

A Systematic Review of Literature on Theories Available on Sustainable Supply Chain Management

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Abstract— Sustainable Supply Chain Management (SSCM) is a still maturing research field which needs more studies done in an integrated manner. Importance of SSCM is increasing each day, due to the need of having firms to be sustainably operating. Main objective of the study was to map the theories available in SSCM literature and identify the gaps which could be used as avenues for future research. Methodology used was Systematic Review of literature together with a content analysis. Review was done for 32 articles found in literature during the period 1995 to 2015. Usage of few popular theories like Resource Base view, Transaction Cost Economics Theory, Institutional theory, Agency Theory etc were commonly identified with a lack of research conducted considering all three factors of sustainability. The call for more research on the social aspect of sustainability, quantification of impact of aspects of sustainability on firm's SC performance with more theoretically grounded studies and the adoption of theories which spring out from SSCM itself, rather than theories borrowed from other disciplines were identified as the recommendations of the study.

Index Terms— Economical, Environmental, Social Aspect, Sustainability, Triple Bottom Line

I. INTRODUCTION

Sustainable Supply Chain Management (SSCM) is explained as the “strategic achievement and integration of an organization's social, environmental, and economic goals through the systemic coordination of key inter-organizational business processes to improve the long-term economic performance of the individual company and its value network” (Carter and Rogers 2008). The field has received ascending attention becoming an increasingly popular area of research for the academics (Teuteberg and Wittstruck, 2010). Sustainability has become a buzz word with elevated prominence of sustainability driven by increased awareness on climate change, ethical behavior of organisations and greater transparency related to a firm's environmental and social actions (Carter, 2011). With the growing interest in the sustainability incorporated into SCM, various literature reviews had been published during the past years facilitating the analysis of extant literature on SSCM. Primary focus of this review article will be to map the dominant theories available on SSCM.

According to Touboulic and Walker (2015), in order to evaluate any academic field, attention needs to be given to the theories existing in that field since theories are equivalent to the keystone of knowledge production (Handfield and Melnyk, 1998), hence the importance of mapping the theories applied in SSCM. Analysis of the existing literature will enable the discussion of the current status of SSCM as an

academic field hence facilitating future researchers to gain an idea on gaps in existing literature.

This paper will initially introduce what SSCM is, and then the methodological approach leveraged to conduct the systematic literature review, finally discussing the theories used to conceptualize the field of SSCM and gaps existing in extant literature which can serve as avenues for future research.

II. SUSTAINABLE SUPPLY CHAIN MANAGEMENT (SSCM)

Initial researchers have defined SSCM only with an environmental concern incorporated into the idea of SCM but towards recent times, definition of SSCM has evolved to articulate the three dimensions of Triple Bottom Line, namely Economy, Environment and Society. Incorporation of all these three aspects, rather than focusing on one aspect like social or environmentally concerned, is being viewed as SSCM achieving maturity as an academic field by becoming more integrated and including a wider range of issues (Craig R. Carter & Rogers, 2008) It is interesting to note that SSCM allows SCM to transcend beyond the boundaries of traditional boundaries, by focusing on external stakeholders even while concentrating on the firm's economic performance. Hence it could be stated that SSCM underlies a collaboration between internal and external SC partners.

According to Krause, Vachon, & Klassen (2009), there is a lack of unanimity on the definition of SSCM. Pullman, Maloni, & Carter (2009) state that the complexity of modern world's SCs has resulted in the difficulty of providing cross-industry frameworks due to different sectors having different issues. Hence the conceptual diversity prevailing in the academic field of SSCM paves way to provide an overview of theories applied in the field, which have influenced the conceptualization of SSCM. Research on SSCM has evolved from studies done in SCM operations related to Corporate Social Responsibility and they have been conducted in a stand-alone manner without considering the inter relationship between the aspects of economy, environment, human rights, work place ethics, philanthropy etc and without considering the fact that all these aspects belong to the bigger picture of sustainability interlinked with SCM (Carter and Jennings, 2002).

III. IMPORTANCE OF THEORETICAL MAPPING

It has been observed that there are various inter-disciplinary theories applied when developing the field of SSCM (Touboulic and Walker, 2015). Ambiguity observed in the concept of Corporate Sustainability could be attributed to the fact that the concept roots from a framework dominated by an

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economistic view of the firm (Angus-Leppan, Benn, & Young, 2010). The presence of theories rooting from diverse fields and the incorporation of all three elements of the triple bottom line into the concept of SSCM makes it multifaceted in terms of available theories hence it would be crucial to understand the current status of the field in terms of extant literature to better understand the concept and develop more theories based on future research for to nourish the concept of SSCM.

Findings from several literature reviews published on SSCM indicate that there is still a lack of research conducted on a theoretical ground (Craig R. Carter & Easton, 2011; Craig R. Carter & Rogers, 2008). It has been found out that despite the rising number of empirical papers published in the field, there is a lack of theoretically grounded research in SSCM ((Mollenkopf, Stolze, Tate, & Ueltschy, 2010) Current research conducted in the field of SSCM fail to make a strong theoretical contribution towards the enrichment of the field (Hoejmose and Adrien-Kirby, 2012) It was also found out that researchers tend to employ only a few theories popular in SSCM when conducting their studies even when other lenses could have been leveraged to provide new perspectives on the field of SSCM (Craig R. Carter & Easton, 2011)

Many of the researchers have conducted researches on individual dimensions of sustainability, mostly with regards to the environmental aspect with an alarming lack of research done integrating all three dimensions (Winter and Knemeyer, 2013). Current research on SSCM has failed to incorporate all three aspects of sustainability majorly owing to a distortion in available theory favoring only the economical performance of a firm (Pagell and Shevchenko, 2014). Conducting a literature review on current theories in SSCM will help exploring the potential causes for the lack of integrated approaches for SSCM research and what led the researchers to carry out studies with only an environmental or economical sustainability focus (Touboulic and Walker, 2015) Hence there is a void in literature that should be reviewed and explored to integrate theory with SSCM research (Sarkis et al. 2011) Therefore conducting a systematic literature review on theories available in SSCM will pave a way for future researchers looking to build theories and enrich the field of SSCM. Because in order for future researches on SSCM to be more comprehensive, integrated and theoretically grounded, it is critical to have an insight as to what theories have been used to date, to conceptualise the field of SSCM.

IV. METHODOLOGY

Systematic literature reviews enable “integrating a number of different works on the same topic, summarizing the common elements, contrasting the differences, and extending the work in some fashion” (Meredith, 1993) This paper is based on a systematic review of literature done on extant studies conducted in direct relation to SSCM. When comparing the years in which publications on SSCM were available and noticing the larger body of literature available after 1995 (Stefan Seuring & Müller, 2008), the review was done using the studies conducted from 1995 to 2015. Defining the thematic scope used for the review, search themes were drawn from SSCM and Socially sustainable SCs.

To concise the scope of the systematic review to an affordable number of articles, only the journals which were published in top-tier research outlets were selected. Articles which were published during the period of 1995 to 2015, and which were published in the following journals were selected and reviewed systematically.

1. Journal of Supply Chain Management
2. Journal of Operations Management
3. International Journal of Logistics Management
4. Journal of Business Logistics
5. International Journal of Physical Distribution and Logistics Management

This was done in order to guarantee a certain level of clarity, the review was confined to peer review articles (Burgess et al., 2006). A manual review of articles was first done regarding the articles in SSCM that were published in the above journals. 41 articles were initially identified. Next the articles were reviewed electronically using key words given in Table 1.

Sustainable Supply Chains	Supply Chain Management	Green Supply Chain
Social Sustainability	Sustainability	Environmental sustainability
Economical Sustainability	Socially sustainable supply chains	Triple bottom Line

Table 1 : Key Words

Electronic review of literature according to above key words was done using EBSCO Business Source Complete database. Using the above key words, it was possible to eliminate 9 of the articles hence ending with 32 articles left for the analysis of literature. Main criteria used for the elimination were

Absence of a strong theoretical base related to SCM
 Concentration on issues from other disciplines (eg: economic issues) rather than conducting a comprehensive discussion about SSCM (Carter, 2011)

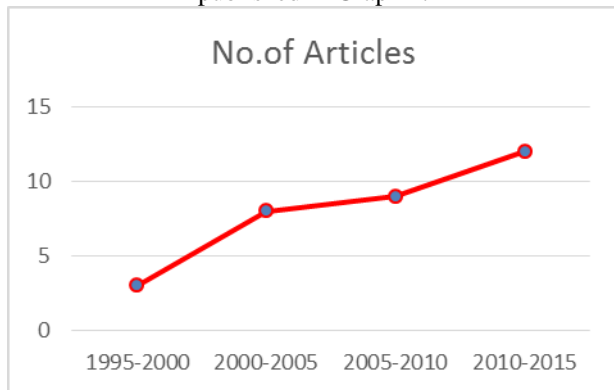
All articles selected were then stored using the software End Note. Data analysis was conducted via a content analysis. Data found in the articles were coded according to similarities and differences found in each article. Data was mainly categorized under two aspects, sustainability focus and theoretical focus (Touboulic and Walker, 2015). The classification criteria used were in accordance with the definition of SSCM put forward by Carter and Rogers (2008) and coding strategy leveraged by Carter and Easton (2011). Results of data coding done under the two main classification of sustainability focus and theoretical focus are given in the Table 2.

Sustainability Focus	Percentage of articles
Social focus	21.87
Environmental focus	50.00
Economical focus	56.25
CSR	28.12
Human Rights	15.62
Working conditions	12.25

Theoretical Focus	
Resource Base View	62.50
Transaction Cost Economics Theory	34.38
Stakeholder Theory	75.00
Institutional Theory	78.13
Other	25.00

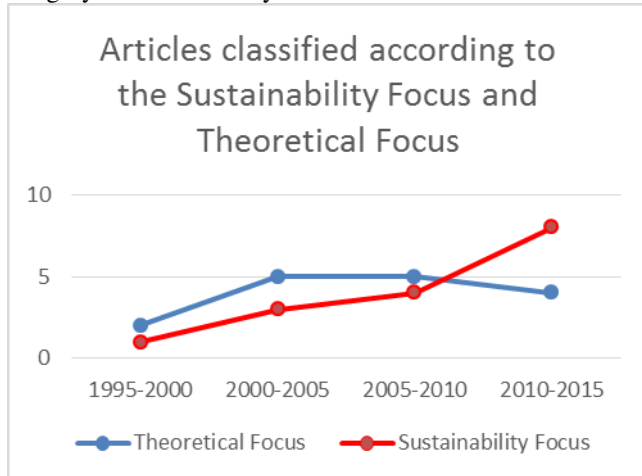
Table 2 : Classification of articles

The articles considered are denoted according to the year they published in Graph 1.



Graph 1: The graph of No. of articles published in each year range from 1995 to 2000

The number of articles according to the classification under the two main criteria of Sustainability Focus and Theoretical Focus, is denoted in Graph 2. Here articles with both a Sustainability and Theoretical Focus were included in the category of Sustainability.



Graph 2: The graph of no. of articles classified according to Sustainability/ Theoretical Focus

V. RESULTS

In this section of the paper, identified theoretical perspectives used in SSCM research so far will be presented, in order to identify the gaps present in extant literature and find avenues for future research. As per Graph 1, a clear increase in the number of articles published in SSCM from period 1995 to 2010 could be observed. Hence it can be stated that from the period starting from 1995, an improving trend in the no. of studies done on a theoretical basis in the field of SSCM can be observed. Also, an increase in sustainability focus could be observed in the no. of articles published after 2005 as per Graph 2. When looking at the theories adopted by researchers

in SSCM to base their studies, it could be observed that many macro theories had been adopted from foreign fields like economics and political science (Colquitt & Zapata-Phelan, 2007). Some theories like that, which had been borrowed from other academic fields could be seen to be repetitively used by different researchers, hence making those theories to be the “popularly” adopted theories. Such theories are Stakeholder theory, Transaction Cost Economics Theory, Resource Based View (RBV) of a firm, Institutional Theory, Agency Theory, Value Chain Model etc. these theories have been most commonly cited in literature, when analyzing the theories adopted by SSCM researchers in their studies. Most of these theories have been used combined with other theories. When exporting theories like that from other fields into SSCM, care should be taken to adopt what is relevant and only what has an explanatory capacity to the issue addressed in SSCM (Amundson, 1998)

According to the adoption of RBV into SSCM, researchers have stated that integration of sustainability into SCs gives firms competencies and hence competitive advantage over other companies. How the incorporation of social and environmental sustainability practices into food supply chains can yield better performances of the company were experimented by Pullman, Maloni and Carter (2009) using RBV theory. According to Jones et al (2005), companies voluntarily engage in social activities like CSR (Corporate Social Responsibility) projects, in order to stand out from the other companies and thus to gain competitive advantage. Companies which integrate a SSCM system in their operations will yield long term competitive edge in the industry (Autry et al. 2001). Introduction of SSCM will earn reduced production costs which will make them strive competitively over the other companies in the industry (Teuteberg and Wittstruck, 2010) In 2007, Markley and Davis investigated on how social sustainability could impact the performance of the firm’s SC. Overall, studies have taken place to determine the relationship between SC performance and sustainability aspects.

When considering these theories adopted and knowing that SSCM integrates the Triple Bottom line, meaning all three factors, economic, social and environmental factors have to be incorporated when conducting researches on SSCM, it could be seen that most of the studies on SSCM carried out during the period of 1995 to 2015, have been focusing on interlinking sustainability with a firm’s economic performance, or in other words, the studies have connected the occurrence of sustainable supply chains to the firm’s profitability (Zhu & Sarkis, 2004), without giving much focus to the other two aspects of sustainability, environment and society. When quantifying the impact of sustainability on economic performance, it has been difficult since it does not fall into the category of traditional performance measurement (Srivastava, 2007; Tsoufas & Pappis, 2008). According to (S. Vachon & Klassen, 2008) Quite a large proportion of studies which were conducted to explore the sustainability of supply chains, have focused on the environmental aspect of sustainability or have viewed the supply chain as “green supply chains”. In both these occasions, little or no concentration has been given to the social aspect of SSC. Even though studies have been conducted with the concern of green SCM it would have been better if they focused on being

more theoretically grounded or being into academic SCM (Giunipero,2008). Further to the consideration on the economical and environmental aspects of sustainability, only a few studies on quantification of the impact of those aspects on firm's performance by incorporating them into the SC had been done. In year 2010, Gopalkrishnan, Yusuf, Musa, Abubakar and Ambursa had done a case study on the British Aerospace System focusing on the drivers of SSCM, where an extension of the study could have been determining the impact of those factors on firm's performance.

How sustainability would impact a firm's performance would be more complicated due to the involvement of many other deciding factors like stake holder relationship, improvement of both economic and environmental aspects of sustainability etc (S. Vachon & Klassen, 2008). Sustainability- firm's performance interrelationship will also be dependent on intangible resources like organizational learning as well. (Carter, 2005) Adoption of Transaction Cost Economics Theory to relate the connection between performance of an organization and its sustainable operations has been done in the studies by Williamson (1981). Using the theory, researchers establish how SCs should be considerate on selecting the right supplier base in order to achieve minimized transaction costs, which will be indirectly incorporating the economical aspect of sustainability into SCM.

Next most commonly adopted theories in SSCM studies have been Stakeholder Theory and Institutional Theory which commonly describe drivers and enablers of SSCM. Both of these theories discuss how SSCM is impacted by the influence of various internal and external parties associated with a firm's operations. It is important to understand and quantify the needs of each different type of stakeholder, in order to better serve them, which could be done via the integration of sustainability into firm's operations or SCM. Stakeholder Theory explains the action of the many determinant parties on SC operations while Institutional theory explains how firms adopt on another's operations SSCM with the aim of performing better. Under the institutional theory, stakeholder impact of social aspect of sustainability has been studied by Park-Poaps and Rees (2010). With the Institutional theory, researchers explain how social obligation leads to compliance hence the value of social aspect of sustainability. Even though every organization is having the implications of institutional pressure, the degree to which it is adopted or the manner in which it is interpreted vary from organization to organization depending on the industry, size of the organization, demographics etc (Tate, Ellram and Kirchoff (2010) They have used the institutional theory in analyzing CSR reports of companies.

With the use of Agency Theory (Jensen and Meckling, 1998), researchers explain how internal stakeholders (employees) should act in the good interest of the shareholders, hence the importance of a firm to be operating sustainably in order to provide cost concessions and profit benefits to its owners. Application of Porter's Value Chain Model has resulted in showing how firms could minimize the cost across each link in SC achieving cost benefits thereby incorporating economic sustainability into SCM. The theories which have been popularly used by previous researchers have not been able to address all three aspects of SSCM. Focus had been mainly on

the economical and environmental aspects, might be due to the quantifiable nature of them when compared to the less explored aspect of SSCM, social perspective. Hence there is the presence of possible avenue which could be utilized for future research, exploring the social dimension of SSCM. For the exploration of the social aspect of SSCM future researchers could use theories like sensemaking theory (Weick, 1979 or Maslow's hierarchy of needs (Maslow, 1970), (Touboulic and Walker, 2015) Hence in order to achieve more comprehensive understanding on SSCM, research needs to be done in an integrated manner, considering all three aspects of sustainability, not having individual factors taken into consideration in a stand-alone manner.

CONCLUSION

The aim of this paper has been to map the theories which have used so far during the studies done in the field of SSCM and to highlight the major theories used. Hence gaps in extant literature were identified which can be leveraged as future research avenues. SSCM as an academic field can be viewed as still a growing field which needs more theoretical grounded research and which needs theories to be adopted from the field itself, without exporting them from other disciplines. Attention needs to be given in adopting a more integrated approach to conducting research, by incorporating all three aspects of sustainability. As future research avenues, more studies could be done on quantifying the impact of incorporating environmental, economical and social aspects of sustainability into SCM, on firm's overall performance, either in an integrated manner considering all three factors together or in a stand-alone manner.

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