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Pakistan Development Review: A bibliometric analysis of the articles published from 1973 to 2009

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Abstract

A bibliometric study of the articles published in journals shows the status of advancement and research in a subject field. Economics is an important area of interest for social scientists. Therefore, there is a need to analyze the journal literature of economics to determine its research patterns. This study analyzes the papers published in the *Pakistan Development Review* during 1973-2009 to determine the authorship patterns (productivity, collaboration, and affiliation), the topics covered, number of references per paper and size of the papers in terms of pages. A total of 1066 authors contributed to the journal during this period. Single-authored articles (55.56%) were predominant followed by two-authored articles and three-authored articles. The collaborative works accounted for 44.44 percent. Most of the authors (55.81%) came from Pakistan; with the second and third positions occupied by USA and England. The most favourite subject was Agriculture with 15.12 percent of the articles. Demography, Family Planning, Fertility, Gender issues and Behaviour was the second most popular topic. The average number of references per article was 20.14 and the average length of the articles was 16.34 pages.

Keywords: Bibliometric analysis; Collaborative research; Economics; Pakistan.

Introduction

Bibliometrics has been an important method for the analysis of any literature to determine its research trends. Its techniques are consistently used in the analysis of the literature on a specific topic (Al-Qallaf, 2009; Anwar, 2005, 2006) as well as in the analysis of single journal literature (Nandi and Bandyopadhyay, 2008; Thanuskodi, 2010). Such quantitative studies are very useful for understanding any literature because these techniques determine the references patterns; authorship patterns; and the most investigated areas. Individual journals have been the focus of bibliometric studies as the new research trends and patterns in a discipline first appear in journals which are regarded as important medium of scholarly communication. According to Zainab, Ayni and Anuar (2009), an estimated number of 189 single journal studies have been reported in the published literature. These journals belong to different fields including economics, a branch of social sciences, which deals with the production, distribution and consumption of goods and services and their management. It is very useful in solving problems of unemployment, low per capita income and low production (Case & Fair, 2007). Development Economics, its branch, deals with the processes and policies by which a nation improves the economic, political, and social well-being of its people. In view of the increasing importance and usefulness of bibliometric techniques in the analysis of single journal literature, an important Pakistani economics journal, i. e., *Pakistan Development Review*, has been targeted in the present study.

The *Pakistan Development Review* (*PDR*), an international peer reviewed journal, started publication in 1958 as the *Economic Digest* by the Pakistan Institute of Development Economics (PIDE) which is one of the oldest specialized institutions in the discipline of economics in Pakistan. This institution has been publishing *PDR* since 1961 with a short pause during 1971-1972. *PDR* contains theoretical and empirical contributions with a main focus on Pakistan's socio-economic problems. The contents of *PDR* are abstracted / indexed in international databases, for example, *Econlit, World Agricultural Economics, International Bibliography of the Social Sciences,* and the *Rural Sociology Abstracts* (PIDE, 2010). It is an important scholarly journal in the field of economics. Therefore the analysis of its papers will be helpful to understand the past and present state of research in economics in Pakistan. It is hoped that the findings of this study will be helpful to scholars in their future research and to administrators who are involved in the formulation of policies. This study will contribute to the available bibliometric literature and will guide information professionals in collection development as well as in conducting bibliometric studies in future.

A partial analysis of *PDR* references, covering only eight volumes, was conducted by Shareef and Mahmood (2004) using references appended to the papers. However, keeping in view the importance of the journal, the present study aimed to examine all volumes using other important bibliometric features (authorship patterns, subjects covered, number of references per article, and the size of each article) of the papers published during 37 years. These features were not targeted in the above mentioned partial study.

Related Literature

A considerable number of bibliometric studies of single journals have been conducted to identify authorship patterns, subjects covered, institutional affiliation and geographic origin, number of references and size of papers in terms of pages. Journals from many disciplines have been used in the bibliometric studies. However, in view of the need of the current study only those dealing with the social sciences journals are reviewed below.

Thanuskodi (2010) analyzed the *Journal of Social Science* by covering five years from 2003 to 2007, with a total of 273 articles. Two-authored articles formed the major part (44.33%) of all articles. Most of the contributions (78.39%) were from foreign countries. Major subject covered were Economics, followed by Business Administration, and Public Health. About half of the articles (49.82%) had the length of 11 or more pages, followed by 39.93 percent with 6-10 pages and the remaining 10.25 percent of 1-5 pages. More than half (53.84%) of the papers had 5-10 references, 25.28 percent had 11 or more references, and the remaining 20.88 percent had 1-5 references.

Asha (2007), who studied the *Demography India* from 1972 to 2007, found that a little more than one-third (34.8%) of the papers dealt with the subject of Fertility/Family Planning. About 60 percent of the papers were single authored. The research institutions and centers contributed 46.92 percent of the papers while the universities provided 34.98 percent. USA (36.14%), Bangladesh (25.90%) and Pakistan (9.03%) topped the list in terms of country-wise contribution. Only three papers had more than 70 references while 299 had less than 10 references each.

Nandi and Bandyopadhyay (2008) analyzed 68 papers published during the period 1998-2002 in the *Indian Economic Review*. A majority of the papers (n=45, 66.18%) were single authored while 23 (33.82%) were multiple authored. They found that the degree of collaboration gradually decreased. Out of 92 contributors, 48 were Indians and 44 foreigners, with USA and U.K occupying the second and third positions. Knight, Hult, and Bashaw (2000) analyzed the papers of *Business Research* covering the period from 1985 to 1999. The most prolific author had nine papers and most of the contribution was from the academic side. Marketing was the major subject area followed by Buyer Behaviour.

Mukherjee (2009) found that single-authored articles were higher in number in the *Journal of the American Society for Information Science and Technology*. Out of 975 articles, 480 (49.23%) were between 10 and 14 pages long, 250 (25.64%) between 5 and 9 pages, 164 (16.82%) between 15 and 20 pages, and 29 (2.97%) between 20 and 24 pages. There were 46 articles (4.71%) with less than 5 pages and 6 (0.61%) articles between 25 and 30 pages.

Naseer and Mahmood (2009) analysed the literature of the *Pakistan Library and Information Science Journal* (PLISJ). A total of 236 articles, published during the period 1998-2007, were examined. The objectives of this study were: to determine the subjects covered; authorship characteristics; and the type and language of the articles. The findings revealed that the most popular subject category was "Industry, Profession and Education" with 39.4 percent of the articles, followed by "Libraries as Physical Collections" (17.8%) and "Information and Library Technology" (10.2%). Single-authored articles and male authors' contribution was found to be dominant with 88.6 and 61.0 percent respectively. About 22.9 percent of the authors did not provide information about their geographic origin while Pakistan stood first with 66.9 percent of the contribution, followed by USA (4.2%) and Saudi Arabia (2.1%).

Authorship characteristics from the Asian and Pacific region in the top 20 journals in the field of Library and Information Science from 1967 to 2005 were studied by Park (2006). The author focused on: the most productive countries; the most productive authors; the extent of collaborative authorship; the extent of collaboration among the countries within the region; and the most productive institutions. The author also made a comparison between library science and information science papers. The major findings of the study were: a total of 1,273 articles (119 articles in library science and 1,154 articles in information science) were contributed by authors from the region during the period 1967-2005. The most productive countries were Australia with 334 articles and China with 304 articles; collaborative authorship was strong in information science journals; regional collaboration was strong between Australia and China; and the most productive institution was the National University of Singapore followed by University of South Wales. In the library science journals about 50 percent of the articles were single-authored and 50 percent were two or more authored which showed a mixed trend of collaborative and non-collaborative works. The authors R. J. Cullen and C. S. Wilson were the major contributors in the Library Science and Information Science journals respectively.

Tiew, Abdullah and Kaur (2002) conducted a bibliometric study of the *Malaysian Journal of Library & Information Science* covering five-year period from 1996 to 2000. Less than half of the articles (47.4%) were single-authored. The majority of authors were from Malaysia (45%), followed by India (31.2%) and Bangladesh (11.2%). Authors affiliated to library schools contributed the maximum number of articles, especially those attached to the Faculty of Computer Science and Information Technology, University of Malaya. The most popular subject was Scientific and Professional Publishing. The average number of references per article was 22.5.

A partial analysis of references in the *Pakistan Development Review*, covering the period from 1969 to 2000, was conducted by Sharif and Mahmood (2004) using a total of eight volumes, two from each decade. The mean number of references per article in the sample was 17.88. Single-authored references were found dominant. This study did not look at any other bibliographic feature of the papers.

The literature reviewed above shows that bibliometric studies of single journals, in different fields of social sciences, have been conducted providing a picture of the trends in each field with very little attention given to Pakistani journals. *PDR* is a very important and long-standing economics journal published in Pakistan. Only a limited analysis of the references to its articles has been performed which is not enough to show its research trends. Therefore, there is a need to analyze the literature of *PDR* to identify research trends as reflected in this journal.

Objectives and Method

The main objective of this study was to conduct a bibliometric analysis of the papers published in the *Pakistan Development Review (PDR).* It has been observed in the literature that, in general, a time period of five to ten years is used in the analysis of single journal bibliometric studies. It is assumed that the analysis of a longer period will highlight the trends of that journal with maximum accuracy. Therefore, a 37 year period (1973 to 2009) was selected for the present study covering 1627 original and review articles. There are three reasons for leaving the 1961-1972 period: 1) it represents the research trends of both the East Pakistan (now Bangladesh) and West Pakistan whereas our intention was to analyze the literature in the context of West Pakistan (the present Pakistan); 2) there was a one-year break in the publication of the journal during 1971-1972; and 3) the time constraint for completion of the study. We decided to exclude Book reviews; Book news; Notes; Rejoinders; Communications; Keynotes; Obituaries; and Inaugural addresses. Each article was examined to determine: authors' productivity, collaboration pattern, authors' institutional affiliation and geographic origin, subject of the paper, number of references used in each paper, and its length.

The authors' country of origin was decided on the basis of their addresses. While counting the contributions of different regions of Pakistan the authors which were associated with international institutions/agencies in Pakistan were assumed to be based in Islamabad. The subject index of each volume bound with it was used for assigning subjects to the articles. In counting the page length of the articles "Comments" which were part of the article but given by other authors were ignored. Finally, all the data were entered in the pre-designed tables in Microsoft Word which provided statistics for all the reports. This study has two limitations. One was the gap in literature created by the unpublished third issue of volume 47. Another was the unavailability of institutional and geographic affiliations of authors in some of the papers; however, their number was very limited.

The following research questions were used to guide the study:

1. What is the authorship pattern in the papers published in *PDR*?
   a. Authors' productivity
   b. Most prolific authors
   c. Extent of collaboration in the papers
   d. Institutions contributing to the papers
   e. Geographic origin of the contributing authors
2. What topics do these papers cover?
3. What is the number of references that these papers used?
4. What is the size of the papers in terms of pages?

Results and Discussion

The results of data analysis of the 1627 papers are reported in the following sections showing some interesting trends in economics research in Pakistan. Some of these results agree while others differ from the findings of previous studies in the field of social sciences.

Authorship Patterns

The data related to the authorship patterns are presented in the following sections.

(a) Author Productivity

The details as given in Table 1 show that a total of 1066 authors contributed to the journal during the period 1973-2009. Almost two-thirds of these authors (n=681, 63.88%) contributed only one article each. Another 169 (15.85%) authors contributed two articles each, 67 (6.29%) contributed 3

articles each, and 36 (3.38%) contributed four articles each. Only 19 (1.78%) authors contributed 15 or more articles each.

The data indicated that with the decreasing number of authors the frequency of contribution was increasing meaning that a large number of authors produced less numbers of papers and vice versa. Thus there is an inverse relation between the number of authors and the frequency of their contributions. This trend of inverse relationship has been noted in the analysis of many journals of different disciplines (Kalyane & Sen 1995; Zainab, Anyi & Anuar, 2009) and also in the literature on a specific topic (Anwar, 2006). This has also been shown in single journal literature many times using Lotka's Law. The results received from the application of Lotka's Law, with n = 2, to the data of current study show that the law applies to the single journal economics literature with slight differences (table 1.1). Since Alfred J. Lotka himself used the data from the index of *Chemical Abstracts* (Kumar, 2010) the law must be applied to the overall literature of a given field of study.

Table 1
Author productivity

No. of Articles	No. of Authors	Percentage	No. of Articles	No. of Authors	Percentage
1	681	63.88	14	5	.47
2	169	15.85	15	2	.19
3	67	6.29	16	3	.28
4	36	3.38	17	2	.19
5	21	1.97	18	2	.19
6	15	1.41	19	1	.09
7	10	.94	20	3	.28
8	13	1.22	21	2	.19
9	5	.47	25	1	.09
10	8	.75	28	1	.09
11	6	.56	29	1	.09
12	9	.84	30	1	.09
13	2	.19	---	1066	99.99*

* Total is lower due to the rounding of figures.

Table1.1
Author productivity using Lotka's Law (n=2)

No. of Articles	No. of Authors (expected)	No. of Authors (observed)	No. of Articles	No. of Authors (expected)	No. of Authors (observed)
1	681	681	6	18	15
2	170	169	7	13	10
3	75	67	8	10	13
4	42	36	9	8	5
5	27	21	10	6	8

(*b*) *Prolific Authors*

Of the 1066 authors, 385 (36.12%) produced two or more articles each. However, only 41 authors, who contributed 11 or more articles each, are taken as prolific (Table 2). M. Ghaffar Chaudhry is the leading contributor with 30 articles, followed by A. R. Kemal and Sarfraz Khan Qureshi with 29 and 28 articles respectively. The fourth position is occupied by Mohammad Afzal with 25 articles, while the fifth position is shared by Ashfaque H. Khan and Zeba Ayesha Sathar with 21 articles each.

Table 2
Authors who contributed eleven or more articles

Rank	Author	No. of Papers	Rank	Author	No. of Papers
1	M. Ghaffar Chaudhry	30	12	M. Aynul Hasan	14
2	Aabdul Razzaq Kemal	29	12	Munir Ahmad	14
3	Sarfraz Khan Qureshi	28	12	Qazi Masood Ahmad	14
4	Mohammad Afzal	25	13	Kalbe Abbas	13
5	Ashfaque H. Khan	21	13	Mir Annice Mahmood	13
5	Zeba Ayesha Sathar	21	14	M. Ali Khan	12
6	Abdul Qayyum	20	14	Khwaja Sarmad	12
6	Ghulam Mohammad Arif	20	14	Rizwana Siddiqui	12
6	Rehana Siddiqui	20	14	Zafar Mueen Nasir	12
7	Sohail Jehangir Malik	19	14	Hafiz A. Pasha	12
8	Musleh-uddin	18	14	Rashida Haq	12
8	Mahmood Hasan Khan	18	14	Ather Maqsood	12
9	Eatzaz Ahmad	17	14	Shamim A. Sahibzada	12
9	Naushin Mahmood	17	14	Mohaammed Nishat	12
10	Ejaz Ghani	16	15	Durr-e-Nayab	11
10	Faiz Bilquees	16	15	Toseef Azid	11
10	Syed Mubashir Ali	16	15	Zafar Iqbal	11
11	Shahnaz Kazi	15	15	Muhammad Iqbal	11
11	Mohammad Irfan	15	15	Fazal Husain	11
12	Syed Nawab Haider Naqvi	14	15	Nadeem -Ul-Haque	11
12	Zafar Mahmood	14	---	---	---

(c) Number of Articles and Number of Authors

A year-wise analysis of the number of articles by number of authors is presented in Table 3. The figures show that out of the 1627 articles, single-author articles are the highest (n=904, 55.56%), followed by two-author 521 (32.02%), and three-author with 172 (10.57%). There are 25 (1.54%) four-author and only three (0.18%) five-author papers. The papers by seven and eight authors appear only once.

A total of 723 (44.44%) of the 1627 papers are the result of collaborative effort. This volume of collaboration is low. These papers were produced by 2593 authors with an average of 1.60 authors per article which is not very high. The year 2009 has the highest average, 2.13 authors per paper. This trend is similar to the results of Nandi and Bandyopadhyay (2008) and Asha (2007) who found single-authored articles in the majority in the *Indian Economic Review* and *Demography India.* The dominancy of single-author articles also matches the results of Kaur (2006) and Abdullah and Rahman (2009). The results of these studies show that the social scientists usually prefer to work alone. However, an increasing trend of collaboration among Pakistani economists was observed from 2005 to 2009 suggesting that multi-authored works were growing which was a good sign for the development of the field because collaboration in research helps in the productivity of papers; clarification of ideas; enhancing quality of research; division of labour; helping younger colleagues in gaining experience; exploration of new areas/topics; and in getting benefits of lengthy copyright period.

d) Degree of Collaboration

The extent of collaboration can be understood by using the formula for the degree of collaboration as developed by Subramanyam (1983) which is C = Nm/(Ns+Nm).. In this formula “C”

stands for the degree of collaboration, "Ns" stands for the total single-authored and "Nm" for total multi-authored articles. This formula can also be written as C = Nm/TA where as TA stands for total number of articles. This formula is considered here as a standard tool for measuring collaboration. So the over-all degree of observed collaboration is 0.44 and the year-wise calculated degree ranges between 0.13 and 0.76 which shows ups and downs. However, a general increase in (C) is observed which is very sharp in 2009. This trend is against the results of Nandi and Bandyopadhyay (2008) who found that the degree of collaboration was decreasing in the *Indian Economic Review*. Thus, on the basis of the observed authorship patterns (Table 3) and the calculated (C) values, we can expect the dominancy of multi-author articles in the coming years in the literature of *Pakistan Development Review*.

e) International Collaboration

The authors' addresses identified only 94 (5.84%) of 1627 articles as the result of international collaboration (Table 4). A strong collaboration is observed between Pakistan and USA with 21 (22.34%) of the 94 internationally collaborative works. The volume of collaboration between Pakistan and Canada, UK, and Australia is 19 (20.21%), 9 (9.57%), and 5 (5.32%) respectively. Pakistan and Holland, and Canada and USA are found collaborating in 4 (4.26%) and 3 (3.19%) articles respectively. Turkey and UK, Japan and USA, and Pakistan and Malaysia collaborated in two (2.13%) articles each. There is only one-time collaboration between different countries in 27 (28.72%) articles.

N. Number of articles with international collaboration
* Total is lower due to the rounding of figures

Table 3
Number of articles with number of authors

Year	Articles with Number of Authors							T. A	T. Au	Avg. au(s)/A	% of 1A	% of Collaborative Articles
	1A	2A	3A	4A	5A	7A	8A					
1973	20	---	03	---	---	---	---	23	29	1.26	1.23	.18
1974	16	09	---	---	---	---	---	25	34	1.36	.98	.55
1975	15	05	01	---	---	---	---	21	28	1.33	.92	.37
1976	09	04	05	---	---	---	---	18	32	1.78	.55	.55
1977	16	04	---	---	01	---	---	21	29	1.38	.98	.31
1978	21	06	---	---	---	---	---	27	33	1.22	1.29	.37
1979	14	04	02	---	---	---	---	20	28	1.4	.86	.37
1980	15	04	---	---	---	---	---	19	23	1.21	.92	.55
1981	14	03	01	---	---	---	---	18	23	1.28	.86	.25
1982	10	04	---	---	---	---	---	14	18	1.29	.61	.25
1983	10	04	---	---	---	---	---	14	18	1.29	.61	.25
1984	18	06	03	01	---	---	---	28	43	1.54	1.11	.61
1985	17	15	03	---	---	---	---	35	56	1.6	1.04	1.11
1986	25	13	02	---	---	---	---	40	57	1.43	1.54	.92
1987	25	16	02	01	---	---	---	44	67	1.52	1.54	1.17
1988	27	21	07	---	---	---	---	55	90	1.64	1.66	1.72
1989	34	18	03	01	---	---	---	56	83	1.48	2.09	1.35
1990	09	05	---	---	---	---	---	14	19	1.36	.55	.31
1991	39	21	02	---	---	---	---	62	87	1.4	2.40	1.41
1992	46	19	03	---	---	---	---	68	93	1.37	2.83	1.35
1993	44	24	08	01	---	---	---	77	120	1.56	2.70	2.03

1994	44	22	07	---	---	---	---	73	109	1.49	2.70	1.78
1995	41	17	06	02	---	---	---	66	101	1.53	2.52	1.54
1996	39	09	06	02	---	---	---	56	83	1.48	2.40	1.04
1997	22	14	03	---	---	---	---	39	59	1.51	1.35	1.04
1998	38	26	06	01	---	---	---	71	112	1.58	2.34	2.03
1999	27	22	11	01	---	---	---	61	108	1.77	1.66	2.09
2000	27	26	08	---	---	---	---	61	103	1.69	1.66	2.09
2001	34	17	08	---	---	---	---	59	92	1.56	2.09	1.54
2002	25	15	05	03	---	---	---	48	82	1.71	1.54	1.41
2003	27	15	07	01	---	---	---	50	82	1.64	1.66	1.41
2004	24	15	07	---	---	---	---	46	75	1.63	1.48	1.35
2005	26	15	09	03	01	---	---	54	100	1.85	1.60	1.72
2006	28	32	10	02	01	01	---	74	142	1.92	1.72	2.83
2007	25	25	16	01	---	---	---	67	127	1.9	1.54	2.58
2008	20	18	08	03	---	---	---	49	92	1.88	1.23	1.78
2009	13	28	10	02	---	---	01	54	115	2.13	.80	2.52
Total	904	521	172	25	03	01	01	1627	2593	1.60*	55.5	44.73**

Table Key: 1A = Single-Authored papers. 2A = Two-Authored papers and so on, T. A= Total Articles, T. Au= Total Authors, Avg.au(s)/A= Average author/ article. * This figure represents average number of authors per article during the period (1973-2009). ** Total is high due to rounding of figures.

The figures show that the host country, Pakistan, appears in 79 (84.04%) of the 94 articles. This is an indication that either the research of the Pakistani authors is regarded of quality, and therefore, acceptable to the authors outside the host country, or as the focus of the journal is on the local issues the local authors can be beneficial to international authors. Foreign collaboration in a journal shows the scope as well as the popularity of the journal among the international community of scholars. As a result, it is attractive to the foreign authors to collaborate with the local authors. International collaboration can also help in solving local as well as international problems. Therefore, it is a very healthy phenomenon in *PDR* and beneficial for analyzing local economic and social issues with an international perspective.

f) Contributing Institutions

Table 4
International collaboration in the papers (N = 94)

Rank	Countries	Frequency	% of N	Rank	Countries	Frequency	% of N
1	Pakistan and USA	21	22.34	8	Pakistan and Yemen	1	1.06
2	Pakistan and Canada	19	20.21	8	USA and UK	1	1.06
3	Pakistan and UK	9	9.57	8	Pakistan and Saudi Arabia	1	1.06
4	Pakistan and Australia	5	5.32	8	Philippines and Bangladesh	1	1.06
5	Pakistan and Holland	4	4.26	8	Pakistan, Canada and Turkey	1	1.06
6	Canada and	3	3.19	8	Germany and	1	1.06

	USA				Holland		
7	Turkey and UK	2	2.13	8	Pakistan and Taiwan	1	1.06
7	Japan and USA	2	2.13	8	Pakistan, USA and UK	1	1.06
7	Pakistan and Malaysia	2	2.13	8	Pakistan, USA and Canada	1	1.06
8	Singapore and USA	1	1.06	8	Pakistan and Germany	1	1.06
8	Pakistan, Sri Lanka and Australia	1	1.06	8	Pakistan and U.A.E	1	1.06
8	India and Switzerland	1	1.06	8	Pakistan and Thailand	1	1.06
8	Pakistan and Philippines	1	1.06	8	Italy and Chile	1	1.06
8	Pakistan and Turkey	1	1.06	8	Pakistan and Japan	1	1.06
8	Pakistan and Scotland	1	1.06	8	Pakistan and Austria	1	1.06
8	Pakistan and Singapore	1	1.06	8	Germany and Taiwan	1	1.06
8	Pakistan and Kuwait	1	1.06	8	Pakistan and France	1	1.06
8	Pakistan and Switzerland	1	1.06	8	Taiwan and Philippine	1	1.06
Total	---	---	---	---	---	94	99.9*

The contributing institutions were traced from the authors' affiliation. The institutional affiliations of three authors were not indicated while two were mentioned as freelance researchers. The remaining authors belong to 394 institutions, out of which 144 (36.55%) are from Pakistan and 250 (63.45%) from foreign countries including some international organizations. The Pakistani institutions had 1243 (63.48%) of a total of 1958 occurrences and the foreign institutions had 715 (36.52%). Of all the institutions, 256 (64.97%) were academic. It was clear from the earlier literature that academicians published more in journals as compared to other researchers indicating a relationship between the scholars' productivity and the requirements for their promotion (Tiew, Abdullah & Kaur, 2002; Zainab, Anyi & Anuar, 2009). Also faculty members publish to get recognition, reputation, and status in their field of expertise. This trend was confirmed by the literature of *PDR*.

Table 5
Top contributing institutions with ten or more occurrences

S. No.	Name of the Institution	Frequency of Occurrence	% of *N**	Rank
1	Pakistan Institute of Development Economics, Islamabad	605	30.90	1
2	University of Karachi, Karachi	66	3.37	2
3	Quaide-e-Azam University, Islamabad	61	3.12	3
4	International Islamic University, Islamabad	38	1.94	4
5	World Bank	35	1.79	5

6	Institute of Business Administration, Karachi	32	1.63	6
7	Erasmus University, Holland	30	1.53	7
8	International Food Policy Research Institute	30	1.53	7
9	International Monetary Fund	29	1.48	8
10	Social Policy and Development Centre, Karachi	28	1.43	9
11	Planning Commission of Pakistan, Islamabad	24	1.23	10
12	U.S Bureau of Census, USA	23	1.17	11
13	University of Manchester, UK	22	1.12	12
14	University of Agriculture, Faisalabad	22	1.12	13
15	The Johns Hopkins University, USA	21	1.07	13
16	Simon Fraser University, Canada	20	1.02	14
17	National Institute of Population Studies	18	.92	15
18	Pakistan Agricultural Research Council, Islamabad	17	.87	16
19	State Bank of Pakistan, Karachi	15	.77	17
20	Bahauddin Zakariya University, Multan	14	.72	18
21	Acadia University, Canada	13	.66	19
22	Institute of Social Studies, Holland	12	.61	20
23	Ministry of Planning and Development, Islamabad	12	.61	20
24	International Labour Organization	11	.56	21
25	University of Pennsylvania, USA	11	.56	21
26	International Water/Irrigation Management Institute	11	.56	21
27	Federal Urdu University of Arts, Science and Technology, Islamabad	10	.51	22
28	International Islamic University, Malaysia	10	.51	22

*: The total (1957) occurrences of 394 institutions

The 28 institutions that produced 10 or more papers each are given in Table 5. Among these, the Pakistan Institute of Development Economics, the host institution, is ranked first with 605 (30.90%) occurrences, followed by the University of Karachi with 66 (3.37%), Quaid-e-Azam University with 61 (3.12%), International Islamic University of Pakistan with 38 (1.94%), and the World Bank with 35 (1.79%) occurrences. The figures reveal that there are 14 international / foreign institutions among these 28 institutions which show that the journal is an attractive source for foreign institutions to publish in.

g) Geographic Origin of Authors

The geographic distribution of authors was decided on the basis of the address of their institutional affiliation. There were 13 authors whose geographic origin was either not given or could not be determined. These authors were mostly associated with international organizations whose geographic origin was not clear. The distribution of all the 1066 authors is shown in Table 6. The figures show that 1053 authors, excluding 13 whose geographic origin could not be determined, come from 44 countries. Out of these, 595 (56.51%) are from Pakistan and 471 (44.73%) from 43 other countries. The second, third, fourth and fifth positions are occupied by USA, England, Holland and Canada with 182 (17.28%), 39 (3.70%), 30 (2.85%) and 26 (2.47%) contributors respectively. Eighteen countries are represented by one author each. Thus, 969 (92.02%) of 1053 authors emerge from the top 11 (25.0%) countries whereas the remaining 97 (9.21%) come from 33 (75.0%) countries. These results match with the findings of most of the previous single journal studies that a majority of the authors/contributions come from the host country (Nandi & Bandyopadhyay 2008; Zainab, Anyi & Anuar, 2009). In a few cases, the non-host countries got credit for major contributions (Asha, 2007; Thanuskodi, 2010).

Table 6
Geographic distribution of contributors (N = 1066)

Rank	Country Name	No. of Authors	%	Rank	Country Name	No. of Authors	%
1	Pakistan	595	56.51	18	Nepal	2	.19
2	USA	182	17.28	18	Austria	2	.19
3	England	39	3.70	18	Kazakhstan	2	.19
4	Holland	30	2.85	19	Sudan	1	.09
5	Canada	26	2.47	19	China	1	.09
6	Australia	24	2.28	19	Iran	1	.09
7	Germany	20	1.89	19	Egypt	1	.09
8	India	16	1.52	19	Scotland	1	.09
9	Bangladesh	14	1.33	19	Mexico	1	.09
10	Turkey	13	1.23	19	Greece	1	.09
11	Switzerland	10	.94	19	Indonesia	1	.09
12	Malaysia	8	.75	19	Italy	1	.09
12	Nigeria	8	.75	19	U. A. E	1	.09
13	Japan	7	.66	19	Denmark	1	.09
14	Singapore	6	.56	19	Romania	1	.09
15	Sri Lanka	5	.47	19	Ethiopia	1	.09
15	Taiwan	5	.47	19	Somalia	1	.09
15	Kuwait	5	.47	19	Lebanon	1	.09
16	France	4	.38	19	Chile	1	.09
16	Saudi Arabia	4	.38	19	Yemen	1	.09
17	Thailand	3	.28	19	West Indies	1	.09
17	Philippines	3	.28	---	Unknown	13	1.21
18	Norway	2	.19	Total	N/A	1066*	100.2*

N. Total number of authors. *: Total is higher due to rounding of figures

Subject Distribution of Articles

The subjects of the papers were decided on the basis of the index published with each volume. These indexes used very specific subject headings which would have made the number of topics too many. Therefore, closely related subjects were grouped together in consultation with two economics faculty resulting in 46 major headings (Table 7). There were 41 papers that did not fit into these and were, therefore, placed under 'other'.

The subject of Agriculture, Irrigation, Fertilizers, and Land Reform is very popular among the researchers with 246 (15.12%) articles. Demography, Family Planning, Fertility, Gender issues and Behaviour is the second most interesting area for the researchers with 196 (12.05%) articles, followed by Economic Development, Economic Growth, Economic Theory and Models with 124 (7.62%). The top seven subject categories contributed more than half (n=867, 53.29%) of the 1627 articles.

Agriculture, with many issues, has been a major area of investigation for these economics researchers. This trend is different from the Asian tiger countries (Hong Kong, Indonesia, Malaysia, Singapore, South Korea, Taiwan and Thailand) where Financial Economics and International Economics are the main areas of research. However, Financial Economics, Industrial Organization, and Agricultural and Natural Resource Economics are among the top three fields of study for various South Asian economies (Davis & Gonzalez, 2003).

Patterns of References in Articles

It is interesting to note that 118 (7.25%) of the articles are without any references. It includes mostly the speeches of chief guests and other persons on different economic issues at different occasions (seminars, meeting etc.) at PIDE. These writings which normally do not include references were published as papers in the journal. The remaining 1509 articles collectively share 32779 references. The minimum number of references is one whereas the maximum number is 143. More than one-third (n=550, 36.45%) of the articles had references in the range of 11-20, followed by 376 (24.92%) with the range of 1-10, and 296 (19.62%) with the range of 21-30. Fourteen (0.93%) articles had 91 or more references each. The average references per article are 21.72. The years 1981, 2004, 2005, 2007, 2008 and 2009 received a maximum number of average references whereas 1988 and 1989 received a minimum number of average references. The average number of references per article is higher than the result of Sharif and Mahmood (2004) which was 17.88 references in the partial of analysis of *PDR* based on a sample of eight volumes. However, the difference is negligible.

Length of the Articles

The 1627 articles cover a total number of 26595 pages, with an average length of 16.35 pages per article. More than half of the articles (n=844, 51.87%) are in the range of 12-21 pages each, followed by 453 (27.84%) in the range of 2-11 pages. The shortest articles were of two pages while the longest one of 68 pages. The maximum average page length was received by the articles of the years 1976, 1981, 1990 and 1997 and the minimum average page length of the years 1987, 1988, 1989 and 1993. The previous literature shows varying lengths of articles (Al-Qallaf, 2009; Thanuskodi, 2010). It appears that the length of articles depends on the policy of the journal, discipline, type of research, area of research, and scope of research.

Table 7
Subject distribution of articles

Rank	Subject Category	Frequency	% of Total
1	Agriculture; Irrigation; Land Reforms and Fertilizers	246	15.12
2	Demography; Family Planning; Fertility; Gender Issues and Behaviour	196	12.03
3	Economic Development; Economic Growth; Developing Planning and Policy; Developing Theory and Models	124	7.62
4	Poverty; Welfare Theory	88	5.4
5	Labour and Labour wages, Worker behaviour, and Skill development	80	4.92
6	Trade; Export; Import; Commercial policy	72	4.43
7	Industry, Firms	70	4.29
8	Monetary and Fiscal Theory/Economics; Interest rates	64	3.93
9	Consumption; Consumer Behaviour; Employment; Investment	52	3.19
10	Education	51	3.13
11	International Economics; Balance of Payments	38	2.34
12	Inflation/Deflation; Price Mechanism	37	2.28
13	Financial Institutions; Institutional Economics	34	2.08
14	Energy	28	1.72
15	Migration/Labour mobility	26	1.59
15	Health	26	1.59
16	Regional Economics; Rural and Urban Economics	24	1.48
17	Taxation; Subsidies and Revenues	22	1.35
18	Islamic Economics	20	1.23

19	Economic Theory and Economic Thought	19	1.17
20	Exchange Rates; International Financing; Stock Markets	18	1.1
21	Financial Markets; Financial Economics	17	1.04
21	Country Studies	17	1.04
22	Human Capital; Human Resource Development	16	.99
22	Political Process, Government and Governance Issues	16	.99
23	Money Supply; Money Credit; and Money Multiply	15	.93
23	Econometric Models; Mathematical Methods and Models	15	.93
24	Income Distribution; Income Inequalities	13	.79
24	Banks and Banking System, Money	13	.79
25	Environmental Economics	12	.74
25	International Lending; Debt Problems	12	.74
26	Natural Resource Management; Resource Mobilization	11	.68
27	Administration, Civil Services	10	.62
27	Public Economics	10	.62
27	Technological Change; Technology Transfer	10	.62
28	Foreign Aid	9	.56
28	Social Development and Social Change	9	.56
29	Telecommunication; Transport and Communication	7	.43
30	Cost-Benefit Analysis	6	.38
30	Information Technology; E-Commerce	6	.38
30	Macroeconomics	6	.38
31	Public Enterprises	5	.3
32	National Budget	4	.25
32	Economic Structure	4	.25
32	Law and Economics	4	.25
32	Anthropological Issues	4	.25
N/A	Other	41	2.52
Total	**N/A**	**1627**	**100**

Conclusions

Since new research mostly appears in journals, the journal literature reflects current research trends and developments in a field of study and therefore the scholars use this literature more than any other form of literature. The need was felt for understanding economics journal literature so as to determine research trends in the field for which the bibliometric techniques of analysis are found very helpful. Apart from the researchers of other social sciences fields, the results of single journal bibliometric study help the information professionals understand the overall research scenario in the respective field of study. This will help them in designing information services as well as in making sense of the communicative process with researchers of economics during their process of information seeking.

It has been found that a large number of authors in this study produce small number of papers and usually prefer to work alone. However, an increasing trend in collaboration has been found in the later years of this journal. The concerned authorities in Pakistan need to look at this phenomenon seriously and create a research environment where team-work is encouraged. A high degree of contribution from the host country and the host institution is not a good reflection on the scholarly status of the journal. The authorities of the journal need to look at this situation and adopt ways and means to encourage international contributions.

Agriculture is considered as the backbone of Pakistani economy. Its large fertile land area, natural water resources, and hardworking people have made agriculture as the most visible area for

research by the economists. Indeed, there is much potential for research in the agricultural sector which can boost the economy but some other socio-economic areas of importance need to be given attention by the researchers and research institutions. Many natural resources of the country are either ignored or investigated about less such as energy; Islamic economics; social development and some geographical areas are not given much attention. Apart from these there are some other interesting results that came out of this study which can better guide the social science researchers as well as the editorial team of the journal to plan future actions and design new and better research policies.

Recommendations

The purpose of the following recommendations is to improve research published in the *Pakistan Development Review* and to enhance its international status. This will require a review of the editorial policy of the journal.

1. An effort should be made to encourage team-research and writing of collaborative papers. Earlier studies have established that collaborative effort improves the quality of papers.
2. The journal should make a serious effort to attract papers from researchers from other countries and give preference to papers written with international collaboration. This will enhance the international visibility of the journal and will make it attractive to writers from other countries.
3. The editorial policy should require references of earlier research and avoid publishing papers that do not include references to related research. It should also strictly follow a standard references practice, including uniformity in the names of authors.
4. The scope of the journal should be clearly defined so that papers are contributed on all aspects of development economics rather than focusing on a limited number of subjects.
5. The amount of research contributed by the smaller regions of Pakistan is very limited. Researchers in these areas should be encouraged to conduct and publish research so that issues specific to those regions are highlighted.
6. The concern of development economists naturally goes beyond just economics because it aims at the over-all development of a region or a nation. Therefore, the journal should encourage inter-disciplinary research so that socio-political issues are also taken up in research that will lead to the eradication of barriers that hamper economic development.
7. There is an urgent need to conduct a full analysis of references (reference analysis) of the papers published in *PDR* in order to understand the nature and scope of literature used by its researchers.

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