



The response of the Brazilian cashew nut supply chain to natural disasters: A practice-based view

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ABSTRACT

In the face of natural disasters, companies attempt to maintain the sustainability of their business by implementing an appropriate set of organisational practices. Based on the practice-based view of strategic management, this paper aims to identify intra- and inter-organisational supply chain practices that help focal companies in the cashew nut supply chain in Brazil respond to natural disasters. To this end, three in-depth, qualitative case studies informed by semi-structured interviews and secondary data were conducted in Brazil. The data were analysed using qualitative content analysis supported by NVivo software and based on an analytic framework that links resources and practices to performance in a natural disaster context. The findings indicate that companies embark on different trajectories depending on the resources and practices they deploy in response to natural disasters. While one company demonstrated a negative performance due to competitive inertia and low productivity, two companies maintained and increased their performance results based on inter-organisational collaboration. Findings demonstrate that responding to natural disasters requires companies to reorganise their strategies towards sustainability and to develop new practices such as food safety, organic production and social responsibility.

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1. Introduction

Climate change impairs food production on a global scale, and adaptation to its effects is a huge challenge for food producers, specifically in emerging and developing economies (Rosenzweig and Parry, 1994). While northern Brazil, which produces 99.4% of Brazilian cashew nuts (Vidal, 2016), has experienced a certain degree of climatic extremes for centuries, in the last years, this region has been increasingly affected by droughts that threaten livelihoods and food security and disrupt food supply chains. The droughts have had a negative effect on the harvest of many cash and subsistence crops, including cashew nuts. In Brazil, the total volume of cashew nuts exported in 2017 was US\$ 114,089,701 (AliceWeb, 2018). Although the cashew plant is generally considered a drought-tolerant crop (Oliveira et al., 2006), continuous water scarcity may substantially reduce its yield; such scarcity was,

for example, experienced in the Brazilian northern state of Rio Grande do Norte in 2015 (Pekic, 2015).

This situation has forced agribusinesses in Brazil that process and sell cashew nuts on the national and international markets to devise strategies for mitigating the impacts of these droughts on their supply chains (Dasaklis and Pappis, 2013). Some previous work has addressed cashew supply chains without, however, using natural disaster and sustainability framing. Agyemang et al. (2016) investigate the greenhouse emission reduction of cashew production in West Africa. Meanwhile, another study discusses global market access to cashew nuts via women's empowerment in the rural context of the Philippines (Dela Cruz, 2007). Regarding Brazil, Oliveira and Ipiranga (2011) claim that innovation in cleaner production helps foster the cashew industry and the involvement of different stakeholders supports local development.

In a natural disaster context, droughts are complex disasters, as they have both man-made and natural causes, and they are difficult to address (Starr and Van Wassenhove, 2014; Van Wassenhove, 2006). Responses to droughts fall into the realm of disaster management, which has been classified into various phases by scholars of the emerging research stream on humanitarian logistics and

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supply chain management (SCM; e.g., Kovács and Spens, 2007). According to the prominent classification developed by Van Wassenhove (2006), these phases include mitigation, preparedness, response and rehabilitation, the last phase also known as reconstruction (Heaslip and Barber, 2014).

To prevent disruptions in the Brazilian cashew supply chain, the mitigation phase (i.e. reducing the potential impact of droughts) and the preparedness phase (i.e. implementing measures to respond in case of a drought) seem to require utmost attention. Hence, when facing climatic extremes in northern Brazil, managers of focal companies (i.e. cashew nut processors), together with farmers and other actors along the supply chain, may devise adequate intra- and inter-organisational supply chain practices for ensuring supply chain sustainability, as well as a stable product supply into consumer markets. Thereby, the sustainability of the Brazilian cashew industry may be operationalised along the triple bottom line (TBL). The TBL concept, as first proposed by Elkington (1997), predicates upon the assumption that economic sustainability measured by financial and operational indicators on a company or supply chain level (Shepherd and Günter, 2006) is insufficient for companies contributing to sustainable development (WCED, 1987). Dyllick and Hockerts (2002) point out in their seminal paper that in the long run, all TBL dimensions (i.e. social, environmental and economic) must be addressed and satisfied simultaneously and equitably while keeping their multiple interrelations into account, including trade-offs and conflicts between sustainability dimensions (Hahn et al., 2010).

In this study, we apply the recently emerging theoretical lens of the practice-based view (PBV; Bromiley and Rau, 2014, 2016a, b) and its extension to supply chain practice view (SCPV; Carter et al., 2017) to identify supply chain practices that substantially help the industry mitigate the potential impacts of and prepare for drought-inflicted supply chain disruptions and other negative effects on the TBL. Bromiley and Rau (2014, p. 1249) define a practice “as a defined activity or set of activities that a variety of firms might execute.” According to Carter et al. (2017, p. 116), an inter-organisational SCM practice is “a set of activities that spans different formal organisations and that other supply chain dyads or networks can imitate.” These practices are principally imitable by many other actors across the industry and thus allow specific managerial recommendations regarding how to prevent supply chain disruptions and how to maximise the overall beneficial impact on sustainability.

This leads to the following research question: Which intra- and inter-organisational supply chain practices help focal companies respond to natural disasters in the cashew nut supply chain?

The remainder of the paper is structured as follows. The next section provides a background review on the theoretical lens of the PBV and its extension to SCPV, and it reviews intra- and inter-organisational supply chain practices before proposing an analytic framework for investigating our research question. Subsequently, we describe the qualitative research design, which includes data collection via in-depth interviews and content analysis using the NVivo software. After presenting the results of our analysis, we discuss to which extent the PBV represents a powerful theoretical lens for investigating the transition of industries towards (greater) sustainability and for fostering sustainability in supply chain business practice. The final section concludes by discussing the limitations of our research and suggesting avenues for future research.

2. Theoretical background

In this section, we address two topics central to our research question and we then consolidate them into an analytic framework that has guided our efforts of data collection and analysis. The first topic is the PBV and its extension to the SCPV, while the second

topic is related to intra- and inter-organisational supply chain practices.

2.1. Practice-based view and supply chain practice view

Rather than being isolated actions that alone may not add value to companies (Hitt et al., 2016), practices are bundles of activities that interact with each other, are related to intra- and inter-organisational performance and help managers make decisions (Bromiley and Rau, 2014; Carter et al., 2017). To perform a practice, it is necessary to consider the organisational context and the level of adoption. A practice may have a positive or negative impact on corporate performance, and it can be observed directly or indirectly across firms (Bromiley and Rau, 2016a, b). The PBV, which has emerged recently, represents a largely unexplored theory (Carter et al., 2017) that could enable management researchers to understand strategic options and guide managers in their decision-making.

The PBV has been presented as an alternative to the resource-based view (RBV) for understanding firm-internal strategizing. It features the following distinct differences: (1) the dependent variable is firm performance rather than long-term competitive advantage and (2) the PBV applies to practices that do not (or only barely) have isolating mechanisms and hence that can be transferred across firms (Bromiley and Rau, 2014).

Carter et al. (2017) have extended the PBV to supply chains and hence are arguing for a SCPV: “PBV focuses on differences in performance among firms across the entire range of performance ... [and] the explanatory variables in the PBV are practices that are imitable and amenable to transfer across firms, as opposed to [...] RBV” (p. 115). The authors propose extending the perspective on practices throughout the supply chain—on a dyad, triad and extended network levels. SCPV considers (1) imitable practices, (2) two or more organisations in the supply chain and (3) combined performances across organisations (Carter et al., 2017). It thus focusses on the relational character of practices and mutual, inter-organisational benefits. This means that under certain conditions, practices must be shared among supply chain members and not be performed alone to achieve a better performance in the market. This holds true, for example, for total quality management (Bromiley and Rau, 2016a, b), as well as for inventory management and corporate sustainability (Carter et al., 2017).

Hitt et al. (2016) underline that the PBV should not be seen as a substitute for the RBV; rather, these two theoretical perspectives should instead complement each other. This view is also supported by Carter et al. (2017, p. 114), who assert that there are “no discrete boundaries between practices and resources”. In fact, practices are often coupled with resources to be implemented in an effective way. The specific interplay between resources and practices may decide about how the practices actually impact organisational and supply chain performance.

Regarding the question of how to enhance sustainability within industries, it becomes obvious that the focus on transferable practices is more prolific than a focus on non-imitable resources. The latter focus indeed prevents sustainable practices from spreading over an industry. If supply chain practices for enhancing sustainability are shared across companies within a supply chain, their actual implementation still relies on firm-internal contingency factors, such as their specific coupling with firm-internal resources; thus, the implementation of supply chain practices and their effectiveness may differ between companies (Carter et al., 2017).

2.2. Supply chain practices

Next to flows, resources and relationships (Mentzer et al., 2001;

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