

# Towards the mapping of port labour systems and conflicts across Europe: a literature review

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## **ABSTRACT**

This article presents a literature review on labour dynamics in European ports. The aim is to provide a detailed and critical appraisal of the recent academic literature on port labour studies, in order to develop a comprehensive mapping of the variety of port labour regimes and conflicts in Europe with the ultimate aim of revealing the changing profile of labour requirements as a consequence of the structural transformations in the overall logistics chain. The review mainly considers the literature published during the period 2000–2017. Since ports have been explored by means of different theoretical approaches, paradigms and perspectives, the study aimed to foster a multidisciplinary approach between some streams and to consolidate them wherever possible. In the first part of the article, the main definitions, ideas and concepts developed in the literature by scholars on seaport research and port studies are reviewed and analysed. The second part discusses the literature on port geography and the third part addresses port labour dynamics in particular. The conclusions draw from the perspective of the maritime-logistics chain to analyse the variety of port labour systems and summarise the literature reviewed, stressing the need for further studies.

## **KEY WORDS**

port labour systems, maritime-logistics chain, intermodality, global supply chain, port studies

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## **Introduction**

In recent decades, European ports have experienced a paradigm shift, transforming themselves into nodes within broader supply chains and global production networks (Robinson, 2002). The changes in shape and size related to the intermodality (namely

the technological revolution of the transportation of goods), has been regarded by many scholars as resulting from the need to support economic globalisation (Levinson, 2006; Cudahy, 2006; Bonacich & Wilson, 2008; Kumar & Hoffman, 2010). Ports have played a crucial role in this process, alongside the revolution in the logistics chain embodied by the development of the container and of intermodal transport. Ports stand at the junction of global value chains and global production networks; they represent pivotal links within maritime supply chains and global production networks, while also being embedded within specific, path-dependent, spatial and institutional frameworks.

The main purpose of this article is to provide an extensive literature review on labour dynamics in European ports, with the aim of offering a detailed and critical appraisal of the recent academic literature on port labour studies, in order to develop a comprehensive mapping of the variety of port labour regimes and conflicts in Europe. Three main points form the rationale of the following article:

First, the variety of port labour systems in European ports is currently influenced by the strategies of a range of (global) players along the maritime-logistics chain as well as institutional actors at supranational and national level. However the most significant transformations in the port segment of the chain that concern labour are driven mainly by the changing and unstable dynamics of the maritime industry. In particular, two major forces affect the port sector: changes in port organisational structures as a result of privatisation or deregulation processes and the efforts of shipping companies to control the whole logistics chain. Empirical studies (Van de Voorde & Vanelander, 2014) have shown to what extent shipping lines have pursued greater integration among the players along the logistics chain in order to leverage economies of scale and gain greater control over the entire chain. Furthermore, the increasing size of vessels, horizontal and vertical integration and mergers, acquisitions and alliances between shipping companies have transformed the overall landscape both at sea and on land. Ports have been strongly influenced by these processes in recent decades, as have the organisational structures of port labour at the workplace. The strategies of the main players along the entire logistics chain, in their search for economies of scale, have increasingly affected the role and the economic behaviour of the terminal operating companies, posing new challenges for the future of port labour systems and port business.

Second, the compatibility between national regulations and neoliberal policies and regulations at European level has been a strong influence on the variety of port labour systems and schemes. The aim of European institutions in recent years has been to liberalise port services, including port labour, according to the principles of the European Treaty on freedom of establishment and freedom to provide services (Article 49 of the TFEU, Treaty on the Functioning of the European Union), whereas national port labour systems and schemes in Europe, in addition to other variables, very often tend in the opposite direction.

Third, there is a need to map the variety of port labour issues and conflicts across Europe in order to gain an idea of the common trends that European ports share in the context of the external pressures and structural and material constraints. This necessitates an extensive literature review on ports and port labour systems, in order to identify the main gaps in the ongoing debates.

This article, therefore, aims to analyse the issues of port labour systems in European ports in a broader perspective, a field that has been scarcely researched by maritime economists, and partially ignored by economic sociologists. The recent economic literature on seaport research and port studies lacks a homogeneous framework for analysing the changing dynamics of port labour systems. These are nuanced and complex topics, with conflicting interests, strong contradictions and political factors in play. In most cases, the economic literature on port studies does not consider labour as an analytical category. However, some exceptions, as we shall see, explore the issues linked to port labour systems in Europe.

Since ports have been studied by means of different theoretical approaches, paradigms and perspectives, the following analysis aims to foster a multidisciplinary approach between some consolidated streams. This is a challenging aim because the topic explored is a multidimensional one, in which a large number of different elements and drivers overlap. Six of these can be singled out: first, local juridical factors (e.g. national legislation and ongoing reform processes); second, supranational juridical factors (acquired regulations from the European Union, compatibility among supranational and national rules, jurisdictions of the European Court of Justice, Social Dialogue, etc.); third, economic factors (the market strategies of global players, convenience of business operations for cargo handling companies and other chain actors); fourth, competitiveness of services and ports (quality of the operations, frequency of strikes, etc.); fifth, social factors (working conditions, levels and stability of employment and remunerations, conflicts, training systems, etc.); and finally, institutional factors (governance models, contractual relationships, the various management structures of labour pools in different European countries).

There is evidently a need for more in-depth investigation, in particular into the labour regimes and arrangements along the maritime-logistics chain (Bottalico, 2018; Wilson & Ness, 2018). This study approaches the topic by observing the entire chain. This analytical perspective fosters an investigation not only of the dynamic and complex structure of the maritime supply chain but also of the background tendencies occurring in the overall context in which ports are situated, and hence the variety of port labour systems. For example, a focus on container handling and the labour that is associated with it reveals the triple nature of the maritime-logistics chain (Meersman, Van de Voorde & Vanelander, 2009) considered in relation to the intermodal transport unit. This article argues that an 'intermodal gaze' is required to grasp the main trends concerning labour in the pivotal link of the logistics chain and consequently that it is fruitful to explore the key changes that have taken place in port labour dynamics in recent years by looking at the overall picture on one hand, while simultaneously focusing on the particular segment of the chain under investigation on the other.

The lack of a homogeneous framework for analysing labour issues in European ports necessitated a preliminary literature review characterised by a 'bird's-eye view'. In this stage, the aim was to analyse the main ideas and concepts developed in the recent economic literature by scholars of seaport research and port studies. In order to achieve this goal, a structured review of the existing academic literature on ports, labour dynamics and the container industry was carried out, taking into account the main

paradigms and definitions, central areas of debate and key points raised in the most important theoretical approaches in the economic literature on ports. The purpose at this stage was to set the parameters and identify the background, main features and key issues affecting ports in general through a coherent overview of the field of port studies research. The criteria for selection of the sources were defined and revised as the research progressed, in parallel with fieldwork periods in two European ports. In addition to the few sociological studies in this field, a more in-depth review of the literature was conducted midway through the research, in the course of a visiting period in the department of Transport and Regional Economics (TPR) at the University of Antwerp in Belgium.

Although in each case the aim of the review was to gain an overview of the subject and to assess how and whether previous research has approached the same field of enquiry, the mid-path literature review conducted in Antwerp aimed primarily at acquiring in-depth knowledge about the container industry and the port business in terms of their institutional, operational and economic features.

The huge body of material and its heterogeneous nature necessitated sharp selection criteria from the outset. Use was made of university libraries in Europe to carry out a detailed review of specialised newsletters, scientific literature and technical literature, dissertations, academic and non-academic articles as well as other material including various specialised reports, conference presentations and other documentation. With some important exceptions, the review focused on literature published during the period 2000–2017, without underestimating the importance of key previous studies.

Within this period, particular attention was paid to the different – and overlapping – research themes, trends and issues in the maritime-logistics chain outlined above. This required an ongoing critical appraisal to establish, within this broad spectrum, the most important questions relating to port labour dynamics, in a process that gradually circumscribed the field of inquiry. The studies of the port literature provided some useful insights into the specific role of the European port labour system, despite the fact that labour remains a neglected field of enquiry in the broader framework of port studies. Indeed, the review of the economic literature revealed that the changing image of dock labour requirements is strongly linked to structural transformations in the maritime and logistics environment, drawing attention to the fact that this connection has not received the attention it deserves.

Since ports have been explored from a range of different perspectives, there was an ongoing effort to foster a multidisciplinary approach between some consolidated streams.

## **Port studies**

The study of ports does not belong to a specific discipline. Several disciplines, indeed, are often present in this research field (Woo et al., 2011).

Bridging the distinction between shipping economics and maritime economics as autonomous fields of investigation, since 1991 the International Association of Maritime Economists (IAME) has certified the autonomy of the discipline. A review presented at the annual conference of IAME in 2009 summarises the huge and

variegated economic literature on port business. The taxonomy provided by Pallis and other scholars classifies the content of published research in port economics, policy and management (port studies) published from 1997 to 2008 under the following research themes (Pallis et al., 2011): terminal studies, ports in transport and supply chains, port governance, port planning and development, port policy and regulation, port competition and competitiveness, spatial analysis of seaports.

In the first category, the most important studies take terminals as the unit of analysis. A number of researchers have suggested that the terminal, rather than the port, is the most important focus of competition. Pallis et al. (2011) state that there is room for further methodological advances for the measurement of terminal efficiency, especially in relation to other production factors, such as labour. Following this line, the authors stress the lack of research on the specific role of 'port labour and the human factor in terminal operations' (Pallis et al., 2011:455). When labour is considered in this literature, it is conceived as a pure commodity, a dependent variable of production.

The role of ports in the transport and supply chain is an important theme in the port literature. The existing paradigms no longer provide adequate explanations for the pervasive restructuring of the supply chains and the logistics pathways in which ports are embedded. Ports must be analysed as elements in value-driven chain systems (Robinson, 2002). Such a view has pointed many studies in the direction of the port-hinterland relationship. The important role of the hinterlands for ports has become a significant structuring element in the European transport network. In relation to this issue, Notteboom and Rodrigue (2008) have argued that the future is likely to bring attempts to cope with three particular geographical scales: the continental level, the regional level and the local level.

Another relevant theme in the context of port studies is that of port reform. Port governance models and structures have been addressed in many countries. With respect to port labour, Talley (2002) has studied the impact of deregulation on dockworkers' earnings and Turnbull and Sapsford (2001) analysed dockworkers' union bargaining power in Europe and at a global scale. Miller and Talley (2002) focused on the role of technological change whereas Ircha and Balsom (2005) investigated ways to enhance port training and education.

The World Bank (2007) Port Reform Toolkit provides an analysis of port management structures and ownership models. This study identified a number of factors affecting the way ports are organised, structured and managed. These include: the socio-economic structure of a country (e.g. whether it is a market economy or has open borders), historical developments, the location of the port (e.g. whether it is within an urban area or in an isolated region) and the types of cargo handled (e.g. liquid and dry bulk, containers).

According to the World Bank, four main categories of port have emerged over time. They can be classified into the following models: service port, tool port, landlord port and private port (either fully privatised port or a private service port). These models are distinguished by how they differ with respect to public, private or mixed provision of services, local, regional or global orientation, ownership of infrastructure, ownership of superstructure and equipment, and the status of dock labour and management (World Bank, 2007).

In Europe, the main model is the landlord port, which typically has a mixed character and aims to achieve a balance between public (port authority) and private (port industry) interests. The exceptions are currently the UK ports and the port of Piraeus (which are fully privatised). In the mixed public–private orientation of landlord ports, the Port Authority acts as regulatory body and as a landlord, while port operations are carried out by private companies.

Today, the landlord port is the dominant port model in large- and medium-sized ports. In this model, infrastructure is leased to private operating companies involved in logistics or industrial activities. The private port operators provide and maintain their own superstructure, including buildings. They also purchase and install their own equipment on the terminal grounds as their business needs dictate. In landlord ports dock labour is generally employed by private terminal operators, although in some ports some labour may be provided through a port-wide labour pool system (World Bank, 2007).

Competition, pricing, market access, finance, environmental, safety and security-related policy practices can also be regarded as port policy and regulatory issues. Port competition, however, remains an important topic, because of its impacts on employment and investment. While the existing literature on the subject strikingly tends to regard ports as rather homogeneous entities, in practice it is increasingly apparent that ports are strongly heterogeneous environments (Meersman, Van de Voorde & Vanelander, 2009).

Major changes have taken place in port governance around Europe. Port authorities have gained a more autonomous status via commercialisation, corporatisation and privatisation processes. Drastic port reform schemes have taken place in many European countries. The European Commission has taken steps towards the development of a European port policy (Verhoeven, 2011), creating a European perspective on port and transport policy issues.

The trend towards increasing the size of vessels, and the effects of this trend, has been one of the main issues addressed by scholars in recent years (Sys et al., 2008; Bologna, 2017; Van Hassel et al., 2016). These studies have focused on the margins for shipping lines and terminal operators, the rapid transformation in the environment for both liner shipping and port markets, but also on consolidation processes in the shipping industry. Van Hassel et al. (2016) explore the impact of scale increases of container ships on the total generalised chain cost. Observing the entire structure of the maritime supply chain, the authors examine how the increase of container ship size influences the cost ratio between the different chain elements (maritime, port and hinterland legs).

Few studies have addressed the impact of megaships in terms of social costs or negative externalities – for example, congestion in the hinterlands – or concerning dock labour settings – for example, peaks and troughs in container handling operations. A recent study commissioned by the International Transport Forum<sup>1</sup> about the impact of

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<sup>1</sup> International Transport Forum (ITF) is an intergovernmental organisation with 54 member countries with the objective of helping shape the transport policy agenda at a global level.

megaships observes that container ships have grown constantly over recent decades due to a continuous search for economies of scale by shipping lines. In the past, this strategy has contributed to decreasing maritime transport costs, facilitating global trade. However, the increasing size of vessels in the container business has consequences for the rest of the transport chain (International Transport Workers' Federation [ITF], 2015). Big container ships require infrastructure adaptations and productivity levels that increase costs for port operators, port authorities and other stakeholders in the supply chain. Moreover, megaships cause peaks in ports with consequences for labour organisation, and put a strain on hinterland transport. The report observes that whereas containerisation has regularised port labour, megaships have enabled more flexibility. The impact of megaships on the container terminals has generated an increase in the intensification of the pace of work, shrinking of handling time, peak workloads, shortages and higher flexibility. In order to achieve economies of scale, shipping companies are putting pressure on the terminals, influencing the functioning of the dock labour pool itself. However, the main solutions to the unrestrainable increase in the size of ships (and the imbalanced bargaining power determined by the strategic alliances between shipping companies) have to be found in the institutional role of the member states and the regulatory bodies involved. Although this is very difficult, only a process of institutional regulation – a set of constraints and basic standards aimed at regulating the market – can discipline these trends. This would enable beneficial outcomes for the overall management of the supply chain. At the same time, the political approach of the European Commission in this regard has not yet tackled these issues by setting up common standards.

The increasing size of vessels has also had strong effects on market structure, in terms of oversupply, decreasing freight rates and profitability. However, container terminals managed by terminal operating companies, being constrained to follow the pace of an apparently unlimited growth, have been affected by structural overcapacity, congestion, decreasing operational time and fierce competition. The studies that assess the impact of megaships emphasise the pressures on the terminals and the resulting drive to invest in new facilities and infrastructures (Sys et al., 2008). These pressures are also felt by port authorities, policy makers and other institutional actors. The issues linked to the impact of the mega vessels on ports and terminals have shown how tight the link between the shipping industry and the port sector is, and, at the same time, how divergent the perspectives between shipping companies and terminal operators are.

The economic literature has devoted attention to the strategies of the shipping lines in the container industry and to the effect of the external pressures on the terminal operating companies (Meersman, Van de Voorde & Vanelander, 2009; Alexandrou, Gounopoulos & Hardy, 2014; Rodrigues et al., 2015). In addition to the impact of megaships, the empirical studies show the extent to which, as trade processes become more concentrated, shipping companies aim towards a greater integration among the actors along the logistics chain in order to exploit economies of scale and to optimise and gain control over the entire chain (Van De Voorde & Vanelander, 2014). In recent years, economies of scale in the maritime shipping industry have been achieved internally by operating larger vessels, and externally through horizontal cooperation, mergers and takeovers. Additionally, shipping companies have set their sights on

terminal operators and inland transport services, as operations are increasingly approached from the perspective of complex logistics chains, whereby each link must contribute to the constant optimisation of the entire chain. This has altered the competitive balance in the market, as shipping companies have gained in power through their overall control of logistics chains.

In order to gain control over the supply chain and the associated cost, many shipping companies have become involved in vertical integration movements. In this regard, Van de Voorde and Vanelander (2014) underline how the port and the maritime industries have undergone a dynamic evolution in recent years. These scholars discuss in detail the various forms of cooperation, concentration and integration in the maritime industry. Vanelander and Van de Voorde illustrate trends in the maritime logistics chain through the analysis of the degree of vertical integration by container shipping companies into port terminal operations, hinterland transport operations and hinterland terminal operations. It emerges that (as of January 2014) 14 of the top 20 shipping companies in the container market were involved in port terminal operations.

Some shipping companies have even established a terminal operating subsidiary. It is clear in the literature that, among other factors, the maritime and port industry is shaped by changes initiated by players from within the maritime logistics chain. Vertical cooperation and integration movements are an important part of this process. For example, a shipping company may, through vertical integration, have gained control over the terminal where its vessels are loaded and unloaded. That company will find it relatively easy to determine in which links of the chain the greatest cost savings may be achieved by distributing resources differently so that the productivity level of the different links is modified. Horizontal cooperation between shipping companies and market concentration trends has also produced more cooperation among terminal operating companies, who have established their own global networks. Port authorities, for their part, have seen their role reduced to the granting of concession contracts to the terminal operating companies (Van de Voorde & Vanelander, 2014).

The port sector in Europe also has to deal with the impact of mergers and acquisitions between shipping lines. This process produces an unbalanced bargaining power between the actors involved in the port activities, as well as an abuse of market power (Meersman, Van de Voorde & Vanelander, 2009, 2010). These trends have an impact on competition regimes as well as social and economic regulation.

Verhoeven (2009) observes that port policies and regulations are two sides of the same coin. Policies set out the overall aims and goals, while regulations ensure compliance and certain behaviours. The focus, for Verhoeven, is on the governance of public policy and regulation.

Port governance may take place at various levels: the local level (city, municipality or port authority); the national or regional levels; the supranational level (e.g. the European Union); or the intergovernmental level, for example the IMO (International Maritime Organization), ILO (International Labour Organization) or UNCTAD (UN Conference on Trade and Development).

In the economic literature, the shipping sector and container handling are referred to as a global market that takes the form of an oligopoly in which a few main global



players handle a substantial share of capacity in the main trades (Sys, 2009). The container shipping sector is currently dominated by shipping companies that have created three major strategic alliances over time. The main customers of the port sector have thus become more and more concentrated. During 2016, an unprecedented number of mergers and acquisitions took place in the shipping industry. In the same year, the South Korean shipping line Hanjin collapsed, described as the largest bankruptcy in the ocean freight industry.<sup>2</sup> From 1 April 2017, the ocean carriers have formed three new alliances representing 77.2% of global container capacity and 96% of all container capacity in East–West trades. The 14 largest shipping companies make up 73.1% of market share, and almost all of them belong to alliances.<sup>3</sup>

Like other change processes that have occurred in recent decades, the alliance reshuffle has had an impact on ports in terms of throughput, capacity, cost structure, bargaining power, profitability and work organisation. Yet, there is room for further scientific studies about each of these issues, enabling in-depth analysis of the effects of such dynamics on labour in the port sector.

Vertical and horizontal integration in the terminal and shipping industries and a search for diversification among financial investors have contributed to the global expansion of port operators. On one side, maritime shipping companies went into the terminal operation business to help secure maritime traffic and the profitability of both seaside and landside operations. On the other, stevedore companies expanded their operations from their base port or region into new markets to diversify and replicate their business models. Organic growth, as well as mergers and acquisitions of existing facilities, were common strategies, in which terminal operators differed little from their manufacturing and retail counterparts in their responses to globalisation.

## Port geographies

In relation to the spatial analysis of ports, the most important topics relate to the spatial reconfiguration of the port landscape, the spatial study of port systems – from ports as *spaces* to ports as *places* – and the port city interface. However, following Castells (2002) and his concept of the shift from the *space of places* to the *space of flows*, it is noteworthy that here the reverse process seems to be taking place – with a shift from ports as *places* to ports as *spaces*.

The models of spatial development of port systems have remained virtually unchanged since the understanding of the spatial dynamics in port systems pointed out by Notteboom and Rodrigue (2005), who introduced the ‘port regionalisation’ concept to describe a process whereby efficiency is produced by achieving higher levels of integration with inland freight distribution systems. Market forces and political influences gradually shape regional load centre networks with varying degrees of formal linkage between the nodes of the networks. In this regard, Rimmer and Comtois (2009) argue that port regionalisation is nothing more than decentralisation.

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<sup>2</sup> Dupin (2016).

<sup>3</sup> iContainers (2016).

Spatial port studies in recent years have undergone a fundamental epistemological shift in the conceptualisation of the port, from a single fixed spatial entity to a network of terminals operating under a corporate logic. In the port triptych 'foreland-port-hinterland', research has focused on developments in maritime and/or hinterland networks and the ways they shape the spatial hierarchy of port systems.

Port research is not a new field of investigation for human geographers, evidenced by numerous conceptual models and empirical cases of port evolution and development in the literature. Wilmsmeier and Monios (2015) apply a critical and radical perspective to the analysis of port operations. Drawing on concepts taken from Marx and Harvey, the authors reflect on the production of capitalist smooth space in the global port operations sector, in which a handful of multinational corporations manage portfolios of major ports across the globe. In this approach, port devolution and development cannot be understood in the absence of a critique of their capitalist context.

Using a pluralistic approach, Ng et al. (2014) analyse these issues, as well as the changing waves and development of port geography. Prior to the 1980s, ports in most parts of the world were administered by public authorities and financed by public funds. Due to this dominant governance model, ports were considered as homogeneous entities. However in the 1980s, this picture of governance began to change. The mounting strength of neoliberal ideology among policy makers coincided with a growing research interest in port governance models. The World Bank supported this trend and published the abovementioned Port Reform Toolkit, focusing on port governance reform.

Since the 2000s, attention has clearly shifted from descriptive studies of port reform processes towards analysis of the outcomes of reform implementation and the role of port authorities in the new governance setting. Ports now face new challenges in responding to local funding priorities and planning.

Port reform and devolution have become a global process, giving rise to empirical research using broad samples. The research has demonstrated that the World Bank's model of port reform is simplistic, that there have been different processes in each country. Such diversity demonstrates that 'as much as globalisation and the neoliberal ideology are tending to homogenise space, institutional factors are giving rise to local diversity' (Ng et al., 2014:91). According to these authors, this conclusion is similar to some findings in economic geography, where the concepts of path dependency, embeddedness and convergence are used to explain how social, cultural and institutional factors produce spatial differences in economic activity (Ng et al., 2014).

A further paper by Notteboom, De Langen and Jacobs (2013) applies insights on the role of institutions and institutional change in port governance reforms. They deal in particular with path dependency in seaport governance. Starting from the concept of path dependency and lock-in, they argue that port authorities, in their attempt to develop new routines to cope with external challenges, are often constrained by their governance structures and/or institutional environments. They apply the theoretical concept of institutional plasticity to highlight how port actors strategically stretch existing institutional arrangements to their purpose, without breaking out of the dominant development path.

In sum, the topic of governance has clearly enlarged the research field of port geography. While the impetus for port reform has come from globalisation and neoliberal ideology, it has resulted in a very diverse set of governance structures around the world. Spatially, it has produced a re-scaling of the concept of the port, in which individual terminals, managed by firms with different business goals and practices, are influencing port performance, hinterland penetration and market coverage.

To conclude, this review of the port literature has shown to what extent ports are characterised by an extremely heterogeneous environment, with many different market players and conflicting interests. The 'port product' is complex and non-transparent, while competition has increased strongly across the chain. It should be underlined that the prototypical port does not exist. The review of the economic literature on ports has highlighted recent challenges in the port sector, driven by the changing dynamics in the shipping industry. The increasing size of vessels, horizontal and vertical integration, and the importance of mergers, acquisitions and alliances have all been taken into account in this review, because of their implications on labour and on the terminal operating companies, which are increasingly affected by the search for economies of scale in the maritime industry.

Bigger ships and alliances have led to more rigidity, less supply chain resilience and lower quality of services. In a broader sense, a substantial indifference to externalities has been noticed in the economic literature. There has also been a neglect of the labour dynamics in the maritime-logistics chain. There is scope for more empirical studies concerning these issues. There is also a need for more studies of the impact of alliances and megaships on the operations in relations to costs, labour organisation, and profitability of the container terminals.

To sum up, the maritime sector is a key driver in the increasing globalising trends in the world economy as well as being a highly competitive industry. Its main strength lies in the ever-increasing rates of seaborne trade, marked by the growing volumes transported over long distances and the corresponding increase in the size of seagoing vessels. In recent years, there has also been a gradual paradigm shift towards vertical integration along the maritime supply chain, such as shipping lines venturing into the operation of port terminals, all of this occurring at global levels. This implies a corporate ideal aim of developing global networks offering fully integrated transport and logistics services and capturing the maximum market share possible, which also provides an edge in terms of bargaining power within the industry.

## **Port labour systems and dynamics**

This broad review of the economic literature on port issues has addressed the major changes that have taken place in the port maritime industry, pointing to a range of different factors, addressed from a variety of approaches. Increasing ship size, for instance, carries consequences for cargo handling operations, in terms of technological innovation and investments. These trends have a direct impact on work organisation at the operational level and on dock labour systems in general, which are restructured by such exogenous factors. In addition, this literature has shown how the container shipping industry has been transformed by the consolidation process in the container shipping sector, vertical integration and the establishment of shipping alliances.

Meanwhile, the institutional environment has also been changing gradually. The literature has examined these structural and institutional changes in considerable detail. However, less attention has been paid by scholars to the extent to which these trends are altering the environment for terminals and affecting the dock workforce. Indeed, it is generally acknowledged that additional research is needed in order to explore in detail how those dynamics influence terminal operations and working conditions in the medium and long term. Empirical research on labour in ports, the behaviour of the (multinational) cargo handling companies operating within them, and the way they handle labour depending on the institutional frameworks within which they operate, is limited. Few studies focus on the mutual interaction between the institutional assets – at supranational and national level – the changing dynamics and the organisational models of port labour systems in Europe.

In this section, the existing literature on port labour will be critically reviewed, aiming at identifying the current gaps, debates and opposing views.

Ports are territorially embedded in institutional, path-dependent frameworks that are simultaneously both enabling and constraining. However they also form links within maritime supply chains and global production networks. This means that they sit on multiple spatial scales within the globalised economy. This dichotomy also could be applied to the dockworker, who usually handles global cargo, but at the same time is locally situated and socially embedded. This is one of the reasons why ports are sites of major clashes and conflicting interests, as a result of which the equilibrium between market requirements and labour regulations is often delicate. In order to understand the transformations of port labour systems in European ports, it is necessary to develop a perspective that highlights the interactions between the economic and institutional mechanisms within global production networks and the role of the social actors invested in these phenomena.

With some exceptions, the existing literature on port labour is dominated by juridical disciplines, whereas the scientific debate on the maritime-port sector, which is predominantly economic, does not take labour too much into account. The debate on labour in the maritime-port sector is mainly carried out in an economic framework which considers labour as a passive item or as a dependent variable of production. Although the efficiency with which loading and unloading operations in a port takes place remains an important cornerstone of a port's competitiveness and its ability to generate wider economic effects in terms of employment and the creation of added value, labour seems to be a residual item in the field of port studies. Studies about ports tend to disregard labour, or assume a fixed relation between labour, the quay and the yard equipment used. Comparative empirical studies on labour issues in Europe are lacking. The impact of the strategies of the main players across the logistics chain on the structure of port labour has not yet received the attention it deserves.

A first issue lies in the variety of definitions of 'port worker' used in the literature, which can be represented through the conflicting distinction between status and contract. Port workers or 'dockers' are defined as 'manual workers engaged in the loading and unloading of ships in ports, ancillary services such as the checking, storage and intra-port transportation of cargo, and operations at passenger terminals' (Van Hooydonk, 2013:13). The word 'docker' originates from given spatial areas – dock and

warehouse – whereas the term ‘port worker’ acknowledges that the profession now requires special skills and qualifications. The legal status of the dockworker may vary as well. Dockworkers may have the status of civil servants in state-owned service ports, workers directly employed by a private terminal operating company or workers employed through dock labour schemes. Quite a number of port labour systems require that only registered dockworkers can perform dock work in the port. This obligation can be imposed by national or regional legislation or might also be the outcome of collective bargaining agreements between port employers and trade unions.

In those ports where employers have to use registered dockworkers, the criteria for recognition of dockworkers and the entities involved in the recognition process differ among ports. In a general survey of reports concerning the Dock Work Convention, the ILO (1973) recognises the diversity of views concerning the definitions of port labour and dock work<sup>4</sup> and specifies that the definition of the term ‘dockworker’ should be left to national law or practice. However the term ‘dockworker’, in this case should be extended to any worker engaged in handling goods in a port area, whether on shore or on board ships, despite the fact that there can be no universal and absolute definition of dockworker or dock work.

However, a generally accepted definition of the term ‘port labour’ does not exist, either in the academic or non-academic literature. Port labour can be considered as the loading or unloading of ships, or as all forms of cargo handling in a port area. The definition does however have a significant geographical meaning. Depending on the various regulations at a national level, there are a number of spatial delimitations related to port labour. Port labour may be considered in broader terms, within a port area and its vicinity, or may be sharply defined, with reference to a map. The work environment of the dockworker remains the dock and the boat hold, but at the same time, the spatial dimension may vary according to the specific contexts in which the worker is situated. It must be emphasised that the quayside is the meeting place for a variety of contiguous as well as distant working regimes – including seafarers, dockworkers, truck drivers and logistics workers.

In this article, port labour – or dock work, or dock labour – is not considered as a generic job, whose exercise can be entrusted indifferently to any one individual who is at hand, or whose services might be made available through a temporary work agency. On the contrary, port labour or dock work is considered to be a specialised and professionalised job that can only be entrusted to people who have certain training and requirements – not only for safety reasons.

A 2016 study undertaken by Walters and Wadsworth, and commissioned by IOSH (Institution of Occupational Safety and Health) and the labour union ITF (international Transport Workers’ Federation), addresses the issues of health, safety and welfare of dockworkers in the global container port industry. It identifies a number of continuing dangers, causes for concern and weaknesses in the management systems employed by operators.

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4 Article 3 of the International Labour Organization (ILO) convention 137 refers to the registration of dockworkers: ‘Registers shall be established and maintained for all occupational categories of dockworkers, in a manner to be determined by national law or practice’. Furthermore, ‘registered dockworkers shall have priority of engagement for dock work’.

Although specific port labour systems vary among the European countries, one of the common peculiarities of port labour is related to the uncertain dynamics of maritime traffic. Dock work depends on the relentless and unpredictable rhythm of the arrival of the goods. Ports and container terminals are always subject to an exogenous factor, which is the ship. It is further acknowledged among dockworkers that the berth must wait for the ship, and never the other way round, which means that a degree of flexibility is always required in cargo handling operations. Dock labour is therefore distinctively different from many other forms of wage labour, with its anomalous character determined by three factors: the unpredictability of the work, the strong impact of the shipping industry on port business and the legal constraints that shape the status of dock workers. Typically, the demand for dock labour by a port employer is based on the average level of trade and, in moments of peak workloads, the use of temporary work, which represents the element of flexibility part that is required to handle the cargo. There is a sense in which dock work depends ultimately on the goods.

In her study, Alice Mah (2014) looks at the way that 'waterfront work' intersects with questions of urban identity and global legacies of casual labour. Analysing waterfront work through an ethnographic lens, she examines the narratives, memories and experiences of intergenerational working lives in relation to wider urban, regional and global dynamics. Her study focuses on the three port cities of Marseilles, Liverpool and New Orleans. Mah rightly emphasises how dockworkers are symbols of urban identity within port cities. This old form of casual labour is indeed linked with place identity in a way that is similar to the way that traditional industrial workers with certain industrial cities. However, dock labour is also distinctively different from manufacturing work because of its irregularity. Dock labour is a male-dominated, traditional form of waterfront work, related to militancy, casualism and close-knit communities.<sup>5</sup> However, each dock labour force is highly insular, with strong intergenerational traditions of sons following fathers into the docks (Mah, 2014:9).

Dempster (2010) observes that at the beginning of the twentieth century most of the goods handling in European ports was carried out by casual labour which was, over time, replaced by recognised dock labour registers, in order to cope with the casual and seasonal nature of this kind of work. The history of port labour has been characterised by constantly oscillating processes of casualisation and de-casualisation, obtained after a long series of union struggles, also well described in the literature on labour history (Bologna, 2010; Levinson, 2006; Davies et al., 2000, Phillips & Whiteside, 1985; Tonizzi, 2014).

The management and governance of port labour are particularly important with regard to the application of the basic rules of the European Treaty (TFEU), as pointed out by Verhoeven. The organisation of dock labour schemes is mostly subject to Treaty rules on competition at European level (Verhoeven, 2011). How these principles should be applied to port labour systems is one of the key debates in the port sector. Verhoeven focuses on the compatibility between port labour systems and European policies, showing how delicate is the equilibrium between market requirements and regulation in the port sector. His perspective emphasises the variety of dock labour schemes in

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5 Koenzen (2016) also addresses these topics.

Europe, and the failed process of the European Commission's proposed Directive on port services. Strongly contested by trade unions (but also by private port terminal operators and public port authorities) the proposal would have introduced the right for service providers in ports to employ personnel of their own choosing as well as the right for port users to provide port services using their own personnel (self-handling). The Commission's proposal to 'open the market' led to a 'war on Europe's waterfront', as pointed out by Turnbull, and was the only Directive to be rejected twice by the European Parliament (Thomas & Turnbull, 2016).

The debate between the Social Partners at European level refers both to forms of 'protection' against the external pressures to which port labour is subject and to 'restrictions' to the free market. Among the authors who have addressed this, Verhoeven has the merit of identifying and describing the delicate question of labour pool organisation, and the complex balance between total liberalisation and total monopoly of the port services. Nevertheless, there remains a need for scientific studies that assess empirically the social and economic impacts of such processes.

A study commissioned by the European Commission on port labour provides an overview of the sector from a legal perspective (Van Hooydonk, 2013). The starting point of this study is that the market for various port services is not always 'open' to competition. In particular, port labour markets are classified as a source of market barriers and restrictive practices and, as such, constituting a 'headwind' against further marketisation (Turnbull, 2016). The study provides a comprehensive mapping of port labour arrangements in European ports, albeit based on the questionable assumption that the law ends where the port area begins (Van Hooydonk, 2013).

The reaction of the unions to this study was not long in coming. The ETF (European Transport Workers' Federation) responded with the claim that the study was biased, and that European policy making accords supremacy to economic freedoms over fundamental social rights (ETF, 2013).

While the contrasting positions are clearly defined among the Social Partners, it is hard to find objective studies that address the economic and social aspects of these dynamics. Focusing mainly on industrial relations, Turnbull (2016) observes that in the port transport sector, both product and labour market outcomes are the result of social conflict between the main actors. Some of the existing studies on port labour indeed focus mainly on the social dimension and role of unions (Wilson & Ness, 2018, Hodess, 2017). Turnbull (2016) notes the changing bargaining power of dockworkers over time, in a recent study of the marketisation processes and neoliberal restructuring in Europe, exploring the evolution of European port policy. The port transport industry is indeed, he concludes, 'one of the remaining transport sectors in Europe where there are still a significant number of market barriers and restrictive practices' (Thomas & Turnbull, 2016:933). Turnbull observes that by testing the legality of dock labour arrangements against the four freedoms of the single market, the strategy of the Commission has led to a hollowing out of the protective institutions of industrial relations in many European ports (Thomas & Turnbull, 2016). One limitation of this insightful perspective is the missing analysis of the economic sphere.

Perhaps no impact has been as pervasive as that of the technological innovation that has been introduced in the organisation of port labour, as well as the automation



processes, which represents another sensitive issue. The idea that automation modifies skills, rather than replacing them, is not very widespread among scholars in this field. Automation processes have led unavoidably to a contraction in the number of dockworkers. Researchers interested in port innovation usually explain this effect with reference to competitiveness, taking the automation trend for granted, without challenging critically the externalities related to it.

In a recent study, Serra, Fadda and Fancello (2016) evaluate alternative scenarios of labour flexibility for dockworkers in maritime container terminals. The authors compare five new scenarios for increasing the share of daily working flexibility with respect to current work organisation practices in Italian container terminals. The results are unsurprising: they conclude that increased flexibility in container terminals operations can lead to a significant reduction of the operating costs and greater efficiency. The authors overlook the evidence that there is an ongoing increased flexibility regardless of the factors they describe, dictated by the strategies of the shipping companies in the pursuit of economies of scale and the resulting pressures on the container terminals. Another limitation is that the authors consider the specific case of the Italian container terminals, but there is nothing specific to this case. Furthermore, the discussions about the importance of labour flexibility in port areas and the opportunity to implement interventions on flexibility policies cannot disregard the hypotheses that labour flexibility 'at all costs' has not been proven to restore port competitiveness. The bias is mainly in the assumption that port competitiveness leads towards the abolition of the existing labour regulations.

These issues are addressed in another seminal report provided by the Observatory of Transport Research and Training Institute ISFORT (Istituto Superiore di Ricerca e Formazione per i Trasporti): 'Far west Italia' (2012) provides a state of the art overview of logistics in Italy, focusing in particular on the future of ports and port labour. The report collects the work done in the course of the research on port labour in Italy carried out by the National Observatory on Freight Transport and Logistics. The first section describes the variegated scenario of ports and port labour in Italy, within which both the port labour carried out by the employees of the terminal operating companies and that done by the dockworkers of the labour pools is located. The second section presents the results of a survey conducted in five national ports, which represent the diversity and complexity of the Italian landscape. The third section singles out the peculiarities of the Italian context, by means of an overview of port governance models at international level.

This report emphasises that many different situations can be found with respect to the organisational model of port labour, which the legal framework provided by the Italian law 84/1994 had not prevented from developing. Even the title suggests the heterogeneity of the Italian ports in terms of port labour systems, organisations and settings. Each port has found its *modus vivendi*, according to the report, while still formally following the rules provided by the legal framework. In Italy, indeed, there is no single working model of port labour. Each port tends to self-organise according to its own rules, relationships and convenience, and thereby creates a specific model of work organisation, which is mainly the result of a particular synthesis between the macro-indications expressed by the port reform and path-dependent, local specificities.



The common point underlined in the study is the indeterminacy of trade, which is inevitably reflected in the work organisation of the cargo handling companies in ports. This study emphasised that, *de facto*, cargo handling companies in the Italian ports tend to transfer the effects of the flexibility requirements of port labour onto the labour pools, shifting the risk in cases where decreasing volumes are handled.

A sociological study by Della Corte (2002) highlights some peculiarities of port labour by looking at the impact of technology. This author focuses on the transformation of dock labour in the light of the new technologies by means of a comparative analysis of the transshipment ports of Gioia Tauro (Italy), Felixstowe and Southampton (UK). The results highlight, in particular, the relationship between the introduction of information technology and the control exerted over the workforce. The research analyses changes in the labour processes associated with these new developments and demonstrates the ways in which the synergy of the working operations is planned, managed and imposed by the technology. The crucial point of innovation, according to this author, is not so much the fact that technology conveys a certain organisational model of work different from previous phases, but rather the fact that in the new organisational form the tools necessary for production are at the same time used to control the workers (Della Corte, 2002). In practice, production and control tools merge to the point that it becomes difficult for dockworkers to identify the dual nature of IT systems. The risk to be avoided in interpreting such results, recognised by the author, is to fall into technological determinism by assuming that, given the same technology, all workers will necessarily be supervised and penalised in the same manner. Countering this risk, this labour sociologist points to the contrasting realities of the three ports studied, where human resources practices are not neutral. It turns out that in the – old – port of Southampton, the dockworkers were able to negotiate with the management a very different set of working arrangements from those that were developed in the – new – ports of Gioia Tauro and Felixstowe.

Another crucial point emphasised by Della Corte concerns the changing nature of dock work: both the skills eroded by standardisation and the new cognitive skills that are emerging. The new organisation of labour tends to destroy the traditional work gangs based on craft skills, but, at the same time, requires for some operations new cognitive skills that, being different from the traditional ones, create new forms of internal differentiation among workers. While this gives rise to new forms of technologically enabled discipline, at the same time it also gives rise to forms of aggregation and solidarity that boost greater strength in the dock workforce.

Another useful input to research on the European port labour system comes from the report of Notteboom (2010), prepared for the European Sea Ports Organization (ESPO), an independent lobby for seaport interests at European level. Notteboom's framework focuses on the market pressures exerted by the main port actors. Notteboom concludes that the requirements of the market players identified in the study drive a requirement for a maximisation of the performance of dockworkers in terms of productivity and flexibility, an optimisation of the direct costs of port labour, and a minimisation of indirect costs resulting from eventualities such as shortages, strikes and other incidents. The forms of internal organisation that result from this take place within a wider setting of legal and social conditions. The framework, although

meaningful, poses some limitations to a more detailed comprehension of the labour dynamics in European seaports. In order to provide further insights, four main points are identified:

First, the perimeter of the framework is well delimited, but the links between the main items of the internal and external organisations are presented in a deterministic way. In most cases, reciprocity among the items occurs. The market-driven approach does not encompass the full range of factors that shape the real setting of the port business. Second, the framework enables the context to be defined clearly, but the breadth of its aims and coverage produces a lack of depth, providing only a shallow overview with few supporting empirical evidences. Third, the question of the social and institutional conditions, though mentioned, is not sufficiently elaborated, and the difficulties of measurement are not explained satisfactorily. The direct impact of the social and institutional contexts on the overall picture needs more attention; in particular, there is a need for further analysis of the means whereby the external organisation interferes directly and strongly with the internal labour regimes and arrangements. Finally, the framework is based on a market-driven approach, but needs and actors in this field are not only those of the market. In addition, some economic actors in the market are particularly influential. Consolidation processes, vertical integration, increasing vessel size and other factors have produced a new scenario, which sharply influences the relationships among the economic actors. It is therefore only partially appropriate to put all the actors in the chain at the same level, since each market player has divergent interests, influencing the internal – as well as the external – organisation of port labour.

The framework provided by Notteboom, although inspiring in several respects, is not sufficient in itself to explain the changing dynamics of port labour as they are related to the complex structure of the logistics chain. It should be noted that Notteboom does not assess the quality of labour in ports. Moreover he does not consider either the perspective of the workforce or its composition. Cargo handling in ports requires flexibility, but how the workers involved respond to that flexibility, for instance in the negotiating of working hours, perhaps in light of an increase of volumes and the pace of work, is not questioned. However, there is considerable evidence that the operations of cargo handling in ports have led to arduous work. Instruments for increasing productivity such as performance-based bonus systems or other incentives are not allowed in certain ports (such as the port of Antwerp, widely used as an example by the author) for safety reasons, and neither is multi-tasking and multi-skilling. Meanwhile, this is not the case in other European ports, such as Genoa. A discussion of the role of the human factor in the European port system that excludes the viewpoint of some of the actors directly involved is not only misleading, but will inevitably provide a very limited perspective. This report, which is in several respects inspiring, shows that dock labour issues offer plenty of challenges for further research, in particular with respect to the requirements of global supply chains and their impacts on labour dynamics. Nevertheless, there remains a paucity of studies that can tell us what the European port environments are producing in social terms, as opposed to a purely economic perspective.

To sum up, this review of the literature on port labour dynamics allows us to underline two main points. The first of these concerns the complex and conflictual nature of the port industry. The second emphasises the heterogeneity and lack of

uniform definitions in studies of port labour issues. The analysis of the literature shows a fragmented landscape in which the endemic issues have only been addressed partially by scholars. Port labour is confronted with specific challenges not commonly found in many other industries. In addition to the spatial and social definitions of port labour, there remain key questions related to the definition of dock work, the lack of coherence between supranational and national regulations and ongoing automation processes. The peculiarities of port labour systems and schemes are nevertheless path dependent and embedded in the particular history of each port.

## **Conclusions: port labour and the maritime-logistics chain**

The structure of the maritime supply chain modelled by Meersman, Van de Voorde and Vanelander (2009) considers both the variety of labour regimes within the maritime-logistics chain and the overall frame within which port labour, in particular, is embedded. The perspective of this analysis makes it possible to grasp the common trends, taking into account the management of the chain, the relation between global factors and logistics labour, and power relationships across the chain. From this angle, it is possible to sketch not only a general overview of port labour dynamics across the chain but also an outline of the interdependencies, tensions and connections between each leg and the central nodes or 'chokepoints' (Wilson & Ness, 2018). The observation of the entire logistics chain fosters an analysis of the complexity of the supply structure of goods, its multi-scalar nature, its dynamism, and the labour that is incorporated within it and crosses it.

Van de Voorde and Winkelmanns (2002) consider three types of competition in the port business: first, intra-port competition, between operators within a given port with regard to a specific type of traffic; second, inter-port competition, between operators from different ports, within the same range, serving more or less the same hinterland; and third, the inter-port competition at port authority level, which focuses on the utility mission of seaports.

An additional level of port competition is along the logistics chains, clearly illustrated in the structure of the maritime supply chain. According to Meersman, Van de Voorde and Vanelander (2010), unlike in the past, competition takes place all along the logistics chains that connect origins to destinations, involving a multitude of actors, and not only shipping companies or ports. These latter entities represent the central link of the chain. The interest of the maritime economists remains focused on competitive advantage and the coordination of all activities carried out by both public and private actors, in order to ensure the smooth flow of goods from the ship to the hinterland and vice versa. In this view, ports will aim to become a node in the most successful logistics chains in order to increase their market share and improve their economic impact. Current port competition takes place predominantly at this level, as the term 'maritime-logistics chain' suggests. The vitality of ports is therefore affected by the requirements of shipping lines and infrastructures, and is shaped by a variety of market requirements that cross the entire chain.

A maritime-logistics chain and the current configuration of competition among ports are formed by three integrated dimensions: the maritime activities, goods handling in the port area and hinterland transport services. The formation of chains,

however, depends on maritime connections, cargo handling operations and distribution to the hinterland. Essentially, a large seaport requires all these three elements to be competitive, including adequate connections with the hinterland (Meersman, Van de Voorde & Vanelslander, 2010).

Two major forces identified by the maritime economists affect the port sector: changes in port organisational structures as a result of privatisation or deregulation processes, and the efforts of shipping companies to control the whole logistics chain. To understand the new challenges, hence, it is necessary to consider them in their totality (Van De Voorde & Vanelslander, 2014).

Despite the different purposes of the authors, from this perspective it is possible to analyse the complex structure of the maritime supply chain and, with some additional items, to gain a view of the labour requirements for handling goods along the chain. Once this is clear, it is further possible to understand how value is created and distributed in the global supply chain sequence. This view also reveals the social embeddedness, the power relationships between the actors and the pressures that run across the logistics chain.

The large number of parties involved in port activities gives rise to a strong heterogeneity, both within the port and between ports. The major challenge is to organise this complex playing field in such a way that market forces can guarantee an unhindered flow of goods along the logistics chain in the most efficient way. Because ports are links in logistics chains, it does not always make sense to consider the productivity of a terminal or port as an isolated entity. Resolving a pressure point in one link may simply transfer the problem to another. In this manner, productivity improvements in one section of the logistics process can actually increase costs elsewhere. Increasing the capacity of vessels, for instance, will spread the cost of sailing over more containers, but at the same time, it requires a greater processing capacity and thus the deployment of more substantial means at the terminal. Otherwise, the bottleneck will simply be shifted from the maritime route to the port and hinterland section of the transport chain.

The study of the structure of the maritime-logistics chain should be enriched with additional elements, in order to introduce the question of how labour is incorporated within the logistics chain, and in particular how its organisation is changing within a specific leg – the port segment. In accordance with the approach adopted, it is therefore appropriate to include in the analytical framework a number of additional variables mentioned above. These include both exogenous variables (such as global factors and European regulations) and endogenous variables (such as national regulations and dock labour systems). The analysis of port labour issues in Europe, indeed, requires a multi-scalar investigation, in order to identify how dock labour schemes and settings are influenced by global constraints, European policies, national regulations and the organisational structure of the terminal operation at the workplace.

Port labour issues need to be observed across the perspective of the maritime-logistics chain, through a gaze that tries to shed light on the details of each segment, as well as the overall structure of the transport chain that shows the mobility of goods, the actors involved, the asymmetries of power and the tensions along the chain. Two classes

of variables introduced into the framework make it possible to investigate the relationship between global factors, European regulations and labour in the port segment.

From this particular perspective, it is further possible to assess how the fulcrums of power of logistics workers have changed over recent years – moving across the chain, where the main tensions are situated, and why conflicts are increasing in specific legs of the chain. The search for economies of scale combined with the oligopolistic consolidation of the shipping/logistics industry, together with an increasing imbalance in bargaining power between the main market players, appears to be bringing into being an unprecedented scenario, with new challenges for the actors involved. The impacts of these dynamics are affecting the overall landscape both on the seaside and on the landside. This can be illustrated by the way that nowadays, for instance, dockworkers and their unions are negotiating not only with the terminal operating companies but also with their customers and shareholders.

However, it is also important to highlight the increasing fragility and rigidity of the transport chain and the central role played by the logistics workforce in the global supply chain. Although stakeholders continuously strive for solutions to render their supply chains leaner, for instance through automation processes, the structure of the maritime logistics chain reveals that they still have to deal with a variegated, fragmented workforce involved in a common structure of value creation. The workforce across the chain should be considered not just as a dependent variable of production but also as an active social actor. The relationships between workforce and transnational companies along the maritime-logistics chain can be interpreted with reference to the awareness of a structural power in the hands of the former, despite the variety of labour regimes and working conditions both across the chain and within European ports. The challenges for the future of dock labour systems in Europe should also be approached by looking across the overall logistics chain, without losing sight of the complex structures within which labour is embedded. This article has tried to overcome the limits in the conceptual framework of Notteboom previously described by emphasising and applying an ‘intermodal gaze’, which is required for interpreting labour dynamics in the maritime-logistics chain, in particular with respect to the port segment (Bottalico, 2019).

To conclude, this review of the literature about port studies and port labour dynamics has made it possible to identify two main points: first, the complex and non-transparent nature not only of the port industry but also of the overall maritime-logistics chain; and second, the heterogeneity and lack of uniform definitions in the analysis of port labour issues, in particular the lack of a clear and recognised definition of port labour. The topic of port labour is complex both analytically and in relation to policy issues.

The in-depth analysis of the existing literature on port labour has revealed a fragmented scenario, with many endemic issues only partially addressed by scholars, with a few exceptions. Port labour is confronted with specific labour challenges not commonly found in many other industries. Some studies shed light on the current changes and challenges in port labour regimes and demonstrate how the economic effects of seaport activities are no longer limited to the local environment but are spread over a much wider geographical area and among a broader range of market players. The economic benefits of port activities are expanding from the local system towards a

much larger economic system, showing a dissolution of the port space, which is both territorially embedded and at the same time de-territorialised through the process of regionalisation.

The strategic action of the main players along the maritime-logistics chain is modifying the working mechanisms of port labour, altering the matching of labour supply and demand and opening up new decision-making prospects for transnational terminal operating companies in European ports. However dock labour policies to date have not been updated to reflect this, except for deregulation processes, mainly driven from the supranational level. In other words, the organisational models of labour in European ports, more or less in contrast with the European principles of the free market, seem to be being undermined by the processes of globalisation, competition along the entire logistics chain, and Europeanisation of labour policies.

The general trends towards open and autonomous pool systems, use of temporary work agencies and pressure for continuous working and flexible and variable shift lengths, have not received much attention in the scientific literature. However, some issues such as the influences of the global players across the chain and the compatibility between national and supranational regulations are objects of delicate debate and conflicting positions between the actors involved (Thomas & Turnbull, 2016). Despite major differences in union power across seaports and countries, labour unions, typically very visible at the dock labour front, play an important role at supranational level.

Conversely, while a great deal of information has been produced on the port environment, the features of port labour systems and the occupational and social structures of the workforce are more or less unknown. This suggests a need for further scientific studies, capable of empirically exploring the impact of the changing dynamics on labour in ports and in the transport chain in general, of which ports represent the pivotal link.

Albeit with a differing pace of change among European ports, it is clear that port labour in Europe is undergoing a slow process of deregulation in the forms of protection from the impact of external tensions. This tendency faces resistance from a workforce that is capable of paralysing and disrupting the smooth and seamless flow of goods along the maritime-logistics chain with a single strike in one of the leading European logistics hubs.

The literature review has also drawn attention to several other aspects that need to be considered to gain a clear understanding of these processes. Ports are characterised by path-dependent elements, and by particular structures affected by exogenous variables, market and institutional pressures. Given its anomalous and hybrid nature and its varied and implicit negotiating mechanisms, the port business seems to be an arena in which a 'non-capitalist' organisation of labour still persists.

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