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Exploring the dissemination of environmental certifications in high and low polluting industries

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ABSTRACT

The adoption of Environmental Management Systems standards such as ISO 14001 and EMAS has gained substantial momentum in the last decade. Nevertheless, the heterogeneous dissemination of these standards across various geographic areas and sectors of activities raises questions about their *raison d'être* and underlying motivations. Although the main drivers and impacts of standards to adopt Environmental Management Systems, as well as their dissemination have been widely analyzed in the literature, the diffusion of these environmental certifications according to the environmental impact of their sectors has been overlooked. As a contribution to fulfill this gap, this article aims at analyzing the diffusion of EMAS across various sectors of activity of the European Union's member states, depending on their environmental impact. More specifically, the paper analyzes (1) whether there is a higher density of environmental certifications in sectors with the greatest impact on the environment (i.e. high polluting industries), (2) if this certification intensity is homogeneous between European member states. Among other issues, the findings confirm that the intensity of environmental certifications is higher in sectors with the greatest environmental impact, although those intensities are significantly different from one member state to another. The implications for public policy makers as well as for other stakeholders are discussed.

1. Introduction

The adoption of international standards on Environmental Management Systems (EMSs), notably the European Eco-Management and Audit Scheme (EMAS) and the ISO 14001 standard, has grown significantly over the last two decades (European Commission, 2013a). According to the ISO 14001 standard, an EMS is "the part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing, and maintaining the environmental policy" (International Organization for Standardization, 2006, Article 3). The implementation of ISO 14001 and EMAS standards is thus supposed to improve environmental practices and performance, notably for organizations considered as particularly polluting (European Commission, 2011; Morrow and Rondinelli, 2002; Pedersen, 2007; Zeng et al., 2005; Sambasivan and Fei, 2008). Standardized EMSs also contribute to the emergence of more flexible policy instrument(s) through the implementation of voluntary management systems (Zito and Egan, 1998; Hillary and Thorsen, 1999; Neugebauer, 2012). As stressed by Testa et al. (2014) the success of both standards relies on their highly flexible requirements. Contrary to the traditional command and control approach (e.g. EU environmental Directives and Regulations, national environmental laws encompassing orders, permits, licensing), the voluntary adoption of standardized EMSs is often considered as a self-regulatory mechanism (Berliner and Prakash, 2013; Potoski and Prakash, 2005; Prakash and Potoski, 2006; Hillary and Thorsen, 1999; Christmann and Taylor, 2001, 2006). This self-regulatory mechanism is generally associated with the certification process through external auditing, which essentially concerns the two main certifiable EMSs standards.

ISO 14001 has become the most popular and frequently used international standard for implementing EMSs worldwide. Since its

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launch in 1996, ISO 14001 certification has experienced intensive growth on the international stage; by the end of 2012, 285,844 certificates had been issued in 167 countries (International Organization for Standardization, 2012). From 2000 to 2010 the number of certificates issued worldwide has increased nearly 11-fold, although there are differences in the growth rate of certification depending on countries and sectors of activity (Marimon et al., 2011).

The EU Eco-Management and Audit Scheme (EMAS) was launched by the European Union in 1995 and was adopted in December 2013 by 3,721 European organizations, corresponding to 10,826 sites, notably in Germany, Spain and Italy (European Commission, 2013a). The EMAS standard was originally restricted to companies in industrial sectors, but since 2001, just as ISO 14001, the EMAS standard is open to all economic sectors including public and private services. Although it is quite similar to ISO 14001 and fully compatible with the latest version, the EMAS system is generally considered to be more demanding in terms of managerial requirements (e.g. objectives, performance indicators, regulatory compliance).

These internal requirements of the EMAS system seem well adapted to address the environmental challenge of polluting organizations. Nevertheless, the EMS standards do not only represent a managerial tool to improve environmental practices. They also contribute to improve corporate image and legitimacy among stakeholders (Christmann and Taylor, 2006; Jiang and Bansal, 2003; Boiral, 2007). The heterogeneous dissemination of EMS standards depending on external contingencies such as stakeholders pressures, geographic areas, physical distance of buyers, trade linkages or export markets clearly shows that the adoption of these standards does not only depend on the internal practices and environmental issues faced by organizations.

Various studies have described these external drivers and contingencies explaining the adoption of EMS, notably the ISO 14001 standard (King et al., 2005; Prakash and Potoski, 2006; Delmas and Montes-Sancho, 2009; Yin and Schmeidler, 2009). Nevertheless, as recently stressed by Marimon et al. (2011), few studies have analyzed the diffusion process of EMS standards across sectors of activity, notably comparing polluting with non-polluting organizations. Such analysis is essential to a better understanding of the *raison d'être* of EMS standards for organizations and whether these standards are used internally to address real environmental issues or more symbolically to improve corporate image in the absence of substantial environmental challenge.

The main objective of this paper is to analyze the sectorial distribution of the EMAS certifications in the EU countries depending on the level of pollution or environmental impact of organizations. The paper contributes to the literature by shedding light on underexplored geographic and sectorial drivers of EMAS certification. The paper also contributes to the literature on the symbolic adoption of EMS standards (Christmann and Taylor, 2006; Qi et al.,2012; Boiral, 2007, 2012). The prevalence of the EMAS certification in regions and sectors of activity which do not necessarily face substantial environmental challenges may encourage the superficial adoption of this standard by organizations more concerned by their image and social legitimacy than the improvement of environmental practices. Finally, the paper sheds light on an understudied EMS standard which has been adopted by a large number of organizations, notably in Germany, Spain and Italy. The research focuses on EMAS rather than ISO 14001 for two main reasons. Firstly, the EMAS certification has been under-researched in the literature (Glachant et al., 2002; Iraldo et al., 2009; Neugebauer, 2012). Although this may be reasonable, to some extent, because many more companies all over the world are ISO 14001 certified than EMAS registered, the latter is generally considered to be a more stringent and substantial environmental management system (European Commission, 2011; Neugebauer, 2012; Testa et al. 2014). As a result, one can expect that the use of this system as an internal tool to manage environmental issues inside organizations will appear more relevant for the polluting industries on which our research is focused. Secondly, research focused on the EMAS standard is also more appropriate because the registration data can be obtained from the European Commission's Environment Directorate, which established a centralized, detailed data source of EMAS registered companies that is rigorously maintained and that is accessible to researchers of all over the world. Consequently, the data on EMAS registration is reliable, accessible and open.

The remainder of the paper is organized as follows. The next section describes the literature on the diffusion of EMS standards and the main hypotheses of this paper. The third section on methods describes the approach applied for collecting and analyzing data. In the fourth section the main results of the field work are presented. The discussion of those results is summarized in the fifth section. Finally, the section of conclusions presents the main contributions, implications, and avenues for further research arising from the paper.

2. Literature review and research questions

The EMAS system proposes an EMS whose structure and main proposals are quite similar to the ISO 14001 standard (e.g. environmental policy, objectives, programs, procedures, measurements, audits). In addition to these basic proposals, which are based on traditional principles of management, the EMAS scheme —issued by a public body— sets more stringent requirements than does ISO 14001 —issued by the International Organization for Standardization, a private body. For example, regarding the external communication, EMAS registered organizations have to carry out yearly updates of the publicly available document called the "Environmental Statement" (Heras-Saizarbitoria et al., 2013). Similarly, under EMAS firms are required to improve their environmental performance continuously and to publish an environmental report to demonstrate this improvement, while ISO 14001 only requires continuous improvement of the management system. These internal requirements should, in principle, encourage organizations to adopt this standard with a view to improving internal practices and environmental performance, notably in polluting industries which face significant environmental issues. The study by Neugebauer (2012) in the German automotive and engineering industry seems to confirm that the EMAS standard is more internally driven than the ISO 14001 standard, which appears to be mostly implemented in response to external pressures.

Nevertheless, the adoption of EMS standards is not only driven by internal motivations as illustrated by the heterogeneity of their geographical diffusion. This diffusion can vary significantly depending on various external contingencies regardless the internal concerns for the improvement of environmental practices. The analysis of the external contingencies explaining the geographical differences in the diffusion of EMS standards can shed more light on their underlying drivers and main rationale inside organizations. The literature on this issue remains scattered and has mostly focused on various variables explaining geographical differences in the adoption of EMS standards (e.g. Corbett and Kirsch, 2001; Delmas, 2002; Potoski and Prakash, 2005; King et al., 2005; Bodas, 2009). These studies stress that there is a positive correlation between the number of certificates and macro-economic variables such as the volume of direct overseas investment and the tendency to export to the EU (Prakash and Potoski, 2006; Delmas and Montiel, 2008; Albuquerque et al., 2007). For example,

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