

A critical review of the social dimension of sustainability in operations management research

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Abstract

This paper argues that too often operations management research investigating the social dimension of sustainability is research about corporate social responsibility rather than research about the sustainability trade-offs that make being sustainable a challenging endeavour. A typology of elementary sustainability trade-offs is developed and is applied to three case studies to better understand the scope and challenges of social sustainability research in operations management.

Keywords: Sustainability, Triple Bottom Line, Social sustainability

Introduction

Although the sustainability agenda has been enthusiastically adopted in operations management research Pagell and Wu (2009) noted that the sustainable supply chain management literature provided almost "*no coverage of the social component*" (p. 38) and that "*[supplier] certification is one of the few areas where social issues such as child labor and unsafe working conditions are addressed in the supply chain literature*" (p. 39). This confirms Seuring and Muller's (2008) conclusion that much of the research to date has focused on reducing environmental harm and has overlooked the social dimension of sustainability. Many authors have since reiterated this statement and call for research focusing more specifically on social sustainability (e.g. Oliveira and Silvestre, 2017; Oliveira and Barbieri, 2017; Touboulic and Walker, 2015; Wu and Pagell, 2011).

It is possible that managers considering the sustainability agenda have intuitively realised that environmental issues have been ignored in the past whereas social issues, by possessing a more direct and immediate connection to human decision makers, have, to some degree, been addressed. Alternatively, managers may harbour more preferences for environmental ideals based on a philosophical attachment to Rousseau's ideal of nature by opposition to social ideals which can be difficult to adhere to in a context of continued class and cultural conflicts. Whatever the case may be, the purpose of this paper is to review existing research which has positioned itself as being about the social dimension of sustainability and to critically examine the nature, topicality, and criticality of the issues that it addresses.

Literature Review

In this section, we review the way in which authors concerned with the lack of research about the social dimension of sustainability have conceptually defined and measured it. All these authors explicitly cite the triple bottom line as the conceptual framework guiding their research (e.g. Pagell and Wu, 2009; Oliveira and Barbieri, 2017; Oliveira and Silvestre, 2017). Oliveira and Silvestre (2017) epitomise this view with this

statement: "[Sustainable supply chain management is] primarily centered on the notion of the Triple Bottom Line [...] that indicates three **equally important** dimensions [...] to be addressed to generate true sustainable approaches" (p. 1; emphasis added).

Another common feature of these authors is a sense of outrage at the neglect of the social dimension, which is said to be a 'problematic situation' (Oliveira and Barbieri, 2017). Yet ways to define social sustainability differ between authors and the topics classified as being social sustainability issues are very broad. Table 1 summarises the relationships between these topics and the United Nations *Our Common Future* report (1987) which pioneered the concept of sustainable development. Double ticks represent a perfect match between a social concern in operations and supply chain management research and *Our Common Future* whereas single ticks indicate an area where the topic is consistent with *Our Common Future* but where the scope of the research does not fully explore the relationship. References shown with a star indicate review papers that contain further references to papers researching a specific topic.

Table 1 – Classification of Social Sustainability Topics

Topics	<i>Peace, security, and social justice (equity)</i>	<i>Quality of Life (poverty, survival, meeting essential human needs, quality of growth)</i>	<i>Human Settlements (Urban Challenge)</i>	CSR
Supply base continuity, material traceability, and price transparency (Pagell and Wu, 2009) Product responsibility, business ethics (Oliveira and Barbieri, 2017*) Human rights (Oliveira and Barbieri, 2017*) Gender, minorities, disabilities (Oliveira and Barbieri, 2017*)	✓✓			✓✓
Working conditions, health and well being, health and safety (Oliveira and Barbieri, 2017*)	✓✓	✓✓	✓	✓✓
Child labour (Oliveira and Barbieri, 2017*)		✓✓	✓	✓✓
Community involvement, philanthropy (Oliveira and Barbieri, 2017*)				✓✓

Table 1 also compares social sustainability topics with the objectives of Corporate Social Responsibility (CSR). The CSR agenda predates the sustainability agenda as the idea that corporate executives should balance the interests of all stakeholders emerged in the 1960s. In order to benchmark recent research against CSR, the definitions used by strategic management textbooks such as Thompson et al. (2014) is used, where CSR is defined as actions (1) ensuring honourable and ethical behaviour, (2) promoting

workforce diversity, (3) enhancing employees' well-being, (4) protecting the environment, and (5) supporting charitable causes and participating in community services.

Table 1 shows that social sustainability topics used in the operations and supply chain literature perfectly matches the specifications of CSR research. Clearly, there has always been and will always be an overlap between CSR, sustainability, and the triple bottom line. Table 1 shows that modern social sustainability research fully adopts *Our Common Future's* concern for equity amongst stakeholders, generating a better quality of growth through better working conditions and industrial safety. Philanthropic and community actions feature in social sustainability research although they are not part of *Our Common Future* and therefore it is likely that philanthropy is directly inherited from CSR frameworks. Table 1 further shows that the operations and supply chain management sustainability literature does not address, or indirectly addresses, many of the priority areas defined in *Our Common Future* such as peace, security, quality of life, and the urban settlements challenge. In contrast a comparison of the operations literature about environmental sustainability would be very likely to reveal that the agenda set by *Our Common Future* has been extensively addressed.

No authors concerned with the social dimension of sustainability provide a discussion of tensions between social and environmental performance or of tensions between achieving performance levels across all three dimensions. Instead, all focus either on social performance *per se* or on tensions between economic practice and social impact. This further reinforces the conclusion that none of these research papers depart from CSR research that predates the sustainability research agenda. For this reason, it is legitimate to ask whether what is currently written about social sustainability performance is 'old wine in a new bottle'?

Theory

The conclusion of the previous section should be moderated by the inherent challenge of researching sustainability at different levels of analysis. *Our Common Future* was written for an audience of national and international policy makers and is situated at a planetary level of analysis. Any corporate-level attempt to claim sustainability is compromised by the limited scope and reach of the corporation (Gray, 2010). This issue is partially avoided when analysing the wider reaches of supply chains, a point which forms the foundation of the argument that it is more appropriate to research sustainability at a supply chain level of analysis. Nevertheless, the conclusions of the literature review raise important questions:

- Is it legitimate to state that the three performance dimensions are equally important (Oliveira and Silvestre, 2017)?
- Is research about each of the dimension in isolation (e.g. working conditions) still research about sustainability?
- Or, should instead the purpose of researching sustainability to only research social practice that conflicts with economic and environmental objectives?

It is difficult to find a theoretical basis to argue that researching better performance along one dimension only is research about sustainability. Very much in the same way that the balanced scorecard (Kaplan and Norton, 1996) has changed the way through

which corporate performance is perceived, *Our Common Future* has changed the way in which the impact of economic and social activities is perceived. To pursue the analogy, a key contribution of Kaplan and Norton was to argue that performance dimensions are all causally related and form ‘strategy maps’. Similarly, *Our Common Future* has created an awareness of how embedded economic, environment, and social performance are. Indeed, the essential contribution of *Our Common Future* was to lay bare the existence of sustainability trade-offs. To become sustainable means the ability to understand and manage these trade-offs. This is an area where operations management is uniquely qualified to contribute thanks to its long standing theoretical interest in strategic trade-offs (Slack, 1998; Da Silveira and Slack, 2001) and the law of performance frontiers (Schmenner and Swink, 1998).

If sustainability is framed in terms of trade-off theory, it means that only research that documents and analyses sustainability trade-offs is genuinely about sustainability. It also means that when describing a research agenda, it is important to describe the trade-off(s) which is (are) investigated. Figure 1 illustrates this principle by displaying one possible trade-off.

$$\text{Eco}^+ \longrightarrow \text{Soc}^-$$

Figure 1 – Example of Sustainability Trade-off

Figure 1 describes a research agenda where one is concerned with the fact that an increase in economic performance (Eco^+) would cause a decrease in social performance (Soc^-). For example, an increase in the recourse to child labour is a sustainability issue because there are concerns with the physical and mental health of children and their education (Oliveira and Barbieri, 2017). Figure 2 displays a typology of sustainability research by presenting all the possible elementary trade-off problems that involve only a combination of 2 dimensions of the triple bottom line.

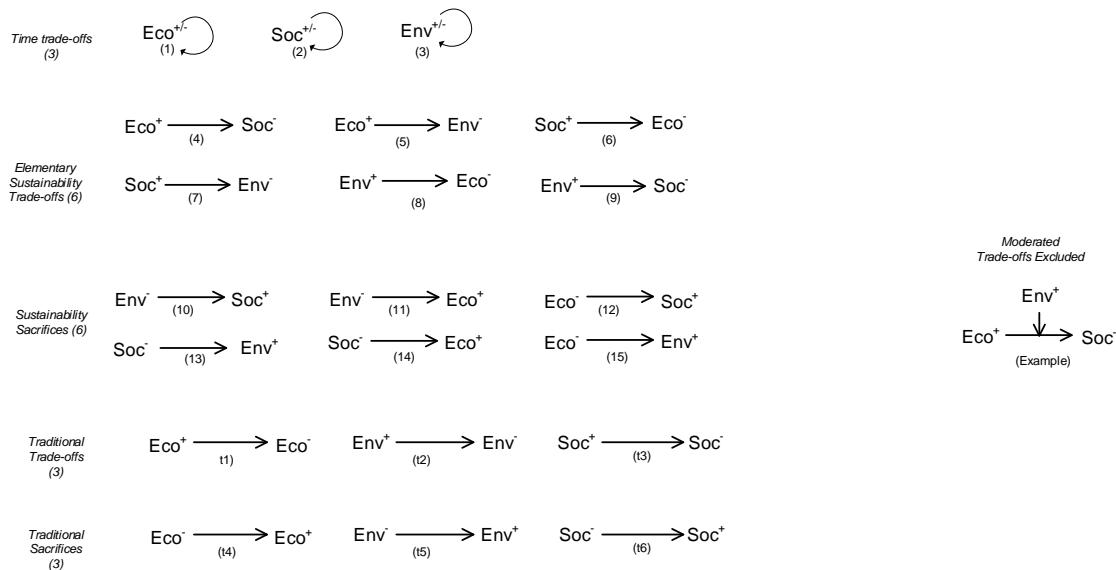


Figure 2 – A Typology of Sustainability Trade-offs

Figure 2 reveals that sustainability research will always be based on a combination of 15 'elementary' sustainability problems. This includes 3 time-based trade-offs (i.e. performance today endanger performance tomorrow), 6 elementary performance trade-offs, and 6 performance sacrifices based on reversed polarities (i.e. one needs to give up something to increase performance in another dimension). Figure 2 also contain 6 traditional trade-offs, e.g. an improvement in economic practice leads to a decrease in another area of economic performance. These 6 are the traditional trade-offs studied in operations management (e.g. the cost quality trade-off) and are excluded from the count of 15 but shown as they can be useful building blocks to understand complex sustainability problems. Finally, it is worth noting that moderated trade-offs derived from the 15 trade-offs are not shown (a total of 48 moderated trade-offs could be shown when combining all variables and polarities).

In the rest of this paper, the objective is use the typology of figure 2 to illustrate how research on the social dimension of sustainability can progress by better describing its scope and identifying the root cause of social sustainability issues.

Methodology

As the purpose of the rest of the paper is to illustrate the usefulness of the classification scheme shown in figure 2 rather than to test a theory, a qualitative case study methodology is used. Its purpose is to illustrate how the typology can be used to describe current problems that are aligned with the concerns expressed in *Our Common Future*.

In order to investigate the sustainability trade-offs of figure 2, it is important to use a unit of analysis which is broad enough to capture the relevant trade-offs. This means that the unit of analysis must be entire ecosystems including industrial ecosystems, social systems, and their surrounding natural ecosystems.

This broad contextual (triple) ecosystem-level unit of analysis and the fact that the research is focused on causal explanations (the underlying sustainability trade-offs) means that in terms of methodology, a critical realist approach to case study seeking contextualised explanation is adopted (Welch et al., 2011). The method used in this paper was to select three case studies at a (triple) ecosystem level and to use secondary sources to acquire enough data to produce a causal diagram based on the elementary trade-offs shown in figure 2. The following case were selected:

- The global oil industry for its continuing controversies along the economics, environmental, and social dimensions.
- The Ciudad Real industrial cluster. Often described as an impressive economic success story of the North American Free Trade Area, Ciudad Real has been the site of a particularly sinister case of female genocide.
- The global garment industry for its continued appearance in debates about modern slavery. The case study was also selected for the fact that it is increasingly researched in supply chain management research.

Case Studies

Oil Industry Case Study

Figure 3 displays the key sustainability trade-offs involved in the oil industry with the solid arrows. The causes to effect relationships shown with dotted lines are useful to explain linkages between the trade-offs but are not sustainability trade-offs themselves.

The root cause of sustainability issues in the oil industry is best labelled as oil specialisation, i.e. the fact that modern economies and their supply chains are heavily reliant on oil. Modern economies are so specialised that any price increase or shortage of oil has immediate impact on the welfare of nations, organisations, and individuals.

The first sustainability issue is a time trade-off as we use oil much faster than it replenishes itself in nature. The second set of trade-offs includes the pollution and climate warming effects of oil consumption, along with all the induced effects on the health of human and other life forms. Finally, the excess bargaining power possessed by countries and regions possessing large stocks of oil has resulted in enduring geopolitical conflicts and the operation of oligopolies, i.e. cartel-arrangements which are commonly agreed-upon to be undesirable practices from a social equity perspective.

Much of the sustainable operations management literature has focused on green operations and the reduction of carbon emissions (e.g. Nunes and Bennett, 2010). It is typically perceived that these papers ignore the social dimension of sustainability as they only focus on findings ways to reduce oil/energy consumption and to replace fossil fuels energy sources with renewable ones. Given the connectedness shown in figure 3 between the different trade-offs, this may be a moot point and it is important to differentiate initiatives that:

- reduce the pollution impact of oil consumption (e.g. using scrubbers on boats propulsion systems). Such initiatives reduce pollution but do not make the oil industry 'sustainable' as the other trade-offs stand.
- reduce oil consumption and therefore pollution. Whether or not these initiatives are sustainable is a debatable issue, as harm reduction is not harm elimination (Pagell and Shevchenko, 2014) and as savings from oil consumption can be invested in more oil consumption (Jevon's paradox; cf. Alexander, 2017).
- eliminate the need for oil altogether, such as Toyota's search for alternative fuels (Nunes and Bennett, 2010). In this case oil specialisation is reduced and therefore all three trade-offs, including those involving social aspects, are being addressed.

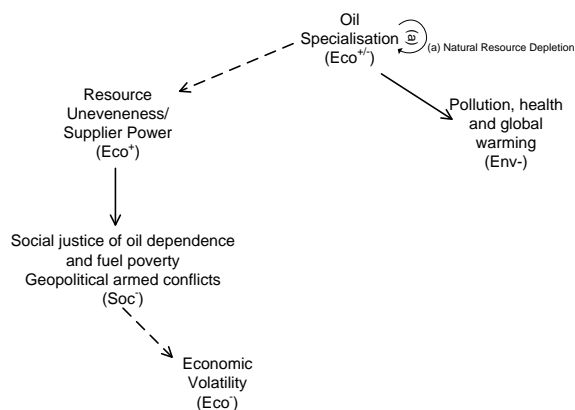


Figure 3 – The Oil Industry Case Study

Ciudad Juarez Case Study

Ciudad Juarez is a Mexican city neighbouring El Paso on the US border. Due to its proximity to the US, Ciudad Juarez has been a preferred investment location for *maquiladoras*, assembly plants using cheap Mexican labour to produce goods for the US market. These investments were made possible thanks to the North American Free Trade Agreement (NAFTA), which came in force in 1994. As a result, Ciudad Juarez is often cited as an economic success in the business and popular press. This economic success has however been associated with significant controversies in social terms. In 2008, Ciudad Juarez had the highest rate of homicide per inhabitants in the world and the city was infamous for its 'dispirited and disorderly atmosphere' (Bowden, 2008) caused by drug violence, government corruption, and poverty. A further controversy was the fact that these homicides included more than 300 women and girls between 1993 and 2003. According to many authors, these female homicides, which often involved rape and torture, targeted a specific group of girls and women. For example, Livingstone (2004) point out that most of the victims were maquiladoras employees, and that the prime recruitment criterion was physical appearance rather than work skills.

The Ciudad Juarez female genocide attracted a lot of international attention and there has been much speculation about their motives. Pantaleo (2010) has reviewed systematically narratives from newspapers, human right reports, and academic journals to compare their analysis of motives. We use her analysis as data to perform a sustainability trade-off analysis, which is shown in figure 4.

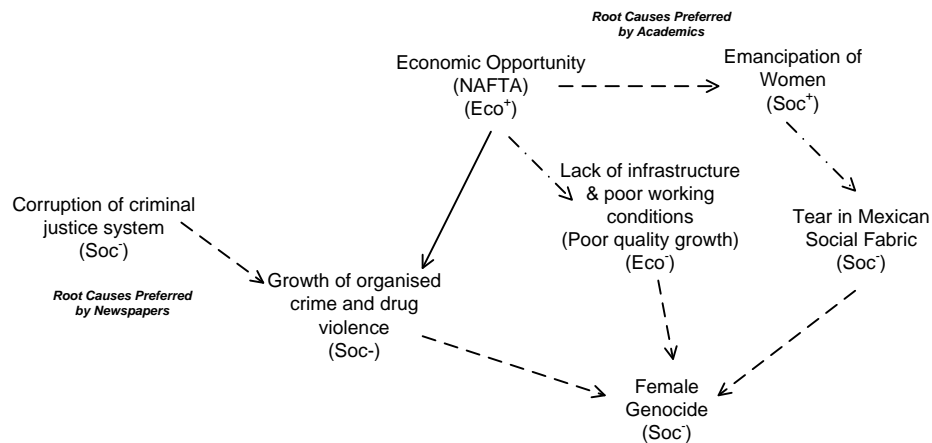


Figure 4. Ciudad Juarez Case Study

Figure 4 indicates that the causal explanation preferred by newspapers for the Ciudad Juarez female genocide was the growth of crime linked to drug cartel violence, and the ability to commit these crimes in all impunity due to a corrupt criminal justice system. Although academic sources do not disagree with drug crime being a key factor, they argue that sustainability trade-offs are at stake. In academic papers, NAFTA is presented as an economic opportunity set at an international policy level that was implemented very poorly, echoing *Our Common Future's* concern with poor quality growth. Working conditions in maquiladoras are said to be very poor. Nevertheless, these employment opportunities were taken up by young females trying to escape rural poverty and seeking an independent, emancipated lifestyle. As the infrastructure (road, lights, public

transportation) in Ciudad Real is very poor, these employees form a visible and vulnerable group. Some academics further argue that the fact that male unemployment is particularly high added to the cultural clash of women living and working independently in a traditional patriarchal society, and that much of the motives for the murders are rooted in gender issues linked to a tear in the social fabric of Mexico (Pantaleo, 2010).

The Ciudad Real case study provides a more complex example of multiple causal relationships creating a fundamentally unsustainable situation. It is tempting to argue that much could have been done in operations management research about working conditions in maquiladoras and it is disappointing to witness that this research was done in other fields (such as gender studies). However, this should be moderated by the fact that the only variable clearly related to operations management in figure 4 is an intermediate variable which, if addressed, will not remove nor address the pre-existing social issues displayed in figure 4. This raises the question of whether operations/supply chain management can resolve sustainability problems of such scope (Pagell and Shevchenko, 2014)? It is tempting to argue that a responsible firm with a clear sustainability policy should have simply refused to invest in or continue operations in Ciudad Real.

Modern Slavery in Textile Supply Chains Case Study

In this case study, we consider a generic case study of the issues faced by textile firms using supply chains in countries where modern slavery practices are prevalent. The International Labour Organisation (ILO) defines modern slavery as exploiting an individual by coercing him/her into economic labour. This includes debt bondage, human trafficking, and child labour (ILO, 2012). As in the second case study, there are many root causes which are typically discussed in the business press and the literature, but unlike the second case study, there is in this case some ambiguity regarding the existence of sustainability trade-off.

Figure 5 illustrates this by proposing two competing causal networks. On the left-hand side, modern slavery is not the result of a sustainability trade-off as it is described as the result of many local conditions: extreme poverty pushing individuals into controversial work arrangements, the dark side of the entrepreneurs (Osborne, 1991), and weak local institutions (Peng et al., 2008). Buyers from developed economies search for competitive advantage by applying the ideals of welfare economics and explore outsourcing as one mechanism to further their competitive advantage. The direct effect of this outsourcing is to create jobs in the contracted country. This is conjectured to reduce poverty and stimulate growth (Ethier, 1988). Local growth should help governments to develop stronger and fairer institutions, which should eventually, when combined with decreasing poverty, eliminate the practices of modern slavery.

On the right-hand side, a competing network assumes that corporate buyers are aware of the risk of modern slavery practices and still transact with the foreign factories. This adds on one root cause to the institutionalisation of modern slavery (buyers' greed) and forms the only sustainability trade-off in figure 5. The critical question is whether this trade-off exists: is the desire to outsource to low labour cost countries really a direct cause of modern slavery? Figure 5 also shows that the perception of the existence of a trade-off is moderated by CSR and sustainability ideals. For example, for the business

press, the association of modern slavery with famous brand names (e.g. Nike) is enough to stir controversy, i.e. association is equated with causality.

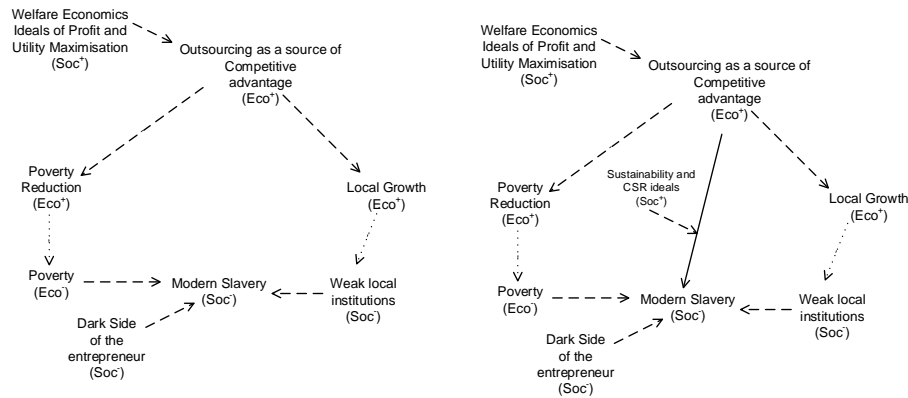


Figure 5. Modern Slavery Case Study

To answer these controversies, textile capacity buyers conduct audits, which are known to be fraught with shortcomings (Benstead et al., 2017). The challenge is to be able to better detect the occurrence of modern slavery (which often involve third party actions) and to find appropriate remediation actions (Benstead et al., 2017). Although this is a positive course of action, it is about harm reduction rather than harm elimination (Pagell and Shevchenko, 2014). If outsourcing is truly a root cause, harm elimination would suggest a strategy of refraining from investing in countries where the right institutions are not in place. An alternative interpretation is that it may be the ideals of welfare economics which are the root cause of the problem. Whether or not a reconciliation between these and sustainability ideals is possible remains a controversial question. The belief that they are reconcilable is often described as an aesthetics and romantic position (Gray, 2010). These ‘battles over institutions’ provide an example where it is challenging to properly define the boundaries of operations management research questions.

Conclusion

This paper has shown through three case studies that research papers about sustainable operations and supply chain management could greatly benefit from explicitly framing their research by clarifying which sustainability trade-off they are investigating. Drawing causal networks is useful to carefully define if the scope of the research is to eliminate the root causes of poor social practices or is restricted to harm elimination, which is more akin to CSR research.

A limitation of this approach is that in two out of the three illustrative case studies used in this paper, there is a degree of ‘trade-off ambiguity’ that exists as different parties will disagree about the existence of trade-offs, their importance, and the implied variables. Managing trade-offs with multiple root causes under uncertainty should become the focus of social sustainability operations management research.

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