

SUSTAINABILITY AND SUPPLY CHAIN MANAGEMENT: PUBLICATIONS IN BRAZIL

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ABSTRACT

The number of research papers linking sustainability with supply chain management is increasing around the world. The purpose of this paper is to analyse how the publications in Brazil are considering the relationship between sustainability and supply chain management. The methodology applied consists in five major steps: (1) selection of databases and journals, (2) selection of the papers, (3) reading of papers' abstracts to select only papers that are related to business and sustainability, (4) qualitative and quantitative analysis of the selected papers' abstracts to define the main dimension of sustainability and sustainability aspect, and finally, (5) an evaluation of experts' responses to a questionnaire in the field of sustainability and supply chain in Brazil. The literature review was conducted in 120 Brazilian academic journals in which 124 papers were identified as being published in relation to sustainability, business management and companies, from 2008 until 2013. When considering the traditional *Triple Bottom Line* approach, the results of the analysis show that sustainability research in Brazil is focusing on the environmental dimension and SCM research is focusing on the economic dimension. Additional inputs are provided by integrating the governance dimension in the analysis to underline which actions and policies are discussed in Brazilian literature at a corporate level. The consultation of experts in the field of sustainability in Brazil was aimed at understanding better the results of the conducted literature review. One of the main conclusions is that there are large opportunities to increase publications about sustainability and SCM in the country.

Key words: Sustainability; Supply Chain Management; Literature Review; Brazil.

INTRODUCTION

Over the last few years, sustainability-related publications have been increasing around the world and are stimulating discussions in different contexts. Despite its recent progress, Baumgartner (2011) believes that the effective benefits for the society occur slowly and need to be more deepened in the academic debate. Considering this idea, some papers highlight that it is necessary to position the role of businesses in bringing sustainability closer to Supply Chain Management

(SCM). When these topics are related, it is commonly agreed to talk about “Sustainable Supply Chain Management (SSCM)” (Ashby *et al.*, 2012). However, according to Pagell and Schevchenko (2014), there is “no future” for the term SSCM and research in this field, because there is no truly Sustainable Supply Chain (SSC) yet. This paper is taking this perspective when studying sustainability and supply chain management in Brazil.

While sustainability and supply chain concepts are being discussed in the mainstream of publications worldwide, Brazilian publications have been following this trend to a certain extent only. Brazil can be considered as the most active country in Latin America with regards to sustainability research as well as SCM. Considering globalisation, the overseas expansions of Brazilian multinationals, as well as the growing outsourcing of activities from foreign multinationals to Brazil (e.g. in the automotive industry), it is interesting to understand which sustainability aspects are the most discussed in the Brazilian literature. This will then allow future research to compare it with the sustainability aspects that are in the focus of companies in other regions of the world.

This paper focuses on answering the following research question: what are the main concerns in Brazilian literature with regards to sustainability and SCM? To answer this question, the paper is structured as follows. The next section presents a brief discussion around the methodology used in the research. Then, an overview of sustainability and SSCM approaches is presented indicating which sustainability aspects are analysed and how the topics have been linked together. Afterwards, the findings of the literature review and the experts’ perspective are presented. Finally, the findings are discussed and some conclusions are drawn with regards to the status quo of research in the field and future implications.

METHODOLOGY

This paper can be characterised as a literature review of Brazilian Journals followed by an exploratory bibliometric study based on content analysis. The research was performed in five steps within two phases: (a) the selection and analysis of the journals and papers (see Figure 1), which included steps 1 to 4; and (b) a questionnaire to experts on SSCM in the country, which refers to step 5 only. As presented below, the first action was to select the databases that contribute to the research. These were the main Latin-American databases, namely: Scielo (www.scielo.org), Latindex (www.latindex.com), Redalyc (<http://www.redalyc.org>) and Spell (<http://www.spell.org.br>, which is specific to Brazil).

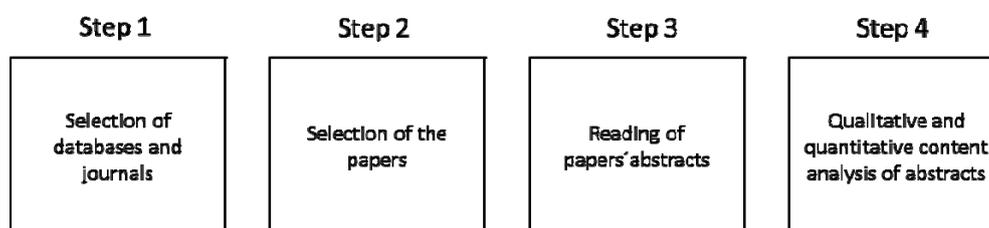


Figure 1: Steps to conduct the literature review, Source: authors’ own illustration

After selecting the databases, we identified the journals that have a publication scope related to our research purpose. This resulted in a list of 120 peer-review academic journals. Out of these journals, we defined keywords in Portuguese, Spanish, and English to extract the papers to screen (*sustent*, *ambient*, *social*, *economic*, *respos*, *cadeia* and *verde*, declined in Spanish and English). Most

manuscripts were written in Portuguese, but also in the other two languages. As a result, we obtained a list of 169 papers published from 2008 until 2013 in 54 different journals. We refined this selection by reading each abstract in order to assure that only papers related to sustainability, business or companies were included in our review. Eventually, our analysis counted with 124 papers after the final refinement based on the abstract analysis.

We then performed a qualitative and quantitative content analysis of each abstract according to the methodologies developed by Mayring (2003) and Neuendorf (2002) in order to identify the main sustainability dimension and the main related sustainability aspect of each paper. A sustainability aspect is here referred to as in Fritz *et al.* (2013) where an aspect is defined as a sub-category of each sustainability dimension. We considered that a dimension was a main dimension when the abstract contained most sustainability aspects from this dimension (see Table 1). The coding of sustainability aspects was also based on the dimensions and sustainability aspects identified by Fritz *et al.* (2013) in a context of Sustainable Supply Chain Management (SSCM) research and further adapted to the focus of our research as presented in Table 1.

In parallel, we designed a questionnaire with open questions targeting experts in sustainability and supply chain in Brazil. The questionnaire was sent electronically to fifteen experts with at least one publication related to sustainability and/or SCM in Brazil. Out of this total of experts, seven returned the questionnaire filled out, that is to say a 47% participation rate. The questions were related to relevant publications in Brazilian journals, the research field in the country and the relation between academy and enterprises. All the results are presented in the findings section of this paper.

THEORETICAL OUTLINE

The current discussion about Sustainability has been focusing on understanding the impacts of different actors in the society. This occurs because sustainable development is defined as a “development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987). In this context, Elkington (2002) developed the concept of Triple Bottom Line (TBL) seeking to make sustainability more tangible. For the author, the following three dimensions are necessary to ensure sustainability: economic, social and environmental.

Today, Elkington (2014) claims that these three dimensions are not enough anymore and that a holistic perspective is necessary to make a whole system change and be more sustainable, which involves taking into account a governance dimension. In line with this approach, Fritz *et al.* (2013) propose to analyse sustainability in the supply chain according to four dimensions, namely: environmental, economic, social, and governance. In this paper we consider this approach in order to provide a more holistic view on sustainability aspects and practices that contribute to creating value for the company and along the supply chain (see Table 1).

Table 1: Dimensions of Sustainability

Dimension	Definition	Sustainability aspects
Environmental	To be understood as in the Triple Bottom Line approach.	Hazardous substances; Wastes; GHG and other air emissions; Energy consumption; Environmental-friendly production processes; Environmental-friendly products and services; materials; Water; Environmental preservation; Environmental in general (i.e. abstracts that only mention the word “environment” but no specific aspect).
Economic	To be understood as in the Triple Bottom Line approach.	Competitive advantage; Productivity; Competitiveness; costs management; Flexibility; Profitability; Financial Performance; Efficiency; Economic in general (i.e. abstracts that only mention the word “economic” but no specific aspect).
Social	To be understood as in the Triple Bottom Line approach.	Socially responsible (behaviour); Child labour; Occupational health and safety; employee training; Non-discrimination; Use of conflict minerals; Securing minimum wages; Confidentiality of data; Freedom of association and collective bargaining; Community engagement; Gender awareness; Temporary contracts; Job security; Social in general (i.e. abstracts that only mention the words “social, society” but no specific aspect).
Governance	It highlights aspects that show the organisation’s commitment in raising awareness on sustainability and improving its values, strategies and policies towards a better sustainability performance.	Compliance with environmental regulations; Compliance with social regulations; Compliance with human rights regulations; Environmental performance and management; Compliance with product related regulations; Social performance and management; Quality management system; Risk management; Health and safety management system; Information and communication management; Knowledge management; Stakeholders inclusiveness; Expenses for sustainable R&D; Top management involvement towards sustainability; Assessment of suppliers (sustainability) performance; Ethics; Corruption and bribery; Governance in general (i.e. abstracts that only mention words like “sustainable development processes/activities, corporate sustainability” but no specific aspect).

Source: Adapted from Fritz *et al.* (2013) and SustainHub (2013)

According to Hopwood *et al.* (2005), the way towards sustainability requires to assume a view of transformation rather than maintaining a status quo that is prone to collapse of natural resources or the social tissue (i.e. economic dimension included). Therefore, a set of changes need to occur in both behaviours and practices. When applied to business, companies are challenged to create mechanisms to contribute to sustainability (Peattie, 2007). This further highlights the importance of analysing sustainability and supply chain by including the governance dimension since the contribution of managers and their involvement towards sustainability is necessary to make changes happen. Thus, governance can be considered as a sine qua non condition in the research of corporate sustainability and supply chain.

As presented before, sustainability requires the participation of a set of actors. In the case of organisations these actors can be clustered in inter-organisational relationships, as follow: Alliances, Joint Ventures, Vertical Relationships, Franchising, Cross-sector Partnerships and Networks (Parmigiani and Rivera-Santos, 2011). This paper focuses on the structures and relationships called supply chain. The more widespread definition of SCM was presented by Mentzer *et al.* (2001), but the perspective of supply network can be introduced in several researches (e.g. Chen and Paulraj, 2004). Therefore, the use of both supply chain management and supply network can contribute to the understanding of sustainability.

In relation to the current theoretical approaches and practices in SCM, Halldórsson *et al.* (2009) ask the following question: “how can sustainability be integrated in the SCM approach – is sustainability coherent, complementary or contradictory to the traditional SCM approach?” Therefore, it is necessary to elaborate on the topic. Some literature reviews were conducted to discuss about this thought (Carter and Easton, 2011; Linton *et al.*, 2007; Seuring and Muller, 2008) and all discussions have been considering sustainability as a part of SCM, but there is still some research to be done regarding the motivations for that.

According to Ashby *et al.* (2012), the relation between sustainability and SCM is commonly referred to as "Sustainable Supply Chain Management (SSCM)". Taticchi and Pasqualino (2013) suggest that many other expressions can also be used, but SSCM is actually the most prominent. The majority of authors working in this field consider sustainability as a synonym for the application of the TBL into supply chain (e.g. Ashby *et al.*, 2012; Carter and Rogers, 2008; Pagell and Wu, 2009; Seuring and Muller, 2008; Wolf, 2011), which increases discussions about the topic and clearly requests a more robust debate. Today, the following three definitions are mostly used for SSCM:

“The strategic, transparent integration and achievement of an organisation’s social, environmental, and economic goals in the systemic coordination of key inter-organisational business processes for improving the long-term economic performance of the individual company and its supply chains” (Carter and Rogers, 2008, p. 368).

“The management of material, information and capital flows as well as cooperation among companies along the supply chain while taking goals from all three dimensions of sustainable development, i.e., economic, environmental and social, into account which are derived from customer and stakeholder requirements” (Seuring and Muller, 2008, p. 1700).

“The specific managerial actions that are taken to make the supply chain more sustainable with an end goal of creating a truly sustainable chain” (Pagell and Wu, 2009, p. 38).

From a literature review comparing the use of the terms SSCM and Green Supply Chain Management (GSCM), Ahi and Searcy (2013) confirmed the use of these three definitions but show that at least nine more different definitions in relation to SSCM exist. In the same discussion these authors propose a new definition of SSCM:

“The creation of coordinated supply chains through the voluntary integration of economic, environmental, and social considerations with key inter-organisational business systems designed to efficiently and effectively manage the material,

information, and capital flows associated with the procurement, production, and distribution of products or services in order to meet stakeholder requirements and improve the profitability, competitiveness, and resilience of the organisation over the short- and long-term” (Ahi and Searcy, 2013, p. 339).

From these different inputs in defining SSCM we can observe a clear lack of consensus since researchers in the field have not adopted a unifying definition yet. Furthermore, the focus of current concepts is mainly set on sustainability performance without discussing the relationship between sustainability and supply chain, as highlighted by Halldórsson *et al.* (2009), which we believe to be a serious problem. Therefore, Beske and Seuring (2014), Schaltegger and Burritt (2014), Taticchi and Pasqualino (2013) and Varsei *et al.* (2014) are presenting debates that contribute to analyse the results of sustainability performance into SCM. However, the majority of the discussions are theoretical hence more empirical researches need to be conducted to discuss the topic better.

In the case of Brazil, besides theoretical and empirical researches, the relation between SCM and sustainability is not clear. For Gonçalves-Dias *et al.* (2012, p.529) “it is necessary to emphasise the country’s reality and highlight the (endogenous) innovations that are genuinely Brazilian [...] and practical initiatives that are not systematically incorporated by academia so far”. According to Silva *et al.* (2013), the number of publications in the country is limited. That is why our purpose is to analyse both publications and experts' perspectives about this research field in Brazil. The following section will hence present the main sustainability and SCM research focuses in Brazil and some reflexions about the field in the country.

FINDINGS

The findings demonstrate that 124 papers are setting their focus on sustainability. Among them, 47 papers are analysing the link between sustainability and SCM in relation to different dimensions. The selected papers are coming from 54 different journals from the databases mentioned in the methodology. Among these 54 journals, Figure 2 shows the 10 most prominent ones in terms of number of papers published between 2008 and 2013.

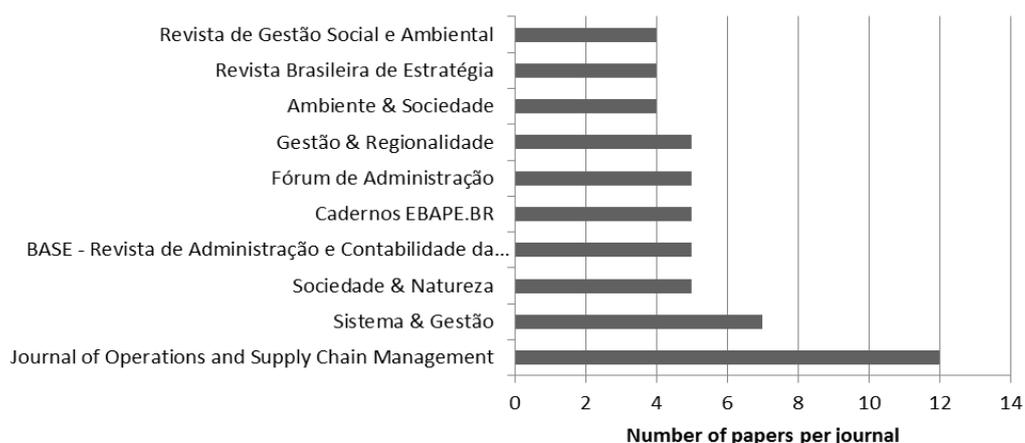


Figure 2: Ten most represented Brazilian journals per number of papers analysed (N=54 journals),
Source: authors’ own illustration

Most of the papers analysed were published in Portuguese, hence sharing knowledge on sustainability and supply chain in Brazil with the Portuguese speaking community. Out of the 124

papers, only 15 were published in English. These 15 articles are originating from the Journal of Operations and Supply Chain (12 papers), the Brazilian Administration Review (2 papers) and the Independent Journal of Management and Production (1 paper). However, it is important to note that all journals request English abstract. Considering that, it was possible to identify authors from Brazil as well as other countries (e.g. India, Spain, Italy, Argentina and Bangladesh). It is also interesting to highlight that along the years, publications in the country are increasing (see Figure 3). It is hence becoming easier to identify the areas in which the papers have been published and the key sustainability aspects that are being considered.

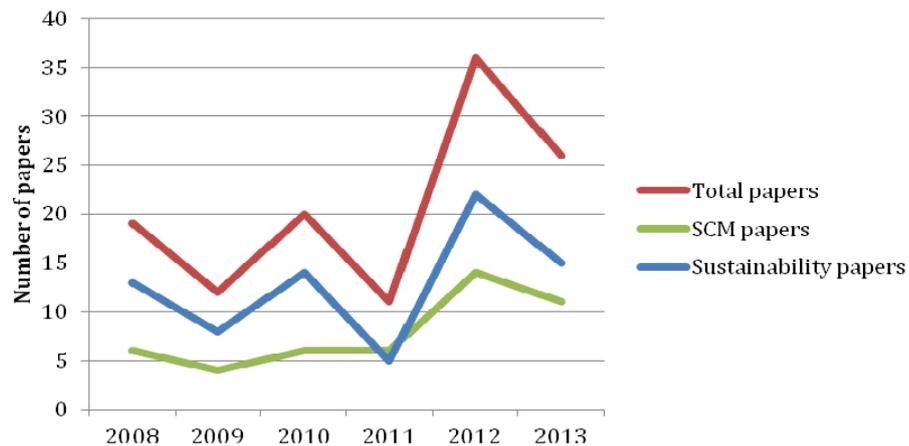


Figure 3: Evolution of the number of papers per year (N=124 papers), Source: authors' own illustration

When analysing the 124 selected papers, we can observe that they mostly relate to corporate sustainability in general (see blue line in Figure 3). Over the period 2008-2013, 47 papers considered the relationship between sustainability and supply chain management (green line). On the one hand, the interest in sustainability and SCM is constantly growing from 2008 until 2012. On the other hand, papers that do not focus on SCM had also a sharp decrease in publications in 2011 besides the significant decline in 2013.

Comparing these results with the discussion presented by Silva *et al.* (2013), it is possible to observe some correlations as these authors analysed conference proceedings and demonstrate an increase of publications in Brazil. Therefore, the sustainability-relating debate in the country seems to have increased over the past few years. In addition to the total number of papers, it is necessary to understand how the publications relate to the dimensions of sustainability (see Figure 4).

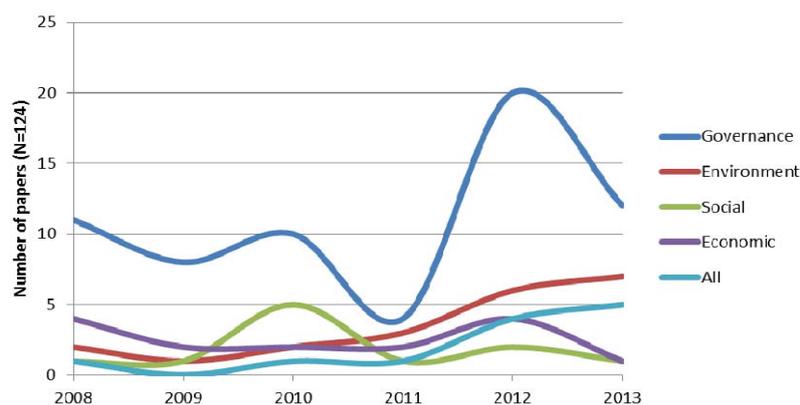


Figure 4: Main sustainability dimensions for each paper per year (N=124 papers), Source: authors' own illustration

Within the 124 publications analysed, only 12 papers consider all the sustainability dimensions (see Table 6). The governance dimension is the main dimension of the majority of the abstracts analysed with 65 papers. This result might be explained by the fact that the governance dimension contains sustainability aspects related to all dimensions (e.g. environmental performance and management, expenses of sustainable R&D). Among these 65 papers, several focus on the aspects "Social performance and management" (16 papers), "Information and communication management" (10 papers), "Top management involvement towards sustainability" (9 papers), and "Environmental performance and management" (7 papers). Between 2008 and 2013, the research output in the management dimension varied drastically. Small alterations in the years 2008, 2009, and 2010, were followed by a significant decline in 2011. However, the number of papers published rose again to its peak in 2012, and finally, decreased in 2013 when compared to the previous year (2012).

The second most relevant dimension in the studied abstracts is environment. We counted 21 papers with the environmental dimension as a main dimension. Among these 21 papers, the following environmental aspects were the most referred to: "Environmental-friendly production processes" (7 papers), "Materials" (4 papers) and "Environmental preservation" (4 papers). All over the period, the environmental dimension is gaining a growing interest in research. The abstracts focusing on all dimensions follow the same trend as environmentally-focused abstracts.

Economic is the third most important dimensions with 15 abstracts identified as having predominant economic focus compared with the social dimension (11 papers). However, the interest in the economic dimension is characterised by an almost constant number of publications per year and a slight decrease starting from 2012. In this dimension, "Competitive advantage" was often mentioned (5 papers out of 15) as well as "Productivity" (3 papers). However, several abstracts also considered the economic dimension without mentioning a specific aspect (4 papers).

The social dimension is also the main dimension in a relative constant number of publications, except in the period 2009-2011 where the attention on this dimension rose. Most social aspects are related to "Community engagement" (3 papers), "Socially-responsible behavior" (2 papers) and "Gender awareness" (2 papers). But in this dimension several abstracts also consider this dimension in a general way (4 papers). This might be linked to the fact that really little research exist on the

social dimension of sustainability and due to the fact that it is difficult to clearly define what social sustainability mean.

These results are aligned with literature reviews conducted by other authors in other databases that show that environmental and economic sustainability are in the focus of many publications on corporate sustainability and SCM (e.g. Ashby *et al.*, 2012; Carter and Easton, 2011; Golicic and Smith, 2013; Seuring and Muller, 2008; Wittstruck and Teuteberg, 2012). As presented by Carter and Easton (2011), during the last 20 years this confusion is observed since "sustainability" and "environmental" are considered as synonyms. During the process of content analysis, we could also observe that these results are debatable due to the confusion between environmental sustainability and sustainability as a whole. There is hence a need here to elaborate further on the theories related to sustainability and SCM to define what sustainability and environmental sustainability mean or which existing definitions are the most appropriate. We believe there is a serious need for consensus on these definitions at a global level in order to assure a common understanding of research in sustainability.

As presented in the theoretical outline, many definitions exist and make it difficult to conduct research on the topics. However, some discussions are already solved by using for instance the TBL to understand better sustainability research. Although an overlap among the sustainability dimensions can be considered in the TBL approach, some aspects of this analysis should be used. According to Ashby *et al.* (2012), the main difficulty is to study the social dimension of sustainability because it involves the human nature. Considering these discussions and the need to clarify what is understood by environmental, social, economic and governance sustainability, the next tables present each sustainability aspect studied, the number of papers that are focusing on a specific sustainability dimension and/or aspect (when applicable), and the possible influences on supply chains, based on the dimensions and categories presented in Table 1.

Table 2: Number of papers focusing on environmental sustainability and on SCM

Sustainability aspects of the Environment dimension	Number of papers with environment as main dimension	Number of papers focusing on SCM with environment as main dimension
Environmental preservation	4	0
Energy consumption	1	0
Environmental-friendly production processes	7	1
Environmental-friendly products and services	1	0
General	1	0
Greenhouse gases and other air emissions	1	1
Hazardous substances	1	0
Materials	4	3
Wastes	1	0
Water	0	0
Total	21	5

The environmental dimension is the third most important one in relation to SCM with 5 papers. These are mainly discussing the aspect “Materials” (3 papers). From the discussion presented before the environmental sustainability in relation to the other two dimensions from the TBL was the most studied in the publications in Brazil. However, only five papers focusing on SCM are also focusing on this dimension. This can demonstrate some difficulties to study the topic in the country. Nevertheless, in the governance dimension of sustainability some aspects related to the environmental dimension (but from a management perspective) are also included. When considering these aspects from the governance dimension (especially “Environmental management and performance” with 7 papers, see Table 5) and the environmental sustainability aspects presented in Table 2, the environmental dimension is the leading one in Brazil.

These results are totally different from the economic dimension of sustainability. As presented in Table 3, all the papers identified with the economic dimension as a main dimension (15 papers) are also considering the SCM strategies. Thus, it is possible to deduce that research in SCM is still closely related to the economic dimension, a traditional discussion on the topic of sustainability and SCM.

Table 3: Number of papers focusing on economic sustainability and on SCM

Sustainability aspects of the Economic dimension	Number of papers with economic as main dimension	Number of papers focusing on SCM with economic as main dimension
Competitive advantage	5	5
Competitiveness	2	2
Cost management	0	0
Efficiency	1	1
Financial performance	0	0
Flexibility	0	0
General	4	4
Productivity	3	3
Profitability	0	0
Total	15	15

Along the period 2008-2013, the papers focusing on the economic dimension were mainly highlighting the possible competitive advantages that a company could gain with Sustainable/Green Supply Chain Management (5 papers) and the related productivity (3 papers). But several of them referred to the economic dimension only in general (4 papers).

In relation to the social dimension of sustainability, few papers are focusing on this dimension. When looking at the link with SCM, it is even more difficult to connect any social aspects as no papers could be identified in this area. This demonstrates a lack of research in the field (see Table 4).

Table 4: Number of papers on social sustainability and focusing SCM

Sustainability aspects of the Social dimension	Number of papers with social as main dimension	Number of papers focusing on SCM with social as main dimension
Child labour	0	0
Community engagement	3	0
Confidentiality of data	0	0
Employee training	0	0
Freedom of association and collective bargaining	0	0
Gender awareness	2	0
General	4	0
Non-discrimination	0	0
Occupational health and safety	0	0
Securing minimum wages	0	0
Socially responsible behaviour	2	0
Temporary contracts	0	0
Use of conflict minerals	0	0
Total	11	0

According to Silva and Nascimento (2014), studies on social issues facilitate the development of the reconceptualisation of the supply chain. Considering this view, it is necessary to take into account the "local" level in both the region of the focal company and the creation of strategies in collaboration with the supply chain. This is supported by the results of this analysis as most papers focusing on a specific aspect of social sustainability considered the aspect "Community engagement" (3 papers). But the majority of papers mentioned social sustainability only from a general perspective (4 papers) which may corroborate again the lack of clear definition for this dimension of sustainability.

We can hence say that the social dimension is not yet identified as a source of value creation within supply chains in Brazil. However, this is also the case of the majority of studies related to sustainability and SCM as pointed out by several researchers (Ashby *et al.*, 2012; Benoît *et al.*, 2010; Hutchins and Sutherland, 2008). Considering the governance dimension, it is possible to observe that many papers focus on this dimension as it covers a wide range of sustainability aspects and many papers were considering sustainability from a management perspective (see Table 5).

Table 5: Number of papers focusing on governance sustainability and on SCM

Sustainability aspects of the Governance dimension	Number of papers with governance as main dimension	Number of papers focusing on SCM with governance as main dimension
Assessment of suppliers sustainability performance	2	2
Compliance with environmental regulations	1	1
Compliance with human rights regulations	0	0
Compliance with product related regulations	0	0
Compliance with social regulations	1	0
Corruption and bribery	0	0
Environmental performance management	7	5
Ethics	1	0
Expenses for sustainable research and development	0	0
General	5	2
Health and safety management	0	0
Information and communication management	10	2
Knowledge management	4	3
Quality management	0	0
Risk management	3	3
Social performance and management	16	1
Stakeholders inclusiveness	6	3
Top management involvement towards sustainability	9	1
Total	65	23

As shown in Table 5, out of the 47 papers focusing on SCM, 23 papers were particularly discussing the sustainability aspects “Environmental performance and management” (5 papers), “Knowledge management” (3 papers), “Risk management” (3 papers) and “Stakeholders inclusiveness” (3 papers).

From the data presented in Table 5, it is possible to understand the importance of governance in discussions about sustainability. It is interesting to highlight that the aspect “Social performance and management” is indicated as a the main sustainability aspect for 16 papers, mainly referring to Corporate Social Responsibility. However, when this is applied to SCM, only one paper studies CSR in supply chain. In addition, it is also interesting to indicate that five papers studied “Environmental Performance and Management” in relation to supply chain.

Finally, it is necessary to understand the publications in relation to all dimensions of sustainability. As presented in Table 6, only 12 papers were published with all dimension compared to the 124 analysed. This is a result that demonstrates a great opportunity to publish more on the sustainability topic in Brazil from a comprehensive perspective. According to Silva *et al.* (2013), the major difficulty of Brazilian authors is related to the adaptation of some concepts to their own context. The translation of English papers for example, lacks of precision and differs from the terms that are commonly used at an international level.

Table 6: Number of papers in all dimensions of sustainability and focusing SCM

All sustainability dimensions	Number of papers with all dimensions	Number of papers focusing on SCM with all dimensions
All	12	4

Generally speaking, there seems to be a trend towards a rising number of Brazilian publications considering all dimensions of sustainability since 2012 (see figure 4), but this trend is too recent to draw any conclusions at the moment and the number of papers focusing on sustainability and all dimensions (4 papers) is too low still. Considering the research performed with experts, a similar result can be identified since as indicated by one of them:

"[...] There are few researchers who are publishing in this area in Brazil [...] Thus, there is a broad field to be explored" (Expert 1).

This demonstrates that despite the increasing number of publications, more stimulation is needed for Brazilian researchers to achieve a higher academic impact of publications in both numbers and quality of papers. It should nevertheless be noted that only papers published in Brazil were analysed. Hence, other possible publications from Brazilian authors at an international level might have been omitted. When questioned about the dimension of sustainability emphasised in Brazil, four out of seven experts believe that the focus is environmental, mainly because it is very difficult to study social issues. Additionally, one of the experts pointed out:

"Research in the country is still very reactive or focused exclusively on the financial discussion" (Expert 4).

Notwithstanding this view, our literature review shows that the economic dimension is not the most important in the papers, which indicates a divergence in this case between expert perception and the actual research output. Concerning the relationship between sustainability and SCM, the experts present some similarities since they consider that a few researches and studies focus on this topic and they think that there is a great opportunity to develop this field of research as expressed in the following quotes:

"There are few studies in Management, which is in fact a good opportunity for future publications in this area" (Expert 1).

"The research is very much in its early stages. It is basically done via exploratory research and case studies. A large possibility to publish" (Expert 3).

"I believe it is growing as an extension of themes such as organisational sustainability and strategy" (Expert 6).

"To carry research in Brazil is always difficult. To investigate sustainability in the supply chain is no different. We still need to advance a lot" (Expert 7).

According to the last quote from expert 7, it is difficult to conduct research in Brazil. However, some alternatives for that need to be created. Perhaps partnerships with companies, governments and community can be a possibility to change this trend. Beyond accepting the difficulties, it is necessary to change views, and that was presented by two experts, as follows:

"[...] the world has interest in understanding Brazil better in its various aspects of business (business environment, business practices, etc.). Thereby, it opens up the possibility of internationalising Brazilian research on various topics of business, including *Sustainability and Supply Chain*" (Expert 1).

"It is a topic that can make important contributions to the development of more responsible business and concatenated with a new way of thinking in business and in the development of society itself" (Expert 3).

From these discussions, even with a limited number of publications in sustainability and supply chain management in relation to all dimensions of sustainability, a research field on SSCM in Brazil can emerge as an important area of study mainly because with its great diversity, the country has a lot of issues that can be introduced in this discussion. As presented by Griesse (2007), to conduct research in Brazil it is necessary to consider multifaceted characteristics such as geographical diversity or inequalities in socioeconomic issues. Thus, Brazil needs to contribute more with empirical results and proposals that can be used in different countries with the same multifaceted characteristics.

CONCLUSION

From this analysis, the results demonstrate that publications in Brazil are increasing along the past few years. It is also interesting to highlight that, as identified in other countries, the social issues are not in the focus of most papers as opposed to the environmental dimension that is leading the research on sustainability. In relation to SCM, the focus of publications in Brazil is economic, but the other dimensions of sustainability have also been analysed. These results were corroborated by the responses of experts in the research field of SSCM in the country.

This paper has some limitations since it only considers publications on sustainability and supply chain in Brazilian Journals. This analysis could be deepened by including international databases with papers that also investigated the situation in Brazil.

Also, we chose to follow the approach of Fritz *et al.* (2013) to define the sustainability dimensions and aspects to analyse. Hence the results could have been slightly different by choosing another approach or other definitions for the sustainability dimensions and aspects. Indeed, as it can be seen in the literature, there is a harmful proliferation of several terms related to sustainability such as CSR, social business, socially responsible, sustainability – which puts in jeopardy the research community in reaching a common agreement on these concepts when building a widely accepted and robust academic terminology. In some analysis, CSR would take into account all the dimensions of sustainability whereas we considered that it is part of the governance dimension. But as underlined in the paper, the focus of Brazilian papers would still be clearly on the environmental dimension regarding business sustainability and on the economic dimension when linking sustainability to supply chain management. Attendees and researchers may gain knowledge on the *status quo* of sustainability and supply chain management research in Brazil. Future research about SSCM in Brazil and other countries may be identified through our study, allowing comparability and, eventually, generalisation of our findings.

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