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What Causes Aviation Sanctions? A Systematic Review

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Aviation sanctions have emerged as a pivotal concern for the sustainability of the aviation industry. Although extensive research has been done on the economic impact of aviation sanctions, there is a noticeable gap in the literature regarding the factors that precipitate such sanctions. Consequently, this study represents a significant contribution to aviation sector research by elucidating the key factors leading to sanctions. The research adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) review method, ensuring a rigorous and systematic approach. In this study, a meticulous selection process was employed, utilizing prominent databases such as Scopus and Web of Science, alongside supplementary databases including Science Direct and SAGE. Through a systematic analysis of these databases, a total of 21 relevant studies were identified. The review's findings revealed five overarching themes: safety, environment, terrorist attacks, political conflicts, and disease outbreaks. Furthermore, this research concludes by offering recommendations for future scholars. These recommendations serve as a valuable resource for further exploration and study in the field.

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Introduction

The global aviation sector plays a crucial role in the global economy by connecting people, cultures, and businesses across continents. Over the years, the industry has experienced significant growth, as indicated by the continuous increase in the number of air passengers worldwide. According to a report released by the International Air Transport Association (IATA), the number of air passengers surpassed 4.3 billion trips in 2018 (IATA, 2019). The World Bank also highlights the substantial growth of the industry, with airline passenger numbers rising from 0.432 billion in 1975 to 4.233 billion in 2018. This trend has persisted since the 1970s, with a notable increase in passenger numbers since 2010 (World Bank, 2019). This growth can be attributed to several factors, such as rising disposable incomes, affordable airfares, expanding tourism, and globalization. All of these factors contribute to the interconnectedness of economies and the promotion of international trade and investment.

The aviation industry, like other sectors, faces challenges and pressures, including the imposition of restrictions and impediments on its activities. Aviation sanctions are specific economic measures frequently imposed by countries or entities on the aviation sector, encompassing air travel, aircraft manufacturers, and airlines (Gordon, 2011). These targeted measures aim to restrict various aspects of aviation activities, such as air travel routes, trade-in aircraft, and related components, as well as financial transactions. They serve specific objectives and exert pressure on targeted entities within the industry, driven by factors like political conflicts, aviation safety, terrorist attacks, environmental concerns, and disease outbreaks (Dube, Nhamo & Chikodzi 2021; Edelman 2015; Henderson 2009; Huliaras 2001; Latipulhayat & Arianto 2012; Manuela & De Vera 2015; O'Connell 2015; Wu, Jiang & Yang 2018).

The consequences of aviation sanctions are directly felt in the air passenger market, leading to a decline in tourist arrivals, receipts, and international mobility (Manuela & De Vera, 2015; Seyfi & Hall, 2019; Yang, Tjiptono & Poon, 2018). Studies conducted by Manuela and De Vera (2015) and Yang, Tjiptono, and Poon (2018) highlighted the significant impact of these sanctions on the air passenger market, resulting in reduced tourist arrivals and subsequent economic losses in affected regions. Moreover, businesses reliant on international air transportation, such as the export and import industries, may encounter challenges in accessing global markets, hindering trade and impeding economic growth. The crucial role of aviation in facilitating economic growth and international connectivity further underscores the potential negative effects of restrictions within the aviation sector. Consequently, understanding the factors contributing to the imposition of aviation sanctions and their consequences is essential for policymakers, industry stakeholders, and researchers to formulate effective strategies that mitigate the negative impacts and foster sustainable growth in the aviation industry.

The Need for a Systematic Review

The aviation sanctions issues have received considerable critical attention. Over the last century, there has been tremendous growth in aviation sanctions, as well as numerous conceptual and empirical studies examining various aspects of aviation, including factors that contribute to the imposition of aviation sanctions. However, there is a lack of systematic review papers that comprehensively collect and analyze previous studies specifically related to aviation sanctions (Lohmann & Scott, 2018; Sanchez-Rebull & Campa-Planas, 2012; Spasojevic et al., 2018; Yadav & Dhingra, 2018). While existing reviews often focus on the relationship between aviation and other areas, such as tourism, developments in low-cost carriers, and air transportation, a comprehensive systematic review specifically addresses the factors leading to aviation sanctions worldwide has yet to be conducted. This study aims to fill this gap and provide an in-depth examination of sanctions in the aviation context. By conducting a systematic review, this study not only contributes to improving existing knowledge but also offers valuable guidance to industry stakeholders in making decisions to enhance and transform the aviation sector in their respective countries.

In general, systematic reviews, which are academic research papers that utilize a method called "proof synthesis" to investigate predefined questions (The Campbell Collaboration, 2017), play a crucial role in knowledge synthesis. These reviews involve gathering, analyzing, and synthesizing empirical data that meet specific criteria, with the ultimate aim of addressing research issues (Yannascoli et al., 2013). By systematically identifying and critically assessing relevant articles, systematic reviews offer a clear and rigorous approach to exploring well-defined research or review questions. Systematic reviews are recognized for their effectiveness, comprehensiveness, repeatability, and reduced bias compared to traditional literature reviews (Koutsos et al., 2019; Menexes & Dordas, 2019). Furthermore, systematic reviews provide several advantages over other approaches. They promote evidence-based conclusions by including all pertinent empirical data and adhering to pre-specified inclusion criteria (Snyder, 2019). Additionally, they enhance research integrity by employing transparent article retrieval procedures, focusing on broader research areas, and setting significant objectives that help mitigate research bias (Shaffril et al., 2019). The systematic review process is extensively described, facilitating replication, expansion, or updating of the review to align with current research needs (Koutsos et al., 2019).

To ensure the construction of a comprehensive and relevant systematic review, the selection of existing articles is guided by the main research question: what are the factors that contribute to the imposition of aviation sanctions? The primary objective of this analysis is to investigate and examine the variables that lead to the imposition of aviation sanctions. By conducting a systematic literature review of existing articles, this study aims to gather and analyze the available evidence. Through a comprehensive search strategy and rigorous inclusion criteria, this review will identify relevant journal articles that meet the research question's criteria. This rigorous approach enables a thorough examination of the selected articles and contributes to a more comprehensive understanding of the subject matter, at the same time providing valuable insights into the factors influencing the imposition of aviation sanctions.

The analysis is categorized into sections. Section 2 discusses the material and methods used to obtain the answer to the current research question. Section 3 dives into the general and main findings from factors that lead to aviation sanctions according to their respective themes. Section 4 is about the discussion of findings, and Section 5 contains suggested recommendations that may be helpful in future research. Finally, Section 6 concludes the overall systematic review.

Material and Methods

This section explains the four main sub-sections used in the current research reviews, namely guided review, resources, the systematic review process for selecting the articles, and data abstraction and analysis.

Guided Review

The current review is guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, which is a widely recognized approach for conducting systematic reviews and meta-analyses (Moher et al., 2009). PRISMA provides a structured and transparent method for defining, selecting, and critically analyzing relevant issues in a systematic review. It ensures that the review incorporates essential components, such as a clearly formulated research question, systematic search strategy, study selection criteria, data extraction, quality assessment, data synthesis, and transparent reporting.

Systematic reviews, which involve the use of PRISMA, play a crucial role in the field of economics. They have become integral to policy-making and technology evaluation processes and are commonly published in health economics journals (Anderson, 2010). As such, it is relevant to study the PRISMA statement from an economic perspective. Recent studies in economics, such as those conducted by Saddiq and Bakar (2019) and Wang et al. (2018), have utilized PRISMA as a guideline. This methodology can be effectively employed to investigate the factors that lead to sanctions on the aviation sector worldwide. By employing the PRISMA framework, researchers can ensure a comprehensive and rigorous approach to conducting systematic reviews and meta-analyses in various fields, including economics. It facilitates transparency, replicability, and a thorough analysis of the relevant literature, thus enhancing the validity and impact of the review findings.

Resources

The review methods of this paper utilized two primary databases, namely Web of Science (WoS) and Scopus, which are widely recognized and extensively used in various scientific fields (Burnham, 2006; Guz & Rushchitsky, 2009). WoS is a publisher-independent global citation database that encompasses over 21,000 peer-reviewed academic journals, conference proceedings, and books from worldwide sources, including Open Access publications (Burnham, 2006). Scopus, which is the largest abstract and citation database, covers a broad range of sources, including book series, journals, and trade journals, with over 34,000 peer-reviewed journals across top-level subject areas (Burnham, 2006). There are several previous studies that have utilized Web of Science (WoS) and Scopus as databases for conducting systematic

literature reviews in the field of aviation (Edward et al., 2021; Karthik et al., 2021; Pang et al., 2020). To enhance the probability of finding relevant papers, manual searching efforts were also conducted on additional established sources such as Science Direct and SAGE. Science Direct provides access to over 2,500 scholarly journals, including fully open-access publications and more than 39,000 reference books (Younger, 2010). Similarly, SAGE offers access to over 1,000 journal titles in health, materials, and social sciences, along with numerous professional society affiliations (Younger, 2010). By employing these databases and sources, the review process aimed to comprehensively cover a wide range of relevant literature in the field.

The Systematic Review Process for Selecting the Articles

Identification

The systematic review process consists of three main stages in choosing several relevant papers for the present study. The first stage was to identify keywords, which was followed by a search for related and comparable phrases using thesaurus, dictionaries, and previous research. After the appropriate keywords were established, search strings on the Scopus and Web of Science databases were created in April 2022 (refer to Table 1). A total of 977 articles from both databases were successfully reclaimed. Meanwhile, an additional 24 articles from other databases, namely Science Direct and SAGE, were identified through a manual search conducted using similar keywords. In the first stage of the systematic review process, 1,001 articles were retrieved in total.

Table 1
The Search String

	Database Search String
WoS	TS=(sanction* OR ban OR bans OR embargo* OR boycott* OR banned OR "airline* ban" OR "airline* bans" OR "flight* ban" OR "flight bans" OR "travel* ban*") AND TS=(airline* OR aviation* OR "air transport*" OR "passenger carrier*" OR "air cargo carrier*" OR "air cargo" OR "air freight*" OR "air travel*" OR "air passenger*" OR "air traffic" OR flight* OR airspace*)
Scopus	TITLE-ABS KEY ((sanction* OR ban OR bans OR embargo* OR boycott* OR banned OR "airline* ban" OR "airline* bans" OR "flight* ban" OR "flight bans" OR "travel* ban*") AND (airline* OR aviation* OR "air transport*" OR "passenger carrier*" OR "air cargo carrier*" OR "air cargo" OR "air freight*" OR "air travel*" OR "air passenger*" OR "air traffic" OR flight* OR airspace*)

Screening

There are several stages of screening. First, duplicate articles were identified and removed. This stage resulted in the omission of 458 articles. The researchers then screened 543 articles based on the inclusion and exclusion criteria specified in the second stage. The type of literature selected for review was specified to only journals. This implies that publications in the context of a systematic review, review, meta-analysis, meta-synthesis, book series, essay, journal chapter, or conference proceedings were omitted from these reviews. It should be noted that the review also focused only on articles published in English. Articles published in the fields of Social Sciences, Business, Management, Accounting, Economics, Econometrics, and Finance

were chosen to increase the probability of receiving similar articles. Subsequently, the timeline of the review was also taken into account. It is crucial to note that this review also considered literature chosen within a specific timeline, which was the beginning of the year (1984-2022) in Web of Science, and the year (1927-2022) for Scopus. The timeline for these two databases is different because this study does not consider the criteria of the year of publication but the history of sanctions in the aviation sector. In total, 391 articles were excluded based on these criteria (Refer to Table 2), leaving 152 articles for the next step.

Table 2
The inclusion and exclusion criteria

Criterion	Eligibility	Exclusion
Literature type	Journal (research articles)	Conference paper, review, book chapter, short survey, note, book, business article, editorial, and letter
Language	English	Non-English
Subject area	Social Sciences, Business, Management and Accounting, and Economics, Econometrics and Finance	Other than Social Sciences, Business, Management and Accounting, and Economics, Econometrics and Finance

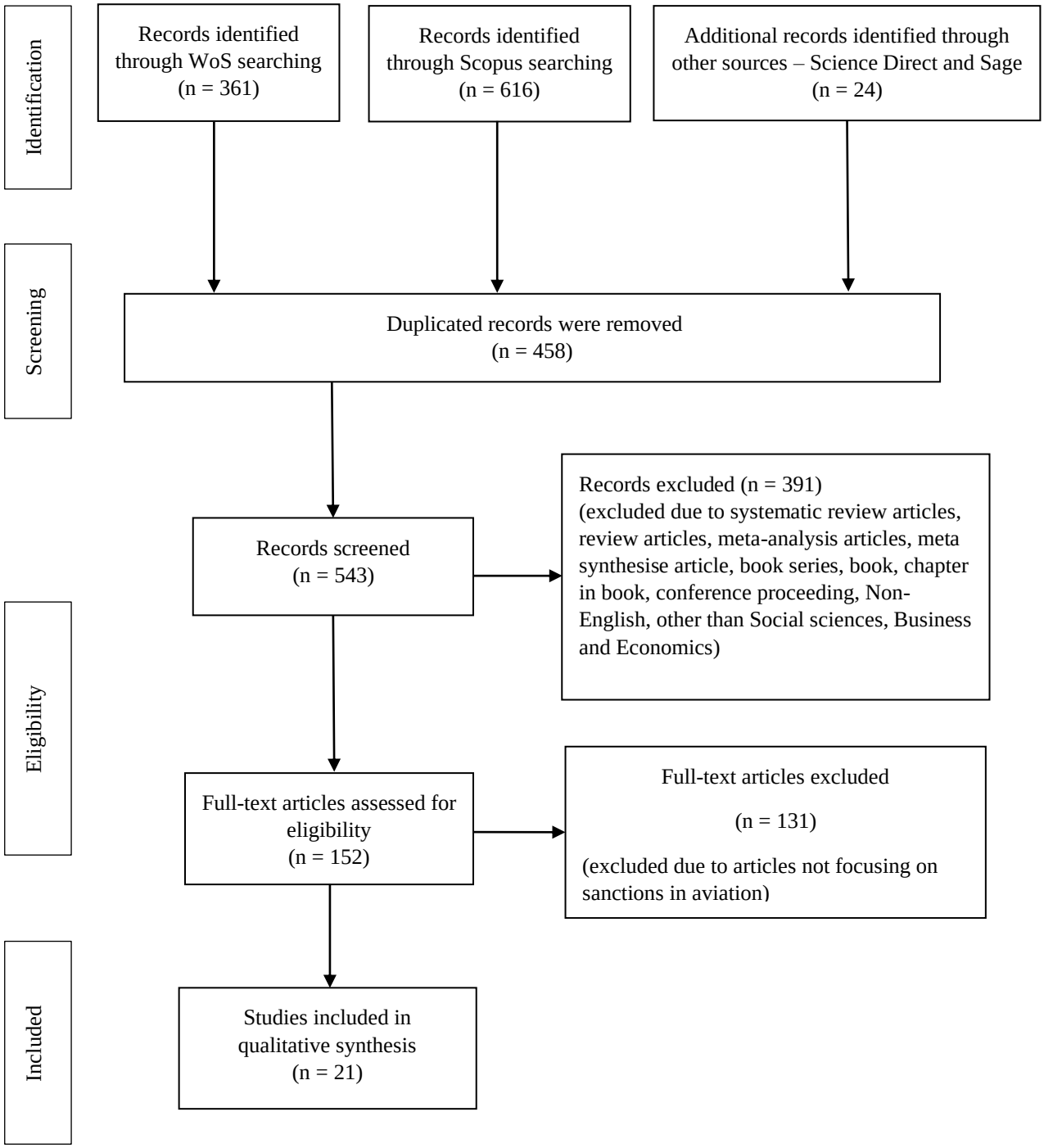
Eligibility

In the third stage, known as eligibility, a total of 152 items were compiled. This critical process entailed the authors conducting a meticulous manual review, specifically by reading the titles and abstracts of the articles, to ensure that the remaining articles after the initial screening process conformed to the predefined criteria. This was performed to verify that they met the inclusion criteria and were eligible for use in this study to achieve the current research objectives. This process excluded 131 articles due to their lack of reliance on empirical data, inadequate definition of the methodology section, emphasis on hard sciences rather than social sciences, and insufficient focus on sanctions within the aviation industry. Finally, a total of 21 remaining articles were ready to be analyzed.

Data Abstraction and Analysis

The final process is data abstraction and analysis. The remaining articles were assessed and analyzed using a systematic approach. The data were extracted by initially reading through the abstracts and then thoroughly reviewing the full articles to identify relevant themes. In the first phase of this process, the authors carefully analyzed a selected group of 21 articles to extract statements or data related to the research questions. To develop a meaningful classification system, the researcher employed a coding process in the second phase, wherein raw data was transformed into usable data by identifying concepts, values, or ideas for more practical and interconnected knowledge (Patton, 2002; Sandelowski, 1995). The end result of this analysis has led to the identification of five main themes: safety, environment, terrorist attack, political conflict, and outbreak of disease.

Figure 1
Flow diagram of this study (adapted from Moher et al. 2009)



Throughout this research, the team of researchers actively collaborated together by reading and thoroughly analyzing each article. Together, they identified and extracted the relevant themes that emerged from the data. Once these themes were identified, the researchers

took an additional step to ensure their validity and applicability within the aviation domain. They presented the results to domain experts, seeking their professional opinions on the relevance of these themes within the aviation field. By engaging with experts, the researchers were able to obtain valuable insights and validate the alignment of the identified themes with the specific context of aviation.

Results

There are two types of results outlined below. Firstly, the general findings and background of the study included in the review are presented, encompassing the year of publication and the types of aviation sanctions examined. Secondly, the main findings are presented, focusing on the factors that contribute to aviation sanctions.

General Findings

In the context of this study, the articles included in the review span across different years of publication. In 2022, Kumari et al. (2022) published an article, followed by Munawar et al. (2021) in 2021. Four articles were published in 2020, namely Iacus et al. (2020), Arellana et al. (2020), Marquez & Cantillo (2020), and Gossling et al. (2020). Additional articles from 2020 including Scott & Hall (2020), Maheshwari & Goyal (2020), Wu et al. (2020), and Jiang & Yang (2020) were published. In 2018, Wu et al. (2018) published an article, while Mhlanga et al. (2017) and Steyn & Spencer (2017) published articles in 2017. Several articles were published in 2015, including Manuela & de Vera (2015), Petzel et al. (2015), Edelman (2015), and O'Connell & Vanoverbeke (2015). Other articles include Daramola (2014) in 2014, Latipulhayat & Arianantо (2012) in 2012, O'Connell (2011) in 2011, and Henderson (2009) in 2009. Reitzfeld & Mpande (2008) and Henderson (2008) published articles in 2008, Huliaras (2001) in 2001, Pirie (1990) in 1990, and Griffiths (1989) in 1989 (see Figure 2). Furthermore, the review identifies two types of aviation sanctions, specifically flight bans and liquid bans. The findings indicate that 19 articles discussed flight bans, while two articles focused on liquid bans (see Table 3).

Main Findings

This section will discuss the factors that lead to the imposition of sanctions on aviation. A total of 21 past research identified as themes for the current review focused on factors that led to aviation sanctions in this case. Among them are safety issues (9 studies), political conflicts (4 studies), environment (1 study), terrorist attacks (1 study), and outbreak disease (6 studies) (Refer to Table 4).

Safety

Flight bans are frequently implemented in response to safety concerns involving countries or airlines. Various security issues can lead to restrictions on a nation's flight systems and operations, including non-compliance with international aviation safety standards set by the International Civil Aviation Organization (ICAO). When a country's civil aviation safety standard is categorized as Category 2 (unsafe), the European Union takes action by prohibiting

the national carrier from entering its airspace. For instance, both the Philippines and Indonesia have been banned from operating in the European Union airspace (Henderson, 2009; Latipulhayat & Arianto, 2012; Manuela & de Vera, 2015; O'Connell, 2015). Similarly, the European Union imposes a ban on airlines from third-world countries if they fail to meet the established safety criteria (Reitzfeld & Mpande, 2008). African and Zimbabwean airlines, for example, are prohibited from operating in the European Union due to safety concerns (Mhlanga et al., 2017; O'Connell, 2011). Furthermore, safety issues such as a high frequency of accidents have also led to the imposition of flight bans. A study conducted by Daramola (2014) highlighted the Nigerian government's ban on the use of BAC 1-11 aircraft due to its frequent crashes.

Table 3
Types of Aviation Sanctions

Authors	Flight Ban	Liquid Ban
Griffiths (1989)	/	
Pirie (1990)	/	
Huliaras (2001)	/	
Reitzfeld & Mpande (2008)	/	
Henderson (2008)		/
Henderson (2009)	/	
O'Connell (2011)	/	
Latipulhayat & Arianto (2012)	/	
Daramola (2014)	/	
O'Connell (2015)	/	
Manuela & de Vera (2015)	/	
Petzel et al. (2015)		/
Edelman (2015)	/	
Mhlanga et al. (2017)	/	
Wu et al. (2018)	/	
Arellana, Marquez, & Cantillo (2020)	/	
Gossling, Scott, & Hall (2020)	/	
Iacus et al. (2020)	/	
Maheshwari & Goyal (2020)	/	
Munawar et al. (2021)	/	
Kumari et al. (2022)	/	

Environment

Aviation sanctions resulting from environmental issues have been studied by previous researchers.
This is shown by the study conducted by Latipulhayat and Arianto (2012), in which the EU bans all flights that do not comply with the EU emission Trading Scheme. This is due to the EU-ETS covering some 4,000 aircraft operators that arrive and depart in the EU starting in 2012. Similar to industrial facilities, airlines will acquire tradable permits covering certain limits of CO2 emissions from their flights each year. Failure to comply with the EU emission Trading Scheme will result in the restriction of the said country's airlines by the European Union (Latipulhayat & Arianto, 2012).

Terrorist Attacks

Factors such as terrorist attacks have been known to trigger significant aviation sanctions. These attacks can lead to the imposition of restrictions and penalties on airlines involved, affecting their operations and access to certain airspace. The occurrence of terrorist attacks during flights has raised concerns globally. For instance, the PanAm airstrike carried out by terrorists from Libya resulted in the imposition of United Nations (UN) sanctions, including flight prohibitions, against Libya (Huliaras, 2001). These incidents highlight the necessity for robust aviation security measures. To mitigate the risk of liquid-based terrorist threats, regulations limiting the quantity of liquid allowed on board have been enforced, typically restricting passengers to containers of 100 ml or less (Petzel et al., 2015). Furthermore, a terrorist incident in 2006 that disrupted UK aviation services prompted authorities to implement restrictions on the amount of liquid passengers can carry, beyond which is strictly prohibited (Henderson, 2008).

Political Conflict

Issues such as political conflicts can prompt a country to implement sanctions in response to governmental tensions. This also applies to the aviation sector, where sanctions are employed as a measure in times of international conflict. An illustrative example of such conflicts is the political strain between countries beyond the southern African peninsula stemming from the Apartheid conflict in South Africa (Griffiths, 1989; Pirie, 1990). As a result, Algeria, Egypt, Ethiopia, Libya, Sudan, and Angola imposed a comprehensive ban on South African aircraft, affecting all airlines serving South Africa (Pirie, 1990). Simultaneously, the United States restricted South African Airways (SAA), and Iberia terminated scheduled flights to South Africa due to the ongoing conflict (Griffiths, 1989). Moreover, the political conflicts between the United States and Russia have led to a ban on all Russian-owned Aeroflot flights to the United States (Edelman, 2015). Additionally, the political issues arising from the 1949 civil war between Mainland China and Taiwan resulted in a prohibition on direct flights between these two countries which were imposed by their respective governments (Wu et al., 2018). Thus, these aforementioned cases exemplify how aviation can be utilized as a tool in response to international political conflicts.

Outbreak Disease

The outbreak of Coronavirus Disease 2019 (COVID-19) on a global scale has resulted in the implementation of aviation sanctions. The prevention of disease transmission has been recognized as a key factor behind flight bans, necessitating the suspension of air travel to contain the spread of the virus across borders. Countries have undertaken significant measures, such as the closure of national borders as well as the reduction of air travel and related activities in the aviation industry, including tourism and hospitality (Arellana et al., 2020; Gossling et al., 2020; Iacus et al., 2020; Kumari et al., 2022; Maheshwari & Goyal, 2020; Marquez & Cantillo, 2020; Munawar et al., 2021). These restrictions have had a profound and adverse impact on the transportation sector, particularly in aviation.

Table 4
The main themes

Authors	Safety	Environment	Terrorist attack	Political conflict	Outbreak Disease
Griffiths (1989)				/	
Pirie (1990)				/	
Huliaras (2001)			/		
Reitzfeld & Mpande (2008)	/				
Henderson (2008)			/		
Henderson (2009)	/				
O'Connell (2011)	/				
Latipulhayat & Arianto (2012)	/	/			
Daramola (2014)	/				
O'Connell (2015)	/				
Manuela & de Vera (2015)	/				
Petzel et al. (2015)			/		
Edelman (2015)				/	
Mhlanga et al. (2017)	/				
Wu et al. (2018)				/	
Arellana et al. (2020)					/
Gossling et al. (2020)					/
Iacus et al. (2020)					/
Maheshwari & Goyal (2020)					/
Munawar et al. (2021)					/
Kumari et al. (2022)					/

Discussion

Aviation sanctions pose a significant global challenge, underscoring the need to identify the factors that contribute to their imposition. The objective of this systematic review is to analyze previous research and identify the key issues that lead to aviation sanctions. Based on an extensive search of two main databases, a total of 21 articles were found to be relevant to the factors influencing aviation sanctions. The review identified five major themes that emerged from the analysis: safety, environment, terrorist attacks, political conflicts, and outbreak of diseases.

One of the primary factors leading to aviation sanctions is safety-related concerns. Flight bans, which are commonly implemented as sanctions, often target countries or airlines with safety problems. Various security-related cases can result in the banning of airlines from operating in a specific country. One such case is air safety downgrade, which occurs when the Federal Aviation Administration (FAA) determines that a flight fails to comply with the international aviation safety standards established by the International Civil Aviation Organization (ICAO), thereby classifying the flight as unsafe. Non-compliance with these safety standards can lead to a downgrade of a country from Category 1 (safe) to Category 2 (unsafe). Instances of such downgrades have been observed in several countries, including Thailand, the Philippines, and Indonesia. Furthermore, as a result of the air safety downgrades, the European Union has taken measures to ban national airlines from entering its airspace. European Union member countries possess the authority to prohibit airports that are believed to be unsafe from operating within their airspace (Henderson, 2009). Similar scenarios have been witnessed in the

case of the Philippines and Indonesia, where both countries were banned from operating in the airspace of the European Union (Henderson, 2009; Latipulhayat & Arianto, 2012; Manuela & de Vera, 2015; O'Connell, 2015). Additionally, the European Union has imposed bans on airlines from third-world countries flying within its airspace (Reitzfeld & Mpande, 2008). For example, African and Zimbabwe Airlines have been prohibited from operating in EU airspace due to safety concerns (O'Connell, 2011; Mhlanga et al., 2017). Moreover, security issues such as the frequency of accidents can also contribute to sanctions within the aviation sector. A study conducted by Daramola (2014) highlighted the Nigerian government's ban on the use of BAC 1-11 aircraft due to their proneness to accidents. Despite the fact that flying is generally considered one of the safest modes of transportation, aviation mishaps can have catastrophic consequences in terms of human mortality, damage to aircraft and ground infrastructure, and the erosion of customer trust.

Political conflicts constitute another significant factor that leads to the imposition of aviation sanctions. In certain cases, sanctions on aircraft are driven by political events rather than economic considerations, such as poor product quality (Heilmann, 2016). For example, the political tension between Africa and several countries in the 1970s, arising from the issue of Apartheid in South Africa, led to the closure of airspace to South African aircraft by Algeria, Egypt, Ethiopia, Libya, Sudan, and Angola. These countries imposed a blanket ban on all airlines serving South Africa due to political conflicts (Pirie, 1990; Griffiths, 1989). Additionally, the United States imposed sanctions on South African Airways (SAA) airlines, and Iberia terminated its scheduled flights to South Africa as a result of the conflict (Griffiths, 1989). Similarly, political conflicts between the United States and Russia have resulted in the United States banning all Russian Aeroflot flights to its country (Edelman, 2015). Likewise, the political conflict between Mainland China and Taiwan, which has been strained since the 1949 civil war, led to sanctions where direct flights between the two countries were banned by their respective governments (Wu et al., 2018). These factors indirectly affect the tourism industry as tourism and air transport are interrelated sectors (Duval, 2013). This bilateral relationship between tourism and air transport is evident in the connection between air transport passengers and tourist travel services (Khan et al., 2017).

Terrorist attacks also contribute to the imposition of aviation sanctions. Given the interconnectedness of the growing aviation sector across countries in the global economy, terrorist attacks have a significant impact on the industry worldwide. The terrorist attacks on September 11, 2001, in the United States aimed to harm global security and the US economy, relied heavily on aviation (Price & Forrest, 2016). As a response, two aviation sanctions were implemented to address the issue of terrorist attacks based on the study's findings. First, the United Nations imposed a flight ban on Libya (Huliaras, 2001). Second, liquid bans were enacted, restricting passengers to 100 mL liquid containers on board to safeguard aviation security from terrorist attacks using liquid explosives (Petzel et al., 2015). Similar sanctions were also introduced in the UK, where passengers were prohibited from carrying liquids exceeding specified limits, following a terrorist incident that disrupted UK aviation services in 2006 (Henderson, 2008). The results of previous studies underscore the clear and severe challenge that terrorist attacks pose to aviation security.

In addition to the aforementioned factors, another significant issue that has been extensively debated in previous studies is the environment. Latipulhayat and Arianto (2012) highlighted that the European Union (EU) has imposed a ban on flights that do not comply with the EU Emission Trading Scheme (ETS). The EU's Emission Trading System is a long-standing initiative whereby energy-intensive businesses, including electric utilities, are allocated carbon emission quotas by the EU Commission and national governments (Niels et al., 2011). According to Latipulhayat and Arianto (2012), the EU enforces the ban on flights that do not adhere to the EU Emission Trading Scheme (ETS). This is primarily driven by the fact that the EU-ETS encompasses approximately 4,000 aircraft operators engaged in landing and departing within the EU.

The COVID-19 pandemic has had a profound impact on nearly every industry worldwide, bringing many of them to a halt. It has resulted in widespread travel bans and movement restrictions, significantly affecting the transportation sector, particularly aviation. Although travel bans are temporary and have initially reduced mobility, they are expected to have lasting effects, potentially leading to permanent job losses for many individuals (Maheshwari & Goyal, 2020). For instance, a study conducted by Arellana et al. (2020) found that freight trips decreased by nearly 38 percent, causing severe financial crises for transportation service providers. Furthermore, these restrictions have had a considerable impact on air travel. A study conducted in Australia revealed a drastic drop in passenger numbers, with only 69,000 passengers recorded in April 2020 compared to 3.5 million passengers in April 2019 (Munawar et al., 2021). Moreover, the effects of the pandemic extend beyond the aviation industry, significantly impacting global GDP, tourism, and the hospitality sector (Gossling, Scott & Hall, 2020; Iacus et al., 2020; Kumari et al., 2022). Consequently, the early implementation of flight restrictions by countries has proven to be an effective measure in curbing the spread of the pandemic (Zhang et al., 2020).

Recommendations

The findings of the current study and its systematic review approach have generated several recommendations that can contribute to future research in the field. Firstly, it is recommended that future scholars place greater emphasis on investigating the impact of aviation sanctions, as previous studies have primarily focused on examining the factors and types of sanctions imposed without delving into their effects. This knowledge gap regarding the consequences of aviation sanctions necessitates further empirical research to provide policymakers with a more comprehensive understanding of their outcomes. Thus, there is a need for comprehensive studies that explore the specific effects of each sanction in order to offer a more nuanced and complete assessment of their implications.

Moreover, the systematic review revealed that safety and political conflict were the most extensively studied issues among the 21 papers analyzed. This finding underscores the significance of these factors, suggesting that they are pivotal considerations in the context of aviation sanctions. Given that aviation can serve as a policy tool in international conflicts, political conflicts frequently prompt the imposition of aviation sanctions. Additionally, the high stakes involved in aviation operations, where countless lives are at risk, underscores the

criticality of safety in this industry. Therefore, future research should prioritize investigations related to safety and political conflict to further advance our understanding of these key issues.

A noteworthy observation arising from this research is the paucity of studies specifically focused on aviation sanctions. This is evident from the limited number of published articles dedicated to exploring aviation sanctions, with only one paper published annually, except for the years 2008, 2015, and 2020. This dearth of research underscores the pressing need to address the topic of aviation sanctions, particularly in light of the expanding demand and supply of industrial air transportation in contemporary times. Thus, future research endeavors should pay greater attention to this crucial area to meet the growing demand for knowledge in the field of aviation sanctions.

In conclusion, this systematic review approach offers valuable recommendations for future research in the field of aviation sanctions. By emphasizing the investigation of their impact, prioritizing safety and political conflict as key factors, and addressing the research gap surrounding aviation sanctions, future scholars can contribute to a deeper understanding of this important and complex topic. Ultimately, a comprehensive body of research on aviation sanctions will provide policymakers with the necessary insights to make informed decisions, ensure the safety and resilience of the aviation industry, and promote sustainable economic growth.

Conclusions

The aviation sector plays a crucial role in stimulating economic activity and contributing to overall economic growth. It serves as a catalyst for various industries, such as tourism, trade, and business, and facilitates global connectivity and mobility. However, the rapid growth of this sector exposes it to challenges, particularly from aviation sanctions that have the potential to disrupt the industry's globalized nature. These sanctions, imposed for various reasons such as safety, environmental concerns, political conflicts, or others, pose significant risks and implications for both the aviation sector and the broader economy. In light of these challenges, the objective of this study is to investigate the factors that contribute to the imposition of aviation sanctions through a systematic literature review.

This systematic literature review has several significant contributions. Firstly, it builds upon and enhances existing research by providing insights into the most dominant or frequently observed factors that lead to the imposition of sanctions in the aviation sector. By identifying and analyzing these factors, this review serves as a valuable resource for understanding the patterns and trends found in previous studies on aviation sanctions. Secondly, the review contributes to the methodological aspects of research in this field by ensuring greater transparency, expanding the scope of studies included, promoting objectivity, and reducing implicit research bias. These methodological improvements enhance the overall quality and reliability of reviews conducted in the field of aviation sanctions. Moreover, the review emphasizes the importance of critically evaluating the quality of evidence in studies, as highlighted by Mallett et al. (2012). By encouraging researchers to engage in this critical evaluation, the review aims to enhance researchers' comprehension of the existing research landscape and contribute to the advancement of knowledge in the field of aviation sanctions.

Lastly, the findings of this systematic literature review hold valuable implications for policymakers. By gaining insights into the factors that contribute to aviation sanctions, policymakers can develop effective strategies to address the challenges associated with such sanctions in the aviation sector. This review serves as a comprehensive and valuable resource that improves our understanding of the factors influencing aviation sanctions, enhances research methodologies, and provides policymakers with valuable insights to guide their decision-making processes. Overall, this study's systematic literature review contributes to the advancement of knowledge in the field of aviation sanctions and holds practical significance for the aviation industry, policymakers, and researchers.

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