literature production, the 2st journal is determined to have a large number of authors which denotes that, the average papers per author is less than the counterpart 1st journal. Further more, the average authors per paper, and

the average citations per country is higher in view 2nd journal, while average length of papers of 1st journal is undoubtedly larger than 2st journal papers.

Table-5.7: Citation Pattern of Papers

1. Communist and Post-Communist Studies *(CPCS)*			2. Electoral Studies (ES)		
Number of Citations	**Number of Papers**	**Average**	**Number of Citations**	**Number of Papers**	**Average**
1-10	**293 (58.6%)**	**4.993**	**1-100**	**408 (85.89%)**	**17.313**
11-20	**102 (20.4%)**	**14.990**	**101-200**	**14 (2.94%)**	**105**
21-30	**54 (10.8%)**	**25.611**	**201-300**	**16 (3.36%)**	**282.25**
31-40	**11 (2.2%)**	**38**	**No Citations**	**37 (7.78%)**	**0**
No Citations	**40 (8%)**	**0**	**Total**	**475**	*
Total	**500**	*			

Figure-5: Citation Pattern of Papers of Journal "*CPCS*" and "*ES*"



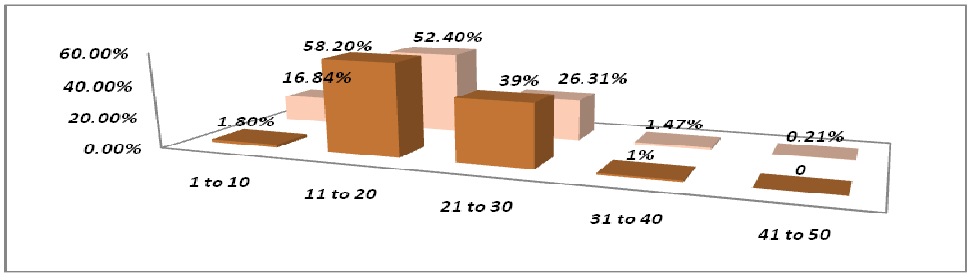
Citation count of research papers reserves a definite rank and determines its usability for the researchers and scholars. The *table 5.7* enunciates the citation pattern of papers of both journals. The data presented in above table clearly promulgates that, citation pattern of papers of both the journals are unlikely scattered. In the 1st journal, citations are scored highest up to 40, whereas in 2nd journal, citations of papers are spread up to 300. In the 1st journal it is seen that, a large number 293 (58.6%) and 102 (20.4%) papers are cited between 1-10 times and 11-20 times, followed by 54 (10.8%), 11 (2.2%) papers cited consecutively for 21-30 and 31-40 times respectively in the 1st journal.

Marking out the citation pattern of papers of 2nd journal it is experienced that, all papers are widely cited as compared to 1st journal papers. Moreover, noticeably it may be seen that, an exceptional and identical number of papers 408 (85.89%) which constitute largest number among both journal papers have been cited 1-100 times of the 2nd journal is undoubtedly claimed significant, following remaining 14 (2.94%) and 16 (3.36%) papers are cited 101-200 and 201-300 times respectively. However, it may be praiseworthy to spell out here that, the papers of 2nd journal are more accessed, used, and cited by the scholars and researchers rather than 1st counterpart.

Table-5.8: Pagination Pattern of Papers

1. Communist and Post-Communist Studies *(CPCS)*			2. Electoral Studies (ES)		
Length of Papers	**Number of Papers**	**Average**	**Length of Papers**	**Number of Papers**	**Average**
1-10	**09 (1.8%)**	**8.444**	**1-10**	**80 (16.84%)**	**8**
11-20	**291 (58.2%)**	**16.257**	**11-20**	**262 (52.4%)**	**15.270**
21-30	**195 (39%)**	**24.205**	**21-30**	**125 (26.31%)**	**24.32**
31-40	**05 (1%)**	**32**	**31-40**	**07 (1.47%)**	**33.285**
41-50	**0**	**0**	**41-50**	**01 (0.21%)**	*
Total	**500**	*	**Total**	**475**	*

Figure-6: Distribution of Papers by their Pagination Pattern of Journal "*CPCS*" and "*ES*"



Usually, the pagination pattern of papers varies from journal to journal which is highlighted in *table 5.8*. The above table intensively focused over the length of papers of both journals such as: '*CPCS* and '*ES*. As regard to overall paper length of 1st and 2nd journal papers, 2nd journal is found to have large length papers up to 50 pages, while 1st journal papers' are limiting to 40 pages at large. The major number of papers i.e. 291 (58.2%) of the 1st journal limiting the pages between 11-20, whereas the 2nd journal is found to have the same pagination pattern with a highest 262 (52.4%) papers and the 2nd largest number of papers 195 (39%) of 1nd journal have the pages 21-30, while in 2nd journal 125 (24.32%) papers determine the pattern of pagination between 21-30 so far. Moreover, it is observed that, the papers having 1-10 and 31-40 pages accounts only 09 (1.8%) and 05 (4.2%) with 1st journal, while the counterpart 2nd journal have 1-10, 31-40 and 41-50 pagination pattern with the papers 80 (16.84%), 7 (1.47% and 1 (0.21%) respectively as study reveals. It is, therefore, ascertained that, the 2st journal is more preferable and encouraging for the authors offering a wider choice and scope in page limitation of papers.

Considering the data of *table 5.8*, Chi-Square (X^2) test is applied to know whether there is any significant difference in pagination pattern of papers of both journals.

Let us take the hypothesis *hy: h0: pagination pattern of both journal papers are significantly different.*

Formula for $X^2 = (o-e)^2/e$

Table with Expected Frequencies

CPCS	ES	TOTAL
45.64	43.35	88.99
283.58	269.41	552.99
164.10	155.89	319.99
6.15	5.84	11.99
0.51	0.48	0.99
499.98	474.97	174.95

Degree of Freedom = 9 and at 95% level of significance X^2 tabulated value is 16.91, while calculated value is 74.22. As calculated value of X^2 (74.22 > 16.91) is greater than tabulated value the hypothesis is false and rejected which means the pagination pattern of both journal papers are not significantly different.

'O' Table	'E' Table	X^2 Value
9	45.64	29.41
291	283.58	0.19
195	164.10	5.81
05	6.15	0.21
0	0.51	0.51
80	43.35	30.98
262	269	0.20
125	155.89	6.12
07	5.84	0.23
01	0.48	0.56
X^2 Value=		74.22

Table-5.9: Most Productive Institutions

Country Rank	1. Communist and Post-Communist Studies *(CPCS)*							2. Electoral Studies (ES)							
	Country	Total no. of Papers	No. of Institutions involved	Average Institutional Output	Most Productive Institution	No. of Papers	Institution Rank	Country Rank	Country	Total no. of Papers	No. of Institutions involved	Average Institutional Output	Most Productive Institution	No. of Papers	Institution Rank
1	***USA***	263	39	6.74	George Washington University	37	*1*	*1*	***USA***	224	42	5.33	University of California	22	2
2	***UK***	42	12	3.5	London School of Economics and Political Science	09	*7*	*2*	***UK***	63	18	3.5	University of Essex	21	3
3	***Canada***	30	06	5	McGill University	14	*4*	*3*	***The Netherlands***	28	04	7	Vrije Universiteit Amsterdam	14	6

4	***Australia***	**28**	**03**	**9.33**	**University of Queenslan d**	**20**	***2***	***4***	***Canada***	**26**	**05**	**5.2**	**Universitéde Montréal**	**16**	**5**
5	***China***	**23**	**03**	**7.66**	**China Center for Comparative Politics and Economics**	**10**	***6***	***5***	***Belgium***	**26**	**02**	**13**	**Vrije Universeit it Brussel**	**24**	**1**
6	***France***	**18**	**02**	**9**	**University of Marne-la-Vallée**	**16**	***3***	***6***	***Ireland***	**23**	**02**	**11.5**	**University of Dublin**	**17**	**4**
7	***Slovenia***	**11**	**01**	**11**	**University of Ljubljana**	**11**	***5***	***7***	***Germany***	**19**	**06**	**3.16**	**Johannes Gutenberg - University**	**07**	**7**
8	***Belgium***	**10**	**01**	**10**	**University of Kent**	**10**	***6***	***8***	***Australia***	**12**	**03**	**4**	**University of NSW**	**06**	**8**
9	***Estonia***	**09**	**01**	**9**	**University of Tartu**	**09**	***7***	***9***	***Spain***	**07**	**03**	**2.33**	**University Pompeu Fabra**	**04**	**9**
10	***Lithuania***	**07**	**01**	**7**	**Institute for Social Research**	**07**	***8***	***10***	***Japan***	**06**	**01**	**6**	**University of Tokyo**	**06**	**8**

Table 5.9 clearly unfolds the status of most productive 10 institutions of top 10 countries on the basis of their literature publication in the journal '*CPCS*' and '*ES*'. The study clearly reveals that, 'George Washington University' stood 1st ranking institution of USA with 37 papers in 1st journal, while from the same country another institution 'University of California' posed 2nd rank in 2nd journal with publishing (22) papers, following the most productive institution 'Vrije Universiteit Brussel' of Belgium with (24) papers. Moreover, University of Queensland of Australia 20, University of Marne-la-Vallée of France (16), McGill University of Canada (14), University of Ljubljana of Slovenia (11) and University of Kent of Belgium (10) and China Center

for Comparative Politics and Economics 10 of China sets as 2nd, 3rd ,4th ,5th and 6th rank (both Belgium and China) in 1st journal, while on the other hand, 'University of Essex of UK (21), 'University of Dublin' of Ireland (17), 'Université de Montréal' of Canada (16) and 'Vrije Universiteit Amsterdam' of Netherlands (14) reserved their ranks as 3rd, 4th, 5th and 6th respectively in 2nd journal as enunciates the above table.

In a comparative study of the institutional representation of both journals, *George Washington University* from USA acquired 1st rank in 1st journal, whereas *Vrije Universiteit Brussel* from Belgium got the dominating rank in 2nd journal, although USA is the only most productive country in both journals. This proves that, no single geographical region (Country) is playing prominent role in literature production and research predominantly in both journals.

Taking each data into account, one may generalize here that, the institutions are not necessarily occupying the same rank as their respective countries pose, because the institutions of lower rank are some times belonging to high-ranking countries or vise versa basing on the number of institutions involved and number of papers at large produced by them as the study remarks.

Table-5.10: Most Productive Authors

1. Communist and Post-Communist Studies *(CPCS)*					2. Electoral Studies (ES)				
Rank	**Most Productive Author**	**No. of Papers**	**Affiliation to Organization**	**Country of Origin**	**Rank**	**Most Productive Author**	**No. of Papers**	**Affiliation to Organization**	**Country of Origin**
1	***Sukhan Jackson***	20	University of Queensland	Australia	1	***Kenneth Benoit***	22	University of Dublin	Ireland
1	***Taras Kuzio***	20	George Washington University	USA	2	***Benny Geys***	17	Vrije Universiteit Brussel	Belgium
2	***Nathalie Fabry***	16	University of Marne-la-Vallée	France	3	***John M Carey & Matt Golder***	Each 16	University of Rochester & New York University	USA
3	***Theodor Tudoroiu***	14	McGill University	Canada	4	***André Blais***	13	Université de Montréal	Canada
4	***Zengke He***	10	China Center for Comparative Politics and Economics	China	5	***Hajo G. Boomgaarden***	12	University of Amsterdam	The Netherlands
5	***Kadri Lühiste***	09	University of Tartu	Estonia	6	***Sarah Birch***	11	University of Essex	UK

6	***David Lane***	**08**	**University of Cambridge**	**UK**	**7**	***M Mackerras***	**06**	**University of NSW**	**Australia**
7	***Bojan Bugaric***	**07**	**University of Ljubljana**	**Slovenia**	**7**	***Ken'ichi Ikeda***	**06**	**University of Tokyo**	**Japan**
7	***Jolanta Aidukaite***	**07**	**Institute for Social Research**	**Lithuania**	**8**	***Harald Schoen***	**05**	**Johannes Gutenberg-Universitat Mainz**	**Germany**
8	***Svetlozar A. Andreev & Peter Vermeersch***	**Each 5**	**University of Kent & University of Leuven**	**Belgium**	**9**	***Josep M. Colomer***	**03**	**University Pompeu Fabra-Economics**	**Spain**

Author ranking is a vital feature of the present approach as is being traced in the *table 5.10* and analyzed by the researcher in order to recognize and encourage the researchers/authors for their innovative research works as shaped and figured above. It is seen that, although USA and UK were found to be the 1st and 2nd most productive countries among others, but the authors such as: *Taras Kuzio* (20) and *John M Carey & Matt Golder (*16 each) of USA got rank 2nd and 3rd in both journals, while the authors *David Lane* (8) and *Sarah Birch* (11) of UK got 6th rank in both journals respectively, which signifies that there is no uniformity between country rank and their respective author rank, because author ranking is determined basing on the total number of papers produced by the author as compared to other authors from different productive countries and country rank is settled out according to number of papers produced by the country as a whole among other country counterpart. Besides, Australia and Ireland being 4th and 6th ranking countries in 1st and 2nd journal, it is found that, their authors, namely, *Sukhan Jackson (*20) and *Kenneth Benoit (*22) proved to be the most productive authors with production of highest number of papers to their credit compared to other authors as asserts the above table which is quite surprising.

Table-5.11: Most Productive Period for Top 10 Countries

1. Communist and Post-Communist Studies *(CPCS)*						**2. Electoral Studies (ES)**					
Rank	**Country**	**Year-Wise Distribution of Publication**			**Total**	***Rank***	**Country**	**Year-Wise Distribution of Publication**			**Total**
		1996-2000	**2001-2005**	**2006-1010**				**1996-2000**	**2001-2005**	**2006-2010**	
1	***USA***	**26**	**80**	**157 (59.6)**	**263**	***1***	***USA***	**43**	**81**	**100 (44.6)**	**224**
2	***UK***	**03**	**12**	**27 (64.2)**	**42**	***2***	***UK***	**09**	**12**	**42 (66.6)**	**63**
3	***Canada***	**01**	**0**	**29 (96.6)**	**30**	***3***	***The Netherlands***	**0**	**02**	**26 (92.8)**	**28**

4	***Australia***	**20 (71.4)**	**0**	**08**	**28**	***4***	***Canada***	**0**	**0**	**26 (100)**	**26**
5	***China***	**10**	**0**	**13 (56.5)**	**23**	***5***	***Belgium***	**0**	**13 (50)**	**13 (50)**	**26**
6	***France***	**02**	**08**	**08 (44.4)**	**18**	***6***	***Ireland***	**0**	**17 (73.9)**	**06**	**23**
7	***Slovenia***	**0**	**0**	**11 (100)**	**11**	***7***	***Germany***	**0**	**0**	**19 (100)**	**19**
8	***Belgium***	**0**	**05**	**05 (50)**	**10**	***8***	***Australia***	**06 (50)**	**03**	**03**	**12**
9	***Estonia***	**0**	**0**	**09 (100)**	**09**	***9***	***Spain***	**0**	**0**	**07 (100)**	**07**
10	***Lithuania***	**0**	**0**	**07 (100)**	**07**	***10***	***Japan***	**0**	**0**	**06 (100)**	**06**
Grand Total		**62**	**105**	**274 (62.1)**	**441**		***Grand Total***	**58**	**128**	**248 (57.1)**	**434**

On the basis of chronological distribution of papers by respective time zones, the production of literature of top 10 geographical regions (Countries) has been classified and shown in *table 5.11*. Both 1st and 2nd journal carries 3 productive zones each. In both journals as a whole, a significant growing trend is seen at every later zone from concerned earlier zone and in 1st journal, 3nd zone is proved proficient carrying 274 (62.1%) papers which is much larger than the collective production of two earlier zones and the 2nd journal, 3rd zone also shows the same trend as 1st journal withholding highest number of papers than collective papers of other two relevant zones. On an average all top ten countries 3rd time zone is evaluated as most significant period during which largest number of literature output has been seen. Determinedly, as the quantity shows that, USA at each journal 3rd zone produced highest number of papers at its credit among all productive countries is considered significant. At concluding remark it may be pronounced that, growth in literature production has become a positive trend not only in USA, but also in all productive countries more or less.

6. Major Findings

i. Withholding an examination of 1000 papers of journal '*CPCS*' and '*ES*' the study ascertained that, 'solo authorship' is found to be the principal pattern in 1st journal, followed by 'collaborative authorship' in the 2nd journal.

ii. USA and UK found to be most productive 1st and 2nd geographical regions in both journals with highest number of papers (52.6, 44.8) and (8.4, 12.6) per cent of both countries respectively.

iii. USA is one of the pride countries to have the largest number of papers produced at each ranking zone as compared to all productive countries of both the journals.

iv. Authors' productivity pattern in both the journals does not match with Lotka's inverse law of scientific productivity of literature.

v. Addressing the growth pattern of literature, an indicative up-ward trend has been seen in the out put of both journals across three specified time zones which convey a remarkable message for future researchers in this field to introspect.

vi. As the study explores, there is mixed result in regard to the average calculation of both journals out puts. In certain factors such as: the average citations per paper, average authors per paper, and average papers per country, the 2nd journal '*CPCS* leads, while the average papers per author considering 1st and all authors, and average length of papers of 1st journal out put dominates over its counterpart 2nd journal.

vii. Citation pattern of papers indicates the credibility of degree of usage of papers by different scholars and researchers. In this context the present study discovers that, the papers 85.89 per cent under 2nd journal receives 1-100 a wide citations, where as the in 1st journal 58.6 per cent papers achieved 1-10 citations only. From this data one may easily understand that, 2nd journal papers are more research oriented and useful compared to the 1st one.

viii. In an investigation of pagination pattern of whole papers the study unfolds that, collectively, 97.2 and 78.71 per cent of both journal papers page length is preferably 11-30 pages which offers a wider opportunity to the authors/researchers for presenting their research literature with devoid of a small page limits.

ix. It is pride for 'George Washington University' of USA to have the highest number of out put (37) to the journal '*CPCS*, while on the other hand in 2nd journal '*ES*, Belgium is proud enough for one of its institutions 'Vrije Universiteit Brussel' with 1st rank having produced the highest number of papers (24).

x. As far as author ranking is concerned '*Sukhan Jackson*' of Australia pose 1st rank with papers (20) in 1st journal, following '*Kenneth Benoit*' of Ireland got 1st rank with (22) papers in 2nd journal which clearly shows Australian and Ireland authors have vigorous interest in publishing papers with journals '*CPCS* and '*ES* respectively.

xi. Adducing the time zone wise distribution of literature productivity, USA is determined as the 1st ranking country in both journals, accumulating highest number of papers 59.6 and 44.6 per cent of its own contribution during the period 2006-2010 as compared to the productivity of other two periodic zones such as: (1996-2000 and 2001-2005).

7. Discussions

Over the past twenty years, the organization of social sciences research in Europe has undergone serious reforms. Perhaps one of the unique features of social sciences in Europe today is that they are organized at both the level of individual states and at the European supranational level. Another major change is the increasing role that funding mechanisms play in steering research. Thus, Europe can be regarded as the cradle of the social sciences *(Langenhove; 2010).*

Sensitizing the earlier studies, the present work reports that, two European countries such as: USA, UK play leading role in social science research productivity considering their research papers appeared in science direct top 25 hottest paper database.

The Association of Asian Social Science Research Councils (AASSREC) comprises fifteen member nations that enjoy differing degrees of social science research capacity. Some rapidly developing countries such as India and China have very large and well-funded social science resources, while others are developing capacity as their circumstances allow. Besides grossly inadequate funding, their comparative isolation from regional peers and wider-world associations also impedes the progress of some Asian nations in the social sciences *(Beaton; 2010).* (www.aassrec.org / accessed on 15/01/2012).

The present study remarkably ensures that, a tremendous growth has been seen in social science research out put around the globe, although European nations out to share a major part.

Conclusion

The present study is extensively attempted to highlight the research productivity in the area of Social Sciences (Political Science) accounting two international journals such as: Communist and Post-Communist Studies (*CPCS*) and Electoral Studies (*ES*) for the period 2006-2010 accounting 1000 papers as a whole. The resultant data obtained for this study discovers that, USA and UK are the most productive 1st and 2nd countries in both journals, although a picture of perceptive upward trend in research productivity has been noticed in almost all productive countries as far. Hence, the author would expect a promising future in Social Science research allover the globe in succeeding decades.

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