



Is environmental management an economically sustainable business?



Antje Gotschol^a, Pietro De Giovanni^{b,*}, Vincenzo Esposito Vinzi^c

^a Department of Information, Logistics and Innovation, VU Amsterdam University, de Boelelaan 1105, 1081 HV Amsterdam, the Netherlands

^b Operations Management Department, ESSEC Business School, Avenue Bernard Hirsch, B.P. 105, 95021 Cergy Pontoise, Paris, France

^c Decision and Information Systems Department, ESSEC Business School, Avenue Bernard Hirsch, B.P. 105, 95021 Cergy Pontoise, Paris, France

ARTICLE INFO

Article history:

Received 18 September 2013

Received in revised form

19 January 2014

Accepted 1 May 2014

Available online

Keywords:

Green supply chain management

Green production

Environmental performance

Economic performance

Structural equation modeling

ABSTRACT

This paper investigates whether environmental management is an economically sustainable business. While firms invest in green production and green supply chain activities with the primary purpose of reducing their environmental impact, the reciprocal relationships with economic performance need to be clarified. Would firms and suppliers adjust their environmental strategies if the higher economic value that environmental management generates is reinvested in greening actions? We found out that environmental management positively influences economic performance as second order (long term) target, to be reached conditioned by higher environmental performance; in addition, firms can increase their performance if they reinvest the higher economic value gained through environmental management in green practices: While investing in environmental management programs is a short term strategy, economic rewards can be obtained only with some delays. Consequently, environmental management is an economically sustainable business only for patient firms. In the evaluation of these reciprocal relationships, we discovered that green supply chain initiatives are more effective and more economically sustainable than internal actions.

© 2014 Elsevier Ltd. All rights reserved.

1. Introduction

Environmental management refers to sustainable management approaches that aim for engaging in green processes and practices in order to reduce the environmental impact of the firm's activities. This can be pursued on a firm-specific level within the framework of green production programs and also on a collaborative Supply Chain (SC) level that refers to environmental collaboration approaches (Rao, 2002; Theyel, 2000; Rao and Holt, 2005; De Giovanni, 2012; De Giovanni and Esposito Vinzi, 2012). Both types of programs have shown to substantially contribute to the environmental performance and therewith to the greenness of activities (Zhu and Sarkis, 2004; Zhu et al., 2005; Hervani et al., 2005).

Most business and economic scientists agree that incorporating a green and environmentally sound strategy is crucial for businesses nowadays (e.g. Seuring and Müller, 2008; Zhu and Sarkis, 2004; Rao and Holt, 2005; Vachon and Klassen, 2006). While some studies are concluding with no significant results concerning the relationship between the economic and environmental performances (e.g. Rao, 2002; Jaggi and Freedman, 1982), numerous

studies have been published reporting either positive (e.g. Alvarez Gillet et al., 2001; De Giovanni, 2012) or negative (Bowen et al., 2001; De Giovanni and Zaccour, 2013, 2014) effects.

This huge amount of research fails in the investigation of the non-recursive relationships between economic performance and environmental management. That is, how would firms and suppliers invest in environmental management if the higher economic performance generated by environmental management are reinvested in production and/or supply chain environmental initiatives? Yet, empirical research has failed to provide an answer to the issue regarding causality when reciprocal relationships exist. Although researchers such as Wagner et al. (2002) have attempted to account for the possibility of reverse causality in that concern, this topic has only been narrowly covered and asks for further assessment.

Schaltegger and Synnestveit (2002) highlight the difficulties that firms encounter in the engagement in environmental management programs. On one hand, the economic resources needed to invest in such programs can be substantially high, while the economic rewards are not at all guaranteed. Only profitable firms can afford to make sustainable investments in green activities to raise the environmental performance and face their environmental obligations (Stefan and Paul, 2008). On the other hand, firms do not

* Corresponding author. Tel.: +39 3398126474.

E-mail address: pietro.degiovanni@essec.edu (P. De Giovanni).

look at environmental practices as an opportunity to develop their business but rather as a cost-center (De Giovanni, 2012). This means that firms activate environmental programs more to conform with restrictions from regulations and legislations (e.g., Emission Trading) rather than extrapolating additional value through some atypical managerial practice (De Giovanni and Esposito Vinzi, 2014). If environmental management is economically viable, firms and suppliers will invest more in it. But, is there a loop between environmental management and economic performance? Answering to this question provides insights not only on the possibility to look at environmental management as a way to increase economic performance but also on the needs to continuously reinvest in green programs. To investigate these issues, the data of a survey on the engagement in and benefit from environmental management practice will be studied by applying Structural Equation Modeling (SEM).

This paper is structured as follows. The second section includes relevant literature outlining the theory concerning environmental management and practices, as well as the different performance dimensions. Subsequently, the third section deals with the methodology. Besides more detailed information on the sample and the choice for structural equation modeling, this section includes an overview concerning data screening and assessment measures. This will be followed by the results section in which the outcome of the analysis is depicted. Lastly, the paper closes with a discussion on the results and a conclusions section.

2. Literature review and research hypotheses developments

The awareness and conscious decisions to drive towards a larger degree of sustainability is increasing throughout businesses. Beyond governmental bodies, research showed that firms are forced to set their focus on environmental measures to prevent the negative impact of business activities (Linton et al., 2007; Bocken et al., 2011; Zhu and Sarkis, 2004; Vachon and Klassen, 2006). The demand for more sustainability and environmental friendliness has an increasing impact on businesses around the world, thus firms should consider environmental management as to be a value driver (De Giovanni and Zaccour, 2014).

A different perspective captures sustainability with regard to opportunities for companies in terms of long-term risk reduction and economic performance (Shrivastava, 1995b). The latter can surely be obtained through adequate investments in production activities and supply chain collaboration (De Giovanni, 2012). In the pursuit of becoming more sustainable and reducing the environmental impact, firms can green their production process through several specific practices such as: the application of cleaner technologies as well as the setup of an environmental production strategy to reduce waste, emissions, and noise. As a consequence, production processes need to be adjusted in order to prevent and preserve the environment while facing the limitations linked to several barriers, for instance, usage of required materials for production (Sarkis, 2003), remanufacturing (Rao and Holt, 2005) or environmentally friendly packaging (Hervani et al., 2005). Cleaner production is a preventive strategy that pursues actions to eliminate or reduce waste and emission as well as to improve the energy flow while utilizing materials more efficiently (Fresner, 1998). A first approach to decrease the emissions is the minimization of water pollution and keeping the level of non-renewable energy resources on the lowest level that is feasible in accordance to the production plan (Halldórsson et al., 2009). Although green production programs are a relevant contribution to becoming more environmentally friendly, firms should also take into account some other operational criteria such as quality standards, accreditations

and certifications (Rao and Holt, 2005, Zhu and Sarkis, 2004), e.g. ISO14001 (GEMI, 1998) (Table 1).

Significant support and incentives for developing green production practices can be given by suppliers belonging to the same SC. To align SC targets and the scope, firms can provide some incentives to suppliers to push investments in environmental programs and align all suppliers' wishes to perform the environment. Supplier collaboration deals with the collaboration among the different supply chain parties (Vachon and Klassen, 2008), as a way to respond to the increasing environmental awareness over the supply chain, which will take the form of Green Supply Chain Management (GSCM) (Christopher and Ryals, 1999). Vachon and Klassen (2006) agree and state that organizations consider environmental strategies no longer on an individual single firm level, but on a collective SC level going beyond firm's boundaries. In this perspective, De Giovanni and Zaccour (2014) report the type of incentive that a chain leader can provide to supply chain members to enhance their willingness to collaborate in environmental programs and contribute to GSCM. The vast majority of the literature in EM highlights the importance of cleaner production as an antecedence to GSCM (Theyel, 2000; De Giovanni, 2012; De Giovanni and Esposito Vinzi, 2012; Rao and Holt, 2005). In other words, a firm cannot be part of the GSCM, if it is not internally green. Green production represents a pre-requisite to be met by partners. While literature appears to be quite aligned on assessing the positive influence of internal environmental management on GSCM, we adopt a different perspective where the level of environmental collaboration undertaken with suppliers enhances firms' green production investments. According to Fresner (1998) and De Giovanni and Zaccour (2014) environmental cooperation among SC partners is a fundamental condition to invest more in green production practices. To put light into this intuition, one can just ask a simple question: Why should a firm invest more in environmental management, if their suppliers do not commit to any form of green actions? The effectiveness of green investments could just be vanished when suppliers undertake non-green actions. Having environmental cooperation as a common and shared target over the supply chain builds trust and commitments among supply chain partners, which leads each firm to investment more in green production. Therefore, we can hypothesize that:

H₁ GSCM has a positive influence on green production.

When it comes to how sustainability and greenness of a SC should be measured, different components should be taken into account. Being environmentally sustainable requires the company to be cautious about waste and pollution which are to be minimized. A sustainable business in this field incorporates the environmental and ecological approach not only on a long-term strategic level, but also on an operational level. For instance, De Giovanni and Zaccour (2013, 2014) highlight the benefits of implementing a GSCM in the form of closed-loop supply chain in which the return rate is a proxy of both, the environmental performance (low discard in environment) and economic performance (lower production cost due to the usage of returned components). Supply chain members expect the usage of transparent and well-defined standardized indicators to align objectives and targets with their partners (Ilinitch et al., 1999). The impact of environmental collaboration on environmental performance needs to be carefully investigated (Sarkis, 1999). While several (mainly empirical) studies illustrate that GSCM improves the environmental performance (e.g. Frosch, 1994; Geffen and Rothenberg, 2000; Green et al., 1996), other research did not support this

Download English Version:

<https://daneshyari.com/en/article/7483617>

Download Persian Version:

<https://daneshyari.com/article/7483617>

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