



## Port state control inspections in the European Union: Do inspector's number and background matter?

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### A B S T R A C T

The succession of maritime accidents in the last decades of the 20th Century caused a strong political and public outcry for more stringent maritime safety regulations and measures. One of the most significant developments in this regard was the establishment of several regional agreements on Port State Control (PSC) – the first of which was the Paris MoU – with the specific objective of fighting substandard shipping through coordinated and harmonised inspection procedures. This article is based on results from 32,206 PSC inspections carried out by the European Union and European Free Trade Association Member States within the Paris MoU region from 1 January 2014 to 31 December 2015 to assess whether discrepancies among Member States exist after the entry into force of Directive 2009/16/EC and the introduction of the New Inspection Regime. Further, the study proceeds by investigating whether PSC team composition and inspector's background influence inspection outcomes. The study has identified that differences in detecting at least one deficiency and/or detaining a vessel are significant among Member States. With regard to team composition and background, it appears that the former correlates to the number of deficiencies and detentions and the latter, though the significance is not always consistent, to detecting a certain type of deficiencies according to the specific inspector's backgrounds. The paper concludes by presenting potential policy implications.

### 1. Introduction

The inspection of foreign flagged vessels in national ports is not a novel exercise. Provisions for the inspection or control of foreign vessels by port states have been a feature of enforcement since the 1929 SOLAS Convention. However, it was not until the emergence of regional agreements – the so-called ‘Memoranda of Understanding on Port State Control (PSC MoU)’ – that such practice became a regular element in the promotion of maritime safety. As mentioned, “the powers used by Port State Control Officers (PSCOs) are not new; it is the willingness to use the power which is new” [1, p.1].

As often occurs in the policy making process, the catalyst for an increased use of port state control (PSC) is to be found in a series of very serious maritime accidents which occurred in the final decades of the

20th century.<sup>1</sup> These accidents highlighted the unsatisfactory degree of enforcement exercised by certain maritime administration [2–8] and caused a strong political and public outcry for more stringent regulations regarding safety of ships, protection of the maritime environment and living and working conditions [1,4].

In response, eight north European states signed The Hague Memorandum of Understanding (MoU) in 1978, promptly superseded by a more comprehensive gentlemen's agreement in 1982, the Paris MoU [7,9,10], in order to stem the proliferation of substandard vessels across European waters. The Paris MoU served as the archetype for other MoUs which were established in other regions during the 1990s [10]<sup>2</sup>. It also served as the backbone for the three PSC Directives adopted by the European Union (EU) since 1995.

The main purpose of regional enforcement is to “drastically reduce

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<sup>1</sup> *Amoco Cadiz* (1978), *Aegean Sea* (1992), *Braer* (1993), *Estonia* (1994), *Erika* (1999) and *Prestige* (2002), among others.

<sup>2</sup> At present nine regional agreements exist: Tokyo MoU (Pacific Ocean), Acuerdo Latino or Acuerdo de Viña del Mar (South and Central America), the Caribbean MoU, the Mediterranean MoU, the Indian Ocean MoU, the Abuja MoU (West and Central Atlantic Africa), the Black Sea MoU, and the Riyadh MoU (Persian Gulf).

substandard shipping in the waters under the jurisdiction of Member States” (MSs) by developing, among other factors “common criteria for control of ships by the port State and harmonising procedures on inspection and detention” [11]. However, issues in the harmonisation process have been identified since the emergence of the early MoUs [2,12–17] that may result in different inspection output, either detentions or deficiencies, depending on the inspecting port authority. Asymmetrical inspecting behaviours can undermine the effective implementation of international regulations [2,14] and distort the level playing field within the region.

This paper inquires into the adequacy in EU Port State controls as reflected by either relative homogeneity or heterogeneity in inspection outcomes depending on where vessels are inspected. For that purpose, the study relies on a dataset from the European Union with detailed records from approximately 48,000 inspections and 130,000 deficiencies detected during the time frame 1 January 2014 to 31 December 2015. A unique feature of the database is that it includes complementary information on the number and background of PSCOs who carried out inspections, giving us the possibility to investigate whether these elements may be correlated to any inadequacies in the PSC inspection regime.

The data is analysed in the following manner. First, an investigation is performed on whether single EU countries record a higher number of deficiencies and detention compared to others. An econometric analysis is used to control for the fact that vessels inspected in different countries do not have the same observable characteristics. Second, an exploration of whether inspection outcomes are correlated to the number and background of PSCOs present on board at the time of inspection is implemented. Overall, the results show that discrepancies in harmonisation have been encountered and that accounting for PSCO's characteristics have an influence on inspection outcomes.

The remainder of the article is organized as follows. Section 2 provides a brief review of the literature concerning PSCs and presents some research hypotheses. In Section 3, a description of the data sample is provided and econometric results are discussed in Section 4. Finally, conclusions and potential policy implications are presented in Section 5.

## 2. Background

During the first years of its implementation, the Paris MoU underwent some criticisms as it was perceived as a ‘discriminatory enforcement’ of International Maritime Organization (IMO) conventions [18]. This led several scholars to verify the effectiveness of PSC [2,4,7,12,13,19–29] and its legal foundation [6,10,21,30–34]. According to these investigations, it is nowadays conventional wisdom that PSCs contribute to ensuring compliance with international regulatory efforts [6–8,19,35] and increase safety standards [5,36], pollution prevention and standards for seafarers on board vessels [20,21].

Despite the numerous positive effects observed, even at the early stages of the introduction of regional initiatives on PSC, cross-national differences have emerged in inspection practices and results, whether number of deficiencies or probability of detention. Discrepancies in inspection practices have a profound impact on the credibility of the regional MoUs on PSC. These can distort the market [16] by promoting the so called “port-shopping” phenomenon [10,14,21,35], a strategic practice by some operators who choose certain ports/regions [14,15] over others because of their less stringent safety enforcement standards. Moreover, differences can undermine the targeting system that relies on the accuracy of inspection results [16]. Reasons for discrepancies can be multiple and diverse.

In the context of international law, an MoU is not a treaty but an administrative agreement [4,15,37] which implies that its provisions are, *de jure*, non-binding for the signatory parties. In the case of the EU, however, the provisions of the Paris MoU have been made mandatory and enforceable for EU MSs through the issuance of Directive 2009/16/EC. Clearly, an administrative agreement that does not contemplate

binding provisions may allow for differences in application while hard law, such as the EU Directive, may presuppose a more harmonised approach.

On a country level, regional differences may be induced by the various stages of development and peculiarities within different regions [12]. Differences across Paris MoU, Tokyo MoU, Caribbean MoU, Viña del Mar Agreement, AMSA and the USCG were identified by Knapp and Franses [16] and Knapp and van de Velden [38]. On a cross-national level, differences were identified within the Tokyo MoU [22], between India, Russia and the UK [2,39] and also among Australia, India, South Africa and Russia [17]. However, aside from a recent interview study from Graziano, Schröder-Hinrichs and Ölcer [40] focusing on discrepancies within the EU region, no empirical study based on PSCs have investigated cross-national differences in the EU following the entry into force of Directive 2009/16/EC.

Considering the reason why discrepancies may appear, Anderson [13] suggested that the lack of appropriate resources and unequal participation of states in the same MoU are factors to be taken into consideration. Anderson [13] also calls into question the diversity in resources, whether manpower, financial, or technological as well as the lack of specific action plans for proper enforcement. Knapp and Franses [16] argue that various port authorities seem to adopt different inspection philosophies in the detention of vessels which translates to perceived cross-national differences.

On a more operational level, ship-related elements play a prominent role on the inspection outcomes. Authors have identified age, ship type, flag of registry as determinants of the number of deficiencies recorded [24]. In spite of the fact that those elements proved to be significant predictors of the inspection results, differences across inspecting authorities, even when controlled for, remain and are still responsible for the number of deficiencies and probability of detentions [16,17]. A supplementing conclusion can be reached if considering subjectivity and reliance on professional judgment as inherent contributing elements to cross-national difference [2,4,40]. More specifically, some authors have suggested that further investigations should be conducted on the influence that the background of PSCOs and the number of inspectors on the inspection team have on inspections results [16,41].

This paper contributes to the body of literature investigating cross-national differences of PSC practices within the EU as a region. Its first aim is to assess whether particular EU countries record a higher number of deficiencies or higher detention rates. For that purpose, an econometric analysis is applied as there may be differences in the characteristics of the vessel inspected among countries. Following the previous empirical evidence of [16,17,23,24,28,29,39], two research hypotheses are formulated.

**Hypothesis 1.** PSCs may lead to country differences both in number of deficiencies and in rates of detention within the EU region even when the characteristics of the fleet inspected are controlled for.

Moreover, in line with [16,40,41], an investigation is performed on whether the number of inspectors allocated for an inspection and the background of inspectors can help in understanding the potential cross-national differences in PSC outcomes.

**Hypothesis 2.** PSC outcomes can be influenced by the number and background of inspectors within the EU region.

Numerous studies take for granted that the mandatory nature of the European PSC regime, by virtue of Directive 2009/16/EC, translates to a more effective PSC inspection system compared to other PSC MoUs [5].

## 3. Data and descriptive statistics

The hypotheses were tested using PSC inspection data carried out within the EU and European Free Trade Association (EFTA) region within the Paris MoU framework. Originally established in 1982, the

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