



Buyer-driven greening? Cargo-owners and environmental upgrading in maritime shipping



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ABSTRACT

In this article, we examine the relations between global value chain governance and environmental upgrading in maritime shipping. Drawing from interviews with global shipping companies and major buyers of shipping services (cargo-owners), we reveal the key issues and challenges faced in improving the environmental performance of maritime transportation. Contributing to the Global Value Chain (GVC) literature, we compare and analyze the influence of three main external drivers on environmental upgrading in the tanker, bulk and container shipping segments: regulation, cooperation and buyer demands. Our findings suggest that environmental upgrading is more likely to occur when global value chains are characterized by unipolar governance and where the lead firms are consumer-facing companies with reputational risks. Furthermore, environmental upgrading in shipping is not likely to materialize without clear and enforceable global regulation and stronger alignment between regulation and voluntary sustainability initiatives.

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1. Introduction

In economic geography and international political economy, the concept of value chain refers to 'the full range of activities that firms and workers perform to bring a specific product from its conception to its end use and beyond' (Gereffi and Fernandez-Stark, 2011: 4). This includes activities such as design, production, marketing, transport, retail, and disposal or recycling. The concept of 'global value chain' (GVC) refers to the configuration of these coordinated activities that are 'divided among firms and that have a global geographical scale' (Gibbon and Ponte, 2005: 77). At the nexus of GVCs lie the contractual linkages of formally independent firms, whether as result of the outsourcing and offshoring of previously integrated functions carried out by multi-national corporations, or through the contractual subordination of suppliers previously linked through open market transactions (Gereffi et al., 1994; Cattaneo et al., 2010).

The emergence and expansion of GVCs in the past three decades have increased the salience of logistics (Memedović et al., 2008; Coe and Hess, 2013a; Coe, 2014) and transport (including maritime shipping) for understanding the dynamics of the global economy.

The de-integration of production and its functional integration that characterized this period has led to increasing trade in intermediate products, lean and agile procurement and inventory systems, and heightened flexibility of provisions systems overall (Scherer and Palazzo, 2010; Dicken, 2011; Sturgeon and Memedović, 2011; Gereffi, 2014). In this context, maritime shipping has remained essential in the operation of the contemporary global economy – also thanks to containerization and vast economies of scale (Hummels, 2007; Levinson, 2006; Kaukiainen, 2014).

At the same time, societal and political pressure to improve the environmental footprint of production and distribution of goods has raised new challenges for producers, processors and retailers of goods and services, especially those that are branded and offered directly to consumers (Dauvergne and Lister, 2013). This has led to innovations aiming at decreasing the environmental footprints, and especially levels of carbon dioxide (CO₂) emissions, of production and transport – processes that the GVC literature frames as 'environmental upgrading' (Jeppesen and Hansen, 2004; Ivarsson and Alvstam, 2010; De Marchi et al., 2012, 2013; Goger, 2013).

While there is now a rich literature on the dynamics and challenges of governance and upgrading in GVCs in an increasingly complex global economy (Gereffi et al., 1994; Gibbon and Ponte, 2005; Bair, 2009; Cattaneo et al., 2013, among many others), surprisingly little work of this kind has focused on transport, and on maritime shipping in particular. Much of the literature on shipping

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governance has either appeared in specialist shipping journals or in the business studies tradition of supply chain management, which are mainly focused on sectoral policy and firm-level strategy. There has been little to no recent research analyzing the external interactions between shipping as an industry itself and the various GVCs that use its services. To our knowledge, this article is the first to examine environmental upgrading in maritime shipping in relation to the operation of GVCs.

Public discussions about environmental problems caused by international shipping can be traced back several decades (Mukherjee and Brownrigg, 2013). Since the advent of super-tankers in the 1960s, the issue of oil spills from tanker shipping has received considerable attention by the public. While concern about spills has a long history (Huijjer, 2005; Burgherr, 2007) and remains an issue (particularly after the Exxon Valdez spill in 1989), in recent years other environmental concerns have also received significant public attention. These concerns reflect the contemporary environmental agenda, but also the particular nature of the global and highly mobile shipping industry. From 2007 to 2012, international shipping accounted for approximately 2.8% of global CO₂ emissions (IMO, 2014b).

The lack of research on the interactions between GVC operators (what we call ‘cargo-owners’) and shipping companies is particularly surprising. On the one hand, shipping provides the mode of transport with the lowest CO₂ emissions per ton-mile (Buhaug et al., 2009) – accordingly, pressures to decrease CO₂ emissions among cargo-owners are leading industries to move part of their transport needs from air to ship (Mathers, 2012). On the other hand, the shipping industry is perceived as one of the laggards in processes of environmental upgrading (Anderson and Bows, 2012; Lister et al., 2015). Given this tension and uncertain environmental outcome, it is therefore, important to understand the evolving dynamics of this sector with respect to the shifting relations between cargo-owners (the ‘buyers’ of shipping services) and shipping companies within the multi-level and uncertain global shipping regulatory context.

In this article, we seek to start filling this knowledge gap by examining the role played by cargo-owners in driving environmental upgrading in shipping, and the challenges of this process. The purpose here is not to provide a full GVC analysis of the shipping industry, nor of the intersecting value chains where shipping services are provided, but rather to shed more light on the value chain drivers of environmental upgrading. This approach has three implications: (1) we focus on drivers that are external to the firm (i.e. demands posed by buyers of shipping services and/or formulated in cooperative efforts, such as in multistakeholder initiatives) rather than on drivers that are internal to the firm (i.e. technological innovation, operational improvements or cost-optimization measures put in place by shipping companies themselves); the internal factors are well covered in the specialist shipping literature; (2) although we discuss drivers of environmental upgrading arising from regulation and cooperative efforts (which we cover in more detail elsewhere; see Lister et al., 2015), we focus mostly on business-to-business factors; and (3) we explicitly link GVC governance dynamics (i.e. the level of influence of the external driver, and the polarity of governance) to environmental upgrading paths.

The paper is organized in six sections. In Section 2, we explain our methods. In Section 3, we briefly summarize the main issues arising from the GVC literature in relation to environmental upgrading and the links between GVC governance and upgrading. In Section 4, we analyze the main external drivers of environmental upgrading in the shipping industry: first, we provide an explanation of the pressures within the regulatory landscape; second, we examine the role of cooperative ‘green shipping’ efforts developed through industry and multi-stakeholder initiatives (MSIs); and third, we explain and compare the influence of buyer demands in the three main shipping segments (dry-bulk, tanker and

container). In Section 5, we lay out the key issues of ‘buyer-driven’ environmental upgrading in the shipping industry. In the conclusion, we reflect upon what our analysis means for the future of environmental upgrading in GVCs, together with reflection on future research needs in this field.

2. Methods

The analysis of environmental upgrading is relatively recent within the field of GVC research, and is empirically under-investigated in maritime shipping. Furthermore, previous experience of some of the authors in researching the shipping industry suggested that the issue of environmental regulation of the sector is complex, and commercially and politically very sensitive. Therefore, we adopted a qualitative research approach based on semi-structured interviews, and offered full confidentiality, in order to gain a richer, more nuanced understanding of whether consumer goods cargo-owners are influencing the environmental practices of shipping carriers. Specifically, our methods included primary data collection through expert interviews with executives and middle-managers at a stratified sample (within the global industry) of high performing shipping companies and consumer goods cargo-owning companies. We triangulated the interviews with an in-depth secondary literature review and analysis of CSR and/or sustainability reports (where available) of shipping companies and cargo-owners, and current material on transnational environmental rating schemes in maritime shipping. Our interviews focused on the perceptions and experiences of the company representatives regarding the incentive structure and management of environmental issues in shipping. Our three main research questions were: (1) What are the environmental demands that cargo-owners are placing on shipping companies when contracting their services, and whether and why is this occurring? (2) What are the views of main stakeholders on the benefits and challenges of the voluntary environmental rating schemes in international shipping? and (3) What are their perceptions on the overall drivers of change toward improved environmental protection in shipping?

Our research sample includes a total of 45 interviews (40 with shipping companies, 5 with cargo owners) in 31 companies (26 shipping companies and 4 cargo owners) over a period of two years (mid-2012 to mid-2014).¹ On the supplier side (providers of shipping services), we interviewed 10 persons in 9 dry bulk companies; 22 persons in 12 tanker companies; and 8 persons in 5 container companies. The rationale for this sampling approach was that these are the three main segments in global shipping, and where most cargo is carried in terms of volume and value (Asariotis et al., 2013). Given the range of business considerations in environmental management, we selected executives and middle-managers from both commercial and technical positions, including: top management, sustainability departments and technical departments with environmental expertise, chartering departments (which negotiate freights with cargo-owners) and operational departments (which operate the ships). Our overall sample includes a majority of Danish shipping companies, as they have generally more transparent environmental policies than the global population of shipping companies, and it is reasonable to assume that environmental upgrading that goes beyond regulatory compliance is most likely to initiate among such companies (Danish Shipowners’ Association, 2012). As our focus is on frontline movers, we also interviewed the two largest Canadian shipping companies and a German company (in the tanker and container segments).

On the buyer side (buyers of shipping services, i.e. cargo-owners), first we conducted an in-depth desk review of the literature on sustainability efforts in transportation by branded

¹ When referring to our interviews, we indicate date/month/year of our interviews, as well as positions of interviewees and type of shipping.

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