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Continuity And Inclusion Of Actors In Scientific Production In Accounting Between 1994 And 2009

Abstract

This research was aimed at verifying, within a longitudinal perspective (1994-2009), the role of authors in the development of Brazilian scientific production in accounting. A bibliometric and sociometric research was undertaken, in which 4,052 papers were consulted. Production and continuity categories were analyzed, classifying the authors as continuant, transient, entrant, one-timer and withdrawing. The results demonstrated the importance of continuant authors for the development, consolidation and maturing of accounting research. That is so because these authors displayed the greatest productivity in quantitative terms; intermediate the relationship with other categories, that is, they serve as agents for information from different researchers; the eight continuant authors with the highest number of publications play a central role in their networks, articulating research by different researchers; and are the main responsible for international partnerships. Despite the importance of continuants, they represent the lowest percentage among the categories. On the opposite, most of the authors identified were classified as one-timers, that is, they published a single study across the study period. This last category, in combination with entrant authors, indicate the attractiveness of the knowledge area for researchers, and can serve as the main sources of innovations and novel approaches. As regards the withdrawing authors, some degree of rotation was observed, which is natural in all research areas.

Key words: Scientific production in accounting. Continuity of authors. Internationalization of partnerships. Bibliometrics. Sociometrics.

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1. Introduction

Research contributes to scientific knowledge production and dissemination (Silva & Ensslin, 2008), and the most used means for its communication is dissemination in congress annals and journals (Araújo, Oliveira & Silva, 2009). In accounting, scientific productions contribute to a further understanding and dissemination of procedures and techniques related to entities' social and economic equity. This made accounting, including cost management, more active in the business context, contributing to interpret the complexity of information that is to be considered for decision making (Silva & Pires, 2009).

In this context, the relevance of analyzing scientific production is defended in the Brazilian context. This production is normally oriented by bibliometrics. That is the case, for example, in the studies by Riccio, Sakata and Carastan (1999), Oliveira (2002), Mendonça Neto et al. (2004), Cardoso et al. (2005), Leite Filho (2006) and Araújo, Oliveira and Silva (2009). Souza et al. (2008), Espejo et al. (2009) and Walter, Cruz, Espejo & Gassner (2009), on the other hand, combine sociometrics and bibliometrics, but without investigating the authors' continuity and without classifying them according to production and continuity criteria. That is the case, for example, in the studies by Guarido Filho, Machado-da-Silva and Gonçalves (2009) about institutional theory, and by Walter, Lanza, Sato, Silva & Bach (2010) in the strategic area. Hence, the researchers believe that the combination between sociometrics and classification into production and continuity criteria can entail implications that are capable of stimulating growth and development in the area.

Aiming to complete that gap, this study was developed to answer the following question: **How has Brazilian scientific production in accounting been characterized in terms of the continuity and inclusion of researchers and cooperation among authors?** The answer to that question involves verifying how researchers and institutions have been active in scientific research development, considering information exchange (co-authorship networks) as well as their production and continuity in the area.

In this context, the objective was defined as: verifying, from a longitudinal perspective (1994-2009) and according to production and continuity categories, the role of the authors in the development of Brazilian scientific production in accounting. Therefore, a bibliometric and sociometric research was undertaken by consulting papers from four Brazilian accounting events classified as Qualis A.

This paper is structured in five parts. Besides this introduction, in section two, the literature review is presented, including sociometric concepts and the continuity categories. In the third section, the bibliometric and sociometric methodological procedures are highlighted. Data analysis is discussed in section four. Finally, in the fifth section, the final considerations, research limitations and suggestions for future research are presented.

2. Literature review

Scientific knowledge construction is understood as a social and dynamic process, which takes place through interactions among the actors in their scientific areas (Guarido Filho, Machado-da-Silva & Gonçalves, 2009). One of the tools used to study this interaction among the actors in an area is sociometrics, also known as social network analysis.

According to Galaskiewicz and Wasserman (1994), social network analysis concentrates its attention on social actors or entities that interact mutually and on the fact that these interactions can be studied and analyzed as a sole structure or scheme. Hence, according to Wasserman and Faust (1994), social networks can be defined as a set of "knots" corresponding to actors (people or organizations) who are linked through social relations or specific kinds of affiliations. In other words, social processes can be considered through networks of authorship relations that join authors or institutions (Walter & Silva, 2008). In the present research, the relationship structure among authors and among institutions will be analyzed, which are related through the joint publication of accounting papers. This analytic possibility is called co-authorship network analysis (Liu, Bollen, Nelson & Van de Sompel, 2005).

According to Powel, Koput and Smith-Doerr (1996) and Stuart and Podolny (1999), besides increasing information access, network connections represent an opportunity to get access to innovations through the knowledge produced in individual relations. From an institutional perspective, as highlighted in Smitt-Doerr and Powell (2003), networks govern the distribution of and access to resources and information, so that the connections can lead to the strengthening of activities, opportunities and learning. When this access is restricted, however, it can lead to social closure. In co-authorship networks, these connections turn into opportunities for the exchange of information and ideas, which are put in practice in further research development, which in turn can contribute to the development of the knowledge area.

Some sociometric concepts are important to analyze the cooperation among authors and institutions in a research area. The "knots", for example, correspond to each actor who cooperate with at least one of the items in a network and are characterized by circles with different colors in a network (Walter et al., 2010). The knots in this research refer to the researchers or institutions the authors of the papers were affiliated with at the time of the publication.

Strong affiliation is the direct connection between actors in a network (Granovetter, 1973), in which the information that is to be shared tends to be the same, with a slight trend towards change (Burt, 1992). In this study, strong affiliation refers to two authors (researchers or institutions) who published a paper in partnership. Weak affiliation, in turn, is the representation of indirect contacts, constituted by points that provide different information sources and make the network prone to innovation (Granovetter, 1973). In that sense, in cooperative networks among authors, weak affiliation relates to indirect bonds, put in practice through the interaction of one author who publishes with other researchers. A structural gap represents contacts that are not connected in a network, granting a competitive advantage to the individual who connects different networks (Burt, 1992). Hence, an author who links up networks has the power to serve as an agent of contact among the authors from the different groups he is linked to.

According to Marsden (1993), the density of a network reflects how many actors in that network are mutually connected so that, the larger the number of strong bonds among network actors, the greater its density. The concept of structural equivalence, developed by White, Boorman and Breiger (1974) and Burt (1992), happens when two actors occupy similar positions in a social system and have the same types of relations. Actors' centrality in a network, in turn, reflects their importance in that network, in which, the more central, the more important the authors will be (Wasserman & Faust, 1994). In line with Knoke (1990), the actor's position in the network can influence other actors' attitudes and behaviors, based on his prominent role in that network, in which information and scarce resources are transferred from one author to another.

To establish a well-structured network of relations among authors in a knowledge area, some degree of continuity in scientific production is needed. According to Guarido Filho, Machado-da-Silva and Gonçalves (2009), that continuity is sustained by a group of researchers who articulate and cooperate to constitute and adopt a reference framework for the knowledge area. Shah (2000) asserts that those actors who remain in a network for a long time gain a central role. Walter et al. (2010) add that researchers' continuity in an area enhances its development and maturity through the application of the knowledge they hold. Also, the entry of new researchers can be important to introduce new knowledge, approaches and views.

One means used to analyze researchers' continuity in a knowledge area is their classification into categories of production and continuity (Braun, Glänzel & Schubert, 2001; Gordon, 2007; Guarido Filho et al., 2009; Walter et al., 2010), in which the authors are classified according to the regularity and distribution of their publications over time. Researchers who are considered as continuant present different publications across distinct time periods, also recently, that is, they are the common members of a field in which they have been active for a long time (Walter et al., 2010). The number of these authors is usually limited when compared to other categories, although they tend to be the most productive, pointing towards the fact that a small number of researchers is responsible for the largest number of publications in a study area or theme (Guarido Filho et al., 2009). These researchers can also intermediate among other categories and researchers in a network, that is, they usually act as central authors in their networks.

The difference between transient and continuant authors is that the former's number of publications is more restricted. They are therefore a bit less persistent and stable than the latter (Walter et al., 2010). Although less persistent, transient authors tend to play a role that is similar to continuant authors in a knowledge area, so that these two categories are considered essential to sustain and continue research in a study area (Guarido Filho et al., 2009).

One-timers, on the other hand, are sporadic authors in the area, who have published only once across the analysis period (Walter et al., 2010). Guarido Filho, Machado-da-Silva and Gonçalves (2009) highlight that these publications probably derive from master's theses under the advice of more established researchers in the area or originated in researchers concentrated in other areas, but who at some point envisaged the possibility of publishing in the area under analysis as well. Also, in the future, part of these researchers could be reclassified as entrant or transient authors, provided that they publish again in the area (Guarido Filho et al., 2009).

Entrant authors have been included in the area quite recently, showing more current publications only. These researchers represent the degree of attraction of the research area to new researchers, as well as the possibility of innovations and transformations, deriving from researchers with new ideas and perspectives (Walter et al., 2010).

Finally, withdrawing authors have left the area, that is, they have not published in recent years (Walter et al., 2010). These include researchers who are terminating their academic careers, slowing down the rhythm of publications, as well as researchers who are migrating to other knowledge areas.

3. Methodological design

To achieve the research objective, a bibliometric - which, according to Macias-Chapula (1998), consists in the study of the quantitative aspects of the production, dissemination and use of the information registered; and sociometric research was undertaken, which explores the relationship matrix established among social actors (Galaskiewicz & Wasserman, 1994), considered as authors and institutions here. As regards the time perspective, a longitudinal design was adopted, considering a 16-year period: from 1994 till 2009.

Through a documentary research, 4,052 scientific papers were collected, including publications in Qualis A Brazilian congress annals (up to 2009) in accounting: a) International Accounting Congress, held by the National Association of Graduate Accountancy Programs (IAAER-ANPCONT), between 2007 and 2009, totaling 346 papers; b) *Congresso Brasileiro de Custos* (CBC), between 1994 and 2009, considering all of its 16 editions, totaling 2,530 papers; c) USP Congress of Controllership and Accounting, between 2001 and 2009, totaling 473 papers; and d) Meeting of the National Association of Graduate Programs and Research in Business Administration (EnANPAD), between 1998 and 2009, specifically its theme areas Accounting (CON) and Accounting Teaching and Research (EPQ), totaling 703 papers. These four events were selected because they are classified by the Coordination for the Improvement of Higher Education Personnel (CAPES) as level "A" and because of their importance and representativeness in the Brazilian context.

For data analysis, the year of publication, the event where the papers were published, authors, primary institution of affiliation informed at the time of publication and country of origin of the institution were considered. To guarantee distinctions between authors' names with the same nominal citation form. Names were individually checked by consulting the authors' Lattes curriculum, on the platform of the Brazilian Scientific and Technological Development Council (CNPq). After checking for possible homonyms, the researchers decided to maintain the last name and write out the first name.

Data analysis was focused on: scientific production per event and year; classification of researchers according to production and continuity categories; scientific production per category and year; scientific production per event in each category; co-authorships among categories; most prolific authors with larg-

est number of affiliations; social networks of cooperation among actors; affiliations per category of most prolific authors; social networks of cooperation between Brazilian and foreign institutions; Brazilian institutions that linked up with foreign ones; and production and continuity categories of authors involved in international partnerships.

To analyze the production and continuity categories, the (absolute and relative) volume of papers, researchers and authorships in each year under analysis was assessed in quantitative terms. Thus, based on the criteria by Walter et al. (2010) – adapted from Braun, Glänzel and Schubert (2001), Gordon (2007) and Guarido Filho, Machado-da-Silva and Gonçalves (2009) –, the researchers were classified as: (a) **continuant**: two or more publications in five or more different years and at least one in the last three years; (b) **transient**: two or more publications in up to four different years (not more) and at least one in the last three years and at least one in earlier years; (c) **one-timers**: only one publication in the period under analysis; (d) **entrant**: two or more publications in one or more different years exclusively in the last three years; and (e) **withdrawing**: two or more publications in one or more different years, but without any publication in the last three years. It is highlighted that these categories are mutually exclusive, as perceived based on the definition and criteria for each category, displayed in Figure 1.

Category	Definition	Criteria for classification
Entrant	New researchers in the area (published at least 2 papers in the last 3 years only)	≥ 2 papers between 2007 and 2009
		No publications between 1994 and 2006
Transient	Relatively permanent researchers in the area (published at least 2 papers in up to 4 different years, in the last 3 years and before)	≥ 2 papers in up to 4 years
		≥ 1 paper between 2007 and 2009
		≥ 1 paper between 1994 and 2006
Continuant	Consolidated researchers in the area (published at least 2 papers in 5 or more different years, including the last 3 years)	≥ 2 papers in ≤ 5 years
		≥ 1 paper between 2007 and 2009
One-timers	Sporadic researchers (published only 1 paper across the period)	1 paper between 1994 and 2009
Withdrawing	Researchers who are withdrawing from the area (published at least, 2 papers, but none in the last 3 years)	≥ 2 papers between 1994 and 2006
		No publications between 2007 and 2009

Figure 1. Definition and author classification criteria in production and continuity categories.

Source: Adapted from, Machado-da-Silva and Gonçalves (2009).

Concerning the analysis of social networks, the researchers chose to explore the co-authorship networks between authors and institutions, representing a branch of social network analysis (Liu et al., 2005), using the software UCINET® 6, based on the publication year of the papers analyzed. To count the affiliations per author and institution, each association was considered as an affiliation.

4. Data presentation and analysis

In this section, the analysis of scientific production in accounting is presented for the last 16 years. First, in Table 1, the number of papers published is displayed per year and event, as considered in this research.

Table 1

Number of papers published per year, per event and total

Eventos	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
ANPCONT	–				–			–			–			47	95	204	346
														23.25% (346)			
CBC	27	81	42	49	76	106	139	133	179	139	238	351	212	238	267	253	2,530
	100% (199)				85.6% (321)			53.56% (451)			69.77% (801)			50.94% (758)			
Congresso USP	–				–			74	85	101	33	30	35	30	44	41	473
								30.88% (260)			8.54% (98)			7.73% (115)			
EnANPAD	–				12	10	32	24	47	60	78	82	89	112	90	67	703
					85.6% (321)			15.56% (131)			21.69% (249)			18.08% (269)			
Total	27	81	42	49	88	116	171	231	311	300	349	463	336	427	496	565	4,052
	199				375			842			1,148			1,488			

Table 1 shows that, in general, the number of papers published over the years increased. Also, new accounting events were created, like the USP Congress in 2001 and ANPCONT in 2007. The CBC is the first event in the study universe, which started in 1994 and stands out by the number of papers published per edition and in total.

Table 2 shows the distribution of researchers per category.

Table 2

Distribution of researchers according to production and continuity categories

Production and continuity categories	Authors independently of number of publications[1]	Authors considering the number of publications[2]	Papers[3]	Journals with production[4]
Continuant	8.2% (400)	3,067	75.7% (3,067)	100.0% (16)
Transient	13.9% (679)	1,526	37.7% (1,526)	100.0% (16)
One-Timers	50.8% (2,478)	2,478	61.2% (2,478)	100.0% (16)
Entrant	10.0% (488)	984	24.3% (984)	18.7% (03)
Withdrawing	17.1% (835)	1,731	42.7% (1,731)	81.3% (13)
Total	4,880	9,786	4,052	16

As many papers have more than one author, so that authors from the same paper can fit into different categories, some quantification criteria were adopted:

[1]Considers the number of authors who can be classified in each category without repeating the author, that is, each author is counted only once, independently of the number of publications. The percentage is calculated on the total number of different authors during the period (4,880).

[2]Considers the number of times the authors classified in each category published, that is, admits repetition of the same author according to the number of publications during that period.

[3]Considers the number of papers in which the authors classified in each category contributed as authors or co-authors. The percentage is calculated on the number of papers published (4,052).

[4]Considers the number of years, from 1994 to 2009, during which the authors classified in each category published papers. The percentage is calculated on the total number of years during the study period (16).

As observed in Table 2, continuant authors represent 8.2% of all authors over the 16-year period. These researchers appeared 3,067 times as authors or co-authors of studies and represent 75.4% of the production volume in the area. This percentage of continuant authors is higher than findings in more specific knowledge areas, like 5.5% in the institutional perspective in organizational studies (Guarido Filho et al., 2009) and 2.9% in organizational strategy (Walter et al., 2010). Thus, it is perceived that the accounting area as a whole shows a higher percentage of traditional researchers, with constant and representative publications. Future studies could focus on whether this result also applies to more specific accounting areas.

The continuant authors correspond to a quantitative productivity index (division of number of papers by number of authors independently of number of publications) of 7.67, higher than the transient authors with 2.25; withdrawing authors with 2.07; and entrant authors with 2.02. The first category stands out because they contribute to the consolidation of knowledge in the area, in view of their experience and knowledge about accounting themes. In addition, they also contribute to the dissemination of legitimation of knowledge practiced in the field through their continuity and high productivity.

Transient authors, the second most stable category in terms of publications, corresponded to 13.9% of all authors, involving 679 researchers with 1,526 cases of authorship or co-authorship. Together, continuant and transient authors correspond to 22.1%, but with a mean productivity level of 4.96. According to Guarido Filho, Machado-da-Silva and Gonçalves (2009), these two categories of authors together represent the bases to sustain and continue research activities in a study area.

One piece of information that stands out is the number of one-timers, totaling 50.8% of all authors. This is inferior to the findings of Guarido Filho, Machado-da-Silva and Gonçalves (2009), with 59.8%, and Walter et al. (2010), with 72.9%, but is nevertheless noteworthy, as these researchers analyzed more specific knowledge areas. The one-timers, according to Guarido Filho, Machado-da-Silva and Gonçalves (2009), can be researchers who are predominantly interested in another area and provide a punctual contribution to the field under analysis. In combination with entrant authors (10%), one-timers also represent the area's attraction power, given that researchers without a history of publications in accounting are submitting their papers to events in the area.

When comparing entrant (10% of the authors who participated in 24.2% of the publications) and withdrawing authors (17.1% of the authors who participated in 42.7% of the publications), it is observed that the number of authors who leave the area and their productivity is larger than the number of newly included authors. This may represent a drawback in the area's quantitative development when ignoring that part of the authors classified as one-timers can turn into entrants in future years.

Table 3 displays the number of papers published per category and year. This table was constructed so that authors are first classified in one of the production and continuity categories; next, the number of publications by all authors in each category is added up in each year.

Table 3

Papers published per category and per year

Categories	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Continuant	17	27	23	32	56	81	88	163	209	284	272	365	302	389	401	358	3,067
	28.13% (99)				31.08% (225)			34.95% (656)			32% (939)			29.44% (1.148)			
Transient	2	3	5	5	9	17	21	49	48	71	98	200	238	311	284	165	1,526
	4.26% (15)				6.49% (47)			8.95% (168)			18.27% (536)			19.49% (760)			
One-timers	13	61	20	15	34	71	123	102	139	152	246	279	216	271	311	425	2,478
	30.97% (109)				31.49% (228)			20.94% (393)			25.26% (741)			25.83% (1.007)			
Entrant	–				–			–			–			257	360	367	984
														25.24% (984)			
Withdrawing	14	39	37	39	62	58	104	198	196	266	256	300	162	–			1,731
	36.65% (129)				30.94% (224)			35.16% (660)			24.47% (718)						
Total	46	130	85	91	161	227	336	512	592	773	872	1,144	918	1,228	1,356	1,315	9,786
	352				724			1,877			2,934			3,899			

In Table 3, the period 1994-1997 stands out because of the lower levels of continuant and transient authors, as well as the second highest number of one-timers. Hence, in the first period, publications by sporadic and withdrawing authors are paramount. In the period 1998-2000, the percentage of transient authors is the second highest and the percentages of continuant authors, one-timers and withdrawing authors are similar, revealing a balanced period. In 2001-2003, the second highest percentage of withdrawing authors appears, higher than in the earlier period. The same period also shows the highest percentage of continuant authors and the smallest number of one-timers, highlighting traditional and withdrawing authors. In 2004-2006, a rise in transient and a drop in withdrawing authors are observed, movements that continue in 2007-2009. During that last period, the highest percentage of transient authors is observed, as well as the emergence of entrant authors. In that sense, it is emphasized that entrant authors in 2007-2009 can turn into transient, continuant or withdrawing authors in the future, just like one-timers from the previous periods can turn into entrant authors in the future (Guarido Filho et al., 2009).

In Table 4, the number of papers published per event is displayed per category.

Table 4

Papers published per event in each production and continuity category

Categories	ANPCONT	USP Congress	CBC	EnANPAD
Continuant	34.10% (179)	34.38% (384)	28.60% (1,830)	38.62% (674)
Transient	16.00% (84)	15.76% (176)	14.96% (957)	17.71% (309)
One-timers	24.57% (129)	22.20% (248)	27.33% (1,749)	20.17% (352)
Entrant	25.33% (133)	6.80% (76)	9.38% (600)	10.03% (175)
Withdrawing	–	20.86% (233)	19.74% (1,263)	13.47% (235)

Table 4 reveals that, at all events, the percentage of continuant authors is higher than the other categories, particularly at EnANPAD. Regarding the same event, it is observed that, when adding up the percentages of continuant and transient authors, which are more stable categories in accounting publications, this corresponds to more than 50% of the papers. The same event reveals the smallest percentage of one-timers. Hence, it appears as an event with publications by more traditional researchers.

The CBC, on the opposite, shows the highest percentage of one-timers, and thus represents the event with the highest percentage of sporadic authors. This result may be related to the range of papers accepted, which may attract new authors who have not published in the area yet. Another possibility is that, due to the focus on strategic cost management, the event also attracts researchers from areas like business and economics, who may publish in other events than those investigated in this study. This second possibility turns the event more multidisciplinary, permitting the compilation of contributions from different areas to the theme.

ANPCONT stands out because of the percentage of entrant authors, possibly because it is the most recent event in the research universe. When added up, the percentage of entrant authors and one-timers (which can become entrants, as there have been few editions of the event so far) at ANPCONT corresponds to almost 50%. This percentage represents a strong sign of innovation, as an important means of inclusion for new researchers, and possibly for the inclusion of perspectives in accounting. The USP Congress, on the counterpart, revealed the lowest percentage of entrant authors, despite being the second most recent event.

In the analysis of co-authorships in each category of production and continuity, it was verified that continuant authors mainly publish together with one-timers (939), but also with transient (765), withdrawing (671) and entrant authors (509). The higher levels of continuant authors publishing together with one-timers can be related to the fact that these publications by one-timers can derive from Master's theses under the advice of other established researchers in the area (continuant), according to Guarido Filho, Machado-da-Silva and Gonçalves (2009). They can also result from other graduate program activities, like publications deriving from isolated subjects or temporary participations in research groups, reflecting these authors' transition (Walter et al., 2010).

Transient authors published with continuant authors (890), one-timers (647), entrant (292) and withdrawing authors (277). One-timers, on the other hand, published with continuant (917), transient (610), withdrawing (490) and entrant authors (331). Entrants published with continuant (490), one-timer (311) and transient authors (263). Finally, withdrawing authors published with continuant (693), one-timer (519) and transient authors (233). Hence, transient, one-timer, entrant and withdrawing authors publish mainly with continuant authors. These figures permit inferring that continuant authors intermediate relations with different categories, in line with the statement by Braun, Glanzel and Schubert (2001) about continuant authors' important role in knowledge construction, especially in the consolidation of the production and articulation with other categories of authors. This may indicate their stronger influence on the flow and contents of information in the area. Publications involving continuant and transient authors, for example, indicate a greater possibility of long-lasting associations in the field, besides the fact that continuant authors may be attracting entrants and one-timers, who may turn into entrants in the area.

In Table 5, the 25 authors with the largest number of publications during the period are displayed.

Table 5

Most prolific authors

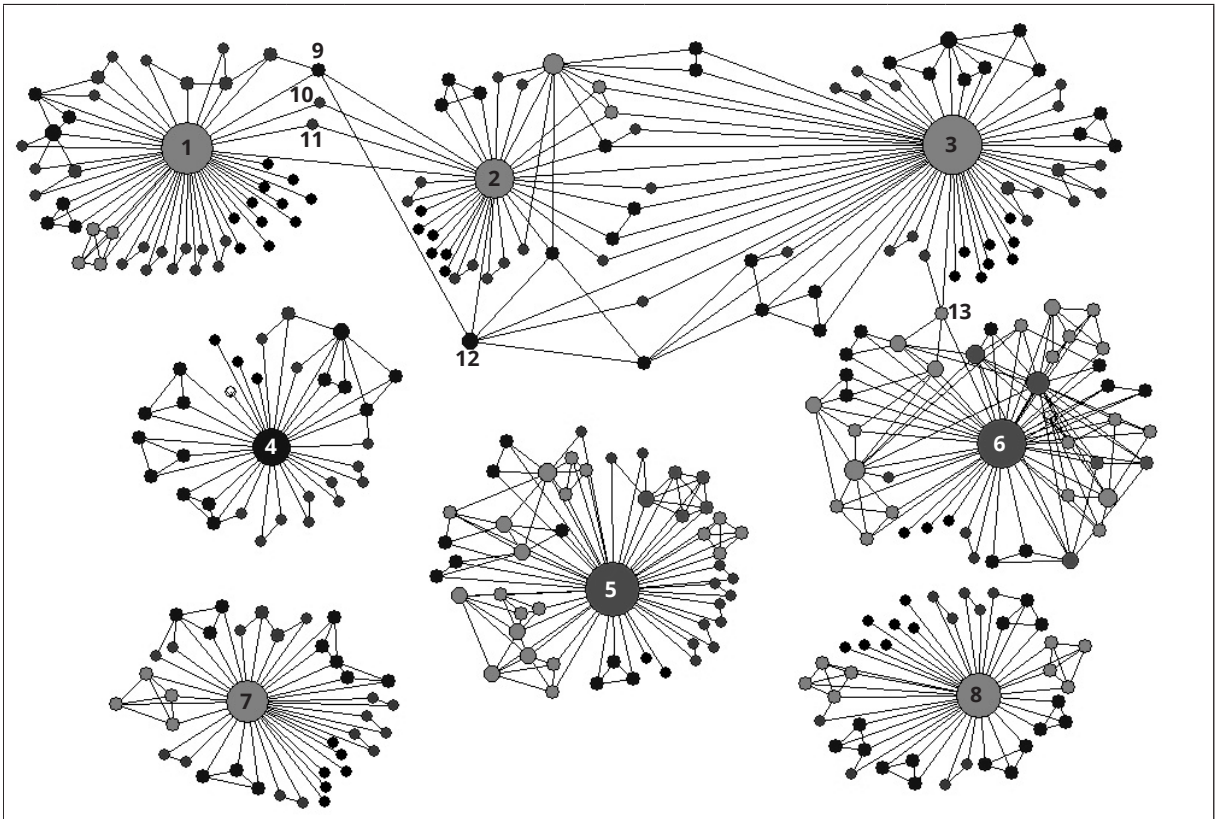
Authors	Papers published																Total articles	Bonds	Isolated	Category of the author
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009				
BEUREN, I. M.	–	–	1	2	3	1	1	7	6	6	4	4	4	7	6	6	58	84	3	C[2]
MIRANDA, L. C.	–	–	–	–	–	1	4	7	15	5	2	2	–	2	3	4	45	108	1	C
CORRAR, L. J.	–	–	–	1	1	3	1	–	3	5	4	1	2	5	3	9	38	64	2	C
SOUZA, M. A. de	–	–	–	–	–	–	–	2	2	3	3	6	3	6	5	5	35	60	1	C
SOUZA, A. A. de	–	–	–	–	1	–	2	2	3	3	4	5	3	4	3	5	35	98	–	C
SILVA, C. A. T.	–	1	1	1	2	1	2	4	2	5	2	5	3	3	1	2	35	52	6	C
GUERREIRO, R.	–	1	1	–	2	2	1	–	4	5	3	3	3	3	4	3	35	51	–	C
BORNIA, A. C.	2	2	1	2	–	5	2	6	1	–	2	3	2	1	3	2	34	55	3	C
CALLADO, A. A. C.	–	–	–	–	1	2	2	1	8	1	1	4	2	3	4	1	30	55	–	C
OTT, E.	–	–	–	–	–	–	–	3	3	3	2	4	3	3	3	6	30	47	2	C
MACEDO, M. A.da S.	–	–	–	–	–	–	–	–	–	1	3	3	4	5	7	7	30	51	–	C
CALLADO, A. L. C.	–	–	–	–	1	1	1	1	7	1	1	5	3	3	4	1	29	57	–	C
WERNKE, R.	–	–	–	–	–	3	1	4	3	1	3	3	3	2	2	3	28	29	–	C
NOSSA, V.	–	–	–	–	1	1	2	–	1	7	5	3	–	3	1	4	28	59	1	C
PEREIRA, C. A.[1]	–	–	–	–	–	1	–	–	–	3	7	3	4	4	4	1	27	51	–	C
TEIXEIRA, A. J. C.	–	–	–	–	–	–	–	–	1	9	2	4	–	4	2	4	26	63	–	C
SLOMSKI, V.	–	–	–	–	–	–	–	–	–	7	3	4	3	5	2	2	26	51	–	C
DIEHL, C. A.	–	–	–	–	–	1	1	–	3	1	2	2	1	6	4	5	26	34	7	C
BORBA, J. A.	–	–	–	1	–	–	1	–	–	2	4	4	4	2	4	3	25	42	1	C
FREZATTI, F.	–	–	–	–	1	1	1	–	1	1	1	3	1	5	7	3	25	48	3	C
NASCIMENTO, A.M.	–	–	–	–	–	–	–	–	–	2	3	4	6	7	2	1	25	47	–	C
BACIC, M. J.	2	2	2	2	2	1	1	1	2	1	2	2	1	1	2	–	24	28	4	C
KASSAI, J. R.	–	–	–	–	2	3	3	3	1	3	3	2	–	2	2	–	24	41	5	C
FREIRE, F. de S.	–	1		1	2	2	–	4	2	1	2	1	2	2	1	3	24	49	2	C
MARTINEZ, A. L.	–	–	–	–	1	2	–	–	–	2	4	2	5	2	2	4	24	18	10	C

[1]PEREIRA, Carlos Alberto

[2]Continuant

Based on Table 5, it is observed that César A. T. Silva and Miguel J. Bacic had their papers published in 15 off the 16 years under analysis, followed by Ilse M. Beuren and Antonio C. Bornia, who published in 14 different years. Ilse M. Beuren also stands out as the most prolific author, followed by Luiz C. Miranda, the author with the largest number of cooperation bonds. Antonio L. Martinez was the author with the largest number of papers published as the sole author. In addition, all authors shown in Table 5, are classified as continuant.

In Figure 2, the cooperative networks of the eight authors with the largest number of publications during the study period are highlighted. This methodological technique was used because it was impossible to represent the cooperative networks among all authors due to limited space.



Legend of knots/authors in Figure 2:							
1	BEUREN, I. M.	5	MIRANDA, L. C.	8	BORNIA, A. C.	11	BOFF, M. L.
2	GUERREIRO, R.	6	SOUZA, A. A. de	9	FREZATTI, F.	12	AGUIAR, A. B. de
3	CORRAR, L. J.	7	SILVA, C. A. T.	10	BORINELLI, M. L.	13	MACEDO, M. A.da S.
4	SOUZA, M. A. de						

Figure 2. Social networks of cooperation between Brazilian and foreign institutions

In Figure 2, it is observed that the eight authors (knots) with the largest number of publications occupy central positions in their networks. This result supports the observations of Shah (2000), who states that authors who continue in a network for a long time, like the continuant authors in Figure 2, tend to gain a central role. This centrality is important for the researchers, as it reflects their importance as the main point of reference in their networks and as the main point of articulation among different pieces of information, studies and researchers (Wasserman & Faust, 1994). Also, Knoke (1990) indicates that the prominent role of an actor in a network can enable him/her to influence the attitudes and behaviors of other authors in that network.

Among the eight most prolific authors, four – Ilse M. Beuren, Reinaldo Guerreiro, Luiz J. Corrar and Antônio A. de Souza – linked up with some of the other main eight. Reinaldo Guerreiro (2), affiliated with USP, for example, linked up with Ilse M. Beuren (1) – who was initially affiliated with UFSC, currently with FURB and who obtained her doctorate degree at – and with Luiz J. Corrar (3), affiliated with USP. These cases of cooperation took place directly through strong bonds among the researchers, as well as indirectly, based on bridges or weak bonds (Granovetter, 1973). Hence, Ilse M. Beuren and Reinaldo Guerreiro collaborated by publishing in partnership as well as with other common authors, like Fábio Frezatti (9), affiliated with USP; Márcio L. Borinelli (10), initially affiliated with UEM and currently with USP; and Marines L. Boff (11), affiliated with FURB. The connection between Luiz J. Corrar and Reinaldo Guereiro also takes place in both manners, but the number of authors both have published with is larger.

The relationship between the networks in which Luiz J. Corrar (3) and Antônio A. de Souza (6) – currently affiliated with UFMG – serve as the central actors was only established through indirect contact (weak link), based on the author Marcelo A. da S. Macedo (13), affiliated with UFRJ (professor) and USP (post-doctoral fellowship). In this case, a structural gap is observe, which according to Burt (1992) offers a competitive advantage for the individual who establishes the connection, as (s)he has access to information from both networks. As highlighted in Powel, Koput and Smith-Doerr (1996) and Stuart and Podolny (1999), the connection with a network also grant access to the innovation different individuals offer. The same individual can also conquer the power to serve as the contact agent among the authors in the different groups they are affiliated with.

Andson B. de Aguiar (12), affiliated with USP, stands out in the cooperative networks because of his connections with three different groups. He published in partnership with Luiz J. Corrar (3) and Reinaldo Guerreiro (2), representing strong bonds, as well as with the network in which Ilse M. Beuren (1) is the central actor, through Fábio Frezatti (9), affiliated with USP, representing a weak bond. Thus, through the dialogue among these groups, Fábio Frezatti can also play a relevant role in contacts and information exchange among the members of the three networks, and enhance innovations and contributions.

The other central authors – Marcos A. de Souza (4), affiliated with UNISINOS (professor) and USP (doctorate); Luiz C. Miranda (5), currently affiliated with UFPE; César A. T. Silva (7), affiliated with UnB; and Antonio C. Bornia (8), currently affiliated with UFSC –, establish bonds with different authors in their networks, but do not link up with the other most prolific authors analyzed.

In Table 6, the number of bonds between each of the eight most prolific authors and each of the categories is highlighted.

Table 6
Number of affiliations of more prolific authors per category

Authors	Continuant	Transient	One-timers	Entrant	Withdrawing	Total
BEUREN, I. M.	34.52% (29)	33.33% (28)	21.43% (18)	2.38% (2)	8.33% (7)	84
MIRANDA, L. C.	31.48% (34)	10.19% (11)	19.44% (21)	10.19% (11)	28.70% (31)	108
CORRAR, L. J.	56.25% (36)	20.31% (13)	9.38% (6)	3.13% (2)	10.94% (7)	64
SOUZA, M. A. de	40.00% (24)	20.00% (12)	15.00% (9)	11.67% (7)	13.33% (8)	60
SOUZA, A. A. de	33.67% (33)	10.20% (10)	18.37% (18)	18.37% (18)	19.39% (19)	98
SILVA, C. A. T.	25.00% (13)	17.31% (9)	13.46% (7)	7.69% (4)	36.54% (19)	52
GUERREIRO, R.	64.71% (33)	9.80% (5)	7.84% (4)	5.88% (3)	11.76% (6)	51
BORNIA, A. C.	34.55% (19)	12.73% (7)	23.64% (13)	9.09% (5)	20.00% (11)	55

Table 6 reveals that the eight most prolific authors mainly publish with continuant authors, underlining their importance in the consolidation of scientific knowledge in the area. Ilse M. Beuren, for example, practically balanced her publications between continuant and transient authors, showing most partnerships with the latter. In addition, the same author shows the smallest percentage of publications with entrant authors.

Luiz C. Miranda mainly published with continuant and withdrawing authors, and also shows the smallest percentage of publications with transient authors. Hence, this author usually published with more traditional researchers in the area.

Luiz J. Corrar and Marcos A. de Souza mainly published with continuant authors. Antônio A. de Souza also stands out with the highest percentage of partnerships with entrants. Hence, that author is attracting new researchers into the field.

César A. T. Silva, on the opposite, mainly cooperates with withdrawing authors. This result is related to the fact that that author is one of the pioneers in the area, with publications in 15 out of 16 years analyzed (Table 5).

Reinaldo Guerreiro reveals the highest percentage of publications with continuant authors and the smallest with one-timers, in line with what was identified in the cooperative networks (Figure 2) about that author's large number of strong bonds with different authors from two important groups of researchers, involving Ilse M. Beuren and Luiz J. Corrar as the central actors.

Finally, Antonio C. Bornia mainly publishes with continuant authors, also showing most partnerships with one-timers though.

In Figure 3, the international cooperation networks during the study period are displayed (Brazilian institutions with co-authorships with foreign institutions), totaling 174 institutions involved.

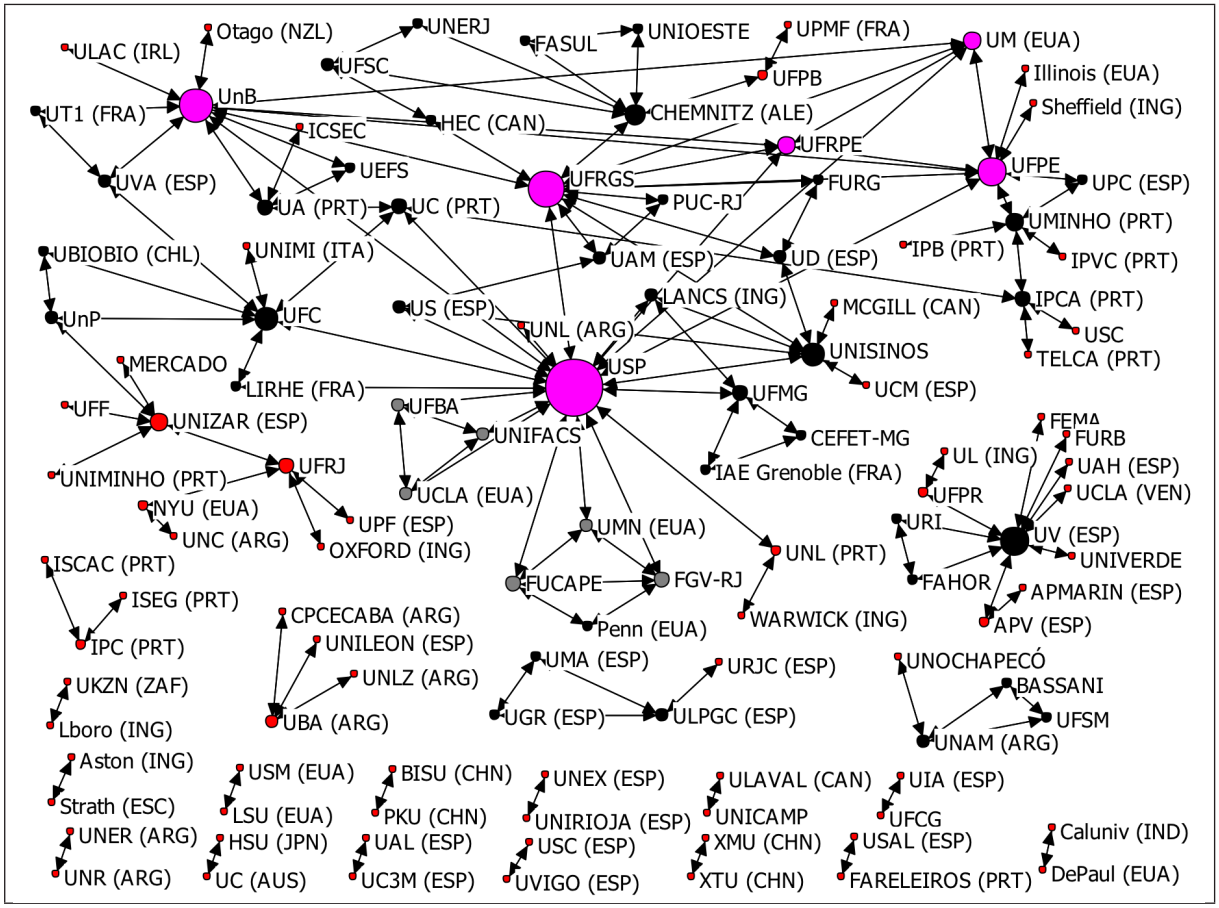


Figure 3. Social networks of cooperation between Brazilian and foreign institutions

Figure 3 reveals that that the 38 Brazilian institutions that linked up with foreign institutions did so with 39 establishments from 13 different countries: one German, two Argentinean, one Australian, three Canadian, one Chilean, ten Spanish, six North American, four French, three British, one Irish, one Italian, one from New Zealand and five Portuguese.

Among the 128 foreign institutions, 84 published in cooperation, while the other 44 published alone. As regards the cooperation with Brazilian institutions, at the top of Figure 3, a large cooperative network is perceived, in which the following central actors stand out: USP, with 13 bonds in 13 papers, involving nine different foreign institutions; UFRGS, with eight bonds, in eight papers, with five institutions; UnB, with eight bonds, in six papers, with six institutions; UFPE, with six bonds, in six papers and five institutions; UNISINOS, with seven bonds, in seven papers, with five institutions. In addition, there is a network with one foreign institution in the central role, the UV from Spain (on the right in Figure 3). That institution established partnerships with six Brazilian and three other foreign institutions.

The analysis of the general internationalization picture reveals that the range of associations between each Brazilian institution and foreign universities remains limited. Due to the wealth of possible knowledge exchanges with foreign universities and researchers, however, considerable space for growth exists in these partnerships.

As regards the production and continuity categories of the authors who closed international partnerships, it is highlighted that 42 (33.07%) were classified as continuant, 23 (18.11%) as transient, 27 (21.26%) as one-timers, 19 (14.96%) as entrants and 16 (12.6%) as withdrawing authors, totaling 127 who published with foreign authors. This result emphasizes the importance of continuant authors for the maturing and development of a scientific area, also regarding information exchange and the development of international cooperative activities.

5. Final considerations

This research was aimed at verifying, from a longitudinal perspective and according to categories of production and continuity, the role of authors in Brazilian scientific production in accounting. The results demonstrate the relevance of the authors classified as continuant for the development of accounting research and, consequently, for the consolidation and maturing of this knowledge area. That is so because these authors revealed the greatest quantitative productivity among the categories, demonstrating their potential in accounting knowledge dissemination and in the development of studies aimed at enhancing the knowledge accumulated in the area.

Also, it was observed that continuant authors intermediate relations with different categories, given that the highest rate of co-authorships for the other categories relates to continuant authors, that is, they serve as agents of information and knowledge for different research groups. Partnerships with transient authors, for example, reflect the flow of more stable information in the network. Publications with withdrawing authors, then, indicate the continuant authors' access to more traditional knowledge. In research with entrants and one-timers, on the other hand, they can get access to innovations and new perspectives on the treatment of knowledge in the field. In line with this result, the eight continuant authors with the largest number of publications play a central role in their networks. Thus, these authors can act by articulating research and knowledge linked with different researchers in the area.

Another aspect that demonstrates the important role of continuant authors is the fact that this category is the main responsible for the international partnerships closed. In that sense, the large space that exists for partnerships with foreign authors is also underlined, as these are still limited and different foreign institutions have published in Brazil (with or without Brazilian partners), demonstrating their interest in publishing in the country.

Despite the importance of continuant authors for the development of accounting research, they do represent the smallest percentage among the categories. On the opposite, most of the authors identified were classified as one-timers, that is, they published only once across the entire period. In combination with entrant authors, this category indicates the attraction the knowledge area exerts on researchers, and may represent the main sources of innovations and new approaches. Entrant authors do reveal a trend towards stabilization in accounting, offering a broader contribution to its development.

Finally, what the withdrawing authors is concerned, some degree of rotation was observed, which is natural in all research areas. Nevertheless, it is healthy for this percentage to remain within the number of researchers attracted to the area. Hence, although the percentage of withdrawing authors in this research is higher than that of entrants, it is probable that some of the researchers considered as one-timers in more recent periods will soon be considered as entrants.

As a study limitation, the event-focused sample is highlighted, which could be expanded to include journals as well. For the sake of future studies, it could be verified whether these study results continue in the sub-areas of accounting.

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