



## Review article

# A bibliometric analysis of global research on united nations security council sanctions (1990–2023)

Sutikno

*Department of International Law, School of Law, Central South University, Changsha, 410012, China*

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## ABSTRACT

UNSC sanctions have been referred to as a powerful tool increasingly used by the UNSC to maintain international peace and security based on Chapter VII of the United Nations Charter. This study conducts a bibliometric analysis to provide a comprehensive overview of the current research status, developments trends, and research hotspots in UNSC sanctions research from 1990 to 2023. This study uses CiteSpace to visualize and analyze datasets of 345 articles about UNSC sanctions obtained from the Web of Science (WOS) database. The research on UNSC sanctions has three stages: the initial development stage (1990–2006), the transitional development stage (2007–2017), and the rapid development stage (2018–2023). This study describes UNSC sanctions research status, trends, hotspots, and distributions of publications by journal sources, disciplines, countries, institutions, and authors. It also describes the knowledge-based mapping and research hotspots on UNSC sanctions, including keywords, citation burst, keyword clusters, keyword clusters timeline view, cited references, intellectual base, and descriptive analysis. In addition, this study analyzed UNSC sanctions research divided into four domain categories: implementation, human rights, impacts, and specific regimes. The results showed that the topic of UNSC sanctions was multidisciplinary research and that scholars from different research disciplines had different focuses on UNSC sanctions. This study offers valuable insights into the current hot topics within the field of UNSC sanctions and offers recommendations for future research directions.

## 1. Introduction

We live in an era of international sanctions [1]. International sanctions are reported almost daily in news reports around the world [2]. International sanctions are one of the most vital and indispensable tools the United Nations Charter allows the United Nations Security Council (abbreviated as "UNSC") to maintain international peace, security, and a common value in the world's interest [3]. At the same time, international sanctions as a primary institution of international society [4]. International sanctions have increasingly and frequently been used worldwide since the end of the last century [5]. The United Nations Charter designates the UNSC as the primary decision-making body for international sanctions [6]. In fact, the other five main organs of the United Nations, such as the International Court of Justice, the General Assembly, the Economic and Social Council, the Trusteeship Council, and the Secretariat, have no power to make binding decisions for international sanctions [7].

International sanctions are established under Chapter VII of the United Nations Charter, under which the UNSC determines whether there are threats to peace, breaches of peace, or acts of aggression [8]. The UNSC has the power to make decisions and take action. The

*E-mail address:* [sutikno22@163.com](mailto:sutikno22@163.com).

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UNSC's decisions are legally binding on all United Nations member states [9]. The UNSC can call upon all United Nations member states to implement the UNSC's decisions to impose UNSC sanctions on targeted states, entities, and individuals [10]. It is important to note that under Chapter VII, UNSC sanctions represent a political response to the violation of international peace rather than a legal response to the violation of international law [11]. It is also worth noting that while a state's violation of the peace represents a breach of United Nations Charter Article 2(4), the imposition of UNSC sanctions does not constitute a judgment on the state's responsibility.

Currently, 14 active UNSC sanctions regimes prioritize the promotion of political resolutions for conflicts, prevention of nuclear proliferation, and counter-terrorism [12]. Since 1966, the UNSC has established 31 UNSC sanctions regimes in various regions. Between 1946 and 1989, the UNSC imposed UNSC sanctions only twice [13]. The first UNSC sanctions regime was introduced in 1968 in response to Rhodesia's Unilateral Declaration of Independence in 1965, which was instigated by Ian Smith's white minority regime [14]. UNSC Resolution 253 (1968) imposed a comprehensive trade embargo on Rhodesia, prohibiting Member States from importing and exporting products into and out of Rhodesia [15]. The second mandatory UNSC sanctions regime, aimed at the apartheid regime in South Africa, was established in 1977 with Resolution 418, which imposed an arms embargo, prohibiting the sale of military material to the South African government [16]. During the 1990s, known as the "sanctions decade" [17], UNSC predominantly relied on UNSC comprehensive sanctions, which inadvertently resulted in unforeseen harm to civilians in the targeted state, neighboring states, and other related third states [18]. This approach faced significant criticism and debate from the international society [19]. Consequently, the UNSC transitioned from employing UNSC comprehensive sanctions to employing UNSC targeted sanctions or UNSC smart sanctions [20], aiming to mitigate unintended consequences [21].

Regarding UNSC sanctions, although they are being used more and more widely, there is still no common term for UNSC sanctions in academic circles. Many researchers from various disciplines who research UNSC sanctions use different terms to refer to UNSC sanctions, such as UN sanctions, United Nations sanctions, UNSC sanctions, UN Security Council Sanctions, United Nations targeted sanctions, UN targeted sanctions, UN smart sanctions, United Nations economic sanctions, United Nations financial sanctions. The terms are often used interchangeably. Based on Chapter VII of the United Nations Charter, UNSC shall decide what "measures" shall be taken in military or non-military action to maintain international peace and security. The term "sanctions" is not explicitly mentioned but instead adopts a more neutral expression of "measures." Nevertheless, the measures taken by the UNSC are actually sanctions. The International Law Commission's 2001 annual report explicitly clarified that the term "sanctions" has been used to refer to "measures" taken under the organizational documents of some international organizations, especially Chapter VII of the United Nations Charter, despite the United Nations Charter the term "measures" is used instead of "sanctions". As a result, this study suggests dealing with the term UNSC sanctions and making a common term for UNSC sanctions is necessary. Having a common term for UNSC sanctions allows for effectiveness, promotes clarity and understanding, and fosters the advancement of knowledge and expertise within UNSC sanctions.

Recently, there has been an increasing global interest in research on UNSC sanctions. This body of research covers a diverse range of topics related to the effectiveness of UNSC sanctions [22–24] and judicial challenges of UNSC sanctions [25–27]. Moreover, research on UNSC sanctions expands and covers various issues and areas [28]. Scholars have focused their attention on examining the effects of UNSC sanctions on targeted states, such as health effects [29–31], economic effects [32–34], and environmental effects [35–37]. Scholars such as [38–40] have discussed the relationship between UNSC sanctions and international human rights, human rights and the Office of the Ombudsperson, and a new approach to understanding human rights. Additionally, numerous scholars have analyzed specific regimes or cases of UNSC sanctions, including those applied to Iraq [41–43], Libya [44–46], North Korea [47–49], Iran [50–52], ISIL and Al-Qaida [53–55]. The imposition of UNSC sanctions on North Korea and Iran primarily arises from concerns regarding their nuclear activities. North Korea's pursuit of nuclear weapons and long-range missiles poses a direct threat to stability in Northeast Asia, while Iran's nuclear aspirations raise proliferation concerns in the Middle East. The 2015 nuclear agreement with Iran challenged the assumption that economic sanctions would prove ineffective in curbing its nuclear program [56]. The UNSC has classified ISIL and Al-Qaida as terrorist entities, and sanctions regimes have been implemented to target their operations, finance, and support networks across the globe [57]. Additionally, the UNSC appoints an ombudsperson tasked with specific mandates related to the ISIL and Al-Qaida sanctions regimes, including reviewing requests for delisting individuals and entities, investigating alleged violations, and offering recommendations to the UNSC [58]. Antonio Quirós-Fons and Thomas Kruijer provide fresh perspectives on the impact of UNSC sanctions on listing non-terrorist entities targeted by the UNSC counter-terrorism sanctions [53].

Some scholars have undertaken review articles on economic sanctions, among them, Dursun Peksen provided a comprehensive overview of the scientific literature's examination into their effectiveness [24], while Daniel W. Drezner explored the contemporary state of academic research in economic sanctions [59]. Peter A.G. van Bergeijk also provided to the ongoing discourse on the effectiveness of economic sanctions [60]. Although academic research on sanctions has frequently and widely increased over the last few decades, their recent research status, hot spot, and development of UNSC sanctions research are still not well examined. Despite substantial efforts, there are still gaps in the review article on UNSC sanction research, particularly in comprehending the current research status, trends, and hotspots concerning UNSC sanctions. Gaining an in-depth understanding of the research status, emerging trends, and hotspots within the extensive literature on UNSC sanctions is crucial. Therefore, conducting a review article is necessary to understand the status and development of UNSC sanctions research. A review article of academic research on UNSC sanctions from 1990 to 2023 will provide insights into recent developments, hot topics, and the evolution of UNSC sanctions literature written by various authors from numerous journals, institutions, and countries.

Bibliometric analysis stands out as a literature review particularly suited for extensive timespans and large datasets due to its quantitative approach. Bibliometric analysis offers several advantages compared to standard literature review, primarily due to its broad scope, utilization of large datasets, and reliance on quantitative methods. In contrast, standard literature reviews typically focus on analyzing existing literature, often with a narrow scope, small datasets, and qualitative analysis methods [61]. Bibliometric analysis aims to scrutinize large datasets of UNSC sanctions literature spanning from 1990 to 2023. This approach employs quantitative

software tools such as CiteSpace to analyze bibliographic data, enabling comprehensive and quantitative analysis of UNSC sanctions literature over more than 30 years.

To the best of our knowledge, this study is the first to conduct a bibliometric analysis using CiteSpace on UNSC sanctions research from 1990 to 2023. In order to gain in-depth insights into the research status, trends, and hotspots on UNSC sanctions from 1990 to 2023, this study comprehensively analyzed 345 articles obtained from the Web of Science (WOS) database. Therefore, this study contributes to the existing literature about UNSC sanctions in four ways. Firstly, this study conducts a bibliometric analysis with its quantitative method [61], which is an effective approach for conducting comprehensive literature reviews in the field of UNSC sanctions over three decades and with large datasets. Its ability to analyze and interpret data makes it valuable for supporting research decision-making and plays an increasing role in evaluating searches [62]. Secondly, this study uses CiteSpace [63] as a bibliometric analysis tool for visualizing and analyzing scientific literature in the field of UNSC sanctions. Thirdly, this study covers a comprehensive range of scientific literature on UNSC sanctions spanning over 30 years, and it allows us to observe and analyze research status and development trends in the field of UNSC sanctions, providing valuable insights into the field's evolution. Finally, this study leverages an extensive dataset of 345 articles obtained from the Web of Science (WOS) database [64], emphasizing the significance of meticulous analysis and interpretation of results to maximize the benefits derived from this rich collection of UNSC sanctions literature. Web of Science (WOS) database is utilized as a research tool in academic libraries and a rich dataset for huge-scale data-intensive studies in various research disciplines [65]. Doing so will offer scholars theoretical focal points, identify research frontiers, and serve as a valuable reference in the field of UNSC sanctions. The study intends to address the following research questions.

1. What is the current research status of UNSC sanctions worldwide?
2. What are the research hotspots and intellectual base on UNSC sanctions from 1990 to 2023?

This paper is divided into five sections: The first section addresses the topic, background, significance, and research question regarding UNSC sanctions research. The second section provides an overview of the data sources, methodology, and research framework. The third section presents the outcomes, offering a comprehensive discussion of the results obtained through data analysis. The fourth section serves as a summary of the entire paper, highlighting the significant findings discussed within. Finally, the last section addresses the research question and concisely summarizes the key findings derived from the study on UNSC sanctions.

## 2. Materials and method

### 2.1. Data sources

Web of Science (WOS) Core Collection is a comprehensive database and research platform Clarivate Analytics provides [64]. It holds the reputation of being the most reliable and renowned global scientific citation index database for scientific research [66]. It covers various academic disciplines and provides access to many research articles, review articles, book reviews, conference proceedings, book chapters, and other publications. Moreover, it serves as a multidisciplinary database with more than 250 research fields [67], including major fields such as arts, humanities, natural sciences, and social sciences (e.g., law, economics, and politics). Researchers around the world from multidisciplinary fields use it to access high-quality scholarly literature. Citation indexes of the Web of Science (WOS) Core Collection include Science Citation Index Expanded (SCIE, since 1964), Arts & Humanities Citation Index (A&HCI, since 1978), and Social Science Citation Index (SSCI, since 1973), and Emerging Sources Citation Index (ESCI, since 2015).

This study selected articles about the UNSC Sanctions from the Web of Science (WOS) database. The data retrieval time was May 26, 2023. The search strategy used Boolean operator search techniques (OR, AND, and NOT) [68]. It helps to include or exclude specific terms, make more precise searches, filter out irrelevant articles, and find them more efficiently. This study selected "Topic (TS)" was united nations sanctions OR un sanctions OR security council sanctions OR un security council sanctions OR united nations security council sanctions OR unsc sanctions OR united nations multilateral sanctions OR united nations comprehensive sanctions OR united nations smart sanctions OR united nations targeted sanctions OR un targeted sanctions OR united nations economic sanctions OR united nations international sanctions OR united nations financial sanctions OR un multilateral sanctions OR un comprehensive sanctions OR un smart sanctions OR un sanctions OR un economic sanctions OR un international sanctions OR un financial sanctions. At the same time, English as "Language" and "Document Type" were Article and Review Article. "Year Published (PY)" was set from 1990 to 2023.

A total of 700 articles were obtained as the dataset for this study. The study manually filtered the articles' titles, keywords, and abstracts to ensure data accuracy and perform more precise searches. This data filtering process determined that 355 articles were irrelevant and therefore excluded from further analysis. Finally, the study analyzed 345 articles about the UNSC sanctions.

### 2.2. Methodology

Bibliometric analysis is a quantitative method to explore and analyze large volumes of scientific literature, such as articles, books, and other publications [69]. The bibliometric analysis aims to provide objective and measurable indicators of scientific productivity, impact, and collaboration [70]. Bibliometric analysis can use various software tools like CiteSpace, Gephi, VOSviewer, and Leximancer [61]. Bibliometric analysis can use databases such as Web of Science (WOS) Core Collection, Scopus, and Google Scholar for data acquisition [71]. The Web of Science (WOS) is the most trusted and authoritative database among other global databases [72,73]. Therefore, this study uses the Web of Science (WOS) Core Collection database as a data source.

In this study, Bibliometric analysis used CiteSpace 6.2.R2 (64-bit) to analyze and visualize datasets of 345 articles on UNSC sanctions obtained from the Web of Science (WOS) Core Collection database. CiteSpace was developed by Professor Chaomei Chen from the College of Computing and Informatics at Drexel University in the USA. CiteSpace has no limitations regarding the research disciplines [74]. It has been applied to the studies of more than 60 different research disciplines, including legal studies [75,76], computer sciences [77], economics [78], urban studies [79], environmental sciences [80], sustainable development studies [81] and engineering [82]. CiteSpace has gained popularity and is widely used by scholars and researchers from various fields for conducting bibliometric analysis, knowledge mapping, and visualization of scientific literature [83].

As shown in Fig. 1, this study conducted the bibliometric analysis using CiteSpace has several steps: a) Data Preparation: 345 articles about the UNSC sanctions were obtained from the Web of Science (WOS) database; b) Importing Data into CiteSpace: The dataset of 345 articles, including authors, titles, keywords, abstracts, sources, cited references, etc. in the form of plain text was imported into CiteSpace; c) Analysis and Visualization by CiteSpace: CiteSpace was used to analyze and visualize authors, institutions, countries, references, keywords, keywords clusters, keywords citation bursts, and keywords clusters timeline view; d) Exporting Results from CiteSpace: The results from CiteSpace were exported in CSV, HTML, and image file formats for further analysis; and e) Discussion: The results and visualizations obtained from CiteSpace were thoroughly analyzed and discussed.

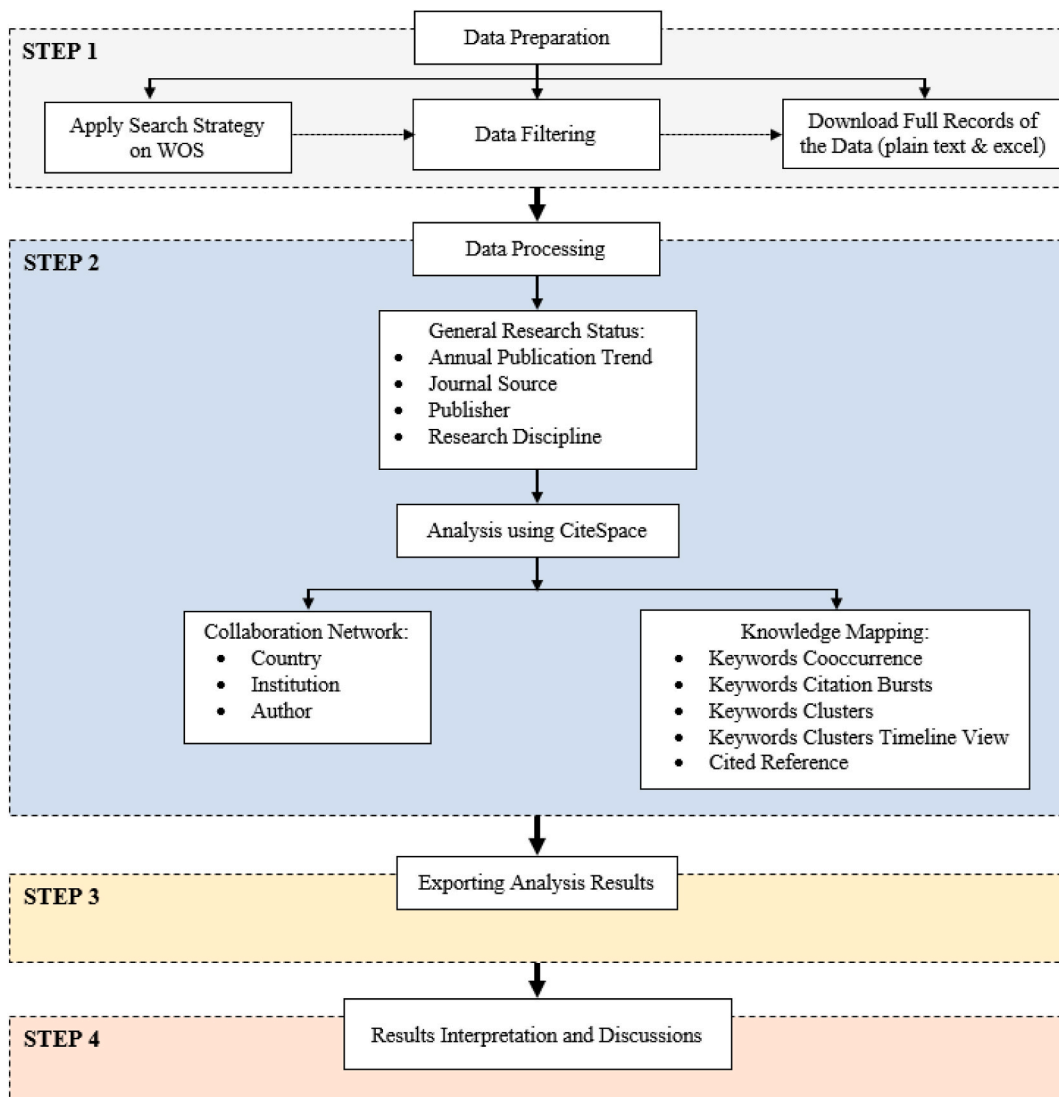


Fig. 1. Research framework.

### 3. Result

#### 3.1. Current research status

##### 3.1.1. Analysis of annual publication trend

Fig. 2 shows the annual publication trend is an important indicator reflecting the changes in research enthusiasm and field development on the topic of UNSC sanctions. After time-arranging the 354 published papers distributed between 1990 and 2023, the annual publication trend is also reflected from the side. It reflects the practical development trend of UNSC sanctions. The earliest paper published on UNSC sanctions was written by CC Joyner, "Sanctions, Compliance, and International Law: Reflections on the United Nations' Experience against Iraq," in the Virginia Journal of International Law in 1991 [84]. Research trends on the topic of UNSC sanctions can be classified into three stages.

##### 1. Initial development stage (1990–2006)

In this stage, the number of publications on UNSC sanctions was very limited, with a total number of publications was 59 published papers. 1990 there was still no published paper; only in 1991 was the first paper published. The highest number of publications was 9 published papers in 2000. During this initial development stage, the topic of UNSC sanctions is still at a nascent stage in the global research trend and laying the foundation for the expansion of global research trend in the next stage.

##### 2. Transitional development stage (2007–2017)

In this stage, the number of publications on UNSC sanctions has increased from the previous stage but is fluctuating. A total number of publications of 134 papers were published, with a minimum number of publications of only 7 published papers in 2008 and a maximum number of publications of 19 published papers in 2015. The transitional development stage signified a notable surge in attention towards the topic, as evidenced by a significant in published papers and the emergence of research hotspots within the field of UNSC sanctions.

##### 3. Rapid development stage (2018–2023)

In this stage, the number of publications increased significantly and exponentially compared to the two previous stages. A total number of publications of 152 papers were published over six years. The highest number of published papers in this phase was 40 in 2022. At the same time, the lowest number of published papers was 11 in 2023 (not the whole year, but until May 26, 2023, when this dataset was conducted). During this rapid development stage, the research field of UNSC sanctions has made significant progress and fundamentally enlarged by increasing interest in the field, the number of scholars, and the scope expansion in the global research trend.

##### 3.1.2. Distribution of publication by research disciplines

UNSC sanctions research is a multidiscipline research field. Distribution of publication in UNSC sanctions research can be examined by research discipline. Table 1 lists the top 15 most dominant research disciplines in UNSC sanctions from 1990 to 2023. The highest frequency of research disciplines; the first discipline is International Relations, with 168 papers published. The second discipline is

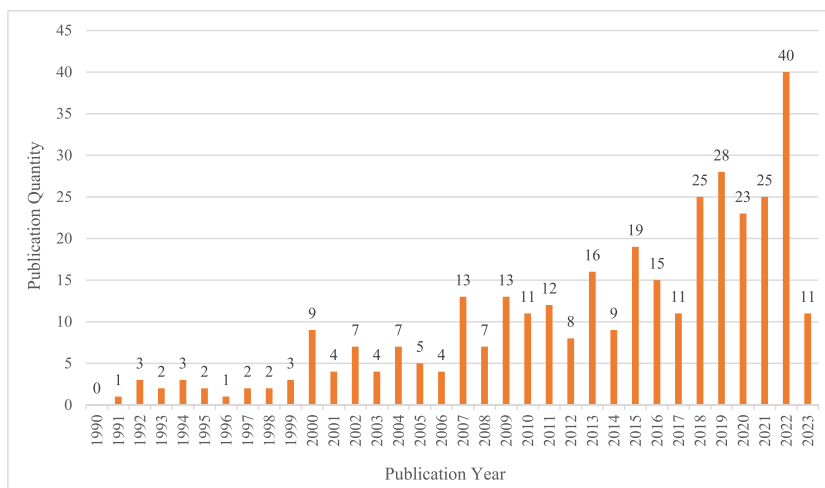


Fig. 2. Annual publication trend.

**Table 1**

Top 15 most dominant research disciplines.

No	Research Discipline	Freq.	No	Research Discipline	Freq.
1	International Relations	168	9	Environmental Sciences	8
2	Law	74	10	Public Environmental Occupational Health	7
3	Political Science	65	11	Green Sustainable Science Technology	6
4	Area Studies	30	12	Business	5
5	Economics	19	13	Social Issues	5
6	Development Studies	11	14	Business Finance	4
7	History	11	15	Medical General Internal	4
8	Environmental Studies	10			

Law, with 74 papers published. The third discipline is Political Science, with 65 papers published. The fourth discipline is Area studies, with 30 papers published. The fifth discipline is Economics, with 65 papers published. The top 15 research disciplines also play an important role in research development: Development Studies, History, Environmental Studies, Environmental Sciences, Public Environmental Occupational, Green Sustainable Science Technology, Business, Social Issues, Business Finance, and Medical General Internal.

### 3.1.3. Distribution of publication by authors

Authors with the highest contributions to UNSC sanctions research from 1990 to 2023 are shown in Fig. 3. The bigger the node size, the more published articles, and the thicker the connection line, the stronger the correlations among the authors. Table 2 lists the top 15 authors with the most productive publications on UNSC sanctions research. The total number of publications distributed by the top 15 most productive authors was 49 published papers (14.20 % of all articles). Among the top 15 authors with the most productive publications, the lowest publication was 2 published papers, and the highest publication was 7 published papers. The top four authors are Clara Portela (7 published papers), Francesco Giumelli (5 published papers), Monika Heupel (5 published papers), and Thomas Doerfler (4 published papers). Each of 3 published papers was conducted by Kyle Beardsley (3 published papers), Thomas Gehring (3 published papers), Sue E. Eckert (3 published papers), Bryan R. Early (3 published papers), Andrea Charron (3 published papers), and Dursun Peksen (3 published papers). Followed by Yin E. Chen (2 published papers), Thomas J. Biersteker (2 published papers), James B. Campbell (2 published papers), Qiang Fu (2 published papers), and Chun-Ping Chang (2 published papers). The authors mentioned above have used their different research platform advantages to conduct research on UNSC sanctions from different perspectives.

### 3.1.4. Distribution of publication by institutions

As shown in Fig. 4, the bigger the node size, the more published articles, and the thicker the connection line, the stronger the correlations among the institutions. The top 15 institutions significantly contributed to research development on UNSC sanctions research from 1990 to 2023 are shown in Table 3. Twelve institutions are from Western countries, and three institutions are from Asian countries, including the University of Hong Kong, the Korea Institute for Defense Analyses, and Kyung Hee University. The total number of publications distributed by the top 15 productive institutions was 89 published papers (25.80 % of all articles). Among the

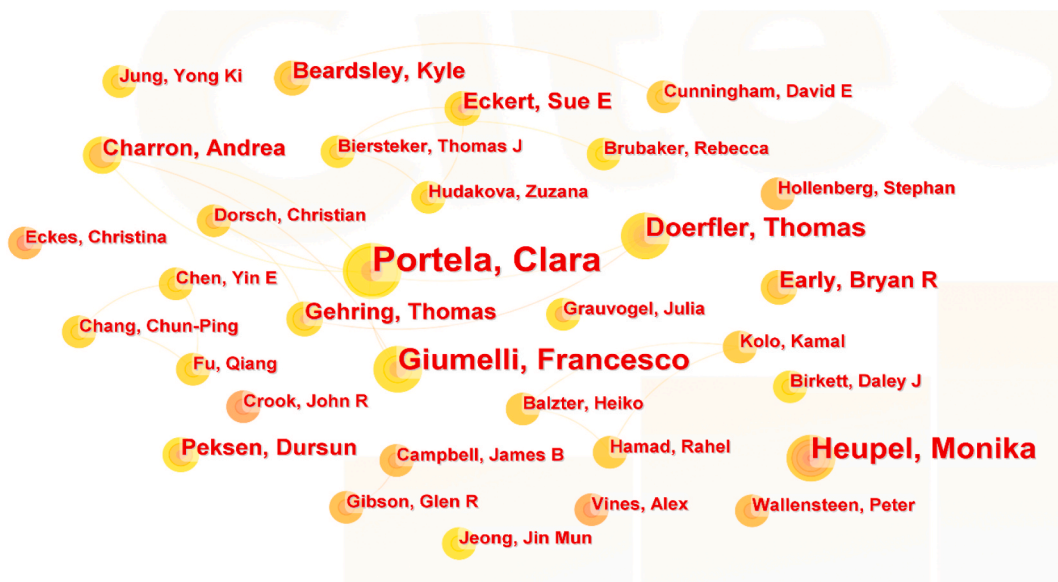


Fig. 3. Visualization of authors network.

**Table 2**

Top 15 authors with highest contributions and Affiliations.

No	Author	Affiliation	Freq.	Year
1	Clara Portela	University of Valencia	7	2009
2	Francesco Giumelli	University of Groningen	5	2015
3	Monika Heupel	University of Bamberg	5	2007
4	Thomas Doerfler	University of Potsdam	4	2013
5	Kyle Beardsley	Duke University	3	2013
6	Thomas Gehring	University of Bamberg	3	2013
7	Sue Eckert	Brown University	3	2009
8	Bryan R. Early	University at Albany, The State University of New York	3	2015
9	Andrea Charron	University of Manitoba	3	2015
10	Dursun Peksen	University of Memphis	3	2011
11	Yin E. Chen	Changsha University of Science & Technology	2	2019
12	Thomas J. Biersteker	The Graduate Institute, Geneva	2	2018
13	James B. Campbell	Virginia Polytechnic Institute and State University	2	2012
14	Qiang Fu	Changsha University of Science & Technology	2	2019
15	Chun-Ping Chang	Shih Chien University	2	2019

**Fig. 4.** Visualization of institutions network.**Table 3**

Top 15 institutions with the highest contributions.

No	Institution	Freq.	No	Institution	Freq.
1	Research Libraries UK	19	10	Harvard University	4
2	University of London	12	11	London School Economics & Political Science	4
3	Otto Friedrich University Bamberg	6	12	Korea Inst Def Anal	4
4	European University Institute	5	13	German Institute of Global & Area Studies	4
5	N8 Research Partnership	5	14	University of Hong Kong	4
6	University of Groningen	5	15	University of Belgrade	4
7	University of Amsterdam	5			
8	Kyung Hee University	4			
9	University of Valencia	4			

top 15 institutions, the lowest productive institution was 4 published papers. At the same time, the highest productive institution was 19 published papers. The first institution is Research Libraries UK, with 19 papers published (5.50 % of all articles). The second institution is the University of London, with 12 papers published (3.48 % of all articles). The third institution is Otto Friedrich University Bamberg, with 6 papers published (1.74 % of all articles). European University Institute, N8 Research Partnership, University of Groningen, and the University of Amsterdam have the same frequency with 5 published papers (1.45 % of all articles). Moreover, other institutions include Kyung Hee University, the University of Valencia, Harvard University, the London School of Economics & Political

Science, the Korea Institute for Defense Analyses, the German Institute of Global & Area Studies, the University of Hong Kong, and the University of Belgrade also with the same frequency with 4 papers published (1.16 % of all articles). In addition, both the Research Libraries UK and the N8 Research Partnership are not as singular “institutions.” The Research Libraries UK is a consortium of major research libraries in the United Kingdom and Ireland, while the N8 Research Partnership is a collaboration of the eight universities in the North of England, which include Liverpool, Manchester, Durham, Lancaster, Leeds, Sheffield, Newcastle, and York. It’s apparent that these clusters of institutions collectively contribute to more than one entity, given their collaborative structures and the likelihood of enhanced productivity.

### 3.1.5. Distribution of publication by countries

Web of Science (WOS) database was generated by CiteSpace software to analyze and visualize the distribution of publications by countries, are shown in Fig. 5. The bigger the node size, the more published articles, and the thicker the connection line, the stronger the correlations among the countries. The top 15 Countries with the highest contributions to research development on UNSC sanctions research from 1990 to 2023 are shown in Table 4. The first-ranking country is the United States of America, with 88 papers published (25.50 % of all articles). The second-ranking country is South Korea, with 39 papers published (11.30 % of all articles). The third-ranking country is United Kingdom, with 34 papers published (9.86 % of all articles). The fourth-ranking country is Germany, with 22 papers published (6.38 % of all articles). The fifth-ranking country is the Netherlands, with 19 papers published (5.50 % of all articles). A collective of these five countries with 202 papers published (58.55 % of all articles) or more than half of all articles, demonstrating that these five countries made an important contribution to UNSC sanctions research. The rest of the top 15 Countries also significantly influence UNSC sanctions research, including Australia, the People’s Republic of China, Iran, Switzerland, France, Italy, South Africa, Japan, Sweden, and Belgium.

### 3.1.6. Distribution of publication by journal sources

The top 10 productive journal sources on the topic of UNSC sanctions from 1990 to 2023 are shown in Fig. 6. The top 10 productive journal sources accounted for 23.19 % of all articles. All the top 10 productive journal sources are from developed countries, including the United States of America, the United Kingdom, Canada, the Netherlands, and South Korea. American Journal of International Law (2.32 % of all articles), Global Governance (3.77 % of all articles), and Asian Survey (1.45 % of all articles) are from the United States of America. International Affairs (3.19 % of all articles), Chinese Journal of International Law (1.45 % of all articles), Survival (1.74 % of all articles), and Bulletin of the Atomic Scientists (1.45 % of all articles) are from the United Kingdom. Common Market Law Review (1.45 % of all articles) is from the Netherlands. International Journal (1.74 % of all articles) is from Canada. Korean Journal of Defense Analysis (4.64 % of all articles) is from South Korea.

## 3.2. Knowledge-based mapping and research hotspots

### 3.2.1. Keywords Co-occurrence and burst evolutions

Fig. 7 vividly depicts the keywords on UNSC sanctions research from 1990 to 2023 datasets generated by using CiteSpace. The bigger the node size, the higher frequency of keywords, and the thicker the connection line, the stronger the correlations among the keywords. Keywords are one of the most important sources of information when analyzing global research status and trends in the field. The frequency of keywords can reflect the focus of research hotspots [85]. The degree and the number of keywords can reflect the richness of research hotspots. The keywords of articles can indicate the main content of articles [86]. The top 20 keywords with the

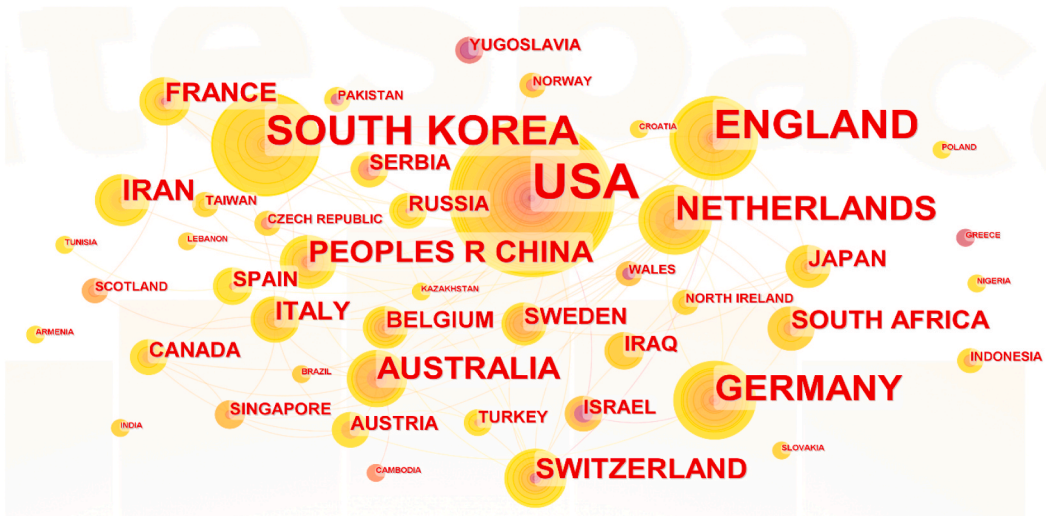


Fig. 5. Visualization of countries network.





**Table 5**

Top 20 Keywords with the highest frequency from 1990 to 2023.

No	Keywords	Freq.	Year	No	Keywords	Freq.	Year
1	economic sanctions	41	2010	11	foreign policy	7	2011
2	north korea	28	2007	12	politics	7	2015
3	united nations	20	2010	13	un sanctions	7	1997
4	security council	13	2007	14	due process	6	2012
5	impact	13	2000	15	united nations security council	6	2010
6	targeted sanctions	11	2011	16	diplomacy	5	2017
7	international sanctions	11	2014	17	coercive	5	2011
8	human rights	10	2010	18	determinants	5	2014
9	sanctions	9	2007	19	power	5	2005
10	law	8	2007	20	civil war	5	2012

highest frequency are shown in Table 5. The first-ranking keyword is economic sanctions, followed by keywords above 10 frequencies, including north korea, united nations, security council, impact, targeted sanctions, international sanctions, and human rights. At the same time, keywords under 10 frequencies include sanctions, law, foreign policy, politics, un sanctions, due process, and united nations security council. In addition, keywords with the same value with 5 frequencies are diplomacy, coercive, determinants, power, and civil war.

Keywords with the strongest citation bursts enable identifying emerging or trending topics within the UNSC sanctions research field that has experienced a substantial increase in citations during a specific period [87]. It is a valuable tool for pinpointing keywords that have garnered sudden attention and have been significantly cited within a particular timeframe. Analyzing keywords with the strongest citation bursts from the 1990 to 2023 dataset are shown in Fig. 8. Keywords with the strongest citation bursts can help scholars show a concentration's knowledge pattern and visualize future trends' projections [88]. Notably, the keyword "north korea" exhibited the strongest burst from 2019 to 2021, reaching a strength of 5.63. It indicates a notable surge in citations and scholarly interest surrounding "north korea" within the context of UNSC sanctions research during that specific period.

### 3.2.2. Keyword clusters evolution

As shown in Fig. 9, keywords clusters from 1990 to 2023 datasets are generated by CiteSpace, which measures the frequency with which keywords appear together in the same publication. CiteSpace then applies clustering algorithms to group related keywords based on their co-occurrence patterns [74]. Three clustering algorithms are used to label clusters, including LLR (Log-Likelihood Ratio), LSI (Latent Semantic Indexing), and MI (Mutual Information). This study used LLR labeling techniques that frequently produce the best coverage and specificity results [89]. Clusters are represented as nodes in a visual network graph, with connections among nodes indicating the strength of their interaction and relationship. In addition, the timeline view from 1990 to 2023 presents the evolution and development of keywords clusters and the interaction and relationship among keywords clusters.

Keywords from 1990 to 2023 datasets have 11 keyword clusters respectively. Table 6 lists keyword clusters from 1990 to 2023 datasets show cluster #0 economic sanctions has the biggest size: 52. Cluster #19 fraud detection has the biggest silhouette: 0.996. Cluster #19 fraud detection also has the smallest size: 4. Cluster #0 economic sanctions and Cluster #2 international sanctions have the smallest silhouette: 0.88. The silhouette score of a cluster quantifies the cluster's cohesion, indicating the extent to which cluster members share some common aspects. In other words, a cluster with a higher silhouette score implies that it is more cohesive and significant than one with a lower score. The average year for keywords clusters was from 2008 to 2018. Timeline view from 1990 to 2023 datasets show cluster #5 sugar intake and cluster #7 un sanctions were the earliest keywords clusters in 2008. Besides that, cluster #0 economic sanctions is the latest keywords clusters in 2018. Timeline view from 1990 to 2023 datasets also show cluster #0 economic sanctions, cluster #2 international sanctions, and cluster #9 accountability are the continuous clusters in 2023 that indicate these clusters are still the hot topics on United Nations Security Council sanctions research.

Fig. 9 shows the evolution and development of the diverse topic of keyword clusters from 1990 to 2023 datasets. Among them, cluster #0 economic sanctions, cluster #1 human rights, cluster #2 international sanctions, cluster #3 north korea, cluster #4 targeted sanctions, cluster #6 energy, cluster #7 un sanctions, and cluster #9 accountability that indicated global research development and intersection with other fields. On the other hand, cluster #5 sugar intake, #8 halgurd-sakran national park, and cluster #19 fraud detection that indicated global research development and separation from other fields. Furthermore, specific locations are also displayed in keyword clusters, such as cluster #3 north korea and #8 halgurd-sakran national park in Iraq. Specific locations in clusters indicate a strong connection between locations and the research topic of UNSC sanctions.

## Top 1 Keywords with the Strongest Citation Bursts



Fig. 8. Keywords with strongest citation bursts from 1990 to 2023.

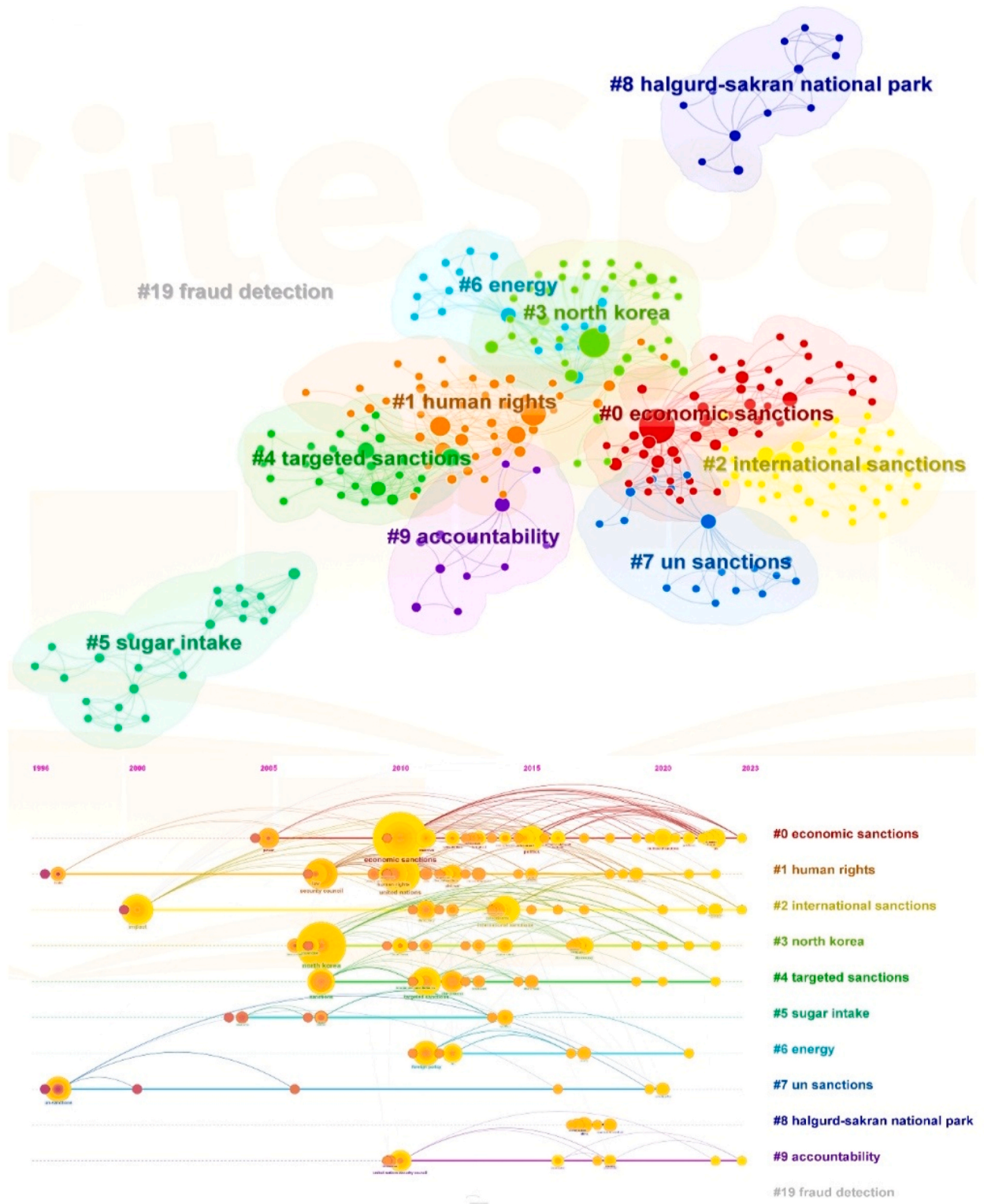


Fig. 9. Visualization of keywords clusters and timeline view from 1990 to 2023.

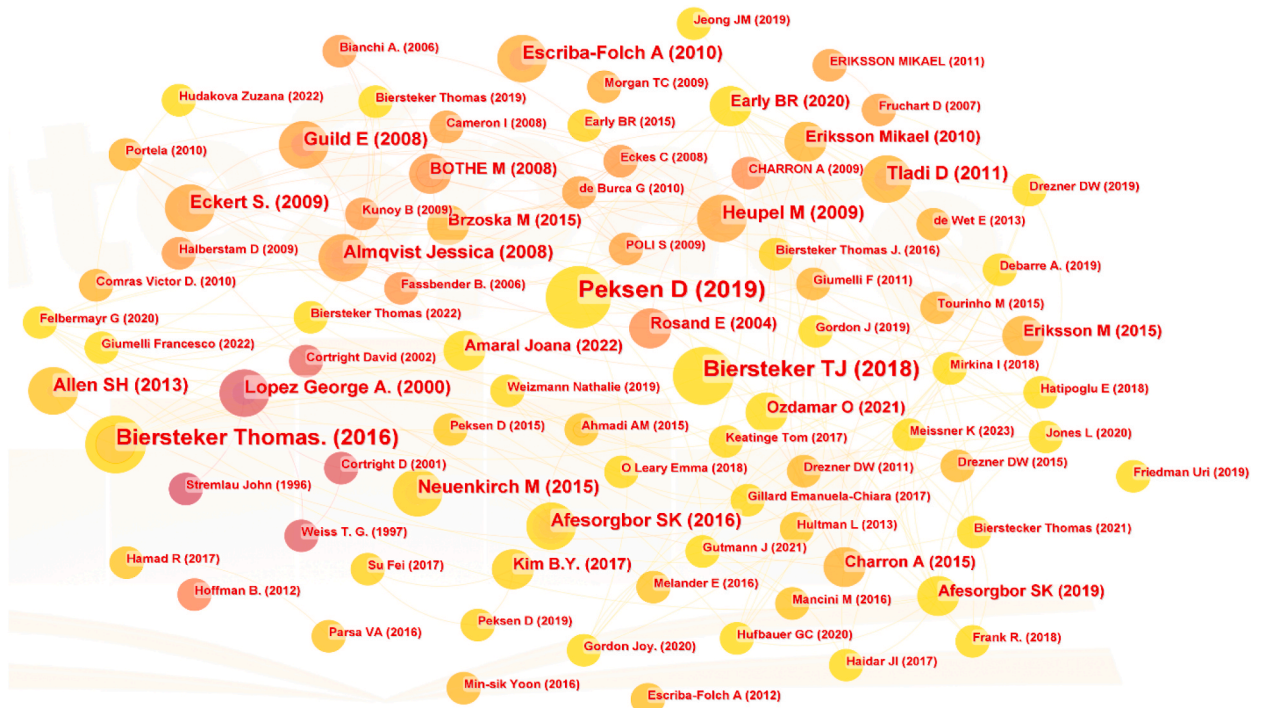
3.2.3. Cited references

Web of Science (WOS) Database generated by CiteSpace for analyzing and visualizing the most cited references on UNSC sanctions research from 1990 to 2023 are shown in Fig. 10. The top 15 most cited references can be classified into four types: review articles,

**Table 6**

Keywords clusters and timeline view from 1990 to 2023.

Cluster#	Size (cluster members)	Silhouette (cluster homogeneity)	Year
#0 economic sanctions	52	0.88	2018
#1 human rights	45	0.869	2012
#2 international sanctions	42	0.88	2016
#3 north korea	37	0.908	2016
#4 targeted sanctions	26	0.923	2013
#5 sugar intake	24	0.995	2008
#6 energy	19	0.964	2015
#7 un sanctions	17	0.96	2008
#8 halgurd-sakran national park	13	0.953	2017
#9 accountability	12	0.928	2014
#19 fraud detection	4	0.996	2013

**Fig. 10.** Visualization of cited references from 1990 to 2023.

books, reports, and articles are shown in Table 7. The first and second most cited references are the article and review article. Dursun Peksen authored "When Do Imposed Economic Sanctions Work? A Critical Review of the Sanctions Effectiveness Literature," holds the highest position with 7 citation frequency [24]. Thomas J. Biersteker authored "UN Targeted Sanctions Datasets (1991–2013)," securing the second position with 6 citation frequency [90]. These articles signify the importance of critical assessments and comprehensive overviews in understanding the effectiveness of economic sanctions.

Furthermore, the third and fourth most cited references are both books. Thomas J. Biersteker authored "Targeted Sanctions: The Impacts and Effectiveness of United Nations Action" with 4 citation frequency [91], and George Lopez authored "The Sanctions Decade: Assessing UN Strategies in the 1990s" with 4 citation frequency [17]. These books serve as valuable resources, offering in-depth analyses and assessments of the impacts and strategies associated with UNSC sanctions. The fifth most cited reference is the report. Monika Heupel authored "Multilateral Sanctions against Terror Suspects and the Violation of Due Process Standards," with 4 citation frequency [92]. This report provides crucial insights into the multifaceted issue of multilateral sanctions and their implications for due process standards. The remaining cited references within the top 15 are all articles ranging from 3 to 4 citation frequencies.

### 3.2.4. Overview of intellectual base and descriptive analysis of UNSC sanctions research

Intellectual base and descriptive analysis can play a crucial role in various perspectives on UNSC sanctions to provide a clearer understanding of the phenomenon and enable constructive descriptions. The intellectual base can help analyze and interpret the existing literature on UNSC sanctions [93]. At the same time, descriptive analysis can help identify patterns, trends, and key findings

**Table 7**

Top 15 most cited references from 1990 to 2023.

No	Author	Title	Type	Freq.	Year
1	Dursun Peksen	When Do Imposed Economic Sanctions Work? A Critical Review of the Sanctions Effectiveness Literature	Review Article	7	2019
2	Thomas J. Biersteker et al.	UN Targeted Sanctions Datasets (1991–2013)	Article	6	2018
3	Thomas J. Biersteker et al.	Targeted Sanctions: The Impacts and Effectiveness of United Nations Action	Book	6	2016
4	George Lopez et al.	The Sanctions Decade: Assessing UN Strategies in the 1990s	Book	4	2000
5	Monika Heupel	Multilateral Sanctions against Terror Suspects and the Violation of Due Process Standards	Report	4	2009
6	Sue E. Eckert et al.	Addressing Challenges to Targeted Sanctions	Article	4	2009
7	Jessica Almqvist	A Human Rights Critique of European Judicial Review: Counter-Terrorism Sanctions	Article	4	2008
8	Elspeth Guild	The Uses and Abuses of Counter-Terrorism Policies in Europe: The Case of the ‘Terrorist Lists’	Article	4	2008
9	Abel Escribà-Folch et al.	Dealing with Tyranny: International Sanctions and the Survival of Authoritarian Rulers	Article	4	2010
10	Matthias Neuenkirch et al.	The Impact of UN and US Economic Sanctions on GDP Growth	Article	4	2015
11	Sylvanus Kwaku Afesorghor et al.	The Impact of Economic Sanctions on Income Inequality of Target States	Article	4	2016
12	Susan Hannah Allen et al.	Economic Sanctions: A Blunt Instrument?	Article	4	2013
13	Dire Tladi et al.	On the Al Qaida/Taliban Sanctions Regime: Due Process and Sunsetting	Article	4	2011
14	Bryan Early et al.	Economic Sanctions in Flux: Enduring Challenges, New Policies, and Defining the Future Research Agenda	Article	3	2020
15	Sylvanus Kwaku Afesorghor	The Impact of Economic Sanctions on International Trade: How Do Threatened Sanctions Compare with Imposed Sanctions?	Article	3	2019

within UNSC sanctions [94]. The existing literature on UNSC sanctions offers valuable insights that can be categorized into different domains, unveiling essential perspectives on the UNSC sanctions. Table 8 presents the articles described in Table 8 as representing 345 articles about the UNSC sanctions obtained from the Web of Science (WOS) database, which clearly describes the research focus areas and categorizes them into different domains accordingly. There are four domain categories: implementation of UNSC sanctions, the relationship between UNSC sanctions and human rights, the impact of UNSC sanctions, and specific UNSC sanctions regimes.

#### 4. Discussion

The number of UNSC sanctions regimes decreased during the Cold War than after the Cold War, mainly because of the differences in global politics, the structure of international relations, and the nature of conflicts. The Cold War began just after World War II and ended with the collapse of the Soviet Union [118]. The Cold War period was dominated by intense rivalry of ideological and geopolitical between the United States and the Soviet Union. The United States and the Soviet Union rivalry constrained the UNSC’s ability to uphold international norms. This bipolar world during the Cold War commonly led to a deadlock in the UNSC, as the two superpowers often utilized their veto power to block UNSC resolutions that were against their interests or those of their allies. During the Cold War, the Soviet Union was the most frequent user of the veto power. Consequently, the UNSC was ineffective in imposing UNSC sanctions during the Cold War period.

At the same time, during the Cold War, many countries remained under the rule of colonialism, and many national liberation movements sought their independence and self-determination. The focus of the UNSC was often on promoting decolonization rather than imposing UNSC sanctions for geopolitical considerations. As a result, there were fewer situations where the UNSC considered it needed to impose sanctions than after the Cold War. After the Cold War led to a period of unipolarity, with the United States becoming the only superpower. The evolution in global politics enabled more consensus in the UNSC and reduced the chance of veto deadlocks. So, the UNSC became increasingly active in imposing sanctions to address conflicts, human rights violations, and threats to international peace and security.

This study demonstrates that research on UNSC sanctions has undergone three distinct stages over the past three decades: an initial development stage (1990–2006), a transition development stage (2007–2017), and a rapid development stage (2018–2023). Only a few publications addressed UNSC sanctions during the initial development stage. However, a notable increase in publications on this topic in 2007 indicates a positive trend. Subsequently, research on UNSC sanctions experienced a significant surge during the rapid development phase in 2019. Research on UNSC sanctions has experienced a substantial and exponential increase from 1990 to 2023, are shown in Fig. 2. These results highlight the increased interest and observation of UNSC sanctions over the last 30 years. This increase is evident through the extensive distribution of research across various authors, journals, institutions, and countries. Moreover, the study of UNSC sanctions is inherently multidisciplinary, drawing contributions from diverse academic disciplines and fields.

The highest frequency of disciplines closely associated with research on UNSC sanctions, are shown in Table 1. Over the last 30 years, numerous scholars from multidisciplinary research disciplines have significantly shaped the evolution of research trends and hotspots in the field of UNSC sanctions, with each providing unique contributions and perspectives on the complex dynamics surrounding UNSC sanctions policies and their implications for international peace, security, the environment, and human well-being. Numerous scholars from multidisciplinary research disciplines have advanced our understanding of UNSC sanctions.

International relations, as a subdiscipline of political science, involves scholars playing a pivotal role in analysing the effectiveness, implementation, and consequences of UNSC sanctions within the broader context of global politics and security [23,119–121]. Their research aims to comprehend the impact of UNSC sanctions on various levels, including inter-state relations, bilateral relationships, regional stability, international cooperation, and global governance [122–124]. Scholars also investigate the role of power, interests,

**Table 8**  
Overview of representative articles in UNSC sanctions categorized into different domains.

Focus Area	Implementation Description	Reference
European Court of Justice (ICJ)	The article provides an overview of the implications and consequences of the European Court of Justice's (ECJ) ruling on the international legal order in the Kadi case.	[95]
Al Qaeda and Taliban	The article examines the measures the UNSC took to monitor and enforce UNSC sanctions against the terrorism of Al Qaeda and the Taliban.	[96]
Sanctions effectiveness	The article comprehensively reviews the effectiveness of UNSC-targeted sanctions imposed on 23 states with 63 case episodes using the Targeted Sanctions Consortium (TSC) from 1991 to 2013.	[90]
Smart sanctions	The article comprehensively analyzes the effectiveness and feasibility of smart sanctions as a targeted approach to achieve policy goals while reducing adverse humanitarian impacts.	[97]
International actors	The article analysis the application of international sanctions as a tool for foreign policy, both before and beyond the UNSC sanctions system.	[98]
Judicial review	The article analyses the legal implications and effects of two significant decisions made by the European Union's Court of First Instance, known as the Yusuf and Kadi decisions.	[99]
Sanctions reforms	The article explores the development and evolution of UNSC sanctions and the recent reforms to make UNSC sanctions more targeted and effective.	[100]
Focus Area	Human Rights Description	Reference
Individual rights	The article examines how the United Nations (UN), the European Union (EU), and the king of Sweden as influential players interact to form a complicated interplay between economic sanctions and individual rights protection.	[101]
Due process standards	The article analyzes due process standards in the context of multilateral sanctions imposed on associated individuals and entities of involvement in terrorism.	[92]
Right to health	The article systematically reviews the effects of economic sanctions on Iranians' right to health using the Human Rights Impact Assessment Tool.	[102]
Protection of human rights	The article examines the significance of protecting human rights and provides the mechanisms that may have contributed to the inclusion of human rights protection provisions regarding the UNSC sanctions policy.	[103]
Human rights standards	The article analyzes the implications of the decisions of the European Court of Human Rights and the European Court of Justice in the context of judicial approaches and techniques to prioritize human rights standards over UNSC sanctions.	[104]
Fundamental rights	The article focuses on the ECJ's decision to analyze the legal and constitutional issues related to terrorism, empowerment, democracy, and fundamental rights protection within the European Community (EC) legal order.	[105]
Focus Area	Impacts Description	Reference
Mortality rate	The article focuses on the impact of UNSC sanctions on childhood mortality in Iraq during the 1990s.	[106]
GDP growth	The article analyses the impact of economic sanctions imposed by the UNSC and the US on targeted states' gross domestic product (GDP) growth.	[107]
Environment	The article examines the impact of international sanctions on environmental performance in 22 targeted states using the panel fixed effect model from 2002 to 2016.	[108]
Public health	The article presents a quantitative analysis of the impact of sanctions on public health conditions in targeted states between 1970 and 2000.	[109]
Energy efficiency	The article investigates the effects of international sanctions on energy efficiency in 30 targeted states from 1996 to 2015.	[110]
Tourism	The article provides a computable general equilibrium (CGE) analysis to examine the economic consequences of lifting UNSC sanctions on January 16, 2016, on tourism in Iran.	[111]
Focus Area	Specific Regime Description	Reference
North Korea	The article presents an overview of the role of UNSC sanctions imposed on North Korea in the context of denuclearization and proliferation activities.	[112]
Libya	The article analyses the strategic justification behind the use of liberal internationalism in the context of UNSC sanctions imposed on Libya from 1992 to 2003.	[113]
Libya	The article describes the problem of the Responsibility to Protect (R2P) doctrine's implementation and inconsistency in the international community's reaction to the Libyan crisis.	[114]
Authoritarian	The article presents an overview of the reasons behind the failure of international sanctions to bring about democratization in authoritarian regimes.	[115]
Iraq	The article comprehensively analyzes the UNSC sanctions imposed on Iraq between 1990 and 2000 and their consequences on Iraq's economy and population.	[116]
Iraq	The article examines the problem of bribery in the context of the Oil-for-Food Program of the United Nations under UNSC sanctions in Iraq from 1996 to 2003.	[117]

and institutions in shaping sanctions measures' adoption, implementation, and outcomes [118,125]. Moreover, they contribute to theoretical debates surrounding coercion, deterrence, and conflict resolution in international relations [126]. They have advanced our understanding of the complex interactions between state actors, international institutions, and broader geopolitical trends in UNSC sanctions. This academic endeavour further highlights the intrinsic relationship between international relations and political science, underscoring the former as a specialised field within the latter, where scholars analyze UNSC sanctions through the lens of political

theories and methodologies.

Subsequently, legal scholars play a critical role in shaping the discourse surrounding UNSC sanctions by delving into the legal frameworks that underpin their imposition and enforcement [9,127]. Their analyses focus on the legality of UNSC sanctions, examining the extent of the UNSC's authority to impose UNSC sanctions under international law and the legal obligations of UN member states to implement UNSC sanctions [128]. Legal scholars also scrutinize potential conflicts between UNSC sanctions and other branches of international law, such as human rights and humanitarian law [129]. Moreover, they contribute to developing legal frameworks governing UNSC sanctions regimes and mechanisms for dispute resolution. They have provided critical insights into the legal dimensions of UNSC sanctions and contributed to the evolution of legal norms and standards in this field.

Conversely, economic scholars offer insightful perspectives on the economic dimensions of UNSC sanctions, examining their impact on trade, investment, financial markets, and economic development [130]. Their research assesses the costs and benefits of UNSC sanctions measures, considering economic efficiency, distributional effects, and long-term sustainability [131]. They also analyze the effectiveness of UNSC sanctions in achieving their intended financial objectives and unintended consequences such as market distortions, illicit trade, and humanitarian crises [132]. Moreover, they explore innovative approaches to economic sanctions, such as targeted financial measures and smart sanctions regimes. Overall, economic scholars contribute critical insights to understanding the economic dimensions of UNSC sanctions, informing policymakers and stakeholders about their impacts, effectiveness, and potential trade-offs.

Furthermore, historians provide valuable insights into the historical context and evolution of UNSC sanctions, drawing lessons from past instances of UNSC sanctions imposition, enforcement, and effectiveness [133]. They examine the motivations behind using UNSC sanctions as a tool of international diplomacy and coercion, tracing shifts in global power dynamics and geopolitical rivalries over time [134]. Historians also explore the long-term impacts of UNSC sanctions on societies, economies, and international relations, highlighting patterns of continuity and change in UNSC sanctions policies. By contextualising contemporary debates within a historical framework, historians enrich our understanding of the complex dynamics surrounding UNSC sanctions and contribute to informed policymaking and conflict resolution efforts.

The health impacts of UNSC sanctions are a critical area of inquiry for scholars in health. Health scholars examine how UNSC sanctions affect access to healthcare services, medical supplies, and essential medicines within targeted countries (mostly low-income and middle-income countries) and their implications for public health outcomes, disease prevalence, and healthcare delivery systems [135]. Health scholars also investigate the humanitarian consequences of UNSC sanctions-related disruptions to healthcare infrastructure, disease surveillance, and outbreak response efforts. Moreover, they explore the ethical dimensions of UNSC sanctions and their implications for the right to health [136]. So, health scholars contribute by assessing the health impacts of UNSC sanctions, highlighting humanitarian crises, advocating for ethical considerations and policies, and providing a holistic understanding of the consequences of UNSC sanctions on human well-being.

Additionally, environmental scholars highlight the ecological dimensions of UNSC sanctions, examining their impact on ecosystems, natural resources, and environmental sustainability within targeted states [137]. They explore the ecological consequences of UNSC sanctions, such as deforestation, habitat degradation, and pollution, and their implications for biodiversity conservation and ecosystem resilience. They also investigate the connections between UNSC sanctions, conflict, and environmental degradation, highlighting the potential for environmental factors to exacerbate or mitigate conflict dynamics [138]. Through their focus on environmental sustainability, they contribute to a better understanding of the broader impacts of UNSC sanctions on the environment.

In terms of publications, including journals, institutions, and countries with the highest frequency of publications on UNSC sanctions are primarily developed countries. At the same time, there is limited representation from developing countries. This discrepancy can be attributed to the divergent perspectives on UNSC sanctions between developed and developing countries [139]. The differing perspectives on UNSC sanctions between developed and developing countries can be attributed to several factors; the first factor is historical context; developed countries may view UNSC sanctions as legitimate tools for maintaining international order. In contrast, developing countries may view UNSC sanctions as historical experiences of colonization and suspicion of external interventions [140]. The second factor is economic interests; developed countries have well-established international trade and financial networks and may use UNSC sanctions to safeguard their economic interests. Conversely, developing countries may experience negative economic consequences, such as reduced trade opportunities, restricted access to financial systems, and hindered development prospects.

Additionally, the third factor is political considerations [141]; developed countries that use UNSC sanctions may have political interests, advance national security objectives, protect their allies, or counter perceived threats. At the same time, developing countries might view UNSC sanctions as instruments developed countries use to exert influence or pursue their national interest, potentially undermining the sovereignty of developing countries as targeted countries. The fourth factor is power dynamics; developed countries, as UNSC permanent members with veto powers [142,143], have a greater ability to shape and influence sanction decisions. Conversely, developing countries perceive unequal treatment or selective enforcement of UNSC sanctions [144]. Finally, the last factor is perceptions of sovereignty; developed countries wield a lot of influence on the smaller and weaker countries or developing countries [145]. On the other hand, developing countries may view UNSC sanctions perceive as encroachments on their sovereignty and internal affairs. This discrepancy in the use and perception of UNSC sanctions between developed and developing countries could contribute to the disparity in research output and representation in publications.

Regarding publications distribution and contribution by countries, particularly UNSC five permanent members (P5) on UNSC sanctions research from 1990 to 2023. UNSC consists of five permanent members: the United States of America (USA), the People's Republic of China (PRC), the United Kingdom (UK), France Republic, and the Russian Federation. Among the P5 members, the USA has conducted the most research on UNSC sanctions, followed by the UK in second place, China in third place, and France in last place. In

contrast, Russia has shown comparatively less activity or significance in research on UNSC sanctions. This can be observed by examining Russia's contributions to UNSC sanctions research, as there is a lack of notable journals and institutions originating from Russia that have made substantial contributions to this field of UNSC sanctions.

Moreover, South Korea (Republic of Korea, ROK) is a non-western developed country that is not a P5 member and has also actively researched UNSC sanctions. Table 4 shows that South Korea is the second country with the highest contributions to UNSC sanctions research. In addition, The Korean Journal of Defense Analysis, with the highest number of publications on UNSC sanctions research, is from South Korea, shown in Fig. 6. UNSC has imposed sanctions on North Korea since 2006. It is well-known that South Korea has a vested interest in the issue of UNSC sanctions due to its complex relationship with North Korea (Democratic People's Republic of Korea, DPRK). The nuclear development activities and security concerns North Korea poses have significantly impacted the Korean Peninsula and regional stability. As a result, it is reasonable that South Korea, as a neighbor to North Korea, has researched and analyzed UNSC sanctions to understand, address, and potentially resolve the issue.

In terms of keywords with the highest frequency from 1990 to 2023, the dataset indicates that the hotspots discussed in research on UNSC sanctions can be categorized into four key themes: economic sanctions, impact, human rights, and due process. In addition, regarding the 11 diverse topics of keyword clusters from 1990 to 2023, the datasets present the evolution and development of the topic of keyword clusters. Among them, cluster #0 economic sanctions, #1 human rights, #2 international sanctions, #3 north korea, #4 targeted sanctions, #6 energy, cluster #7 un sanctions, and #9 accountability indicated intersection with other fields. On the other hand, cluster #5 sugar intake, #8 halgurd-sakran national park, and #19 fraud detection indicated separation from other fields. Furthermore, the presence of specific locations, cluster #3 north korea and #8 halgurd-sakran national park in Iraq, indicated a strong connection between locations and the research topic of UNSC sanctions. Additionally, the timeline view from 1990 to 2023 datasets shows cluster #0 economic sanctions, #2 international sanctions, and #9 accountability are the continuous clusters in 2023 that

**Table 9**

Table of different terms to refer to UNSC sanctions.

Term	Title	Reference
UN Sanctions	UN Sanctions as Regulation	[147]
	Chinese and Japanese Perspectives on UN sanctions	[148]
	Interpretation and review of UN sanctions by European courts: comity and conflict	[149]
Term	Title	Reference
United Nations Sanctions	United Nations Sanctions on North Korea's Luxury Goods Imports: Impact and Implications	[150]
	Fighting the Hydra: United Nations sanctions and rebel groups	[151]
	When United Nations sanctions impact international financial governance: lessons from the Libyan sovereign wealth fund	[152]
Term	Title	Reference
UNSC Sanctions	The Effectiveness of UNSC Sanctions: The Case of North Korea	[153]
	China's Non-intervention Policy in UNSC Sanctions in the 21st Century: The Cases of Libya, North Korea, and Zimbabwe	[154]
	UNSC sanctions regimes and the ICC: Arguments against cooperation for arrest and investigative purposes in light of defendants' rights	[155]
Term	Title	Reference
UN Security Council Sanctions	The morality of the UN Security Council sanctions against Eritrea: Defensibility, political objectives, and consequences	[156]
	Lessons from the MENA region: A configurational explanation of the (in) effectiveness of UN Security Council sanctions between 1991 and 2014	[157]
	The influence of UN security council sanctions on the North Korean economy	[158]
Term	Title	Reference
United Nations Targeted Sanctions	United Nations targeted sanctions, human rights and the office of the ombudsperson	[159]
	Understanding United Nations targeted sanctions: an empirical analysis	[160]
	The Individualization of Enforcement in International Law Exploring the Interplay between United Nations Targeted Sanctions and International Criminal Proceedings	[161]
Term	Title	Reference
UN Targeted Sanctions	The evolution and effectiveness of UN targeted sanctions	[162]
	Are smart sanctions smart enough? An inquiry into when leaders oppress civilians under UN targeted sanctions	[163]
	Towards a world police? The implications of individual UN targeted sanctions	[164]
Term	Title	Reference
United Nations Economic Sanctions	UN economic sanctions: trends of the forms of their implementation	[165]
	UN economic sanctions and financial measures—evolution and challenges	[166]
	The need for international judicial review of UN economic sanctions	[167]
Term	Title	Reference
United Nations Financial Sanctions	UN Financial Sanctions on Iran: An Example of How Asset Freeze Exemptions Worked in Practice	[168]
	Judicial challenges against UN financial sanctions	[27]
	UN financial sanctions against the democratic People's Republic of Korea: challenges and proposal for efficient implementation	[169]



indicate these clusters are still the hot topics on UNSC sanctions.

Regarding cluster #5 sugar intake, as shown in Fig. 9, it is related to UNSC sanctions against Iraq. After Iraq invaded Kuwait in 1990, the UNSC imposed comprehensive sanctions on Iraq under resolution UNSCR 661 (1990). The negative impact of comprehensive sanctions on Iraq's economy has severe consequences for its population, including its food supply and food intake, which could impact sugar intake. Sugar intake in Iraq drastically decreased to 12 kg/person/year in 1990 after the UNSC imposed comprehensive sanctions on Iraq [146]. Overall, although the main objective of UN sanctions on Iraq was not to restrict sugar intake, the economic strain and humanitarian consequences of the sanctions regime had an unintended impact on Iraqi food security and food intake, including sugar intake.

In academic discourse, scholars from various disciplines frequently use a variety of terms interchangeably to describe these sanctions, including UN sanctions, United Nations sanctions, UNSC sanctions, UN Security Council sanctions, United Nations targeted sanctions, UN targeted sanctions, United Nations economic sanctions, and United Nations financial sanctions, as detailed in Table 9.

## 5. Conclusion

In general, the UNSC imposed UNSC sanctions only twice during the Cold War, namely the UNSC sanctions against Rhodesia in 1966 and the UNSC sanctions against apartheid in South Africa in 1977. Compared with the two UNSC sanctions imposed during the Cold War, the UNSC imposed them 29 times after the Cold War. After the Cold War, the first practice of UNSC sanctions was against Iraq's aggression to invade Kuwait. Especially in the 1990s, there was an increase in the use of UNSC sanctions as a powerful tool in response to various geopolitical conflicts, human rights abuses, or non-compliance with international norms. The UNSC imposed a total of 31 UNSC sanctions aimed at exerting pressure on targeted states to change their behavior, policies, or actions.

This study analyzes articles about UNSC sanctions that began in 1990 by looking at the fact that since then, the UNSC has been very active in imposing UNSC sanctions. Scholars began to be interested in the topic of UNSC sanctions, publication of the first article on UNSC sanctions in 1991 can prove this. After conducting an extensive analysis of the existing literature on UNSC sanctions and aiming to address the earlier research questions, the study draws the following conclusions.

- (1) The current research status of UNSC sanctions has significantly increased in the past three decades, which were separated into three major stages: the initial development stage (1990–2006), the transitional development stage (2007–2017), and the rapid development stage (2018–2023). The top five most productive journal sources were the Korean Journal of Defense Analysis, Global Governance, International Affairs, American Journal of International Law, and International Journal, with 54 publications in total. Regarding research disciplines, international relations, law, political science, area studies, and economics were the most dominant research disciplines. The top five countries with the highest contributions are the United States of America, South Korea, United Kingdom, Germany, and the Netherlands, with 202 publications of total publications. Research Libraries UK, the University of London, Otto Friedrich University Bamberg, the European University Institute, and N8 Research Partnership were the top five institutions with the highest contributions, with 47 publications of total publications. The top five most productive publications on UNSC sanctions research were by Clara Portela from the University of Valencia, Francesco Giumelli from the University of Groningen, Monika Heupel from the University of Bamberg, Thomas Doerfler from the University of Potsdam, and Kyle Beardsley from the Duke University, with 24 publications of the total publications.
- (2) The research hotspots and landmark articles of UNSC sanctions. Based on the analysis result of the dataset keywords from 1990 to 2023 showed that UNSC sanctions are expanding hotspots and trends. The top five keywords with the highest frequency are economic sanctions (41 frequencies), north korea (28 frequencies), united nations (20 frequencies), security council (13 frequencies), and impact (13 frequencies). Analyzing the keywords with the strongest citation bursts from the 1990 to 2023 dataset, it is noteworthy that the keyword "north korea" exhibited the strongest burst from 2019 to 2021, reaching a strength of 5.63. Based on the keywords clusters from 1990 to 2023 datasets were divided into 11 clusters, including economic sanctions, human rights, international sanctions, north korea, targeted sanctions, sugar intake, energy, un sanctions, halgurd-sakran national park, accountability, and fraud detection. At the same time, each keywords cluster has a different size of clusters, silhouette of clusters, label of clusters, and number of clusters. In addition, intellectual bases on UNSC sanctions from 1990 to 2023 datasets categorize them into different domains such as implementation, human rights, impacts, and specific regimes.

Based on the conclusion, this study presents compelling evidence that the topic of UNSC sanctions will still be a hot topic in the future. At the same time, this study also offers some recommendations for future research directions: First, this study found that the field of UNSC sanctions research is a multidisciplinary field, including laws, international relations, politics, economics, etc. It provides a high opportunity to develop research cooperation about UNSC sanctions among scholars from various disciplines worldwide. Developing research cooperation can lead to a more comprehensive understanding and analysis of multiple insights about UNSC sanctions. Second, this study also found that scholars from various disciplines use different terms to refer to UNSC sanctions, such as United Nations sanctions, United Nations targeted sanctions, etc.

Despite this study's contribution to UNSC sanctions research, this study still has limitations. Data sources for this study were only obtained from the core collection database of the Web of Science (WOS), which is the most trusted and authoritative database among other global databases. Therefore, this study did not use other global databases such as Scopus, Google Scholar, etc. But the limitations of this study can serve as valuable recommendations for future research.

## Data availability statement

Data will be made available on request.

## CRediT authorship contribution statement

Sutikno: Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Data curation, Conceptualization.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## References

- [1] M. Asada, Definition and legal justification of sanctions, in: *Econ. Sanction. Int. Law Pract.*, Routledge, 2019, pp. 3–23, <https://doi.org/10.4324/9780429052989-2>.
- [2] J. Ilieva, A. Dashtevski, F. Kokotovic, Economic sanctions in international law, *UTMS J. Econ.* 9 (2018) 201–211.
- [3] C. Huber, Impos. Sanction. Violent non-state actors to Restore Int. Peace Secur. A Syst. Anal. Cond. Under which UN target, in: *The United Nations as a Sanctioning Organization*, Springer, 2022, pp. 19–27, <https://doi.org/10.1007/978-3-658-37744-1>. Sanction. Work.
- [4] P. Wilson, J. Yao, International sanctions as a primary institution of international society, *Int. Organ. Anarch. Soc. Institutional Struct, World Order* (2019) 127–148, [https://doi.org/10.1007/978-3-319-71622-0\\_6](https://doi.org/10.1007/978-3-319-71622-0_6).
- [5] F. Saeed, F. Katman, Economic sanctions in the united nations and its Modern applications (1990–2002), *Eur. Res.* 11 (2020) 104–111, <https://doi.org/10.13187/er.2020.2.104>.
- [6] B.L. Murphy, UN security council sanctions and international peace and security: context, Controversies and (legal) challenges, in: *Int. Confl. Secur. Law A Res. Handb.*, Springer, 2022, pp. 171–200, [https://doi.org/10.1007/978-94-6265-515-7\\_8](https://doi.org/10.1007/978-94-6265-515-7_8).
- [7] M. Wood, E. Sthoeger, *The UN Security Council and International Law*, Cambridge University Press, 2022, <https://doi.org/10.1017/9781108692373>.
- [8] P. Achilleas, United nations and sanctions, in: *Econ. Sanction. Int. Law Pract.*, Routledge, 2019, pp. 24–38, <https://doi.org/10.4324/9780429052989-3>.
- [9] D. Whittle, The Limits of legality and the united nations security council: Applying the Extra-legal measures Model to chapter VII action, *Eur. J. Int. Law* 26 (2015) 671–698, <https://doi.org/10.1093/ejil/chv042>.
- [10] V. Lowe, A. Roberts, J. Welsh, D. Zaum, *The United Nations Security Council and War: the Evolution of Thought and Practice since 1945*, OUP Oxford, 2010, <https://doi.org/10.1017/S0020589310000151>.
- [11] V. Gowlland-Debbas, *United Nations Sanctions and International Law*, Brill, 2021.
- [12] T.J. Biersteker, Z. Hudáková, UN targeted sanctions: historical development and current challenges, in: *Res. Handb. Econ. Sanction.*, Edward Elgar Publishing, 2021, pp. 107–124, <https://doi.org/10.4337/9781839102721.00011>.
- [13] C. Portela, National implementation of United Nations sanctions: towards fragmentation, *Int. J.* 65 (2009) 13–30, <https://doi.org/10.1177/002070201006500102>.
- [14] T. Stapleton, Rhodesia's unilateral declaration of independence: an international history, *Can. J. African Stud. Rev. Can, Des Études Africaines* 47 (2013) 344–345, <https://doi.org/10.1080/00083968.2013.829956>.
- [15] A.S. Mlambo, 'Honoured more in the breach than in the observance': economic sanctions on Rhodesia and international response, 1965 to 1979, *South African Hist. J* 71 (2019) 371–393, <https://doi.org/10.1080/02582473.2019.1598478>.
- [16] T.P. Paige, Apartheid in South Africa 1963–77, *Petulant Contrar. Approaches by Perm. Five Members UN Secur. Council. To Concept Of threat to Peace' under Artic. 39 UN Chart*, Brill Nijhoff, 2019, pp. 72–82, [https://doi.org/10.1163/9789004391420\\_008](https://doi.org/10.1163/9789004391420_008) (Resolutions 181, 182 (1963), 190, 191 (1964), 282 (1973), 311 (1972), 417 and 418 (1977)).
- [17] D. Cortright, G.A. Lopez, R.W. Conroy, J. Dashti-Gibson, J. Wagler, D.M. Malone, L. Axworthy, *The Sanctions Decade: Assessing UN Strategies in the 1990s*, Lynne Rienner Publishers, Boulder, CO, 2000, <https://doi.org/10.2307/20049900>.
- [18] G.C. Hufbauer, E. Jung, What's new in economic sanctions? *Eur. Econ. Rev.* 130 (2020) 103572 <https://doi.org/10.1016/j.euroecorev.2020.103572>.
- [19] S. Peou, Why 'Smart' Sanctions still cause human Insecurity, *Asian J. Peacebuilding* 7 (2019) 265–285, <https://doi.org/10.18588/201911.00a092>.
- [20] T.C. Morgan, C. Syropoulos, Y. V Yotov, Economic sanctions: evolution, consequences, and challenges, *J. Econ. Perspect.* 37 (2023) 3–29, <https://doi.org/10.1257/jep.37.1.3>.
- [21] G. Mallard, F. Sabet, J. Sun, The humanitarian gap in the global sanctions regime: assessing Causes, effects, and Solutions, *Glob. Gov. A Rev. Multilater. Int. Organ.* 26 (2020) 121–153, <https://doi.org/10.1163/19426720-02601003>.
- [22] L. Jones, C. Portela, Evaluating the success of international sanctions: a new research agenda, *Rev. CIDOB d'Afers Int.* 125 (2020) 39–60, <https://doi.org/10.24241/rcai.2020.125.2.39/en>.
- [23] D. Peksén, Political effectiveness, negative externalities, and the ethics of economic sanctions, *Ethics & Int. Aff.* 33 (2019) 279–289, <https://doi.org/10.1017/S0892679419000327>.
- [24] D. Peksén, When do imposed economic sanctions work? A critical review of the sanctions effectiveness literature, *Def. Peace Econ.* 30 (2019) 635–647, <https://doi.org/10.1080/10242694.2019.1625250>.
- [25] J. Mrázek, The international Court of Justice and its powers to judicial review of the united nations security council resolutions, *Lawyer Q.* 12 (2022) 393–407.
- [26] A.S. Rajput, Kadi and Al Barakaat International Foundation vs Council and Commission, *Jus Corpus Law J.* 3 (2022) 39–43.
- [27] A. Kato, Judicial challenges against UN financial sanctions, in: S. Yoshimura (Ed.), *United Nations Financ. Sanction.*, first ed., Routledge, 2021, pp. 120–133, <https://doi.org/10.4324/9780429260315>.
- [28] Ö. Özdamar, E. Shahin, Consequences of economic sanctions: the state of the art and paths forward, *Int. Stud. Rev.* 23 (2021) 1646–1671, <https://doi.org/10.1093/isr/viab029>.
- [29] G. Danaei, I. Harirchi, H.S. Sajadi, F. Yahyaei, R. Majdzadeh, The harsh effects of sanctions on Iranian health, *Lancet* 394 (2019) 468–469, [https://doi.org/10.1016/S0140-6736\(19\)31763-5](https://doi.org/10.1016/S0140-6736(19)31763-5).
- [30] J. Gutmann, M. Neuenkirch, F. Neumeier, Sanctioned to death? The impact of economic sanctions on life expectancy and its gender gap, *J. Dev. Stud.* 57 (2021) 139–162, <https://doi.org/10.2139/ssrn.3036391>.
- [31] Y. Kim, Economic sanctions and HIV/AIDS in women, *J. Public Health Policy* 40 (2019) 351–366, <https://doi.org/10.1057/s41271-019-00173-6>.
- [32] M. Splinter, J. Klomp, Do sanctions cause economic growth collapses?, in: J.V. Robert Beeres, Robert Bertrand, Jeroen Klomp, Job Timmermans (Eds.), *NL ARMS Netherlands Annu.*, vol. 2021 *Rev. Mil. Stud.*, 2022, p. 115, [https://doi.org/10.1007/978-94-6265-471-6\\_7](https://doi.org/10.1007/978-94-6265-471-6_7).
- [33] J. Gutmann, M. Neuenkirch, F. Neumeier, The economic effects of international sanctions: an event study, *Universitat Trier, Fachbereich IV - Volkswirtschaftslehre, Trier* (2021), <https://doi.org/10.2139/ssrn.3821520>.
- [34] M. Dai, G.J. Felbermayr, A. Kirilakha, C. Syropoulos, E. Yalcin, Y. V Yotov, Timing the impact of sanctions on trade, in: P.A.G. van Bergeijk (Ed.), *Res. Handb. Econ. Sanction.*, Edward Elgar Publishing, 2021, pp. 411–437, <https://doi.org/10.4337/9781839102721.00031>.

- [35] Z. Fotourehchi, Are UN and US economic sanctions a cause or cure for the environment: empirical evidence from Iran, *Environ. Dev. Sustain.* 22 (2020) 5483–5501, <https://doi.org/10.1007/s10668-019-00434-0>.
- [36] K. Madani, Have international sanctions impacted Iran's environment? *World 2* (2021) 231–252, <https://doi.org/10.3390/world2020015>.
- [37] K. Madani, How international economic sanctions harm the environment, *Earth's Futur* 8 (2020) e2020EF001829, <https://doi.org/10.1029/2020EF001829>.
- [38] I. Couzigou, The united nations security council sanctions and international human rights, *ICL J* 10 (2016) 277–311, <https://doi.org/10.1515/icl-2016-0303>.
- [39] E. Hoskins, United nations targeted sanctions, human rights and the office of the ombudsperson, *Econ. Sanction. Int. Law* (2016), <https://doi.org/10.5040/9781474201629.ch-007>.
- [40] H.H. Sougheh, R. Nordin, *New Approaches of Understanding Human Rights : Paradox of Sanctions at the United Nations*, vol. 4, 2015, pp. 134–140.
- [41] J. Grauvogel, H. Attia, Easier in than out: lessons Learned from the Termination of the Iraq sanctions regime, *J. Glob. Secur. Stud.* 8 (2023) ogad021, <https://doi.org/10.1093/jogss/ogad021>.
- [42] M. Al-Ghazi, Ukraine and Iraq are Mirror images, *Adv. Radiat. Oncol.* 9 (2024) 101348, <https://doi.org/10.1016/j.adro.2023.101348>.
- [43] M. Kirakosyan, Democratization in the light of the evolution of chapter 7 powers of the UN Charter: the case of Iraq, *Democr. Secur.* 19 (2023) 251–273, <https://doi.org/10.1080/17419166.2022.2111304>.
- [44] Z. Asma, The effects of the united nations economic sanctions of 1991 on regime change in Libya, *J. Leg. Polit. Thought* (2023) 1300–1313 (ISSN 2588-1620) 7.
- [45] M. Capasso, Theorising sanctions as Warfare, *World Rev. Polit. Econ.* 14 (2023) 555–584, <https://doi.org/10.13169/worlrevpoliecon.14.4.0555>.
- [46] C. Portela, J.-L.R. Perroux, UN security council sanctions and Mediation in Libya: Synergy or Obstruction?, *Glob. Gov. A Rev. Multilater. Int. Organ.* 28 (2022) 228–250, <https://doi.org/10.1163/19426720-02802005>.
- [47] S. Zani, Sanctions against North Korea: a descriptive analysis of their economic impact (2000–2020), *peace Econ, Peace Sci. Public Policy* 28 (2023) 333–360, <https://doi.org/10.1515/peps-2022-0042>.
- [48] J. Kim, K. Kim, S. Park, C. Sun, The economic costs of trade sanctions: evidence from North Korea, *J. Int. Econ.* 145 (2023) 103813, <https://doi.org/10.1016/j.jinteco.2023.103813>.
- [49] S. Haggard, M. Noland, *Economic Sanctions during Humanitarian Emergencies: the Case of North Korea, Asia-Pacific Issues*, 2023, pp. 1–8.
- [50] S. Ustiazhvili, Examining the impact of sanctions and the Aftermath of the JCPOA on Iran's economy, *J. Res. Soc. Sci. Humanit.* 2 (2023) 19–31, <https://doi.org/10.56397/JRSSH.2023.08.04>.
- [51] D. Laudati, Evidence and policy implications of sanctions in the long run: the case of Iran, in: *EconPol Forum*, 2023, pp. 27–30.
- [52] H.S. Sajadi, F. Yahyaei, E. Ehsani-Chimeh, R. Majdzadeh, The human cost of economic sanctions and strategies for building health system resilience: a scoping review of studies in Iran, *Int. J. Health Plann. Manage.* 38 (2023) 1142–1160, <https://doi.org/10.1002/hpm.3651>.
- [53] A. Quirós-Fons, T. Kruijer, Missing targets: which entities are affected by UN counter-terrorism sanctions? *Secur. J.* (2023) 1–20, <https://doi.org/10.1057/s41284-023-00386-1>.
- [54] A. Moiseienko, How UN counter-terrorism sanctions are made, *Law & Soc. Inq* (2023) 1–7, <https://doi.org/10.1017/lsi.2023.52>.
- [55] F. Merz, The united nations and Counterterrorism, *CSS Anal. Secur. Policy* 322 (2023), <https://doi.org/10.3929/ethz-b-000606159>.
- [56] F. Arslanian, The impact of economic sanctions on nuclear non-proliferation: the case of Iran (2005–15), *Int. Spect* 58 (2023) 16–35, <https://doi.org/10.1080/03932729.2023.2228679>.
- [57] J. Purcell, D. Schantz, J. Shire, Terrorism-related targeted financial sanctions, in: *Countering Financ. Terror.*, International Monetary Fund, 2023, pp. 113–152, <https://doi.org/10.5089/9798400204654.071.CH005>.
- [58] A. Lang, Alternatives to adjudication in international law: a case study of the Ombudsperson to the ISIL and Al-Qaida sanctions regime of the UN Security Council, *Am. J. Int. Law* 117 (2023) 48–91, <https://doi.org/10.1017/ajil.2022.81>.
- [59] D.W. Drezner, Global economic sanctions, *Annu. Rev. Polit. Sci.* 27 (2024), <https://doi.org/10.1146/annurev-polisci-041322-032240>.
- [60] P. van Bergeijk, Can the sanction debate be resolved?, in: *CESifo Forum*, 2019, pp. 3–8.
- [61] N. Donthu, S. Kumar, D. Mukherjee, N. Pandey, W.M. Lim, How to conduct a bibliometric analysis: an overview and guidelines, *J. Bus. Res.* 133 (2021) 285–296, <https://doi.org/10.1016/j.jbusres.2021.04.070>.
- [62] O. Ellegaard, The application of bibliometric analysis: disciplinary and user aspects, *Scientometrics* 116 (2018) 181–202, <https://doi.org/10.1007/s11192-018-2765-z>.
- [63] C. Chen, *CiteSpace: Visualizing Patterns and Trends in Scientific Literature*, 2010. Retrieved January 27 (2010).
- [64] C. Birkle, D.A. Pendlebury, J. Schnell, J. Adams, Web of Science as a data source for research on scientific and scholarly activity, *Quant. Sci. Stud.* 1 (2020) 363–376, [https://doi.org/10.1162/qss\\_a\\_00018](https://doi.org/10.1162/qss_a_00018).
- [65] K. Li, J. Rollins, E. Yan, Web of Science use in published research and review papers 1997–2017: a selective, dynamic, cross-domain, content-based analysis, *Scientometrics* 115 (2018) 1–20, <https://doi.org/10.1007/s11192-017-2622-5>.
- [66] X. Wang, Z. Fang, X. Sun, Usage patterns of scholarly articles on Web of Science: a study on Web of Science usage count, *Scientometrics* 109 (2016) 917–926, <https://doi.org/10.1007/s11192-016-2093-0>.
- [67] S. Milojević, Practical method to reclassify Web of Science articles into unique subject categories and broad disciplines, *Quant. Sci. Stud.* 1 (2020) 183–206, [https://doi.org/10.1162/qss\\_a\\_00014](https://doi.org/10.1162/qss_a_00014).
- [68] M.B. Aliyu, Efficiency of Boolean search strings for Information retrieval, *Am. J. Eng. Res.* 6 (2017) 216–222.
- [69] O. Ellegaard, J.A. Wallin, The bibliometric analysis of scholarly production: how great is the impact? *Scientometrics* 105 (2015) 1809–1831, <https://doi.org/10.1007/s11192-015-1645-z>.
- [70] A. Sillet, *Definition and Use of Bibliometrics in Research*, Soins, 2013, pp. 29–30.
- [71] M.B. Harari, H.R. Parola, C.J. Hartwell, A. Riegelman, Literature searches in systematic reviews and meta-analyses: a review, evaluation, and recommendations, *J. Vocat. Behav.* 118 (2020) 103377, <https://doi.org/10.1016/j.jvb.2020.103377>.
- [72] D. Zhang, J. Xu, Y. Zhang, J. Wang, S. He, X. Zhou, Study on sustainable urbanization literature based on Web of Science, scopus, and China national knowledge infrastructure: a scientometric analysis in CiteSpace, *J. Clean. Prod.* 264 (2020) 121537, <https://doi.org/10.1016/j.jclepro.2020.121537>.
- [73] H. Xu, Y. Li, Y. Tan, N. Deng, A scientometric review of urban disaster resilience research, *Int. J. Environ. Res. Public Health* 18 (2021) 3677, <https://doi.org/10.3390/ijerph18073677>.
- [74] C. Chen, *How to use CiteSpace*. Victoria, Br. Columbia, Canada Leanpub (2015).
- [75] S. Chen, Citespace-based live Broadcast legal issues in the context of Big data, in: 2020 Int. Conf. Data Process. Tech. Appl. Cyber-Physical Syst. DPTA 2020, 2021, pp. 659–667, [https://doi.org/10.1007/978-981-16-1726-3\\_82](https://doi.org/10.1007/978-981-16-1726-3_82).
- [76] C. Chen, Others, Preliminary analysis of hotspots and frontiers of research on foreign-related rule of law in China: based on CiteSpace visual analysis, *Sci. Law J.* 1 (2022) 39–49, <https://doi.org/10.23977/law.2022.010205>.
- [77] K.S. Rawat, S.K. Sood, Knowledge mapping of computer applications in education using CiteSpace, *Comput. Appl. Eng. Educ.* 29 (2021) 1324–1339, <https://doi.org/10.1002/cae.22388>.
- [78] K. Qian, Y. Li, Visualization analysis of information economy based on CiteSpace, in: 2021 Int. Conf. Comput. Blockchain Financ. Dev., 2021, pp. 324–327, <https://doi.org/10.1109/CBFD52659.2021.00072>.
- [79] H. Shao, G. Kim, Q. Li, G. Newman, Web of science-based green infrastructure: a bibliometric analysis in CiteSpace, *Land* 10 (2021) 711, <https://doi.org/10.3390/land10070711>.
- [80] Y. Zhang, X. Ni, H. Wang, Visual analysis of greenhouse gas emissions from sewage treatment plants based on CiteSpace: from the perspective of bibliometrics, *Environ. Sci. Pollut. Res.* 30 (2023) 45555–45569, <https://doi.org/10.1007/s11356-023-25582-9>.
- [81] J. Zhang, Q. Wang, Y. Xia, K. Furuya, Knowledge Map of Spatial Planning and sustainable development: a visual analysis using CiteSpace, *Land* 11 (2022) 331, <https://doi.org/10.3390/land11030331>.

- [82] Y. Li, M. Li, P. Sang, A bibliometric review of studies on construction and demolition waste management by using CiteSpace, *Energy Build* 258 (2022) 111822, <https://doi.org/10.1016/j.enbuild.2021.111822>.
- [83] C. Chen, *CiteSpace: A Practical Guide for Mapping Scientific Literature*, Nova Science Publishers, Hauppauge, NY, USA, 2016.
- [84] C.C. Joyner, Sanctions, compliance and international law: Reflections on the united nations' experience against Iraq, *Va. J. Int'l L.* 32 (1991) 1.
- [85] X. Wang, J. Liu, F. Sheng, Analysis of hotspots in the field of domestic knowledge discovery based on co-word analysis method, in: *LISS 2014 Proc. 4th Int. Conf. Logist. Informatics Serv. Sci.*, 2015, pp. 643–649, <https://doi.org/10.2478/cait-2014-0051>.
- [86] Q.-J. Zong, H.-Z. Shen, Q.-J. Yuan, X.-W. Hu, Z.-P. Hou, S.-G. Deng, Doctoral dissertations of library and information science in China: a co-word analysis, *Scientometrics* 94 (2013) 781–799, <https://doi.org/10.1007/s11192-012-0799-1>.
- [87] C. Chen, R. Dubin, M.C. Kim, Orphan drugs and rare diseases: a scientometric review (2000–2014), *Expert Opin. Orphan Drugs* 2 (2014) 709–724, <https://doi.org/10.1517/21678707.2014.920251>.
- [88] L.J. Yang, X.F. Wei, Visualization research in foreign social network analysis based on mapping knowledge domain, *J. Inf. Sci.* 29 (2011) 1041–1048.
- [89] C. Chen, *The Citespace Manual*, Drexel University, Philadelphia, PA, USA, 2014.
- [90] T.J. Biersteker, S.E. Eckert, M. Tourinho, Z. Hudáková, UN targeted sanctions datasets (1991–2013), *J. Peace Res.* 55 (2018) 404–412, <https://doi.org/10.1117/0022343317752539>.
- [91] T.J. Biersteker, S.E. Eckert, M. Tourinho, *Targeted Sanctions*, first ed., Cambridge University Press, 2016 <https://doi.org/10.1017/CBO9781316460290>.
- [92] M. Heupel, Multilateral sanctions against terror suspects and the violation of due process standards, *Int. Aff.* 85 (2009) 307–321, <https://doi.org/10.1111/j.1468-2346.2009.00795.x>.
- [93] C. Kivunja, Distinguishing between theory, theoretical framework, and conceptual framework: a systematic review of lessons from the field, *Int. J. High. Educ.* 7 (2018) 44–53, <https://doi.org/10.5430/ijhe.v7n6p44>.
- [94] S. Loeb, S. Dynarski, D. McFarland, P. Morris, S. Reardon, S. Reber, *Descriptive analysis in education: a Guide for researchers*. NCEE 2017-4023, ERIC, 2017.
- [95] G. De Burca, The European Court of Justice and the international legal order after Kadi, in: *Challenges Int. Hum. Rights Law*, first ed., Routledge, London, 2014, p. 50, <https://doi.org/10.4324/9781315095905>.
- [96] E. Rosand, The Security Council's efforts to monitor the implementation of Al Qaeda/Taliban sanctions, *Am. J. Int. Law* 98 (2004) 745–763, <https://doi.org/10.2307/3216698>.
- [97] A. Tostensen, B. Bull, Are smart sanctions feasible? *World Polit* 54 (2002) 373–403, <https://doi.org/10.1353/wp.2002.0010>.
- [98] M. Brzoska, International sanctions before and beyond UN sanctions, *Int. Aff.* 91 (2015) 1339–1349, <https://doi.org/10.1111/1468-2346.12449>.
- [99] C. Eckes, Judicial review of European anti-terrorism measures—the Yusuf and Kadi judgments of the Court of first instance, *Eur. Law J.* 14 (2008) 74–92, <https://doi.org/10.1111/j.1468-0386.2007.00402.x>.
- [100] M. Brzoska, From dumb to smart—recent reforms of UN sanctions, *Glob. Gov.* 9 (2003) 519, <https://doi.org/10.1163/19426720-00904009>.
- [101] E. Stein, D. Halberstam, The united nations, the European union, and the king of Sweden: economic sanctions and individual rights in a plural world order, *common Mark, Law Rev.* 46 (2009) 13–72.
- [102] F. Kokabisaghi, Assessment of the effects of economic sanctions on Iranians' right to health by using human rights impact assessment tool: a systematic review, *Int. J. Heal. Policy Manag.* 7 (2018) 374, <https://doi.org/10.15171/ijhpm.2017.147>.
- [103] M. Heupel, With power comes responsibility: human rights protection in United Nations sanctions policy, *Eur. J. Int. Relations* 19 (2013) 773–796, <https://doi.org/10.1177/1354066111426621>.
- [104] E. De Wet, From Kadi to Nada: judicial techniques favouring human rights over United Nations Security Council sanctions, *Chinese J. Int. Law* 12 (2013) 787–808, <https://doi.org/10.2139/ssrn.2348010>.
- [105] P.T. Tridimas, Terrorism and the ECJ: Empowerment and Democracy in the EC legal order, queen mary Sch, *Law Leg. Stud. Res. Pap.* (2009), <https://doi.org/10.2139/ssrn.1365385>.
- [106] M.M. Ali, I.H. Shah, Sanctions and childhood mortality in Iraq, *Lancet* 355 (2000) 1851–1857, [https://doi.org/10.1016/S0140-6736\(00\)02289-3](https://doi.org/10.1016/S0140-6736(00)02289-3).
- [107] M. Neuenkirch, F. Neumeier, The impact of UN and US economic sanctions on GDP growth, *Eur. J. Polit. Econ.* 40 (2015) 110–125, <https://doi.org/10.2139/ssrn.2417217>.
- [108] Q. Fu, Y.E. Chen, C.-L. Jang, C.-P. Chang, The impact of international sanctions on environmental performance, *Sci. Total Environ.* 745 (2020) 141007, <https://doi.org/10.1016/j.scitotenv.2020.141007>.
- [109] D. Peksen, Economic sanctions and human security: the public health effect of economic sanctions, *Foreign Policy Anal* 7 (2011) 237–251, <https://doi.org/10.1111/j.1743-8594.2011.00136.x>.
- [110] Y.E. Chen, Q. Fu, X. Zhao, X. Yuan, C.-P. Chang, International sanctions' impact on energy efficiency in target states, *Econ. Model.* 82 (2019) 21–34, <https://doi.org/10.1016/j.econmod.2019.07.022>.
- [111] S. Pratt, V. Alizadeh, The economic impact of the lifting of sanctions on tourism in Iran: a computable general equilibrium analysis, in: *Curr. Issues Tour*, Taylor & Francis, 2018, pp. 1221–1238, <https://doi.org/10.4324/9780429291593-12>.
- [112] S. Haggard, M. Noland, Sanctioning North Korea: the political economy of denuclearization and proliferation, *Asian Surv.* 50 (2010) 539–568, <https://doi.org/10.1525/as.2010.50.3.539>.
- [113] I. Hurd, The strategic use of liberal internationalism: Libya and the UN sanctions, 1992–2003, *Int. Organ.* 59 (2005) 495–526, <https://doi.org/10.1017/S0020818305050186>.
- [114] A. Hehir, The permanence of inconsistency: Libya, the security council, and the responsibility to protect, *Int. Secur.* 38 (2013) 137–159, [https://doi.org/10.1162/ISEC\\_a\\_00125](https://doi.org/10.1162/ISEC_a_00125).
- [115] J. Grauvogel, C. Von Soest, Claims to legitimacy count: why sanctions fail to instigate democratisation in authoritarian regimes, *Eur. J. Polit. Res.* 53 (2014) 635–653, <https://doi.org/10.1111/1475-6765.12065>.
- [116] A. Alnasrawi, Iraq: Economic Sanctions and Consequences, 1990–2000, vol. 22, *Third World Q.* 2001, pp. 205–218, <https://doi.org/10.1080/01436590120037036>.
- [117] Y. Jeong, R.J. Weiner, Who bribes? Evidence from the United Nations' oil-for-food program, *Strateg. Manag. J.* 33 (2012) 1363–1383, <https://doi.org/10.1002/smj.1986>.
- [118] L. Stojkovski, Stuck Again? Does the 'new Cold War' Impact the Functioning of the UN security council? *Hestia Rev* 2 (2024) 12.
- [119] R. Faulkner, Multilateral Sanctions Revisited: Lessons Learned from Margaret Doxey, vol. 100, 2024, pp. 421–423, <https://doi.org/10.1093/ia/iiaad306>.
- [120] G. Hakimdavar, *A Strategic Understanding of UN Economic Sanctions: International Relations, Law and Development*, first ed., Routledge, New York, 2013 <https://doi.org/10.4324/9780203109465>.
- [121] A. Klotz, *Norms in International Relations: the Struggle against Apartheid*, Cornell University Press, 2018, <https://doi.org/10.7591/9781501731655>.
- [122] D.W. Drezner, Sanctions sometimes smart: targeted sanctions in theory and practice, *Int. Stud. Rev.* 13 (2011) 96–108, <https://doi.org/10.1111/j.1468-2486.2010.01001.x>.
- [123] K. Alexander, The international legal dimension of economic sanctions, in: *Econ. Sanction. Law Public Policy*, Springer, 2009, pp. 55–87, [https://doi.org/10.1057/9780230227286\\_4](https://doi.org/10.1057/9780230227286_4).
- [124] S. Ali Akhtar, Do Sanctions Violate International Law? Syed Ali Akhtar, *Do Sanction Violate Int. Law, Econ. & Polit. Wkly.* 54 (2019) 27.
- [125] H.H. Sougheh, R. Nordin, New approaches of understanding human rights: Paradox of sanctions at the united nations, *Asian J. Soc. Sci. Humanit.* 4 (2015) 134–140.
- [126] B.R. Early, D. Peksen, Shadow economies and the success of economic sanctions: Explaining why democratic targets are disadvantaged, *Foreign Policy Anal* 16 (2020) 353–372, <https://doi.org/10.1093/fpa/oraa005>.
- [127] I. von Borzyskowski, C. Portela, Global governance from below: regional sanctions as Drivers of UN sanctions, *J. Conflict Resolut* (2023) 00220027231153565, <https://doi.org/10.1177/00220027231153565>.

- [128] A. Borozna, L. V. Kochtcheeva, Sanctions: a theoretical review, in: *War by Other Means West. Sanction. Russ. Moscow's Response*, Springer, 2024, pp. 13–39, [https://doi.org/10.1007/978-3-031-51370-1\\_2](https://doi.org/10.1007/978-3-031-51370-1_2).
- [129] D. Peksen, Economic sanctions and political stability and violence in target countries, in: *Res. Handb. Econ. Sanction.*, Edward Elgar Publishing, 2021, pp. 187–201, <https://doi.org/10.4337/9781839102721.00016>.
- [130] K. Alexander, International political economy and economic sanctions, in: *Econ. Sanction. Law Public Policy*, Springer, 2009, pp. 30–54, [https://doi.org/10.1057/9780230227286\\_3](https://doi.org/10.1057/9780230227286_3).
- [131] G. Felbermayr, T.C. Morgan, C. Syropoulos, Y. V. Yotov, Understanding economic sanctions: Interdisciplinary perspectives on theory and evidence, *Eur. Econ. Rev.* 135 (2021) 103720, <https://doi.org/10.1016/j.eurocorev.2021.103720>.
- [132] V. Nitsch, T. Besedes, *Disrupted Economic Relationships: Disasters, Sanctions, Dissolutions*, MIT Press, 2019, <https://doi.org/10.7551/mitpress/11703.001.0001>.
- [133] J. Gordon, The hidden power of the new economic sanctions, *Curr. Hist.* 118 (2019) 3–10, <https://doi.org/10.1525/curh.2019.118.804.3>.
- [134] K. Alexander, The origins and use of economic sanctions, in: *Econ. Sanction. Law Public Policy*, Springer, 2009, pp. 8–29, [https://doi.org/10.1057/9780230227286\\_2](https://doi.org/10.1057/9780230227286_2).
- [135] M.P. Pintor, M. Suhrcke, C. Hamelmann, The impact of economic sanctions on health and health systems in low-income and middle-income countries: a systematic review and narrative synthesis, *BMJ Glob. Heal.* 8 (2023) e010968, <https://doi.org/10.1136/bmjgh-2022-010968>.
- [136] F. Germani, J.W. März, C. Clarinval, N. Biller-Andorno, Economic sanctions, healthcare and the right to health, *BMJ Glob. Heal.* 7 (2022) e009486, <https://doi.org/10.1136/bmjgh-2022-009486>.
- [137] U. Khalid, M.T. Ali, L. Okafor, O.I. Sanusi, Do sanctions affect the environment? The role of trade integration, *Res. Glob.* 8 (2024) 100191, <https://doi.org/10.1016/j.resglo.2023.100191>.
- [138] E. Hatipoglu, M.A. Soytaş, F. Belaşlıođlu, Environmental consequences of geopolitical crises: the case of economic sanctions and emissions, *Resour. Policy* 85 (2023) 104011, <https://doi.org/10.1016/j.resourpol.2023.104011>.
- [139] H. Strydom, The sanctions debate in the work of the United Nations since the 2000 working paper, *Potchefstroom Electron. Law Journal/Potchefstroomse Elektron. Regsbl.* 25 (2022) 1–20, <https://doi.org/10.17159/1727-3781/2022/v25i0a14063>.
- [140] R. Thakur, Law, legitimacy and united nations, *Melb. J. Int. Law* 11 (2010) 1–26, <https://doi.org/10.1093/acprofoso/9780199781577.003.0002>.
- [141] D. Peksen, A. Drury, Economic sanctions and political Repression: assessing the impact of coercive diplomacy on political Freedoms, *Hum. Rights Rev.* 10 (2009) 393, <https://doi.org/10.1007/s12142-009-0126-2>, 2009.
- [142] M.J. Kelly, United nations security council permanent membership and the veto Problem, case W, *Res. J. Int'l L.* 52 (2020) 101.
- [143] S. Okhovat, *The United Nations Security Council: its Veto Power and its Reform*, Centre for Peace and Conflict Studies, The University of Sydney, 2012.
- [144] E. Temelkovska-Anevskaja, E. Tosheva, The United Nations Security Council: the abuse of its veto power and its necessity for reform, in: *Towar. A Better Futur. Democr. EU Integr. Crim. Justice*, 2019, pp. 74–83.
- [145] S.O. Onwe, D.M.E. Nwogbaga, Conceptual issues and theoretical analysis of sovereignty, *Res. Humanit. Soc. Sci.* 5 (2015) 19–24.
- [146] H. Jamel, A. Plasschaert, A. Sheiham, Dental caries experience and availability of sugars in Iraqi children before and after the United Nations sanctions, *Int. Dent. J.* 54 (2004) 21–25, <https://doi.org/10.1111/j.1875-595X.2004.tb00248.x>.
- [147] K.E. Boon, UN sanctions as Regulation, *Chinese J. Int. Law* 15 (2016) 543–577, <https://doi.org/10.1093/chinesejil/jmw030>.
- [148] M. Kanetake, C. Cai, Chinese and Japanese Perspectives on UN sanctions, in: *Res. Handb. UN Sanction. Int. Law*, Edward Elgar Publishing, 2017, pp. 445–465, <https://doi.org/10.4337/9781784713034.00028>.
- [149] P. Nevill, Interpretation and review of UN sanctions by European courts: comity and conflict, in: *Res. Handb. UN Sanction. Int. Law*, Edward Elgar Publishing, 2017, pp. 418–444, <https://doi.org/10.4337/9781784713034.00027>.
- [150] H.-G. Jeong, United nations sanctions on North Korea's Luxury Goods Imports: impact and implications, *Asian Econ. Policy Rev.* 14 (2019) 214–233, <https://doi.org/10.1111/aep.12258>.
- [151] M. Radtke, H. Jo, Fighting the Hydra: united Nations sanctions and rebel groups, *J. Peace Res.* 55 (2018) 759–773, <https://doi.org/10.1177/0022343318788127>.
- [152] D. Sejko, D.J. Birkett, When United Nations sanctions impact international financial governance: lessons from the Libyan sovereign wealth fund, *Am. U. Int'l L. Rev.* 34 (2018) 387–427, <https://doi.org/10.2139/ssrn.3796742>.
- [153] V. Kim, *The Effectiveness of UNSC Sanctions: the Case of North Korea*, Syracuse University, 2017.
- [154] M. Ren, China's non-intervention policy in UNSC sanctions in the 21st century: the cases of Libya, North Korea, and Zimbabwe, *Ritsumeikan Int. Aff.* 12 (2014) 101–134.
- [155] A. Riccardi, UNSC sanctions regimes and the ICC: Arguments against cooperation for arrest and investigative purposes in light of defendants' rights, in: *Defendants Vict. Int. Crim. Justice*, first ed., Routledge, 2020, p. 17, <https://doi.org/10.4324/9780429287565>.
- [156] R. Bereketeb, The morality of the UN Security Council sanctions against Eritrea: Defensibility, political objectives, and consequences, *Afr. Stud. Rev.* 56 (2013) 145–161, <https://doi.org/10.1017/asr.2013.46>.
- [157] A. Boogaerts, E. Drieskens, Lessons from the MENA region: a configurational explanation of the (in) effectiveness of UN Security Council sanctions between 1991 and 2014, *Mediterr. Polit.* 25 (2020) 71–95, <https://doi.org/10.1080/13629395.2018.1474643>.
- [158] L. Zakharova, The influence of UN security council sanctions on the North Korean economy, *Int. Organ. Res. J.* 14 (2019) 223–244, <https://doi.org/10.17323/1996-7845-2019-02-09>.
- [159] P.A. Eden, United Nations targeted sanctions, human rights and the office of the ombudsperson, *Hum. Rights Off. Ombudsperson* (December 19, 2015), <https://www.un.org/development/dp/dp2/en/press-releases/2015/12/151219>.
- [160] F. Giumelli, Understanding United Nations targeted sanctions: an empirical analysis, *Int. Aff.* 91 (2015) 1351–1368, <https://doi.org/10.1111/1468-2346.12448>.
- [161] L. van den Herik, The Individualization of enforcement in international law exploring the Interplay between united nations targeted sanctions and international Criminal proceedings, in: *Purs. A Brave New World Int. Law*, Brill Nijhoff, 2017, pp. 234–263, [https://doi.org/10.1163/9789004340077\\_011](https://doi.org/10.1163/9789004340077_011).
- [162] S.E. Eckert, The evolution and effectiveness of UN targeted sanctions, in: *Res. Handb. UN Sanction. Int. Law*, Edward Elgar Publishing, 2017, pp. 52–70, <https://doi.org/10.4337/9781784713034.00008>.
- [163] J. Park, H.J. Choi, Are smart sanctions smart enough? An inquiry into when leaders oppress civilians under UN targeted sanctions, *Int. Polit. Sci. Rev.* 43 (2022) 433–449, <https://doi.org/10.1177/0192512120931957>.
- [164] M. Tourinho, Towards a world police? The implications of individual UN targeted sanctions, *Int. Aff.* 91 (2015) 1399–1412, <https://doi.org/10.1111/1468-2346.12453>.
- [165] M. V. Keshner, UN economic sanctions: trends of the forms of their implementation, *Int. Law Int. Organ.* (2015) 139–146, <https://doi.org/10.7256/2226-6305.2015.2.14611>.
- [166] S. Yoshimura, UN economic sanctions and financial measures—evolution and challenges, in: *United Nations Financ. Sanction.*, Routledge, 2020, pp. 1–17, <https://doi.org/10.4324/9780429260315>.
- [167] S.G. Zamani, J. Mazaheri, The need for international judicial review of UN economic sanctions, in: *Econ. Sanction. Under Int. Law Unilateralism, Multilater. Legitimacy, Consequences*, Springer, 2015, pp. 219–235, [https://doi.org/10.1007/978-94-6265-051-0\\_12](https://doi.org/10.1007/978-94-6265-051-0_12).
- [168] J. Brewer, UN financial sanctions on Iran: an Example of how Asset Freeze Exemptions worked in practice, *RUSI J.* 161 (2016) 22–26, <https://doi.org/10.1080/03071847.2016.1224494>.
- [169] M. Takeuchi, UN financial sanctions against the democratic People's Republic of Korea: challenges and proposal for efficient implementation, in: *United Nations Financ. Sanction.*, Routledge, 2020, pp. 134–149, <https://doi.org/10.4324/9780429260315>.