

# Pensions and retirement systems research: a retrospective assessment from 1910 to 2022 using bibliometric analysis

Pensions and retirement systems research

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## Abstract

**Purpose** – This study aims to present a bibliometric analysis of research on pensions and retirement systems over the past 100 years. The study examines the intellectual structure and mapping in the field of pension and retirement; uncovers growth and publication patterns; identifies thematic areas in the pension domain; provides analysis of gaps; and recommends direction for future research.

**Design/methodology/approach** – The study sourced data from the Scopus database between 1910 and 2022 covering a 112-year period. Employing bibliometric techniques, a total of 6,661 papers were selected and analyzed using SPSS and VOSviewer software.

**Findings** – Results from the cluster analysis suggest research in this domain has focused on five thematic areas namely pension plans, retirement systems, pension schemes, demographic, and socio-economic determinants of pension and retirement decisions. The authors show from the overlay visualization output how these themes have evolved within the period under review. The study further presents major developments, conclusions and suggestions for future research directions based on insights obtained from the research themes to enrich the field of pension and retirement planning.

**Research limitations/implications** – The study is useful for informing researchers and practitioners on the state of the pension domain, and findings are useful avenues in developing the research field.

**Originality/value** – The study adds to existing literature on pension and retirement by offering an analysis of the state of pension research over a century and highlighting areas for future research.

**Keywords** Pensions, Retirement, Retirement planning, Pension schemes

**Paper type** Research paper

## Introduction

The importance of pension in the socio-economic environment of any society has been widely acknowledged (Ariana, 2004; Martínez *et al.*, 2021; Wang *et al.*, 2014). As persons age, their ability to generate income is reduced, thereby putting a strain on the family, community and society at large. Similarly, cases of disability reduce income and, thus, the ability to meet the economic needs of sufferers. The loss of an income earner through death similarly places a burden on the immediate family, community and the society. Traditionally, the needs of the aged, disabled and dependents of the dead have been cared for by the immediate family, communities and societies. However, with the development of modern societies and the movement of people beyond their immediate societies, the provision of family support systems has eroded significantly, thereby occasioning the interventions of formal systems (Schwarz, 2006). The development of pension systems has thereby been institutionalized to address the reduction or loss in income through age, disability and death.



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Pension systems were introduced to cater for the needs of the aged poor and were made by countries such as the USA, England, Germany and Australia as far back as the 1900s. Pension systems have been given different terminologies by different countries. For instance, Germany refers to pension as “retirement insurance”, whilst the United States uses “social security” (Ariana, 2004). Social security is described as a broader term that offers social welfare programs to workers and their dependents and aims at providing sustenance after retirement. Thus, social security and pension systems serve the interest of retirees under conditions of uncertainties (Wang *et al.*, 2014).

A number of models have been developed to explain pensions. Some studies have used pensions and retirement interchangeably. There are two types of benefits under social security and pension schemes: defined benefits and defined contributions. Under the defined benefit scheme, an employee makes a regular fixed contribution based on a portion of income but earns variable retirement benefits. The defined benefit is the opposite of defined contribution. There is certainty about the retirement benefit; however, depending on the amount needed to fund the benefit, the contributions may vary (Wang *et al.*, 2014).

Although pension systems have existed as far back as the 1890s (Wang *et al.*, 2014), research interest in the field increased in the 1900s. A number of studies conducted in the pension field have dwelt on issues such as behavioral issues regarding savings for future pension (Thaler and Benartzi, 2004); financial literacy and retirement planning (Lusardi and Mitchell, 2007a); models of pension systems and retirement (Wang *et al.*, 2014); reforms in the pension field (Schwarz, 2006); evolution of pension schemes, the past, present and future (Ariana, 2004); and the effect of pension systems on savings (Ertuğrul and Gebeşoğlu, 2020).

Others have provided theoretical and empirical perspectives to the field of pension by exploring pension and retirement systems as a concept in academic literature. The focus of these studies has been on reviewing theoretical and empirical issues of pension and social security (Feldstein and Liebman, 2001); pension reforms (Mesa-Lago, 2007); and privatization of pensions (Madrid, 2005) to the exclusion of a method that employs a systematic technique to review the literature. Furthermore, prior studies have employed subjective, manual and very little comprehensive analysis to review the literature (Donthu *et al.*, 2021).

Despite the scholarly consideration, there is very little quantitative analysis of the bibliometric characteristics of literature that define academic debate in the field of pension. For examples, we are yet to have answers to questions such as: what are the dominant articles in the field of pension and retirement? Which authors shape the academic debate in the field? What are the relevant reoccurring themes? Which institutions and countries are productive and most cited in the pension field (Koenigsmarck and Geissdoerfer, 2021)? These questions are addressed in this study.

The dearth of pension literature in the areas in Arts & Humanity, Social Sciences, Economics, Business Management and Accounting, followed by a growing trend of publications motivated us to explore the evolving trends and themes in the pension domain. To the best of our knowledge, only one article with bibliometric analysis on pension, aging and social security has been published in the academic literature thus far. In a study carried out on 1,287 articles published from 1936 to 2021, the authors relied on Scopus database and limited their literature review to searches in journal articles (Martínez *et al.*, 2021).

This study contributes to literature by employing a wider scope of analysis by reviewing other publications such as books, book chapters and conference proceedings in addition to journal articles. In our view, this would provide valuable works on the study of pensions. Further, this study employs single keywords in the analysis to display the trends in the broader field of pension research, a gap yet to be addressed in the literature (Martínez *et al.*, 2021).

This study further contributes to literature by providing a comprehensive review on pensions and retirement in accounting research. The study employs bibliometric techniques

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to aid in the analyses of a large number of publications (6,661 papers) in pension and retirement research covering a 112-year period (1910–2022). Data for the analysis was retrieved from the database of Elsevier Scopus.

The rest of the paper is structured as follows. The next section presents the methods employed to achieve the objectives of the study. This is followed by the results and discussion of the findings. The final section provides a conclusion of the key findings and offers suggestions for future research.

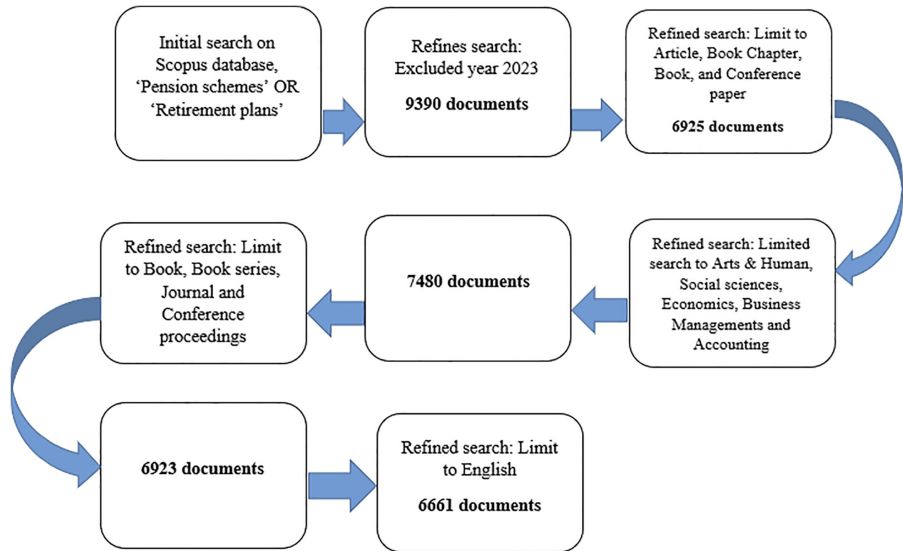
## Methods

### *Study design*

The study employs bibliometric analysis techniques to review literature in the field of pension. Bibliometric analysis is a technique used in analyzing large volumes of data that are not organized (Donthu *et al.*, 2021). With the application of statistical tools and techniques, bibliometric analysis is used in the evaluation of articles, books, conference proceedings and other publications and their citations that have scientific contents. Bibliometric analysis technique is currently being employed in a number of disciplines such as marketing (Fetscherin and Heinrich, 2015; Miskiewicz, 2020), the sciences (van Eck and Waltman, 2010), finance (Koenigsmarck and Geissdoerfer, 2021), medicine (Ahmad *et al.*, 2020), information technology (Chawla and Goyal, 2022) and accounting (Owusu and Korankye, 2023). The technique is considered essential in unearthing evolving trends in a field of research such as the performance of journals and articles, the collaborative efforts of authors, the geographical trends in publications, productivity of institutions regarding research publications, journals and countries in various fields of extant literature. The detailed analysis performed in this study include publication trends, authorship, citations, keywords, country of origin, affiliation, document sources and others. Bibliometric analysis supports the identification and development of an essential research field of discipline and the discovery of theoretical frameworks underlying that particular field (Donthu *et al.*, 2021; Fetscherin and Heinrich, 2015).

### *Data sources, data collection and document type*

The study sourced the data for the research from the Scopus database. The database serves as a multidisciplinary, abstract and citation source of scientific research. Published by Elsevier, Scopus covers over 35,000 titles with more than 10,000 publishers in peer-reviewed journals in top-level subject fields. Using the Boolean approach, the study employed the search query using the key words, “pension schemes” OR “retirement plans” from the period 1910 to 2022 (i.e. 112 years) on 17th October, 2022. The results of the initial search generated 9,393 documents. Due to the focus of the study, the document type was limited to article, book chapter, book and conference paper. The refined search reduced the number of documents to 7,480. The study further refined the document type to include book, book series, journal and conference proceedings to fit into the objective of the study; this reduced the documents to 6,925. After further refinement that limited the search to the subject areas of “Arts & Humanity”, “Social Sciences”, “Economics”, “Business Management, Accounting and Economics”, the number of documents reduced to 6,923. Since the documents were in various languages, another search was conducted to include only documents in the English language. Cleaning was conducted on the titles and abstracts of documents to ensure that only relevant materials were included. Additional screening was performed to identify duplications and eligibility using Microsoft software. After the screening, the number of documents was reduced to a final figure of 6,661, which was exported into the VOSviewer software for analysis (see Figure 1).



**Figure 1.**  
Data sourcing and filtering approach

Source(s): Author's own creation

### Data analysis

The study used Microsoft excel and VOSviewer application version 1.6.18 in analyzing the data. VOSviewer is a computer program used in constructing and visualizing bibliometric networks. It employs visualization of similarities (VOS) and the mapping technique to provide distance-based visualizations of bibliometric networks (van Eck and Waltman, 2010). Microsoft software was employed to undertake performance analysis, such as publication trend, authorship and citations statistics. VOSviewer was employed in constructing the performance, science mapping and network analysis, such as co-word, co-citation and to cluster keywords from the publications into different thematic groups, where each cluster was marked with a different color (van Eck and Waltman, 2010; van Nunen *et al.*, 2018; Waltman *et al.*, 2010).

### Results and discussion

The section presents the key findings of the analyses conducted over 11 decades of pension and retirement research in business management and accounting. This was achieved by means of performance analysis and science mapping (Donthu *et al.*, 2021). The objective was to uncover trends in pension research publication as well as the intellectual structure of prior literature. The subsections present the publication and authorship trends, most cited countries and journals, co-occurrence and keyword analysis from the references generated from the dataset.

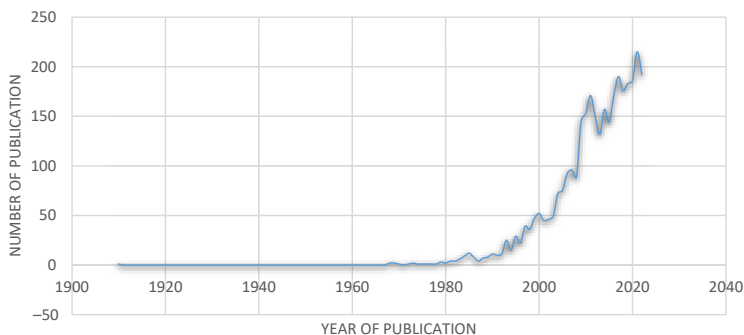
### Publication trends

The trends in pension research publication over the review period are presented below. The number, year and growth of publications in pension research from the period 1910 to 2022 is shown in Figure 1. An analysis of the trend of scholarly interests indicates that the pension domain as a field of research was non-existent from 1910 to 1967. A total of 18 papers were published between 1968 and 1980. The first 2 publications were recorded in 1968 after which research interest started picking up, as can be seen from Figure 2. The period 1970 to 1990

saw a steady increase in publications as the field was now gaining attention. Beyond 1990, there was a sharp rise in publications rising to 45 in the year 2001. Thereafter, the field gained an increase in scholarly interest as more publications were recorded. This led to a steep rise in publications in 2021 with the highest publications of 215 papers being recorded after which the field recorded a slight decline. The sustained growth in publications recorded from 2000 gives an indication that the field is still productive and has more space for further publications. Furthermore, the steep increase in publications beyond 2020 could be attributed to the rise in public interest in the growth and sustainability of the pension field globally. This presents a positive outlook, as the growth in research could influence managers of pensions to adopt best practices to avoid negative publicity and exposure.

*Authorship analysis*

Table 1 presents the 20 dominant authors with most publications in the field of pension. The 20 authors published a total of 333 research publications during the period under review.



**Figure 2.** Publication trends

**Source(s):** Author’s own creation

Rank	Author	Documents	Total link strength
1	Mitchell O.S.	28	47
2	Haberman S.	26	213
3	Blake D.	25	105
4	Clark R.L.	24	42
5	Clark G.L.	22	73
6	Disney R.	19	46
7	Foster L.	16	62
8	Turner J.A.	16	13
9	Bateman H.	15	53
10	Devolder P.	15	50
11	Holzmann R.	15	28
12	Vidal-Meliá C.	15	63
13	Bridgen P.	13	60
14	Meijdam L.	13	41
15	Gough O.	12	26
16	Henkens K.	12	32
17	Iams H.M.	12	70
18	Munnell A.H.	12	20
19	Thorp S.	12	61
20	Li Y.	11	29

**Table 1.** Authors with the most publications

**Source(s):** Author’s own creation

Olivia S. Mitchell emerged as the most productive author with the highest publications of 28 research papers to her credit. This was closely followed by Haberman and Blake with 26 and 25 publications, respectively. The first five authors together contributed 176 research papers, which represents 56% of the top 20 publications. Each of the top 20 authors had a minimum of 11 publications, an indication of a growing field of research. The analysis gives an indication that scholars in the pension domain have been very productive with research during the period when the field received attention from the research community.

Below is the performance of authors who have made a significant impact in the field of pension and retirement. Presented in Table 2 is the list of most cited authors in the pension and retirement domain, on top of which is Lusardi who has 924 citations. A review of the results presented in the table reveals that the next most cited author is Haberman who has 660 citations to his credit. The next five influential authors in order of merit are: Clark who has 514, Henkel with 465 citations, Blake has 437 and Vigna, 403 citations. From the table, each of the first six authors have total citations in excess of 400. The results in Table 2 further suggest that the pension domain has had very influential authors during the period under study. A review of Tables 1 and 2 indicates that Olivia S. Mitchell, who has the highest number of publications to her credit, did not emerge as the most cited. This is an indication that the number of citations received may not be dependent on the number of publications.

#### *Country analysis*

Table 3 presents an analysis of publications by the top 20 countries during the period of study. Among the countries that have shown scholarly interest in pensions are the United States, United Kingdom, Germany, the Netherlands, Australia and China, among others. From the table, the United States emerged on top as the most productive country, contributing 860 (28%) publications: this was followed by the United Kingdom with 586 (19%) out of a total of 3,092 publications.

The first five countries made up of United States, United Kingdom, Germany, Netherlands and Australia together contributed 2,049 publications, which represents 66% of the total

Rank	Author	Citations	Total link strength
1	Lusardi A.	924	32
2	Haberman S.	660	213
3	Clark G.L.	514	73
4	Henkens K.	465	32
5	Blake D.	437	105
6	Vigna E.	403	206
7	Mitchell O.S.	370	47
8	Disney R.	357	46
9	Whitehouse E.	287	45
10	Munnell A.H.	246	20
11	Liang Z.	225	152
12	Foster L.	223	62
13	Choi J.J.	223	15
14	Laibson D.	223	15
15	Madrian B.C.	223	15
16	Ginn J.	221	32
17	Barr N.	219	8
18	Van Solinge H.	218	6
19	Barrientos A.	214	5
20	Holzmann R.	210	28

**Table 2.**  
Most cited authors

**Source(s):** Author's own creation

Rank	Country	Documents	Total link strength	Pensions and retirement systems research
1	the USA	860	212	
2	the United Kingdom	586	206	
3	Germany	228	118	
4	the Netherlands	199	77	
5	Australia	176	101	
6	China	168	79	
7	Italy	156	72	
8	Canada	103	50	
9	Spain	86	42	
10	France	82	53	
11	Belgium	73	61	
12	South Korea	49	20	
13	Switzerland	47	21	
14	India	44	16	
15	Poland	41	17	
16	Sweden	41	42	
17	Denmark	40	25	
18	Finland	39	19	
19	Malaysia	39	11	
20	Hong Kong	35	26	

**Source(s):** Author's own creation

**Table 3.**  
Countries with most publications

publication for the top 20 countries in the field of pensions. Further, an analysis of 20 countries that top the publications in the field of pensions are mainly from developed countries (see [Figure 4](#)).

With regard to citation by countries, the United States leads the table with 39% as the country with most citations (see [Table 4](#)). Next on the list is the United Kingdom with 18% of citations in the pension domain. The two leading English-speaking countries in [Table 4](#), the

Rank	Country	Citations	Total link strength	Most cited countries
1	the USA	15,597	1913	
2	the United Kingdom	7,381	1710	
3	Germany	2,581	824	
4	Italy	1899	739	
5	the Netherlands	1738	702	
6	China	1732	954	
7	Australia	1,567	714	
8	Canada	1,432	442	
9	Belgium	1,096	321	
10	Spain	990	441	
11	France	843	377	
12	Sweden	604	93	
13	Switzerland	571	121	
14	Denmark	495	143	
15	Norway	390	93	
16	Finland	372	96	
17	Austria	301	159	
18	Singapore	294	48	
19	Taiwan	267	165	
20	Hong Kong	223	133	

**Source(s):** Author's own creation

**Table 4.**  
Most cited countries

United States and United Kingdom, received a total 57% of the citations. Further, four non-English speaking countries on the list, namely Germany, Italy, Netherlands and China, together received 20% of the total citations. This means that the first six countries on the table received a total of 77%.

### Journal analysis

An analysis of the 20 journals with the most publications is presented in Table 5. A review of the table reveals that the Journal of Pension Economics and Finance comes top with 140 publications, which represents 17% of the top 20. This is closely followed by the International Social Security Review Journal with 119 documents (15%). The first five journals together contributed 430 (53%) out of a total of 819 publications. Further, 13 (65%) of the journals were ranked A and A\* according to ABDC ranking, while the rest (ranked B and non-ranked) constituted 35%. Interestingly, the ranked journals in the table constitute 65% while 35% were non-ranked. A minimum of 19 publications was recorded by each of the journals listed among the 20 journals with most publications (see Table 5).

Table 6 presents a list of the 20 most cited journals in pension research. From this list *Insurance: Mathematics and Economics* recorded the highest citation with 2,140 (18%). This is followed by the *Journal of Pension Economics and Finance* with 1,470 (12%) and the *Journal of Public Economics*, 1,185 (10%). The top five journals had a total of 6,645 citations (56%). Comparing the most published and most cited journals (see Tables 5 and 6), it is evident that three of the most productive journals, namely *Journal of Pension Economics and Finance*, *Insurance: Mathematics and Economics* and *International Social Security Review*, are among the most cited. The results also reveal that the least cited journal received 227 citations during the period under review.

Citation analysis identifies the most influential publications in a field of research by examining the relationship among them (Donthu *et al.*, 2021). Table 7 presents the top most

Ranks	Journals	Documents	TLS	ABDC ranking	ABS ranking
1	<i>Journal of Pension Economics and Finance</i>	140	361	B	1
2	<i>International Social Security Review</i>	119	117	A	NR
3	<i>Insurance: Mathematics and Economics</i>	87	425	A*	2
4	<i>Pensions: An International Journal</i>	45	20	NR	NR
5	<i>North American Actuarial Journal</i>	39	98	A	1
6	<i>Social Policy and Administration</i>	38	102	A	3
7	<i>Ageing and Society Journal</i>	35	99	A	NR
8	<i>Journal of Public Economics</i>	35	237	A*	3
9	<i>Social Security Bulletin</i>	33	51	B	NR
10	<i>Applied Economics</i>	27	68	A	2
11	<i>European Journal of Social Security</i>	26	27	A	NR
12	<i>Risks Journal</i>	26	34	B	4
13	<i>Sustainability Journal</i>	25	58	A	2
14	<i>Journal of Aging and Social Policy</i>	22	32	A	NR
15	<i>Geneva Papers on Risk and Insurance: Issues and Practice</i>	21	64	A	2
16	<i>International Tax and Public Finance</i>	21	73	B	2
17	<i>Scandinavian Actuarial Journal</i>	21	52	A	1
18	<i>Fiscal Studies</i>	20	61	B	2
19	<i>Journal of Risk and Insurance</i>	20	86	A	2
20	<i>Journal of Family and Economic Issues</i>	19	48	B	NR

**Table 5.**  
Journals with most publications

**Note(s):** \*TLS = total link strength  
**Source(s):** Author's own creation

Ranks	Journals	Citations	TLS	ABDC ranking	ABS ranking
1	<i>Insurance: Mathematics and Economics</i>	2,140	425	A*	2
2	<i>Journal of Pension Economics and Finance</i>	1,470	361	B	1
3	<i>Journal of Public Economics</i>	1,185	237	A*	3
4	<i>Journals of Gerontology - Series B Psychological Sciences and Social Sciences</i>	971	48	A	NR
5	<i>International Social Security Review</i>	879	117	A	NR
6	<i>Ageing and Society Journal</i>	785	99	A	NR
7	<i>Social Policy and Administration</i>	648	102	A	3
8	<i>Research on Aging</i>	483	33	A	NR
9	<i>American Economic Review</i>	366	36	A*	4*
10	<i>Journal of Population Economics</i>	304	56	A	3
11	<i>Social Security Bulletin</i>	303	51	B	NR
12	<i>Review of Financial Studies</i>	302	6	A	4
13	<i>Journal of Economic Dynamics and Control</i>	299	87	A*	3
14	<i>Economic Journal</i>	281	30	A	4
15	<i>Work, Aging and Retirement</i>	279	27	A	2
16	<i>Journal of Economic Behavior and Organization</i>	267	39	A*	3
17	<i>Journal of Consumer Affairs</i>	263	30	A	2
18	<i>International Tax and Public Finance</i>	257	73	B	2
19	<i>Journal of Risk and Insurance</i>	230	86	A	2
20	<i>North American Actuarial Journal</i>	227	98	A	1

Source(s): Author's own creation

Table 6. Most cited journals

cited publications in the pension domain. An examination of the table reveals that 90% of the most cited documents were published before 2010, with only 10% being published after 2010. Furthermore, 70% of the most cited were published between 2000 and 2010. During the review period, the research paper titled “*Save More Tomorrow: Using Behavioral Economics to increase Employee Saving*” published by [Thaler and Benartzi \(2004\)](#) with total citation (TC) of 1,142, appeared as the most cited paper. The second most cited paper published by Lusardi and Mitchell (2007) with the title “*Financial Literacy and Retirement Preparedness: Evidence and Implications for Financial Education*” received a total of 642 citations. The third most cited paper with the title “*Heuristics and Biases in Retirement Savings Behavior*” published by [Benartzi and Thaler \(2007\)](#) received 367 citations. Evidently, the top three papers with the highest citations were all published before 2010. It appears from the above analysis that publications after 2010 are not being cited as much as the older publications.

### *Institutional analysis*

Institutional analysis identifies the most productive and impactful institutions in the publication of research in the field of pensions ([Saha et al., 2020](#)). As noted from [Table 8](#), North Carolina State and Tilburg Universities came top on the list with 11 publications each. This is followed by three institutions, namely Network for Studies on Pensions (Netspar), Aging and Retirement and University of Sheffield, each having seven publications to their credit. Each of the 20 institutions listed in [Table 8](#) has a minimum of five publications, an indication that these institutions are very productive in the pension domain.

With regard to the cited institutions, the Wharton School, University of Pennsylvania, Philadelphia emerged on top with 654 (20%) of total citations in the list of the top 20 institutions (see [Table 9](#)). This shows that even though Wharton was not listed among institutions with the most publications, it emerged as the most cited. Second on the list of most

Rank	Authors	Year	Title	Journal	TC
1	Thaler R.H. Benartzi S.	2004	Save More Tomorrow: Using Behavioral Economics to increase Employee Saving	<i>Journal of Political Economy</i>	1,142
2	Lusardi A. Mitchell O.	2007	Financial Literacy and Retirement Preparedness: Evidence and Implications for Financial Education	<i>Business Economics</i>	642
3	Benartzi S. Thaler R.H.	2007	Heuristics and Biases in Retirement Savings Behavior	<i>Journal of Economic Perspectives</i>	367
4	Duflo E., Saez E.	2002	Participation and Investment Decisions in a Retirement Plan: The Influence of Colleagues' Choices	<i>Journal of Public Economics</i>	301
5	Bechat M. <i>et al.</i>	2009	Returns to Shareholder Activism: Evidence from a Clinical Study of the Hermes UK Focus Fund	<i>Review of Financial Studies</i>	195
6	Brooks S.M.	2005	Interdependent and Domestic Foundations of Policy Change: The Diffusion of Pension Privatization around the World	<i>International Studies Quarterly</i>	181
7	Chetty R. <i>et al.</i>	2014	Active Vs. Passive Decisions and Crowd-Out in Retirement Savings Accounts: Evidence from Denmark	<i>Quarterly Journal of Economics</i>	179
8	Fisher G.G. <i>et al.</i>	2016	Retirement Timing: A Review and Recommendations for Future Research	<i>Work, Aging and Retirement</i>	171
9	Topa G. <i>et al.</i>	2009	Antecedents and Consequences of Retirement Planning and Decision-Making: A Meta-Analysis and Model	<i>Journal of Vocational Behavior</i>	168
10	Gall T.L. <i>et al.</i>	1997	The Retirement Adjustment Process: Changes in the well-being of male retirees across Time	<i>Journals of Gerontology - Series B Psychological Sciences and Social Sciences</i>	162
11	Blekesaune M. <i>et al.</i>	2005	Working conditions and early retirement: A prospective study of retirement behavior	<i>Research on Aging</i>	160
12	Boulier J.-F. <i>et al.</i>	2001	Optimal management under stochastic interest rates: The case of a protected defined contribution pension fund	<i>Insurance: Mathematics and Economics</i>	153
13	Howlett E. <i>et al.</i>	2008	The role of self-regulation, future orientation, and financial knowledge in long-term financial decisions	<i>Journal of Consumer Affairs</i>	148
14	Faccio M, Lasfer M.A.	2000	Do occupational pension funds monitor companies in which they hold large stakes?	<i>Journal of Corporate Finance</i>	143
15	Savani K. <i>et al.</i>	2008	Let your preference be your guide? Preferences and choices are more tightly linked for North Americans than for Indians	<i>Journal of Personality and Social Psychology</i>	141
16	Miles D.	1999	Modeling the impact of demographic change upon the economy	<i>Economic Journal</i>	139
17	Sinn H.-W.	2000	Why a funded pension system is useful and why it is not useful?	<i>International Tax and Public Finance</i>	134
18	Bongaarts J.	2004	Population aging and the rising cost of public pensions	<i>Population and Development Review</i>	134

**Table 7.**  
Most cited documents

(continued)

Rank	Authors	Year	Title	Journal	TC
19	Blake D., Lehmann B.N. <i>et al.</i>	1999	Asset allocation dynamics and pension fund performance	<i>Journal of Business</i>	134
20	Henkens K.	1999	Retirement intentions and spousal support: A multi-actor approach	<i>Journals of Gerontology - Series B Psychological Sciences and Social Sciences</i>	133

Source(s): Author's own creation

Table 7.

Ranks	Institutions	Country	Documents	TLS
1	North Carolina State University	United States	11	17
2	Tilburg University	Netherlands	11	9
3	Network for Studies on Pensions (Netspar), Aging and Retirement	Netherlands	8	8
4	University of Sheffield	United Kingdom	8	13
5	Central Plan Bureau (CPB), Bureau for Economic Policy Analysis	Netherlands	7	4
6	Tsinghua University, Beijing	China	7	20
7	National Bureau of Economic Research (NBER)	United States	7	12
8	Guangdong University of Foreign Studies	China	7	31
9	Boston College	United States	6	3
10	North Carolina State University	United States	6	14
11	Institute for Fiscal Studies	United Kingdom	6	8
12	Network for Studies on Pensions (Netspar)	Netherlands	6	2
13	Pension Policy Center, Washington DC	United States	6	2
14	University of Bremen	Germany	6	0
15	Center for Economic Studies (CESifo)	Germany	5	11
16	Center for Economic Studies (CESifo), Munich	Germany	5	10
17	Central Plan Bureau (CPB), Bureau for Economic Policy Analysis	Netherlands	5	13
18	University of Valencia, Valencia	Spain	5	1
19	London School of Economics	United Kingdom	5	0
20	National Bureau of Economic Research (NBER)	United States	5	17

Table 8.  
Institutions with most publications

Source(s): Author's own creation

cited institutions is the University of California with 248 (22%). The first five institutions on the list received 1,478 (51%) of the total citations. Four of the institutions were from the United States of America and one institution was from the United Kingdom. This is consistent with Figure 3, which shows the United States of America emerging as the most cited country. Each of the institutions on the list in Table 9 received a minimum of 66 citations.

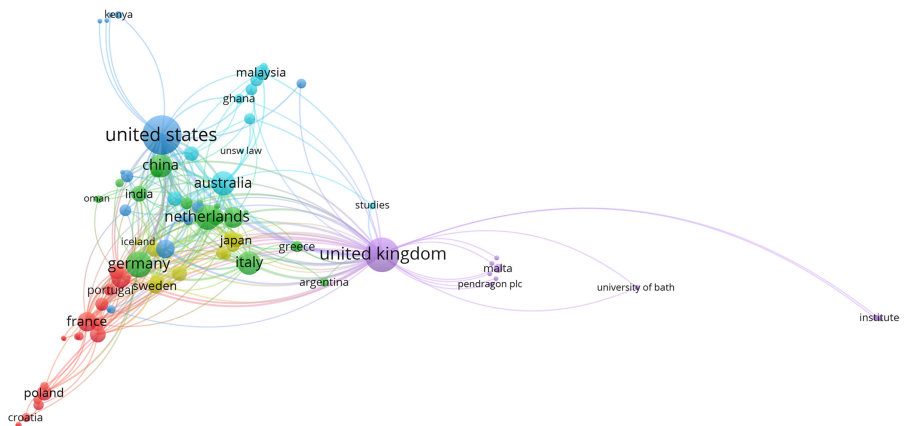
### Keyword analysis

An examination of the keyword analysis reveals that studies published in the field have mainly been conducted in developed countries with very little research having been conducted in developing countries. The technique of co-word analysis examines the content of publications as a basis for the formation of thematic clusters. The technique employs author key words, notable words from abstracts, titles of articles and words in full texts

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Rank	Institution	Country	Citations	TLS
1	Wharton School, University of Pennsylvania	the USA	654	10
2	University of California	the USA	248	3
3	London School of Economics	the United Kingdom	226	0
4	National Bureau of Economic Research (NBER)	the USA	194	12
5	Boston College	the USA	156	3
6	Lingnan (University) College	China	149	36
7	Department of Mathematical Sciences, Tsinghua University	China	136	21
8	Harvard University	the USA	129	0
9	Sun Yat-Sen Business School, Sun Yat-Sen University	China	121	33
10	North Carolina State University	the USA	98	17
11	Institute for Fiscal Studies	the United Kingdom	98	8
12	National University of Singapore	Singapore	94	3
13	University of Nottingham	the United Kingdom	88	5
14	University of Sydney	Australia	82	7
15	University of Bremen	Germany	79	0
16	Center For Economic Studies (CESIFO)	Germany	76	10
17	China Institute for Actuarial Science, Central University of Finance and Economics	China	76	26
18	Carlson School of Management, University of Minnesota	the USA	74	10
19	University of Sheffield	the United Kingdom	73	13
20	University of Melbourne	Australia	66	4

**Table 9.** Most cited institutions **Source(s):** Author's own creation



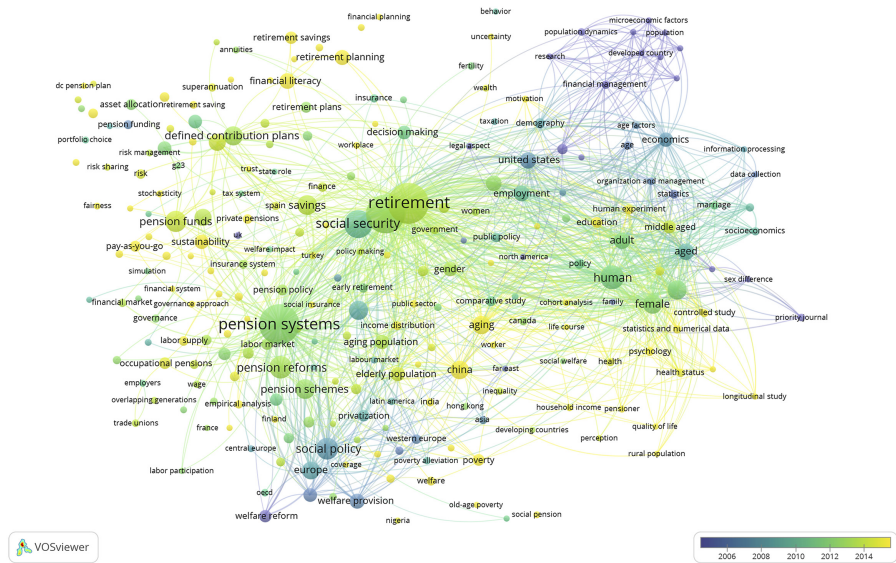
**Figure 3.** Co-authorship by countries

VOSviewer

**Source(s):** Author's own creation

(Donthu *et al.*, 2021). The focus of keyword and co-word analysis is “words” used in the content of research publications (Donthu *et al.*, 2021). The words employed in the performance of keyword analysis are usually obtained from searches conducted using “abstract”, “keywords”, “titles of publications” and “full articles” (Donthu *et al.*, 2021). The technique of





**Figure 5.**  
Overlay visualization  
of co-occurrence by all  
key words

**Source(s):** Author's own creation

### *Dominant themes in the pension research*

To uncover the state of intellectual structure and emerging trends in the field of pension, we employed the use of bibliometric analysis on data from 1910 to 2022. From the analysis, five thematic clusters emerged from the study in the field of pension in accounting (see Figure 4).

These thematic areas are presented below:

- (1) Cluster 1 (red): pension/social security plans,
- (2) Cluster 2 (green): retirement/pension systems,
- (3) Cluster 3 (blue): demographic factors (for example gender, age, education, employment, population, nationality, fertility and household income),
- (4) Cluster 4 (yellow): pension schemes and reforms and
- (5) Cluster 5 (purple): socio-economic factors.

*Pension plans.* A closer review of the first cluster reveals that pension and social security issues that have been discussed in scholarly publications include the type of plans available for persons who go on pension, such as defined contribution plans, defined benefits plans (Thaler and Benartzi, 2004) superannuation, pay-as-you-go and private savings towards one's pension (Bosworth and Burtless, 2004). There have also been discussions regarding the funding models and sustainability of pensions for both private and public sectors. Additionally, issues involving financial planning and models such as stochasticity, annuities, intergenerational risk sharing and asset allocation of pensions have been discussed (Haberman and Sung, 1994). There has also been an increase in education on financial literacy, financial markets, choice of portfolio and type of insurance systems needed in planning for pension.

*Retirement systems.* With regard to retirement systems in the literature reviewed, issues discussed include development of policies and reforms to cater for the aging population.

With the increase in persons seeking early retirement, there has been issues of welfare reforms to cater for disability, prevention of old age poverty and social protection. To address the needs of trade unions, there have been calls on government and the private sector to provide income distribution. Other factors discussed in relation to social security and retirement have been decision making and sustainability, which are key in retirement planning (Lusardi and Mitchell, 2006, 2007b).

*Demographic factors.* Research within the third cluster has examined demographic factors within the pension domain. The issues under this thematic area have mainly been gender, age, education, financial literacy, marital and retirement status. Other issues explored include the provision of welfare for the adult and aging population in both public and private sectors of economies. Prior research in the domain has argued that demographic factors have an influence on savings towards retirement and retirement planning in general (Lusardi and Mitchell, 2006). The key motivation has been the need to cater for the welfare of the population during both working and retirement stages of life (Lusardi and Mitchell, 2006).

*Pension schemes.* Issues discussed in the literature within the fourth cluster has focused mainly on policy and reforms. The issues have explored pension reforms, social policy, income distribution, policy making, public policy, privatization and governmental involvement (Madrid, 2005). The arguments in favor of privatization has been as a result of increasing pension expenditure from the public purse and dwindling “capital shortages” (Madrid, 2005, p. 23). Welfare issues explored include welfare provision, social protection and welfare reforms. Other issues explored by scholars have revolved around occupational pensions, early retirement and the labor market.

*Socio-economic factors.* Research in the fifth cluster has centered on socio-economic factors in the pension domain. The issues have been about economics, care of the elderly and financial management (Lusardi and Mitchell, 2007b). There has been a growing concern about the lack of preparedness of households for pensions resulting in little savings and insufficient funds for a pension scheme. This leads to an increased burden on society and the need for financial literacy initiation (Lusardi and Mitchell, 2007b) (see Tables 11 and 12).

Keyword	Cluster 1 (red): Pension		Cluster 2 (green): Retirement		Cluster 3 (blue): Demographic	
	Occurrences	Keyword	Occurrences	Keyword	Occurrences	
Pensions	364	Retirement	393	Human	135	
Social Security	189	Pension Systems	385	Female	91	
Pension Funds	105	Pension Reforms	121	Male	86	
Savings	97	Social Policy	118	Aging	85	
Defined Contribution Plans	87	Welfare Provision	54	Adult	68	

**Source(s):** Author’s own creation

**Table 11.** Dominant themes from pension research

Cluster 4 (yellow): Pension schemes		Cluster 5 (purple): Socio-economic factors	
Keyword	Occurrences	Keyword	Occurrences
Pension Schemes	96	Economics	51
Privatization	35	Elderly Care	27
Poverty	33	Demography	26
Social Security Reform	31	Age	18
Policy Reform	25	Financial Management	18

**Source(s):** Author’s own creation

**Table 12.** Dominant themes from pension research

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## Conclusion and directions for future research

The study provided a bibliometric analysis of existing research in the field of pension and retirement of business management and accounting; examined the trend and intellectual construction of the growth of research in this field; identified how research has evolved over the research period; and the themes in the domain so as to provide direction for future research. To achieve the study objectives, the study employed the bibliometric literature review approach in analyzing data for the research.

The publication, citation, authorship trends, keyword and overlay visualization of co-occurrence by all key words analyses techniques were performed on a bibliometric data of 6,661 publications extracted from the Scopus database. The study further identified the most influential publications, citations, authors, institutions and countries in the pension domain. Additionally, the study identified the evolution of research in the pension and retirement domain within a century (1910–2022). Furthermore, with the use of common keywords, the study uncovered thematic areas within the field of pension and retirement within the study period.

The study finds that the scale of research in the field of pension and retirement in business management and accounting increased significantly from 2014 to date. The study further split the review period into three: 1910 to 2018, between 2009 and 2012 and 2013 to date to capture the evolution of research at the turn of the century for the field of pension and retirement. The study finds that the theme dominant in pre-2008 were issues relating to social policy, demographic factors, welfare and privatization. Retirement, pension systems and reforms dominated the period between 2008 and 2012. Socio-economic factors such as sustainability, financial literacy, planning and savings have been dominated post 2012 research in the domain.

Further, the keyword and bibliographic coupling analyses revealed five thematic areas that have dominated the field of pension and retirement research in accounting and business management, namely pension plans, retirement systems, demographic factors, pension schemes and socio-economic factors.

The has made a contribution to literature with the use of bibliometric data that contains more than five times the number of articles of the previous work by [Martinez et al. \(2021\)](#), which similarly had a narrower focus in the field of Mathematics.

The following suggestions are offered to guide future research based on the trends and development in the field of pension. The results of the study show that there has been little research output from developing countries, especially sub-Saharan Africa. Considering the efforts being made at growing these emerging economies, and the cultural differences of these countries, future research should explore the concept of pension and social security in these geographical areas. Secondly, the source of data was limited to Scopus, a single database. Future research should expand the database sources to include Web of Science and PubMed. Thirdly the restriction of the search area to the disciplines of “Arts & Humanity”, “Social Sciences”, “Economics”, “Business Management”, and “Accounting” poses a limitation of the study, especially as pension appears to be a multi-disciplinary field. Future research should expand the discipline areas to related fields as “econometrics”, “actuarial science” and “finance”.

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