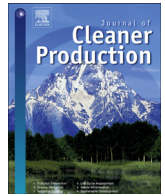




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Governmental export promotion initiatives: awareness, participation, and perceived effectiveness among Swedish environmental technology firms

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ABSTRACT

Some countries rely heavily on exports as an essential component of their economic competitiveness. With the current trends in economic globalization, promoting exports has become a common strategy to boost economic growth. Exports of environmental technologies represent a new window of opportunity for economic growth and a contribution to global sustainability. With this in mind, national governments have designed initiatives that aim to promote exports within this sector. To address their objectives, governments provide initiatives to promote foreign commerce with their environmental technology sector. This article assesses the awareness, participation, and perceived effectiveness of such governmental initiatives to promote exports among Swedish environmental technology firms. An Internet survey was sent to 693 Swedish environmental technology companies, previously identified and classified, with a 25% response rate. The responses show a relatively high export orientation although a majority of the respondents claimed they were unaware of governmental initiatives that fit their particular export needs. The companies that did find appropriate governmental initiatives showed a high level of participation in such initiatives, but only a few of these participants could relate their participation to actual exports. The findings suggest there is a need to design support instruments based on the particular characteristics of the environmental technology sector rather than to offer generic solutions for such export promotion.

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1. Introduction

In the wake of recent climate, energy, and economic challenges, politicians and academicians have focused on environmental sustainability (Čuček et al., 2012). It has become vital that sustainability transitions encompass long-term and far-reaching changes in technology, infrastructure, lifestyles, and institutions (Rennings, 2000). Although not sufficient, technological change is often regarded as an essential requirement in such societal transitions (del Río González, 2009). From this background, the term “environmental technology” has permeated many spheres of modern society. Such a term is used in many ways, but for this article, keeping in mind the context in which it was developed, we use the definition promulgated by the Swedish Ministry of the Environment (2005): “goods, systems, processes and services that offer clear environmental advantages in relation to existing or

alternative solutions, seen from an ecocycle perspective”. The development and diffusion of environmental technologies present a three-fold promise: reduced environmental impacts, increased economic competitiveness, and increased social benefits (Chertow, 2000). Furthermore, transitioning into sustainability requires rapid global diffusion of environmentally relevant technologies.

Export provides one of the most common routes to enter international markets spurred by its greater structural and strategic flexibility compared to alternatives such as foreign direct investment and international aid (Leonidou et al., 2011). The market segment for environmental technologies is growing fast and has managed to confront crises (e.g., the 2008–2009 financial crisis) better than other well-established sectors (e.g., the oil and gas sector) (WWF, 2012). The market grew around 30% between 2008 and 2010 and the industries’ growth is a positive sign of a good outlook for the coming years (e.g., the wind industry grew at 100% per annum during this period) (idem). However, the dissemination of environmental technologies encounters several market-induced obstacles even when the demand is perceived higher in foreign than in domestic markets. These obstacles provide a strong rationale for governmental policies that encourage the development

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and diffusion of environmental technologies (Jaffe et al., 2005). Although several factors influence the international flow of technologies, export promotion is an opportunity for governments to influence the volumes and types of technologies their country exports (OECD, 1994). As a result, several governments support the export of environmental technologies through initiatives that can be categorised according to: i) target country or region; ii) environmental technology type; iii) alternative promotional service; iv) firm size; and v) firm stage in internationalisation (Kanda et al., 2012a).

As mentioned above, governments develop strategies to increase exports as some local markets can be relatively small and thus become saturated over time or when larger markets abroad have been identified. Sweden, for instance, has had around 50% of its annual GDP based on exports over the last ten years (USA around 10%; China around 30%; and Germany around 43%) (World Bank, 2012). In Sweden, the main exporting sectors historically have been machinery, electrical devices, telephone equipment, and paper and forestry products (Exportrådet, 2011). Although this continues to be the case, the Swedish government has identified the environmental technology sector as a potential sector for contributing to economic growth. This focus is based on the country's international reputation in eco-innovation (e.g., the country is currently ranked third in the WWF's Global Cleantech Innovation Index, behind Denmark and Israel) (WWF, 2012), the growing market segment for environmental technologies (expected to rival the oil and gas equipment sector by 2015 according to van der Slot and van den Berg (2012)), and the pressing global need for environmentally sound technologies.

However, Sweden has not enjoyed much commercial success from its eco-innovation, especially in international markets, compared to other top innovative countries (Swentec, 2008). Apart from exports from large energy companies, the contribution of other areas within the sector remains comparatively small, although it is believed to have great potential (e.g., waste management, wastewater treatment, and noise control) (SCB, 2011). Export within the environmental technology sector represented around 16% of the total sector's turnover in 2011 (SCB, 2013). Sweden is in a good position to promote its innovative technologies abroad, a strategy that will consolidate and enhance Sweden's global competitiveness while increasing its contribution to global environmental sustainability (Swentec, 2008).

Recognising these opportunities and challenges, the Swedish government has formulated and continues to formulate several initiatives to boost export from the environmental technology sector. The content of these initiatives are discussed in detail in Section 2 of this article. In line with the government's efforts to boost exports, policy makers need to understand how target companies respond to export determinants external to the firm, such as governmental export promotion initiatives. These types of assessments would highlight these companies' specific needs and obstacles when accessing governmental support. Such an understanding would provide useful feedback for governmental initiatives, provide an opportunity to evaluate and reformulate existing initiatives, and possibly influence the allocation of limited resources among initiatives to boost export of environmental technologies.

To provide such an insight, we analyse governmental export promotion initiatives among Swedish environmental technology firms. We discuss the awareness of governmental export promotion initiatives among environmental technology firms, the participation of firms in these initiatives, and their perceived effectiveness from their participation in these initiatives. We begin this analysis by examining how governments promote export of environmental technologies, including the theoretical underpinnings, and then discuss specific initiatives by the Swedish government that

promote export of environmental technologies. Section 3 describes the method used to obtain information from companies, Section 4 presents and discusses the results, and Section 5 discusses policy implications and presents some questions for further research.

2. Promoting export of environmental technologies

If environmental technologies are to provide effective environmental protection, they need high market penetration and widespread geographic distribution (del Río González, 2009; Jänicke and Zieschank, 2008). However, when markets are unable to connect supply and demand for environmental technologies efficiently, governmental intervention is necessary to stimulate their development and diffusion (Jänicke and Zieschank, 2008). As a result, many governments intervene through a variety of initiatives that promote the export of environmental technology (Kanda et al., 2012a). Kanda et al. (2012a) provide a deeper discussion of how countries promote the exports of environmental technology.

Previous studies have focused on governmental programs that promote general exports from two major perspectives: the government's and the firms'. From the provider's perspective, studies have examined the formulation mechanisms, structure, delivery channels, and methods for evaluating the effectiveness of such programs (e.g., Lederman et al., 2010; Leonidou et al., 2011). On the receiver's side, the focus has been on awareness, participation, and effectiveness of such programs among firms (e.g., Kumcu et al., 1995).

Before we discuss in detail strategies employed by the Swedish government that aim to promote exports of environmental technologies, we will use economic theory to understand the general underlining theoretical justifications for governmental interventions that intend to promote export. The economic justification for government involvement in export promotion is grounded on the theory of externalities and other market failures associated with export (Lederman et al., 2010). Market failures describe situations in which the free market fails to arrange production and/or consumption in such a way that the allocation of resources is efficient (Borooah, 2003). In foreign trade, there exists potential positive spillovers regarding gathering foreign market information related to consumer preferences, laws, regulations, business opportunities, etc. Private exporters by themselves would hesitate to undertake such market research knowing very well the costs involved and the possibility that their competitors could reap some benefits from their work and investments. Pace setters in export who make ground breaking investments to open foreign markets, establish contacts, develop distribution links, and undertake other costly investments that could be beneficial to their rivals also face a similar dilemma (Lederman et al., 2010). This potential spillover is because information on such activities could be publicly available to competitors via grey or scientific literature among other sources. Another source of market failure in export is information asymmetry among market players (Beltzér and Zetterqvist, 2008). In such a situation, market players could be oblivious of or miscalculate the risks and possibilities associated with export. As a result, trade might suffer. The uncertainty introduced by the levels of political and economic risks associated with export has also been used as another justification for export credits and guarantees financed by the public sector (Lederman et al., 2010). In the face of such market failures, a government is concerned with the design and implementation of strategies that correct such irregularities and create a "level playing field" (European Commission, 2007).

2.1. Governmental export promotion initiatives in Sweden

The Swedish Trade Council (formerly called *Exportrådet*, but renamed "Business Sweden" in 2013) is officially responsible for

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