




Article

Scientometric Analysis of Research on Socioemotional Wealth

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Abstract: Scientometric studies have become very important within the scientific environment in general, and in the family firm area in particular. This study aims at conducting a bibliometric analysis of socioemotional wealth within family firms. To this end, a background search of the terms family firm and socioemotional wealth has been carried out in the Web of Science, specifically in specialized journals published between 1975 and 2019 in the Science Citation Index. The resulting scientometric analyses are of the number of papers and citations, the main authors and journals, the WoS categories, the institutions, the countries and the word co-occurrence. One of the main conclusions of this paper is the abundance of studies that have been conducted on socioemotional wealth in family firms, which is reflected in the number of publications (501) and of citations of these studies (12,090). Another significant revelation is the copious number of authors, with Gómez-Mejía being the most relevant one and De Massis the one with the highest number of publications. Also noteworthy are the many USA-based institutions, with the Mississippi State University and the University of North Carolina being the two most prominent. In addition, studies have been carried out about family firms' focus, mainly, on performance and ownership.

Keywords: socioemotional wealth; family firms; scientometric analysis; Web of Science; VOSviewer



Citation: Araya-Castillo, L.; Hernández-Perlines, F.; Moraga, H.; Ariza-Montes, A. Scientometric Analysis of Research on Socioemotional Wealth. *Sustainability* **2021**, *13*, 3742. <https://doi.org/10.3390/su13073742>

Academic Editor: Ioannis Nikolaou

Received: 26 February 2021

Accepted: 24 March 2021

Published: 27 March 2021

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1. Introduction

Several reports and authors declare that family firms are globally the most common form of business structure [1–3]. In fact, family firms generate between 70% and 90% of the world GDP, they create most of the wealth and employment and are therefore responsible for a large part of the welfare of the majority of countries. Moreover, 85% of start-ups are family based [4–7]. All in all, family firms play a leading role in many economic sectors [8,9].

This fact has led many researchers to become interested in analyzing how these organizations work, especially in the field of business management [10–15]. From a strategic perspective, family firms have been studied by using different theories and approaches, for instance, the resource-based view [16–20], the dynamic capability approach [21–24] and the agency theory [25–27].

However, in the last few years, there has been a surge of research based on behavioral theories. These theories focus on the analysis of those family firm resources that are difficult to imitate and that influence business behavior [28]. Studies that analyze the non-economic goals of family firms [29], their capital stock [30–32] and socioemotional wealth [2] follow this line of research.

This paper focuses on socioemotional wealth as it is one of the distinctive attributes of family firms [32], which sets them apart from other types of businesses [33]. Moreover, we agree with Brigham and Payne [34] and Swab et al. [35] when they state that, to some extent, the rise and consolidation of the research on family firms are due to the appearance

of the concept of socioemotional wealth, especially considering the definition by Gómez-Mejía et al. [2] and their measurement based on the model proposed by Berrone et al. [33]. According to Gómez-Mejía et al. [2], socioemotional wealth relates to the “non-financial aspects of the firm that meet the family’s affective needs, such as identity, the ability to exercise family influence, and the perpetuation of the family dynasty” (p. 106). Furthermore, Swab et al. [35] state that the model proposed by Berrone et al. [33], that is, the FIBER model (Family, Identification, Binding, Emotional and Renewal) has been the most used one to measure socioemotional wealth. Indeed, the academia now recognizes socioemotional wealth as an essential factor both for the identity of family firms [36] and of the family itself [37] and its performance [38].

This research is carried out using a longitudinal causal conclusion methodology [39]. The methodology is based on scientometric analysis [40] focusing on the researchers’ scientific activity and production, on their impact and on the network of relationships between the papers published in the Web of Science (WoS) [41], this being one of the most influential sources of scientific information [42].

One of the opportunities of this work is that, to our knowledge, scientometric analysis has not been used in the field of socioemotional wealth. There are, as we have pointed out, very relevant literature reviews. The advantage of this type of study is that it allows us to make a “map” of the research on socioemotional wealth, indicating the most prominent authors, which countries they are from, which institutions they work in, with which other authors they collaborate, what fields of development they have, etc. The justification that has led us to opt for bibliometric analysis is that it is a rigorous, less biased method and allows a pleasant view of research in the field of socioemotional wealth by using scientific research metadata [43–45].

On the other hand, socioemotional wealth contributes to the sustainability of family businesses. Specifically, it would comply with the eighth Sustainable Development Goal, since through socioemotional wealth the performance of family businesses is improved, thereby generating wealth and well-being in society and creating employment [36] and the ninth Sustainable Development Goal, since socioemotional wealth fosters the innovation capacity of family businesses through its effect on entrepreneurial orientation [46].

The WoS database consists of 68 fields of information for each record, which makes it possible to analyze the papers selected for the scientific activity under investigation on the basis of fundamental bibliometric principles. Thus, the first step will be to assess the expectation of exponential growth of science and the existence of critical mass [47] and then to establish the possible geographic, organizational and author concentrations and/or the possible application environment [48].

The bibliometric analysis is of descriptive nature [49], resulting in a detailed and organized source of information on scientific production on a specific subject [50]. However, within the scientific community, structural aspects are studied through scientometrics, where cases of associations are dealt with through the following: collaboration in publications (co-authorship), which allows one to identify the level of cooperation between countries, organizations and/or authors; common references (bibliographic coupling), relating authors or scientific groups and invisible schools; as well as common keywords (co-words), to identify if they belong to a specific area of knowledge [51].

By adopting this approach as a reference framework, a search vector based on keywords, sentence connectors and word proximity restrictions [48,52]. was applied to the papers indexed between 1975 and 2019 in the Science Citation Index Expanded (SCI-E) and in the Social Science Citation Index (SSCI), as sources of “certified knowledge” [53] 1975 was considered the starting point, as it was the year when the Arts and Humanities Citation Index was first published.

For the analysis, the basic concept of Socioemotional Wealth and its intersection with the concept of Family Firms, established and recognized in the Education Resource Information Center [54] thesaurus, were combined and studied through an analysis of social networks based on graph theory [52] using the VOSviewer software 1.6.15 [55].

The main methodological contribution of this paper is the use of both a bibliometric analysis [56] and a scientometric analysis [56–58] in order to organize and synthesize the scientific publications on family firms and socioemotional wealth. This double analysis will allow other studies to use the findings obtained in this paper to keep on researching family firms [45].

This work will allow researchers interested in the analysis of socioemotional wealth to find the most relevant authors, the journals in which they publish their work, the institutions in which they work, the research networks in which they participate and even where they can direct future research.

2. Methodology

The methodology of this paper is based, on the one hand, on the bibliometric analysis, by applying mathematical and statistical techniques to study the patterns that emerge from the publication and the use of documents [56]. On the other hand, the research uses the scientometric method which applies bibliometric techniques to science [56,57].

The analysis we propose in this work is exploratory [59]. To carry it out, we followed the phases proposed by Velt et al. [44]: formulation, identification, selection, confirmation, analysis and thematic synthesis.

Firstly, in the formulation phase, we posed the following research questions, bearing in mind that the aim of this work is to analyze research on socioemotional wealth:

1. Which are the most relevant scholars in the field of socioemotional wealth?
2. In which countries and institutions do the most relevant researchers studying socioemotional wealth work?
3. In which research networks do the main authors on socioemotional wealth participate?
4. Which scientific journals generate the most knowledge on socioemotional wealth?
5. What research topics are related to socioemotional wealth?

The second stage proposed by Velt et al. [44] is the identification stage. In this stage, the search patterns [60] were established on the basis of the identification keywords and the search time horizon was also determined. Following Vega-Muñoz et al. [48], a search vector, its logical conjunction connectors and proximity restrictions were established for the keywords “Family Firms” and “Socio-emotional wealth” in the Web of Science (WoS). Following the recommendations of Velt et al. [44], the most relevant WoS categories in the field of socio-emotional wealth research were selected, such as the Social Science Citation Index (SCI-E), Social Science Citation Index (SSCI) and Emerging Sources Citation Index (ESCI).

The WoS data query was performed on 17 July 2020, is as follows:

(TS = (“Family Firms” and “Socioemotional Wealth”)) AND DOCUMENT TYPES: (Paper) Indexes=SCI-EXPANDED, SSCI, AandHCI, ESCI Timespan = 1975–2019.

The use of the keyword “family business” did not take into account the different definitions of a family business, as there is great controversy in the specialized literature about what is understood by family business [36], nor about certain characteristics and/or contextual characteristics that affect the family business, such as size, type of ownership, country of origin, etc. as some of them, such as size, sector or age, have no influence on the performance of the family business [61].

When using research indexed in the WoS, only peer-reviewed papers were considered [44,62–64]. With this choice, we focused on research that has the greatest significance for the advancement of knowledge on socioemotional wealth [6]. Therefore, books, book chapters, abstracts, conferences, etc. were excluded.

The third stage coincided with the selection. Following the aforementioned criteria, the result was 501 articles published between 1975 and 2019 in the WoS. These are works of great relevance published in high-impact journals, which means that as a whole the works analyzed have given rise to 12,090 citations.

The fourth stage consisted of the verification of the dataset. This process was carried out by three of the authors, as they have papers on family business and socioemotional

wealth published in high-impact journals indexed in the Journal Citation Reports JCR and WoS. Some of them are: Hernández-Perlines et al. [36]; Hernández-Perlines et al. [65] and Hernández-Perlines et al. [46].

The fifth stage focuses on the analysis of the data through the appropriate tools according to the proposed objectives and the research questions posed. The scientometric indicators used for the analysis were articles, citations, journals, institutions, authors and countries. A bibliometric mapping analysis was also carried out with the concept of family businesses and socioemotional wealth. In this way, it was possible to draw a detailed map of the key concepts from the frequency data and their respective clusters. The results were studied by means of a social network analysis based on graph theory using the software VOSviewer, version 1.6.15 [55].

Finally, we included the identification of clusters to determine the interrelation of scientific production. To do this, we used direct citations or cross-citations obtained through the VOSviewer program [44,66].

3. Results

In this section, we will highlight the main results obtained in the scientometric study applied to socioemotional wealth in family businesses based on the application of the VOSviewer software [54].

3.1. Papers and Citations in the Field under Study

First, we identified the most influential articles on socioemotional wealth, who authored them and which journals they were published in. The application of the above-mentioned search vector on the period between 1975 and 2019 yields a total of 501 papers spanning the years 2007 to 2019. As the first paper was published in 2007 by Luis Gómez-Mejía, Katalin Takács, Manuel Núñez, Kathryn Jacobson and José Moyano, it was decided not to publish any paper written before this date in the journals indexed in the WoS. The published papers yield a total of 12,090 citations, with a linear growth of $ART(YEAR) = 111,016(YEAR) - 22138$ with an $R^2 = 85.46\%$. This result suggests an exponential growth of the publications during the last decade, highlighting the growth of critical mass in this field of study (see Figure 1).

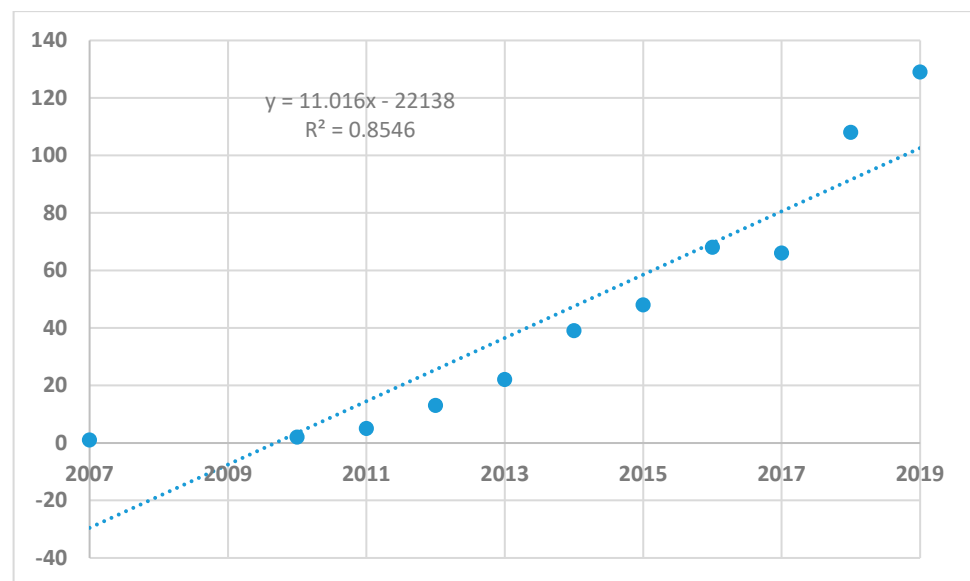


Figure 1. Growth in scientific production.

Figure 1 shows a weak linear growth from 2007 to 2011; however, 2012 shows a strong growth tripling the number of papers as compared to the previous year and reaching its

maximum scientific output in 2019 with a total of 129 papers. It is worth highlighting that 91.4% of the papers were published in the last five years.

Figure 2 shows the number of citations per year in the literature on Family Firms and Socioemotional Wealth. As opposed to the published papers, the trend in the number of quotes is heterogeneous. The majority of the citations took place in 2012 (1953 quotes), while the last two years show a significant decrease, with the yearly citations averaging 1008.

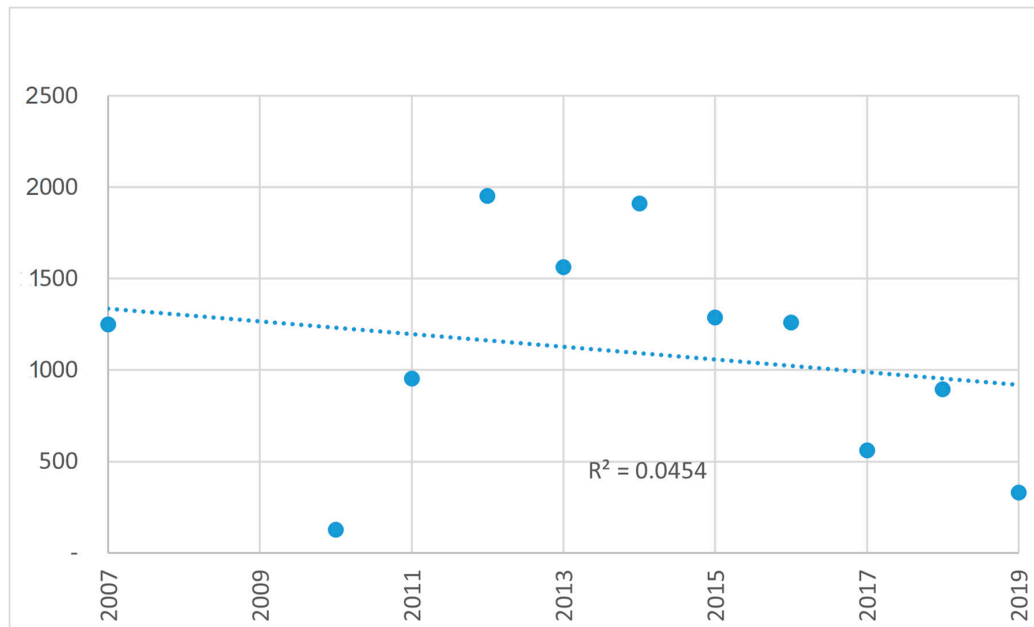


Figure 2. Total number of citations per year.

Table 1 provides the citation rate of the papers considering that the total number of citations reaches 12,090. The first detail that stands out is that 47 papers have never been cited, that is, 9.38% of the total. Furthermore, 399 papers have less than 50 citations in the WoS (which corresponds to 79.64% of the published studies). Additionally, 35 papers have more than 50 but less than 100 citations (6.99%), 14 papers have more than 100 but less than 200 citations (2.79%) and, finally, 6 papers have more than 200 citations each, representing 1.2% of the published studies.

Table 1. General citation structure.

Number of Citations	Number of Papers	% of Papers
Over 200	6	1.20%
Between 100 and 200 citations	14	2.79%
Between 50 and 100 citations	35	6.99%
Less than 50 citations	399	79.64%
0 citations	47	9.38%
Total	501	100.00%

Source: Compiled by the authors based on Web of Science data (2020).

With regard to the Hirsch impact index or h-Index [58], 54 papers had over 54 citations, making them the publications with the highest impact in the entire sample under study. Amongst them, it is worth mentioning the one by Gómez-Mejía et al. [2], published in *Administrative Science Quarterly* (Q1) of SAGE Publications Inc. which accounts for 10.3% of the total number of citations on the subject (1249 citations) (see Table 2). This paper challenges the prevalent notion that family-owned firms are more risk averse than publicly owned firms. Using behavioral theory, the authors argue that for family firms, the primary reference point is the loss of their socioemotional wealth, and to avoid those

losses, family firms are willing to accept a significant risk to their performance; yet, at the same time, they avoid risky business decisions that might aggravate that risk. The second most cited paper is by Pascual Berrone (644, 5.3% of the total), published in 2012 in the journal *Family Business Review* (Q1) of SAGE Publications Inc (see Table 2). This paper makes the case for the socioemotional wealth (SEW) approach as the potential dominant paradigm in the family firm field. Berrone et al. [33] state that socioemotional wealth is the most important differentiator of the family firm as a unique entity and, as such, helps explain its distinctive behavior.

Table 2. Most cited papers within scientific production/output.

Ranking	Authors	Year	Title	Journal	Total Citations
1	Gómez-Mejía, Luis R.; Haynes, Katalin Takacs; Nunez-Nickel, Manuel; Jacobson, Kathryn J. L.; Moyano-Fuentes, Jose	2007	Socioemotional wealth and business risks in family-controlled firms: Evidence from Spanish olive oil mills	Administrative Science Quarterly	1249
2	Berrone, Pascual; Cruz, Cristina; Gómez-Mejía, Luis R.	2012	Socioemotional Wealth in Family Firms: Theoretical Dimensions, Assessment Approaches, and Agenda for Future Research	Family Business Review	644
3	Gómez-Mejía, Luis R.; Cruz, Cristina; Berrone, Pascual; De Castro, Julio	2011	The Bind That Ties: Socioemotional Wealth Preservation in Family Firms	Academy of Management Annals	627
4	Chrisman, James J.; Patel, Pankaj C.	2012	Variations in RandD Investments of Family and Nonfamily Firms: Behavioral Agency and Myopic Loss Aversion Perspectives	Academy of Management Journal	449
5	Zellweger, Thomas M.; Kellermanns, Franz W.; Chrisman, James J.; Chua, Jess H.	2012	Family Control and Family Firm Valuation by Family CEOs: The Importance of Intentions for Transgenerational Control	Organization Science	253
6	Deepphouse, David L.; Jaskiewicz, Peter	2013	Do Family Firms Have Better Reputations Than Non-Family Firms? An Integration of Socioemotional Wealth and Social Identity Theories	Journal of Management Studies	227
7	De Massis, Alfredo; Frattini, Federico; Lichtenthaler, Ulrich	2013	Research on Technological Innovation in Family Firms: Present Debates and Future Directions	Family Business Review	191
8	Gedajlovic, Eric; Carney, Michael; Chrisman, James J.; Kellermanns, Franz W.	2012	The Adolescence of Family Firm Research: Taking Stock and Planning for the Future	Journal of Management	188
9	Zellweger, Thomas M.; Nason, Robert S.; Nordqvist, Mattias; Brush, Candida G.	2013	Why Do Family Firms Strive for Non-Financial Goals? An Organizational Identity Perspective	Entrepreneurship Theory and Practice	169
10	Jaskiewicz, Peter; Combs, James G.; Rau, Sabine B.	2015	Entrepreneurial legacy: Toward a theory of how some family firms nurture transgenerational entrepreneurship	Journal of Business Venturing	166
11	Duran, Patricio; Kammerlander, Nadine; van Essen, Marc; Zellweger, Thomas	2016	Doing More with Less: Innovation Input and Output in Family Firms	Academy of Management Journal	160
12	Miller, Danny; Minichilli, Alessandro; Corbetta, Guido	2013	Is family leadership always beneficial?	Strategic Management Journal	146
13	Patel, Pankaj C.; Chrisman, James J.	2014	Risk abatement as a strategy for RandD investments in family firms	Strategic Management Journal	138

Table 2. Cont.

Ranking	Authors	Year	Title	Journal	Total Citations
14	Chrisman, James J.; Chua, Jess H.; De Massis, Alfredo; Frattini, Federico; Wright, Mike	2015	The Ability and Willingness Paradox in Family Firm Innovation	Journal of Product Innovation Management	137
15	Kellermanns, Franz W.; Eddleston, Kimberly A.; Zellweger, Thomas M.	2012	Extending the Socioemotional Wealth Perspective: A Look at the Dark Side	Entrepreneurship Theory and Practice	134
16	Gómez-Mejía, Luis R.; Campbell, Joanna Tochman; Martin, Geoffrey; Hoskisson, Robert E.; Makri, Marianna; Sirmon, David G.	2014	Socioemotional Wealth as a Mixed Gamble: Revisiting Family Firm RandD Investments with the Behavioral Agency Model	Entrepreneurship Theory and Practice	126
17	Miller, Danny; Le Breton-Miller, Isabelle	2014	Deconstructing Socioemotional Wealth	Entrepreneurship Theory and Practice	126
18	Miller, Danny; Le Breton-Miller, Isabelle; Lester, Richard H.	2013	Family Firm Governance, Strategic Conformity, and Performance: Institutional vs. Strategic Perspectives	Organization Science	126
19	Cruz, Cristina; Larraza-Kintana, Martin; Garces-Galdeano, Lucia; Berrone, Pascual	2014	Are Family Firms Really More Socially Responsible?	Entrepreneurship Theory and Practice	116
20	Stockmans, Annelies; Lybaert, Nadine; Voordeckers, Wim	2010	Socioemotional Wealth and Earnings Management in Private Family Firms	Family Business Review	105

Source: Compiled by the authors based on Web of Science data (2020).

As we can see, the concern for socioemotional wealth is recent, the first paper dates back to 2007. Moreover, this first paper is the one that has received the highest number of citations. On the other hand, it is an emerging field of research, which has grown dramatically, as socioemotional wealth has received a great deal of attention from researchers in the field of family business. On the other hand, there is a widespread network of collaboration between authors, which is reflected in the co-authorship of most of the papers analyzed. The minimum number of authors per published paper is 2 in the 20 most cited articles. Within the 20 most cited papers, there are no single-authored papers.

3.2. Main Authors

Within the 501 selected papers on the topic of Family Firms and Socioemotional Wealth, as many as 918 authors have researched this subject, either as sole authors or as co-authors. Table 3 shows a high concentration, as 10 authors provide almost half of the total citations (45.3%). According to the information detailed in Table 3, Luis Gómez-Mejía can be considered as the reference researcher. This professor at the Arizona State University has published 10 papers related to search vectors that have been cited 2754 times, which corresponds to 22.8% of the total number of citations. Furthermore, four of his papers are among the 54 most influential ones, according to the h-index search vector. The second most influential author is James Chrisman, of the Mississippi State University, who has published 16 papers that have resulted in 1527 citations. It is also worth mentioning that eight of his papers are ranked within the 54 most influential ones of all time, twice as many as any other author. A breakdown of the other eight most influential authors of all time on the subject of Family Firms and Socioemotional Wealth can be found in Table 3. It should be noted that the most influential authors are from developed countries such as the United States, Spain and Italy. It coincides that in these countries, the family business is of great importance and has managed to create collaboration networks with the main universities in these countries. In the case of the United States through the Family Firms Foundation and, in the case of Spain, through the Institute of Family Business.

Table 3. Most influential authors on Family Firms and Socioemotional Wealth.

Author's Ranking	Author's Name	Institution	Total Papers by the Author in Search Vectors	Total Citations of the Author's Papers in Search Vectors	%	H-Index of Author	Total Papers by the Author	Total Citations of the Author	Total Papers by the Author Included in the 54 Most Influential Published Paper of All Time
1	Gomez-Mejia, Luis	Arizona State University	10	2754	22.8%	46	109	11,621	4
2	Chrisman, James	Mississippi State University	16	1527	12.6%	44	103	7648	8
3	Berrone, Pascual	University of Navarra	5	1438	11.9%	17	28	3622	3
4	Cruz, Cristina	IE University	7	1420	11.7%	13	26	3004	3
5	Kellermanns, Franz	Belk Coll Business	20	1120	9.3%	41	107	5405	2
6	De Massis, Alfredo	Free University of Bozen-Bolzano	20	797	6.6%	28	78	2749	4
7	Zellweger, Thomas	University of St Gallen	6	706	5.8%	23	36	2514	4
8	Patel, Pankaj C.	Villanova University	6	693	5.7%	34	157	3883	2
9	Miller, Danny	HEC Montreal	12	644	5.3%	68	147	20,452	5
10	Chua, Jess H.	University of Calgary	7	493	4.1%	30	67	4775	2

Source: Compiled by the authors based on Web of Science data (2020).

The number of papers written and published is a metric to determine the contribution of each author to the formation of knowledge based on search vectors. The influence of these authors is not always recognized. However, they are important for their contribution to the development of this field in different scenarios and approaches. For this reason, Table 4 mentions the authors who have published more than 10 papers related to the terms Family Firms and Socioemotional Wealth. The table summarizes the number of published papers, the number of citations received, the average of citations for each paper, the percentage of the total amount of papers published on the subject, the author's h-index, the total number of publications registered on the WoS platform and the total amount of citations of the author calculated on his/her publications in the WoS as of July 2020.

Table 4 shows the 10 authors who have published 10 or more papers related to the subject of this work. It also reveals that five of these 10 authors are among the most influential in terms of the number of citations. This might be due to the fact that, although this is a subject that, in the last decade, has become more and more popular as a research topic, there are still very few authors who include it in their research agenda. It is noteworthy that Gómez-Mejía drops to seventh place in terms of the number of articles published (7 in total), while he is in first place in terms of most-cited authors, with four of his articles among the 54 most influential of all time. De Massis is ranked as the most productive author, but he is the sixth most influential author. In any case, there is a strong relationship between the most influential and the most productive authors, as these authors are found in both lists.

The following step was a co-authorship analysis. For this purpose, the analysis was restricted to those authors who had published at least three articles, which reduces the number of authors to 109. The Figure 3 below shows a graphical representation of the co-authorship. We note that collaboration between authors from different countries and institutions is widespread in this field.

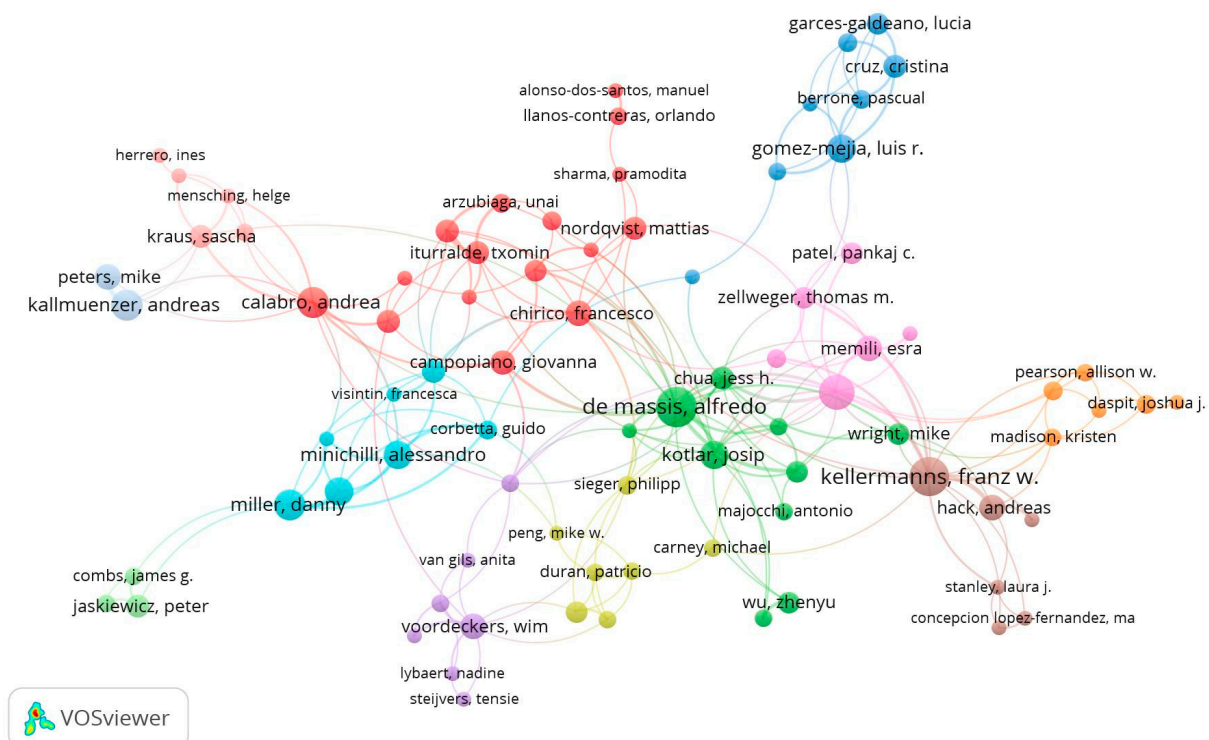


Figure 3. Graph on joint co-authorship for scientific production.

Table 4. Most productive authors.

Author's Ranking	Author's Name	University	Total Papers by the Author Considering Search Vectors	Total Citations of the Author's Papers in Search Vectors	Citation per Paper in Search Vectors	%	H-Index of Author	Total Papers by the Author	Total Citations by Each Author
1	De Massis, Alfredo	Free University of Bozen-Bolzano	20	797	39.85	3.99%	28	78	2749
2	Kellermanns, Franz	Belk Coll Business	20	1120	56	3.99%	41	107	5405
3	Chrisman, James	Mississippi State University	16	1527	95.44	3.19%	44	103	7648
4	Calabro, Andrea	IPAG Business School	12	175	14.58	2.40%	15	52	1062
5	Kallmuenzer, Andreas	La Rochelle Business Sch CRIIM	12	106	8.83	2.40%	8	15	118
6	Miller, Danny	HEC Montreal	12	644	53.67	2.40%	68	147	20,452
7	Gomez-Mejia, Luis	Arizona State University	10	2754	275.4	2.00%	46	109	11,621
8	Kotlar, Josip	Polytechnic University of Milan	10	215	21.5	2.00%	17	32	1200
9	Le Breton, Isabelle	HEC Montreal	10	488	48.8	2.00%	23	42	4162
10	Minichilli, Alessandro	Bocconi University	10	364	36.4	2.00%	19	35	1222

Source: Compiled by the authors based on Web of Science data (2020).

The papers were loaded on the VOSviewer software to group the authors into clusters (see Table 5) and 12 different clusters were obtained in total. These can be viewed in Table 5, as well as in Table 3, highlighted with a specific color. To be able to understand and interpret them better, it is worth mentioning that the higher the co-authorship, the larger the circumference that represents them. As an example, cluster 1 identified in red, consists of 16 authors, with the circumference corresponding to Calabro being the largest, thus showing that this author is the most prolific one in terms of co-authorship participation within this cluster. In addition, many authors of Spanish and Italian origin stand out in this cluster.

Table 5. Clusters on co-authorship for scientific production.

Cluster 1	Cluster 2	Cluster 3	Cluster 4
Alonso-Dos-Santos, Manuel	Chua, Jess H.	Berrone, Pascual	Carney, Michael
Arzubiaga, Unai	De Massis, Alfredo	Cruz, Cristina	Duran, Patricio
Basco, Rodrigo	Ding, Shujun	Garces-Galdeano, Lucia	Kammerlander, Nadine
Bauweraerts, Jonathan	Fang, Hanqing	Gomez-Mejia, Luis	Peng, Mike W.
Calabro, Andrea	Frattini, Federico	Larraza-Kintana, Martin	Sieger, Philipp
Campopiano, Giovanna	Kotlar, Josip	Makri, Marianna	Van Essen, Marc
Chirico, Francesco	Majocchi, Antonio	Martin, Geoffrey	Zellweger, Thomas
Iturralde, Txomin	Vismara, Silvio		
Llanos-Contreras, Orlando	Wright, Mike		
Maseda, Amaia	Wu, Zhenyu		
Mazzola, Pietro			
Nordqvist, Mattias			
Pongelli, Claudia			
Sanchez-Famoso, Valerio			
Sciascia, Salvatore			
Sharma, Pramodita			
Cluster 5	Cluster 6	Cluster 7	Cluster 8
Huybrechts, Jolien	Amore, Mario Daniele	Barnett, Tim	Concepcion Lopez-Fernandez, Maria
Lambrechts, Frank	Corbetta, Guido	Daspit, Joshua J.	Hack, Andreas
Lybaert, Nadine	Le Breton.Miiler, Isabelle	Holt, Daniel T.	Hernandez-Linares, Remedios
Minola, Tommaso	Miller, Danny	Li, Zonghui	Kellermanns, Franz W.
Steijvers, Tensie	Minichilli, Alessandro	Madison, Kristen	Kraiczky, Nils D.
Van Gils, Anita	Pittino, Daniel	Pearson, Allinson W.	Stanley, Laura J.
Voordeckers, Wim	Visintin, Francesca		
Cluster 9	Cluster 10	Cluster 11	Cluster 12
Chrisman, James J.	Filser, Matthias	Combs, James G.	Kallmuenzer, Andreas
Eddleston, Kimberly A.	Herrero, Ines	Jaskiewics, Peter	Peters, Mike
Fang, Hanqing Chevy	Hughes, Mathew	Rau, Sabine B.	
Memili, Esra	Kraus, Sascha		
Patel, Pankaj C.	Mensching, Helge		
Zellweger, Thomas M.			

Source: Web of Science data (2020), produced with Software VOSviewer.

As additional information, Figure 4 graphically displays the citations among the 109 previously selected authors. The graph depicted in Figure 4 shows a higher number of citations according to the size of the circumference assigned to each author. In this context, authors such as De Massis (light blue), Miller (yellow), Cruz (green), Kellermanss (purple), among others, stand out.

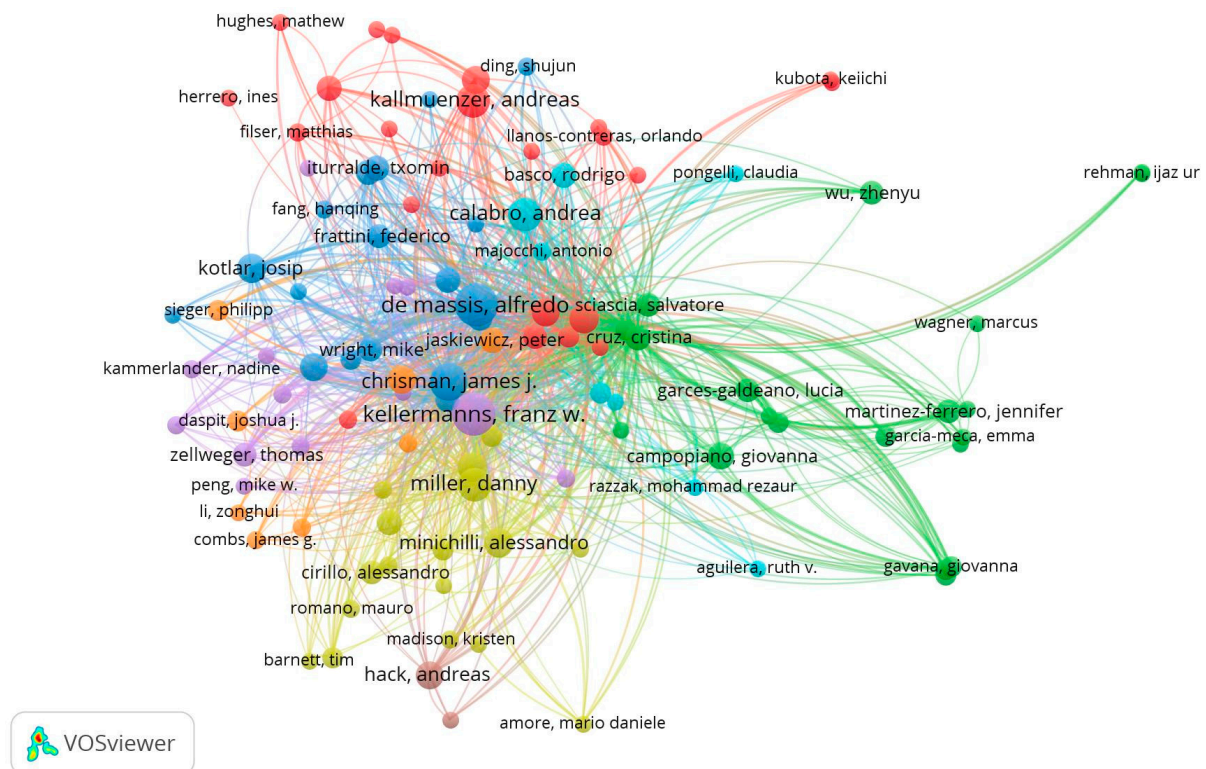


Figure 4. Graph of joint bibliography for the most cited scientific publications.

What stands out in this section is that the most influential author (Gómez-Mejía) is not the most productive (De Massis). Moreover, the published papers are usually signed by several authors, with the cluster around Calabrò being the one with the largest number of co-authors.

3.3. Main Journals

With reference to the main publication sources, it can be observed that the 501 articles under study were published in 153 journals indexed in the WoS. The degree of concentration could be described as medium, as 10 journals have published 226 papers which means 45.1% of the publications on the subject, with an average of 24.85 citations per paper, a total of 5615 citations and an h-index of 41. A breakdown of the 10 journals that have published at least 10 papers is shown in Table 6.

Table 6. Web of Science journals that generate scientific publications.

Ranking	Sources (Journals)	Total Number of Papers Considering the Search Vectors	Percentage of Papers out of the Total Number of Papers on the Search Vectors	Average Number of Citations per Paper in Search Vectors	H-Index with Search Vectors Only	Total Number of Citations with Search Vectors Only	Impact Factor of the Journal in the Last 5 Years	Quartile in the Category
1	Journal of Family Business Strategy	62	12.375%	14.39	18	892	5857	Q2
2	Entrepreneurship Theory and Practice	38	7.585%	41.32	20	1570	11,035	Q1
3	Family Business Review	38	7.585%	42.82	18	1665	6060	Q1
4	Journal of Family Business Management	18	3.593%	4.78	6	86	-	-
5	Journal of Business Research	14	2.794%	16.43	7	230	5484	Q1
6	Sustainability	13	2.595%	3.85	5	50	2798	Q2
7	Corporate Governance an International Review	11	2.196%	10.91	6	120	4151	Q3
8	Journal of Business Ethics	11	2.196%	18.82	7	207	5455	Q2
9	Small Business Economics	11	2.196%	29.64	8	326	5377	Q1
10	Strategic Management Journal	10	1.996%	46.90	8	469	7859	Q1
	Summary	226	45.110%	24.85	41	5615	6008	

Source: Own source based on Web of Science data (2020).

The Journal of Family Business Strategy published by Elsevier (the Netherlands) has the largest number of papers (62); nevertheless, the most influential one is Family Business Strategy published by SAGE Publications Inc. (United States), whose papers are cited the most, with 1665 citations from a total of 12,090. However, the highest average number of citations can be found in the Strategic Management Journal, published by Wiley. Finally, Entrepreneurship Theory and Practice has the highest h-index (20) and the highest impact factor of the last five years (11,035).

In the journals analyzed, the works published are peer-reviewed, which indicates their scientific quality, and they have a high impact factor. These are journals that have become a reference for studies on socioemotional wealth. Moreover, the first four are considered key journals in the field of family business.

3.4. WoS Categories

The analysis by WoS categories shows that the 501 papers analyzed have been published in journals belonging to 28 different categories, either exclusively or in several of them. These 28 categories have an h-index of 54, with a total of 12,111 citations and 24.42 citations per paper that have been referenced 3738 times by other papers. As Table 7 shows, the largest contribution is generated in the Business category which accounts for 64.1% of the total number of publications. This category also has the highest h-index (49), as well as the highest number of citations (10,423), the highest number of references by other papers (3319) and the highest average number of citations, with 32.47 citations per paper. This information is detailed in Table 7 for the 10 WoS categories most relevant to the subject of this research.

As we can see, the three WoS categories that generate the greatest contribution to the analysis of socioemotional wealth are confined to the field of business (business, management and business finance). This result can be explained by the fact that socioemotional wealth is considered to be a distinctive feature of family businesses, and therefore an internal characteristic of the company.

3.5. Institutions

In relation to the main affiliated organizations, the results obtained indicate a high institutional concentration. The 501 identified authors are affiliated with 553 organizations and 13 of them contribute at least 16 papers related to the subject matter analyzed. The breakdown of these institutions is summarized in Table 8, which is ordered by their influence on the subject according to the number of papers, their h-index, the average number of citations, the total number of citations based on the search vectors and the number of papers citing them.

The information in this table shows that the 13 institutions that have published more than 15 papers related to the search concepts account for 29.94% of the total number of papers published. Furthermore, in total, the h-index is 43, with a citation average of 38.49 and the total citations adding up to 5774 based on the search vectors used. Another peculiarity is that papers involving more than one institution are cited in over 2237 papers.

Seemingly, the two most productive institutions are the Mississippi State University in the United States (32 papers and an h-index of 18) and the University of North Carolina, also in the USA, with 32 papers and an h-index of 15. However, the most influential institution is possibly the one in third place, the University of Alberta in Canada, as it has the highest impact factor (20), the highest number of citations on the subject (2336), the highest average number of citations (75.35) and the highest number of papers citing it (1,311).

Table 9 shows a bibliometric analysis of the citations related to these institutions, with eight clusters that take into account a minimum of four documents per organization. Following this criterion, the eight clusters include 72 institutions out of a total of 556 institutions that have been cited at least once. In addition, the graph in Figure 4 shows the connections between the different institutions included in the eight clusters.

Table 7. Web of Science categories associated with scientific production.

Ranking	Web of Science Categories	Total Number of papers only Considering the Search Vectors	Percentage of Papers out of the Total Number of Papers on the Search Vectors	H-Index with Search Vectors Only	Average Number of Citations per Paper in Search Vectors	Total Number of Citations with Search Vectors Only	Number of Papers Cited
1	Business	321	64.1%	49	32.47	10,423	3319
2	Management	283	56.5%	38	25.71	7275	2842
3	Business Finance	41	8.2%	41	8.63	354	285
4	Economics	27	5.4%	9	14.96	404	334
5	Environmental Studies	24	4.8%	8	7.79	187	172
6	Ethics	18	3.6%	9	23.83	429	339
7	Green Sustainable Science Technology	18	3.6%	6	5.5	99	92
8	Environmental Sciences	17	3.4%	6	4.82	82	77
9	Psychology Applied	11	2.2%	5	25.18	277	260
10	Hospitality Leisure Sport Tourism	9	1.8%	7	9.56	86	65
	SUMMARY	496	99.0%	54	24.42	12,111	3738

Source: Data of Web of Science (2020).

Table 8. Web of Science categories associated with scientific production.

Ranking	Organizations	Country	Total Number of Papers only in Search Vectors	Percentage of Papers out of the Total Number of Papers in the Search Vectors	H-Index Only with Search Vectors	Average Number of Citations per Paper for Search Vectors	Total Number of Citations with Search Vectors Only	Number of Papers Cited
1	Mississippi State University	United States	32	6.39%	18	57.59	1843	1083
2	University of North Carolina	United States	32	6.39%	15	23.53	753	562
3	University of Alberta	Canada	31	6.19%	20	75.35	2336	1311
4	Lancaster University	England	26	5.19%	14	27.31	710	481
5	Whu Otto Beisheim Sch Management	Germany	24	4.79%	14	54.54	1309	901
6	Jonkoping University	Sweden	21	4.19%	11	34.86	732	589
7	Witten Herdecke University	Germany	21	4.19%	14	24.33	511	422
8	Bocconi University	Italy	18	3.59%	12	37.94	683	527
9	University of North Carolina at Charlotte	United States	18	3.59%	10	23.39	421	334
10	Hec Montreal	Canada	16	3.19%	11	44.19	707	561
11	University of Bergamo	Italy	16	3.19%	13	49.69	795	530
12	University of Montreal	Canada	16	3.19%	11	44.19	707	561
13	University of St Gallen	Switzerland	16	3.19%	13	69.06	1105	811
	SUMMARY		150	29.94%	43	38.49	5.774	2.237

Source: Data from Web of Science (2020).

Table 9. Inter-institutional citation graph.

Cluster 1	Cluster 2	Cluster 3	Cluster 4
Arizona State Univ	Bocconi Univ	Ball State Univ	Natl Taiwan Univ
Concordia Univ	Hasselt Univ	Copenhagen Business Sch	Towson Univ
Emlyon Business Sch	Hec Montreal	Free Univ Bozen Bolzano	Univ Bern
Erasmus Univ	Iulm Univ	Mississippi Univ Sci and Technol	Univ Catolica Santisima Concepcion
Renmin Univ China	Jonkoping Int Business Sch	Politec Milan	Univ N Carolina
Texas Tech Univ	Jonkoping Univ	Univ Alberta	Univ North Carolina Charlotte
Univ Augsburg	Maastricht Univ	Univ Bergamo	Univ St Gallen
Univ Carlos Iii Madrid	Texas Aandm Univ	Univ Calgary	Univ Tennessee
Univ Granada	Univ Antwerp	Univ Lancaster	Whu Otto Beisheim Sch Management
Univ Insubria	Univ Basque Country	Univ Manitoba	
Univ Jaen	Univ Basque Country Upv Ehu	Zhejiang Univ	
Univ Navarra	Univ Extremadura		
Univ Notre Dame	Univ Foggia		
Univ Pavia	Univ Mons		
Univ Pisa	Univ Naples Federico II		
Univ Publ Navarra	Univ Udine		
Univ Salamanca			
Univ Trier			
Cluster 5	Cluster 6	Cluster 7	Cluster 8
Amer Univ Sharjah	Univ Adolfo Ibanez	Univ Ottawa	Univ Alabama
Ipag Business Sch	Univ Malaga	Univ Pablo De Olavide	Univ Ghent
Northeastern Univ	Univ Murcia	Waseda Univ	
Univ Durham			
Univ Innsbruck			
Univ Liechtenstein			
Univ Salerno			
Univ Witten Herdecke			
Univ Witten Herdecke			

Source: Web of Science data (2020), produced with VOSviewer.

Figure 5 graph shows eight clusters in different colors. The first cluster includes 18 institutions and is shown in red, with Concordia University as the main player (15 papers with 710 citations). The second cluster incorporates 16 institutions shown in green. The leading institution in this cluster is HEC Montréal (18 papers and 707 citations). Cluster 3 is in blue and comprises 12 institutions, the leader being the Mississippi State University of Science and Technology (32 papers and 1837 citations).

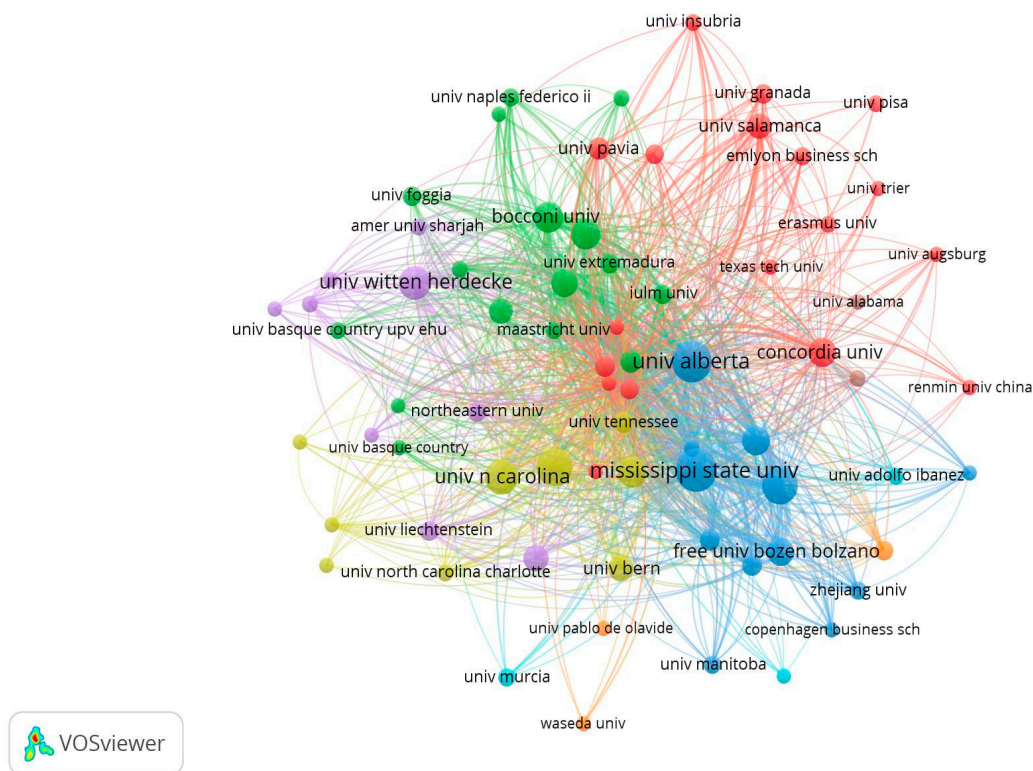


Figure 5. Graph of most cited institutions.

The most relevant aspect of this section is that research in the field of socioemotional wealth is carried out by universities in different countries which, in addition, maintain connections between authors from these universities.

3.6. Countries

The country-by-country analysis reveals a high geographical concentration. A total of 51 countries have produced at least one paper on this topic, however, 83.8% of the papers are concentrated in only 10 countries. Table 10 lists the 10 countries that have developed and published more than 28 articles related to Family Firms and Socioemotional Wealth. These 10 countries have a combined h-index of 52, with an average of 27.41 citations per paper, a total of 11,512 citations and 3619 papers citing this set of countries.

The data shown in Table 10 reveal that the United States is the most productive and influential country, having generated a total of 149 papers. Moreover, it has the highest number of citations (7158), the highest h-index (37) and 2664 papers with citations. Canada should also be highlighted with its 64 papers, making it the geographical area with the highest average number of citations per paper, 50.27.

The graph in Figure 6 displays the co-authorships between countries, showing that 41 of the 56 countries have at least two co-authored papers, grouped in 10 different clusters (see Table 11 and Figure 6).

Table 10. Countries/regions associated with scientific productions according to the authors' affiliation

Ranking	Countries/Regions	Total Number of Papers in Relation with Search Vectors	Percentage of Papers out of the Total Number of Papers in the Same Search Vectors	H-Index Only in Search Vectors	Average Number of Citations per Paper for Search Vectors	Total Number of Citations with Search Vectors Only	Number of Papers Cited
1	United States	149	29.74%	37	48.04	7158	2664
2	Italy	94	18.76%	24	21.21	1994	1146
3	Spain	92	18.36%	18	37.89	3486	1922
4	Germany	79	15.77%	26	31.75	2508	1421
5	Canada	64	12.77%	25	50.27	3.217	1.684
6	England	55	10.98%	20	22.98	1264	879
7	Switzerland	32	6.39%	17	41.09	1315	903
8	France	28	5.59%	9	9.89	277	241
9	China	28	5.59%	11	15.71	440	345
10	Sweden	28	5.59%	11	27.98	775	625
	Total data	420	83.8%	52	27.41	11,512	3619

Source: Data from Web of Science (2020).

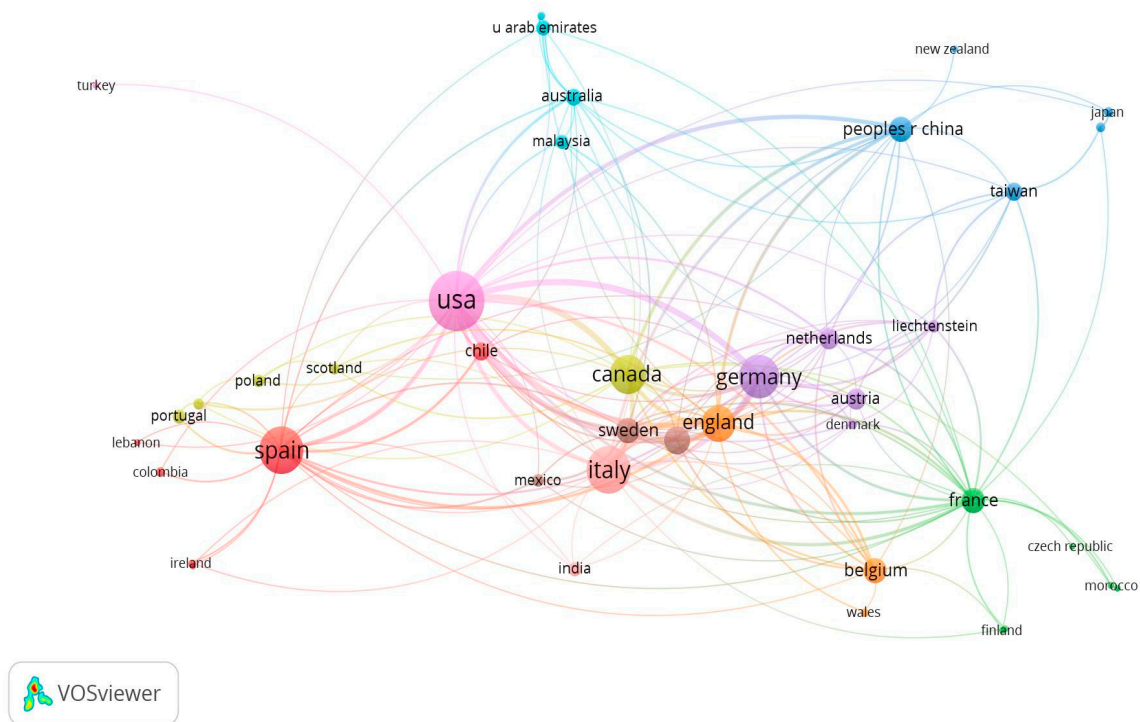


Figure 6. Co-authorship between countries.

Table 11. Cross-country co-authorship clusters.

Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Chile	Czech Republic	Japan	Brazil	Austria
Colombia	Finland	New Zealand	Canada	Denmark
Ireland	France	Peoples R China	Poland	Liechtenstein
Lebanon	Monaco	Singapore	Portugal	
Northern Ireland	Morocco	South Korea	Scotland	
Spain	Tunisia	Taiwan		
Cluster 6	Cluster 7	Cluster 8	Cluster 9	Cluster 10
Australia	Belgium	Mexico	Turkey	India
Malaysia	England	Sweden	USA	Italy
Pakistan	Wales	Switzerland		
Qatar				
UAE				

Source: Compiled by the author using VOSviewer.

It so occurs that the countries with the highest scientific production coincide with the countries where business is most important, such as the United States, Italy and Spain.

3.7. Bibliometric Analysis of Keywords

The bibliometric keyword analysis shows that, out of the 922 keywords plus (KWP) included in the articles published in the Web of Science, 153 occur more than five times and are used concurrently (see Figure 7). This generates up to nine clusters, broken down as detailed in the Appendix A in Table A1.

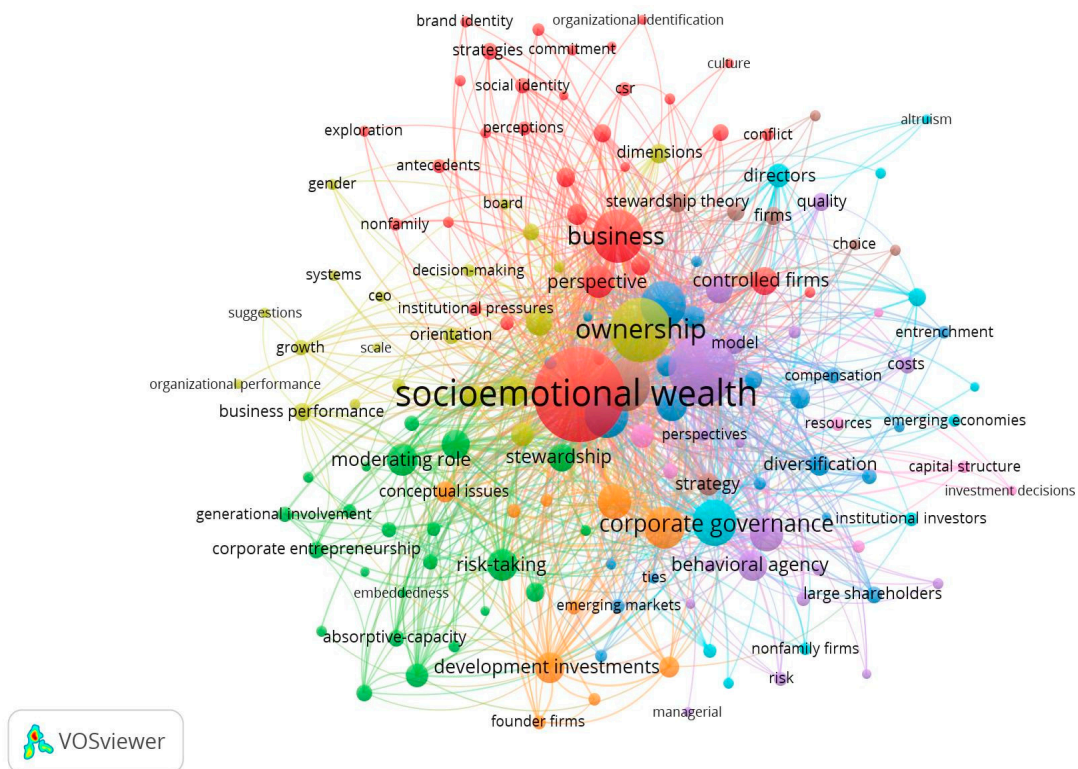


Figure 7. Bibliometric map of the research on Family Firms and Socioemotional Wealth.

From the different analyses, it can be concluded that the term socioemotional wealth is the most used term, with 427 occurrences corresponding to cluster 1, followed by performance with 234 occurrences corresponding to cluster 5 (in green) and in the third position, the keyword ownership with 200 occurrences corresponding to cluster 4 (in blue). These three terms are interconnected with most of the other keywords. To conclude this analysis, Table 12 shows the 10 keywords with the highest level of occurrence.

Table 12. Co-occurrence clusters in the use of keywords plus.

No.	Keyword	Occurrence
1	Socioemotional wealth	427
2	Performance	234
3	Ownership	200
4	Business	136
5	Management	129
6	Governance	107
7	Agency	106
8	Corporate Governance	103
9	Agency costs	85
10	Firm performance	60

4. Discussion and Conclusions

This paper performed a bibliometric and scientometric analysis focusing on socioemotional wealth in family firms. This type of analysis does not seek to explain the causality of scientific production with other variables but provides a basis for studying the development and evolution of academic literature in a given scientific area, in our case family firms

and socioemotional wealth. To the best of our knowledge, this is the first scientometric study that focuses on socioemotional richness. As we pointed out in the introduction, the aim of this study was to analyze the most relevant aspects of the scientific literature on socioemotional richness. To this end, we posed several research questions that were adequately answered. The most relevant academics in the field of socioemotional wealth, the countries and institutions in which they carry out their research, the research networks in which they participate, the scientific journals that generate the most knowledge in which they publish their work and the research topics linked to socioemotional wealth were all studied. In this sense, with this type of analysis, it is possible to establish future lines of research derived from the scientific impact and the relationships that can be established between different aspects linked to the behavior of family businesses.

The first conclusion that can be drawn is the extraordinary scientific production in journals indexed in the WoS that focuses on socioemotional wealth, especially since the work of Gómez-Mejía et al. [2] undoubtedly the starting point of an incredibly fruitful new line of research. This is a very recent field of research, which has experienced exponential growth in the number of contributions in recent years. As such, the papers on socioemotional wealth analyzed in this research have been quoted more than 12,000 times. The Gómez-Mejía et al. paper [2] entitled “Socioemotional Wealth and Business Risks in Family-Controlled Firms: Evidence from Spanish Olive Oil Mills” and published in *Administrative Science Quarterly* has received over 1249 citations, and the work of Berrone et al. [33] entitled “Socioemotional Wealth in Family Firms: Theoretical Dimensions, Assessment Approaches, and Agenda for Future Research”, published in *Family Business Review* received over 650 citations. All in all, it can be stated that the growth of scientific production in the family firm area is due, to some extent, to the appearance of the concept of socioemotional wealth. We, therefore, agree with Brigham and Payne [34] and Swab et al. [35] when they state that the onset of socioemotional wealth on the agenda of many researchers has led to progress in the analysis of family firms’ behavior. As can be observed, the researchers’ preoccupation focuses more on the analysis of internal aspects than on other factors external to this type of business [36]. In conclusion, research on family firms is focusing more on the elements that define the essence of a family business than on external factors, which can also affect other types of businesses, whether or not they are family firms.

Another relevant finding is the high concentration of authors, whether working alone or with others. Also, 10 out of 918 authors have written 45.3% of all publications. With four of his papers among the most cited publications, Gómez-Mejía, a professor at the Arizona State University, is the most cited author. Also, the most influential authors are those who have also generated the greatest amount of knowledge, as they are the authors who have published the largest number of papers (10 or more).

The co-authorship analysis reveals 109 authors who have participated in three or more papers, with Calabró leading the cluster with the highest number of co-authorships. As for the citations among authors, the three most relevant ones are De Massis, Miller and Cruz.

As for the journals, it can be established that 10 journals account for 45.1% of the publications on the subject of this research, with an average of 24.8% per paper and an h-index of 41. The journal with the highest number of publications is *Family Business Strategy* by Elsevier with 62 papers, even though the most influential journal for the number of citations is *Family Business Review* by SAGE Publications. Furthermore, the *Strategic Management Journal* by Wiley has the highest citation average and *Entrepreneurship Theory and Practice* the highest h-index, that is, 20, and the highest impact index, 10,035 in the last five years.

Another noteworthy finding is that the two WoS categories with the highest number of citations are Business and Management, with an h-index of 49 and 38, respectively. These areas are aimed at analyzing the internal characteristics and behavior of the company.

With regard to the institutions, it is worth noting that the majority of the authors analyzed are affiliated with institutions, with Mississippi State University and the University of

North Carolina—both in the United States—standing out as the most productive in terms of the number of papers published and citations received. A high geographical concentration can also be observed, with the United States, Italy and Spain being the countries with the highest number of authors and co-authorships. This ranking should also include Canada as the country with the highest number of citations per published paper (50.27).

Finally, of the 922 keywords plus of the papers published in the WoS, 153 words appear more than five times, where the most repeated terms with the highest number of interconnections are socioemotional wealth, performance and ownership.

This work has limitations that can provide future lines of research. The first limitation stems from one of the main characteristics of scientometric analysis: its sensitivity to the type of databases used. This research has focused on the WoS database, so papers of limited impact were not considered, even if they represent interesting contributions. The second limitation is a direct consequence of the application of scientometric analysis: it must be used as a complement to a complete and in-depth analysis of different works. Future lines of research could be papers that combine scientometric analysis with literature review. The third limitation stems from the conceptualization of family firms and socioemotional wealth: neither the heterogeneity in the definition of family firms nor the evolution of the concept of socioemotional wealth were taken into account.

It is also possible to extend the analysis by considering other types of papers included in databases other than the WoS.

Author Contributions: All of the authors contributed to conceptualization, formal analysis, investigation, methodology and writing and editing the original draft. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Informed consent was obtained from the respondents of the survey.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data will be made available on request from the corresponding author.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Co-occurrence clusters in the use of keywords plus.

Cluster 1 33 items (red)	Antecedents—brand identify—business—commitment—conflict—consequences—controlled firms—corporate social-responsibility—csr—culture—engagement—entrepreneurs—exploration—familiness—heterogeneity—identify—image—institutional pressures—integration—justice—nonfamily—organization—organizational identification—organisations—perceptions—perspective—reputation—responsibility—satisfaction—social identity—socioemotional wealth—strategies—work.
Cluster 2 23 items (green)	Absorptive-capacity—business research—competitive advantage—corporate entrepreneurs—dynamic capabilities—embeddedness—empirical-examination—entrepreneurial orientation—family firms—future—generational involvement—knowledge—mediating role—moderating role—resource-based view—risk-taking Smes—stewardship—strategic management—top management team—tops management teams—unified systems perspective—value creation.

Table A1. Cont.

Cluster 3 22 items (blue)	Agency—behaviour—board composition—companies—compensation—corporate-ownership—decisions—determinants—diversification—emerging markets—entrenchment—executive-compensations—financial performance—governance—incentives—institutional ownership—internationalization—investor protection—large shareholders—legitimacy—responses—ties.
Cluster 4 20 items (yellow)	Board—business performance—businesses—ceo—cost—decision-making—dimensions—entrepreneurship—gender—growth—human-resource management—innovation—involvement—organizational performance—orientation—ownership—productivity—scale—suggestions—systems—validation.
Cluster 5 18 items (purple)	Behavioural agency—corporate diversification—costs—impact—information—initial public offerings—loss aversion—managerial - market—mergers—model—ownership structure—performance—perspectives—prospect-theory—quality—risk—valuation.
Cluster 6 11 items (light blue)	Altruism - Business groups - Corporate governance—Directors - Earnings management—emerging economies—family-controlled firms—future-research—institutional investors—long-term orientation—non-family firms.
Cluster 7 10 items (orange)	Agency costs—conceptual issues—development investment—empirical-evidence—firm performance—founder firms—professional management—research-and-development—technological-innovation—upper echelons.
Cluster 8 8 items (coffee)	Choice—firms—industry—management - social-responsibility—stewardship theory—strategy—sustainability.
Cluster 9 7 items (pink)	Capabilities—capital structure—empirical-analysis—intentions—investment decisions—resources—succession.

Source: Data from Web of Science (2020).

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