



Public Rules or Market Enforcement? Institutional Gaps and the Cost of Compliance in Maritime Labour

KATARZYNA SKRZESZEWSKA

corresponding author

Department of Management and Economics, Faculty of Management and Quality Science, Gdynia
Maritime University, 81-87 Morska St., 81-225 Gdynia

✉ k.skrzeszewska@wznj.umg.edu.pl

 ORCID: <https://orcid.org/0000-0002-2102-0313>

Abstract

The Maritime Labour Convention (MLC, 2006) was designed to harmonise minimum standards of working and living conditions at sea across jurisdictions. Despite its near-universal ratification, significant disparities in labour conditions persist, indicating limited effectiveness in the implementation of the regulatory framework.

This article aims to explain this paradox by analysing the MLC through the lens of institutional economics and multi-level governance. In particular, the study examines how the institutional structure of the system—encompassing both public and private actors—affects the effectiveness of enforcement. It advances the argument that the limitations of the MLC do not stem from insufficient regulatory harmonisation, but rather from the system's limited capacity to generate sufficiently high and consistent costs of non-compliance. The analysis demonstrates that the hybrid and multi-level governance structure gives rise to three types of institutional gaps: vertical, horizontal, and perceptual. Drawing on data from Port State Control (PSC) regimes, the study shows that deficiencies related to working conditions are relatively frequently identified, whereas detentions—representing the primary enforcement mechanism associated with significant economic costs—remain relatively limited and

uneven across regions. The findings reveal a systematic asymmetry between the detection of violations and their sanctioning. This asymmetry lowers the expected cost of non-compliance, weakens the deterrent function of regulation, and creates conditions conducive to regulatory arbitrage. At the same time, the analysis suggests that, in certain contexts, market-based mechanisms may generate stronger incentives for compliance than fragmented public enforcement systems.

The contribution of this article is threefold: (1) it develops a conceptual framework of three types of institutional gaps, (2) it links these gaps to regulatory arbitrage from a transaction cost perspective, and (3) it provides empirical evidence of enforcement asymmetry based on PSC data. The findings suggest that improving the effectiveness of the MLC requires strengthening enforcement mechanisms and increasing the credibility and consistency of sanctions, rather than further expanding regulatory standards alone.

Keywords: Maritime Labour Convention (MLC); institutional gaps; regulatory arbitrage; enforcement asymmetry; maritime governance

JEL: L51; D23; K23; F23; J81

1. Introduction

The Maritime Labour Convention (MLC, 2006) represents one of the most comprehensive attempts to establish global minimum standards for working and living conditions at sea (Fotteler et al., 2018). Since its entry into force in 2013, the Convention has been ratified by the vast majority of maritime states, covering most of the world's merchant fleet. In principle, such widespread adoption should ensure relatively uniform labour standards across jurisdictions.

However, empirical evidence suggests that these expectations have not been fully realised. Persistent deficiencies in working conditions, wage practices, and effective access to legally guaranteed rights, benefits, and onboard welfare provisions continue to be observed. This raises a fundamental question: why do widely adopted regulatory frameworks fail to ensure consistent labour standards in practice? This question is particularly relevant in transnational sectors characterised by multi-level governance and fragmented enforcement environments.

This article addresses this question by analysing the MLC through the lens of institutional economics and multi-level governance. The central argument is that the limitations of the Convention do not stem from the design of regulatory standards, but from the structure of their enforcement. In particular, the MLC does not fail in detecting non-compliance, but rather in generating sufficiently high and consistent costs of non-compliance.

From an institutional perspective, regulatory effectiveness depends not only on the existence of rules, but also on the conditions under which they

are enforced—namely the probability of detection and the credibility and magnitude of sanctions (Coase, 1937; North, 1990). When violations are identified but rarely lead to economically significant consequences, regulated entities are incentivised to engage in selective rather than full compliance.

This pattern is observable in the case of the MLC, where data from Port State Control (PSC) inspections indicate that employment-related deficiencies are frequently identified, yet only a small proportion result in ship detention—the primary enforcement mechanism capable of generating immediate and substantial economic costs, including operational delays, port-related expenses, and contractual penalties.

To explain this dynamic, the article conceptualises the MLC as a hybrid and multi-level regulatory system characterised by institutional gaps. Vertical gaps arise from fragmentation across governance levels, enabling jurisdictional mobility. Horizontal gaps reflect variation in enforcement practices among actors operating at the same level. Perceptual gaps capture discrepancies between formal indicators of compliance, such as ratification rates, and observed labour outcomes in practice.

To support this analysis, the paper develops a conceptual model of multi-level governance and institutional gaps (Figure 1), linking regulatory structure to observed enforcement outcomes.

Taken together, these gaps reduce the expected cost of non-compliance and create conditions conducive to regulatory arbitrage in global maritime labour markets. In such an environment, actors respond not only to formal rules, but also to differences in enforcement intensity and associated compliance costs.

The article contributes to the literature on institutional economics and regulatory governance in three ways. First, it develops a structured framework of institutional gaps applicable to multi-level regulatory systems. Second, it links these gaps to regulatory arbitrage through the lens of transaction cost economics. Third, it provides empirical support for this argument using PSC data complemented by industry evidence.

The remainder of the article is structured as follows. Section 2 outlines the theoretical framework, focusing on institutions, enforcement, and regulatory arbitrage in multi-level governance systems. Section 3 presents the research design, including the analytical framework, data sources, and analytical procedure. Section 4 examines maritime governance and enforcement structures. Section 5 analyses the Maritime Labour Convention (MLC) as a regulatory system. Section 6 identifies institutional gaps in the implementation of the MLC and examines their empirical manifestations. Section 7 discusses the findings, and Section 8 concludes with policy implications and directions for future research.

2. Institutional Foundations of Regulatory Enforcement

2.1. Institutions and Transaction Costs

Institutions shape economic behaviour by structuring incentives and reducing uncertainty (North, 1990). Following North's conceptualisation of institutions as formal and informal "rules of the game", they organise repeated interactions and stabilise expectations (North, 1990; Ostrom, 2005). Formal institutions include legal norms, administrative procedures, and codified regulatory arrangements, whereas informal institutions consist of norms of behaviour, customary practices, shared expectations, and culturally embedded patterns of conduct (Ostoj, 2012). Their role extends beyond regulating behaviour to reducing transaction costs associated with exchange, including costs related to information, contracting, monitoring, and enforcement (North, 1990). This distinction is particularly important in labour markets, where the effectiveness of formal regulation depends on its interaction with informal institutions: the two may complement each other, but they may also diverge, and such divergence can weaken enforcement and create conditions for institutional gaps (Fiedor, 2015).

From the perspective of the new institutional economics, regulatory effectiveness depends not only on the existence of formal rules, but also on the capacity to enforce them under conditions of bounded rationality and opportunism (Williamson, 1979, 1998). Where monitoring is weak and sanctions lack credibility, formal institutions may remain formally valid yet become ineffective in practice (Ostrom, 2005; Williamson, 1979). Compliance is therefore shaped not only by the content of regulation, but also by the costs of compliance, the probability of detecting violations, and the expected consequences of non-compliance (Kuiper et al., 2023; North, 1990; Williamson, 1979).

Under such conditions, economic actors may respond through strategic adaptation rather than full compliance. The pursuit of lower transaction and regulatory costs incentivises the selection of organisational and jurisdictional arrangements that minimise exposure to monitoring and sanctions (Coase, 1937; North, 2008). This creates a direct link between enforcement limitations and the emergence of regulatory arbitrage.

2.2. Multi-level Governance and Institutional Gaps

Contemporary regulatory systems increasingly operate within multi-level and hybrid governance structures, in which authority is distributed across global, regional, and national levels and shared between public and private

actors. While such arrangements enhance regulatory flexibility and reach, they also increase coordination and monitoring costs, blur accountability, and create conditions for uneven implementation (Hooghe & Marks, 2003; Williamson, 1998).

In this context, institutional gaps are understood as structural inconsistencies between formal rules, their interpretation, and their practical enforcement. These gaps may arise from fragmented competences, weak coordination, uneven enforcement practices, or tensions between formal requirements and operational realities (Bläse et al., 2024; Gruszevska, 2017; Hooghe & Marks, 2002). In hybrid systems, these challenges are amplified by the role of regulatory intermediaries, which perform supervisory functions on behalf of public authorities.

The delegation of authority may reduce the direct costs of state oversight, but it also introduces additional agency-related challenges (Jagodziński, 2019). Private intermediaries may face conflicting incentives between rigorous enforcement and the maintenance of commercial relationships with regulated entities. As a result, mechanisms intended to enhance enforcement capacity may simultaneously generate new institutional gaps, including selective application of standards, variable inspection quality, and diffused accountability (Abbott, 2017; Abbott et al., 2017).

Within multi-level systems, these gaps contribute to heterogeneous enforcement environments and increase uncertainty for regulated actors (Black, 2001; North, 2008). They also create structural conditions under which differences across regulatory systems can be strategically exploited.

2.3. Regulatory Arbitrage

Regulatory arbitrage refers to the strategic exploitation of differences and inconsistencies across regulatory systems. In the context of multi-level governance, it arises not only from individual violations, but from the interaction between fragmented competences, incomplete enforcement, and firms' incentives to minimise costs (Georgallis et al., 2021; Williamson, 1998).

From a transaction cost perspective, regulatory frameworks can be understood as inherently incomplete. Regulatory authorities are unable to anticipate all possible adaptive responses of regulated entities, while firms actively seek arrangements that preserve economic functions while reducing the costs of compliance, monitoring, and sanctioning (Fleischer, 2010; Weiss et al., 2013). Regulatory arbitrage therefore often involves the selection of organisational, contractual, or jurisdictional structures that provide more favourable regulatory treatment without necessarily violating formal rules.

In fragmented enforcement environments, actors respond not only to formal requirements but also to differences in monitoring intensity and the credibility of sanctions (Marjosola, 2021) or the ability of financial firms to

circumvent or neutralize rules, is a classic problem of financial regulation. This article draws on transaction cost economics (TCE). Where the expected cost of non-compliance remains low, incentives for arbitrage increase. Regulatory arbitrage should therefore be interpreted as a rational response to institutional incompleteness and uneven enforcement, as well as an indicator of the limitations of formally harmonised but operationally fragmented regulatory systems.

3. Methods

3.1. Research Design

This study adopts a qualitative, analytically driven research design grounded in institutional economics and governance studies. The analysis focuses on the institutional dimensions of regulatory arrangements governing labour standards in the maritime sector.

The Maritime Labour Convention (MLC, 2006) is examined as a case study of a transnational regulatory system implemented through a multi-level governance structure. The analysis concentrates on how regulatory norms established at the international level are translated into practice across different jurisdictions and institutional contexts. The study also incorporates a comparative perspective by examining discrepancies between formal regulatory frameworks and their practical implementation across institutional levels and among actors involved in maritime labour governance.

3.2. Analytical Framework

The analytical framework employed in this study draws on the literature on institutional economics, and multi-level governance. These approaches emphasise that regulatory systems operating across multiple jurisdictions generate coordination problems, enforcement asymmetries, and inconsistencies between formal rules and their practical application. In this study, the governance of labour standards in the maritime sector is conceptualised as a multi-level and hybrid institutional system involving both public regulatory authorities and private oversight actors, such as recognised organisations and inspection bodies. These actors operate under different incentive structures and accountability regimes, which may result in variations in enforcement intensity, coordination failures, and uneven application of regulatory standards. Within this framework, the implementation of the Maritime Labour Convention (MLC, 2006) is understood as a process unfolding across interconnected levels of governance—global, regional, national, and operational—while relying on a combination of state-based, delegated, and market-based

enforcement mechanisms. This institutional configuration reflects both the need for global standardisation and the practical constraints of enforcement in a highly mobile and transnational industry. Building on this perspective, the study identifies three types of institutional gaps that may emerge within such a system.

Vertical gaps arise between different levels of governance (global, regional, national, and operational), particularly where regulatory responsibilities are unevenly distributed or where supervisory functions are delegated to private actors. These gaps reflect inconsistencies between formally adopted international standards and their implementation within national legal and administrative systems (Galley, 2014; Ostrom, 2010; Roe, 2013a).

Horizontal gaps occur among actors operating at the same level of governance but under different regulatory or organisational logics. This includes differences between flag states, port state control regimes, recognised organisations, and private inspection systems. Such gaps are associated with variations in enforcement practices, standards, and coordination across jurisdictions and institutional arrangements (Fulconis & Lissillour, 2021) namely the classification and certification of ships. Paradoxically, the academic literature on the strategic behaviour of classification societies remains very limited. More often than not, the scope of prior research has been limited to the definition of their missions in the shipping ecosystem with an emphasis on their changing legitimacy as maritime accidents occur. Consequently, this paper aims at providing a better understanding of the specific role of classification societies in maritime safety and within the interorganisational dynamics of international shipping. The study is based on a conceptual framework provided by the behaviourist approach and applied to the inter-organisational dynamics of supply chains. This approach enables in-depth analysis of actors' strategic behaviours by focusing on four dimensions: power, leadership, conflict and cooperation. The main results highlight the increasingly central and paradoxical role of classification societies. This role encompasses, on the national level, classification and certification processes, and, on the supranational level, the creation of new rules and regulations. The study highlights the importance of their ability to master the official framework and institutional vocabulary, which enable them to strengthen their power and leadership in the shipping market. This capacity helps them to limit conflicts between actors and to encourage certain cooperative behaviours based on relationships of dependence and interorganisational interdependence.”;container-title”:”Journal of Shipping and Trade”.

Perceptual gaps refer to discrepancies between formal regulatory standards and their practical interpretation, perception, and lived experience by directly affected actors, particularly seafarers. They capture divergences between declared (*de jure*) compliance and observed (*de facto*) working conditions, as well as limitations of complaint mechanisms and enforcement

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Taken together, these three categories serve as a conceptual tool for analysing how institutional complexity and hybrid governance structures generate inconsistencies in enforcement and create opportunities for strategic behaviour by market actors. In particular, they help explain how regulatory fragmentation and uneven enforcement capacities may enable the emergence of regulatory arbitrage within the maritime labour system.

3.3. Data Sources

The analysis is based on several categories of secondary data reflecting the hybrid governance structure of maritime labour regulation.

First, international and national regulatory and institutional documents related to the implementation of the Maritime Labour Convention (MLC, 2006) were analysed. These include the Convention itself, selected national provisions implementing the MLC, and institutional materials concerning its implementation and supervision. These sources represent the formal legal framework and the public governance dimension of the system.

Second, the study draws on inspection statistics and reports from Port State Control (PSC) regimes, published by regional Memoranda of Understanding (MoUs), including the Paris, Tokyo, Mediterranean, Indian Ocean, Black Sea, Riyadh, Caribbean, Abuja, and Viña del Mar. These datasets pro-

vide empirical evidence on the enforcement of regulatory standards in relation to vessels calling at ports within the respective regions. Due to their cross-sectional nature, they also allow for the identification of differences in enforcement with respect to flag states and recognised organisations (ROs) responsible for supervision. At the same time, PSC reports constitute one of the most detailed available sources for analysing the practical implementation of regulations at the global level. However, they do not provide a fully comprehensive picture, as not all regions are covered by MoU frameworks, and some countries (such as the United States) operate separate inspection systems (e.g., the Coast Guard) based on different institutional arrangements.

Third, the analysis incorporates industry and private sector reports on maritime labour markets, including publications by BIMCO and ICS—non-governmental organisations representing shipping industry stakeholders—as well as studies conducted by Drewry, a private maritime consultancy. These sources provide insights into market conditions, labour supply and demand, and structural characteristics of the sector, reflecting the role of private and industry actors in knowledge production.

Fourth, the study considers qualitative research findings and reports addressing seafarers' working conditions and their experiences with the implementation of the MLC, including reported barriers to lodging complaints. These sources capture the perspective of actors directly affected by the regulatory framework and allow for the identification of discrepancies between formal standards and practice.

Altogether, these diverse data sources reflect multiple dimensions of the hybrid governance system, combining public regulatory data, delegated and private oversight mechanisms, and experience-based evidence. Their triangulation enables a more comprehensive analysis of both formal institutional arrangements and their practical functioning.

3.4. Analytical Procedure

The analysis was conducted in three stages. First, the institutional structure of the MLC governance system was reconstructed based on legal and institutional documents. This stage focused on identifying the key regulatory actors, levels of governance, and formal responsibilities within the regulatory framework governing labour in the maritime sector.

Second, empirical data derived from inspection statistics, industry reports, and survey-based studies were analysed in order to identify discrepancies between formal regulatory standards and practices observed in the maritime labour market.

Third, the identified discrepancies were interpreted using the analytical framework of institutional gaps (vertical, horizontal, and perceptual). This stage aimed to explain how the complexity of the regulatory structure may

facilitate mechanisms of regulatory arbitrage and contribute to the uneven implementation of labour standards across jurisdictions.

4. Maritime Governance and Enforcement Structures

Maritime regulation is global in rule-making but decentralised in implementation and enforcement. Core standards are formulated primarily at the international level by the International Maritime Organization (IMO) and, in the field of labour, by the International Labour Organization (ILO), whereas responsibility for implementation and supervision rests largely with individual states. In practice, this responsibility is tied mainly to vessels registered under a state's flag. The result is a multi-level and polycentric governance system in which regulatory standards are established globally, further developed regionally, and enforced nationally and operationally (Roe, 2009, 2013a, 2013b). While this structure increases regulatory reach and flexibility, it also fragments responsibility and contributes to variation in enforcement practices across jurisdictions. Trade and investment relations between China and other industrialized nations have been put into question. As the key infrastructure of trade, shipping is a source of economic and political power in the global economy. Shipping is key for economic development and the facilitation of economic globalization. Shipping and naval superiority also play a role in power projections by states in the international arena. This is complicated by the fact that shipping services are a market with an ill-defined jurisdictional paradigm, its own dynamics of wealth creation, peculiar firm competition, and its own crisis tendencies. Global political conflicts have reflected on to the shipping industry on several occasions, closures in the Suez Canal or strikes in ports represent instances of the interrelation between political economy and shipping markets.

From an institutional perspective, such a governance structure generates substantial coordination and transaction costs. The dispersion of competences across global, regional, national, and operational levels makes it difficult to ensure consistent monitoring and accountability. At the same time, because decisions regarding flag choice and organisational arrangements remain largely in the hands of shipowners or ship managers, firms may respond strategically to differences in enforcement environments. This creates structural conditions for regulatory arbitrage, as economic actors may select jurisdictions and institutional arrangements that minimise compliance and monitoring costs. The tension between globally standardised rule-making and decentralised enforcement is therefore not incidental, but one of the defining characteristics of maritime governance and an important source of uneven regulatory outcomes.

A further characteristic of maritime governance is the coexistence of public, delegated, and market-based enforcement mechanisms. Flag State

Control (FSC) and Port State Control (PSC) constitute the two main public enforcement channels, but they are complementary rather than fully integrated in search of cheaper crews, have recruited ‘crews of convenience’ from developing nations. This paper examines the record of FOCs to analyse the effects of globalisation upon the working lives of seafarers. The method used will be to compare the regimes of FOCs, and this will be done by the analysis of a flag state conformance index (FLASCI). PSC frameworks were developed largely to compensate for weaknesses in flag state oversight, yet their effectiveness varies across regions (International Labour Organization, 2022a; International Labour Organization, 2022b). In parallel, recognised organisations (ROs), including classification societies and certification bodies, perform supervisory and certification functions on behalf of states, thereby expanding enforcement capacity while also creating principal–agent problems and potential conflicts of interest (Van Leeuwen, 2015). Alongside these delegated mechanisms, private vetting and rating systems may exert even more immediate economic pressure, as negative inspection outcomes can directly affect access to cargo, contracts, or insurance (Büthe, 2010; Knapp et al., 2011; Knapp & Franses, 2006). I introduce a conceptual model “beyond supply and demand,” which distinguishes three major subsets of stakeholders of global private regulation, which may (but need not). In this sense, maritime governance can be described as a fragmented but dense regulatory environment in which high formal regulation coexists with uneven enforcement and multiple, partly competing, compliance incentives (Van Leeuwen, 2015).

Figure 1 synthesises this institutional architecture by showing how public authorities, recognised organisations, private regulatory intermediaries, maritime business actors, and ships and crews are connected across global, regional, national, and operational levels. The figure also visualises the main channels through which regulatory influence, delegated authority, control, and enforcement are transmitted, thereby clarifying why institutional fragmentation is not accidental but structurally embedded in the governance of maritime labour.

5. The Maritime Labour Convention (MLC) as a Regulatory System

The Maritime Labour Convention (MLC) establishes global minimum standards for working and living conditions at sea and constitutes a central component of the international regulatory framework governing maritime transport (International Labour Organization, 2022; International Labour Organization, 2025). Its near-universal ratification implies that the Convention provides a broadly harmonised formal foundation for labour protection across the global fleet.

The MLC should be understood as a transnational regulatory system whose formal harmonisation operates within a fragmented maritime labour market. Its near-universal reach does not eliminate the institutional constraints created by dispersed employment chains, uneven bargaining power, and differentiated enforcement environments. Labour supply, ship ownership, fleet management, and ship registration are frequently distributed across different jurisdictions, which weakens the direct link between regulatory authority and economic control. In such a setting, the effectiveness of labour protection depends not only on the existence of harmonised standards, but also on how those standards are implemented and enforced across fragmented institutional environments.

Table 1 provides background on structural imbalances in the maritime labour market, showing the persistent shortage of officers alongside the recurrent surplus of ratings. These imbalances matter institutionally because they shape bargaining power and the distribution of compliance pressures across occupational groups. Table 2 complements this picture by illustrating the geographical dispersion of labour supply, ship ownership, management, and registration. Taken together, the two tables show that the labour market governed by the MLC is not only global but also organisationally disaggregated, which complicates accountability and weakens the direct connection between regulation and control.

The implementation of the MLC therefore takes place through a combination of public, delegated, and market-based mechanisms. At the international level, the Convention establishes global standards; at the national level, these standards are transposed into domestic legal and administrative systems and enforced primarily by flag states; at the regional level, additional layers of coordination or harmonisation may further shape implementation; and at the operational level, compliance is mediated by port inspections, certification systems, and organisational practices aboard ships. This means that the MLC does not function as a single, uniform enforcement mechanism, but rather as a network of interconnected structures operating under different incentive systems and varying enforcement capacities. As a result, the ship and its crew become the operational site at which formally harmonised standards may still fail to produce consistent outcomes.

Read together with Figure 1, the MLC should therefore be understood not simply as a set of labour standards, but as a regulatory system whose effectiveness is shaped by the broader governance architecture of global shipping. Differences in supervision intensity, inspection practices, flag-state capacity, and delegated oversight create space for strategic jurisdictional and organisational choices. This is precisely why formally harmonised rules may coexist with uneven enforcement outcomes and why the Convention provides a useful case for analysing institutional gaps and regulatory arbitrage.

6. Institutional Gaps in the Implementation of the Maritime Labour Convention (MLC)

6.1. Analytical Foundations in Institutional Theory

Building on the theoretical framework presented in Section 2 and the governance structure outlined in Sections 4 and 5, the MLC can be interpreted as a formally harmonised but operationally differentiated institutional system. Its implementation depends on the interaction between global standards, decentralised enforcement mechanisms, transaction costs, and the strategic behaviour of regulated actors. In such a system, institutional effectiveness is shaped not only by the content of rules, but also by the consistency of monitoring, the credibility of sanctions, and the alignment between regulatory authority and economic control. Figure 1 provides a schematic representation of this logic by locating the main governance actors across levels and by identifying the points at which vertical, horizontal, and perceptual gaps emerge. The figure is therefore not merely illustrative; it functions as the analytical bridge between the formal structure of the MLC and the empirical patterns of uneven enforcement examined below.

6.2. Empirical Asymmetry as an Indicator of Enforcement Failure

Inspection data from Port State Control (PSC) regimes operating under regional Memoranda of Understanding (MoUs) reveal a broadly consistent pattern: relatively high rates of MLC-related deficiencies coexist with comparatively low and unevenly reported detention rates (Abuja MOU, 2024; Black Sea MOU, 2025; Caribbean MOU, 2024; Viña del Mar Latin American Region, 2025; Indian Ocean MOU, 2025; Mediterranean MOU, 2024; Paris MOU, 2025; Riyadh MOU, 2024; Tokyo MOU, 2025).

Table 3 summarises this pattern across selected PSC regimes. Although the exact degree of comparability is limited by differences in reporting practices and aggregation methods, the overall picture remains clear. In 2024, MLC-related deficiencies accounted for between 2.32% and 22.36% of all deficiencies reported across the nine PSC regimes, with an average of 12.44% and a median of 11%. By contrast, the share of detentions explicitly linked to MLC-related deficiencies ranged from 0.3% to 2.05%. However, this category was not reported in four PSC regimes, so the detention data should be treated as incomplete rather than as evidence of the absence of such cases. For the available observations, the average share of MLC-related detentions was 0.96%, with a median of 0.7%. Taken together, these figures indicate that labour-related deficiencies are identified relatively frequently, whereas deten-

tions — the enforcement measure most closely associated with immediate economic cost — remain limited and unevenly reported across jurisdictions. This asymmetry is central to the article's argument, because it suggests that the MLC operates more effectively as a detection and monitoring system than as a consistently deterrent enforcement regime.

6.3. Vertical Gaps: Multi-level Fragmentation and Jurisdictional Mobility

As shown in Figure 1, vertical gaps emerge where regulatory authority and economic control are distributed across different governance levels. Although MLC standards are formally harmonised, their implementation depends on national legal systems, administrative capacities, and enforcement practices. As shown in Table 2, key maritime functions — labour supply, ship ownership, fleet management, and registration — are distributed across multiple jurisdictions, resulting in a separation between regulatory authorities and economic activities (Lloyd's Register, n.d.; UNCTAD, n.d.). This fragmentation increases jurisdictional mobility and enables actors to select regulatory environments that minimise compliance costs. From a transaction cost perspective, differences in enforcement intensity across levels create incentives for jurisdictional choice. Shipowners may select flag states and regulatory environments that reduce regulatory and enforcement costs, thereby engaging in regulatory arbitrage without formally violating legal rules. Even where additional layers of harmonisation are introduced, as in the European Union, their practical effect remains limited because enforcement continues to be decentralised and the organisational structure of shipping allows firms to circumvent more demanding regulatory environments through jurisdictional and contractual choices (EMSA, n.d.). The experience of shipping controlled or managed by EU-based actors therefore suggests that formal harmonisation alone is not a sufficient solution: as long as firms retain the ability to reorganise registration, management, and operational arrangements across jurisdictions, regulatory convergence does not necessarily translate into more effective implementation of the Convention.

6.4. Horizontal Gaps: Heterogeneous Enforcement Environments

As indicated in Figure 1, horizontal gaps emerge among actors operating at the same level but under different enforcement logics. In the case of the MLC, this concerns differences among PSC regimes, flag states, recognised organisations, and private inspection systems. PSC data reveal substantial variation in inspection intensity, deficiency patterns, and detention outcomes across different MoU regions.

This variation is further complicated by differences in data availability and reporting standards, including the partial or absent reporting of MLC-specific indicators in some regimes. Additional variation arises from differences between flag states and recognised organisations. Compliance outcomes depend not only on formal rules but also on the institutional environments in which they are enforced, including monitoring practices and organisational procedures.

The delegation of authority to recognised organisations illustrates the implications of hybrid governance. While it reduces the direct enforcement costs borne by states, it introduces principal–agent problems and potential conflicts of interest, as private entities are contracted and remunerated by the firms they regulate. At the same time, market-based mechanisms partially compensate for these gaps. Private inspection and rating systems generate direct economic consequences — such as access to cargo or insurance — thereby increasing the cost of non-compliance. In contrast to public enforcement, these mechanisms often operate continuously and are closely tied to commercial decision-making processes. This creates parallel enforcement environments with varying levels of stringency and credibility.

As a result, regulated actors operate across multiple enforcement contexts characterised by differing probabilities of detection and sanction, thereby reinforcing incentives for strategic behaviour. In such a setting, compliance becomes contingent not only on formal regulatory requirements but also on the relative strength and credibility of competing enforcement mechanisms.

6.5. Perceptual Gaps: Discrepancies Between Formal Compliance and Empirical Outcomes

Figure 1 also highlights a perceptual gap between formal ratification and observed conditions. In the case of the MLC, this gap reflects discrepancies between formal indicators of regulatory success, such as high ratification rates, and empirical evidence of persistent non-compliance (Jensen, 2023; Knapp et al., 2011).

While PSC data indicate frequent labour-related deficiencies, external data sources reveal continuing severe violations, including cases of seafarer abandonment (Sampson & Ellis, 2021). This divergence highlights the distinction between *de jure* compliance and *de facto* outcomes. From an institutional perspective, the formal adoption of regulatory standards reduces legal uncertainty but does not ensure effective enforcement when monitoring and sanctioning mechanisms remain weak or inconsistent. Perceptual gaps therefore expose the limits of formal compliance indicators as measures of regulatory effectiveness.

6.6. Synthesis: Institutional Gaps and Regulatory Arbitrage

The coexistence of vertical, horizontal, and perceptual gaps constitutes a structural feature of the MLC system. Taken together, these gaps reflect the interaction of incomplete institutional design, heterogeneous enforcement capacities, and the tendency of regulated actors to minimise costs (Exarchopoulos et al., 2018). These conditions create an environment in which regulatory arbitrage becomes a rational response. Shipowners may exploit jurisdictional differences across governance levels as well as variation within the same level, while weak enforcement reduces the expected cost of non-compliance (Alderton & Winchester, 2002; Knapp et al., 2011; Roe, 2013a).

As a result, the MLC system operates as a formally coherent but operationally fragmented institutional framework. It is capable of detecting labour-related issues but is less effective in ensuring consistent enforcement of compliance (Wu & Winchester, 2005). In this sense, institutional gaps should be understood not merely as implementation failures, but as structural conditions that lower the expected cost of non-compliance and thereby create space for regulatory arbitrage.

7. Discussion

The findings of this study suggest that the MLC should be understood less as a weak regulatory instrument than as a normatively strong but institutionally under-deterrent system. Its limitations do not result primarily from insufficient regulatory harmonisation, but from the interaction between fragmented governance structures, uneven enforcement capacities, and incentive environments that do not consistently impose high costs on non-compliance. This interpretation adds to the literature by showing that the persistence of labour-related deficiencies in shipping is not simply a matter of administrative weakness, but a structural feature of a multi-level regulatory system in which formal coherence coexists with operational fragmentation.

This also helps explain why public enforcement mechanisms and market-based controls may generate different compliance effects. While PSC regimes are effective in identifying a substantial number of labour-related deficiencies, private and market-based mechanisms may, in some contexts, impose more immediate and credible economic consequences. The analysis therefore suggests that the effectiveness of maritime labour regulation depends not only on the presence of public standards, but also on how different enforcement environments shape the expected costs of non-compliance.

More broadly, the article shows that Figure 1 is analytically consistent with the empirical evidence summarised in Table 3. The model predicts that

fragmented authority, delegated oversight, and multiple enforcement environments should weaken deterrence and create opportunities for strategic adaptation. The PSC evidence does not prove every causal mechanism directly, but it is consistent with this theoretical expectation: non-compliance is frequently detected, yet its translation into costly sanctions remains limited and uneven.

7.1. Limitations

This study has several limitations. First, the analysis relies primarily on PSC data, which serve as a proxy for enforcement effectiveness but do not capture all forms of non-compliance, particularly those that remain undetected or unreported. PSC inspections provide a snapshot of compliance at the time of inspection and may not fully reflect ongoing or concealed labour practices.

Second, the observed discrepancy between deficiencies and detentions may partly reflect the nature and severity of violations, as not all deficiencies justify the application of the most stringent enforcement measures. This implies that detention rates should be interpreted cautiously as indicators of enforcement intensity, rather than as direct measures of overall non-compliance.

Third, the study focuses on formal institutional arrangements, while informal institutions — such as cultural norms, organisational practices, and power relations — are not directly measured, despite their likely influence on compliance outcomes (Bhattacharya & Tang, 2013; Carey, 2017; Cui et al., 2025; DeAngelo, 1981; Fotteler et al., 2018; Gekara & Sampson, 2021; Hashim & Nasruddin, 2018; Helmke & Levitsky, 2004; Turgo, 2024; Wu & Winchester, 2005).

Fourth, firms' regulatory strategies, including flag choice, are shaped by a broader set of cost factors beyond labour standards, such as taxation, administrative requirements, and operational considerations (Alderton & Winchester, 2002; Ford & Wilcox, 2019; Goulielmos, 1998; Kovats, 2006; Li, 1999; Sletmo & Hoste, 1993; Thanopoulou, 1998; Toh & Phang, 1993; Zhang & Drumm, 2020) in search of cheaper crews, have recruited 'crews of convenience' from developing nations. This paper examines the record of FOCs to analyse the effects of globalisation upon the working lives of seafarers. The method used will be to compare the regimes of FOCs, and this will be done by the analysis of a flag state conformance index (FLASCI).

Finally, the empirical analysis is constrained by heterogeneity in PSC MoU reporting practices, including differences in formats, levels of aggregation, definitions, and thresholds. For this reason, the results should be interpreted as indicative of broader systemic patterns rather than as exact measures of cross-regional equivalence.

8. Conclusions

This study shows that the MLC is normatively strong but institutionally under-deterrent. Its limitations do not stem from the absence of labour standards, but from the system's limited capacity to translate the detection of non-compliance into sufficiently high, credible, and consistent sanctions. As a result, the Convention reduces formal uncertainty and establishes a common regulatory baseline, but does not always ensure uniform enforcement outcomes across jurisdictions.

The identified vertical, horizontal, and perceptual institutional gaps reflect both the fragmented governance structure of the maritime sector and the diversity of enforcement environments. Figure 1 captures the structural dimension of this problem, while Table 3 demonstrates its empirical manifestation in the asymmetry between detection and sanctioning. Read together, the model and the data support the conclusion that the main weakness of the MLC lies not in standard-setting, but in the institutional environment through which compliance is monitored and enforced.

From a policy perspective, improving the effectiveness of the MLC requires more than further expanding formal standards. What is needed is a stronger enforcement environment: greater consistency across governance levels, more credible sanctioning mechanisms, and better alignment between public supervision and the economic incentives facing regulated actors. In this sense, the future effectiveness of maritime labour regulation will depend less on the formal proliferation of rules than on the capacity of governance systems to make compliance more credible, more predictable, and more costly to evade. This challenge is likely to intensify in the context of the ongoing digital and green transformation of shipping, which may generate new forms of operational, psychosocial, and safety-related burden for ship crews.

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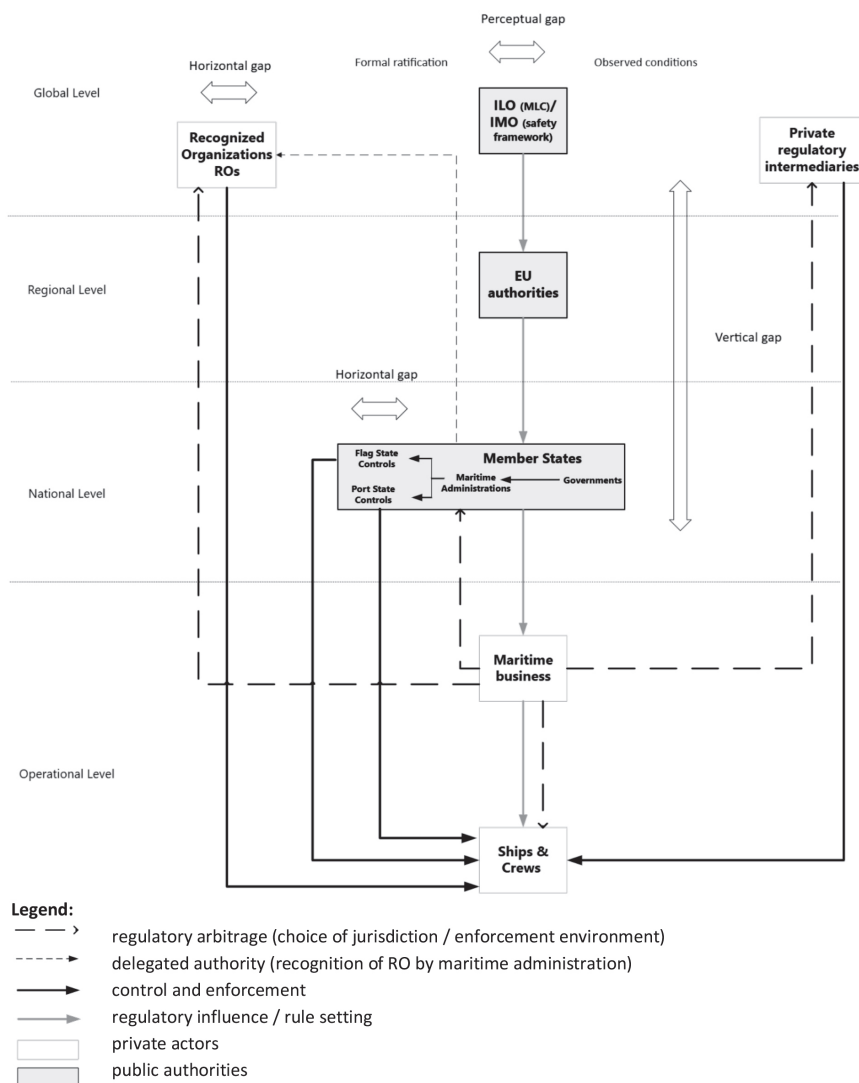
Appendix

Table 1. Labour Market Imbalances for Officers and Ratings (Selected Years)

Year	Officer shortage		Ratings surplus
	BIMCO/ICS	Drewry Maritime Research	BIMCO/ICS
2005	- 10,000	N/A	+135,000
2010	- 13,000	- 29,800	0
2015	- 16,500	- 22,000	+119,000
2020	- 26,240	- 20,450	+37,640
2025	N/A	-39,754	N/A

Source: Own elaboration based on BIMCO/ICS (2021) and Drewry Maritime Research (2024).

Figure 1. Multi-Level Governance and Institutional Gaps in Enforcement of the Maritime Labour Convention (MLC)



The figure illustrates the multi-level governance structure of the MLC and identifies vertical, horizontal and perceptual gaps in enforcement. It highlights the interaction between public authorities and private regulatory intermediaries, and demonstrates how fragmented enforcement environments contribute to regulatory arbitrage.

Source: Author's own elaboration based on the analytical framework developed.



Table 2. Top Five Countries in Key Segments of the Global Maritime System (labour supply, ship ownership, management and ship registration)

Seafarers (Labour Supply)		Maritime Business (Market Actors)		Flag States
Officers	Ratings	Shipowners	Ship managers	
Philippines Russia Indonesia China India	Philippines Russia China India Indonesia	Greece China Japan USA Singapore	Cyprus Greece Singapore Hong Kong Germany	Panama Liberia Marshall Islands Bahamas Singapore

Note: Rankings are indicative and based on widely cited industry sources (Lloyd's Register, UNCTAD).

Source: Own elaboration based on Lloyd's Register (various yearbooks) and UNCTAD Stat.

Table 3. MLC-Related Deficiencies and Detentions in Regional PSC Regimes (2024)

	Abuja MOU	Black Sea MOU	Carib- bean MOU	Indian Ocean MOU	Mediterranean MOU	Paris MOU	Riyadh MOU	Tokyo MOU	Viña del Mar
Year	2024								
Number of inspections (rounded to the nearest hundred)	3,200	2,700	400	5,300	6,000	16,500	4,800	32,100	8,900
MLC deficiencies ^a (%)	15.08	18.60	5.00 ^c	22.36	2.32	21.30	11.00	10.57	5.70
MLC detentions ^b (%)	1.41	2.05	N/A	0.37	0.70	N/A	N/A	0.30	N/A

Note: ^aDeficiencies refer to recorded non-compliances requiring correction. ^bDetentions indicate serious deficiencies leading to the temporary immobilisation of a vessel. ^cCaribbean MoU data are aggregated across all IMO instruments and do not allow isolation of MLC-related deficiencies.

Source: Own elaboration based on 2025 PSC annual reports for respective MoU.

