



ELSEVIER

Contents lists available at ScienceDirect

The British Accounting Review

journal homepage: www.elsevier.com/locate/bar

Integrating sustainability performance measurement into logistics and supply networks: A multi-methodological approach

Ki-Hoon Lee, Yong Wu*

Griffith Business School, Griffith University, Australia

ARTICLE INFO

Article history:

Received 7 November 2013

Received in revised form 27 September 2014

Accepted 6 October 2014

Available online 27 October 2014

Keywords:

Sustainability performance measurement
Environmental and sustainability management accounting
Sustainable supply chain management
Green logistics
Eco-efficiency
Transportation
Carbon management
Australia

ABSTRACT

This paper seeks to address the way in which economic and environmental performance can be measured simultaneously, taking a multi-methodological approach to the logistics and supply chain management field in order to address sustainability challenges. The multi-methodological approach relies on the merits of different methodologies, provides more flexibility in tackling problems under investigation, and tolerates inaccurate estimation of parameters during the process. An illustrative case study (Westgate Ports) is undertaken in Australia in order to examine the ways in which the multi-methodological approach is applied, and how it assists during the decision making process in the adoption of green practices for freight transport logistics. The case validates the applicability and usefulness of the approach and highlights comparative outputs of costs and carbon emissions in freight transport logistics. Rail transport is identified as giving the opportunity to study the short distance container and freight distribution network, although initially this does not appear to be the most cost-effective option. This study finds that it is better to simultaneously consider performance indicators from different perspectives and to integrate them into one model of system measurement in order for corporations to improve their sustainability performance.

© 2014 Elsevier Ltd. All rights reserved.

1. Introduction

Globalization and outsourcing have brought the means for companies to create vast networks of suppliers, distributors, logistics and transportation providers as they search for the efficiency promised by supply chains. It is inevitable that sustainability issues will arise from these activities. The interaction between sustainability and supply chains is important, both for a “licence to operate” and to keep companies competitive (Keindorfer, Singhal, & van Wassenhove, 2005; Lee & Kim, 2011). At a broad conceptual level, the term “sustainability” is defined as being that which meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987). While sustainability at a firm level has multi-faceted meanings and implications (Bebbington & Thomson, 2013; Etzion, 2007), including corporate social responsibility, business ethics and environmental management, recent development focuses more on the environmental aspects of sustainability (e.g. global warming, energy efficiency) due to a heightened sense of urgency worldwide. Obviously

* Corresponding author. Department of International Business and Asian Studies, Griffith University, Gold Coast Campus, QLD 4222, Australia.
E-mail addresses: ki-hoon.lee@griffith.edu.au (K.-H. Lee), yong.wu@griffith.edu.au (Y. Wu).

there is much activity and ongoing development in the area of sustainability, therefore it is worthwhile for logisticians and supply chain management researchers and practitioners to consider the impacts of environmental sustainability on traditional assumptions and practices in the field of logistics and supply chain management (Lee, 2013; Lee & Saen, 2012; Linton, Klassen, & Jayaraman, 2007; Vachon & Klassen, 2006;). However, it is not easy to utilise sustainability in logistics and supply chain management when companies try to meet lower costs and provide faster deliveries without compromising an improvement in sustainability performance and quality (Lee & Saen, 2012).

In the accounting community over the last three decades, there has been a discussion on the relationship between accounting and sustainability to understand how accounting tools and approaches can contribute for business community to achieve sustainability (Bebbington & Thomson, 2013). With an emphasis on the managerial aspects of sustainability, sustainability management accounting, which adopts a more pragmatic approach to link sustainability accounting and business interests, has become popular in accounting and sustainability researches (Burritt & Schaltegger, 2010; Passetti, Cinquini, Marelli, & Tenucci, 2014). With case studies in different contexts, sustainability management accounting has provided “business cases for sustainability” that may guide business communities to achieve sustainability in practice (Bebbington & Thomson, 2013; Burritt & Schaltegger, 2010). However, it has been also observed that measuring sustainability in business practice is a challenging task for managers and accounting researchers due to knowledge problems (Burritt & Tingey-Holyoak, 2012), methodological difference and limitations (Lee, 2012), and lack of applicable tools and understanding (Burritt & Schaltegger, 2010; Lee & Saen, 2012). In this paper, we would like to recognise and embrace the diversity of sustainability management accounting in sustainable supply chain management.

With a focus on sustainability in logistics and supply chain management, the related topics of sustainable supply chain management include environmental or green logistics (Murphy, Poist, & Braunschwig, 1996); environmental or green purchasing (Min & Galle, 1997); improvement of fuel efficiency (McKinnon, Stirling, & Kirkhope, 1993); and supplier selections in the green supply chain (Lee, 2013; Lee & Kim, 2009). The core idea of sustainable supply chain management is to ensure the long-term viability and continuity of a business, as well as contributing to the future well-being of society (Christopher, 2011; Klassen & Vereecke, 2012). That is, a sustainable supply chain which benefits the natural environment is likely to involve firms in cost leadership in the long-term as a result of better use of resources (Gimenez, Sierra, & Rodon, 2012).

Although all three aspects of sustainability (environmental, economic and social) ought to be considered, most research into sustainability in the field of logistics and the supply chain is concerned with environmental aspects and how these aspects link to economic aspects (Seuring & Müller, 2008). Srivastava (2007), for example, provides an extensive literature review on green supply chain management. He identifies that there is a clear sign of increasing interest in green supply chain management among academics and practitioners of logistics and supply chain management. However, management has some challenges in adopting and implementing green supply chains in practice. He notices that “the problem is complex and challenging, as a very large number of parameters, decision variables and constraints are involved along with a large number of estimation requirements such as those of expected demands and returns and cost criteria associated with each decision” (Srivastava, 2007, p. 71). The challenges of green supply chain management often result in superficial solutions which deliver insignificantly improved environmental and economic solutions (Brockhaus, Kersten, & Knemeyer, 2013; Srivastava, 2007).

Given the impact of industrial logistics and supply chain management on environmental and economic performance, green logistics – the main focus of this study – gives new opportunities for companies to significantly contribute to environmental sustainability. As Burritt, Schaltegger, Bennett, Pohjola, and Csutora (2011) assert, “the interrelation and trade-off between dimensions of sustainability is a vitally important part of sustainable supply chain management, since sacrifices in one dimension can lead to disproportionate gains in other dimensions throughout the supply chain” (p. 5). The challenge for managers of logistics and supply chains in embracing sustainability is how to link and to balance environmental performance and sound business practices (Lee, 2012). That is, how to identify preferred approaches or solutions balancing environmental and economic concerns (i.e. eco-efficiency). In order to tackle this challenge, sustainability-oriented performance measurement of green logistics helps to identify the trade-offs between the environmental aspects of carbon impacts and the economic aspects of costs. In logistics and supply networks globally, there are rapidly increasing pressures to reduce carbon emissions for these networks. Therefore this study focuses on the impacts of carbon emissions on corporate decision making. From an environmental and economic perspective, the implementation of green logistic practices and performance measurement lacks a comprehensive structure (Brockhaus et al., 2013; Lubin & Esty, 2010). The identification and measurement of sustainability performance in logistics and supply chains is a new field of study, and well developed measurement tools are neither available to, nor applicable for, business practice (Gunasekaran, Patel, & McGaughey, 2004; Lee & Saen, 2012; Shaw, Grant, & Mangan, 2010). In the identification and measurement of sustainability performance for green logistics, sustainability accounting can provide an avenue for addressing environmental and economic activities. As recent accounting studies demonstrated, measuring sustainability performance is a challenging task for corporate accountants and managers (Bebbington, Brown, & Frame, 2007; Bebbington & Thomson, 2013; Christ & Burritt, 2013). In practice, sustainability performance issues are often neglected or partially addressed, and not fully integrated with information and management systems (Burritt & Tingey-Holyoak, 2012; Schaltegger & Burritt, 2014). Since this study takes an exploratory stance, we do not attempt to test theories; rather we explore multi-methodologies in order to identify solutions for eco-efficient logistics through the study of sustainability performance measurement in an Australian case.

Download English Version:

<https://daneshyari.com/en/article/1004051>

Download Persian Version:

<https://daneshyari.com/article/1004051>

[Daneshyari.com](https://daneshyari.com)