

## **SOCIAL AND ECONOMIC FACTORS OF PORT INFORMALITY: A SYSTEMATIC REVIEW**

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### **Abstract**

The research was carried out with the objective of analyzing the social and economic factors that influence port informality in the scientific literature, for which it was essential to apply the PRISMA method, which allowed determining 32 articles as the object of review, which were found in the databases of Scopus, Science Direct, SciELO, Web of Science corresponding to the period 2015-2024. In a first instance, 2844 articles were identified and, after applying the corresponding inclusion and exclusion criteria, a convenient amount was determined to review and analyze the content to develop each of the objectives set. The results have shown that the port environment in different regions, due to its complexity and contribution to development, faces a series of problems involving environmental, economic and social aspects, among others. In spite of the authorities' interest in facing the problem of informality through the implementation of public policies and strategic initiatives, these have not proved to be totally efficient because these problems are still perceived. This is why this research has highlighted the relevance of the competent actors to act in a timely manner in order to ensure the competitiveness and good performance of port environments.

**Keywords:** social factor; economic factor; informality; port system; systematic review

### **1 Introduction**

The constant increase of the port economy, framed within a global dynamic of trade and logistics, has led to the emergence of new areas of informality, mainly due to the absence of an adequate regulatory framework in labor matters (Sergi & Reid, 2021; Sergi & Storti, 2020). In this sense, it is recognized that this informal scenario responds to a complex network of factors, where the structure of the labor market, interaction between competent actors and limited access to resources promote the legitimacy of activities that are not properly regulated (Dzawanda & Matsa, 2023; Göçer & Ergenç, 2024).

On the Asian continent, the cost of maritime transport is perceived to be high due to continuous delays, irregularities in the modality of contracts, fuel price increases and the absence of labor, these factors also being those that drive inflation in these countries (United Nations, 2022). Similarly, it was found that, in the port located between the India-Bangladesh border, informal trade is one of the most representative problems, reflecting 52% of India's gross value added, where 92% of employees provide their services informally without a contract (Brown et al., 2024).

On the other hand, in the African continent, Vorley'(2023) s report has shown that in the ports of Tema, Ghana and Burkina Faso, formal and informal fees are charged for the transfer of perishable goods, which reflects the presence of informal trade in these areas. On the other hand, in Zimbabwe, the number of informal traders in the ports and the rates of informal fishing have grown considerably in recent years, where the main reason for this problem is based on the absence of adequate governance (Magidi & Jimu, 2023).

Meanwhile, in Latin America, it was found that a smaller number of regions were constituted on the basis of strategic accumulation actions, such as the border between Mexico and the United States, while others were organized in relation to an international

trade flow, such as the border between Colombia and Venezuela; However, in all of these, the informal relationship plays a representative role in the survival of the family economy, which is why it is recognized that, at present, informality is present in the activities that take place in port environments (Dilla & Contreras, 2021).

Thus, in view of this discouraging scenario, understanding the various socioeconomic factors that have an impact on port informality is considered essential to develop public policies and contribute to the sustainable development of the global logistics chain. Therefore, this research focused on investigating the determining factors and contributing to the field of knowledge that, despite being relevant, has not been sufficiently explored in the academic literature in recent years. Likewise, the development of this research is considered important because informality in port environments affects the operability and competitiveness of maritime terminals, as well as the working conditions, income distribution and social fabric of the port community.

For this reason, this reality has motivated the presentation of the general objective: To analyze the social and economic factors that influence port informality in the scientific literature of the last 10 years. Along the same lines, the specific objectives are: a) To diagnose the state of the port environment in relation to its social and economic conditions; b) To evaluate the public policies and strategic initiatives implemented to mitigate port informality; c) To evaluate informality in port environments.

Introduction presents the scientific problem of the article, its novelty, exploration of the problem, aim, objective, research methods).

## **2 Literature overview**

### **Port system**

It is considered as a network made up of several ports that work in an integrated manner allowing efficient management in maritime and land transportation; in addition, it speeds up the movement of goods and significantly boosts the economic development of regions (Q. Zhang et al., 2021); in this sense, it efficiently connects the maritime and land transportation systems through the collaboration of public and private participants, which guarantees an adequate flow of goods and passengers (Inutsuka et al., 2024). For this reason, it acts as a bridge that establishes connections between different transportation systems, a process that optimizes international distribution, facilitating a much more fluid commercial exchange and strengthening the global economy through effective integration (Feng et al., 2023), where each of its elements depends on the others for its proper functioning; that is, their effectiveness lies entirely in their dynamic interaction between management, infrastructure and flow of goods, which ensures their overall efficiency (B. Wang et al., 2022). In addition, they represent strategic points in the context of the international market that function as logistics optimization centers, seeking to enhance the mobilization of maritime cargo through the integration of physical elements, administrative and technological processes that respond to the changing demands of global transportation (German-Galkin & Tarnapowicz, 2020).

On the other hand, according to the perspective of (Q. Zhang et al., 2021), this system constitutes a fundamental element for the boost of the regional economy, being in charge of facilitating trade exchanges through the efficient connection between maritime and land means of transport, contributing to the optimization of logistic chains and improvement of competitiveness within the regions involved; meanwhile, (Inutsuka et al., 2024) complement this vision by pointing out and ensuring that such systems not only represent strategies within international trade, but also act as true catalysts for development, thus guaranteeing a constant and efficient flow of goods. Similarly, it is recognized that the main benefit of port systems lies in their ability to efficiently connect

different regions, which significantly boosts global trade, this connectivity contributes to reduce costs and strengthen trade links between countries, benefiting both local economies and international trade; in addition, these systems stand out as essential elements for economic growth and global integration, consolidating ports as fundamental pillars in global logistics networks (P. Wang et al., 2021).

### **Port informality**

It refers to the realization of economic practices that are developed outside the legal regulations already established, where operators do not work transparently and efficiently in port management (Yau et al., 2020). Therefore, its concept involves is also associated with the absence of planning and inadequate management of operations, which produces significant consequences such as high costs, low competitiveness and inefficient operational performance in international trade (Sarkar & Shankar, 2021); so its presence increases occupational risks for all workers, but also affects confidence in foreign trade, weakening the credibility of ports globally (Sun et al., 2020). It is also related to economic practices that are not regulated within established legal frameworks, such activities, although part of international trade, operate under unorganized structures, which limits economic development within port regions (Ma, 2020). While, for Ardisastra et al. (2022), it represents a set of economic practices that are not regulated and originates mainly due to barriers that hinder the formalization of small businesses, consequently, these companies operate on the margins of the legal, which negatively impacts the transparency and efficiency of the system.

Thus, among the factors that have an impact on this phenomenon are social factors such as deficient labor regulation and lack of social protection, which cause workers to operate in precarious conditions, without formal contracts or access to benefits; in addition, migratory flows to port areas, driven by the search for employment, generate a significant increase in unskilled labor due to the limited availability of legal jobs (Aribdosho & Akujuru, 2021; Day, 2020). On the other hand, regarding cultural factors, it is highlighted that informality has become a socially accepted practice because it is not perceived as a real problem; likewise, distrust towards institutions due to the perception of corruption and lack of transparency in management generates apathy towards formalization (Esayas & Brown, 2024). Similarly, in relation to economic factors, the high costs associated with the formalization process represent a barrier for small operators, and the existence of informal operators that circumvent legal regulations generates an unequal market by offering services at low prices (Bu et al., 2022; Deeyah et al., 2021). Finally, regarding institutional factors, it was revealed the lack of effective supervision by the authorities allows informal activities to develop without any restrictions; also, the absence of adequate infrastructure to manage port operations efficiently forces operators to resort to informality (Sun et al., 2020; B. Wang et al., 2022).

### **3 Methodology**

Paul et al. (2024) define it as the critical evaluation of the existing literature on a given topic, through which the key ideas, methodologies and findings are examined, integrated and structured; therefore, it allows evaluating the soundness and limitations of existing knowledge, as well as identifying gaps in knowledge and serving as a foundation for future research, which is why it is an essential tool for developing a more robust theoretical framework that promotes scientific progress (Khalil et al., 2022). In the same way, it is considered convenient to express that, for the presentation of the selection process of the articles, the PRISMA method was taken into consideration to ensure

transparency during the search and selection process of the research articles that were subject to review (Parums, 2021).

### Search strategies

The search for articles began with the determination of the scientific databases, among which Scopus, Science Direct, SciELO and Web Of Science were selected; therefore it was also necessary to use key terms such as "Port informality", "Port labor conditions" and "Social factors of port labor", in addition to using the logical connector OR to distinguish one term from another, so that the process could be carried out appropriately.

**Table 1.** Search strategies

Database	Search Strategy
Scopus	TITLE-ABS-KEY ("Port informality") Title, abstract, keywords: ["Port informality" OR "Port labor conditions" OR "Social factors of port labor" OR "Maritime economic structures" OR "Port governance and regulation" OR "Labor rights in port sectors" OR "Social inequalities in port communities" OR "Economic disparities in maritime logistics" OR "Port competition and informal workforce"].
Science Direct	(Port informality) OR (Port labor conditions)
Scielo	ALL= ((Port informality) OR (Port labor conditions) OR (Social factors of port labor) OR (Maritime economic structures) OR (Port governance and regulation) OR (Labor rights in port sectors) OR (Social inequalities in port communities) OR (Economic disparities in maritime logistics) OR (Port competition and informal workforce))
Web Of Science	

### Selection criteria and processes

The criteria considered for the selection of the articles under review were date limit, type of document, compliance with the methodological criteria, clear and relevant content, and that the content be related to the research objectives. Therefore, it was considered necessary to organize the information in a table of systematization with the purpose of extracting the key components and/or data for the development of this study.

### Coding and analysis of documents

In the first instance, the 32 selected articles have been ordered through the systematization table elaborated in the Microsoft Excel program, where information was recorded on the authors, year of publication, country, type of study, objective, sample, results and conclusions in accordance with the objectives set out in this research. In this sense, it is convenient to point out that, previously, the structure and content of the articles had to be reviewed in detail to guarantee their contribution to the resolution of the objectives presented.

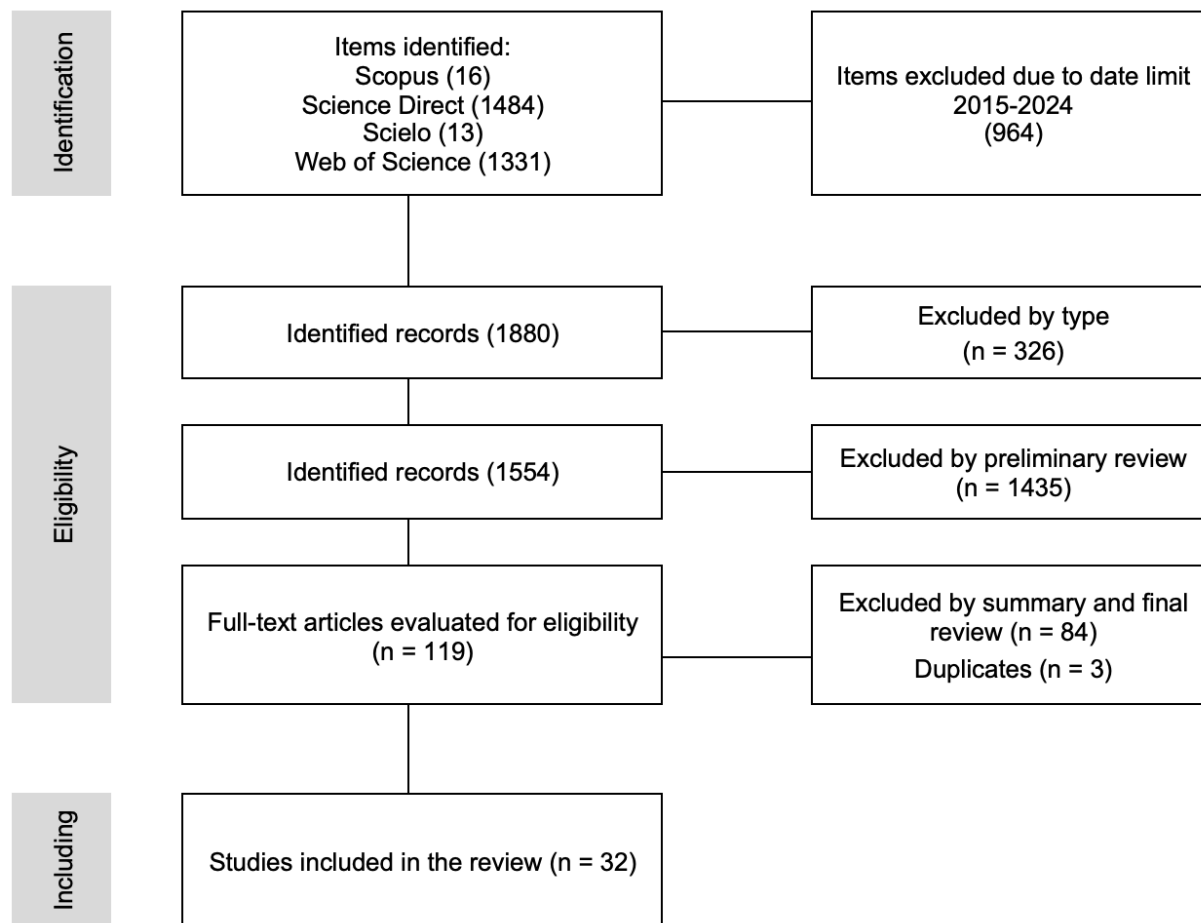
## 3 Research

### Systematization process

According to what is shown in the figure, it is recognized that the search process allowed finding a total of 2844 articles in the Scopus (16), Science Direct (1484), Scielo (13) and Web of Science (1331) databases. Subsequently, 964 were eliminated because they did not respect the deadline range of 2015-2024; also, 326 articles were eliminated because they did not present the required

characteristics to be considered as a research article; furthermore, 1435 were eliminated after the preliminary review because they did not contain clear and relevant information; also, after the review of the abstract, 69 articles were excluded because they were not oriented to develop the proposed objectives; finally, 15 were excluded after the final review and 3 duplicates, leaving 32 articles to be reviewed.

**Figure 1.** Selection of articles



### Diagnosis of the state of the port environment, in relation to its social and economic conditions.

On the one hand, it is perceived that the port environment experienced sustained growth in recent years and this boosted the competitiveness and economic development of various regions (Hall & O'Brien, 2018; Li et al., 2024; Paz et al., 2015); however, its expansion was not without challenges because it presented tensions between the need for infrastructure modernization, cost reduction and adoption of labor regulations (Ampatzidis, 2023; Black & Roso, 2022; Wilmsmeier et al., 2024). Meanwhile, the increasing privatization and specialization of port environments affected the balance of commercial interests and the protection of employees, who faced unfavorable working conditions because their rights are not respected (Brooks & Farrell, 2019; Phelan et al., 2022).

Also, the lack of centralization and variability in governance creates a scenario characterized by complex regulations, which hinders timely and effective coordination



between national and local authorities (Meyiwa & Chasomeris, 2020). . For such reason, the pressure to decrease environmental impact, integrate technological resources, increase investments, etc., creates a dynamic reality where the resilience of this sector represents an essential element (Caldeira & Pereira, 2022; Monios, 2019). However, it is still evident the need to implement improvement actions in the framework of safety, labor rights and effectiveness with the purpose of consolidating its role as a driver of sustainable economic growth (Fotteler et al., 2020); therefore, this diagnosis requires carrying out an analysis of the labor, political, technological aspect, etc., in such a way that it is possible to make appropriate decisions that encourage the balanced, sustainable and responsible growth of the sector from a social perspective.

### **Assessment of public policies and strategic initiatives implemented to mitigate port informality**

Public policies and strategic initiatives aimed at mitigating informality in port environments have been developed mainly through a normative and regulatory framework that allows combining protection approaches such as the application of a high tariff and non-tariff restriction, in such a way that it is possible to contain illegal trade activity and adopt more liberal trade policies, among which national strategies, comprehensive plans, among others stand out (Galvão et al., 2017; Neves et al., 2021; S. Wang et al., 2024); thus, the Maritime Labor Convention represents one of the most significant advances to improve working conditions, highlighting the need to strengthen supervision in the implementation of the standard (Carballo, 2016; Khan et al., 2024; Notteboom, 2018).

Despite this, these measures did not prove to be fully effective because they do not contribute to the eradication of the problem in its entirety (Li et al., 2024; Paz et al., 2015; Phelan et al., 2022); since the complexity of this environment, where labor regulation varies according to the jurisdiction in which they are located and the work of the competent authorities is not always effective, provides the facility for informal practices to persist (Black & Roso, 2022; Ferrari et al., 2015; Hall & O'Brien, 2018; Liu et al., 2024). In short, the implementation of policies and initiatives consists of a dynamic and multifaceted procedure that allows combining various related to regulatory reforms, incentive to formalization, rigorous control and strengthening of competent institutions with the purpose of creating more competitive and organized port environments that work aligned with the applicable standards at international level.

### **Assessment of informality in port environments**

Informality is a complex phenomenon caused by social, institutional, economic, etc. factors, which create a scenario characterized by labor precariousness, lack of appropriate normative regulation and settlements without property titles (Paz et al., 2015); therefore, this scenario emerges due to divergent policies, cases of corruption and tariff exploitation, in addition to the absence of transparency and incorrect interpretation of regulations (Ezeoha et al., 2019; Ferrari et al., 2015; Meyiwa & Chasomeris, 2020). Similarly, the hiring of unregistered personnel and irregular subcontracting create an environment of unfair competition, where labor conditions and environmental sustainability are compromised (Bottalico, 2020; García-Echalar et al., 2024; Srougo, 2018; Sunitiyoso et al., 2022). In such sense, the fragmentation of the port sector, as well as the low entry barrier, has made it easier for informality to consolidate; since, despite the fact that different projects aimed at solving this problem were promoted, these events prevented the measures from being effectively implemented (Hall & O'Brien, 2018). This is why environments continuously find themselves in a situation where informality can be easily perpetuated, thus having a negative impact on economic development, workers' welfare

and maritime governance (Monios, 2019); this is how informality represents a structural challenge that requires a coordinated and focused intervention to build a fair and properly regulated space.

#### **Analysis of social and economic factors influencing port informality**

Informality in port environments is the result of a complex interaction between social and economic factors ranging from the scarcity of economic resources, corruption and lack of job opportunities to the lack of suitable public policies, poor institutional performance and lack of adequate regulations, all of which generate scenario where evasion of rules, precariousness of work and absence of guarantees are common practices (Carella et al., 2024; Cezar-Vaz et al., 2016; Kaliszewski et al., 2020; Villa, 2017). Thus, in this context, the need to reduce costs, dependence on immigrant labor, trade expansion, smuggling and tariff evasion manage to combine with demographic growth, lack of social equality and modernization to create an environment of lack of protection, non-compliance with international standards, deficiencies in governance and unfair competition that reinforces informal dynamics, in that it forces the competent actors to adopt irregular practices that perpetuate informal activities (Caldeirinha et al., 2017; Zheng & Negenborn, 2018); thus, it is recognized that this unfavorable scenario incentivizes informality to become a more feasible option to address the various structural barriers present within port environments (Fan et al., 2022).

#### **4 Discussion**

The review revealed the complexity of the port environment, as it is marked by the unstable balance between economic growth, modernization and labor standards, which demonstrates the need to create harmony between environmental, economic and social aspects, since the port environment has great potential to consolidate itself as a pillar for sustainable development in different scenarios and/or contexts. In this sense, it is noted that the continuous growth of the port sector has boosted the economic growth of several countries (Z. Zhang et al., 2024); however, this has also led them to face an increasing uncertainty where complex and multifactorial risks are continuously presented and cause significant consequences (N. Wang et al., 2024), so it is required that the competent actors continuously execute timely and effectively the actions required to ensure their efficient performance (L. Wang & Peng, 2023).

Along the same lines, the complexity of the policies implemented in this scenario is recognized, and has revealed a range of results and approaches, as it emphasizes coherence by integrating various protectionist points of view with a more liberal commercial vision. In that sense, this scenario has highlighted need for legislative reforms to be properly implemented and timely enforced in order to ensure that port environments present a favorable scenario. Accordingly, the relevance of establishing strategic alliances based on cooperation has also been highlighted, as they are used as a dynamic mechanism that contributes to the efficient development of port activities (Huo et al., 2018; C. Wang et al., 2015).

Similarly, the review has shown that, despite the adoption of policies and initiatives aimed at mitigating the problem of informality, the presence of barriers and fragmentation of the port sector prevented their effective implementation; therefore, this complex problem continues to be perpetrated and negatively affect sustainable development, social justice and port governance. Thus, through the research of Zhang et al. (2024), emphasis is placed on the relevance of implementing policies and regulations in the international and regional framework with the purpose of preventing informality in port environments, as

well as contributing to their good performance; meanwhile, McDermott (2021) expresses that, in Freetown, the vast majority of traders do not have formal licenses and rely mainly on bribes in order to ensure the availability of products in the port, thus avoiding inspection by any state official.

On the other hand, a broad and detailed point of view is provided on the problems that are evident in relation to informality in port environments, which highlights the complex multifactorial network that ranges from poor economic conditions and corruption in the competent institutions to effectively regulate the development of activities within this sector; therefore, the phenomenon of informality in these environments cannot be addressed in isolation or simplistically and requires a comprehensive view of all related aspects among stakeholders to address the structural barriers that are perpetuated in this context. In this regard, Wang & Peng (2023) have carried out a detailed analysis of the literature on the port relationship, which highlights the transition to a competitive environment as a model for ensuring sustainable development, which is relevant to understanding the reality in which informality occurs.

## 5 Conclusions

The persistence of informality in port environments derives from various factors such as the absence of centralized governance, ineffective enforcement of labor standards and lack of comprehensive policies to address the tension between modernization and workers' rights, such as the social and economic gap. Therefore, this scenario requires that the relevant actors intervene in a coordinated manner and use the necessary technological resources, strengthen supervision and control, encourage transparency and establish fair conditions, since this is the only way to ensure the consolidation of a balanced port environment that respects the regulations and is oriented to the economic development of the region.

Accordingly, it is suggested that future research be conducted to incorporate the analysis of the roles played by the different levels of government, companies and organizations in labor matters in order to learn which mechanisms may prove to be more efficient in balancing the operation of port systems and contributing to sustainable growth.

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