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The risk of standards proliferation – An analysis of differences between private and public transport standards



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ABSTRACT

This paper aims to explore differences between two institutional forms of standards: private and public. The research design is based on a survey study aiming to explore how security standards may impact differently on supply chain operations. The findings put in evidence main differences between standards in two different institutional forms: mandatory issued by governmental authorities and voluntary issued and disseminated through supply chains' inter-organizational relationships. The analysis only focuses on two certifications representing in turn authorities and private standards. Research implications indicate distinctions between mandatory public certification standards and private ones. Findings may support transport and logistics managers in the analysis and comparison of private and public certifications or standards for decision-making. Previous research has not analyzed differences between public and private security standards. In addition, researchers claim that security certifications can improve both security and efficiency. This paper indicates that this claim could present controversial results and therefore more attention needs to be paid by managers, policy makers and researchers.

1. Introduction

Global supply chains have access to several security standards, in order to protect transported assets from criminal actions. Tax frauds, counterfeiting, infringements of intellectual property, smuggling, theft of cargo and lorries etc. are just some of the typical security problems to which transport operators are exposed to (Anderson, 2007; EC, 2007; Rodwell et al. (2007)). While standards may facilitate the process of improving transport security, their proliferation, in terms of rapid increase of number of certifications to be handled in the transport sector, brings confusion to stakeholders, and thereby may hinder the cost-effectiveness of the compliance process (Henson, 2008). Consequences for supply chains are several including higher transaction costs, reduced delivery reliability and risk to lose competitive advantage. Hence, managers face the challenge to run operations efficiently, while (1) ensuring security in terms of prevention/detection/recovery of disruptive events, and (2) facilitating compliance to security schemes (Jüttner et al., 2003; Peck, 2006; Urciuoli and Hintsa, 2016).

The signs of proliferation of transport security standards come from anecdotal evidence showing a plethora of private and public certification schemes adopted in the sector. Private transport security standards can include different road parking security requirements for trucks, road security guidelines, ISO guidelines (IRU, 2006; ISO28001, 2007; TAPA, 2017). The same can be seen in terms of regulatory frameworks, in which different bodies in different countries have elaborated standards for different transport modes. For instance, customs bodies have developed AEO and CTPAT programs, other governmental agencies, IATA and IMO, have

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developed mandatory regulations for air and maritime transport (Fletcher, 2007; Ni et al., 2016). These standards are typically high-level guidelines which ultimately results in different interpretations and technical requirements on national/regional level (Urciuoli, 2016). It is evident that transaction costs for a global transport or freight forwarding company may significantly increase. For instance, considering that in 2010 the AEO was being applied in 56 countries, but through 30 different programs (Polner, 2010), the administrative hurdles to gather and apply compliance requirements increase exponentially. As a consequence, major organizations (e.g. TAPA EMEA) and regulatory bodies, e.g. the European Union, are encouraging the development of harmonized models or mutual recognition agreements (MRA), in order to achieve comparable security levels and simplified compliance (EU, 2010).

Harmonizing can be a complex task and to be achieved it requires a thorough understanding of similarities and differences of the main objectives of available standards. Examining previous work in the field, researchers have questioned the impact of security certifications in terms of security itself but also performance. It has been claimed that companies applying to multiple certifications face additional costs in form of investments in new assets, processes and personnel (McNaught, 2005; Stevenson, 2005). Transport security practices can mitigate product safety and security risks if complemented with top management commitment (Speier et al., 2011). If these additional processes are correctly aligned with the existing operations of a supply chain, higher efficiency may be achieved (Rice and Spayd, 2005; Sheffi, 2001; Willis and Ortiz, 2004). Other researchers have questioned the impact of public versus private standards on transport companies (Henson, 2008; Muradian and Pelupessy, 2005; Ruben and Zuniga, 2011). This stream of research claims that private and public certifications may lead to different benefits for companies. Ni et al. (2016) elaborate also on different levels of precedence given to private and public security standards. However, previous research does not provide empirical studies examining the differences between business and authority certifications and in particular, their impact on security and efficiency.

By means of a survey study, the purpose of this paper is to enhance the understanding of two prominent private and public security certifications, the TAPA EMEA and AEO certifications, and make a comparative analysis to verify possible gaps concerning their impact on efficiency and security. Finally, this paper discusses needs for future research as well as it proposes recommendations to hinder proliferation, hence aligning public-private certifications and promote mutual recognition.

This paper is structured in six sections. After the introduction, the literature review is presented and hypotheses formulated. The hypotheses aim to compare impacts on security and efficiency of respectively TAPA and AEO certifications. Next, the methodology, concerning a questionnaire with TAPA EMEA members and paired sample t-tests coupled with scatter diagrams visual analysis. Next, after testing the assumptions of the paired t-tests, the results from the survey are outlined in form of descriptive statistics and outcomes of the tests leading to validation/rejection of hypotheses. Finally, the implications for researchers as well as managers and decision makers are discussed.

2. Literature review

Examining previous research related to supply chain/transport security, it was found that major focus is kept on the impacts of public security programs on companies. Researchers have analyzed the effects of these programs on security and efficiency (Fletcher, 2007; Grainger, 2007; Voss et al., 2009). Lee and Whang (2005) show how the implementation of RFID based technologies can speed up Customs' inspections and provide operators with time and costs savings. Hence, complying with authority certifications can also bring "collateral benefits" as trade facilitation, asset visibility and tracking, faster standard development (Rice and Spayd, 2005; Sheffi, 2001; Willis and Ortiz, 2004). However, anecdotal evidence shows that transportation companies have already security programs in place. Hence, in this section, both private and public standards for transport companies are reviewed and thereby substantial differences highlighted.

2.1. Private security certifications

Private security certifications are developed by external parties like the International Organization of Standardization (ISO) or the TAPA EMEA (Transported Assets Protection Association). The TAPA EMEA has been primarily working with road freight security, including trucking, facility and road parking security requirements. TAPA (Transported Assets Protection Association) EMEA is a voluntary security association started in Europe in May 1999 to create a network of secure transports and terminals to protect industries moving high value cargo from theft. The most relevant certifications from TAPA EMEA are the Freight Security Requirements, FSR, and the Trucking Security Requirements, TSR. Standards included in the FSR certification aim to ensure safety and security of in-transit storage and warehousing assets. The FSR uses three different levels of security, from A (highest) to C (lowest) (TAPA, 2016a). Each of the security level may be recognized by implementing a specific set of security routines and technologies. The levels A and B are certified by an independent third party, using a scoring matrix (TAPA EMEA 2007). The TSR certification includes standards for road cargo operators and should be seen as a complementary program to the FSR. Also the TSR uses three different levels, from A (highest) to C (lowest). Also in this case different combinations of security routines and technologies give compliance to diverse security levels. All the three levels of security are self-assessed using a scoring matrix available to TAPA members (TAPA, 2016b).

Additionally, international standards for security have been developed by the International Organization for Standardization (ISO), and consequently these standards (ISO 28000:2007) are accessible by national and/or regional agencies and are being disseminated across supply chain stakeholders as voluntary consensus standards (Lara and Nof, 2008). The ISO has developed so far three certifications, the ISO28000:2007, the ISO28001:2007 and the ISO 20858 (ISO20858, 2007; ISO28000, 2007; ISO28001, 2007). The first two standards are applicable to all transport modes of the supply chain, while the last one, ISO 20858, is a private

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