

Framing the Trending Landscape of Counterfeiting: A Bibliometric Analysis of Three Decades (1991-2022)

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Abstract

This study delivers a comprehensive framework that encompasses the evolution and scholarly landscape of research pertaining to counterfeits and counterfeiting, spanning a period of thirty years. The initial stage in doing a scientometric study with a statistical-historical approach involves the identification and categorization of the main topics, authors, sources, and nations that have made significant contributions to the body of published research in the domain of counterfeits. The methodology encompasses bibliometric coupling, citation analysis, and co-citation analysis. The scientometric analysis encompasses multiple variables, and the visualization of the scholarly terrain is facilitated by employing statistical software tools such as the R-package and VOS viewer. Through the utilization of text-mining methodologies, we have effectively conveyed pertinent information employing conceptual and intellectual frameworks. A combination of bibliometric analysis sourced from the Scopus database was employed in the examination of a representative sample of 553 distinct research publications and conference papers about counterfeits, spanning the period from 1991 to 2022. The United States of America (USA) and the United Kingdom (UK) are frequently acknowledged as the foremost nations in scholarly publications, while Europe as a whole exhibits the highest level of productivity on a regional basis. The field of study is characterized by a set of highly influential journals, including the Journal of Business Research, Journal of Consumer Marketing, Journal of Consumer Research, Journal of Business Ethics, Journal of Marketing Research, Journal of Marketing, Advances in Consumer Research, Journal of Brand Management, Business Horizons, and European Journal of Marketing. This study provides a comprehensive and comprehensive summary of the subject matter pertaining to counterfeits within a singular timeframe.

Keywords: Counterfeits, Counterfeiting, Bibliometric Analysis, Scientometrics, Science Mapping, VOS Viewer, Biblioshiny.

1. Introduction: Counterfeit products

Product counterfeiting has been harming businesses for almost 2,000 years. This phenomenon is as old as human civilization, whose ties are linked back to AD 27 when Romans sold fake wine drinks labeled as expensive Roman wines. Manufacturers of Roman stone and bricks differentiated their products by carving markings (Jiang & Cova, 2012). To distinguish their products, Egyptian priests employed signs, symbols, and writings on monuments (Hopkins, Kontnik, & Turnage, 2003). Guildsman used to engage craftspeople to place inscriptions on their items to distinguish the quality of their goods. These early trademark concepts for identifying quality products from genuine manufacturers allowed counterfeiters to develop counterfeit goods. Counterfeiting of important trademarks became more frequent around the beginning of the 19th century and became a severe offense in some European countries (Wilcox, Kim, & Sen, 2009).

Counterfeiting has now become one of the prominent and rising issues all over the globe (Fink, Maskus, & Qian, 2016). Because of its considerable impact on economic growth, unexpected

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sales of counterfeit products have become a significant concern for practitioners, businesses, policymakers, government, and non-government organizations (Eisend, 2019). The counterfeiting business has grown dramatically during the previous two decades (Cant, Wiid, & Manley, 2014). This issue and its increasing trend in the 21st century create severe socio-economic and political problems (Swami, Chamorro-Premuzic, & Furnham, 2009). Many authors predict counterfeiting as a crime of the twenty-first century (Wilcox et al., 2009).

The United States, France, and Italy are among the worst-affected countries, as their economies rely on producing quality goods protected by (IPR) and trademarks (Statista, 2021). Based on the findings, it was determined that the worldwide trade in counterfeit products reached a value of \$509 billion in the year 2016, constituting about 3.3% of the whole global commercial activity, uplifted from \$461 billion in 2013, which accounts for 2.5% of global trading (Thenga & Masiloane, 2023). Mentionable in 2016, International Chamber of Commerce (ICC), along with the International Trade Association (INTA), estimated that the trade volume of counterfeit products could reach \$991 billion by 2022, which was \$461 Billion in 2013. The total estimated volume of counterfeits and pirated goods, including film, music, and software, may reach \$1.90 Trillion to \$ 2.81 Trillion in 2022, which was \$923 Billion to \$1.3 Trillion in 2013 (Economics, 2017). In 2017, it was projected that counterfeiting cost the USA up to \$600 billion per annum due to theft of trade secrets, copyright issues, and pirated software (Statista, 2021). Forbes (2018) states that counterfeiting was the world's most profitable criminal industry in 2018. Counterfeit and illicit products provide an estimated yearly revenue of \$1.7 trillion, surpassing the collective magnitude of illicit trade of people. According to the retail sector, in 2020, sales losses due to counterfeit products worldwide reached 26.3 billion in clothing, pharmaceuticals, 10.2 billion, cosmetics and personal care, 4.7 billion, watches and jewelry, 1.9 billion, handbags and luggage, 1.6 billion, toys and games 1.4 billion in Euros respectively (Statista, 2021). By the end of 2022, it will be worth \$2.8 trillion and cost 5.4 million jobs (ICC, 2022). The findings of the counterfeit reports that China generates 80% of the world's counterfeits (Forbes, 2018).

1.1 Operational definitions of Counterfeits products

Counterfeiting is the illegal manufacture of things not protected by intellectual property rights (IPR). Counterfeit goods are either 100% exact copies or replicas that infringe on the intellectual property rights of real product owners (Cordell, Wongtada, & Kieschnick Jr, 1996). In general, counterfeit products are illegally copied products having low prices and quality (A. Zampetakis, 2014). According to Chaudhry and Stumpf (2011), the manufacturing and distribution of any unauthorized goods not registered by (IPR) are known as counterfeited goods. Simply counterfeiting is the illegal manufacturing and trading of products without the authorization of the genuine owner of goods.

Mainly, there are three major classifications of counterfeiting, blur, deceptive, and non-deceptive (Bian & Moutinho, 2011). Consumers are either unaware or unsure that they are acquiring counterfeits due to deceitful and fuzzy counterfeiting. Non-deceptive counterfeiting refers to instances when customers intentionally purchase counterfeit goods. (Grossman & Shapiro, 1988). The TRIPs also known as "Trade-related Aspects on Intellectual Property Rights" presents the comprehensive definition of counterfeiting. Counterfeit trademark goods shall mean anything, which includes wrapping, containing lacking a permit a trademark that's comparable to the trademark legitimately enrolled with regard to the aforementioned items, or which cannot be differentiated in its fundamental facets from the genuine trademark, and which consequently infringes the rights of the owner of the trademark under the law (OECD, 1998).

A plethora of literature reviews on counterfeits and counterfeiting can be found online, and scientometrics analysis of these studies might be instructive. To the best of our humble comprehension, there has been no prior investigation on counterfeits which employed a scientometric

approach to examine the evolution of research tendencies in the counterfeit field over an interval of three decades. Initially, this study may appear intriguing. Scientometrics relies heavily on co-citation and co-occurrence analysis, two of the most important approaches in the field (Boyack & Klavans, 2010). Only a few areas of study have quickly adopted bibliometric methods (such as psychology, knowledge management, business strategy, educational leadership, socio-economic business research, and intra-entrepreneurship).

In contrast, others (like organizational behavior, psychology, and HR management) have been slower to adopt scientometric approaches (Zupic & Čater, 2015). Scientists have employed scientometric techniques to computationally portray the terrain of several disciplines. This opens the door for the bibliometric study of academic work by those fields' scholars (Dominko & Verbič, 2019; Majeed & Ainin, 2021). Yet, just a few reflections on counterfeiting have been compiled. In this study, we have introduced new methodologies that will be useful for future researchers in the field of counterfeiting. Instead of addressing the debate around counterfeiting in business, this research aims to provide a source for examining the distinctions in various counterfeiting paradigms, techniques, and concepts, thereby advancing the field. Research on counterfeits at the micro (i.e., word titles, abstracts, and keywords) and macro (i.e., articles, reviews, or book chapters) levels have been ongoing for the past 30 years (1992–2022). This scientometric study provides a framework for future research on counterfeiting by analyzing past research designs. By examining the growth of research on counterfeiting, it is possible to identify practical implications that can help institutions, practitioners, and policymakers better understand and implement anti-counterfeiting practices. Moreover, counterfeiting should be examined in greater depth using an author co-citation analysis and journal co-citation analysis with various search criteria and databases, as utilized by various scholars around the world (Özmen Uysal, 2010). The present study used science mapping analysis and bibliometric coupling techniques to address a notable research void in the field of counterfeiting research. By examining bibliometric data spanning the period from 1991 to 2022, this investigation aimed to augment the existing knowledge base and provide a more comprehensive understanding of the subject matter.

A conceptual structure map, trend topic, subject dendrogram, Sankey diagram, word growth dynamics, and word treemap were all produced for this study utilizing the bibliometric-R studio and biblioshiny software with a web interface. The major goal of this research project is to provide a bibliometric analysis of counterfeiting research together with knowledge domain visualization and landscaping.

1.2 Research Objectives

1. What are the global trends for counterfeiting research regarding publication and citation?
2. What are the global coalition and fundamental ties between the various areas and nations based on authorship configurations?
3. Which countries, universities, organizations, and significant people are involved in counterfeiting research?

In the rest of this paper, Section 2 talks about the research design, data, and how the research was done. In Section 3, bibliometric analysis results are given, the main findings are looked at, and the graphical analysis is shown. Section 4 talks about the analysis's results, the study's limitations, the study's practical implications, and where future research should go. Section 5 is the conclusion.

2. Methodology

2.1 Data organization

This study uses the academic search Scopus database to provide a global overview of management and social sciences research production. According to Albort-Morant and Ribeiro-Soriano (2016), bibliometric analyses help explore, organize, and analyze a significant quantity of data and predict the past and future of research. Bibliometric analyses been investigated in social entrepreneurship (Rey-Martí,

Ribeiro-Soriano, & Palacios-Marqués, 2016), business management (Podsakoff, MacKenzie, Podsakoff, & Bachrach, 2008), organizational knowledge management (Gaviria-Marin, Merigó, & Baier-Fuentes, 2019), business innovation (Chatterjee & Sahasranamam, 2018).

The Scopus support database's search function yielded 553 entries for this study. This article reviews counterfeiting studies from 1991 to 2022. The first selection was made of all publications containing "counterfeit and counterfeiting" in the title, abstract, or keywords. We compile counterfeiting research from various fields (such as business management and social sciences), keeping in mind the relevance of the topic in most disciplines. Authors, languages, journals, nations, and knowledge fields were the indicators of bibliometric study. The following sample consists of 553 documents, including articles. We constructed the datasets in three steps. First, we searched for the keyword "counterfeits and counterfeiting" in the title, abstract, or keywords following previous reviews that employed the bibliometric method (Batistič, Černe, & Vogel, 2017; Mohsin, Nasir, Abid, Mubeen, & Ahmed, 2023). Additionally, we incorporated a greater number of papers that had interconnected sentences.

Ultimately, we excluded any sources that did not offer theoretical analyses of counterfeiting. During the third phase, the publications published within the time frame of 1991 to 2022 are ultimately determined. Table 1 presents the document selection criteria derived from the research conducted. Out of the whole sample, the USA, China, UK, India, Germany, France, Canada, Italy, Japan, and South Korea are the leading countries in this field. Since 2006, there has been a significant increase in publishing frequency.

2.2 Research Design

A statistical-based historical analysis of publications emerging in the field of counterfeits for the years (1991–2022) is conducted to ascertain the progress of the field shown in Table 1. From the accumulation of references over time, the topics on counterfeiting are identified in the literature on business, management, and accounting. This makes it possible for us to comprehend how the discussion of counterfeiting evolved over 30 years and to identify the main trends in the field. We use the scientific mapping program VOS Viewer (Van Eck & Waltman, 2010; Yu, Wang, Zhang, & Zhang, 2018), and the statistical software tool R-package employs biblioshiny for this aim. These programs integrate clustering and visualization techniques, enabling the completion of various investigations.

Table 1: Criteria for the selection of documents from Scopus data source

Serial	Search Steps	Records
1	All documents with the word "Counterfeits" in the Title, Abstract, and keywords	7819
2	Limit to 1992- 2022	7740
3	Subject area: Business Management and Accounting	789
4	Document Type: Articles & Conference Papers	650
5	Publication stage: Final	638
6	Source Type: Journals & Conference Proceeding	573
7	Language: Limit To English	553
8	Primary Documents	553

We have applied the conventional full-counting approach to build bibliometric networks. We employ a variety of techniques and four key processes to assess the references.

Stages	Description
Stage 1: Historical Evolution	Analysis of the Origins of the Central Theme Perused in Counterfeit Publications by Title, Abstract, and Keyword
Stage 2: Co-Citation Analysis	Focuses on the prominent co-cited references and sources within the field.
Stage 3: Co-Authorship Analysis	Analysis of network formed by Co-Authorship collaboration among countries
Stage 4: Intellectual Knowledge and Conceptual Structure	Bibliometric indicators pertaining to proximity have been used in the construction of bibliometric networks via the utilization of co-citation

Stage 5: Time zone - keyword
Analysis

analysis, which serves to assess intellectual structure, and co-word analysis, which provides to assess understanding or theoretical framework.

Breakdown of the keyword co-occurrence analysis based on the time zone of publication to show the advancement of keywords over four different periods .

3. Data analysis with key results

3.1 Co-Author analysis

3.1.1 By Authors

The co-author citation analysis in Figure 1 by choosing organizations as a unit of analysis shows the following results. From the total number of 8507 authors, the total strength of the co-authorship links with the Authors is calculated. The total number of authors selected is 1000. The results show that Bhunia and Swarup, Kimura and Kazuko, Ozawa and Sachiko respectively are top in the trend of co-author citation analysis. Figure 1 shows the overlay visualization of all other citations.

3.1.2 By Organization

The Co-author citation analysis in Figure 2 by choosing organizations as a unit of analysis shows the following results. From the total number of 1830 organizations, the total strength of the co-authorship links with the organization is calculated. The total number of organizations selected is 1000. The results show that the University of Florida, University of Oxford, University of California, University of Carolina, Sichuan University, Cairo University, University College London, and Hong Kong University are in the top trend.

3.1.3 By Countries

The Co-author citation analysis in Figure 3 by choosing countries as a unit of analysis shows the following results. From the total number of 105 countries, the total strength of the co-authorship links with the organization is calculated. The total number of countries selected is 105. The result shows that the United States of America, China, United Kingdom, India, Germany, Italy, and Brazil respectively are the top trends in the publications of counterfeits. The rest of the network shows the overall visualization of all other countries in this domain

Figure 1: Overlay-Visualization of Co-Author Analysis of Authors

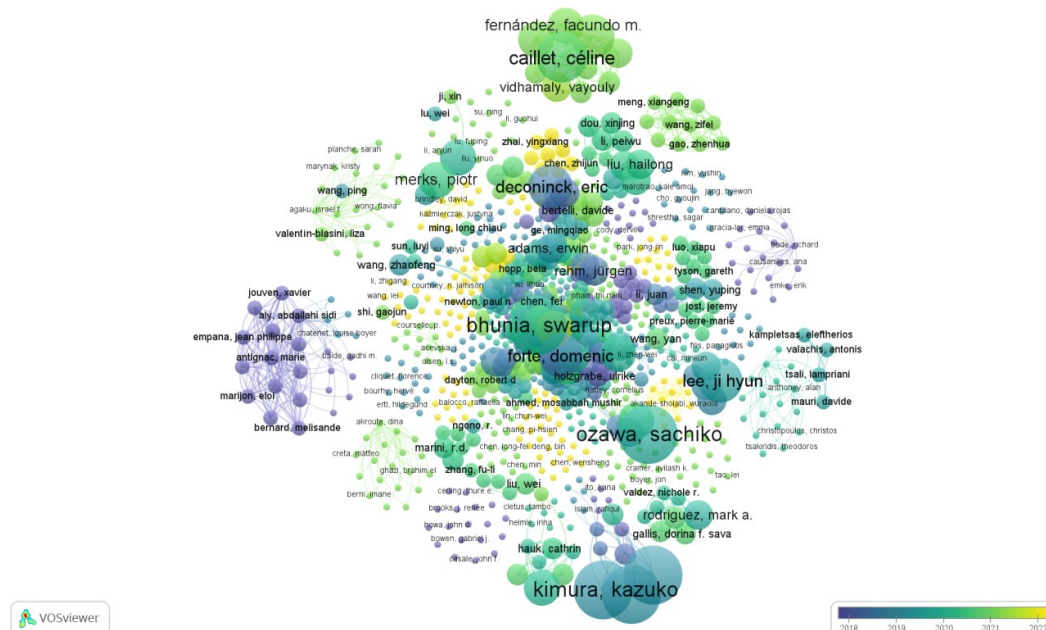


Figure 2: Overlay-Visualization of Co-Author Analysis of Organizations

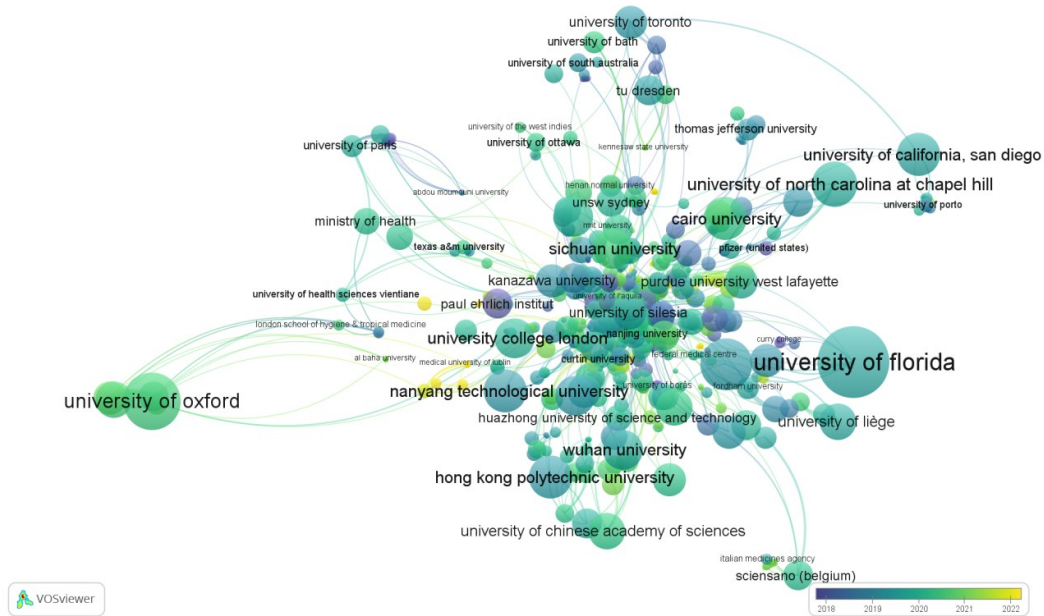
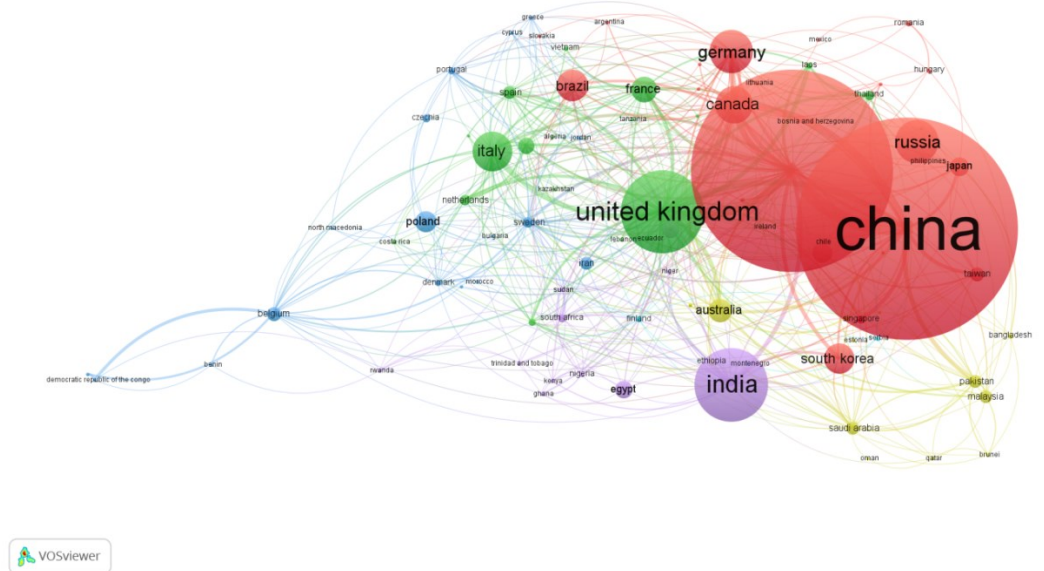


Figure 3: Overlay-Visualization of Co-Author Analysis of Countries



3.2 Overview of the data file

The overview of the data file is done using R-studio biblioshiny, which provides comprehensive details of the data file. The main information about the data in Fig 4 includes its overall period (from 1991-2022), sources 269, documents 553, annual growth rate 10.49%, authors 1152, authored of single-authored

documents 93, international Co-Authorship 22.24%, Co-Author per document 2.57, author's keywords 1472, references 21296, document average age 7.75 and average citation per document 21.91 respectively.

Figure 4: Main information of data



Figure 5: Annual Scientific production

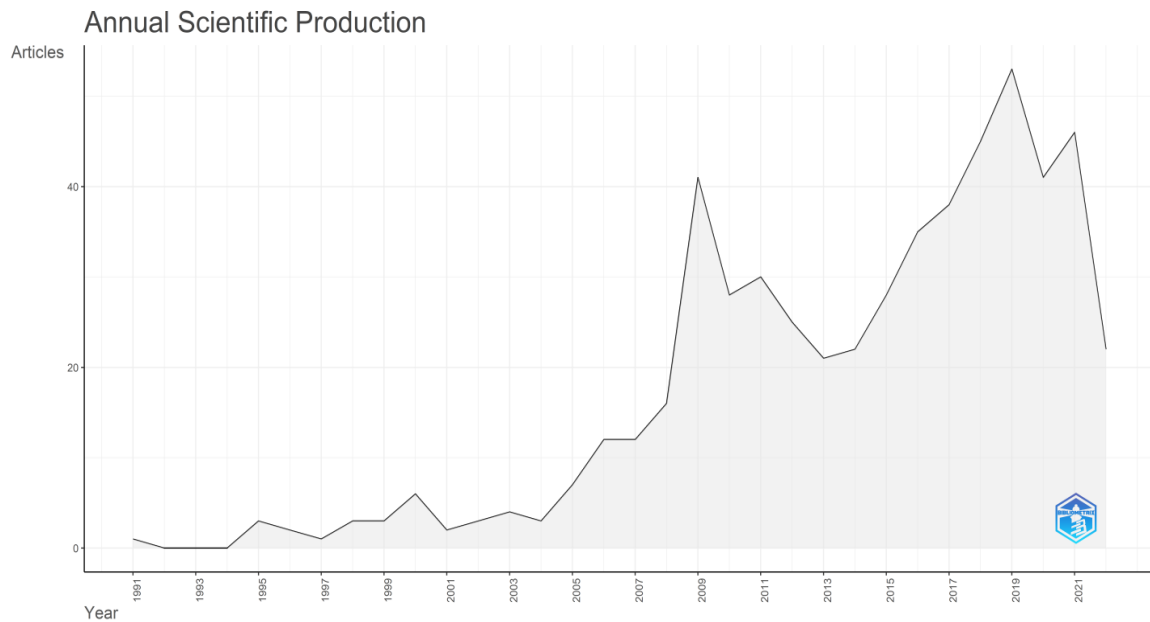


Figure 5 demonstrates the annual scientific production of articles from 1991 to 2022. The total number of articles from 1991 to 2000 is 19, from 2001-2010 128, and from 2011 to 2022 406.

3.3 Author's Impact Analysis

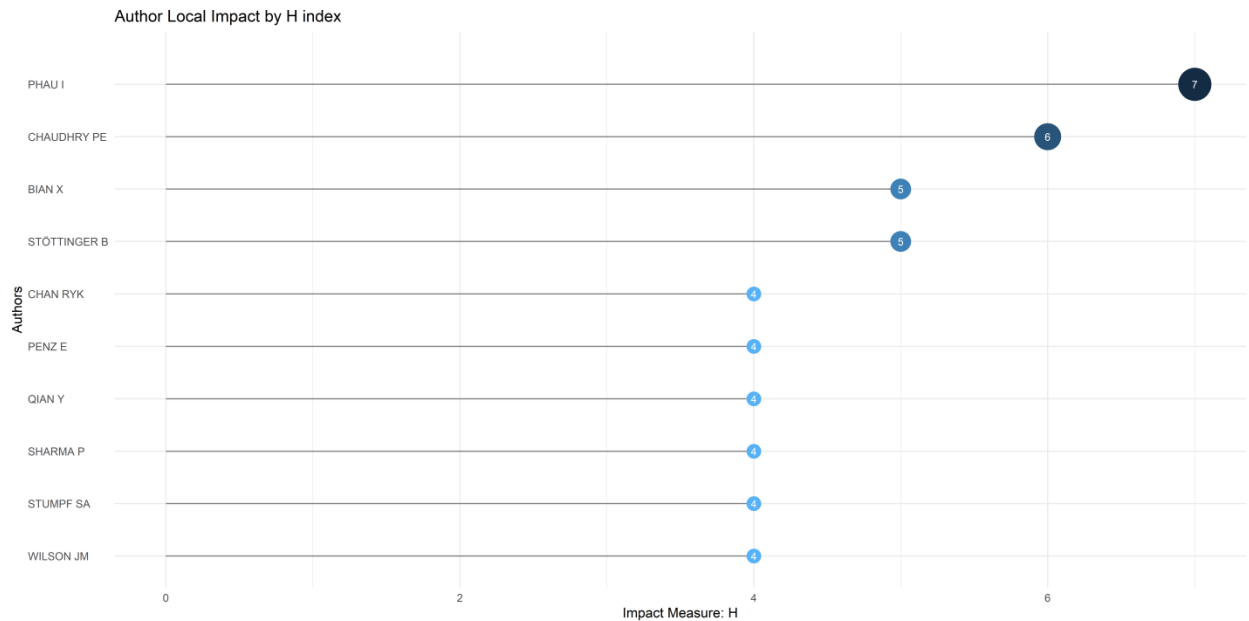
The author's impact analysis was performed using R-package software. This analysis helps us to identify the overall author impact in tabular and in the form of the figure. Table 2 and Figure 6 help to understand the author's impact. According to this analysis, the leading authors are PHAU 1 with the highest H-Index (7), G-Index (7), M-Index (0.318), and total citations (516). Chaudhry PE is in the second position, Bian x at the third having the highest H-Index, G-Index, and M-Index respectively.

Table 2: Authors Impact

Authors	H_index	G_index	M_index	TC	NP	PY_start
PHAU I	7	7	0.318	516	7	2001
CHAUDHRY PE	6	8	0.353	171	8	2006
BIAN X	5	5	0.357	409	5	2009
STÖTTINGER B	5	7	0.333	143	7	2008
CHAN RYK	4	4	0.333	115	4	2011
PENZ E	4	5	0.267	138	5	2008

QIAN Y	4	4	0.444	130	4	2014
SHARMA P	4	4	0.333	115	4	2011
STUMPF SA	4	4	0.308	120	4	2010
WILSON JM	4	5	0.571	33	5	2016

Figure-6: Authors H-Index Impact

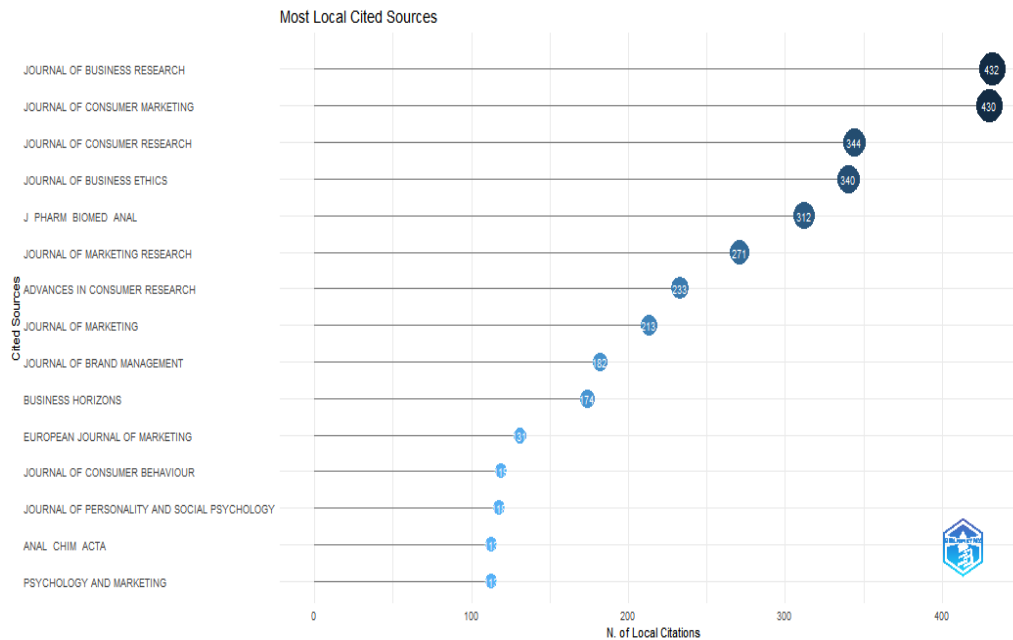


3.4 Most Local Cited Sources Analysis

Table 3 and Figure 7 demonstrate the most locally cited sources in the field of counterfeits. R-package is applied for this purpose. According to the results of the top 10 cited sources and local citations Journal of Business Research is the most cited source with 707 citations, followed by the Journal of Consumer Marketing with 620, the Journal of Consumer Research with 602, the Journal of Counterfeiting with 531, Journal of marketing research with 425, Journal of marketing with 355, advances in consumer research with 331, Journal of brand management with 286, business horizons with 230, European Journal of Marketing with 212 citations respectively.

Table 3: Most Local Cited Sources

Sources	Articles
Journal of Business Research	707
Journal of Consumer Marketing	620
Journal of Consumer Research	602
Journal of Business Ethics	531
Journal of Marketing Research	425
Journal of Marketing	355
Advances in Consumer Research	331
Journal of Brand Management	286
Business Horizons	230
European Journal Of Marketing	212

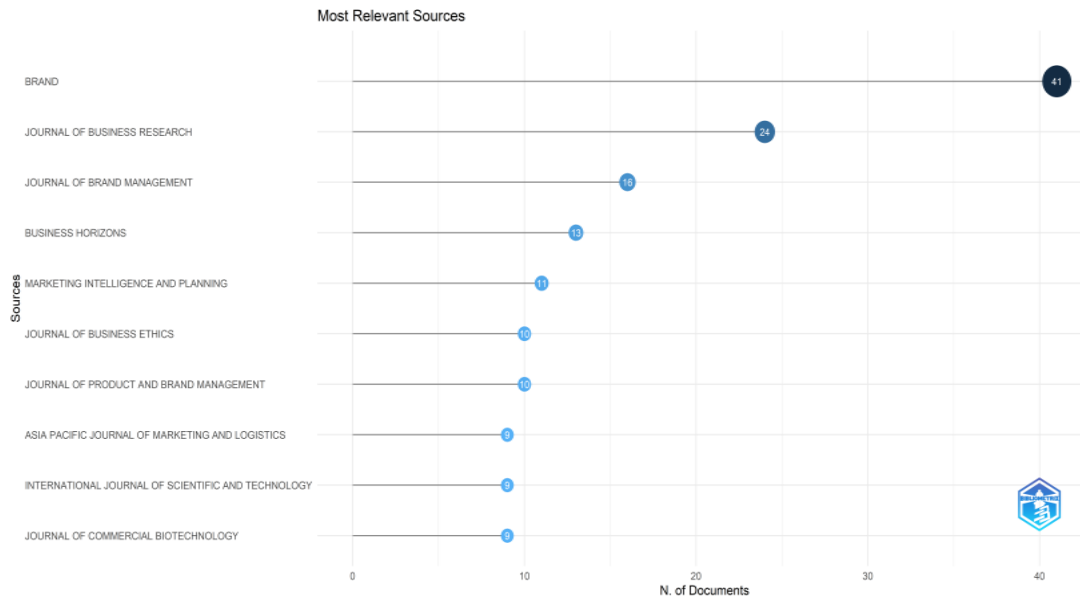
Figure 7: Most Cited Sources

3.5 Most Relevant Sources Analysis

Table 4 and Figure 8 demonstrate the most relevant sources in this field. Using R-package, Brand is the most relevant source with 41 articles, followed by the Journal of Business Research with 24, Journal of Brand Management with 16, Business Horizons with 13, Marketing Intelligence and Planning with 11, Journal of Counterfeiting with 10, Journal of product and brand management with 10. Asia-specific Journal of Marketing and Logistics with 9, the International Journal of Scientific and Technology Research with 9, and the Journal of Commercial Biotechnology with 9 articles respectively.

Table 4: Most Relevant Sources

Sources	Articles
Brand	41
Journal of Business Research	24
Journal of Brand Management	16
Business Horizons	13
Marketing Intelligence and Planning	11
Journal of Business Ethics	10
Journal of Product and Brand Management	10
Asia Pacific Journal of Marketing and Logistics	9
International Journal of Scientific and Technology Research	9
Journal of Commercial Biotechnology	9

Figure 8: Most relevant sources

3.6 Source Local Impact

Table 5 indicates the source's local impact by its H-Index, G-Index, M-Index, and total citations. According to the results, Journal of Business Research has the highest H-Index (18), G-Index (23), M-Index (0.667), and total citations (1226). Respectively, the details of the top 10 journals are given in the table below.

Table 5: Source Local Impact

Element	H-index	G-index	M-index	TC	NP	PY_start
Journal of Business Research	18	23	0.667	1226	23	1996
Journal of Brand Management	10	15	0.714	294	15	2009
Business Horizons	11	13	0.647	397	13	2006
Marketing Intelligence And Planning	8	10	0.889	172	10	2014
Journal Of Business Ethics	9	9	0.5	472	9	2005
Asia Pacific Journal Of Marketing And Logistics	7	8	0.778	210	8	2014
Journal Of Product And Brand Management	5	8	0.417	132	8	2011
Journal Of Commercial Biotechnology	2	3	0.167	17	8	2011
Journal Of Consumer Marketing	7	7	0.318	779	7	2001
Psychology And Marketing	7	7	0.28	334	7	1998

3.7 Most Relevant and Local Cited Authors

The most relevant author's and most locally cited author's details are also analyzed by using biblioshiny analysis. The top 10 most relevant authors and locally cited authors in the field of counterfeits are shown in Table 6.

3.8 Most Relevant Countries by Corresponding Authors Analysis:

Table 7 and Figure 9 demonstrate the most relevant countries by corresponding authors in this field. These results are also derived from the R-package which shows countries-wise production with MCP

ratio with the total number of articles, single-country publications, and multiple-country publications. The result indicates that the USA is in the leading position with 88 articles (SCP 76 and MCP 12) with an MCP ratio of 0.136.

Table 6: Most Relevant and Local Cited Authors

Local Cited Author	Local Citations	Most Relevant Authors	Articles
ELANGO VAN D	113	CONFERENCE PROCEEDING	33
HARIHARAN G	113	WRIGHT G	12
GOPAL RD	103	LALLY R	11
HOJATI A	103	CHAUDHRY PE	8
PATTERSON RA	103	ROGERS D	8
BORAH SB	99	PHAU I	7
HAQUE T	99	STÖTTINGER B	7
SHARMA A	99	CURRY P	6
SONI M	99	SHARMA P	6
SHOKHIN SO	96	WILSON JM	6

China is in the second position with 39 articles (SCP 26 and MCP 10) with an MCP ratio of 0.256. United Kingdom is in third position with 32 articles (SCP 23 and MCP 09) and an MCP ratio of 0.281, India with 19 articles (SCP 19 and MCP 060) and an MCP ratio of 0, respectively. Table 7 and Figure 9 shows the corresponding author's country in detail.

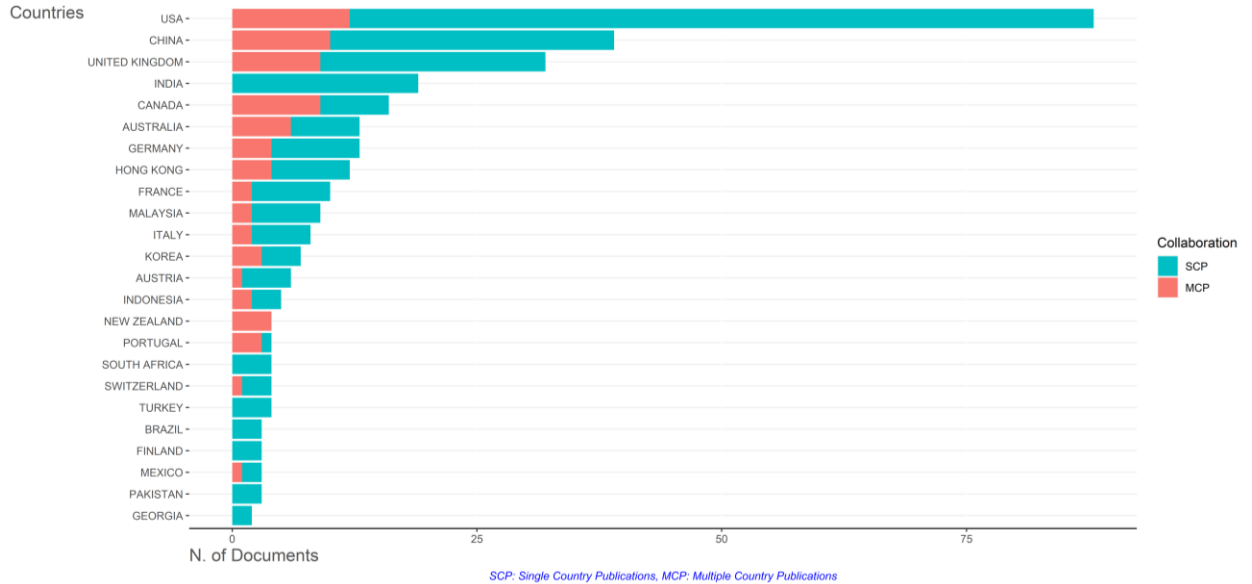
Table 7: Countries wise production with MCP-Ratio

Country	Articles	SCP	MCP	Freq	MCP_Ratio
USA	88	76	12	0.159	0.136
CHINA	39	29	10	0.071	0.256
UNITED KINGDOM	32	23	9	0.058	0.281
INDIA	19	19	0	0.034	0
CANADA	16	7	9	0.029	0.563
AUSTRALIA	13	7	6	0.024	0.462
GERMANY	13	9	4	0.024	0.308
HONG KONG	12	8	4	0.022	0.333
FRANCE	10	8	2	0.018	0.2
MALAYSIA	9	7	2	0.016	0.222
ITALY	8	6	2	0.014	0.25
KOREA	7	4	3	0.013	0.429
AUSTRIA	6	5	1	0.011	0.167
INDONESIA	5	3	2	0.009	0.4
NEW ZEALAND	4	0	4	0.007	1
PORTUGAL	4	1	3	0.007	0.75
SOUTH AFRICA	4	4	0	0.007	0
SWITZERLAND	4	3	1	0.007	0.25
TURKEY	4	4	0	0.007	0
BRAZIL	3	3	0	0.005	0
FINLAND	3	3	0	0.005	0
MEXICO	3	2	1	0.005	0.333

PAKISTAN	3	3	0	0.005	0
GEORGIA	2	2	0	0.004	0

SCP: Single Country Publication

MCP: Multiple Country Publication

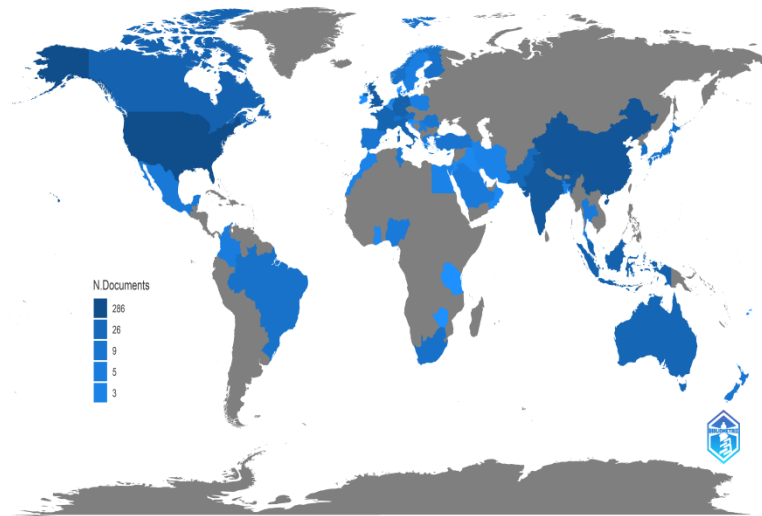
Figure 9: Corresponding Author's Countries

3.9 Countries Scientific Production Analysis

Table 8 and Figure 10 demonstrate the countries scientific production in this field. These results are also derived from the R-package which shows countries wise scientific production with their frequency of publications. The result indicates that the USA is at the leading position with 286 publications, China 138, India 110, UK 83, Germany 53, Malaysia 52, Indonesia 50, Italy 38, France 37, Australia 34, Pakistan 24, Austria 17, Finland 13 and Singapore with 13 publications respectively. Table 8 and Figure 10 shows the corresponding author's country in detail.

Table-8: Country Scientific Production

Countries	Frequency
USA	286
CHINA	138
INDIA	110
UK	83
GERMANY	53
MALAYSIA	52
INDONESIA	50
CANADA	43
ITALY	38
FRANCE	37
AUSTRALIA	34
PAKISTAN	24
AUSTRIA	17
FINLAND	13
SINGAPORE	13

Figure 10: Country Scientific Production

3.10 Country production over time

Table 9 and Figure 11 showcase the country's production over time. The analysis is performed using the R-package. Results show the top five countries, including the USA at the top in the production of work over time with 286 publications, China with 138, India 110, UK with 83, respectively.

Table 9: Country production over time

Countries	Publications
USA	286
China	138
India	110
United Kingdom	83
Hong Kong	54

3.11 Most Cited Countries

Figure 12 showcases the most cited country's details. These analyses include the total citations and average article citations (AAC). Most cited countries give an overview of the most used citations about the counterfeits research. The analysis is performed using the R-package. Results show the top ten countries including the USA at the leading position with a total of 3724 citations and an average article citation of 42.32. China is in the second position with (761) total citations with an average article citation of 19.51, UK with (732) total citations with a 22.88 average article citation. The detail is presented in the table-10 and Figure 12.

Figure 11: Country production over time

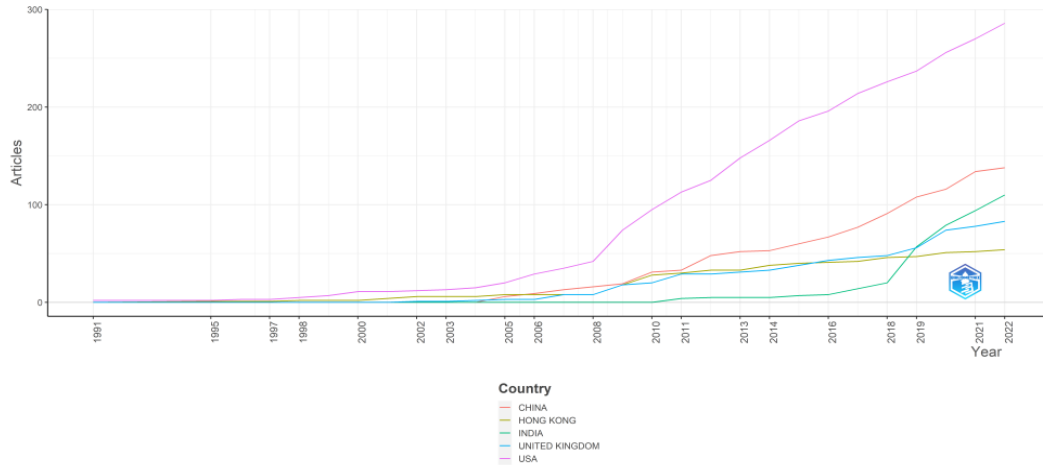
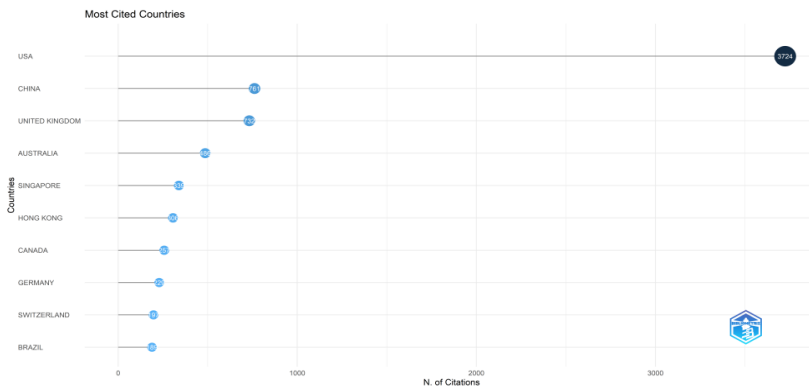


Table 10: Most Cited Countries

Country	TC	AAC
USA	3724	42.32
CHINA	761	19.51
UNITED KINGDOM	732	22.88
AUSTRALIA	486	37.38
SINGAPORE	339	169.50
HONG KONG	306	25.50
CANADA	257	16.06
GERMANY	229	17.62
SWITZERLAND	197	49.25
BRAZIL	189	63.00

Figure 12: Most Cited Countries



3.12 Most Local and global cited documents

Table 11 showcases the most local and globally cited document details. These analyses include the year-wise total local and global cited documents. The analysis is performed using the R-package. Results show the top ten most local and globally cited documents including Wilcox K, J Mark Res with 113 local citations(LC) and 448 global citations(GC) in 2009, Tom G, Psychol Mark having 103 local citations and 193 global citations in 1998, Nia A, J prod Brand Manage with 99 local citations and 309 global citations in 2000 respectively. The detail is presented in the Table 11.

Table 11: Most local and global cited documents

Document	Year	LC	GC
WILCOX K, 2009, J MARK RES	2009	113	448
TOM G, 1998, PSYCHOL MARK	1998	103	193
NIA A, 2000, J PROD BRAND MANAGE	2000	99	309
ANG SH, 2001, J CONSUM MARK	2001	96	299
CORDELL VV, 1996, J BUS RES	1996	95	228
PHAU I, 2009, J CONSUM MARK	2009	67	191
DE MATOS CA, 2007, J CONSUM MARK	2007	66	159
STAAKE T, 2009, EUR J MARK	2009	56	139
BIAN X, 2009, J BUS RES	2009	54	116
WEE C-H, 1995, INT MARK REV	1995	45	221

3.13 Most Locally cited references

Table 12 showcases the most locally cited references by applying R-studio biblioshiny analysis. The results include the top 10 references of the most locally cited publications on counterfeit products. The detail is given in Table 12.

Table 12: Most Local cited references

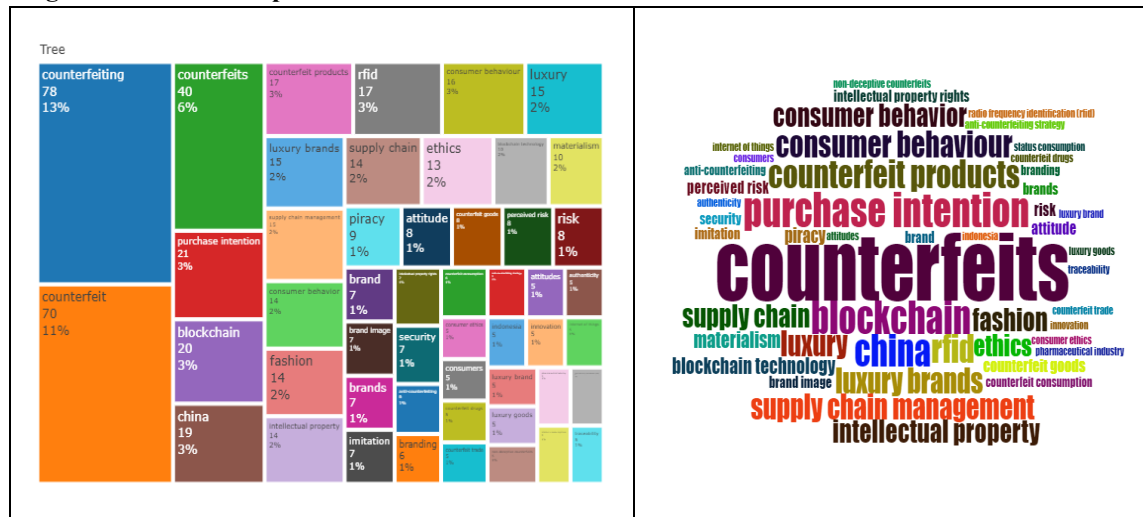
Cited References	Citations
Wilcox, K., Kim, H. M., Sen, S., Why Do Consumers Buy Counterfeit Luxury Brands? (2009) <i>Journal Of Marketing Research</i> , 46 (2), Pp. 247-259	55
Phau, I., Teah, M., Devil Wears (Counterfeit) Prada: A Study Of Antecedents And Outcomes Of Attitudes Towards Counterfeits Of Luxury Brands (2009) <i>Journal Of Consumer Marketing</i> , 26 (1), Pp. 15-27	38
Tom, G., Garibaldi, B., Zeng, Y., Pilcher, J., Consumer Demand For Counterfeit Goods (1998) <i>Psychology And Marketing</i> , 15 (5), Pp. 405-421	35
Staaake, T., Thiesse, F., Fleisch, E., The Emergence Of Counterfeit Trade: A Literature Review (2009) <i>European Journal Of Marketing</i> , 43 (3-4), Pp. 320-349	34
Ang, S.H., Cheng, P.S., Lim, E.A.C., Tambyah, S.K., Spot The Difference: Consumer Responses Towards Counterfeits (2001) <i>Journal Of Consumer Marketing</i> , 18 (3), Pp. 219-235	30
Bian, X., Moutinho, L., An Investigation of Determinants of Counterfeit Purchase Consideration. (2009) <i>Journal Of Business Research</i> , 62 (3), Pp. 368-378	29
Wang, F., Zhang, H., Zang, H., Ouyang, M., Purchasing Pirated Software: An Initial Examination of Chinese Consumers. (2005) <i>Journal of Consumer Marketing</i> , 22 (6), Pp. 340-351	29
Albers-Miller, N.D., Consumer Misbehavior: Why People Buy Illicit Goods (1999) <i>Journal Of Consumer Marketing</i> , 16 (3), Pp. 273-287	25
Nia, A., Zaichkowsky, J.L., Do Counterfeits Devalue The Ownership of Luxury Brands? (2000) <i>Journal of Product & Brand Management</i> , 9 (7), Pp. 485-497	24
De Matos, C.A., Ituassu, C.T., Rossi, C.A.V., Consumer Attitudes Toward Counterfeits: A Review and Extension (2007) <i>Journal of Consumer Marketing</i> , 24 (1), Pp. 36-47	23

3.14 Keyword Analysis

Using a technique called keyword co-occurrence analysis, researchers were able to categorize the evolving topics and cutting-edge research frontiers in the field of counterfeiting. The co-occurrence of keywords demonstrates their prevalence in published works, hence it is important and notable that authors assign the keywords. A word tree map is presented in Figure 13a, however a word cloud generated in R software is depicted in Figure 13b. Researchers commonly enter several keywords into their searches, making tree-map analysis essential for locating promising avenues of inquiry and pinpointing unanswered questions in the field of counterfeit products. Figure 13a is a tree map displaying the data as nested rectangles representing the popular terms used in the articles. The layered structure of data sets includes

naturally grouped words related to counterfeit research. The relevancy and correlation are represented through the size dimension and color pattern. The consolidation of possible Author's keywords representing counterfeits research is highlighted by the tree map. As shown in Figure 13a, blue with counterfeiting keyword has 13% and counterfeits have 11% frequency. A tag cloud, sometimes known as a word cloud, is a visual representation of the frequency with which certain words appear in a given document. The more often used term is more prominently shown on the grid, and the less used word is smaller. The sudden increase in keyword usage reflects emerging tendencies in research. Figure 13b represents counterfeits as the most prominent keyword in the research.

Figure 13: a. Tree Map b. Word Cloud



3.15 Cluster by coupling

Documents, authors, or sources are the three possible units for the analysis, and the coupling strength may be assessed using either the traditional methodology (coupled by references) or a cutting-edge method based on unit contents (keywords or terms from titles and abstracts). The cluster effect is measured by the Mean Normalized Local Citation Score on the y-axis, while the cluster centrality is measured by Callon's Centrality index on the x-axis (MNLCS). A document's Normalized Local Citation Score (NLCS) is determined by dividing its actual local citation count by the predicted citation rate for works published in the same year. Figure 14 demonstrates the documents as the unit of analysis and the coupling strength is measured by classical approach coupled by references. Figure 15 showcases a novel approach based on the author's keywords as coupling strength with documents as the unit of analysis.

3.16 Co-occurrence Network

A co-occurrence network is a graphical depiction of the frequency with which two variables occur together. Co-occurrence measures the frequency with which two species are observed together inside a sampling site or, in the case of text mining, the frequency with which two terms appear within a single document. Using a co-occurrence network, we can look at multiple pairs of correlated variables at once. A co-occurrence network is built by assigning a node (or "point") to each independent variable. When two nodes are connected by an edge, it means that the corresponding variables occur together. Figure 16 shows the co-occurrence network of different author's keywords connected with each other prominently including counterfeits and counterfeiting.

Figure 14: Cluster by coupling (Documents as the unit of analysis and references as coupling strength)

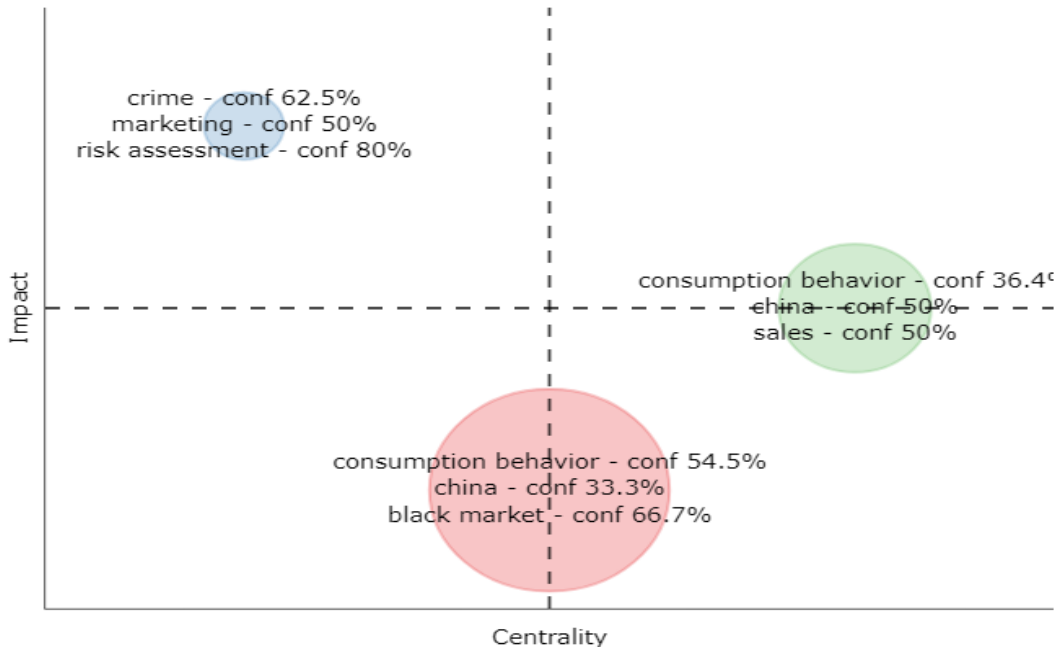


Figure 15: Cluster by coupling (Documents as the unit of analysis and authors keywords as coupling strength)

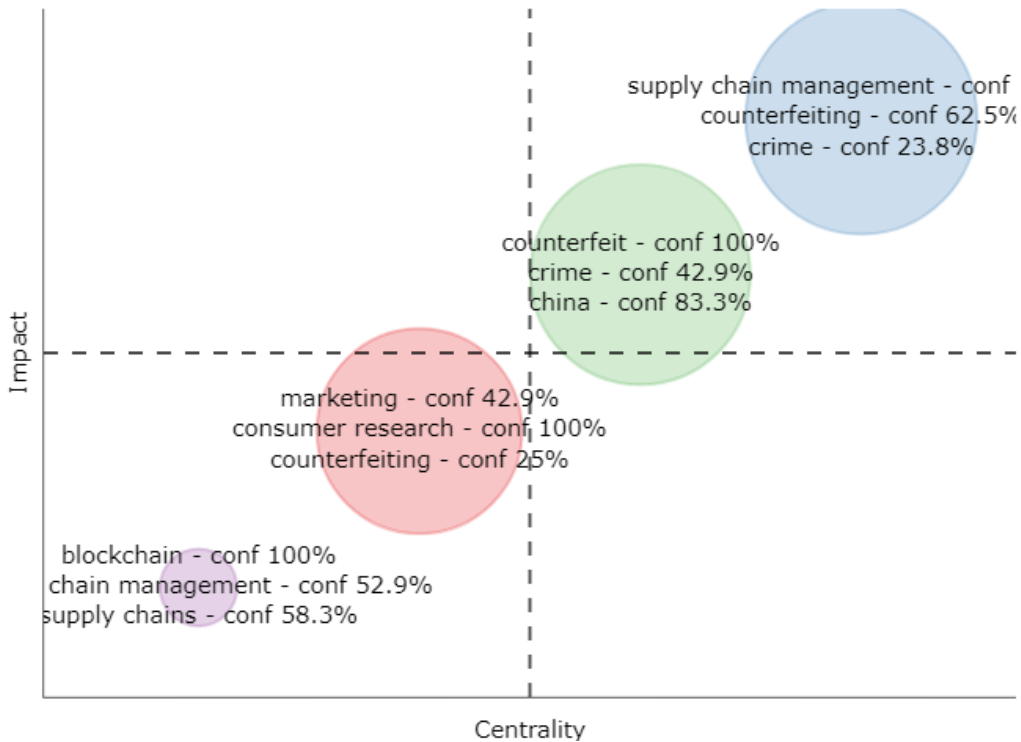
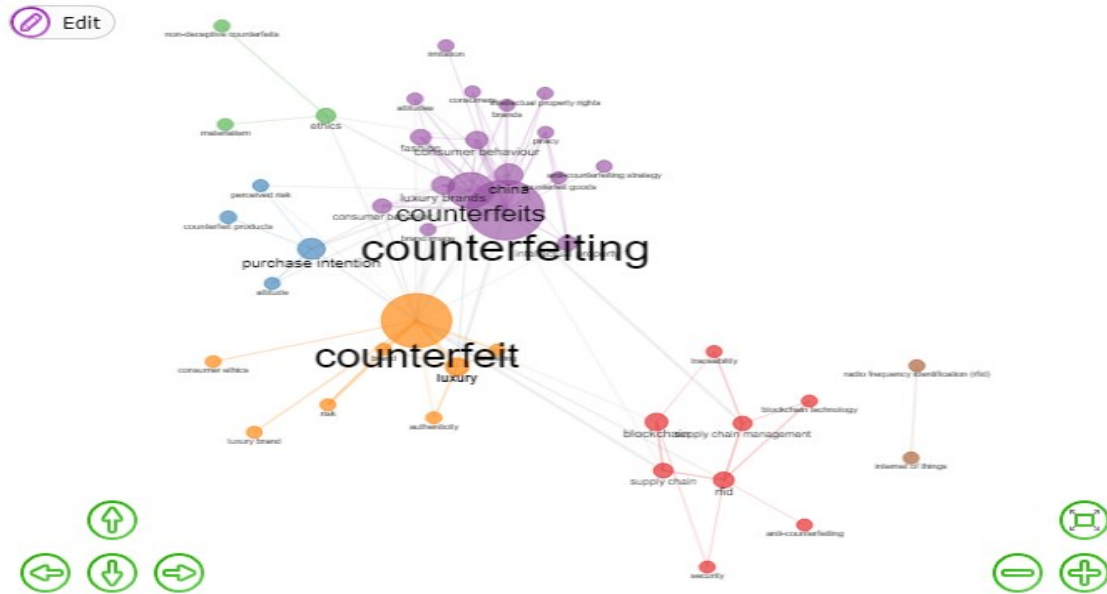


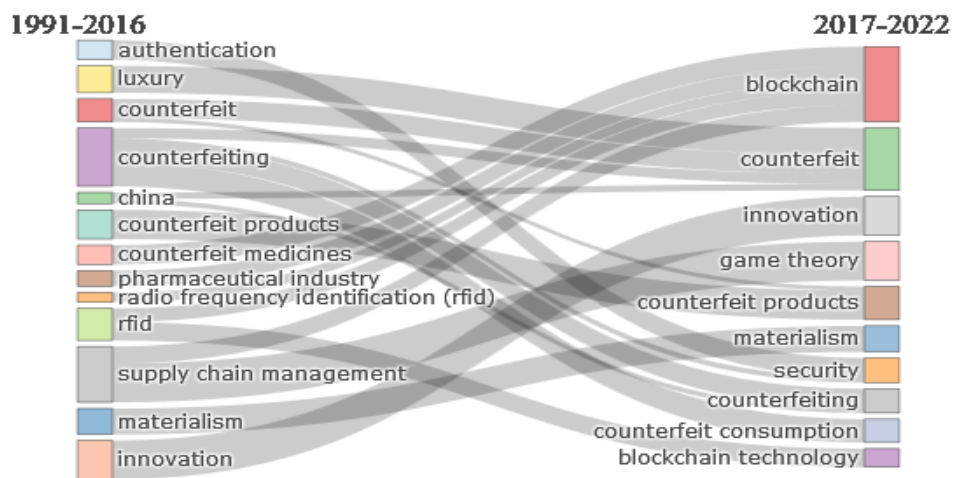
Figure 16: Co-occurrence Network (Field: Authors Keywords)



3.17 Thematic evolution

In Figure 17, we see a thematic evolution map of Author keywords regarding counterfeit from 1991 to 2016 and 2017 to 2022. The map highlights the emergence and frequency of use of keywords relevant to this study (Cobo, López-Herrera, Herrera-Viedma, & Herrera, 2011). The findings can be used to document the development of this developing field of study and as a foundation for future research using scientific evidence-based practice models. The findings shed light on the period from 1991 to 2017, revealing important themes such as counterfeit, counterfeiting, counterfeit products, and pharmaceuticals. From 2017 to 2022, counterfeiting will be a dominant topic of conversation.

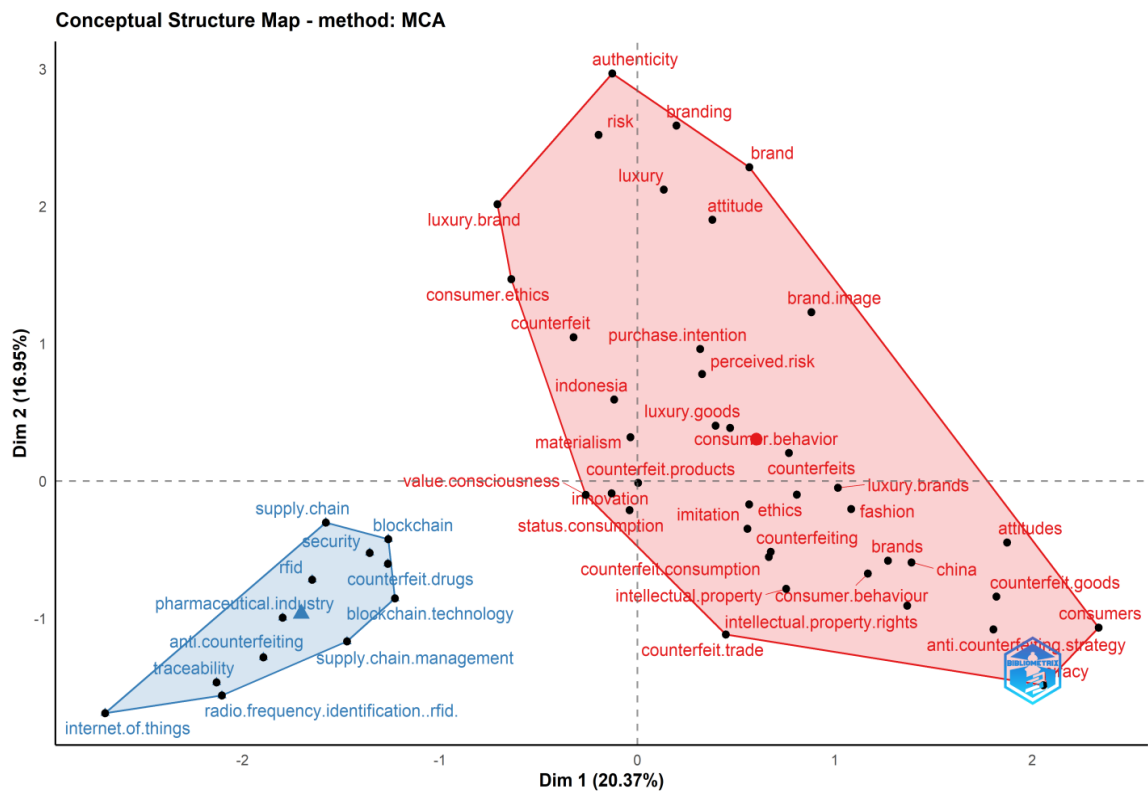
Figure 17: Thematic evolution



3.18 Factorial Analysis

A conceptual structure map is part of this investigation. We performed a multiple correspondence analysis (MCA) on the Author's keywords as a dimensionality reduction technique for creating a conceptual structure map (Demiroz & Haase, 2019). Figure 18 depicts a conceptual structure map relating to counterfeit research over 30 years, with two distinct clusters shown in blue and red colors. This map is one of many that can be shaped from the conceptual structure, including a most cited documents factorial map, a conceptual structure map, and a document factorial map. The resulting map of ideas classifies the field of counterfeit studies into two distinct areas of thought. When examined more closely, the graph reveals the direction, scope, and variety of the field's intellectual endeavors. Most of the keywords remained in the red cluster (e.g. counterfeits, counterfeiting, counterfeits, purchase intention, consumer behavior, counterfeits goods, imitation, ethics, materialism, attitude, fashion, luxury brands among others), after which the blue cluster appeared (e.g. anti-counterfeiting, blockchain and counterfeit drugs among others).

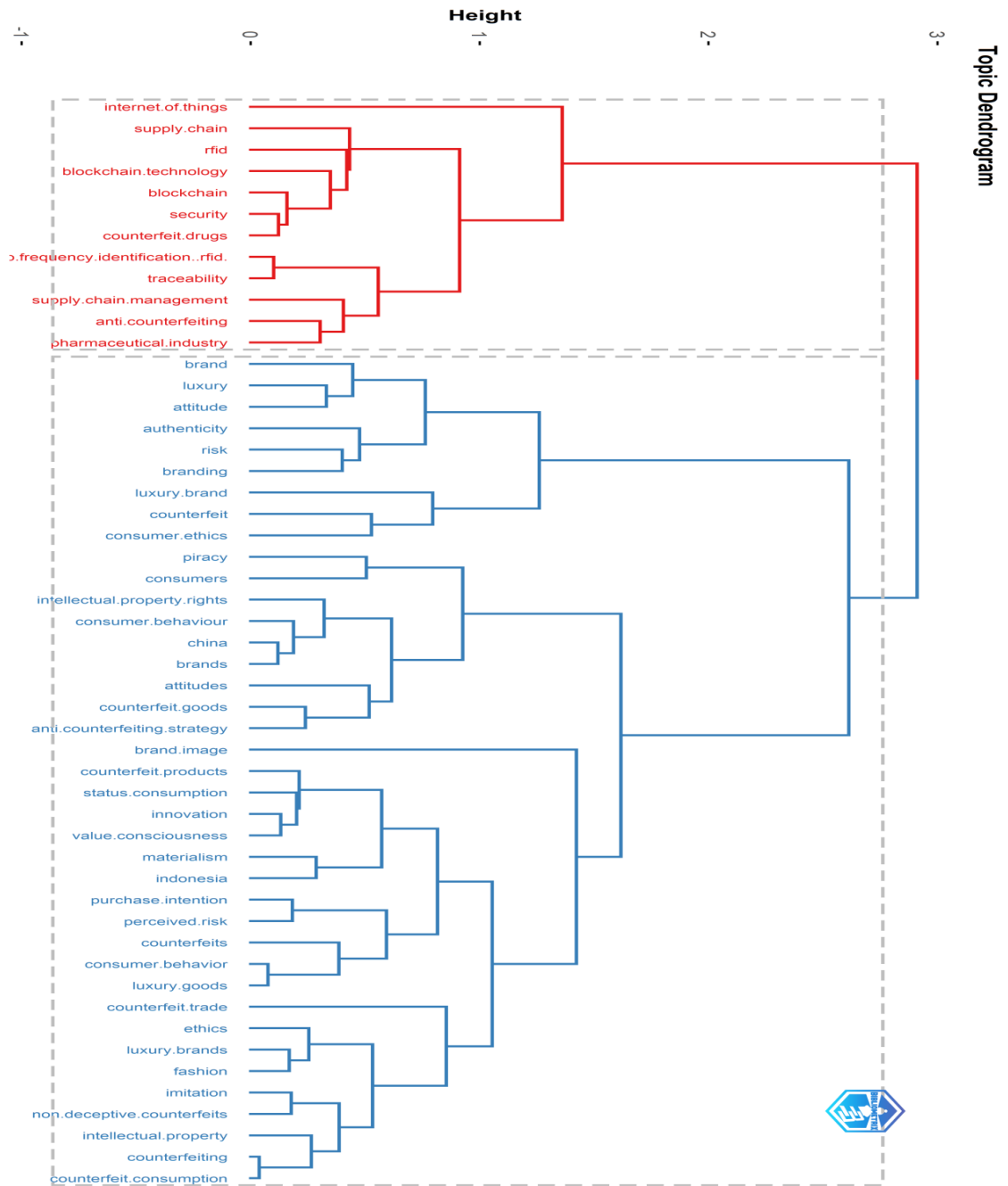
Figure 18: Conceptual Structure Map



Cluster analysis was performed, and the findings are shown in Fig.19 as a dendrogram, which shows the degree of similarity and dissimilarity between the objects identified. Figure 17 shows a distance tree (or dendrogram) depicting the hierarchical clustering that results in the aforementioned association between the keywords and the aforementioned order. The horizontal axis depicts the differences between groups, while the vertical axis shows the academic specializations that contribute to the commonalities among the discussed subjects. Examining and making sense of the various clusters is made easier by the vertical lines and cuts in the picture. The goal of the dendrogram is not to find the optimal degree of cluster linkage, as stated by (Andrews, 2003), but rather to evaluate the estimated number of clusters to promote further debate. The principal fields of study in the study of fake goods are shown in a hierarchical cluster (Fig. 19). The highest number of branches and developments are concentrated in three of the dendrogram's

five main branches. It's possible to define many fields of study and the relationships between them. Both the fourth and fifth buildings have numerous sub-units and new construction. Different points of interest and interconnections become clear when we focus on the fourth building piece.

Figure 19: Topic Dendrogram (Authors keyword elaboration using Biblioshiny)



4. Discussion

Research on the issue of counterfeiting continues to expand into multiple areas with established pathways in numerous nations (Amankwah-Amoah, Boso, & Kutsoati, 2022). The exponential growth observed in this particular domain underscores the need for a commensurate development of theoretical

understanding in the realm of business practice. This study has the potential to provide valuable insights to scholars in the field of counterfeiting by offering a unique conceptual framework to examine the fundamental dynamics associated with this phenomenon. Through the utilization of bibliometric analysis and scientific mapping techniques, we successfully visualized and charted the progression of the subject. This enabled us to ascertain the preeminent authors, highly productive journals, influential institutions, and prominent nations within the domain. The implications of the research findings are of great importance for the study of counterfeit evaluations, particularly in light of the increasing breadth of this area of research. By employing a systematic approach to gathering and recalling data, our research yielded useful insights. To achieve a more precise assessment, conducting further research is required. Using the dimensions database, we offered the leading sample of literature on counterfeits; yet, it has a few apparent drawbacks. As a result of the sample selection criteria, several documents were removed, hence the primary limitation is from the study design. Nonetheless, this constraint presents an opportunity for future studies to broaden the work using selection criteria other than those we've established for dimensions.

First of all, a comprehensive analysis is conducted on counterfeit research that has been published within the timeframe spanning from 1991 to 2022. The utilization of both objectivity and induction allows for the generation of a substantial body of findings derived from unprocessed data. The primary aim of this study is to ascertain the evolution and scope of counterfeiting. Nevertheless, the examination of macro contextual factors and the progression of counterfeit research has yielded a substantial body of knowledge that can be utilized for future investigations, as discovered over the past thirty years. Moreover, this study did not solely concentrate on the social connections among co-authors and co-cited writers. In order to enhance the understanding of writers' cognitive development, collaborative professional experiences, social connections, and collective affiliations, further investigation could be undertaken to expand the existing body of literature on counterfeits.

Additionally, we place significant focus on providing a detailed portrayal of the establishment and evolution of research boundaries in the field of counterfeits over a certain period of time. Owing to constraints imposed by limited page space, it was not feasible to provide maps for each region. In further research, it may be advantageous to employ a meticulous approach to analyze the fundamental mechanisms of the main regions that have been found uniquely using notable keywords. It is recommended that future researchers employ advanced scientometric mapping technologies to demarcate the boundaries of primary and secondary areas of study. It is recommended to engage in quarterly updates to enhance one's understanding of the latest developments in the field of counterfeit research. Our study not only uncovered the co-citation networks within the limited dimensions database sample, but also examined the underlying structure, bibliometric coupling, and scientific mapping. Dimensions, a widely utilized and comprehensive database, served as the major platform for conducting this investigation. Another limitation to consider is the author's dual affiliation or transition between institutions during the time of publication, which could potentially provide challenges in doing data analysis. The findings presented in this study are adequately supported by our careful consideration of these limitations. Consequently, they provide a comprehensive understanding of the current state of research on counterfeits, including its development and scientific mapping.

Finally, the impact of globalization on counterfeits research was observed through the growing participation of multiple nations and organizations in this domain. This will facilitate the advancement of studies within the domain of counterfeit goods. The utilization of the comprehensive dimensions database would impose limitations on the categorization of articles within broader fields. Additional investigation can be undertaken utilizing the extensive databases of Web of Science (WoS), Scopus, and Google Scholar. Future research in the realm of counterfeiting may focus on the supply side and anti-counterfeiting measures, as these areas now comprise only 3.9% of the overall research in this sector.

5. Conclusion

In the current climate of increased academic and practitioner interest in counterfeit research, it has received significant attention in the last three decades. Researchers discovered that consumers' past purchases of counterfeit goods have a significant impact on their future counterfeit purchase intentions, suggesting that if a consumer had a positive experience purchasing counterfeit products in the past, he or she is more likely to purchase counterfeits in the future (Shunmugam, 2015). This is reinforced by Ajzen (1991) Theory of Planned Behaviour (TPB), which proposes that previous behaviors impact attitudes toward future behaviors.

Measuring and documenting counterfeit purchases is a key tool that has not received much attention from practitioners and scholars. Given that the primary objective of this study is to explore the counterfeit dynamics and consumer response towards the purchase of counterfeit products and helps future researcher investigate the underlying reasons. For this purpose, it is useful to do a review of counterfeits research. Not only do bibliometric approaches highlight the impossibility of examining quantitative methodology and the research environment, but they also identify its categories in published reviews. Soon, bibliometric approaches will be the primary method of visualization and scientific mapping. Diverse methodologies and voluminous amounts of literature impose a significant need for stocktaking studies that help academics traverse this field. Modern trends have inspired empirical studies on counterfeits, but very little research has been conducted on the development of a rigorous and concise evaluation. By providing a scientometric study of counterfeits, we've made an effort to fill this research gap. On the data reclamation process, valuable insights have been presented. A historical backdrop (1992–2022) was given to track the development of counterfeits research using a quantitative scientometric approach. Additionally, we identified the most influential writers, publications, organizations, and nations. Using this process, researchers from a variety of disciplines may replicate and progress to gather current knowledge from their respective study fields. This study is especially useful for scholars who have devoted themselves to the field of counterfeits.

6. Future lines of Research

In future investigations, it is recommended that scholars contemplate the utilization of different databases or sources to get a more broad dataset. Utilizing many databases may aid in mitigating the possible bias that may be associated with relying just on a single database. Furthermore, the utilization of cross-validations from several databases is anticipated to augment the resilience and present a broader perspective on the subject matter. It is worth noting that the search procedure may be enhanced by including a diverse range of keyword combinations. This approach has the potential to uncover supplementary viewpoints and insights that may have been overlooked in the present research. In the present study, we have conducted a comprehensive examination of the topic of "counterfeit and counterfeiting". Additionally, we propose potential avenues for future research on this issue by categorizing it into deceptive and non-deceptive forms.

7. Limitations

In the present investigation, the authors have opted to use just one database. For instance, the use of Scopus may cause bias. The overrepresentation of some fields, publications, or areas may lead to an underrepresentation of others. The potential consequence of this would be a limitation in the applicability of the findings. Moreover, a review of the published articles for specific years may not provide a nuanced understanding of the topic under discussion. Notably, the inclusion of other keyword combinations may provide additional perspectives that have not been explored in this current literature analysis.

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