A DISCUSSION ON THE DIVERSE ECONOMIC DEVELOPMENT ISSUES PUBLISHED IN THE PAST 25 YEARS: A BIBLIOMETRIC ANALYSIS BASED ON WORLD DEVELOPMENT

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Abstract :

World Development (WD) is a journal of international repute that publishes original, peer-reviewed, and empirical research on global economic development issues. Key developmental issues, decisions, processes, and activities within real-world settings frequently feature in WD articles. Using bibliometric techniques, we analyze the journal's impact, prominent topics, and most prolific authors, including their affiliated institutions and countries. Through Gephi software, the findings depict the co-authorship and bibliographic couplings of authors and their affiliated institutions and countries, co-citations of journals, and co-occurrence of author-specified keywords. We have found from the bibliometric analysis that ESG (environmental, social, and governance) and development, vulnerability and development, livelihood and development, sustainability, and industrial development are the most vital developmental issues.

1. Introduction :

World Development (WD) is a multi-disciplinary journal indexed in almost all databases, including Scopus and web of science index, known for its scientific peer-reviewed work. WD publishes original scientific and empirical works related to development within development studies, mainly in economics, econometrics, finance, and social sciences. In 1973 the journal was established and started publication by Elsevier. Within these 48 years, it achieved critical academic excellence in the environment of development studies and economic studies. WD has the 5 percent compound annual growth rate on publication between the study period and received the highest number of published documents from the USA and the highest publication institution of World Bank from across the globe. According to the SCImago journal ranking, WD ranked 2.38, while in economics, it has ranked 32nd among 347 journals and 5th in planning and development out of 55 journals. According to Scopus, in 2020, WD has the cite score of 8.4 and the highest publication of documents (380); besides, clarivate analytics of journal citation report, it has the impact factor 3.869 and 4.740 in the last five years. Currently, Jampel Dell'Angelo from Vrije University Amsterdam and Chuan Liao from Arizona State University are the chief editors of WD.

Following the WDs popularity and surviving year, it this important to conduct a bibliometric analysis. Such study is common the literature (Baker et al., 2020; Cancino et al., 2017; Donthu et al., 2020, 2021; Laengle et al., 2017; Martínez-López et al., 2018, 2018; Modak et al., 2020; Valenzuela-Fernandez et al., 2019; Valenzuela et al., 2017). Our bibliometric study discussed an in-depth overview of document publications, total citation trend, most productive authors, institutions, country, cited papers, and occurring research themes at WD in the last 25 years: 1996-2020. Our mapping data confirms the descriptive findings by displaying the contributors' co-authorships. Furthermore, we investigate the semantic relationship between WD writers and their affiliated institutions and countries using bibliographic coupling studies. The mapping technique examines the co-occurrences of author-specified keywords to show the thematic ties of the essential discussions in WD articles. This paper intends to analyze the scope of the future research direction which will help the future researchers.

The rest of the paper is structured as follows. The following section displays the data and methodology.

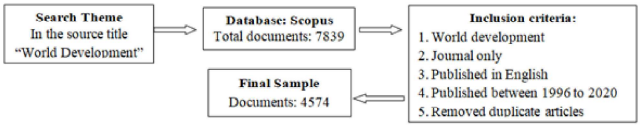
Then, section 3 discussed the descriptive and network results, and section 4 deals with the visualization of the networks. Finally, section 5 concludes the study.

2. Methods and Data :

Generally, three methods are available in the literature to conduct a review paper: systematic literature review, meta-analysis, and bibliometric analysis. However, the bibliometric technique is used to apply when the data set is extensive, and the objective is to analyze the intellectual research trends of theme, institution, or journal (Donthu, Kumar, Mukherjee, et al., 2021). Bibliometric techniques are developed from library and information science research that involves a significant number of bibliographic materials which summarize the extant literature (Bar-ilan, 2008; Broadus, 1987). In the bibliometric literature, a wide range of studies has been done in various fields such as on journals, documents, universities, and authors (Baker et al., 2020; Blanco-Mesa et al., 2017; Bonilla et al., 2015; Broadus, 1987; Callon et al., 1983; C. Cancino et al., 2017; C. A. Cancino et al., 2017; Cavaignac & Petiot, 2017; Cheng et al., 2018; Khanra et al., 2021). Based on similar sources and referencing techniques, scientific studies illustrate logical convergence. In the bibliometric literature, co-authorship, and co-occurrence are also common. Co-authorship indicates the authorship pattern and linkage among cooperating authors, whereas keyword co-occurrence reveals the literature's conceptual or knowledge structure Callon et al., 1983; Cheng et al., 2018; Kessler, 1963; Koseoglu, 2016; Peters & Van Raan, 1991). Based on the conceptual framework of the literature, we present a bibliometric overview of WD in terms of both descriptive and network analysis. We have adopted the total number of documents published, their citations, and average citation in terms of publication. Along with the above, our network analysis covers bibliographic couplings, co-citations, and co-occurrences in addition to descriptive studies.

We have extracted data from the Scopus database, which is the largest source of bibliometric data on social sciences and management, for our bibliometric analysis. Scopus is a peer-reviewed multi-disciplinary bibliometric database library (Bartol et al., 2014; Donthu et al., 2020). Scopus reveals the 4574 published documents between 1996-2020, consisting of 4387 articles, 83 notes, 34 reviews, 27 errata, 26 editorials, 12 letters, three conference papers, and two short surveys. The search process uses the term "world development" in the source title option and developed between June 2020 and July 2020. The whole data collection process is summarized in Fig. 1. Numbers of software has been designed to analyze the bibliometric data with the advancement of technology, but in our study, we have used VOSviewer and Gephi to graphically visualize the nodal network (Bastian et al., 2009; Van Eck & Waltman, 2019).

Fig. 1 Sample design for the study



3. Results and Discussion :

3.1 Publications trend and citation structure of WD : WD began its voyage in 1973 by publishing 66 articles, and the number of publications has grown significantly since then. Table 1 shows the annual publication of articles, total citations, average citations, and various indexes. Fig.2. illustrates both publication trend and citations per cited publication.

According to Table 1, 2020 was the most prolific year for WD in terms of publications (381), cited publications (313 or 82.15 percent), and total citations (1422), with at least 3.73 times the average citations per article. Citations of an article also reflect its influence on performance (Ding & Cronin, 2011; Tsay, 2009); in this regard, 1999 is the most influential year (13599), followed by 2001 (13221) during the last 25 years publications of WD. The article of Agrawal & Gibson (1999) " Enchantment and disenchantment: The role of community in natural resource conservation" was the most cited article in 1999. Besides publication and citations, in terms of WDs impact, 2003 tops with highest h-index 64, 1999 tops with highest g-index 116, 2015 tops with highest i10-index 223 and 2018 tops with highest m-index 0.76. Table 1 also shows that from 1996 to 2020, 68 articles received 300 times or more citations, 153 articles were cited 200 times or more, 502 articles were cited 100 times or more, 1193 articles were cited 50 times or more, 2149 articles were cited 25 times or more, and

4459 articles were cited at least once or more.

Fig.2. illustrates the WDs publication growing trend and citation per cited publications in the last 25 years. The publication growth trend is rising, showing that document publication increases in WD, but the citation trend is declining. However, this is not surprising given that the latter works in the journal are newer, and it usually takes time for citations to accumulate. Overall, WD exhibits a high and significant steady growth. While, Fig. 3 shows the WDs citation structure, Citation from other journals is much higher than the self citation itself of WD.

Table 1 Citation structure of WD publications between 1996 and 2020

										Publication with citations =					
Year	TP	NCP	TC	C/CP	C/P	h	g	i10	m	300	200	100	50	25	1
1996	132	131	9985	76.22	75.64	49	98	102	0.50	7	8	22	50	74	131
1997	142	141	7805	55.35	54.96	50	85	111	0.59	2	6	24	55	82	141
1998	145	143	7427	51.94	51.22	44	82	118	0.54	2	6	18	42	75	143
1999	126	124	13599	109.67	107.93	57	116	111	0.49	10	15	34	61	88	124
2000	129	129	10807	83.78	83.78	52	102	117	0.51	8	18	29	55	93	129
2001	124	124	13221	106.62	106.62	60	114	121	0.53	9	17	33	74	102	124
2002	127	127	10346	81.46	81.46	60	99	122	0.61	6	8	33	69	98	127
2003	121	121	10339	85.45	85.45	64	100	118	0.64	3	7	34	72	95	121
2004	114	114	11146	97.77	97.77	55	105	103	0.52	6	10	32	57	86	114
2005	114	114	11782	103.35	103.35	59	108	107	0.55	8	16	33	66	86	114
2006	122	121	9592	79.27	78.62	58	96	114	0.60	3	8	25	65	95	121
2007	126	125	6953	55.62	55.18	48	78	116	0.62	0	2	19	46	92	125
2008	164	162	8613	53.17	52.52	54	85	143	0.64	0	4	24	58	107	162
2009	157	156	9841	63.08	62.68	54	93	141	0.58	2	9	28	58	108	156
2010	141	140	7637	54.55	54.16	51	82	122	0.62	0	5	23	50	85	140
2011	176	175	9165	52.37	52.07	57	86	155	0.66	0	4	27	64	116	175
2012	187	185	8187	44.25	43.78	52	80	162	0.65	0	2	18	57	103	185
2013	183	180	6568	36.49	35.89	48	67	152	0.72	0	1	8	43	96	180
2014	247	243	9472	38.98	38.35	52	80	218	0.65	1	4	13	57	125	243
2015	279	278	7960	28.63	28.53	45	66	223	0.68	0	1	10	34	112	278
2016	210	207	6032	29.14	28.72	41	63	162	0.65	1	2	7	27	78	207
2017	301	296	6098	20.60	20.26	39	55	183	0.71	0	0	6	23	82	296
2018	349	343	4969	14.49	14.24	32	42	194	0.76	0	0	2	8	56	343
2019	277	267	2374	8.89	8.57	20	28	85	0.71	0	0	0	2	12	267
2020	381	313	1422	4.54	3.73	13	18	34	0.72	0	0	0	0	3	313
Total	4574	4459	211340	47.40	46.20	1214	2028	3334	0.60	68	153	502	1193	2149	4459

Notes: TP = total number of WD publications; NCP = number of cited publications; TC = total citations; C/P = average citations per publication; C/CP = average citations per cited publication.

3.2 The most cited WD articles :

Citations received by an article show its influence. According to the Scopus database, Table 2 provides the most cited article published in WD from 1996 to 2020. The most cited paper was published in 2004, with almost 1621 citations, followed by 1999 (1540) and 1994 (1174). It is worth noting that all of the tops cited articles in WD acquired at least 500 citations. For example, the top-cited article by Stern (2004) deals with the critical history of the environmental Kuznets curve and found that idea behind the theory is not valid for all nations together. The study also suggests that "A

new generation of decomposed and efficient frontier models can assist in determining the true relationships between development and the environment." Similarly, Agrawal and Gibson (1999) discussed the role of community in natural resource conservation and recommended that institutions rather than communities emphasize natural resource management. According to the average cites per year, Stern (2004) articles also ranked top (95.35).

Table 2 emphasized numerous significant themes in development theories, such as growth and development, poverty, finance, industrialization, environment, and economic development, community and gender development, sustainable development, and governance, among many others. It is considered one of the prominent journals in the development domain, concentrating on all of these diverse issues and broadening the dimensions of development studies. In the following section, we acknowledged the top WD authors and their affiliations.

Table 2 Top 25 cited articles published in WD between 1996 and 2020

TC	Title	Authors	Year	CPY
1621	The Rise and Fall of the Environmental Kuznets Curve	Stern D.I.	2004	95.35
1540	Enchantment and disenchantment: The role of community in natural resource conservation	Agrawal A., Gibson C.C.	1999	70.00
1175	The origins and practice of participatory rural appraisal	Chambers R.	1994	43.52
1165	Returns to investment in education: A global update	Psacharopoulos G.	1994	43.15
1156	Technological capabilities and industrialization	Lall S.	1992	39.86
1080	Capitals and capabilities: A framework for analyzing peasant viability, rural livelihoods and poverty	Bebbington A.	1999	49.09
1077	Common property institutions and sustainable governance of resources	Agrawal A.	2001	53.85
956	Crossing the great divide: Coproduction, synergy, and development	Ostrom E.	1996	38.24
923	Sustainable development: A critical review	Sharachchandra M. Lélé	1991	30.77
891	Social capital and the environment	Pretty J., Ward H.	2001	44.55
859	Environmental entitlements: Dynamics and institutions in community-based natural resource management	Leach M., Mearns R., Scoones I.	1999	39.05
849	The asset vulnerability framework: Reassessing urban poverty reduction strategies	Moser C.O.N.	1998	36.91
818	Economic growth and environmental degradation: The environmental Kuznets curve and sustainable development	Stern D.I., Common M.S., Barbier E.B.	1996	32.72
787	Participatory learning for sustainable agriculture	Pretty J.N.	1995	30.27
691	Social vulnerability to climate change and extremes in coastal Vietnam	Neil Adger W.	1999	31.41
675	Who takes the credit? Gender, power, and control over loan use in rural credit programs in Bangladesh	Goetz A.M., Gupta R.S.	1996	27.00
650	"Can Payments for Environmental Services help reduce poverty? An exploration of the issues and the evidence to date from Latin America"	Pagiola S., Arcenas A., Platais G.	2005	40.63
617	Government action, social capital and development: Reviewing the evidence on synergy	Evans P.	1996	24.68
610	Informality revisited	Maloney W.F.	2004	35.88
606	Do international migration and remittances reduce poverty in developing countries?	Adams Jr. R.H., Page J.	2005	37.88
605	Participatory exclusions, community forestry, and gender: An analysis for South Asia and a conceptual framework	Agarwal B.	2001	30.25
581	Participatory rural appraisal (PRA): Analysis of experience	Chambers R.	1994	21.52
577	On the determinants of foreign direct investment to developing countries: Is Africa different?	Asiedu E.	2002	30.37
570	Capital market liberalization, economic growth, and instability	Stiglitz J.E.	2000	27.14
566	Rural Credit Programs and Women's Empowerment in Bangladesh	Hashemi S.M., Schuler S.R., Riley A.P.	1996	22.64

4. Mapping WD with the VOSviewer and Gephi software :

We used tools such as Biblioshiney on R, VOSviewer, and Gephi to design graphical presentations and analyze bibliographic data (Aria & Cuccurullo, 2017; Bastian et al., 2009; Van Eck & Waltman, 2019). The concepts of co-citation and co-authorship are used to demonstrate the correlation structure of publications and intellectual links among authors in different organizations and countries.

4.1 Mapping of co-authorship :

Fig. 6 displays the co-authorship network of WD writers who published at least eight collaborative documents cited at least 150 times between 1996 and 2020. Christopher B. Barrett, affiliated with Cornell University, and Erin C. Lentz, affiliated with Bucknell University, has the most co-authored papers. They are followed by Jikun Huang, affiliated with the Chinese Academy of Sciences, Beijing, and Scott Rozelle, affiliated in Stanford University, and Bradford L. Barham and Michael R. Carter, affiliated in the University of Wisconsin, in WD co-authorships.

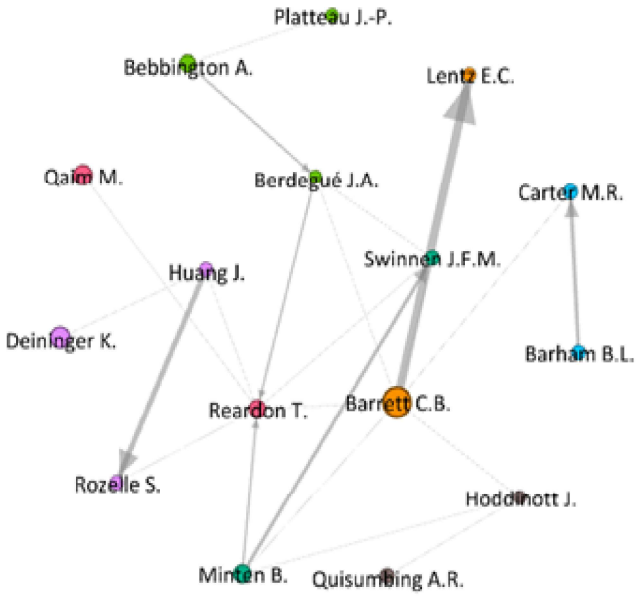


Fig. 6 shows the co-authorship of WD writers between 1996 and 2020. This graph, created with the VOSviewer and Gephi software, depicts the co-authorship of at least eight documents by a network of WD authors between 1996 and 2020.

Aside from the co-authorship of the authors' network, the co-authorships of author-affiliated institutions and countries are also important aspects of co-authorship networks. The co-authorship network among the WD authors' affiliated institutions is depicted in Fig. 7. World Bank and International Food and Policy Research Institutes, World Bank and Cornell University, World Bank and American University, World Bank and Harvard University, Goettingen University and Iza in Germany, University of Nottingham and the University of Oxford, and the London School of Economics and Wageningen University are all examples of solid co-authorship networks in WD. Table 4 lists almost all of the institutions based on their top WD publications. Usually, a more co-authorship has been observed from different institutions but within the same country.

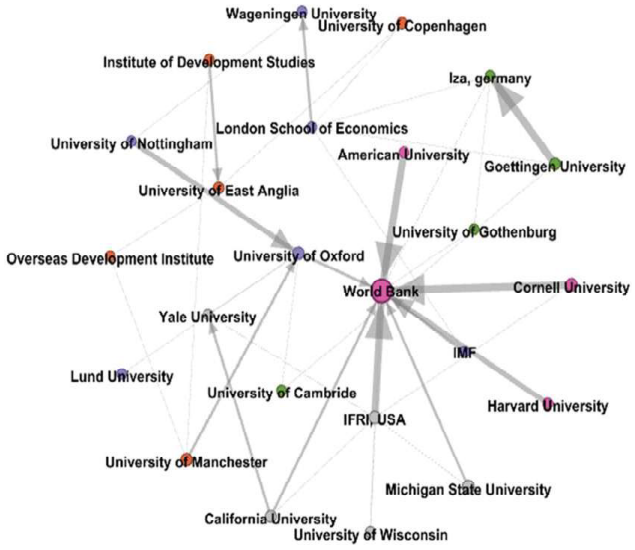


Fig. 7 shows the co-authorship of WD institutions between 1996 and 2020. This graph, created with the VOSviewer and Gephi software, depicts the co-authorship of at least 16 documents by a network of WDs author's affiliated institutions between 1996 and 2020.

Besides the WD writers' affiliated institutions, Fig. 8 shows the co-authorship of WD writers' affiliated countries. Countries like the United Kingdom and United

States of America (USA), Germany and USA, China and USA, India, and the USA show the highest number of WD writers affiliated in the USA from different institutions. The USA is serving as the center of co-authorship publication in WD from 1996 to 2020.

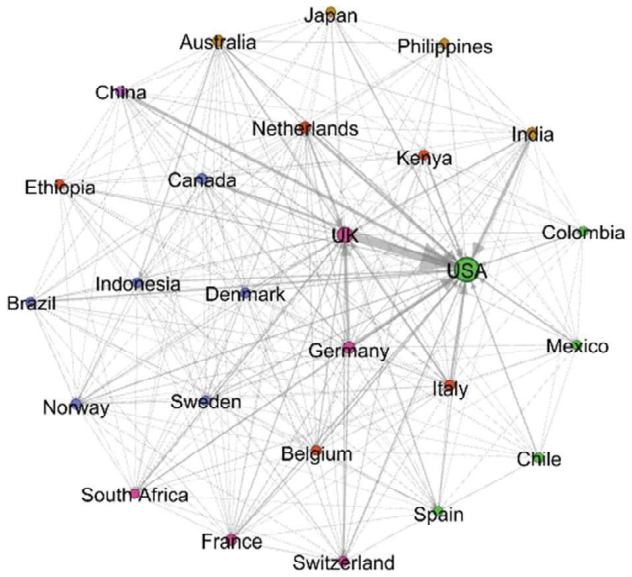


Fig. 8 *shows the co-authorship of WDs affiliated countries between 1996 and 2020. This graph, created with the VOSviewer and Gephi software, depicts the co-authorship of at least 40 documents by a network of WDs author's affiliated countries between 1996 and 2020.*

4.2 Mapping of bibliographic coupling :

Quite apart from co-authorship networks, bibliometric coupling of authors, authors' affiliated institutions, and countries are also crucial for visualizing intellectual connections between them (Kessler, 1963). Fig. 9 shows the bibliographic coupling among the authors with the threshold of a minimum of 9 documents published in WD and has 330 citations. It reveals the four bibliographic clusters, reflect the most productive authors under these four intellectual groups. The geographic intimacy of authors demonstrates their scholarly attachment or closeness. For example, Axel Dreher, affiliated with the Swiss Federal Institute of Technology, and Peter Nunnenkamp, affiliated with Kiel Institute for the World Economy, shows a strong bibliographic couple, followed by Jikun Huang, affiliated with the Chinese Academy of Sciences, and Scott Rozelle, affiliated in Stanford University, and their importance within the authors' network is indicated by the nodes of their bibliographic coupling.

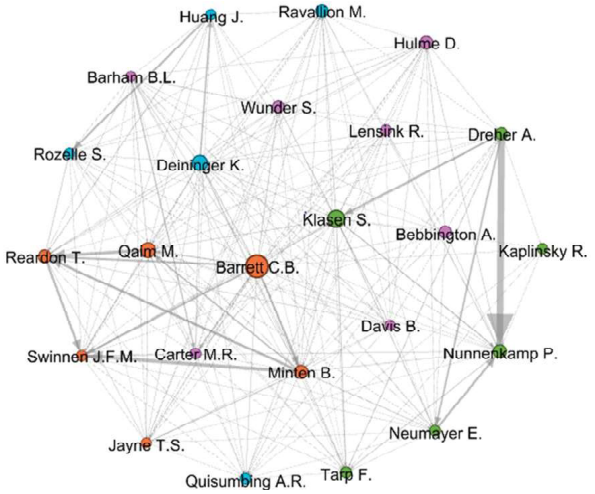


Fig. 9 *shows the bibliographic coupling of WD writers between 1996 and 2020. This graph, created with the VOSviewer and Gephi software, depicts the bibliographic coupling of writers with at least nine documents by a network of WD writers between 1996 and 2020.*

Fig. 10 depicts the bibliographic coupling of institutions affiliated with WD authors, with a minimum of 16 documents published and 450 citations. The Institute for Food and Research Institutions and World Bank are the most decent bibliographic couple, followed by the American University, Gothenburg University, Oxford University, and the World Bank. From 1996 to 2020, these institutions get the most similarities in their academic references as presented in WD publications.

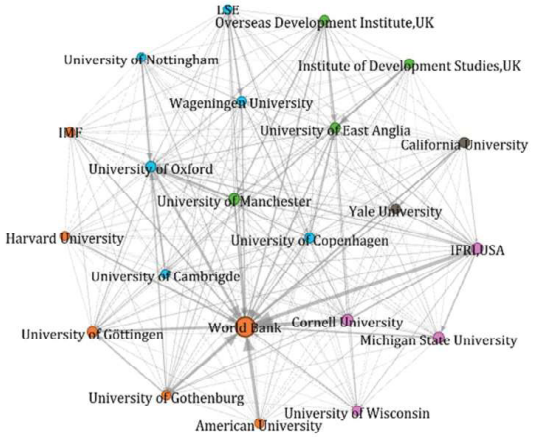


Fig. 10 shows the bibliographic coupling of WD institutions between 1996 and 2020. This graph, created with the VOSviewer and Gephi software, depicts the bibliographic coupling of authors' affiliated institutions with at least 16 documents between 1996 and 2020.

Fig. 11 depicts the bibliographic coupling of counties associated with WD authors, with a minimum of 40 published documents and 1260 citations. The United States has the highest bibliographic couple with the other countries, as shown in the figure. The United Kingdom and the United States exhibit a strong couple, followed by Germany, Italy, India, Norway, China, and United States. The couple's strength is demonstrated by the frequent co-occurrence of WD authors and their familiar sequence of referencing in WD publications from 1996 to 2020. These connections are reliable with Table 5, which indicates that the country is generally tied with WD authors. Despite the likely linkages, the visualization of several countries suggests that WD publications present global perspectives and are not solely focused on developmental work from the United States.

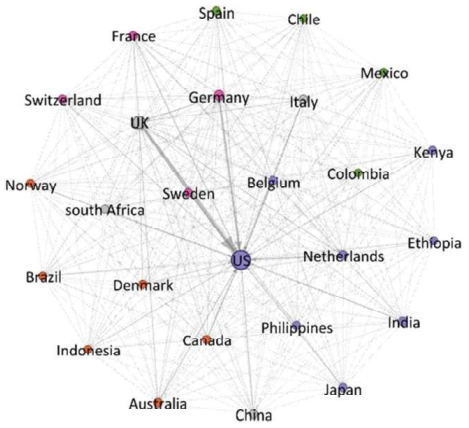


Fig. 11 shows the bibliographic coupling of WD authors affiliated countries between 1996 and 2020. This graph, created with the VOSviewer and Gephi software, depicts the bibliographic coupling of authors' affiliated countries with at least 40 documents between 1996 and 2020.

4.3 Mapping of co-citation and Keywords :

Fig. 12 depicts the co-citation of the most influential authors in WD from 1996 to 2020, with a minimum of 300 citations. The diagram illustrates the five clusters of authors. For example, the most influential co-citation couple is Arun Agrawal of Yale University and Elinor Ostrom of Indiana University. These are followed by Cornell University's Christopher B. Barrett and Michigan State University's Thomas A. Reardon, including the University of California's Alain De Janvry and Elisabeth Sadoulet. These networks show the most similarities in their WD publications from 1996 to 2020.

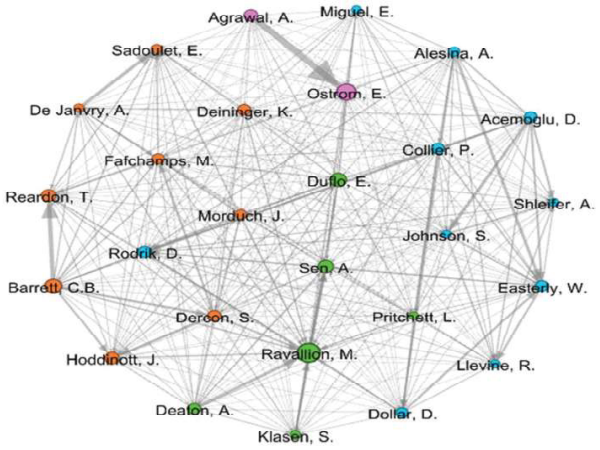


Fig. 12 shows the co-citation of WD authors between 1996 and 2020. This graph, created with the VOSviewer and Gephi software, depicts the co-citation structure of authors with at least 300 citations in WD between 1996 and 2020.

Fig. 13 shows the author-specified keywords that appeared at least 40 times in WD publications between 1996 and 2020. Keywords such as Inequality and Poverty, Education and Health, Migration and Remittances, Agriculture and Poverty, Gender and Poverty, and Climate Change and Deforestation, demonstrate the strongest links in WD publications during the specified periods. However, the author keyword "Poverty" has the most connectivity to almost all of the keywords in WD.

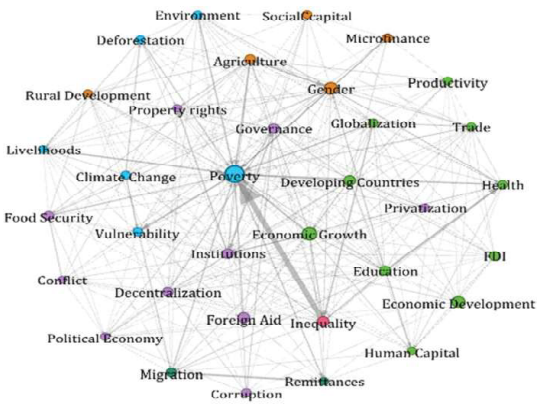


Fig. 13 shows the co-occurrence of authors' keywords in WD publications. This graph was created with the VOSviewer and Gephi software, with the minimum author keyword at least 40 times between 1996 and 2020.

Fig. 14 shows the word cloud visualization of indexed keywords that mainly occurred in the WD publication between 1996 and 2020. The word cloud demonstrates words in different sizes based on how many times they occur. The word layout is somewhat haphazard, but the dominant words are placed in the center to be more noticeable due to their large size. In the figure, "Developing World" is the most common word and is in the centre of the cloud, followed by "India", "Africa," "Asia," "Poverty," "China," "Economic Growth" and "Poverty Alleviation". Interestingly, numerous regions and countries of the world occurred in the cloud; this is due to the fact that several countries were the subject of WD publications in which research themes such as poverty, inequality, education, health, climate change, and migration (as shown in fig. 13) were enforced.

Fig. 14 Word cloud based on indexed keywords with minimum 40 times appeared in WD publications between 1996 and 2020, this graph is created with the Biblioshiney R package software.

The thematic map of author keyword plus based on centrality and density in the four topological zones with three topics in one cluster is depicted in Fig. 15. The upper right and left quadrants represent the motor or driving theme and the Niche theme, respectively, while the lower right and left quadrants illustrate the basic and emerging or declining themes. In the figure's upper right quadrant, topics such as Asia, India, and China are included, and these topics are still important, as indicated by low centrality and high density. The upper left quadrant (niche theme region) contains research themes such as vulnerability, climate change, and livelihood, which is indicated by high density and centrality, and hence can be for future research. Similarly, the bottom right quadrant includes basic topics in the WD, as marked by high centrality but low density; these topics are helpful in research as general topics, such as Poverty, Developing Countries, and Inequality. Lastly, the lower-left quadrant contains topics that are used but have seen a decline in popularity. This region includes topics with low density and centrality, such as Institutions, Governance, and Corruption.

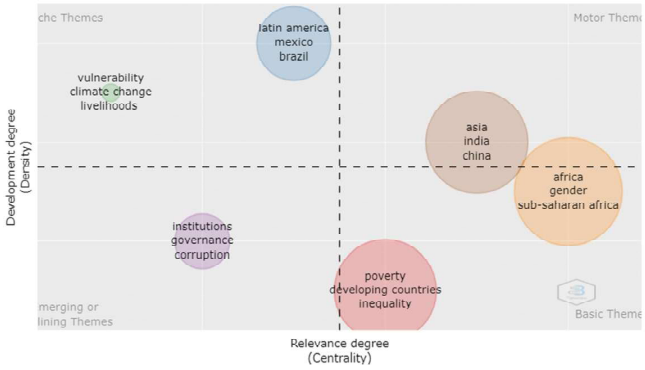


Fig. 15 Thematic map of WD created on Biblioshiney R package software and based on keyword plus.

Conclusion :

This study provides a bibliometric insight of the published documents in WD between 1996 and 2020, using data from the Scopus database. The findings demonstrate the WD's academic excellence throughout its history as a leading journal in the fields of planning and development, as well as economics. The journal first published 66 documents in 1973, and the number of publications has increased significantly since then. Citations have also increased over time, with 97.48 percent of documents receiving at least one citation. With the 381 publications, 2020 was the most productive year between 1996 and 2020. Meanwhile, with the total citations of 13599, and average citation of per cited documents of 109.67, the year 1999 was the most influential year in WD. Christopher B. Barrett of Cornell University was the most productive author,

with 31 documents, followed by Stephan Klasen of the University of Goettingen, who had 21 research papers in WD journal. The article titled "The Rise and fall of the Environmental Kuznets Curve" was at the top of the list with 1621 citations.The insights into the publication trends covers the first research objective .
The mapping of the co-authorship network demonstrates the collaboration of the authors, institutions, and countries. The strongest co-authorship link is between Christopher B. Barrett of Cornell University and Erin C. Lentz of Bucknell University. The World Bank and the International Food and Policy Research Institutes had the strongest co-authorship link among the institutions. Accordingly, the United States and the United Kingdom demonstrate a strong co-authorship link among the authors' affiliated countries. Bibliometric coupling demonstrates the intelligent interconnection of authors, affiliated institutions, and countries. Axel Dreher and Peter Nunnenkamp made a strong bibliographic couple. Meanwhile, the World Bank and the Institute for Food and Research Institutions and the United Kingdom and the United States -were the top bibliometric couple among the institutions and countries respectively. Aside from that, the top co-cited couple in WD was Arun Agrawal of Yale University and Elinor Ostrom of Indiana University. Furthermore, among all author keywords, the most frequently occurring word combinations were "Inequality and Poverty," "Agriculture and Poverty," "Health and Education," "Gender and Poverty," and "Migration and Remittances," in WD between 1996 and 2020. These answer the second and third research questions.
Following research areas emerged from the bibliometric analysis, thematic mapping, and manual reading of highly cited WD papers

ESG (environmental, social and governance) and Development : The economic development and climate change are at crossroads, the developed countries do not want their economic growth to be hampered to fulfill the SDG (sustainable development goals). The future scholars should work on a developmental model, using ESG parameters, which would balance the economic development in a more sustainable manner. The polluters should be made to pay for incentivizing the organization using clean technologies. The mathematical models using large historical data sets may help to explore for a win-win model for economic development and environmental sustainability besides taking care of social and governance issues.

Vulnerability and Development : Humans have different vulnerabilities which may lead to decrease in their standard of living. The developmental activities may increase the quality of life for a section of people, but it may also enhance vulnerabilities in another section of the society. The future scholars may analyze the role of technology like artificial intelligence (AI), block chain, and other emerging technologies in predicting vulnerabilities and prescribing solutions for reducing it. The grounded theory approach, ethnographic studies, or prescriptive data analytics techniques may be used to find solutions to minimize the vulnerabilities during the development process. The education and creating social security provision for below the poverty (BPL) population can help tackle vulnerabilities.

Livelihood and Development: The consideration for well-being of all strata of society members is essential in all livelihood policy decisions. The development should not be socially and economically damaging for vulnerable sections of the society. The future scholars should explore the social protection models which would ensure livelihoods of vulnerable people are not negative impacted while undertaking the planned economic development of a region. The scholars may explore how technological development especially related automation, substitution, and standardization have impacted the livelihood of the various sections of the society.

Sustainability and Industrial Development : Sustainability in an essential component in developmental economics. There are challenges in enhancing industrial production, and at the same time taking care of the environmental issues. Future scholars should explore newer models of shared prosperity and associated challenges in implementing these models. The role of gender in sustainability and industrial development also needs to be explored. The scholars should explore pathways for proposing green industrial

policy where the industrial development fully takes care of environment and sustainability aspects.

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