

Sustainability, Retail and Supply Chain: Twenty Years of Research

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ABSTRACT

This study aims to understand how retail and supply chain researches have permeated the sustainability paradigm. Using a literature review method in two data bases: Scopus and Science Direct, we identified an increase in the studies related to this specific field in the last twenty years. The areas that have recorded a greater concentration in this field are: Operations, Marketing, Consumer Behavior, Governmental Policies and Certifications. As study contributions, the following topics for future researches are highlighted: Collaboration, Waste, Consumption Behavior, Value Creation, Communication, E-commerce, Retail Planning, Logistic, Product Life Cycle, Remanufacturing, Gas Emission, Certifications, Technology and Information Systems and Environmental Policies. Practical implications refer to the possibility that retail organizations make use of this theoretical synthesis to help in their planning activities.

PALAVRAS-CHAVE

Sustentabilidade.
Varejo.
Cadeia de suprimento.
Revisão da literatura.

RESUMO

Este estudo tem como objetivo compreender como as pesquisas de varejo e cadeia de suprimentos têm permeado o paradigma da sustentabilidade. Utilizando um método de revisão de literatura em duas bases de dados: Scopus e Science Direct, identificamos um aumento nos estudos relacionados a esse campo específico nos últimos vinte anos. As áreas que registraram maior concentração neste campo são: Operações, Marketing, Comportamento do Consumidor, Políticas Governamentais e Certificações. Como contribuições do estudo, destacam-se os seguintes temas para pesquisas futuras: Colaboração, Resíduos, Comportamento do Consumo, Criação de Valor, Comunicação, E-commerce, Planejamento de Varejo, Logística, Ciclo de Vida do Produto, Remanufatura, Emissões de Gases, Certificações, Tecnologia e Sistemas de Informação e Políticas Ambientais. Implicações práticas referem-se à possibilidade de as organizações varejistas usarem essa síntese teórica para ajudar em suas atividades de planejamento.

1 Introduction

Sustainable practices have grown, since environmental problems are becoming increasingly troubling and customers are reacting with greater sensibility to eco-friendly products offers (Trudel & Cotte, 2009; La Roche *et al.*, 2001). In this sense, a relevant aspect in the path to sustainable development is the change of the actual pattern of unsustainable consumption and production (Disano, 2002) to a pattern that reduces the pressure over the environment (use or consumption of resources and waste discharge) and, at the same time, recognizes people basic needs and improve their quality of life (UNEP, 1997).

Retail has a meaningful role to develop due to its global economic power and privileged position between offer and demand. Retailers can influence both production (Jones *et al.*, 2008a, b; Illes, 2007) and consumption patterns (Jones *et al.*, 2005; Knight, 2004) all over the world, in the following way: in the offer side, through the geographic context and based on production characteristics and its adequacy to multinational retailers investments (Wrigley & Lowe, 2002).

Retailers can influence their world and local supply chains as a result of their sustainability strategies (Illes, 2007) by influencing decisions and activities, as new products development, human resources strategies, acquisition terms, production and distribution aspects and packing patterns; in the demand side, retailers influence customers lives (McGoldrick, 2002) shape their consumption patten, what and how they purchase, use and discharge products (FGV, 2005). This way, the need of studies that address the retail role as intermediary in the implementation of sustainability strategies along supply chains appears (Wiese *et al.*, 2012).

Retail companies develop an important role in their supply chains because they are the intermediaries between customers and producers (Ytterhus *et al.*, 1999; Wiese *et al.*, 2012). Cooperation between industries and retailers may direct to greater profitability and low carbon emission (Bai *et al.*, 2017). Large retailers, oftentimes, have a high control level of their supply chains (Hingley, 2005) and occupy a privileged position during pattern implementation in their chain, related to sustainability (Brammer *et al.*, 2011).

From this, it is perceived that changes in customers' behavior, the increase of social responsibility interest, the intensification in volume of marketed products, the competition inside the supply chain brought greater relevance and interest about the sustainability subject of retail companies along supply chains. Besides, competitive advantages can be achieved from the incorporation of strategies related to sustainability in business practices (Reuter *et al.*, 2010; Flint & Golobic, 2009), such as, the decrease of waste in sustainable supply chains (Eriksson *et al.*, 2017) and customer disposition in paying a premium price for a product from sustainable production (Schäufele & Hamm, 2017), that can be understood as strategies to achieve competitive advantage in this scenario.

Facing the exposed, the objective of this study is to understand how researches in retail and supply chain areas have permeated the sustainability paradigm in the last 20 years.

As pointed by Wiese *et al.* (2012), previous analysis, according to Journal of Economic Literature, the North American Industry Classification System and retail journals, point the tendency for sustainability related researches. In this sense, the retail sector presents lesser amount of considerations related to sustainability among the supply chain relevant sectors, for this reason, new researches are suggested (Wiese *et al.*, 2012).

Customers are increasingly aware about sustainability matters (Wiese *et al.*, 2012). Retail is the main contact with end customers (Ytterhus *et al.*, 1999). Directing retail to the sustainability approach is each time more relevant. Besides, there are researches about sustainability in areas and industries related to retail supply chain, as transport. This industry sector researches findings with researches about customer perception and sustainability matters, generate insights in relation to sustainability relevance for customers (Wiese *et al.*, 2012). Thus, new researches with this approach aggregate value to retail and supply chain by integrating sustainability (Wiese *et al.*, 2012).

When developing researches about sustainability, researches must concentrate in aspects that are retail practice current topics of interest. Retail journals analysis indicated that the carbon footprint/CO₂ and Corporate Social Responsibility are emergent tendencies in retail practice, for example (Wiese *et al.*, 2012). For so, sustainability management has presented increasing interest among academics and managers

that act in the supply chain (Van Hoek, 1999; Srivastava, 2007; Seuring & Muller, 2008; Vurro *et al.*, 2009; Chakraborty, 2010; Mann *et al.*, 2010; Yenipazarli, 2017), presenting as a critical matter for the future of operations area.

Based on these results, discussing applications of the sustainability concept to retail related to supply chain becomes relevant. In this sense, the present study supports itself on the study performed by Wiese *et al.* (2012), that presented the limitation of using just one data base (EBSCO), this way, this study seeks to understand the relations among the terms sustainability, retail and supply chain in the present reality, besides performing a literature review based on two data bases: Science Direct and Scopus.

As follows, the theoretical framework, the research method, as well as the results of this review are presented in a detailed manner to better understand this research findings, the main conclusions pointed by the authors in the reviewed articles, suggested future researches, limitations and managerial implications, finally, the conclusions are presented and future researches development opportunities are discussed.

2 Theoretical Framework

2.1 Sustainability

The World Commission on Environment and Development – WCED (1987) defines sustainability as the development that satisfies the needs of the present without compromising future generations capacity of satisficing their own needs. A similar concept has been presented by the United Nations Environment Programme Finance Initiative (1997), that affirms that sustainable development depends on a positive interaction between the economic and social development and the environmental protection, to balance the interests of present and future generations.

Costanza and Patten (1995) bring the sustainability idea as a system that survives or persists through time. Parris and Kates (2003) explore the definition of sustainable development as a process that includes human needs, that reduces hunger and poverty and preserve life support systems in the planet. A concept accepted of sustainable development (Baxter, 2009) was coined by the Brundtland Report (WECD, 1987, p. 8), what defines it as a development that “meets the

needs of the present without compromising the ability of future generations to meet their own needs (Baumgartner & Rauter, 2016; WECD, 1987).

The main contribution of this pioneer concept resides in the fact of highlighting human well-being and its relation with environment health, that is, society, economy and environment are inextricably connected (Baxter, 2009), therefore, sustainable development embraces three dimensions: social, environmental and economic (Delai & Takahashi, 2013).

Sustainability management in the supply chain is defined as a strategic, transparent and integrate thought to achieve economic, social and environmental objectives in a systemic coordination of inter-organizational processes along the supply chain (Seuring & Muller, 2008; Srivastava, 2007). In the business field, the approximation of sustainability and supply chain concepts has occurred not just by being a favorable strategy to the environment, but also because it has generated good business and profitability (Srivastava, 2007), contributed to save resources, eliminate waste and increase productivity (Dias *et al.*, 2011).

The term sustainability in this approach assumes the socio-environmental management (Vurro *et al.*, 2009, Mann *et al.*, 2010), closed loop supply chains (Kleindorfer *et al.*, 2005) and, also, social concerns in managerial decisions (Vurro *et al.*, 2009). Thus, sustainability in the organizational scenario examines supply chains and the effects of products for people and for the planet (Kennedy *et al.*, 2016).

Inside the supply chain, retailers can influence over local and world supply chains as a result of their strategies directed to sustainability (Illes, 2007) by influencing decisions and activities, as new products development, human resources strategies, acquisition terms, production and distribution aspects and packing patterns. In the demand side, retailers influence customers lives (McGoldrick, 2002), shape their consumption patten, what and how they purchase, use and discharge products (FGV, 2005), reverberating in the sustainable behavior adopted by customers in their consumption relations.

Competitive advantages can be achieved from the incorporation of strategies related to sustainability in retail practices (Reuter *et al.*, 2010; Flint & Golicic, 2009), such as, decrease of

waste in sustainable supply chains (Eriksson *et al.*, 2017) and the customer disposition in paying a premium price for a product from sustainable production (Schäufele & Hamm, 2017), that can be understood as strategies to achieve competitive advantage in this scenario.

2.2 Retail

For Stern (1996), Berman (1996), Rosembloom (1999) and McGoldrick (2005), retail can be concept as the set of business activities that sell goods and services to the end customers, for their personal, family or residential use. As for the types of retail, there are a variety of retail stores formats, depending on the focus, size, number of products they offer to customers, specialization and other features. In Brazil, the most representative of retailers are the hypermarkets, the supermarkets, the convenience stores, the specialties stores (butcheries, bakeries, and others), the grocery stores, among other formats (Parente, 2014).

Retail can be concept as the sale of goods or services to customers for their own use (Mcgoldrick, 2005). In this sense, Kotler and Keller (2012) affirm that retail includes all the activities related to goods or services sale to end customers, for personal use. A retailer or retail store is any commercial establishment whose sales volume comes from retail. The retailer is an intermediary that dedicates itself to sell to the end customer. After acquiring a manufacturer or wholesaler distributor goods, retailers dedicate themselves to individual sales, operating or not in stores (Churchill Jr. & Peter, 2012). This way, inside the supply chains, retail performs the intermediary role between the end customer and wholesale or production companies (De Paula, 2008).

In this direction, Berman and Evans (2004) bring four principles for the retail concept: (i) focus on customer: retail identifies customers attributes, desires and needs and aims to fulfill these demands; (ii) coordination effort: retail seeks to integrate plans and activities aiming at greater efficiency in the supply chain; (iii) focus on value: retail aims to offer value to customers and; (iv) focus on objectives: defines objectives and implement strategies for achievement.

Therefore, retail should not be seen just as a simple intermediary between industries and end customers, because its role in the supply chain does

not involve just facilitating products flow between the other links. By being next to the end customer, retail has greater conditions of capturing information about customers purchase behavior, as well it is capable of communicating in a more effective manner with the customer, facilitating the elaboration of strategies oriented to the market (Reynolds & Cuthbertson, 2004).

According to Sullivan and Adcock (2002), the retail sector has expanded the participation in the economy and, also, increased its power in the relationships with suppliers, therefore, the retailer has become, in many cases, the leader of the supply chain, that is, retail is leaving the link role in the supply chain to assume the role of defining, directing and controlling its performed activities along all the supply chain.

Therefore, retails exercise important interface role between industries (suppliers) and customers. They are the ones that shape how customers consume (Morgan *et al.*, 2017). In this sense, since the last decade, companies, as key actors in society, have been pressed to alter the path of their business to integrate the principles of sustainable development in their daily practices and disclose information about its impact and contributions for sustainable development (Kolk *et al.*, 2010; Smith & Sharicz, 2011). Facing that, UNEP (2011) highlights the important role of retailers, by ensuring their internal operations sustainability, influencing, this way, suppliers in the production and customers in the consumption in a sustainable manner.

2.3 Supply Chain

Supply chain concept emerged in the literature of the 80s (Cooper *et al.*, 1997), gaining prominence in the 90s and, in the first decade of the 21st century, it consolidated as an academic discipline and business practice. Its concept origin is frequently presented as an evolution of the concept of business logistic that, on its turn, has evolved from different areas of production, transport and materials handling, that converged to build the supply chain concept (Georges, 2011).

From the perception that the company is in the center of a network formed by suppliers and customers, a definition of supply chain is given by Aitken (1998) as a network of organizations connected and interdependent, working together, in mutual cooperation regimen, to control, manage

and improve the flux of supplier raw materials and information to end customers. Supply chain encompasses planning and managing all activities involved in supplying, acquisition, conversion and all logistic activities. It includes the coordination and collaboration with partner chains, where the partners can be: suppliers, intermediaries, service providers and customers. Summing up, supply chain integrates supply and demand management among and along companies (*Council Of Supply Chain Management Professionals, 2009*).

Supply chain consists of a network of companies that work together, through different processes, to produce value, showing itself as a link that allows connecting the market, purchases, production and distribution (Ballou *et al.*, 2000; Lambert *et al.*, 1998). It can be affirmed that supply chain organizational competences are sustained by a common objective of producing a product or service in the best way possible (Stijnen *et al.*, 1998; Teixeira & Lacerda, 2010), depending, this way, on the contribution of each company that composes it.

In this context, supply chains related to retail, the big retailers are a source of pressure for the suppliers in their chains, because they hope for better environmental performance and prices each time lower without sacrificing the quality of the product. Sustainability initiatives promoted by retailers offer the suppliers a pressure to advance investment in reducing packing and energy use that not always are converted in economic return for supplier companies, being the supplier the main benefited from these initiatives (Yenipazarli, 2017).

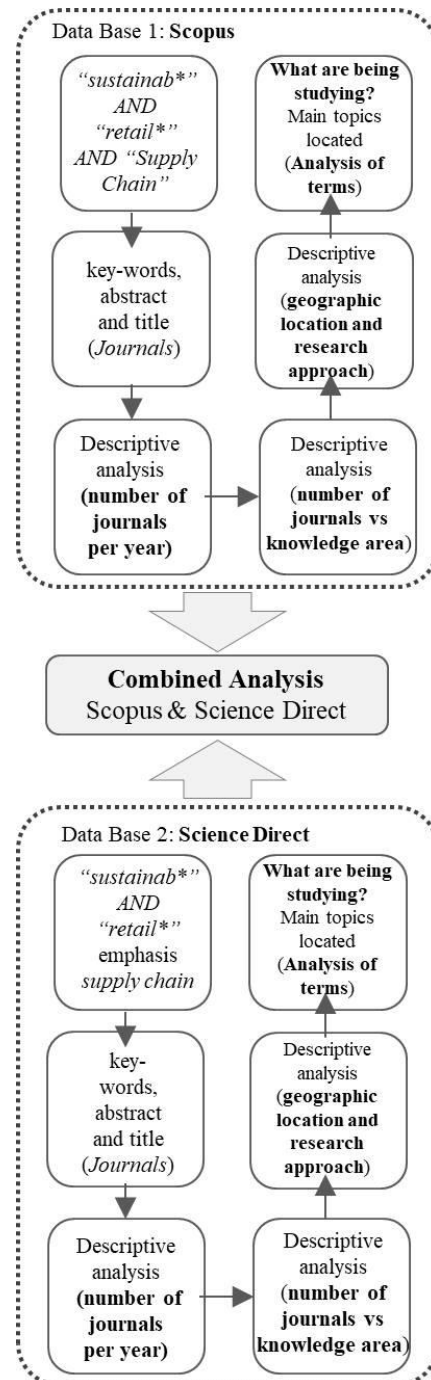
3 Research Method

The research method developed in this article follows the structure developed by Papastathopoulou and Hultink (2012), Wiese *et al.* (2012) and Graciola *et al.* (2017). Figure 1 illustrates the steps of the research plan developed.

The literature review through summative content analysis methodology (Wiese *et al.*, 2012) was performed by means of an online search in two data bases: Science Direct and Scopus. The delimiters research terms were oriented by the need of understanding how retail and supply chain researches have been dialoguing with the sustainability paradigm in the last 20 years. The following research terms were defined: for Scopus

(*“sustainab*” AND “retail*” AND “Supply Chain”*), terms present in key-words, abstract and title, only for articles in journals. As for Science Direct, the terms defined were: (*“sustainab*” AND “retail*”*), for terms present in key-words, abstract and title, only for articles in journals, with focus on supply chains (Wiese *et al.*, 2012).

Figure 1. Research Plan



Source: Developed by the authors based on the data base from this research.

The asterisk (*) was applied after the word to recover all the articles that have included words beginning with this primitive form, that is, as

example, “*sustainab**”, will search for words like: “*sustainable*” and “*sustainability*” and so on. The ending search time period was April 2017, but it was not defined an initial search point. Because there was not a restriction of the searches initial period, it contributes to understand what was produced about the subject, over time, in a longitudinal manner. Therefore, based on the abstracts reading, a cutting point was performed that justifies keeping or excluding the articles in the study (Wiese *et al.*, 2012).

3.1 Articles Identification

A total of 336 articles were located in Science Direct data base and 245 articles in Scopus data base, summing up 581 articles. Next, the initial review was performed, reading each title, abstract and key words (manual review) to define if the article, due to its relevance and accordance with the subject, would be part of the review or should be excluded. After this initial sorting, 242 articles were listed to be part of the literature review for both data bases searched.

Thus, the articles were evaluated due to their adherence to the subjects in study: sustainability, retail and supply chains. The studies listed concerned sustainability/sustainable in the retail/retailer focused on supply chains, concerning the customer retailer and producer. Another care during analysis was the verifications of articles in duplicity in the data bases in study. After the articles selection, another review was performed to make sure no relevant articles were forgotten in relation to the research subject.

At the end of the 242 articles found, 135 belong to Science Direct data base and 107 to Scopus. It was found that 42 articles repeat in both data bases. This way, at the end, 200 articles were selected, considering both data bases, that were part of this study analysis, which correspond to 34.42% of the initial/total sample of 581 articles identified for the study.

To have a general view of the research area, an extra effort was performed to understand which journals communicate more about the subject, the most prevalent knowledge areas, the studies year of publication, the research topics, the approach type (quantitative or qualitative), the method applied, the analysis units, the research focus and which geographic areas produce the most about the subjects investigated. Besides, the main

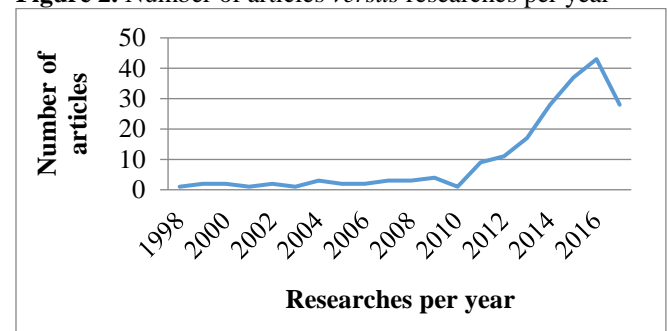
contributions of the studies and future studies suggestions were analyzed.

4 Results of Combined Analysis

4.1 Articles Classification

Based on the 200 articles selected, it was perceived an increase of studies in this area, over the years, that is, there was an increase from 2011, when 09 articles were produced. In 2016, 43 articles were identified. Figure 2 represents the increase of publications from 1998 to 2017 (year still ongoing).

Figure 2. Number of articles *versus* researches per year



Note: (*) Articles included until the year of 2017 (between January to April 2017).

Source: Developed by the authors based on the data base from this research.

Next step was classifying the journals in relation to knowledge area. This classification aims to examine and understand in which area there is a greater number of publications. From the analysis, the articles published were classified in seven large knowledge areas: Operations, Marketing, Consumer Behavior, Innovation and Technology, Governmental Policies and Certifications, Urban Planning and Buildings.

As a result, it was possible to verify that the journals with greater work events in the proposed thematic for the different areas were *Journal of Cleaner Production*, for Operations, Marketing and Governmental Policies and Certifications, as well as *International Journal of Production Economics*, that showed greater publication occurrence among the areas and subjects in study. For Consumer Behavior, *Journal of Retailing and Consumer Services* represented 4% of the sample (8 articles) and *Journal of Retailing* with other 5 articles published represented 2.5% of the final sample, as shown in Table 1.

Table 1. Number of articles per Journal and knowledge research area

Number of articles per knowledge research area	N.	%
Operations	100	50,0
<i>Int. Journal of Prod. Economics</i>	13	6,5
<i>Journal of Cleaner Production*</i>	10	5,0
<i>Sustainability (Switzerland)</i>	7	3,5
<i>Resources, Conservation and Recycling</i>	5	2,5
<i>Int. Journal of Retail and Distribution Management</i>	4	2,0
<i>Supply Chain Management</i>	3	1,5
<i>IFAC-Papers On Line</i>	3	1,5
<i>Int. Journal of Life Cycle Assessment</i>	2	1,0
<i>European Journal of Operational Research</i>	2	1,0
<i>Transportation Research Part A: Policy and Practice</i>	2	1,0
Others Journals with only once recurrence	49	24,5
Marketing	27	13,5
<i>Journal of Cleaner Production*</i>	6	3,0
<i>Journal of Retailing and Consumer Services</i>	3	1,5
<i>Marine Policy</i>	2	1,0
<i>Journal of Fashion Marketing and Management</i>	2	1,0
<i>Int. Journal of Prod. Economics</i>	2	1,0
Others Journals with only once recurrence	12	6,0
Behavior Consumer	27	13,5
<i>Journal of Retailing and Consumer Services</i>	8	4,0
<i>Journal of Retailing</i>	5	2,5
<i>Resources, Conservation and Recycling</i>	2	1,0
<i>Appetite</i>	2	1,0
Others Journals with only once recurrence	10	5,0
Inovations and Tecnologies	8	4,0
Others Journals with only once recurrence	8	4,0
Government policies and certifications	26	13,0
<i>Journal of Cleaner Production*</i>	4	2,0
<i>Food Policy</i>	4	2,0
Others Journals with only once recurrence	18	9,0
Urban Planning	7	3,5
<i>Transportation Research Procedia</i>	2	1,0
<i>Journal of Transport Geography</i>	2	1,0
Others Journals with only once recurrence	3	1,5
Buildings	5	2,5
Others Journals with only once recurrence	5	2,5
Total	200	100,0

Source: Developed by the authors based on the data base from

this research.

Note: (*) This *Journal* is present in different knowledge areas, what represents broad scope of research topics addressed.

Table 2 presents the geographic sources by continent. It is important to note that Europe, Asia, North America and Multiple Countries represent 79.5% of the sample.

Table 2. Research Geographic location (by continent)

Location (by continent)	Numbers	%
Europe	91	45,5
Asia	34	17,0
North America	23	11,5
Research developed in more than one country	11	5,5
Africa	6	3,0
Oceania	6	3,0
South America	5	2,5
Euroasia e Mediterranean	4	2,0
Central America	1	0,5
Not applicable	19	9,5
Total	200	100

Source: Developed by the authors.

Another relevant data to be stressed, presented in Table 3, is the evolution of the research approaches in relation to the subject in study.

Table 3. Research approach evolution

Research Design	1998 to 2002	2003 to 2007	2008 to 2012	2013 to 2017	Total	%
Qualitative Empirical	8	10	18	91	127	63,5
Quantitative Empirical	-	3	12	48	63	31,5
Qualitative and Quantitative Empirical (Mix of approach)	-	-	2	6	8	4,0
Qualitative Conceptual	-	-	-	2	2	1,0
Total					200	100,0

Source: Developed by the authors based on the data base from this research.

To facilitate the understanding, the 20 years of research were divided in four periods, every 5 years. So, from 1998 to 2017, it was found that the qualitative empiric approach is the one that stands out the most with 127 articles (63.5%). It was found an evolution to the different research approaches,

however, it is possible to stress that the quantitative and qualitative empiric approach, combined approach, started to be used from 2008. It was also possible to observe that qualitative conceptual approaches are recent, found in studies from 2013.

4.2 Articles Contributions

This step comprehends recovering the contributions of the analyzed articles and the researches findings. As shown in Table 4, the studies were classified (represented in percentage) and grouped according to the research topics and following contributions. It is perceived different emergent topics based on the contributions of the articles under study.

This way, it is noted that to create a favorable environment to sustainability among supply chains, **collaboration** is presented as an element that favors and potentiates performance in relation to companies social responsibility, increasing interaction among the different players, that is, producer (manufacturer), retailer and end customer, besides facilitating information exchange among business partners. **Food waste**, in its turn, is understood in the context of supply chains and perceived by the customer. In supply chains, waste minimization and possible innovations to avoid waste are approached. From the customer view, purchase excess, price strategies, labeling and packing size are items that impact on sustainability.

In relation to **consumption behavior**, it is pointed the use of premium prices in organic products sale, besides, combining sustainability to products also bonds the idea of quality and safety when purchasing healthy products. However, it is possible to realize that the retailer influences customer purchase behavior, so, educating and/or guiding the customer contributes for him to be the change agent in the way the consumption happens, see Table 4. **Value creation** is bound to creating economic, social and environmental value in relation to sustainability. Therefore, sustainable performance impacts on economic performance, on chains value, on competition and on efficiency. In parallel, **communication** exercise customers awareness and alignment role on what concerns brands building, mainly, “green companies” and, at the same time, generate learning based on sustainability models.

The authors talk about virtual environment,

related to **e-commerce** and point to an increase in the emission of gases harmful for the environment and the costs pertinent to logistics. Therefore, it is necessary that an improvement in logistics operations efficiency happens to fulfill the actual consumption behavior. **Retail planning** is needed and must be aligned with the urban organization, the accessibility availability, resilience and innovation to be agile in deliveries, and at the same time, conciliate social responsibility and energetic efficiency. Due to the exposed, **logistics** involves an adequate planning, in the organizational, governmental and social level to generate efficiency, gases emission decrease, combat energy waste, generating activities that aim the preservation and awareness about the need of protection to the environment.

Products life cycle depends on the definition of sustainable fabrication, the use of appropriate materials, services fluxes, stock amount, stress indices, the items that exercise essential role over social and environmental sustainability. In this horizon, it is appropriate talking about **remanufacturing**, that is a global tendency aiming at reducing waste volume, engaging and/or involving retailers and customers to make part of reverse logistics fluxes to minimize waste in the environment, as well as, give the responsibility to producers and retailers to the adequate destination of the produced materials.

The **emissions of pollutant gases** are pointed by the authors in the researches that involve food production and discharging, in the lack of logistic planning and e-commerce as harmful effects to the environment and that compromise the sustainable ways of economic development, both in the production sphere and logistic and products commercialization sphere.

Certifications are a way of guaranteeing the customers the security in purchasing products and have the recognition of producers companies, besides enabling the retailer to sell products with premium prices. The efficiency of **information systems** contributes to resources saving, increase in productivity, flexibility and operations sustainability. So, applying technology in the processes guarantees quality and efficiency for indicators monitoring, for example, consumer behavior monitoring. Finally, it is noted that the **environmental policies** influence the relation among different actors in the chain, contribute to sustainable consumption, ethics in the consumption

relations, innovators practices and ethics, quality and social responsible practices. Table 4 synthesizes these topics pointed in the contributions of the analyzed studies.

Table 4. Main research topics founded and their contributions

Research topics	Contributions
Collaboration	
9.5% of articles	Support the environment. Improves performance in corporate social responsibility. Employee collaboration for the economy and sustainable use of energy. Public-private partnerships for research. Network sustainability. Customer service and implementation of sustainable environmental policies. Management models with efficiency. Integration between producer, retailer and consumer. Sustainable protection. Cultural factors. Education for sustainability. Logistic systems. Communication based on the information exchange.
Waste food (Supply Chain Ambience)	
5% of articles	Supply Chain Management. Waste. Waste minimization. Flow of information. Environmental sustainability. Innovations.
Waste food (Consumer Behavior Environment)	
2% of articles	Excessive shopping. Zero waste strategy. Labeling, packaging size and pricing strategies.
Consumer Behavior	
21.5% of articles	Premium Prices. Quality. Variety versus security. Healthy food. Retailers influence customer behavior. Customer Knowledge – purchase intention. Customer education. Rules. Retail environment. Environment protection attitude. Cultural values. Price. Friend's recommendations. Ethic Worry about the environment and animal welfare. Green image. Corporate social responsibility. Customer profile. Labeling. Customer orientation. Appeal social. Customer as agent of change. Trust in the relationship. Value delivery. Reverse logistic. Seasonality of consumption.
Value Criation	
4% of articles	Economic, social and environmental value in sustainability. Sustainable performance impacts on economic performance. Value in networks. Competitiveness and efficiency.
Communication	
4,5% of articles	Alignment. Customer awareness - brand building. Green businesses. Consumption barriers. Learning of

	sustainability models.
E-commerce	
2,5% of articles	Increase in gas emissions. Efficiency of logistics operations. Logistics costs.
Retail Planning	
12% of articles	Accessibility. Urban organization. Resilience and innovation. Social responsibility. Price in different management models. Profitability. Location. Barriers and drivers of sustainability in chains. Outsourcing. Energy efficiency. Government influence. Social and technical organization.
Logistic	
7.5% of articles	Logistic planning. Logistic efficiency. Costs. Gas emissions. Energy waste. Demand and environmental concerns.
Product Cycle Life	
3% of articles	Data collection and measurement. Environmental and social sustainability. Spatial relevance, stress indexes, stocks and service flows. Sustainable manufacturing. Materials.
Remanufacturing	
2% of articles	It reduces waste volume. Retailers and consumers involvement. Trend. Reverse logistics flows.
Gas emissions	
5% of articles	Related to the production and disposal of food. Logistic planning. Inventory Practices - Efficiency. Intercontinental logistics – e-commerce. Indicators. Supply network costs.
Certifications	
3% of articles	Product conservation and recognition. Premium price. Safety. Pricing strategies. Relationships reorganization in the supply chain.
Information and Technology Systems	
8% of articles	Information Systems – Resources economy. Productivity, flexibility and sustainability of operations. Process technologies. Quality and efficiency. Technology in energy. Monitoring. Indicators. Information.
Environmental Policies	
8.5% of articles	Price. Gas emission. Consumption and resources distribution. Profitability. Logistic flows. Relation among different actors fo the chain. Sustainability consumption. Ethic. Innovative standards and practices. Quality. Socially responsible practices.

Source: Developed by the authors based on the data base from this research.

Note: The percentage of articles are related to the 200 final sample of articles analyzed.

Next, the main aspects of the macro-subjects investigated are highlighted (sustainability, retail

and supply chain), as well as the research gaps identified.

4.2.1 Sustainability

For Weissbrod and Bocken (2017), sustainability is inserted in economic, social and environmental value creation in a sensible context. It is the lean thought added to the organizational abilities and the triplex of value creation (profit, people and planet). Sustainable production directs to quality of products differentiation, for local and organic products (Schäufele & Hamm, 2017). Tostivint et al. (2017) defend that inefficiency in production processes that lead to food waste generate serious negative implications to sustainability. Besides, certifications contribute to increase sustainable practices (Swartz *et al.*, 2017), identify sustainable products and conduce to solid marks building in the market (Kennedy & Soo, 2016). So, it is necessary to educate the customer to recognize and disseminate innovative and sustainable products (Moon *et al.*, 2016).

4.2.2 Retail

The premium prices practice pointed by the studies was performed to eco-friendly products, ecologic products (Sun *et al.*, 2017). Premium prices can also be associated to sustainable certifications that contribute to increase these products sales (Ngoc *et al.*, 2016). Future studies could approach the relation of natural sounds and emotions that influence the customer disposition in buying organic products (Spendrup *et al.*, 2016). However, in the study developed by Chekima et al. (2016) the authors point that premium price does not exercise a moderator role in environmental attitude, ecologic label and cultural value over the intention of buying ecologic products.

Some authors also approach the need of new conduct social norms to reduce carbonic gas emission (Delley & Brunner, 2017). Waste in retail also gets attention among researches. Some see waste as an incorrect demand, where there is negative impact on companies' profits (Lee & Tongarlak, 2017) and increase of carbon emission (Hooge *et al.*, 2017). This way, waste reduction is the responsibility of the whole community, based on awareness policies in politics, social and environmental sphere (Cicatiello *et al.*, 2016).

Also, it was found there is a virtual retail or

e-commerce negative impact over clothing, shoes, groceries, electronic products and books traditional retailers (physical stores) (Zhang *et al.*, 2016).

4.2.3 Supply Chain

It was found great attention to production maximization and low attention to the stakeholders of supply chains (Mcfadyen *et al.*, 2015). It is noted that it is necessary there is transparency in supply chains in relation to some aspects of the relations among the chain members (threats versus collaboration, standardization versus differentiation, means versus ends) aiming at assuring sustainable development (Egels-Zandén *et al.*, 2015).

It is opportune to highlight that collaborative models improve social responsibility, as well as, companies' decision taking (Nematollahi *et al.*, 2017). Collaboration among the chain agents reduces carbon emission, increases profitability (Yenipazarli, 2017), costs sharing (Bai *et al.*, 2017) and carbon emission reduction in all the chain (Ji *et al.*, 2017). So that these sustainability practices perpetuate, it is necessary a long term relationship, suppliers proximity with retailers, going from a merely transactional approach to a trust and interdependency conduct (Tidy *et al.*, 2016).

The cause of waste in chains is also associated to information inaccuracy about the inventory. Modern technologies adoption is one of the solutions to track products and decrease mistakes (Cui *et al.*, 2017). In this sense, it is necessary to improve the incentives and/or initiatives involving the different stakeholders aiming at avoiding and preventing waste (Aschemann-Witzel *et al.*, 2016) and, also, it is necessary the creation of return policies to uncontrolled rejections, as example, wasted food (Eriksson *et al.*, 2017).

There are perspectives in relation to logistic. One of them, the retailer is seen as intermediary by reducing the resources that impact on logistic efficiency (Tang *et al.*, 2016), transport frequency related to the increase of greenhouse effect (Ugarte *et al.*, 2016) and inexperience of trip coordinators to generate intelligent trips (Lambe *et al.*, 2016), subjects noted in researches concerning this thematic. Besides, smaller delivery time can reduce waste and increase the quality of perishable products (Bortolini *et al.*, 2016) contributing to the chain sustainability. Studies that approached off-

peak delivery efficiency in large centers (Marcucci & Gatta, 2017; De Oliveira *et al.*, 2016), the use of distribution centers (Oliveira *et al.*, 2016) and the specific policies to reduce carbon gas emission by reducing transport use frequency were also performed (Marcucci & Gatta, 2017). Another fact verified is the relation between green footprint and the increase of intercontinental transportation facilities to fulfill the commercialization of online products attending the customers that demand domestic delivery (Douet, 2016).

5 Final Considerations

At the end of this literature review it is realized that the operation, marketing, consumer behavior, and governmental policies and certifications areas are the ones with greater researches development in sustainability, retail and supply chain thematic. The European, Asian and North American continents represent the areas that develop researches in these subjects, fact that demonstrates the researches interest in developing studies aiming at proposing theoretical and practical advances for the sustainability context in their countries.

The contributions of the analyzed articles were grouped in themes to better organization and clarity. In this sense, themes like collaboration, food waste, consumption behavior, value creation, communication, e-commerce, retail planning, logistic, products life-cycle, remanufacturing, gas emission, certifications, information systems and environmental policies emerged. These data synthesize the researches findings and serve as a guide for organizations that are seeking for a sustainable planning for production and/or commercialization of their products, taking into account, also, their supply chains. It was observed in the conjoint analysis of the three macro-themes (sustainability, retail and supply chain) the existence of well consolidated topics and research gaps that will be presented next.

Future research, in the sustainability context, suggest that despite the value creation concept be already consolidated in the research field, its approach conjoint with sustainability, uniting profitability, people and the planet, is an emergent theme (Liao *et al.*, 2014). Another promising research area in this scenario is the association of processes inefficiency with waste and sustainability (Delley & Brunner, 2017) and,

studies about products certifications with sustainable production practices and commercialization confer greater solidity to the brand (Van Doorn & Verhoef, 2015).

In the retail scenario, premium prices practice is a dimension already studies in the literature, however, its relation with eco-friendly products and/or ecologic products and certifications are opportunities for future researches (Schäufele & Hamm, 2017; Kumar *et al.*, 2017). Waste is already studied, but relating waste with carbon emission and awareness policies are emergent relations (Ji *et al.*, 2017; Morgan *et al.*, 2017). E-commerce is altering the way commercial transactions happen and online retail is impacting over offline retail, a fact that demands for more studies (He *et al.*, 2016).

In the literature concerning supply chain it is noted that collaboration is a theme approached in different areas, but, collaboration approach among the chains agents (stakeholders), conjoint with transparency lacks studies (Tidy *et al.*, 2016). Waste also is a dimension already studied, but analyzing waste in chains, relating information, technologies, traceability, mistakes decrease and rejection return policies, enables future studies (Inman & Nikolova, 2017; Cui *et al.*, 2017). Another dimension that lacks studies is logistic, that even though it already is a developed topic, due to constant alterations in the way of commercializing, it is necessary to seek for improvements alternatives in products delivery, off-peak delivery and the creation of distributions centrals, besides understanding how intercontinental commercialization impacts on supply chains (Marcucci & Gatta, 2017).

This study theoretical implications refer to sustainability, retail and supply chain concepts review, and their relation with the period studied (1998-2017). This article brings a classification of the study areas where these works are developing with force and the contributions proportionated by the authors facing the problematics related to environment preservation, sustainable consumption, natural resources management, regulatory policies and retail organizations planning, both for the relation with the supply chain members and interaction with customers levels.

Practical implications refer to the possibility of retail organizations value from this theoretical synthesis to help in their planning activities, mainly, what concerns socio-environmental

actions, applied to their supply chains and customer behavior. This study results show that collaboration among players in supply chains is vital to implement actions turned to sustainability and that retail influences consumption behavior. Organizations should consider these concepts when implementing their strategic actions.

Future studies can seek to determinate practical implications of collaboration chains development among the supply chain members (Chkanikova & Lehner, 2015). The access to technologies, information, knowledge and resources sharing and integrate management of production and distribution processes aiming waste reduction of natural and/or productive resources, greater economic gains and business sustainability in the long term are academic interest approaches (Pan *et al.*, 2014). Practices related to environment preservation also are an exponent area for future studies (Diabat & Al-Salem, 2015).

Another interest area for future studies is the relation of customers with sustainable products, since the perception concerning quality, safety, pricing, labeling, etc., to brand and value perception of the companies that develop activities of socio-environmental feature in the communities they are inserted in. Retail, as influencer of purchase behavior and link among manufacturer companies, distributors and customer, needs to be alert to consumption tendency and, this way, promote sustainable development for all chain members.

As study limitations it is noted the use and/or cutting through the use of key-words that could limit the total scope of articles in relation to the terms under study, bound to key-words, title and abstract. This way, a total number of articles was underestimated that relate the terms: sustainability, retail and supply chain. On the other hand, each study was checked to avoid that articles that merely cite some of the terms would be part in the counting and later analysis. Another limitation was the different areas cutouts used to structure the research, determined by the authors.

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