



THE STRIKING FORCE OF COVID-19 ON BUSINESS, MANAGEMENT, AND ECONOMICS: A SYSTEMATIC REVIEW

Dr. Murillo de Oliveira Dias¹, João Lafraia² and Thiago Schmitz²

¹IDE, Fundação Getulio Vargas, Rio de Janeiro, Brazil

²Rennes School of Business, Rennes, France

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ABSTRACT: *Despite the massive efforts from governments across the globe to suppress the unprecedented outbreak of COVID-19 and its variants, approximately 670 million cases and seven million deaths were registered in 228 countries. Although the coronavirus pandemic set the course of science and research in 2020, the impact on research topics such as business management and economics was not entirely covered in previous research. Therefore, this article addressed the impact of COVID-19 in such research fields through computational systematic reviews. Approximately five thousand publications and 17 million citations were investigated. In addition, we investigated the three subjects over 120 years, providing a new perspective to scholars and other practitioners about the striking force of COVID-19 on science, compared to business management and economics.*

KEYWORDS: COVID-19, coronavirus pandemic, Business Management, Economics.



INTRODUCTION

On 11 March, 2020, the WHO declared a COVID-19¹ pandemic, which reached 676,609,955 confirmed cases in 228 countries until 18 June 2023, with 6,881,955 deaths (WHO, 2023)—a period of unprecedented challenge for science. Despite plenty of previous studies on the subject (Ozili & Arun, 2023; Chowdhury et al., 2023; Jindal & Rani, 2023, Jefferson, Dooley & Ferroni, 2023; Del Rio, Omer & Malani, 2022; Cruz, B.S. & Dias, M., 2020; Dias, M., Lopes, R. & Teles, A., 2020; Dias et al., 2020; Dias et al., 2020b; Dias, M., 2021; Dias et al., 2022), the impacts of the COVID-19 research on other fields of study remains unexplored. Therefore, through systematic literature review, we investigated how striking COVID-19 has been on Business Management and Economics, two of the most researched topics investigated over the past 120 years.

In this article, we focused on answering three review questions: **RQ1:** What are the trends in Business Management, Economics, and COVID-19 over the last 120 years? **RQ2:** How have COVID-19 studies impacted Business Management and Economics publications and citations over the past 120 years? **RQ3:** What is the geographical coverage of such studies?

The review questions aimed to provide a comprehensive overview of the academic performance of Business Management, Economics, and COVID-19 from 1900 to date. It was an exhaustive process to systematize electronically and manually thousands of publications and millions of citations to help scholars, students, and decision-makers find which topic or subtopic the researcher should study in-depth concerning the research, as mentioned earlier. They also provided valuable resources on the impact of COVID-19 in other fields of research, revealing provocative insights into the unprecedented challenges faced by scientists all over the globe.

Identifying key published research based on large databases and using text network analysis to discover emerging trends would help to respond to the RQs and increase the relevance of the topics investigated. As a result, we used a multi-method strategy to answer the study issues, combining systematic literature review with content, citation, and text network analysis, as discussed in the following sections.

METHODOLOGY

In this analysis, we used a systematic literature review (SLR) methodology, which will be covered in the following parts (Denyer & Tranfield, 2009). The decision was then taken under how often bibliometric analyses supported it (Cheng et al., 2018; Singh & Walia, 2020; Prashar et al., 2020). Systematic Literature Reviews (SLR) have also attracted scholarly attention recently (Dias, M. et al., 2023; Schmitz & Dias, M., 2023; Dias, M. et al., 2023b; Dias, M. et al., 2023c). The approach is fully explained in the following subsections.

Review Objectives

Following Goyal and Kumar (2020), we set the review's objectives to map the body of knowledge on leadership. Following Zahoor and Talba's (2020) model, we also divided the

¹ Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).



study goals into sub-objectives, which included (i) mapping the top publications on the topics, and (ii) identifying important research papers using citation network and text network analysis to present new trends in the field. Table 1 concludes by summarizing the review's goals:

Table 1: Sources per Topic

Source/Exclusion	Management	Business Management	Economics	COVID-19	Covid and Business Management or Economics	Total
Scopus + Google Scholar	1.000	1.000	1.000	1.000	1.000	5.000
Exclusions	10	19	6	4	12	51
Total Valid sources	990	981	994	996	988	4.949

Research Strategy

The comprehensive literature study revealed nearly 17 million citations, which included 5,000 articles. The software Publish, or we also used Perish (Harzing, 2007) to look at the research coverage from 1900 to the present. Only English Language terms were included in the search criteria. Next, the academic datasets, Google Scholar and Scopus, were chosen as free. Publish or Perish (PoP) per consultation session (Harzing, 2007) permits 1,000 results for each selected topic. Patents were excluded as well as unpublished papers. Redundancies were removed by hand. Following the first round, the most relevant emergent topics were determined using a text network analysis, and these themes served as keyword entries in the subsequent iterative cycle. The data were then subjected to a text network and content analysis. Through Google, My Maps®, the new patterns were also geographically examined.

Screening and Selection

PoP (Harzinger, 2007) was set excluding patents, including publications from 1900 to 2023 in two datasets: Google Scholar and Scopus. We looked into the keywords, "Business Management," "Management," "Economics," and "COVID-19" (including the keyword coronavirus), and a combination of COVID-19 with the Boolean operators AND and OR (see Table 2). The search included 5,000 articles, and 51 were excluded due to duplications. As a result, approximately 17 million citations were studied, as shown in Table 2.

Table 2: Citations per Research Topic

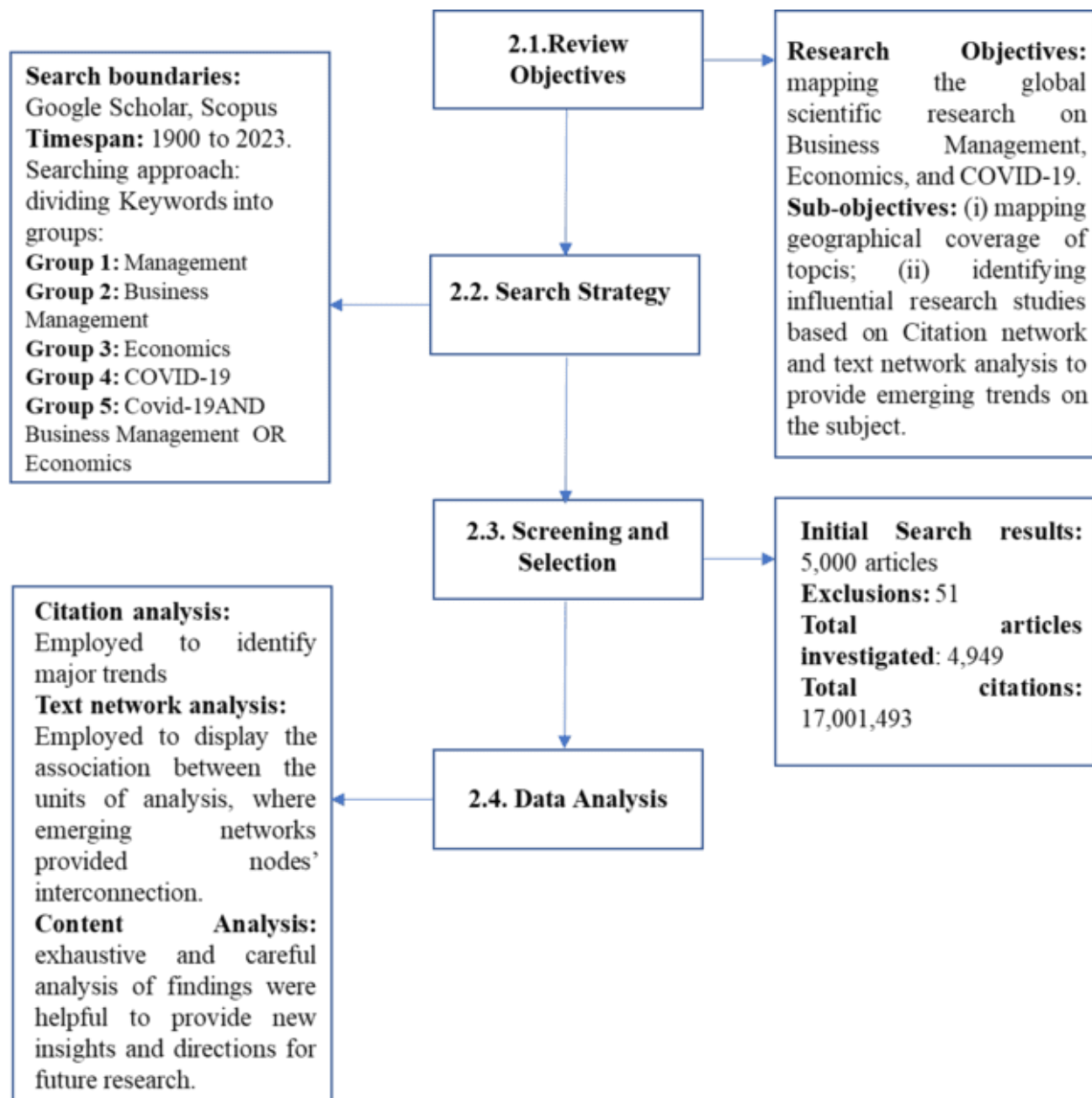
Management	Business Management	Economics	COVID-19	Covid and Business Management or Economics	Total
2.843.803	6.027.457	6.036.692	2.093.541	6.013.492	17.001.493



Data Analysis

After five search rounds, and plenty of iterative revisions, five groups emerged—Group 1: Management; Group 2: Business Management; Group 3: Economics; Group 4: COVID-19; and finally, Group 5: COVID-19 AND Business Management OR Economics. Table 3 summarizes the main features of research design and analysis:

Table 3: Research Design





FINDINGS AND ANALYSIS

Trend Analysis

Table 4 and Figure 1 indicate a yearly number of publications in the fields of *Business Management, Economics, and COVID-19*. The study into this domain is uneven between 1900 and 2023.

Table 4: Publications (1900-2023)

Timeline	Management	Business Management	Economics	COVID-19	Covid and Business Management or Economics	Total
1900-1949	2	1	18	0	0	21
1950-1969	10	19	94	0	0	123
1970-1979	11	38	78	1	0	128
1980-1989	41	119	116	1	7	284
1990-1999	147	241	244	3	77	712
2000-2009	379	336	299	32	353	1,399
2010-2023	400	227	145	959	551	2,282
Total	990	981	994	996	988	4,949

Table 4 details the timeline per topic. Figure 1 summarizes the frequency distribution:

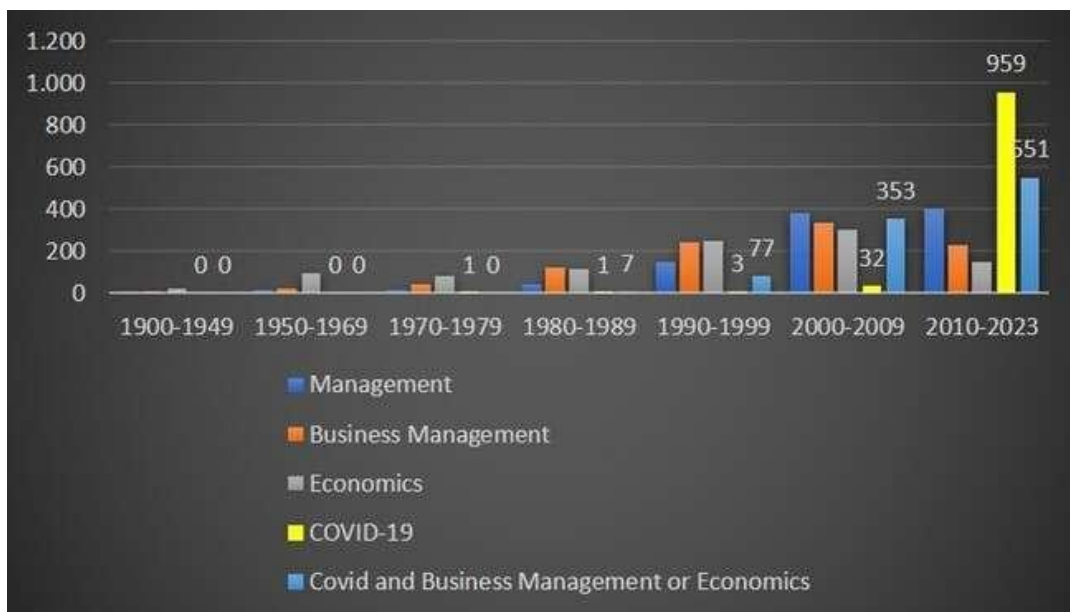


Figure 1: Frequency Distributions of Publications



Figure 1 captures our attention immediately when we observe the COVID-19 bar, almost non-existing from 1900 to 2009 and suddenly, a peak of publications in 2020, as detailed in the following Figure 2:

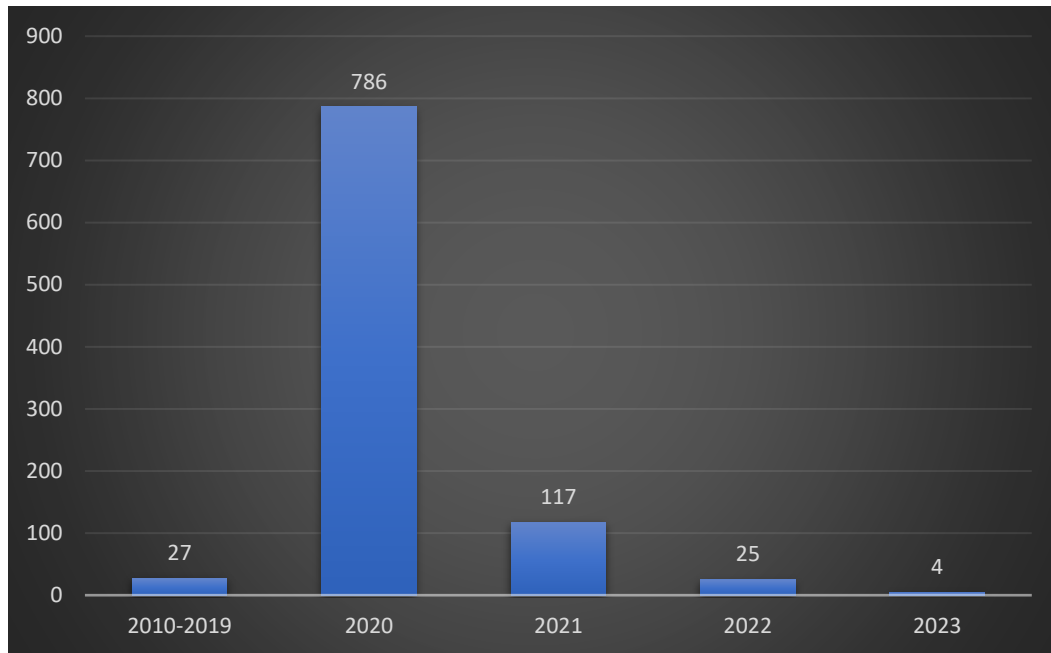


Figure 2: COVID-19 Publications (2010-2023)

Figure 2 shows only the publications. We assume that citations take longer because they are strictly related to future studies. Therefore, we considered the number of publications on COVID-19 to provide a perspective on the coronavirus period (2020-2022).

Now observe that during the pandemic times, 84 percent of the publications on COVID were concentrated in 2020, as illustrated in Figure 3:

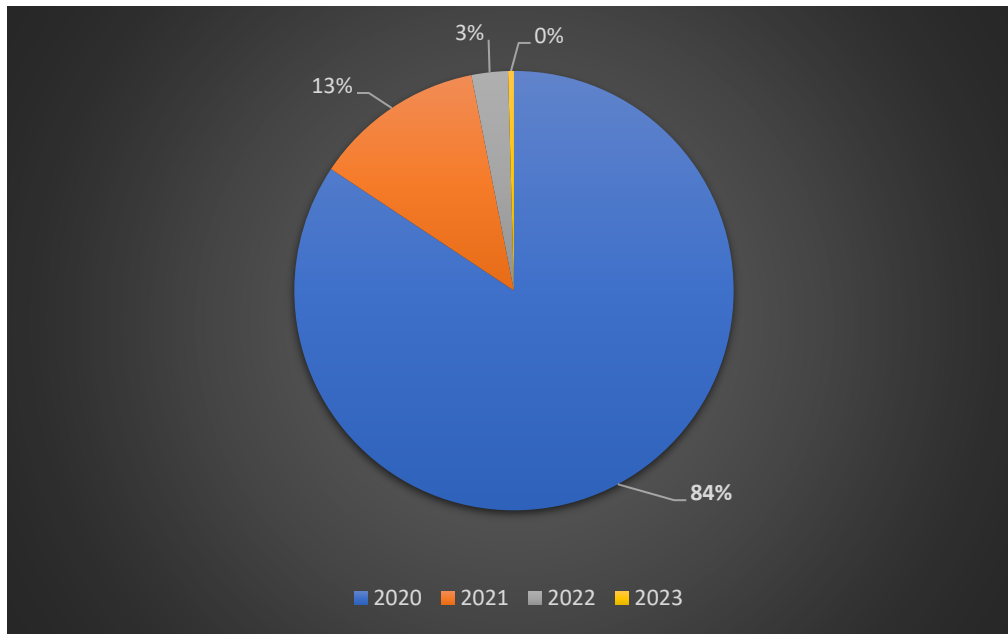


Figure 3: COVID-19 Publications' Distribution (2020-2023)

Table 5 shows the screening results, organized into themes, as follows:

Table 5: Citations from Themes (1900-2023)

Timeline	Management	Business Management	Economics	COVID-19	Covid and Business Management or Economics	Total
1900-1949	7.099	3.113	102.224	0	102.224	112.436
1950-1969	77.857	106.477	741.327	0	741.327	925.661
1970-1979	23.573	401.281	729.401	1.020	729.401	1.155.275
1980-1989	148.292	977.013	783.932	2	769.568	1.909.239
1990-1999	541.307	1.517.325	1.366.754	163	1.366.754	3.425.549
2000-2009	1.140.782	1.823.760	1.687.699	75.288	1.687.699	4.727.529
2010-2023	904.893	1.198.488	625.355	2.017.068	616.519	4.745.804
Total	2.843.803	6.027.457	6.036.692	2.093.541	6.013.492	17.001.493

The affiliations of Publications were then collected from the Publish or Perish (Harzing, 2007).csv file. Figure 4 shows the geographical distribution of the top publications using Google My Maps (<https://www.google.com/intl/pt-BR/maps/about/mymaps/>).



Figure 4: Geographical Location of All Contributing Organizations

Network Text Analysis

The thematic clusters were discovered using a network map of the keywords, titles, and abstracts on the assumption that phrases clustered together would reflect related topics. Figure 5 depicts the network text analysis using normalization and density-based spacing clustering methods. Using www.infrandus.com, we constructed a network graph from the text-based data, which provided insights and patterns based on the network properties, mainly the terms "Business Management," "Economics," and "COVID-19." Remember that each color represents a cluster. Consequently, the present issues and emerging trends in the field were identified by carefully reading through the research papers in each cluster.

Finally, despite the ever-increasing scholars' attention on Business Management and Economics, when gathered and compared to COVID-19, they were cited three times less in 2020-2023, as illustrated in the following Figure 6:

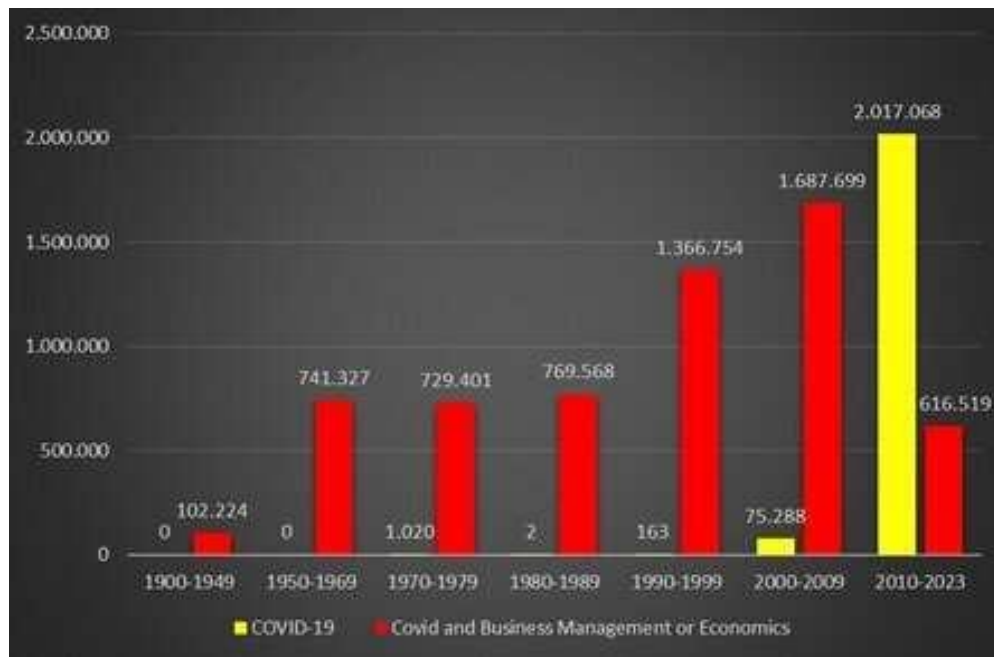


Figure 6: COVID-19 vs. Business Management or Economics

In addition, Figure 6 shows that some of the studies regarding COVID-19 also included Business Management and Economics (Dias & Teles, 2022; Dias, 2021). Nevertheless, the vast majority of citations from the period 2020-2023 were concerning COVID-19. In sum, one out of three citations regarding COVID-19 included Business Management and Economics.

DISCUSSION

In this article, we investigated the evolution of three hot research topics: Business Management, Economics, and COVID-19, from 1900 to 2023. We provide some findings and explore the implications for future studies in light of the pertinent information the systematic review collected from the current literature. The answers to research questions RQ1, RQ2, RQ3, and RQ4 are discussed first.

RQ1: *What are the trends in Business Management, Economics, and COVID-19 over the last 120 years?*

Regarding the number of publications, including articles and books, and excluding grey papers, such as laws, normative papers, patents, and other unpublished works, the answer is available in Figure 1, which depicts an ever-increasing evolution of published works on Business Management, and Economics from 1900 to 2010, and a drastic decrease in the 2020s, primarily



because of the coronavirus pandemic, responsible for monopolizing the science attention for two years approximately.

However, when we consider the number of citations, the research trends are illustrated in the following Figure 7:

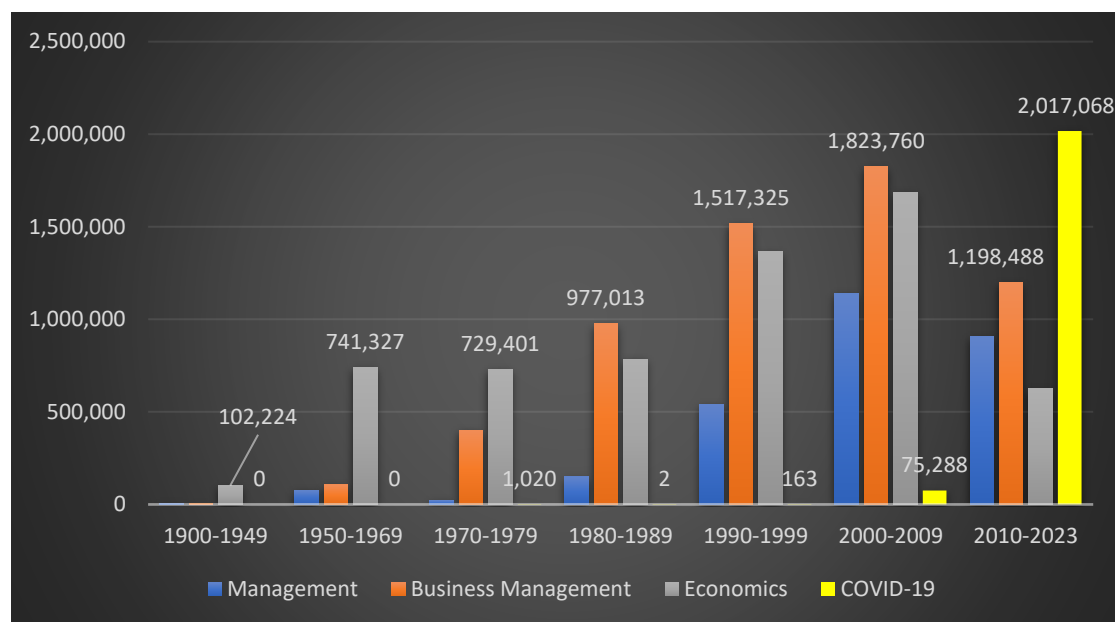


Figure 7: Research Trends in Citations (1900-2023)

Note that the peak of citations was reached in 2020, both in the number of publications (see Figure 1) and the number of citations (see Figure 7). Regarding Business Management, from 1900 to 1949, there was an insufficient number of citations to be mentioned, starting to be cited in the 1950s and reaching the peak in the 2000s (orange bar in Figure 7), dropping 35 percent in the number of citations in the last two decades, directly influenced by COVID-19 studies. Regarding Management (blue) and Economics (gray bars), a similar trend occurred: an ever-increasing number of publications and citations from the 1950s until the end of the 2000s, followed by a 30 percent average in the number of citations of both topics. Finally, regarding COVID-19 studies, they remained virtually unknown until the 2000s, when the virus of Influenza was followed by a drastic increase in 2020 in the number of publications and citations of studies on COVID-19, reaching a peak of nearly two million citations in 2020.

RQ2: *How have COVID-19 studies impacted Business Management and Economics publications and citations over the past 120 years?*

From 1900 to 2019, the impact was virtually inexistent. However, from 2020 to date, the impact of the COVID-19 studies on the number of publications and citations of the other research topics was an average of two times. COVID-19 swept the scholarly attention over the years of the pandemic.

**RQ3: *What is the geographical coverage of such studies?***

The whole reaction to RQ3 is outlined in Figure 4. The North American and European continents comprise most of the geographic distribution. There is evidence to back up the assertion that the United States consistently receives the most citations. However, only items written in English were examined. Therefore, further study is needed to ascertain COVID-19, business management, and economics global effects.

By understanding Business Management and Economics, and the relationship with COVID-19, ideas via methodical literature evaluations, some of the confusion that has plagued science over the past three years pave the way for further investigation. Additionally, practice and examination will improve as practitioners and analysts collaborate to develop consensus opinions on these complex subjects. This article will also increase the theoretical underpinning for subsequent actions and estimates and progress research into usually overlooked regions.

Finally, the literature review advanced by earlier academics in the discipline and related citations served as the foundation for the themes that emerged from the literature study. The systematic literature study identified an upward trend in Business Management citations over the last three decades interrupted by COVID-19 studies due to the pandemic.

IMPLICATIONS AND RESEARCH LIMITATIONS

This article is limited to (a) Business Management, Economics, and COVID-19; (b) referenced during the last 123 years; (c) English language (in keywords, or abstracts); (d) published works, excluded unpublished works, patents and grey papers; (e) Google Scholar and Scopus databases; (f) the accuracy of the software used (Harzing, 2007).

This work also represents the first attempt to study these research topics, which were investigated together, and the impact of COVID-19 on Business Management and Economics is studied. Therefore, the research has implications and repercussions for many fields of study, subcategories from Business Management and Economics, such as (i) business negotiations (Dias et al., 2022; Dias, M., 2020; Dias, M, Leitão, R., Batista, R. & Medeiros, D., 2022; Cunha & Dias, M., 2021; Dias, M., 2020b); (ii) teleworking (Schmitz & Dias, M., 2023); (iii) banking (Dias, Pereira, & Vieira, 2022); (iv) remote leadership (Dias, Pereira, Vieira & Pan, 2022); (v) information security and leadership (Vieira & Dias, 2022); (vi) virtual teaching (Dias & Lopes, 2020; Dias, Lopes & Teles, 2020); (vii) retail business (Dias & Falconi, 2018).

Finally, this study has a practical implication for scholars: they can enhance their research topics, select the hottest topics for doctoral or master's studies by comparing the results, and expand this study in different directions, involving other topics of interest, for instance. They might be interested and encouraged to use Systematic Literature Reviews to obtain a comprehensive overview of the selected topics. In this sense, this work is helpful to scholars, leaders, decision-makers, policymakers, and other practitioners. Systematic Literature Reviews are also recommended for selecting the most cited authors and publications, which is a handy tool when conducting literature review chapters in the studies, as mentioned earlier.



FUTURE RESEARCH

Global academics have contributed to the area, and Business Management, Economics, and COVID-19, which last gained popularity after 2020. Future research in other disciplines, including databases and languages, is also encouraged.

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