

On the effectiveness of port state control inspections

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Received 6 June 2006; received in revised form 11 October 2006; accepted 19 November 2006

Abstract

This paper uses 4080 observations from the Swedish Maritime Administration (1996–2001) to test how vessel's characteristics influence the length of time between two port state control inspections (PSC) along with the number of deficiencies detected during PSC. It also investigates whether a ship that has undergone PSC inspection at a certain time exhibits a reduction in the total number of deficiencies detected during the next control. Estimates from Poisson models stress that the age of the vessel, ship type, and flag of registry appear to be significant predictors. Subsequently, the analysis on 874 repeated inspections shows that following a PSC inspection, the reported deficiencies during next inspection is reduced by 63%.

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Keywords: Maritime; Safety; Port state control; Inspections; Deficiencies; Poisson models

1. Introduction

The present regime of port state control (PSC) traces its origins from a memorandum of understanding signed in The Hague between eight North Sea states in 1978 that “laid down a general surveillance procedure aimed at verifying that a number of requirements derived from various international agreements were met and that conditions on board ships were not hazardous to safety or health” (Kasoulides, 1993, p. 142). Serious maritime accidents, particularly the *Amoco Cadiz* oil spill, led to a new memorandum of understanding signed in 1982 in Paris that expanded not only the scope of the agreement, but the membership as well (Özcayir, 2001, pp. 115–116).

Seven of the most important conventions in the international regulatory framework for maritime safety serve as the bases upon which the regime of PSC has been institutionalized. These are the International

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Convention for the Safety of Life at Sea (SOLAS), International Convention for the Prevention of Pollution from Ships (MARPOL), International Convention on Load Lines (LOADLINES), International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), Convention on the International Regulations for Preventing Collisions at Sea (COLREG), International Convention on Tonnage Measurement of Ships (TONNAGE), Merchant Shipping (Minimum Standards) Convention (ILO 147). This was in reaction to the generally-held belief that many flag states are unable to adequately perform their mandated duties of ensuring that ships flying their flag comply fully with international safety standards formulated under the auspices of the International Maritime Organization (IMO) and the International Labour Organization (ILO). As such, PSC is merely a complement, not a substitute, to effective maritime safety administration by the flag state. While it was originally intended as an interim measure, trends and developments in international enforcement indicate that PSC is here to stay.

Every PSC inspection generates an inspection report that, *inter alia*, contains detailed information on the deficiencies noted (including 0 for no deficiency) together with relevant vessel particulars such as the flag of registry, IMO vessel number, vessel type, year built, and date of inspection. In this study, we assume one of the effects of PSC inspections as improving performance at subsequent inspections, manifested by a decrease in terms of the number of deficiencies noted. Conversely, we assume that vessels exhibiting an increase in the number of deficiencies noted at subsequent inspections are indicative of lack of significant effect of the PSC regime.

This study uses data related to PSC inspections carried out on foreign vessels that called at Swedish ports during the years 1996–2001. Swedish PSC statistics were selected because of the comprehensiveness of the data available from the Swedish Maritime Administration (SMA hereafter) that comprises more than 9002 inspection reports with the possibility of building a sample of 874 observations where a corresponding comparison of two successive inspections is made possible. Effectiveness is defined in this paper as the likelihood for PSC inspections to register a lower number of deficiencies in “ t ” compared to “ $t - 1$ ”.

The remainder of the paper is organized as follows. In the next section, we briefly review the literature on the effectiveness of PSC. We then describe the data in Section 3 and we investigate in Section 4 the relationships between the length of time between two inspections, the number of deficiencies and the profile of the vessels inspected. In Section 5, we apply a dynamic approach and consider only vessels with repeated inspections to test for the effectiveness of PSC. Finally, Section 6 presents a number of conclusions.

2. Literature review

While literature is available on the reasons why PSC inspections should be implemented and how they should be implemented, there is a lack of conclusive statistical analysis on the effectiveness of such inspections.

For instance, Kasoulides (1993) stresses how flag state enforcement has diminished in the face of the proliferation of open registries and why coastal States have reacted by asserting their rights through the resultant regime of port state control at the regional level. Özçayır (2001) reviews relevant issues such as the pivotal role of the ISM Code, the function of classification societies, and the implications of the *Erika* incident in shaping practices in European PSC today, along with the practice of PSC in different regions or jurisdictions. Clarke (1994) discusses how the ineffectiveness of flag states has given port states no other choice than to “take active steps to help themselves.” Kiehne (1996) focuses on the sanctions available to PSC authorities in respect of the foreign ships being inspected, ranging from instructions to rectify deficiencies (i.e., with immediate effect before departure, within two weeks, or at the next port of call) to outright detention. Cuttler (1995) examines PSC in the context of ship-sourced pollution prevention and calls upon states to focus greater attention on the potential benefits of developing a pro-active framework such as PSC “to prevent accidents and pollution before they happen” (Cuttler, 1995, p. 199).

Hare (1997) offers one of the first contributions on the effectiveness of PSC in showing how the proliferation of regional MoUs has significantly diminished the potentials for substandard ships to participate in international commerce. McDorman (2000) examines also how regional PSC agreements and harmonized inspection procedures have contributed towards levelling the playing field among different ports. Owen (1996) gives a detailed description of the practice of PSC in the Paris MoU and discusses the limitations inherent in the

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