Corporate Social Responsibility in Sustainable Supply Chain Management: An Econo-Bibliometric Perspective

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Abstract
This paper identifies and synthesizes information from academic journals, and examines the importance of corporate social responsibility (CSR) in supply chain management (SCM) literature. By using keywords such as “corporate social responsibility”, “corporate citizenship” and “supply chain” in the major online publishers’ database from 2006 to 2016, our study shows increasing importance of CSR topic in logistics and supply chain management. This growing trend has been observed at different levels (theoretical, geographical and industrial). Many moral and societal aspects can explain this interest, but this article focuses on a complementary justification by suggesting a conceptual framework formalizing the economic reason for which we can observe a growing interest in CSR issues in SCM.

Keywords
Corporate Social Responsibility, Corporate Citizenship, Sustainable Development, Supply Chain Management, Financial Value

1. Introduction
This article deals with the importance of corporate social responsibility (CSR) in supply chain management. Roughly speaking, corporate social responsibility refers to a concept whereby companies integrate social and environmental concerns in their business operations and interactions with their stakeholders. Corporate social responsibility is generally understood as being the way through which “a company achieves a balance of economic, environmental and social imperatives” ([1], Para. 1). The challenge for logistics stakeholders includes var-
ious elements: consumers, shareholders, non-governmental organizations (NGOs), regulators, unions, international logistics and supply chain firms [2] [3]. In addition to these, it is vital for firms to understand the greater scheme of their business environment while learning how to work with a complicated system of players all working towards reducing harmful elements internal and external sustainability [4]. Global companies, whether international brands, and/or manufacturers, are not new to sustainability ascendants. As part of the bigger picture, or global scheme, supply chain (SC) practices and attitude often grapple with sustainability, accountability and complex products, services and performance measurements [5] [6].

As a result of the expansion and development of medium to large international and global companies, one can observe a growing implementation of annual reports, sustainable strategies, and updated codes of conduct (i.e., social customs, religious conventions, and obligations) reflecting additional interest in supply chain sustainability [7] [8]. These items contribute to the triple bottom line (i.e., social, environmental, and financial), corporate greening (i.e., operationally environmentally responsible), green logistics (i.e., reduction of ecological effects), and CSR [9].

The objective of this paper is twofold: on the one hand, to map the current importance of the CSR and sustainable chain management in the current literature and, on the other hand to offer an economic perspective justifying the growing interest in CSR practices. For this purpose, in a first step, we investigate academic journals dealing with supply chain management (SCM) practices in industry. Such approach gives us a range of databases from 2006 to 2016, containing the words, “corporate social responsibility”, and “supply chain” in the title or abstract.

Such analysis will help us to identify a trend in the potential increasing importance of CSR in supply chain management. That will be the first contribution of this article: to see if, in a context in which CSR became buzz-word, this issue is increasingly important or not in the literature.

The paper is structured as follows. The following section offers an overview of the literature dealing with CSR practices in logistics. It is worth mentioning that this article is not a literature review on the CSR in the literature dealing with supply chain management, but it rather uses systematic review of documents/works as a methodology to identify a trend and to suggest the reasons to this trend. Afterwards, we detail our methodology before discussing our data analysis. Finally, the last section suggests an economic justification for this growing interest in CSR issues in logistics. With this purpose, we introduce a conceptual framework illustrating the influence of CSR practices on the financial value of companies.

2. Overview of Surveys on Corporate Social Responsibility

In 1970, in his essay “The Social Responsibility of Business Is to Increase Its
Profits” Milton Friedman wrote the following: “There is one and only one social responsibility of business to use its resources and engage in activities designed to increase its profits, so long as it remains within the rules of the game, which is to say, engages in open and free competition without deception or fraud” ([10], p. 4). The primary concern for CSR is the treatment of all stakeholders, both internally and externally, to do the right thing ethically in a socially responsible way thereby enhancing human development [11]. Emblematic advances initially offered in 1999 included corporate development of 1) codes of ethics, 2) preparing triple bottom line reports (social, environmental, and financial), and 3) launching public relations campaigns, that support and define socially responsible corporate behavior ([12], p. 550). These aspects of CSR naturally changed ethics and generate the creation of corporate citizenship influencing overall corporate value, through benefits seen in financial performance (profitability, growth, and operating efficiency), and reduced costs of capital by means of adhering to corporate ethical practices [13] [14]. In the 1980s, a growing interest in social issues emerged leading scholars to deal more and more with corporate social performance [15]. This trend has been gradually extended to all countries in the 1990s [16]. Several surveys acknowledged this increasing attention to social issues in supply chain management. Zorzini et al. [17] provided an interesting review of socially responsible sourcing by suggesting some theoretical developments on this topic while Reefke and Sundaram [18] reviewed the literature dealing with sustainable practices by using content analysis (developed in Delphi). Finally, let us mention Feng et al. [19] who provided a network analysis of the literature indicating the growing interest for CSR issues in SCM literature.

Although many managers acknowledge the importance of the sustainable dimension in the supply chain management, they are not always able to clearly identify the positive influence of such management. A 1999 survey made by Price Waterhouse Coopers (PWC) in more than 25 countries showed that the notion of sustainability is mainly associated with the brand and the reputation of companies. However, the implementation of a sustainable supply chain can also improve the financial situation of the company. This article aims, firstly, at mapping the importance of this notion in the literature dealing with industry and, secondly, at suggesting an economic reasoning justifying the integration of this notion in the supply chain management.

3. Methodology

To map the importance of the works dealing CSR practices, we used a systematic review. Generally speaking, such approach can be defined as “a specific methodology that locates existing studies selection and contribution, analysis and synthesizes data, and reports the evidence in such a way that allows reasonable clear conclusions to be reached about what is and is not known” [20] [21] [22]. Following this definition and rationale, we use the systematic review as a specific
methodology to collect data about the theme of CSR. In other words, this article does not provide a literature review on CSR (i.e. a holistic narration about how CSR is dealt in the existing literature)—this paper rather uses a systematic review to obtain raw observation on the occurrence of CSR in the literature. Our methodology follows a six-stage classification approach to examine the importance of corporate social responsibility (CSR) in supply chain management literature.

In a first step, we identify an initial data point (2006) was based on the first paper related to CSR and supply chain which surfaced as a result of our search. The conference proceeding, thesis, work in progress, and technical reports were all excluded from our research to ensure a high quality of acceptable and valid articles [23] [24]. Afterwards, we limited our literature search to English academic peer-reviewed journals including EBSCO Host, Google Scholar, and ProQuest to confirm complete coverage of the structured search terms including “corporate social responsibility”, “corporate citizenship”, and “supply chain”. Complete bibliographic details of all reviewed articles are included in the Appendix to validate the clarity and transparency of the research (Table 1).

Table 1. Criteria for article selection.

<table>
<thead>
<tr>
<th>Step 2 &amp; 3 Criteria selection</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keywords</td>
<td>Corporate social responsibility, corporate citizenship, supply chain</td>
</tr>
<tr>
<td>Language &amp; document type</td>
<td>English peer-reviewed academic journals</td>
</tr>
<tr>
<td>Time interval</td>
<td>2006-2016</td>
</tr>
</tbody>
</table>

In the third step, the collection of articles has been reviewed over a decade beginning in 2006, from 7 of the foremost germane databases including: Emerald, Science Direct, Sage, Wiley, Jstor, EBSCO, and Taylor & Francis. At this state, the authors carefully reviewed and critically evaluated all data in the title, abstract, and body of text to ensure the relevancy and validity of all of the selected papers.

Stage 4: In a fourth step, we selected this systematic review to structure our research resources. Precisely articles were categorized by: 1) journal wise publication, 2) year of publication, 3) geographic location, 4) industry, and 5) authors, including a total of 116 articles published in seven key databases.

The fifth step mapped the importance of CSR in the literature to appreciate the current trends and future research bearings while our final step was to suggest a conceptual framework formalizing economic reasoning that might explain the trend we observe in empirical data. Our methodology can be summarized as follows (Figure 1).
Figure 1. Structured Literature Review Methodology. Source: Adapted from Akbari [23], Seuring and Muller [25], Soni and Kodali [26], Malviya and Kant [27] and Winter and Knemeyer [28].

Such a bibliometric approach can handle data related to publications to construct a solid empirical methodology. Our major objective is not to provide a literature review but rather to identify and map the increasing of body of knowledge related to CSR issues in SCM by using an alternative methodology than those used by the previous surveys on the topic. Let us present our data analysis in the following section.

4. Data Presentation

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors (Year)</th>
<th>Published in</th>
<th>Focus &amp; objective</th>
<th>Number of publications covered</th>
<th>Type of publication</th>
<th>Methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainability and corporate social responsibility in supply chain:</td>
<td>Quatshie, Salmi and Leuschner (2015)</td>
<td>Journal of Purchasing &amp; Supply</td>
<td>To examine and contrast existing research and knowledge creation</td>
<td>195</td>
<td>Paper</td>
<td>A systematic literature review two streams, SCM and business ethics from 2007 to 2013</td>
</tr>
<tr>
<td>the state of research in supply chain management and business ethics</td>
<td></td>
<td>Management</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>making journals</td>
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</tr>
<tr>
<td>Making connections: a review of supply chain management and</td>
<td>Ashby, Leat, Mike and Hudson-Smith (2012)</td>
<td>Supply Chain Management: An</td>
<td>To investigate systematically the discipline of supply chain management (SCM)</td>
<td>134</td>
<td>Paper</td>
<td>A systematic literature review two streams, SCM and sustainability from 1983 to 2011</td>
</tr>
<tr>
<td>sustainability literature</td>
<td></td>
<td>International Journal</td>
<td>within the context of sustainability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elements affecting social responsibility in supply chains</td>
<td>Eriksson and Svensson (2015)</td>
<td>Supply Chain Management: An</td>
<td>To assess elements that affect social responsibility in supply chains and beyond</td>
<td>94</td>
<td>Paper</td>
<td>Presents an assessment of supply chain management research published over the period of 2009-2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>International Journal</td>
<td></td>
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</tbody>
</table>

The remaining 33 journals published one paper each. This classification highlights key journals contributing to the literature devoting to CSR. Such literature is of course important since it also supports practitioners and researchers in the discipline area of sustainable supply chain development.

A timeline analysis of the 116 published articles is represented in **Figure 2**. The data reflects overall long-term growth, with peaks in number of publications, after 2010, followed by constant valleys as to number of publications each following year. The overall trend supports interest and awareness by researchers of CSR, and sustainable supply chain development. This validates an increased attentiveness and pursuit amongst current and future researchers into the area of sustainable supply chain management. As mentioned by Malviya and Kant [27] an increased global pervasiveness of advancing technology, specifically, the internet, which plays a significant role in the overall increasing trend in articles between 2006 and 2016. However, a dramatic decrease in publications in 2011 and 2014 is with a still unclear reason.

![Figure 2. Evolution of our data in year by year.](image-url)
Although the cyclical evolution of the number of papers devoted to CSR, one can clearly observe an increasing trend indicating the growing importance of this topic in logistics and supply chain management. These results confirm the existing surveys on the topic [17] [19].

Beyond this increasing trend, we also questioned the kind of publications, we therefore investigated this aspect in the data. In this perspective, a comprehensive analysis and examination of each article found that all the research articles focused on surveys, interviews, mathematical and conceptual modelling, case study and simulations. A considerable number of published papers focused on conceptual model (36), followed by articles focusing on survey (35), mathematical modelling and case study (17 each), interviews (5), and case study and mathematics with four, and survey and interviews in only two articles (Figure 3).

![Figure 3](image.png)

**Figure 3.** Research methods identified in articles dealing with CSR topics.

The importance of conceptual (and mathematics) models indicates that the field of CSR in SCM is still in its early stage and that no dominant framework is actually ruling the literature. This observation is common in history of science: when a field is in its infancy, there is no dominant mainstream to define an implicit common knowledge shared by scholars [29]. A new field appears therefore as an open-space for new ideas and methods explaining the proliferation of conceptual articles focusing on the crystallization and fixation of academic conventions. In such period, scholars mainly work on conceptual models to contribute to the sedimentation of a new area of knowledge [30]. This observation usually goes hand in hand with the fact that empirical studies are quite limited in the field. Indeed, empirical studies usually refer to a contextualization of a specific conceptual model. With no conceptual framework dominating the way CSR issues are perceived/implemented in SCM, the number of empirical studies is necessary limited.

The consideration of CSR in sustainable supply chain analyses by country generates a cognizance between practitioners and researchers vis-à-vis the intensity
of attention in different geographical locations. **Figure 4** shows the country distribution across the 116 published papers, encompassing 24 countries around the world.

![Classification of articles based on country.](image)

**Figure 4.** Classification of articles based on country.

**Figure 4** indicates that out of 116 published papers/articles and authors, the USA contributed the most number of publications (31), followed by the United Kingdom (20). Apart from the USA and the UK, various countries such as India, China, Spain, Denmark, Finland, Sweden, Australia, Finland, and Taiwan are also participating countries addressing CSR in sustainable supply chain. These numbers give another perspective on the existing works [17] [19] on the topics. Precisely, in their study, Feng *et al.* [19] mentioned Netherlands as the third country contributing to the CSR literature in SCM while India was not in the top 8 of these countries. In our data, Netherlands is not in the list and India appears to be the third country contributing to this literature. Two methodological reasons can explain these differences: 1) Feng *et al.* [19] used a larger database (Scopus) that might eventually capture articles from Netherlands, and 2) Feng *et al.* [19] also integrate the terms “ISO 26000” and “SA 8000” as keywords in their analysis; these labels referring to international standards for evaluation of CSR practices.

Expect these differences, our findings confirm the existing observations made by previous works on the topics. Carter and Jennings [31] surveyed 201 companies regarding CSR and supply chain relationships showing the importance of this concept in this country. Tiwari, Turner, and Younis [32] expanded their investigation to present a guide for purchasing specialists to assess the CSR influence on procurement decisions in a UK automotive manufacturer. Shukla, Deshmukh and Kanda [33] surveyed the Indian automotive sector to identify
levels of implementation, reasons, practices and performance of environmental and social consciousness of supply chain management related to CSR. Germany, Canada, Brazil, Vietnam, France, Italy, Iran, Turkey, Malaysia, South Africa, South Korea, Mexico, Thailand, and New Zealand, are characterized as countries where the number of research publications on logistics outsourcing is quite low (but existing).

The published articles have also been classified by industry into different categories. The category of “General” (cross-industry analysis) was the most published group (32 percent) in comparison with other industries focusing on sustainable supply chain practices. This level of generalization is actually in line with our observations evoked earlier. Because CSR in SCM is still in its infancy, there is no dominant framework that can be contextualized in different industries but rather a collection of generalist works dealing with industry at large. Corresponding to the reviewed literature, the next most prominent industry was manufacturing (19 percent), followed by food and beverage (9 percent) and then services (8 percent) (Figure 5). Other industry sectors researched included e-commerce, electronics, agriculture & agribusiness, apparel & accessories, sports, construction, tourism, public relations, chemical, consulting, health and pharmaceutical. The low number of articles devoted to CSR practices in the pharmaceutical industry is quite surprising given the fact that this industry directly deals with impact on human health making CSR important.

Figure 5. Classification of publications based on industry.

This section offered empirical evidences indicating the growing importance of the CSR issues in the existing literature. This observation has been emphasized at different levels (theoretical, geographical and industry level). As evoked earlier, CSR in SCM is still in its early stages and the majority of works focused on conceptual analysis for a potential cross-industrial application. In the following
section, we partly contribute to this trend by suggesting a conceptual frame justifying, from an economic point of view, the observed increasing interest in CSR in SCM field.

5. Economic Justification of the Increasing Interest in Sustainable Supply Chain Management

Of course, the growing interest in CSR issues in SCM did not come by chance. Many moral/social aspects can explain this popularity [34]. In this section, we introduce a complementary justification by offering a conceptual framework formalizing the economic reason for which we observe a growing interest in CSR issues in SCM. Sustainable supply chain management is expected to increase the value of the companies through different aspects [35]. This section aims at reviewing these aspects by providing an economic reasoning to their implementation.

There are many aspects that can justify the implementation of a sustainable supply chain: increase the customers’ favorable response and the stakeholders’s satisfaction, higher sales, employees’s behaviors etc. (see Mefford [36] for a detailed analysis of these dimensions). Generally speaking the influence of sustainable supply chain practices can improve two different processes in the enterprise: the production and the financial chains. Figure 6 illustrates the influence of appropriate supply chain practices on the production.

In the same vein, the implementation of sustainable practices is usually combined with the recognition of employees as an asset for the company. In this context, skills, profiles and motivations of employees lead to an improvement of production processes. This improvement leads to an increase in the quality of the production at lower costs meaning that, potentially, one can expect an increase in the profits and therefore a higher stock price for companies that are quoted. This influence can be schematized as follows (Figure 7).

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**Figure 6.** Sustainable supply chain effects on production.

**Figure 7.** Sustainable practices and their influence on the financial value of the firm.
Benefits from sustainable practices in supply chain can take different forms: a reduction of the financial risk (and therefore cost) related to corporate social responsibility and better quality. Concretely, such practices reduce the risk of litigious cases between the company and its environment decreasing therefore the likelihood of lawsuits—stakeholders are less likely to sue the company if they consider it is ethical in its practices. In the same vein, a fair/good treatment of employees in the supply chain management also decrease the risk of legal actions coming from employees. The reduced possibility to face with costly litigious case contributes to the reduction of uncertainty increasing therefore the predictability of future cash flows. These aspects have been quantified in the literature where Alexander and Buccholz [35], Donean and Oanea [37] or Wang [38], for instance, showed that CSR activities have a significant positive influence on the financial returns. Von Arx and Ziegler [39], or Maqbool and Zameer [40] also detailed such effect by emphasizing the econometric positive effect of CSR activities on the dynamics of financial prices. Statistically speaking, these studies showed that sustainable chain practices can actually affect the statistical distribution describing to the evolution of financial prices. In this perspective, one could expect that, in case of success of the implementation, these practices make the distribution related to financial returns more skewed on the left by reducing the “bad variance”.

Interestingly, despite the collection of empirical studies testifying the positive influence of the CSR practices on the dynamics of financial prices, there is no framework unifying these observations. This is the objective of this section since we suggest a conceptual framework justifying these observations and formalizing the reason why CSR appear to be increasingly important in the existing literature. As mentioned earlier, the valuation of the potential outcome of sustainable practices in supply chain management depends on a distortion of existing data meaning that first step in this estimation is to identify an appropriate technique transforming existing data. Among the variety of existing statistical transformations, a classical case is the one proposed by Fleishman [41] in which the transformed variable (financial return after the implementation of CSR practices) will take the form

\[ Y = a + bX + cX^2 + dX^3 \]

where \( X \) is the distributed variable (initial distribution of the financial returns before the implementation of CSR practices). The constants \( a, b, c, \) and \( d \) are chosen such that \( Y \) has a distribution in line with the target parameters. In the same vein, if we know that a successful sustainable practice has a left skewed impact on the initial distribution of the financial returns; one can expect to have the following condition for the third moment:

\[ E \left[ \frac{Y - \mu_{CSR}}{\sigma_{CSR}} \right] < E \left[ \frac{X - \mu_0}{\sigma_0} \right] \]

where \( Y \) is the transformed financial returns, \( \mu_{CSR} \) and \( \sigma_{CSR} \) is respectively be the mean and the variance of this transformed rate while \( X \) refers to initial (non-transformed) financial returns with their mean (\( \mu_0 \)) and their variance (\( \sigma_0 \)).
After having identified the kind of transformation the original distribution of financial returns has in case of implementation of sustainable practices, the second step (2) related to this valuation refers to the integration of uncertainty associated with the company’s cash flows. Indeed, the incomplete nature of the markets combined with the complexity of economic environment necessitates an estimation of uncertainty which can be valued through an entropy measure (this approach is common in what econometricians call “info-metrics” which refers to a practice offering a “mathematical foundation for inference with incomplete information” ([42], p. 3). The major idea behind this entropic measure is to associate uncertainty with a variational relationship between the original distribution and the transformed ones [43]. Since a transformed distribution can be derived from the initial one through a statistical transformation, further investigations in this entropic measure of uncertainty should be done in the future [44]. Although several research pathways can be investigated, a potential perspective can associate this uncertainty with what actuaries call the Wang transformation which is a distortion technique transforming one probability measure to another one by integrating a risk aversion or a risk premium parameter (λ). The Wang transformation takes the following general form, 

\[ F^*(x) = \phi \left[ \phi^{-1} \left( F(x) \right) + \lambda \right] \]

where \( \phi \) is the cumulative distribution of the normal standard distribution (the form of this function can easily be estimated by statistical software). In our perspective, this distribution is the transformed distribution1, 

\[ F^*(x) = \phi \left[ \phi^{-1} \left( F(\mu_{CSR}, \sigma_{CSR}) \right) + \lambda \right] \]

where \( \lambda \geq 0 \) is the risk aversion parameter which can be derived from a classical risk-premium perspective2. \( F(\mu_{CSR}, \sigma_{CSR}) \) can be associated with the statistical distribution describing the dynamics of financial returns after the implementation of sustainable practices.

Although managers are usually aware of the positive influence of CSR practices on the financial value of the companies and even though empirical studies showed such positive link, this relationship is sometime embedded in the global activity of the firms. This section offered an economic justification in the increasing popularity of CSR issues observed in SCM literature. Precisely, we clarified this aspect by providing a conceptual formalization of such influence. Our reasoning justifying the implementation of CSR practices can partly explain the growing interest in this topic that we identified in the first part of this paper.

6. Conclusions

From our data analysis conducting 116 articles collected from 7 publishers’ da-

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1Wang [43] showed that Wang transformation can also be used with skewed distribution.

2The estimation of this parameter can take different forms depending on the way of characterising the risk. For example, one can use a mere difference between the expected return given for the company and the risk-free rate \( E[R] - r \).
tabase between 2006 and 2016, it appears that CSR topics are increasingly investigated by scholars in logistics and supply chain management. This importance has been observed at different levels: theoretically and geographically, and industrially speaking, we can observe a growing trend in the literature. Our findings indicate that CSR issues in SCM, as a research topic, are still in their early stage with no real dominant framework (but numerous of conceptual papers) and a lack of empirical studies. This appears as a potential gap in the existing literature where more practical/quantitative research can be anticipated. Another interesting conclusion: our bibliometric analysis shows that CSR issues in SCM are more and more studied in emerging countries (India, China, Vietnam, Brazil etc.) while previous surveys on the topic emphasized the lack of research in these countries. It appears from our data that this gap is gradually filled by scholars in the field.

Beyond this bibliometric analysis, our paper aimed at offering a justification for this growing interest in CSR issues in SCM. There are many moral and societal aspects that can explain this interest and a lot of empirical works testify the positive relationship between CSR practices and the dynamics of financial practices. However, despite these collections of studies, there is no formal framework unifying the increasing importance of CSR in supply chain management. This article is a first attempt in this direction and further research will be developed by the authors.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendix
Papers Reviewed


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https://doi.org/10.1108/JCOM-01-2013-0001


https://doi.org/10.1108/SCM-06-2015-0201


https://doi.org/10.1007/s10551-013-1927-4


https://doi.org/10.1108/IJPDLM-03-2012-0107


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