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# Intellectual Property and Economy: A Bibliometric Analysis (1991 to 2024)

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## ABSTRACT

*Intellectual Property significantly contributes to the economy of the nations. As reported by Corrado and Hulten (2010) that the investment rate for tangible assets are higher in comparison to intangible assets through 1973 to 1994 and thereafter a drastic change has been seen wherein investment ratio of tangible to intangible get reversed post 1994 and this line of argument has been supported by Lev (2018) by showing that the investment rate into intangible assets are much higher than the tangible assets through 2007 to 2017. There are vast literature available world-wide which supports that there is positive relationship between Intellectual Property and Economy. Nevertheless, there is a dearth of literature on “Intellectual Property” AND “Economy” studied using bibliometric analysis. Therefore, this paper attempts to study the topic through utilizing bibliometric analysis that has been performed using the Web of Science (WoS) data from the year 1991 to 2024. The data collected has been analysed using the technological tools like VOSViewer and Microsoft Excel against the research questions carved out in the methodology section of this paper. The result analysis exposes wonderful insights into the trends of publications over the topic, most prolific authors and journals, discipline and subject types, affiliation and countries, key words networks and citation analysis. This study will guide the future researchers by given them a valuable insight over the already accomplished breath and length of study on “Intellectual Property” AND “Economy”.*

**Keywords:** Intellectual Property, Economic Impact, Bibliometric Study.

## I. INTRODUCTION

The protection of Intellectual Property fosters positively towards the trade and the economy [1]. With the advent of technology, the digital economy plays an important role in economic development and ultimately resulting in the development of society at large. In digital realm, the role of Intellectual Property protection positively shaped the economy of the nations and there seems to be a U-shaped relationship between Intellectual Property protection and digital economy [2] and the digital economy reinforces the entrepreneurial activity [3]. The empirical study shows that the countries with small informal economy and stronger IPR protection regime

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attracts more FDI by reducing illegal imitation while the country with large informal economy does not attracts FDI despite having high IPR protection regime [4]. Furthermore, in the context of regional economic growth, the role of Intellectual Property found to affects positively on the regional economic growth ranging from macro to micro level such as Intellectual Property investments, policies, and the construction of the rules and regulations. Enterprises either in Industry, universities or research institutes, who all are responsible to construct the innovative activities which in turn promote regional economic growth [5]. It has been endorsed by researchers that the role of the government to promote and strengthen the Intellectual Property protection in the member states through innovative polices and schemes, rules and regulations etc., shaped the high level regional economic progress [6]. The States afford the protection of Intellectual Property through domestic laws to their own nationals, foreign national or either/neither of them. The research study suggest that the domestic innovation of the country shall be strengthened by showing respect towards the domestic IP as well as the IP of foreign nationals [7]. Intellectual Property significantly impacts open innovation (OI), commercialization performance (CP), and entrepreneurial performance (EP) amongst SME's [8]. The arguments were made that collaboration, amongst SMEs to use each one's innovative ideas, is one of the best strategies to enhance entrepreneurial performance [9]. It has been found that those firms using domestic inputs, positively impact the innovation ecosystem of the firm through strengthened IPR regime while the firms using foreign inputs have both the positive and negative impacts on the innovation ecosystem of the firms through strengthened IPR regime [10]. There seems to be a surge in research trends on Intellectual Property and its impact on the Economy. Therefore, the study employs the bibliometric analysis to analyze the research status of Intellectual Property and Economy comprehensively and systematically. In this study, the web of science database is used to explore the number of papers published on Intellectual Property and Economy.

### **(A) Methodology**

The research methodology section consists of the research objective and data set extraction based on the following research questions.

### **(B) Research Questions**

S. No.	Research Questions	Significance
1	What is the annual trend of publications on Intellectual	The research question would try to answer the annual volume of publications on Intellectual

	Property and Economy?	Property and Economy, which in turn would explore the future trends and gaps.
2	Which author and journal contributing more towards Intellectual Property and Economy Studies?	The research question would try to find specific studies, methodology used to carry out the qualitative research.
3	Which discipline and documents types have contributed towards Intellectual Property and Economy?	The research question would try to specify research efforts carried out by the researchers in different domain.
4	Which countries are carrying out the works in Intellectual Property and Economy domain?	The research question would help to find out the researchers country of origin carrying out the research work in Intellectual Property and Economy.

In this study, the following procedure has been adopted to answer the research questions framed hereinabove:

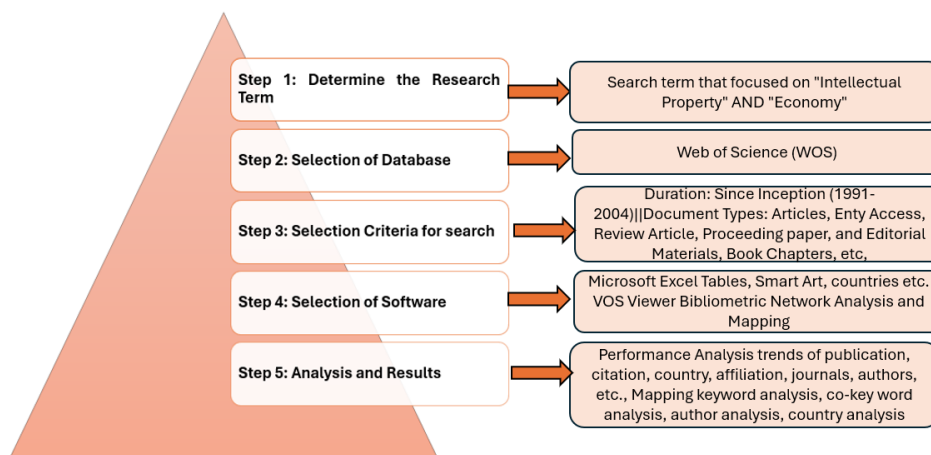


Figure 1– Methodological Frameworks Adopted for Bibliometric Analysis

## II. DEFINING THE SEARCH TERMS

In this Study, the search terms employs are “Intellectual Property” AND “Economy” for the visualization of data. The search term “Intellectual Property” conveys the idea that the creators/inventors of original or inventive creations bestowed with the rights called as “Intellectual Property Rights” and such creations are called as “intellectual Property”.

**(A) Selection of Database**

In this Study, the database selected is Web of Science (WoS) due to its multidisciplinary in nature and benchmarking higher standards in terms of quality publications. This database has been used for bibliometric analysis here in India by Indian researchers of repute as well as in many foreign countries by foreign researchers of repute besides there are many bibliometric analysis that has been carried out on WoS database in collaboration between Indian and foreign nationals researchers.

**(B) Selection Criteria**

A trendy search has been made on Web of Science database employing the search terms “Intellectual Property” AND “Economy” on 27<sup>th</sup> December, 2023. The documents types includes for this study includes articles, early access papers, review articles, proceedings papers, editorial material, meeting abstracts, book reviews, book chapters, etc, from the year 1991 to 2024. The publications that were published in english language has been chosen for the study. The bibliographic data has been extracted from WoS database by adopting the procedures explained here in text (.txt) format.

**(C) Selection of Software**

In this study, two software has been used for handling and analyzing the data extracted from WoS database. One is the Microsoft Excel which is common spreadsheet and data-visualization programme while another is VOSViewer (version 1.6.20) which is free software downloadable from the website <https://www.vosviewer.com/>. This software is used for mapping and clustering of bibliometric networks. This bibliometric techniques are employs for carrying out the research to precisely identify how has a particular scientific domain has developed over time?, how and where do different scientific topics co-relates to each other?, what is the trends of study in any particular scientific domain?.

**(D) Data Analysis**

The data analysis has been conducted to find out the pattern towardst the study of Intellectual Property and Economy. The analysis mapped the annual trend of publications, identified contributions made by countries and authors. The analysis also mapped the discipline which conducted and published the highest number studies and the types of documents that have been published toward the studies of Intellectual Property and Economy.

**III. RESULT ANALYSIS**

The chapter 3 of this paper delves into the result analysis and would answer each of the research

questions mentioned in research methodology chapter. A total of 717 publications made across varied journals, books, conference papers from the year 1991 to 2024 on the Web of Science (WoS) were taken into consideration for bibliometric analysis. Now, the study would like to consider each of the questions raised in the research methodology chapter for analysing the results:

### **(A) Annual Trends of Publications**

The study found a sharp increase in number of publications since 2016 which amounts to approx 7.1% of the total publications made since inception. Publications has broked all its record by securing 118 publications in the year 2022 which is approx 16.45%. Table:1 depicts number of publications made in each year from 1996 to 2023 along with its percentage. Figure 2 is the graphical representation of the annual trends of publications made on WoS database since 1996 to 2023.

Table:1 depicts number of publications made in each year from 1996 to 2023

Years	Record Count	%
1996	3	0.418
1998	2	0.279
1999	3	0.418
2000	7	0.976
2001	3	0.418
2002	2	0.279
2005	6	0.837
2006	7	0.976
2007	8	1.116
2008	6	0.837
2009	8	1.116
2010	9	1.255
2011	10	1.395

2012	7	0.976
2013	14	1.953
2014	10	1.395
2015	5	0.697
2016	51	7.113
2017	56	7.81
2018	62	8.647
2019	63	8.787
2020	77	10.739
2021	72	10.042
2022	118	16.457
2023	99	13.808

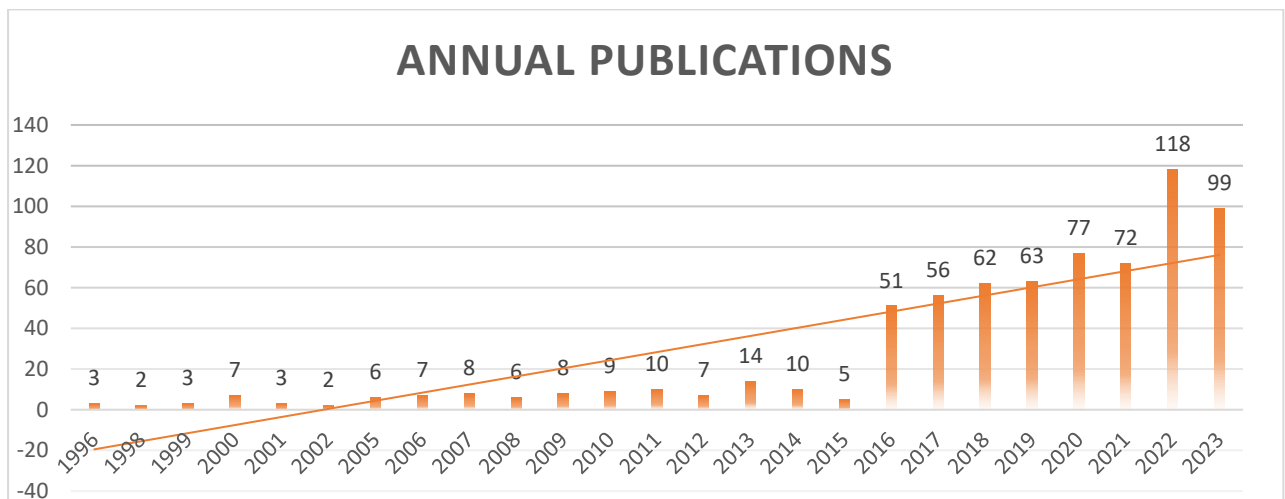


Figure: 2 – Annual Trend Publications

Source: Author’s Calculation

**(B) Top Authors and Top Publishers**

There are around 1768 authors who have contributed to the literature of “Intellectual Property” AND “Economy” which has been analysed on WoS. Figure 3 depicts the top 25 authors along

with their number of publications. The highest number of publications were contributed by Chen W (5 articles) and Chu AC (5 articles) followed by Choi YH, Kim K, Lee J, Lee S, Naghavi A, and Yang YB all of them published four articles/papers contributing to the literature of “Intellectual Property” AND “Economy”.

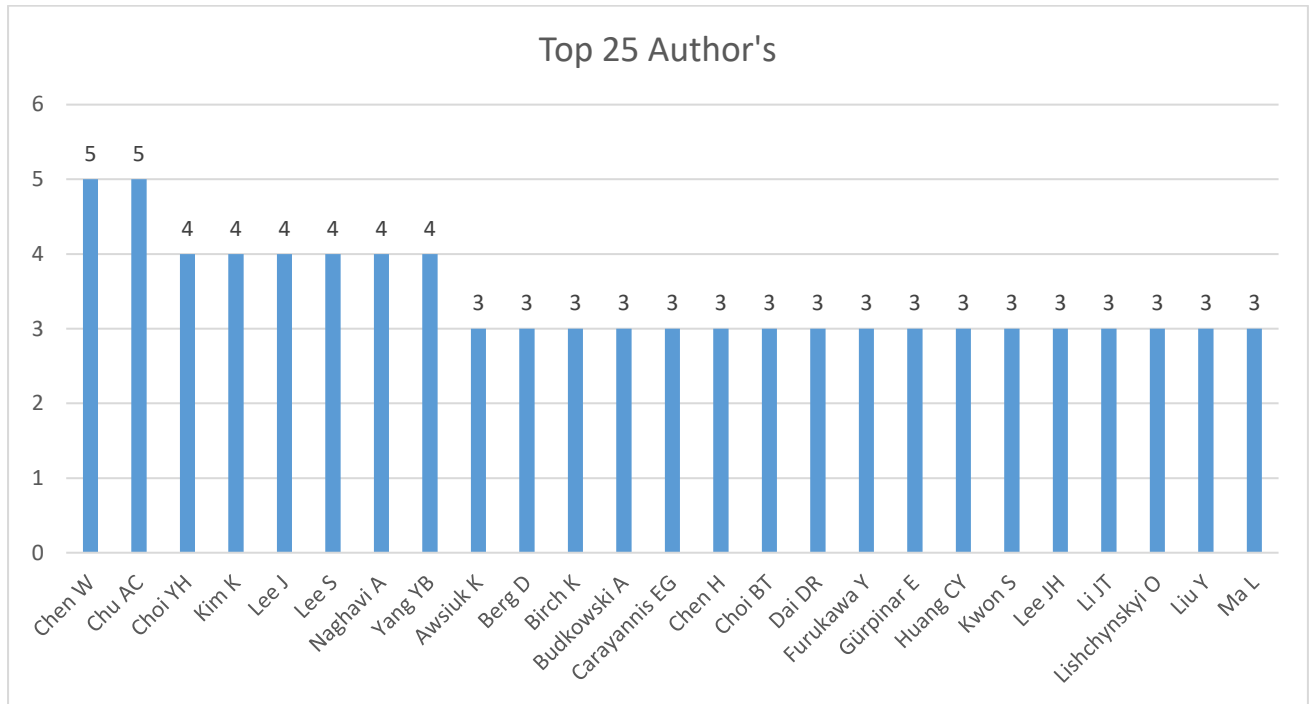


Figure: 3– Author’s Contribution

Source: Author’s Calculation

There are around 124 publishers publishing the literature on “Intellectual Property” AND “Economy” which has been analysed on the WoS database. Figure 4 depicts the top 25 publishers publishing the maximum number of literatures in their database. The highest number of 146 papers were published by Elsevier followed by Springer Nature (98 articles), Taylor and Francis (84 articles), and Wiley (57 articles).



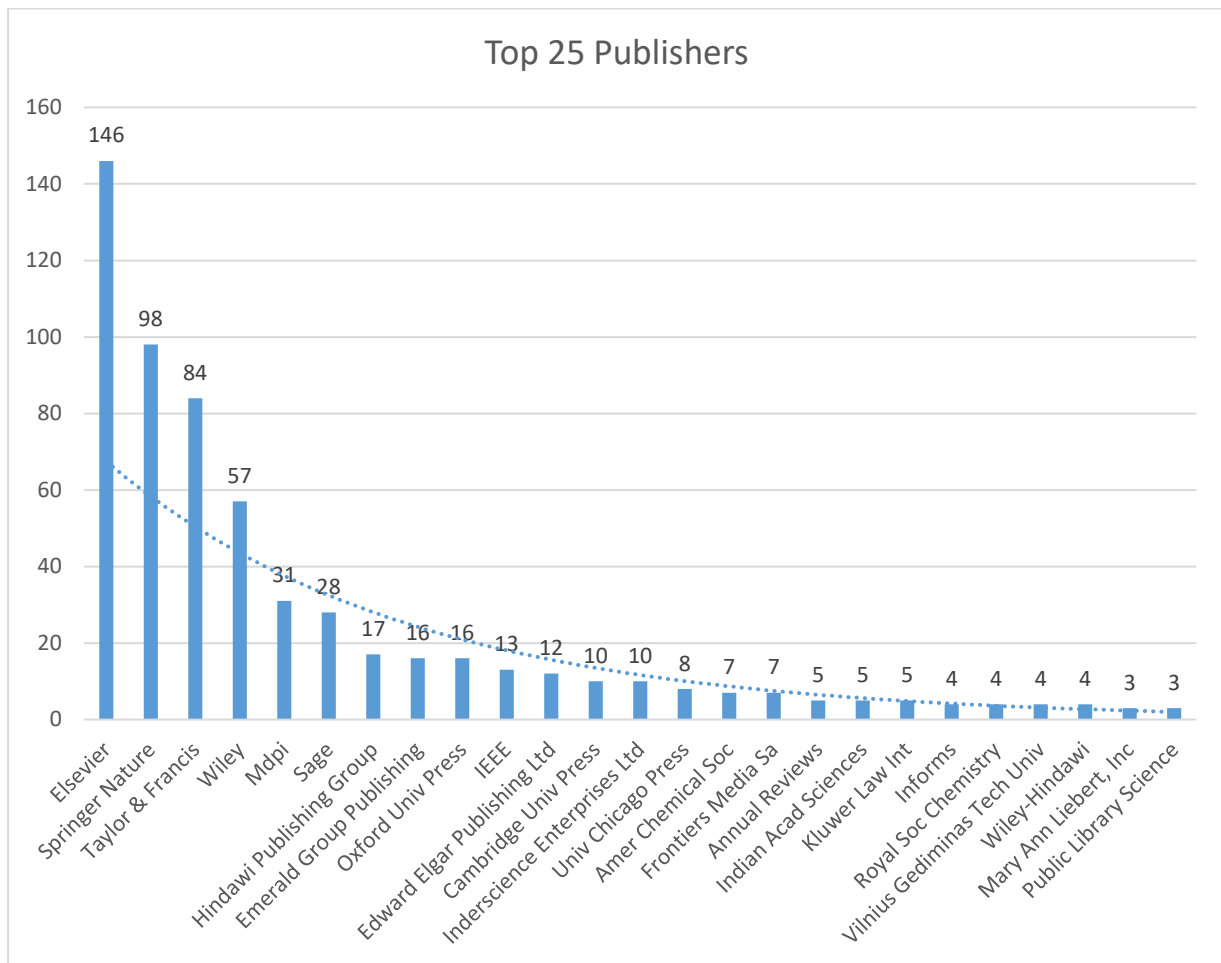


Figure: 4– Publishers having maximum Publications

Source: Author’s Calculation

**(C) Subject Areas and Document Types**

Figure 5 depicts the research areas or discipline where the study regarding “Intellectual Property” AND “Economy” took place by the researchers. The economics discipline tops the list by securing position having 207 number of publications out of 717 total publications. The management secured second position having 107 publications while the legal discipline secured third position having 69 number of publications. While the other top disciplines are environmental science (59), business (55), and international relations (43).

In total 717 publications selected for the study, a total of 10 types of documents has been found to be published on the WoS. The most frequent types of documents includes Articles (662), early access (49), review article (39), proceeding paper (16), editorial paper (8), book review (30). Figure 6 depicts the document types that have been published in the WoS database from the year 1991 to 2024.

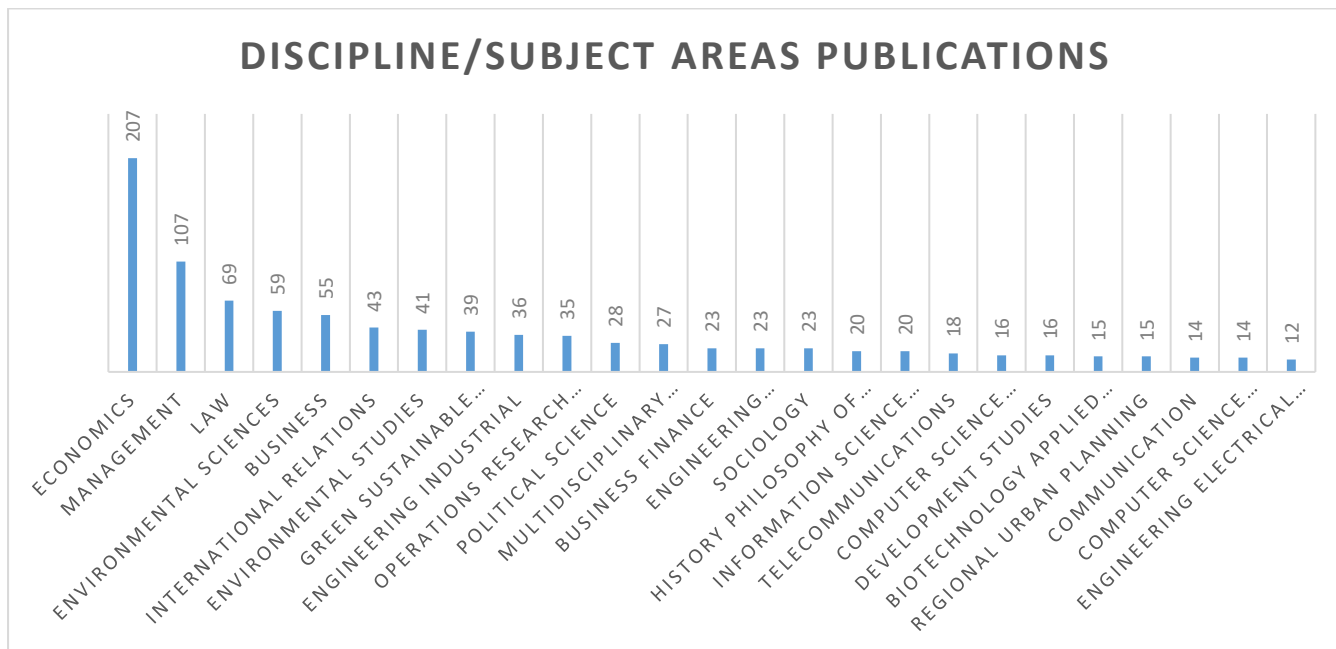


Figure: 5– Publications based on areas

Source: Author’s Calculation

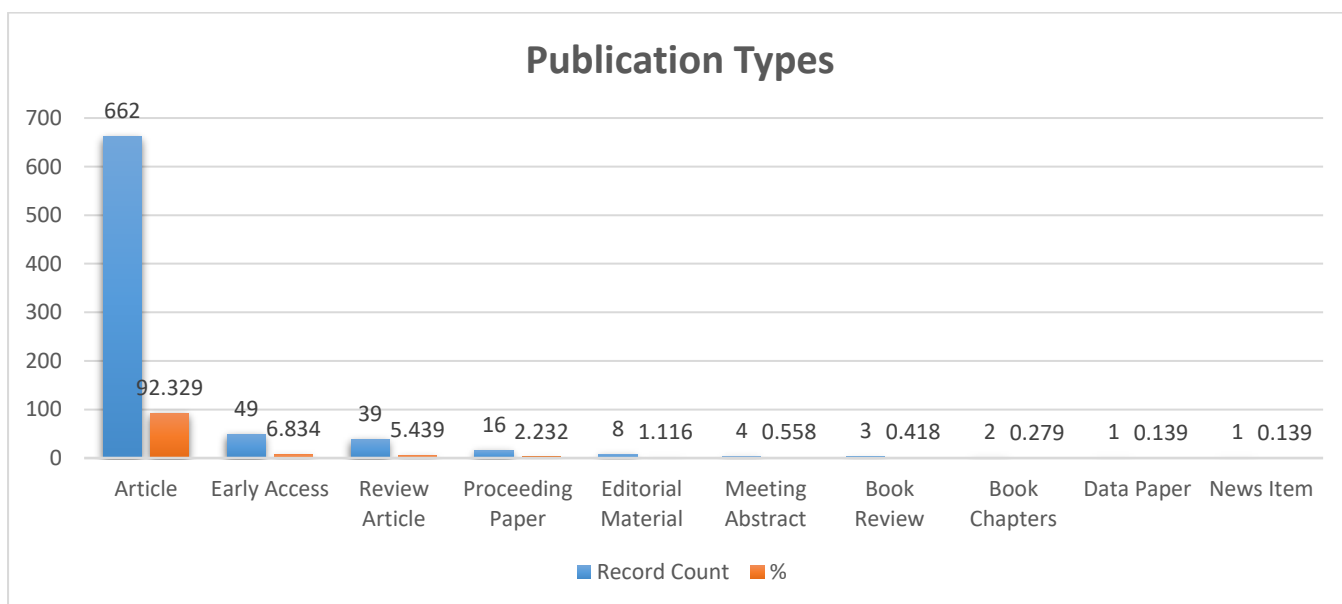


Figure: 6 – Types of Publications

Source: Author’s Calculation

**(D) Country Profile**

Figure 7 depicts the list of countries having the maximum number of publications in the “Intellectual Property” AND “Economy” domain areas. The republic China tops the first position having 183 publications followed by USA (177), England (72), Australia (40), Germany (34), South Korea (33), Japan (30), Italy (29), Canada (27), Spain (26), Taiwan (25)

and India (21).

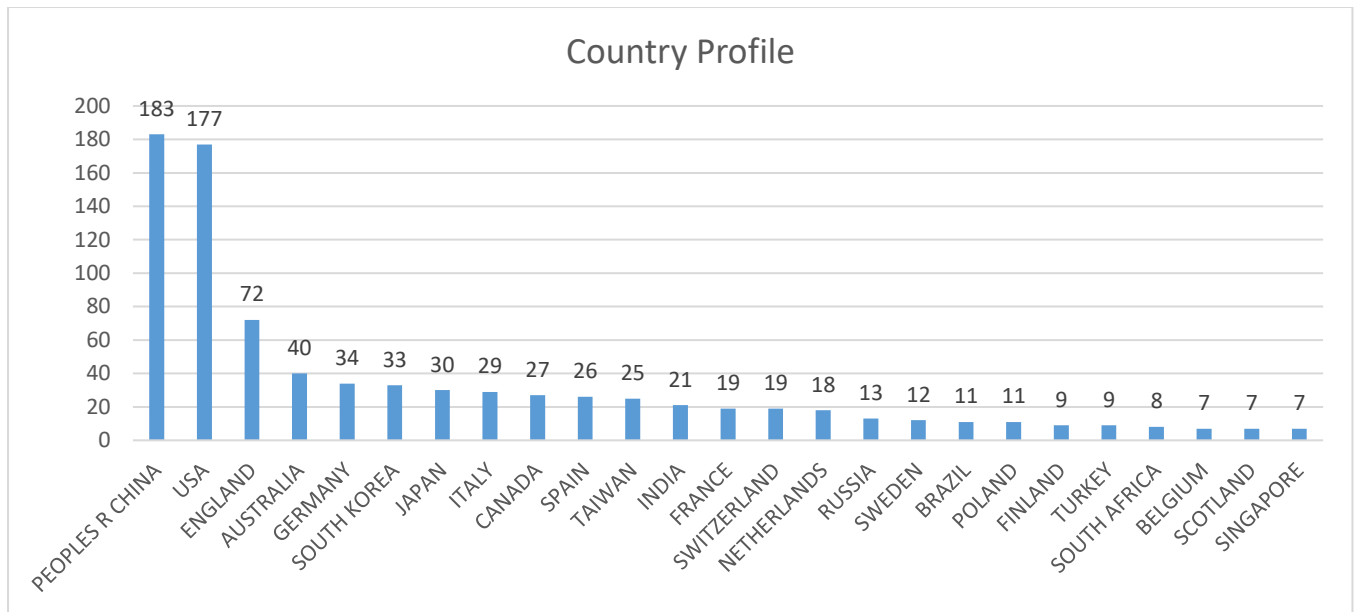


Figure: 7 – Countries with Highest Publications

Source: Author's Calculation

#### IV. DISCUSSION

In this section, the results to each research questions has been answered and discussed.

Research Question: What is the annual trend of publications on Intellectual Property and Economy?

The annual publications trend on Intellectual Property and Economy has been presented in Figure: 01. The figure 01 depicts the continuous growth of publications each year from 2002 to 2022 and there has been a slight decline in the number of publications in the year 2023.

Research Question: Which author and journal contributed more towards Intellectual Property and Economy Studies?

In top authors who have contributed most towards the topic Property and Economy and the top journals that have published the highest number of studies on the topic Property and Economy has been presented in figure 3 and figure 4. Figure 3 depicts that Chen W and Chu AC have contributed 5 papers equally towards the study of Property and Economy followed by Choi YH, Kim K, Lee J, Lee S, Naghavi A, Yang YB contributed 4 papers towards the study of Property and Economy. Figure 03 depicts the top journals that have published highest number of studies towards the topic Intellectual Property and Economy. The journal Elsevier tops the list by publishing 146 papers followed by Springer Nature (98), Taylor and Francis (84), Wiley (57), MDPI (31) and Sage (28). The public library science and Mary Ann Liebert published least

number of papers in their journal.

Research Question: Which discipline and documents types have contributed towards Intellectual Property and Economy?

Figure 5 depicts the discipline/areas in which the studies towards Intellectual Property and Economy has been conducted. It has been found that Economics tops the list having 207 number of publications followed by management (107), law (69), environmental science (59), business (55), and international relations (43). Figure 6 depicts the frequent types of documents that have been published towards the study of Intellectual Property and Economy. There are total 10 types of documents that have been published towards the study of Intellectual Property and Economy amongst which most frequent types of documents published is articles having 662 number of publications followed by early access papers (49), review article (39), proceeding paper (16) and editorial materials (8).

Research Question: Which countries are carrying out the works in Intellectual Property and Economy domain?

Figure 7 depicts the country profile publishing maximum number of papers towards the study of Intellectual Property and Economy. The country peoples Republic of China tops the list having 183 number of publications published towards the study of Intellectual Property and Economy followed by USA (177), England (72), Australia (40), Germany (34) and South Korea (33). The country Singapore, Belgium and South Africa lagged behind and have least number of publications towards the study of Intellectual Property and Economy.

### **(A) Theoretical Implications**

This study is an attempt to report the trend of studies published on WoS database towards the topic Intellectual Property and Economy. This study would also guide the future researchers towards the significant implications and further investigations towards the study of Intellectual Property and Economy.

### **(B) Limitations of the study**

This study has been conducted on WoS database. There are several other databases like Scopus and other important internet databases which has been excluded due to constraint of time and unavailability. These excluded databases can be checked the similarity of this study.

## **V. CONCLUSION**

The study has been conducted by selecting 717 publications made across varied journals, books, conference papers on WoS database from the year 1991 to 2024. The analysis found that there

is a constant increase in interest of researchers towards the study of Intellectual Property and Economy. After 2015, there is an increase in number of studies and is constantly moving upwards in numbers. The most prolific country towards the study of Intellectual Property and Economy is Peoples Republic of China followed by USA, England, Australia, Germany, South Korea and Japan. The most prolific author is Chen W and Chu AC having contributed highest number of studies towards Intellectual Property and Economy. The highest number of papers has been published in the form of articles followed by early access and review articles. The economic disciplines have contributed highest number of studies towards Intellectual Property and Economy followed by management and law.

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