



## Research paper

## Assessing the social sustainability of supply chains using Best Worst Method

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## ARTICLE INFO

## Keywords:

Sustainable supply chain management  
Social sustainability  
Best worst method  
BWM

## ABSTRACT

A truly sustainable organization needs to take the economic, environmental and social dimensions of sustainability into account. Although the economic and environmental dimensions of sustainability have been examined by many scholars and practitioners, thus far, the social dimension has been received less attention in literature and in practice, in particular in developing countries. Social sustainability enables other sustainability initiatives and overlooking this dimension can have a serious adverse impact across supply chains. To address this issue, this study proposes a framework for investigating the social sustainability of supply chains in manufacturing companies. To show the applicability and efficiency of the proposed framework, a sample of 38 experts was used to evaluate and prioritize social sustainability criteria, using a multi-criteria decision-making method called the 'best worst method' (BWM). The criteria are ranked according to their average weight obtained through BWM. The respondents view 'contractual stakeholders influence' as the most important social sustainability criterion. The results of this study help industry managers, decision-makers and practitioners decide where to focus their attention during the implementation stage, to increase social sustainability in their organizational supply chain and move towards sustainable development.

## 1. Introduction

Industrialization contributes to the damage caused to the natural environment and to human life (Kusi-Sarpong et al., 2015). As a result, there is a pressing need for organizations to work together in sustainable supply chains (Fabbe-Costes et al., 2014), taking into account both social criteria and economic and environmental criteria (Mangla et al., 2014). With our increasing knowledge about sustainability, government policies, and growing community awareness, sustainable performance is increasingly becoming an important organizational strategy (Gaziulusoy, 2015; Govindan et al., 2016). However, thus far, literature has focused on social sustainability to a much lesser extent, which is unfortunate, since not only can social sustainability practices help improve other aspects of sustainability, but all three dimensions are required to build a truly sustainable business (Seuring and Müller, 2008; Ashby et al., 2012).

So far, several researches have proposed sustainability frameworks that include all three dimensions, albeit with a greater emphasis on economic and environmental sustainability. However, only a few have tried to examine social standards using empirical analysis. To correct this imbalance, this paper proposes a unified evaluation framework designed to investigate social sustainability within the context of Iran's

manufacturing sector. In this study, social sustainability criteria are evaluated and prioritized utilizing a novel multi-criteria decision-making method (MCDM) named the 'best worst method' (BWM) (Rezaei, 2015, 2016). We selected the Iranian manufacturing supply chain for two main reasons. Firstly, the Iranian economy to a large extent depends on its manufacturing sector (after oil and gas). At the same time, it is a sector that faces serious challenges, ranging from strike actions due to work safety and health reasons, to employee rights in relation to bad employment practices. Secondly, the sector is growing and requires some form of best practices with regard to the social sustainability of supply chains to guide new entrants and existing companies in making sustainability-related decisions to reshape the sector's negative social reputation. Although, in order to have a sustainable supply chain management (SSCM), the triple-dimension (economic, environmental and social) should be considered together, we focus on the social dimension to extend our understanding of this dimension. As such, the results of this study could be useful as input for comprehensive sustainable supply chain management decisions. More specifically, this paper addresses the following objectives:

- (1) To identify social criteria, with the aim of proposing a social sustainability evaluation framework within the context of the

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manufacturing industry;

- (2) To specify the relative importance of the social sustainability criteria for the manufacturing industry;
- (3) To identify the managerial and practical implications of the research;

To achieve these objectives, first a literature review is conducted within the sustainable supply chain management discipline, to identify potential social sustainability criteria, and subject them to several rounds of reviews by industrial experts, to propose a comprehensive supply chain social sustainability framework, after which BWM is used to evaluate the proposed framework. In other words, we determine the relative importance (weights) of the criteria and prioritize them according to their importance to organizational sustainability. This paper offers two main contributions. Firstly, we develop a framework for investigating social sustainability within the context of the manufacturing sector. Secondly, we propose a new MCDM method (BWM) to analyze and evaluate social sustainability.

The rest of the study is structured as follows. In Section 2, a literature review regarding sustainable supply chain management and social sustainability criteria is conducted. The proposed methodology is discussed in Section 3. In Section 4, a real world application of the proposed framework is provided, the results of which are presented and discussed in Section 5. Finally, the conclusion and suggestions for future research are presented in Section 6.

## 2. Review of literature

In this section, we start by reviewing sustainable supply chain management in general, and then focus on the social sustainability criteria in supply chain management.

### 2.1. Sustainable supply chain management

Supply chain management (SCM) can be defined as a set of approaches and practices for managing and achieving effective coordination within organizations (cross-functional) and between organizations (cross-organizational) in a supply chain, with the aim of improving customer service, asset utilization, profit generation, and cost reduction (Croxtton et al., 2001). In a supply chain, multiple decision-makers are involved in managing processes, resources, and information that may not necessary be totally under their direct control (Hassini et al., 2012). In other words, organizations along the supply chain must integrate their operations and work together to make their supply chain operations sustainable (Luthra et al., 2017a, b; Mathivathanan et al., 2017). Sustainable supply chain management (SSCM) can be described as managing the supply chain activities, operations, resources, information and funds, with the goal of maximizing the profitability of the supply chain, as well as social well-being (e.g. the impact of the supply chains on its employees, customers and society), and at the same time minimize any negative environmental effects (Hassini et al., 2012; Shi et al., 2017; Zhang et al., 2016). There are several aspects to SSCM and it requires multi-operational functions to attain a competitive advantage (Su et al., 2016; Ahmad et al., 2016a). In short, SSCM focuses on preserving the environment and improving socio-economic dimension for long-term sustainable development (Ahi and Searcy, 2013; Formentini and Taticchi, 2016; Fahimnia et al., 2017; Linton et al., 2007; Leppelt et al., 2013). SSCM is driving corporations to improve their social, economic and environmental performance across their supply chains (Lin and Tseng, 2016; Genovese et al., 2017). The potential environmental and societal effects of an organization's supply chain operations are both huge and difficult to manage (Kusi-Sarpong et al., 2016; Bai et al., 2017). As such, SSCM minimizes the negative impacts of operations and improves firm value/efficiency with regard to environmental, economic and social dimensions towards sustainable development, which is seen as a way to improve supply

chain management, with a significant impact on the company's competitiveness and supply chain operations, the aim being to build the necessary capabilities to compete and strengthen the company's sustainable competitive and collaborative advantage (Tseng et al., 2008; Wong et al., 2014).

According to Chardine-Baumann and Botta-Genoulaz (2014), one of the approaches to improving organizational performance is through supply chain sustainability. This has an impact on a company's competitiveness and its supply chain performance. Managing these initiatives and programs involves multi-dimensional issues, such as supplier selection, and using green technology to increase sustainable collaborative competitive advantage (Seuring et al., 2008). In SSCM literature, it is clear that implementing sustainable initiatives and programs reinforces proficiency and cooperation among partners and stakeholders by improving their environmental performance, minimizing waste and saving costs (Linton et al., 2007). This reaffirms the need for the combination of the economic, environmental and social aspects of business theory and practices towards achieving sustainable supply chain management. As such, for organizations to enhance their sustainability, business operations have to control their operations, with the long-term objective of maintaining the well-being of society, the economy and the environment (Hassini et al., 2012). It is for this reason that many companies are beginning to use sustainability indicators to evaluate their level of sustainability, albeit with a predominant on environmental sustainability (Tseng, 2013; Tseng et al., 2008; Seuring and Müller, 2008).

Srivastava (2007) proposed a SSCM decision-making framework that focuses on five key strategic areas, including product design, material selection, the production process, finished product delivery to the customer, and the management of end-of-life products at the end of their life cycle. Although Srivastava (2007) developed a sustainability framework, the operational criteria did not include clear criteria covering the social dimension and, without that social dimension, any sustainability initiative is bound to be deficient and incapable of dealing with the social impact. Carter and Rogers (2008) integrated resource dependence theory, population ecology and the corporation resource-based view to develop an SSCM framework, taking into account basic supporting facts which are required in the implementation of SSCM practices. The authors examined the relationships between social, environmental and economic performance with regard to obtaining long-term economic viability within an SCM context. However, the focus on social sustainability criteria was limited when the framework was being developed, which meant that the social sustainability issues were addressed to a lesser extent. Liu et al. (2012) conceptualized a new hub-and-spoke framework comprising six dimensions (people, product, process, project, planning and promotion). In their study, green marketing and SSCM were integrated to build supply chain capabilities more effectively to meet the needs of green customers. However, they did not focus much on social sustainability and its impact on the case companies. Manzini and Accorsi (2013) developed a framework for managing sustainability, safety and quality in food supply chains, but their framework did not include the social sustainability dimension. An SSCM practice framework was developed by Esfahbodi et al. (2016) based on environmental and cost performance practice sets, which clearly did not discuss or consider the supply chain social sustainability dimension to help build the capabilities needed to deal with social issues in emerging economies.

A review of existing literature indicates that, although there are significant attempts in existing literature to address the issue of organizational and corporate sustainability, few studies have focused extensively and specifically on the social dimension of sustainability (see also Kleindorfer et al. (2005); Seuring and Müller (2008); Seuring (2013)). According to Mani et al. (2016), more study is required to examine the social sustainability dimension in developing nations. It is against this backdrop that this paper attempts to investigate organizational sustainability with specific focus on the social sustainability of

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